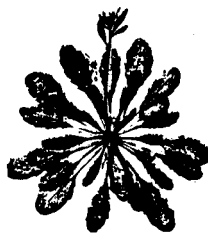


23 Bd



37 Be



4 Co



5 Di



5 Ns

GENETIC RESOURCES IN ARABIDOPSIS



25 Koe



45 Lei



39 Er



63 Bs



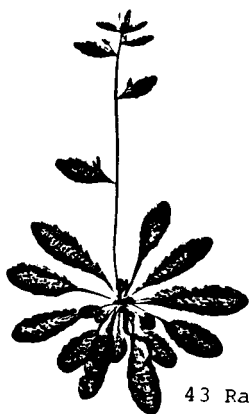
28 Sw



60 Na



44 Haa



43 Ra



35 Bol



41 Ts



29 Zü



81 Ws

**Albert R. KRANZ
and Brigitte KIRCHHEIM**



131 Po



70 Lg

EDITORIAL INFORMATION

The newsletter is intended to cover all aspects of present research with **Arabidopsis** and related species. It provides a forum for the publication and discussion of current research news especially in **genetics**, but also in **ecology, physiology, developmental, molecular and space biology**. The newsletter is also open for all informations on methods, materials and stock-exchange as well as to laboratory research communications dealing with tentative experimental results and research programs underway. It is hoped that by such a policy the newsletter will extend to international communications on **Arabidopsis** research.

At present **one number** is issued annually in **December**. Contributions should be submitted not later than **October 31, each year**. For preparation of the manuscript see inside the back cover. It is understood that the contents of the contributions are the sole responsibility of the authors.

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All business correspondence including manuscripts, orders, change of address, and communications concerning the newsletter should be send to
The Editor:

Prof.Dr.Albert R. KRANZ
Botanisches Institut
J.W. Goethe-Universität
Siesmayerstr.70
Postfach 111 932
D-6000 Frankfurt am Main 11
Tel. (069)7984734
Telex-No.04 13932

GENETIC RESOURCES IN ARABIDOPSIS

COMPUTERIZED LISTING OF



SEED BANK MATERIAL

No. 24

ARABIDOPSIS INFORMATION SERVICE

July 1987

Edited by A.R. KRANZ and B. KIRCHHEIM
Botanical Institute, J.W. Goethe-University
D-6000 Frankfurt

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0. PREFACE

Within the past decades there have been three well-attended international meetings on Arabidopsis Research ¹⁾ devoted mainly to the genetics, physiology and molecular biology. Although the development of this field can be followed through the bibliography of the newsletter "Arabidopsis Information Service" vols.1-23, the literature of stock lists of the crucifer plant, *Arabidopsis thaliana* (L.) Heynh., is still incomplete and is dispersed in a lot of scientific journals. Thus, I have been encouraged by my American and European colleagues, James BONNER, Elliot MEYEROWITZ, Chris SOMERVILLE, Paul WILLIAMS, Michel JACOBS, and Maarten KOORNNEEF to issue a complete stock list of the genetic resources in the "wonder weed" present available through AIS, Frankfurt am Main (FRG). Last not least we also extend our thanks to the following founders of seed collections in Arabidopsis, the late Friedrich LAIBACH, Erna REINHOLZ (Frankfurt/Main), Gerhard RÖBBELEN (Göttingen, the first custodian of the AIS-seed bank, Georgy P. REDEI (Columbia, Mo.), and Maarten KOORNNEEF (Wageningen), the breeder of the well defined marker lines and trisomics. Helpful suggestions for growth, crossing and mutagenesis have been contribute by Suzanne HUGH (MSU-DOE, East Lansing, MI). The present structure of the book is attributable in large parts to Ulrich BORK preparing the computer files, Monika PICKERT contributing the new key to the species, and Kai GARTENBACH reading the manuscript.

1) 1st International Symposium on "Arabidopsis Research" University of Göttingen, April 21-24, 1965 (Organized by G. RÖBBELEN)

2nd International Symposium on "Arabidopsis Research", J.W.Goethe-University, Frankfurt am Main, Sept.12-14, 1976 (Organized by A.R. KRANZ)

3rd International Meeting on Arabidopsis, Michigan State University, East Lansing, MI, April 10-12, 1987 (Organized by C.R. SOMERVILLE)

It is a safe assumption that documentations and lists of this kind are imperfect - certainly I am aware of the limitations and shortcomings in the issue presented. The reader, please, may inform me of any that he uncovers; they will certainly addressed should future edition materialize. To be on the safe side this book was issued in the form of loose sheets to keep it at slight cost.

It is the aim of this first edition of the *Arabidopsis* stock list to improve the information on the increasing amount of material conserved in the seed bank of the *Arabidopsis* Information Service (AIS), Frankfurt am Main. Accordingly, the purpose of the earlier presentations of stock lists (RÖBBELEN 1965, BÜRGER 1971, KRANZ 1978, MEYEROWITZ and PRUITT 1984, KIRCHHEIM and KRANZ 1985) sustain as follows:

- a) to inform everybody interested in this subject on its enormous variability
- b) to enable researchers to select material suited for their experiments
- c) to eliminate misdesignations by uniform and handsome classification of seed samples, and
- d) to stimulate the conservation of wild races and species of those regions of the northern hemisphere not be considered as well as to increase the world wide activity for screening unusual new mutant types.

In this way, I hope that the interest in the experimental utility of *Arabidopsis* is promoted and the genetic stock exchange of this excellent model and tool will be extended.

June 1987

Albert R. Kranz

1. INTRODUCTION

In recent years the AIS-seed bank of *Arabidopsis thaliana* has been increasingly used for studies in ecology, physiology, developmental and molecular genetics as well as radiation biology, because this eukaryotic plant has the shortest life cycle, secure self-pollination, abundant seed production, and is easy to cultivate under normal glass-house as well as aseptic laboratory conditions. Additional advantages given below, presently, make this nicknamed "botanical *Drosophila*" an effective tool for studying up-to-date research problems of modern genetics and gene technology (IVANOV, 1974; REDEI, 1975; KRANZ, 1984; MEYEROWITZ and PRUITT, 1985):

- a) extremely small nuclear and chromosome volume with low DNA content per cell (30 resp. $2 \mu\text{m}^3$, 0.2 pg resp. $2 \times 10^8 \text{bp}$)
- b) low number and size of repetitive DNA sequences per genome ($18 \times 10^3 \text{kbp}$, average size of single copy sequences 120 kbp)
- c) low chromosome number ($2n=10$), and number of linkage groups (5) with stable auto-tetraploids and primary trisomics
- d) low number of genetically effective cells in the somatic embryo (2 per dry seed)
- e) low sensitivity of resting somatic cells for mutagens (500 mM for EMS and 10^{-4}M for nucleic acid analogues)
- f) stable marker lines representative for each linkage group and main chromosome position
- g) extreme variability of wild ecotypes and induced mutant lines conserved in seed banks

Such accumulated advantages can rarely be found in other species and make *Arabidopsis thaliana* (L.) Heynh. the most successful eukaryotic plant testsystem of molecular and space biology. For that reasons, during the last decade an increasing amount of requests and orders for seed material was sent to the secretary of AIS-seed bank, Frankfurt am Main (FRG), and it is expected that the interest in this plant material will increase significantly in the near future.

2. DIRECTION OF USE

Since the first and continuing lists of AIS-seed bank have been published (RÖBBELEN, 1965; BÜRGER, 1971; KRANZ, 1978; KIRCHHEIM and KRANZ, 1981), in the meantime additional wild type population samples, mutant lines and marker lines were enclosed as well as the computerized listing was improved. In order to facilitate the handling of lists and the control of information, all the data available at present were stored in computer files by usage of the EDISS software program running on PC Victor-SIRIUS I and the IBM compatible VI. The software, however, is no longer available from the software house. Now a transfer to an improved version (WORDPERFECT) is offered by COS, Computer Technologie GmbH, Hohenzollernstr.28, D-6600 Saarbrücken 1 (FRG). Everybody who is interested in receiving a copy of the data file on mini discs (5 1/4 inch, 360kB) should contact the authors.

Beginners in *Arabidopsis* research should follow the suggestions below in order to make their request to AIS-secretary most effective:

- a) survey the material of AIS-seed bank by reading the content listing esp. the descriptor codes and the glossary of this booklet,
- b) use the request resp. order form of AIS-seed bank and fill in the blanks designations etc. of the material requested.
- c) inform resp. make use of the suggestions for successful culture (see 6.)

On delivery of the seeds complete actual data listing of the material requested is enclosed, simultaneously. For saving of expense, the single amount of material to be mailed at prime costs is restricted to 100 seeds per sample line.

REQUEST/ORDER FORM FOR SEED SAMPLES

2.

designatlon surname pop./mut.code AIS- phenotype source Intended experimental
name (char.codt) (location,collect.,origin) purpose in brief

2

for exampl:

population wildtype Aa-0 30 342222153 Aaa/Rhön(FRG), Röbbelen(R)

formmutant (asm) F1 285 semine-colore- Antwerpen (An), Röbbelen(R)

mut, foliomut (1.1.2.,3.3.)

.....
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.....

Gross price per sample Name.....
(100 seeds/sample approx.) Address.....
DM 7,00 (for domestic receivers) Date.....Signature.....
US \$ 3.50 (for foreign receivers)

ONLY ADVANCED PAYMENT CAN BE ACCEPTED

3. DATA LISTING

In order to facilitate the orientation of the variable samples the following data listing was computed on different levels of classification for the population material on the one hand and for the mutant lines on the other hand. The denotations and explanations were mostly given in agreement with those handed over to us by G. RÖBBELEN. They can be extended for each level of classification.

Leaf colour mutants were designated additionally by using the terminology of H. LAMPRECHT and following the proposals of A.J. MÜLLER (1964) and of G. RÖBBELEN (1965). For the morphological form mutant lines latin names were given in agreement with the main groups of the classification system of E.R. REINHOLZ (1947) and of D. BÜRGER (1971). Symbols and names of genes are those offered by M. KOORNNEEF (1978) and were used only for those lines which were tested in genetic experiments.

The structure of the data files was defined that it adapts at least for the following: name, phenotype/genotype, origin, and source; additionally, the format fits for control of the sample amount, character description, references, and receivers. The data processing allows to compile the information by use of codes in short time at low costs for the AIS secretary as well as for the users interested in definite material.

3.1.

DESCRIPTOR CODES

In order to reduce the amount of data, particular files and codes were needed and classified in certain fields. One level of file is due to the genetic type of the material as listed in the following chapters 3.2. to 3.4. for wild types, mutant lines and additional species of Arabidopsis. Other levels of files refer to the description and designation of the material by name, surname, population/mutant code, gene symbol (if applicable), AIS-accession-no., phenotype, character code, mutagen resp. origin, source, reference and receiver code.

The descriptor codes used in some of the fields were defined as follows:

3.1.1. Names and Surnames

Descriptions more detailed were presented by REINHOLZ (1947) and KRANZ (1978)

<u>Surname</u>	<u>Code</u>	<u>Phenotype</u>
seminemut	(sem)	changes of seed from resp.colour
florimut	(flor)	changes of inflorescence
flosculimut	(flos)	changes of flowers
rosetomut	(ros)	changes or rosette habit
foliomut	(fol)	changes of leaf shape
procera	(proc)	changes of plant habit in Latin
rosula	(rosul)	(see front page of this issue)
dentata	(dent)	"
cordifolia	(cord)	"
tortifolia	(tort)	"
sessilis	(ses)	"
latissima	(latis)	"
undulata	(und)	"
glabra	(glab)	"
lata	(lat)	"

Surname	Code	Phenotype
latifolia	(latif)	changes of leaf habit in Latin
serrata	(ser)	"
grandiserrata	(grandis)	"
tarda	(tard)	"
apetala	(ap)	"
lineata	(lin)	"
fasciata	(fasc)	"
albina	(alb)	pure white, \pm lethal
xantha	(xa)	pale yellow, \pm lethal
lutea	(lut)	straw yellow, \pm sublethal
chlorina	(ch)	pale dull green-yellow
chloretica	(chi)	light dull green-yellow, more chlorophyll or less carotenoids than (ch)
flavoviridis	(flavi)	yellow green, more green and vital than (chi)
viridalba	(vial)	greenish-white, \pm sublethal
claroviridis	(clavi)	bright green, usually vital
viridissimus	(vrid)	dark green, fully vital
argentea	(arge)	silver gray, semivital
griseovirens	(grivi)	grayish green
glauca	(glau)	dark bluish green, semivital
coeruleovireus	(cor)	violet gray-green
maculata	(mac)	colours distributed in spots
albinomaculata	(albm)	green white with distinct border lines
striata	(stri)	longitudinal green yellow stripes
marginata	(marg)	leaf margin deviating in form or colour
costata	(cost)	leaf nerves deviating in colour
chlorofact	(aut,cht,vit)	sudden change of colour at a certain stage of development
chloromut	(albs,luts,aus,chs, chis,vis)	changing colour during development of plant

3.1. 3

3.1.2. Population Code

From the beginning the populations (syn. races/ecotypes) were named after the place of their natural origin. For codification the earlier symbolization by two to three letters has sometimes been modified. Every sample, however, should be denoted with the first, second or third and last letter of the location where the sample has been collected; this conditioning more combinations. The original sample got the suffix -0, while offsprings wherever produced were signed with consecutive numbers.

Mutant Code

Usually, mutant screening starts with the selection of a non-segregating offspring characterized by its abnormal phenotype in M_3 . First denotation, therefore, was given by capitals of F for form mutants, of V for mutant lines in leaf colour, of E for metabolism mutants, of T for trisomic lines, and of M for marker lines; the affix following these capitals was given for every new line in consecutive numbers behind a dash. In the meantime additional genotypes were selected by M. KOORNNEEF et al.; these marker lines, trisomics and monogenic lines available from the Department of Genetics, Agricultural University, Wageningen are listed by M. KOORNNEEF with accession numbers of W.

3.1.3. Gene Symbol

Gene symbolization are valid only for particularly characterized and mapped loci. Thus mutant genes described without recombination tests of existing marker lines were no more listed, i.e., only the well-defined gene loci of the marker lines of M. KOORNNEEF et al. (1983, 1987) were considered and their linkage data listed in the field of the character code. For standardization of gene symbols proposal of the International

Committee of Gene Symbols and Nomenclature (Un.Int.Sci.Biol. Ser.B 30, 16, 1957) has been considered and recently been improved by the ad hoc committee of the 3rd International Meeting on Arabidopsis, East Lansing, MI, Apr. 1987, suggesting the following principles:

1. Underline genotypes
2. The genotype designation of wild type is capitalized (i.e. ALS, MEY1, LEU1)
3. The genotype of mutant alleles is in lower case (i.e., mev1, leu1 etc.)
4. Alleles are designated by a dash followed by a number (i.e. mev1-2, mev1-3). If no allele is specified it is assumed to be allele #1 (i.e., mev1 is equivalent to mev-1)
5. Genes with mutant alleles of similar phenotype can (but need not) be given the same 3 letter designation followed by a different number (i.e., leu1, leu2, leu3..)
6. All gene symbols should be three letters.
7. Phenotypes are designated by the gene symbol which is not underlined but has the first letter capitalized (i.e., Met or Met). The + or - designation can be either a superscript or given on the same line as a the gene symbol.
8. Uniparently inherited mutations are enclosed in parentheses (i.e., {psbA}).

Detailed description of gene symbols and their phenotypic characters were listed by M. KOORNNEEF (1982) as follows:

gene symbol	designation name	phenotypic character
aba	abscisic acid deficient	symptoms of ABA deficiency and little or no endogenous ABA
ag	agamous	double flowering
alb-1	albina	white embryos rsp.white seedlings,lethal

gene symbol	designation name	phenotypic character
alb-2	albina	light green-yellow, viable, allelic to alb-1
an	angustifolia	narrow leaves and slightly crinkled siliquae
ap-1	apetala	no or rudimentary petals
ap-2	apetala	reduced petals, asymmetric leaves
bp	brevipedicellus	very short pedicels, siliquae bend downwards
cer-1	eceriferum	bright green siliquae and stem due to a deviating wax layer, semi-sterile
-3		
-6		
cer-2	eceriferum	like cer-1, but with normal fertility
-4		
-5		
-7		
cer-8	eceriferum	like cer-1, but slightly less bright green
ch-1	chlorina	green yellow
ch-5	chlorina	green yellow
ch-6	chlorina	paler green embryos and green yellow plants
ch-42	chlorina	paler green embryos and pale green yellow seedling, lethal
chl-1	chlorate resistance	chlorate resistance due to a reduced uptake of chlorate
chl-2	chlorate resistance	chlorate resistance due to a decreased nitrate reductase activity
-3		
clv-1	clavata	clublike pods
clv-2	clavata	like clv-1, but less pronounced

gene symbol	designation name	phenotypic character
cnx	cofactor of NR and XDH	involved in the molybdenum-containing cofactor of nitrate reductase and xanthine dehydrogenase
cp-1	compacta	compact semi-dwarf
-2		
cp-3	compacta	compact semi-dwarf with round dark green leaves
dis-1	distorted trichomes	trichomes (hairs) on stem and leaves are short, bent and more or less clublike
-2		
dw-1	dwarf	very short dwarf, heterozygote intermediate
er	erecta	compact inflorescence, more blunt fruits
f _b	late flowering	flowers later than wild type and has proportionally more
ca		
e		
t		rosette leaves
y		
fg	late flowering	like f _b with heterozygote intermediate
ga-1	gibberellin requiring	gibberellin responsive dwarfs (many alleles also require GA for germination)
-2		
-3		
-4		
-5		
Gf	female gametophyt	no female transmission, relatively fair male transmission
gl-1	glabra	trichomes absent on leaf surface and stems
gl-2	glabra	trichomes rudimentary on first two leaves and reduced in number on higher leaves

3.1. 7

gene symbol	designation name	phenotypic character
gl-3	glabra	trichomes unbranched and reduced in number
hy-1	long hypocotyl	elongated hypocotyl, yellow green, altered light inhibition spectrum
hy-2	long hypocotyl	like hy-1 but normal green
-3		
hy-4	long hypocotyl	only slightly elongated hypocotyl also with altered light inhibition spectrum
-5		
im	immutans	white, green variegation
le	lepida	dwarf with round leaves and small pods
lu	lutescens	yellow green
min	miniature	small plant with greyish green leaves
ms-1	male sterile	male sterile because pollen delays and anthers fail to open
pi	pistillata	anthers and petals absent
py	pyrimidine requiring	leaves except cotyledons white, lethal. 2,5-dimethyl-4-aminopyrimidine and thiamine restores to normal
rgn	regulating nitrate reductase	decreased nitrate-reductase activity, chlorate-resistant
sul	sulfurata	bright yellow green
Su/su	suppressor rgn	suppresses the effect of rgn
th-1	thiamine requiring	leaves except cotyledons white-yellow, lethal, thiamine restores to normal
th-2	thiamine requiring	variegated, thiamine restores to normal

gene symbol	designation name	phenotypic character
th-3	thiamine requiring	slightly pale green/green variegated, thiamine restores to normal
tt-1	transparent testa	yellow seeds, due to a transparent testa
-2		
tt-3	transparent testa	like tt-1 and with anthocyanineless leaves and stems
-4		
tt-5	transparent testa	like tt-3 and brighter green
tt-6	transparent testa	brownish yellow seeds and reduced anthocyanine content in leaves
ttg	transparent testa, glabra	like tt-3, hairless and deviating seed coat structure
tz	thiazole requiring	leaves, except cotyledons, white 4-methyl-5-thiazole ethanol and thiamine restores to norm.
yi	yellow inflorescence	yellowish flower buds and yellow greyish sharper leaves

3.1.4. AIS-Accession Number

Harvested seed samples are signed by consecutive numbers thus requesting descendants of the original population resp. line. Number in parentheses shows the amount of seeds available at present.

3.1.5. Phenotype and Character Code

This codification describes significant characters of plant morphology of population samples by numbers as follows:

1. Leaf posture
 - 1 = flat
 - 2 = incompletely flat
 - 3 = half upright
 - 4 = upright
 - 5 = strongly upright
2. Rosette size
 - 1 = very large
 - 2 = large
 - 3 = medium
 - 4 = small
3. Rosette compactness
 - 1 = very loose
 - 2 = loose
 - 3 = normal
 - 4 = compact
 - 5 = highly compact
4. Leaf width : length
(broadest diameter)
 - 1 = distal to the median
 - 2 = the median
 - 3 = proximal to the median
5. Leaf hairiness
 - 1 = glabrous
 - 2 = weakly hairy
 - 3 = hairy
 - 4 = strongly hairy
6. Leaf colour
 - 1 = light green
 - 2 = green
 - 3 = dark green
7. Leaf margin
 - 1 = smooth
 - 2 = sinuate
 - 3 = weakly serrate
 - 4 = serrate
 - 5 = strongly serrate
 - 6 = dentate
 - 7 = sparsely dentate
8. Days on the first flower
open
in numbers

Significant characters of plant morphology of induced mutant lines are described by their own codification in numbers as follows:

1. Morphology

1. leaf
 - 1.1. cotyledons
 - 1.2. rosette leaves
 - 1.3. stem leaves
 - 1.4. petals
2. stem
3. inflorescence
4. seed

3. Colouring

1. carotenoids
2. anthocyanids
3. seed colours
4. flower colours
5. chlorophyll

5. Inheritance

1. recombination
2. complementation
3. linkage

2. Development

1. germination
2. rosette formation
3. stem elongation
4. flowering
5. fruit development
6. seed ripening

4. Cytogenetics

1. trisomics
2. polyploids
3. haploids

6. Nutrient supply

- (auxotrophy)
1. amino acids
 2. sugars
 3. nitrate
 4. phytohormones

Character fields are separated by commata and listed in series of numbers. The last double number refers to numbers of days until flowering starts under long day conditions.

3.1.6. Origin and Source

Available population data on the location (country), habitat, its degrees of longitude/latitude, altitude (height in m above NN), mean temperature(⁰C) and precipitation (mm), as well as the collector's name and location are presented.

Source of mutant lines is described by collector's name, location and country; additional data on the original wild type and data of receipt are listed.

3.1. 11

3.1.7. Reference Code

Data of reference are restricted mainly to contributions and communications published in the newsletter "Arabidopsis Information Service" and therefore listed for corresponding AIS-volume nos. where the population, mutant line or genotype are mentioned.

3.1.8. Receiver Code

In order to facilitate the contact and correspondence between experimenters of the material in question, addresses with code numbers are listed as follows:

3.1.9. Receiver Address

Receiver-Code : 1 Gene Mapping, Manipulation, Recombination
 Name : Dr. Barbara Hohn
 Institution : Friedrich-Miescher-Institut
 Street :
 P.O.B. : POB 273
 City : CH-4002 Basel
 Country : Swiss

Receiver-Code : 2 Seed Banks, Tissue Culture, Mutants, Population
 Name : Prof. Dr. Nobuharu Goto
 Institution : Miyagi College of Education, Department of Biology
 Street : Aobo-Yama
 P.O.B. :
 City : Sendai, 980
 Country : Japan

Receiver-Code : 3 Seed Banks, Mutants, Populations
 Name : Dr. P. DasGupta
 Institution : Burdwan University, Department of Botany
 Street :
 P.O.B. :
 City : Burdwan 713104, W. Bengal
 Country : India

Receiver-Code : 4 Mutants, Populations
 Name : Lu Hsiu Ying
 Institution : Academia Sinica, Institute of Botany
 Street : Nankang
 P.O.B. :
 City : Taipei, 115
 Country : Taiwan, Republic of China

Receiver-Code : 5 Mutants, Populations
 Name : Dr. Jose B. Goldenberg
 Institution : Instituto Multidisciplinario de Biologia Celular
 Street :
 P.O.B. : C.C. 403
 City : (1900) La Plata
 Country : Argentina

Receiver-Code : 6 Gene Mapping, Mutants
 Name : I.L. Gordon, Lecturer
 Institution : Plant Breeding Massey University
 Street :
 P.O.B. :
 City : Palmerston North
 Country : New Zealand

Receiver-Code : 8 Mutants, Populations
 Name : Dr. A.J. Gibbs
 Institution : Res. School of Biol. Sci., The Australian University
 Street :
 P.O.B. : POB 475
 City : Canberra City, A.C.T. 2601
 Country : Australia

Receiver-Code : 9 Mutants
 Name : Dr. G.J. Mitchison
 Institution : MRC Lab. of Mol. Biol., Univ. Postgrad. Medical School
 Street : Hills Road
 P.O.B. :
 City : Cambridge, CB2 2QH
 Country : U.K.

Receiver-Code : 10 Seed Banks, Gene Mapping, Mutants, Data Banks, Publ.
Name : Dr. M. Koornneef
Institution : Department of Genetics, Agricultural University
Street : 53 Generaal Foulkesweg
P.O.B. :
City : 6703 BM Wageningen
Country : NL

Receiver-Code : 11 Tissue Culture, Mutants, Population
Name : Prof. Dr. A. Krikorian
Institution : Dept. of Biochemistry, State University of New York
Street : at Stony Brook
P.O.B. :
City : Stony Brook, N.Y. 11794
Country : USA

Receiver-Code : 12 Cell Banks, Protoplast/Tissue Culture, Mutants, Pop
Name : Hugh Carr-Smith
Institution : Dep. of Plant Physiol. and Ecol., University
Street :
P.O.B. :
City : St. Andrews, Fife, Scotland KY16 9AL
Country : U.K.

Receiver-Code : 13 Seed Banks, Mutants, Population, Publications
Name : Prof. Dr. K. Napp-Zinn
Institution : Botanisches Institut der Universität
Street : Gyrhofstr. 15
P.O.B. :
City : D-5000 Köln-Lindenthal
Country : FRG

Receiver-Code : 14 Seed Banks, Gene Mapping, Mutants, Populations
Name : Dr. A. Lazanyi
Institution :
Street : Str. Jozsa Bela 12
P.O.B. :
City : R-3400 Cluj-Napoca
Country : R.S. Romania

Receiver-Code : 15 Mutants, Population Studies
Name : Prof. J.A. Silander
Institution : Coll. of Lib. Arts & Sci., Biol. Sci. Group, Univ. of Conn.
Street :
P.O.B. :
City : Storrs, Connecticut 06268
Country : USA

Receiver-Code : 16 Gene Banks, DNA-Manipulation, Mapping, Mutants, Datas
Name : Prof. Dr. Elliot M. Meyerowitz
Institution : CALTECH, Division of Biology
Street :
P.O.B. :
City : Pasadena, CA 91125
Country : USA

Receiver-Code : 17 Seed Banks, Mutants, Screening
Name : Dr. David Meinke
Institution : Oklahoma State University
Street :
P.O.B. :
City : Stillwater, Oklahoma 74078
Country : USA

Receiver-Code : 18 Gene Mapping,Population,Publications
 Name : Dr. Irena Klasterka
 Institution : Stockholms Univ., Wallenberg Laboratory
 Street : Lilla Frescati
 P.O.B. :
 City : S-104 05 Stockholm
 Country : Sweden

Receiver-Code : 19 Mutants,Populations
 Name : Dr.Charles J. Goodnight
 Institution : Barnes Laboratory, Univ.of Chicago
 Street : 5630 S. Ingleside
 P.O.B. :
 City : Chicago, Illinois 60637
 Country : USA

Receiver-Code : 20 Mutants,Screening
 Name : Dr.Gareth M. Evans
 Institution : Dept.of Agricult.Bot.,Inst.of Rural Science
 Street :
 P.O.B. :
 City : Penglais, Aberystwyth SY23 3DD
 Country : U.K.

Receiver-Code : 21 Gene Banks,Gene Mapping,Mutants,Populations
 Name : Dr.Stephenson
 Institution : Brunel University,Dept.of Appl.Biol.,Inst. of Bioeng.
 Street :
 P.O.B. :
 City : Uxbridge,Middlesex UB8 3PH
 Country : U.K.

Receiver-Code : 22 Mutants,Screening,Populations
 Name : Dr.L.S.Briarty
 Institution : Dept.of Botany, Univ.of Nottingham
 Street : University Park
 P.O.B. :
 City : Nottingham NG7 2RD
 Country : U.K.

Receiver-Code : 23 Mutants,Populations
 Name : Tsuzuri Tajima
 Institution :
 Street : No.1322 Motokurokawa,Asomati
 P.O.B. :
 City : Kumamotokan 869-22
 Country : Japan

Receiver-Code : 24 Mutants,Population
 Name : Alois Ruess
 Institution : Nagelsberger Weg 11
 Street :
 P.O.B. :
 City : 7116 Künzelsau
 Country : FRG

Receiver-Code : 25 Mutants,Populations
 Name : Dr.H. Bürstell
 Institution : HOECHST AG,Pflanzenschutz
 Street : H842,Pflanzenschutz
 P.O.B. :
 City : D-6230 Frankfurt/Main 80
 Country : FRG

Receiver-Code : 26 Tissue Culture,Mutants,Populations
Name : Prof.Dr.Walter E. Schmid
Institution : SIU at Carbondale, Dept.of Botany
Street :
P.O.B. :
City : Carbondale, Illinois 62901
Country : USA

Receiver-Code : 27 Cell/Tissue Banks,Protoplast Culture,Mutant Scree.
Name : Prof.Dr.S.Venketeswaran
Institution : Dept.of Biology, Univ.of Houston
Street :
P.O.B. :
City : Houston, Texas 77004
Country : USA

Receiver-Code : 28 Gene Mapping,Mutants,Populations
Name : Prof.Dr.A.A.Zhuchenko
Institution : Dept.of Plant Genetics, Acad.Sci.MoSSR
Street : Grossul Str. 1
P.O.B. :
City : 277028 Kishinev - 28
Country : USSR

Receiver-Code : 29 Cell/Tissue Banks,Protoplast Culture,Mutant Scree.
Name : Prof.Dr.R. Hagemann
Institution : Biowissenschaften, Genetik, Univ.Halle-Wittenberg
Street : Domplatz 1
P.O.B. :
City : DDR-401 Halle
Country : GDR

Receiver-Code : 30 Protoplast Culture,Mutant Screening
Name : Prof. Dr.W. Rüdiger
Institution : Botanisches Institut der Universität München
Street : Menzingerstr.67
P.O.B. :
City : D-8000 München 19
Country : FRG

Receiver-Code : 31 Protoplasts,Mutants
Name : Dr.W.T. Griffiths
Institution : Univ.of Bristol, Medical School
Street : University Walk
P.O.B. :
City : Bristol, BS8 1TD
Country : U.K.

Receiver-Code : 32 Gene Mapping,Mutants,Populations
Name : V.G. Mitrofanov, c/o V.V.Shevchenko
Institution : N.K.Koltzov-Inst.of Developmental Biol.,Acad.Sci.
Street : Vavilov Str. 26
P.O.B. :
City : Moscow 117 334
Country : USSR

Receiver-Code : 33 Protoplast/Tissue Culture,Populations
Name : Angela Delves,c/o P.Gresshoff
Institution : Dept.of Botany, Austr.Univ.
Street :
P.O.B. : GPO Box 4
City : Canberra, ACT 2601
Country : Australia

Receiver-Code : 35 DNA/Gene Manipulation, Gene Mapping, Mutants
 Name : Prof. Yoshibumi Komeda
 Institution : Univ. of Tokyo, Molecular Gen., Research Lab.
 Street :
 P.O.B. :
 City : Hongo, Tokyo 113
 Country : Japan

Receiver-Code : 36 Protoplast/Tissue Culture, Mutants, Screening
 Name : Dr. E. Benzinger
 Institution : Dept. of Hort., Coll. of Agric., Univ. of Illinois
 Street : 1103 Dorner Drive
 P.O.B. :
 City : Urbana, Illinois 61801
 Country : USA

Receiver-Code : 37 Seed Banks, Population Studies
 Name : Prof. F.R. Whatley, J.K. Burras
 Institution : University Botanic Garden
 Street : Rose Lane
 P.O.B. :
 City : Oxford, OX1 4AX
 Country : U.K.

Receiver-Code : 38 Seed Banks, Population Studies
 Name : Elizabeth E. Lyons
 Institution : Dept. of Botany, Duke University
 Street :
 P.O.B. :
 City : Durham, NC 27706
 Country : USA

Receiver-Code : 39 Gene Mapping, Mutants, Population
 Name : Prof. Dr. E.L. Camadro
 Institution : FCAB-UNMP
 Street :
 P.O.B. : C.C. 276
 City : 7620 Balcarce
 Country : Argentina

Receiver-Code : 40 Mutants, Populations
 Name : Prof. Dr. W. Drescher
 Institution : Inst. Landw. Zool., Univ. Bonn
 Street : Melbweg 42
 P.O.B. :
 City : D-5300 Bonn
 Country : FRG

Receiver-Code : 41 Gene Banks, Tissue Culture, Mutant Screening, Popula.
 Name : Dr. E.P. Maher
 Institution : The Open Univ. of Scotland
 Street : 60 Melville Street
 P.O.B. :
 City : Edinburgh, EH3 7HF
 Country : U.K. (Scotland)

Receiver-Code : 42 Gene Banks, Tissue Culture, Mutant Screening, Popula.
 Name : Prof. Dr. M. Jacobs
 Institution : Lab. of Plant Genet., Univ. of Brussels
 Street : 65 Paardenstraat
 P.O.B. :
 City : B-1640 Sint-Genesius Rode
 Country : Belgium

Receiver-Code : 43 Population Studies,Biochemical
Name : Prof.Dr.J.P. Simon
Institution : Univ.de Montreal, Dept.de Sciences Biologique
Street :
P.O.B. : C.P. 6128
City : Montreal 101, P.Que. H3C 3T4
Country : Canada

Receiver-Code : 44 Cell/Tissue Banks,Protoplast/Tissue Culture
Name : James Harber,c/o Dr. Welsh
Institution : Biology Dept.,Humboldt State University
Street :
P.O.B. :
City : Arcata, CA 95521
Country : USA

Receiver-Code : 45 Cell/Tissue Banks,Protoplast/Tissue Culture
Name : Dr.Sipra Guha-Mukherjee
Institution : School of Life Sci.,Jawaharlal Nehru University
Street : New Mehrauli Road
P.O.B. :
City : New Delhi-110057
Country : India

Receiver-Code : 46 Mutant Screening,Populations
Name : Prof. Dr. A. Sievers
Institution : Bot. Institut der Universität Bonn
Street : Venusbergweg 22
P.O.B. :
City : 5300 Bonn
Country : FRG

Receiver-Code : 47 Gene Banks,DNA-Manipulation,Protoplast,Populations
Name : Dr. G. Lebeurier
Institution : Institut de Biologie Moleculaire et Cellulaire
Street : 15, Rue Descartes
P.O.B. :
City : 67084 Strasbourg
Country : France

Receiver-Code : 48 Population Studies
Name : P.J. Ernst
Institution : Northrop Serv.Inc.,Corvallis Environmental Research Lab
Street :
P.O.B. :
City : Corvallis, Oregon 97330
Country : USA

Receiver-Code : 49 Gene Mapping,Protoplast/Tissue Culture
Name : Dr. Yrgö Viinikka
Institution : Dept. of Biology, University of Turku
Street :
P.O.B. :
City : SF-20500 Turku 50
Country : Finland

Receiver-Code : 50 DNA/Gene Manipulation
Name : Dr. Robert V. Masterson
Institution : Genet.Dept., Iowa State Univ., 8 Curtis Hall
Street : z.Zt.MPI Köln
P.O.B. :
City : Ames, Iowa 50011
Country : USA

Receiver-Code : 51 Mutant Screening
 Name : Prof.Dr.K. Apel
 Institution : Botan.Inst.u.Bot.Garten,Univ.Kiel, Biologiezentrum
 Street : Olshausenstr.40
 P.O.B. :
 City : D-2300 Kiel 1
 Country : FRG

Receiver-Code : 52 DNA/Gene Manipulation, Gene Mapping, Population
 Name : Prof.Dr. M.L. Salin
 Institution : Dept. of Biochemistry, Mississippi State University
 Street : P.O. Drawer BB
 P.O.B. :
 City : Mississippi State, Mississippi 39762
 Country : USA

Receiver-Code : 53 DNA/Gene Manipulation, Protoplast, Tissues Culture
 Name : Prof. Dr. G. Link
 Institution : Ruhr-Universität-Bochum, Lehrstuhl F.Pflanzenphysiologie
 Street :
 P.O.B. : 102148
 City : 4630 Bochum - Querenburg
 Country : FRG

Receiver-Code : 54 Mutants
 Name : Julia Dewdney
 Institution : Dept.Mol.Biol., Mass.General Hospital, Wellmann 11
 Street : Fruit St.
 P.O.B. :
 City : Boston, Massachusetts 02114
 Country : USA

Receiver-Code : 55 Population Studies
 Name : Dr. V.S. Rathore
 Institution : G.B. Pant University of Agriculture & Technology
 Street : Incharge R.I.T.L.
 P.O.B. :
 City : Pantnagar (Nainital)
 Country : India

Receiver-Code : 56 Gene Mapping, Protoplast/Tissue Culture
 Name : Dr. Alan Lloyd
 Institution : Biological Services, Monsanto Company
 Street : 700 Chesterfield Village Parkway
 P.O.B. : M.Z.BB3B
 City : St. Louis, Missouri 63198
 Country : USA

Receiver-Code : 57 Seed Banks, Populations
 Name : Prof.Dr.K.R. Khanna
 Institution : National Botanic Gardens
 Street : Rana Pratap Marg
 P.O.B. :
 City : Lucknow
 Country : India

Receiver-Code : 58 Population Studies,AIS-Subscriber
Name : John L. Dutcher
Institution : Professional Engineer
Street : 1909 Via Appia
P.O.B. :
City : Walnut Creek, Ca. 94598
Country : USA

Receiver-Code : 59 Population Studies
Name : Dr.Caren Chang
Institution : California Inst. of Technology,Division of Biology
Street : 156-29
P.O.B. :
City : Pasadena, CA 91125
Country : USA

Receiver-Code : 60 Population Studies
Name : Dr.Y. Gutterman
Institution : Ben-Gurion University of the Negev
Street : J.Blaustein Inst.for Desert Research
P.O.B. :
City : IL-84990 Sede Boquer
Country : Israel

Receiver-Code : 61 Mutants,Populations
Name : Jordi LLuis Sanfeliu LLOP
Institution : Universidad Autonoma,Laboratorio de Fisilogia Vegetal
Street :
P.O.B. :
City : Bellaterra (Barcelona)
Country : Spain

Receiver-Code : 62 Gene Banks,DNA/Gene Manipulation
Name : Dr. M.D. Bennett
Institution : Plant Breeding Institute
Street : Maris Lane, Trumpington
P.O.B. :
City : Cambridge, CB2 2LQ
Country : U.K.

Receiver-Code : 63 Cell Banks,DNA-Manipulation,Protoplast/Tissue Cult
Name : Dr. Karen L. Grady
Institution : College of Charleston
Street :
P.O.B. :
City : Charleston, South Carolina 29424
Country : USA

Receiver-Code : 64 Population Studies
Name : Dr. L. W. Aarssen
Institution : Dept. of Biology,Queen's University
Street :
P.O.B. :
City : Kingston, K7L 3N6
Country : Canada

Receiver-Code : 65 Tissue Culture,Mutants,Populations
Name : Prof. D. W. Rau
Institution : Bot. Institut der Universität München
Street : Menzinger Str. 67
P.O.B. :
City : 8000 München 19
Country : FRG

Receiver-Code : 66 Population Studies
Name : Prof.Dr.J. R. Loewenberg
Institution : Dept. of Botany, University of Wisconsin
Street :
P.O.B. :
City : Milwaukee, Wisconsin
Country : USA

Receiver-Code : 67 Population Studies
Name : Prof. R. B. Primack
Institution : Biology Dept., Boston University
Street : 2 Cummington St.
P.O.B. :
City : Boston, Ma. 02215
Country : USA

Receiver-Code : 68 Population Studies
Name : Dr.Neera Bhalla-Sarin
Institution : Plant Res.Lab., School of Life Sciences, Jawaharlal
Street : Nehru Univ., New Mehrauli Road
P.O.B. :
City : New Delhi - 110067
Country : India

Receiver-Code : 69 DNA/Gene Manipulation, Population Studies
Name : Mr. J. B. Smith
Institution : Cytogenetics Dept., Plant Breeding Institute
Street : Maris Lane, Trumington
P.O.B. :
City : Cambridge CB2 2LQ
Country : U.K.

Receiver-Code : 70 DNA/Gene Mapping, Mutants, Screening
Name : Dr.Lutz Dröscher
Institution : Universität Göttingen, Inst. für Biochemie d. Pflanzen
Street : Untere Karspüle 2
P.O.B. :
City : 3400 Göttingen
Country : FRG

Receiver-Code : 71 Protoplast/Tissue Culture
Name : Prof. Dr. M.H. Zenk
Institution : Pharmazeutische Biologie, Universität München
Street : Karlstr. 29
P.O.B. :
City : 8000 München 2
Country : FRG

Receiver-Code : 72 Cell/Tissue Banks, Protoplast/Tissue Culture
Name : Alice Y. Cheung
Institution : Bio. Labs., Harvard University
Street : 16 Divinity Avenue
P.O.B. :
City : Cambridge, Ma 02138
Country : USA

Receiver-Code : 74 Gene Mapping, DNA-Manipulation
Name : Dr.G.A. Karlin-Neumann
Institution : Biol.Dept., Mol.Biol.Inst., Univ.California
Street :
P.O.B. :
City : Los Angeles, CA 90024
Country : USA

- Receiver-Code : 75 Seed Banks, Mutants, Populations
Name : Prof. Dr. E.H. Roberts
Institution : Dept. of Agriculture, University of Reading
Street : Early Gate
P.O.B. :
City : Reading, RG6 2AT
Country : U.K.
- Receiver-Code : 76 Mutants, Populations
Name : Peter Schiller
Institution : DORNIER, System GmbH, Biol. Med. Raumfahrtexperimente
Street :
P.O.B. : 1360
City : 7990 Friedrichshafen
Country : FRG
- Receiver-Code : 77 Population Studies
Name : Dr. R. Buis
Institution : Inst. National Polytechnique, Lab. de Biologie Quant.
Street : 145 Avenue de Muret
P.O.B. :
City : 31300 Toulouse
Country : France
- Receiver-Code : 78 Cell/Tissue Banks, Protoplast/Tissue Culture
Name : Dr. Yuri Gleba
Institution : Inst. of Botany, Acad. Sc. Ukrainian SSR
Street : Repina 2
P.O.B. :
City : Kiev 252 601
Country : USSR
- Receiver-Code : 79 Seed Banks, Gene Mapping, Mutants, Populations
Name : Prof. Dr. P. Usmanov
Institution : Acad. Sci. of the tadjik SSR, Dept. of General Genetics
Street : Hamza-Hakim zade 17
P.O.B. :
City : 74003 Dushanbe
Country : USSR
- Receiver-Code : 80 Population Studies, Biochemical
Name : Louise Strang
Institution : Dept. of Biology, Barnes Lab.,
Street : 5630 S. Ingleside Ave.
P.O.B. :
City : Chicago, Illinois 60637
Country : USA
- Receiver-Code : 81 Population Studies
Name : Dr. A. Gnanam
Institution : Dept. of Biol. Sci., Madurai University
Street :
P.O.B. :
City : Madurai-21 625021
Country : India
- Receiver-Code : 82 Cell/Tissue Banks, Protoplast/Tissue Culture
Name : Prof. Dr. Jean-Pierre Zryd
Institution : Univ. de Lausanne, Inst. Biol. & Physiol. Vegetales
Street : Place de la Riponne
P.O.B. :
City : CH-1005 Lausanne
Country : Swiss

Receiver-Code : 83 Cell/Tissue Banks, Protoplast/Tissue Culture
 Name : Le Thi Xuan
 Institution : Institute of Biology, NCSRNV
 Street :
 P.O.B. :
 City : Hanoi
 Country : Vietnam

Receiver-Code : 85 Mutants,Populations
 Name : Dr. A. Kahn
 Institution : University of Copenhagen, Inst. of Genetics
 Street : øster Farimagsgade 2A
 P.O.B. :
 City : DK-1353 Copenhagen K
 Country : Danmark

Receiver-Code : 86 Mutants,Populations
 Name : Prof. Dr. H. Clauss
 Institution : Freie Universität Berlin, FB 23, WE 3
 Street : Königin-Luise-Str. 12-16a
 P.O.B. :
 City : 1000 Berlin 33
 Country : FRG

Receiver-Code : 87 Seed Banks, Gene Mapping, Tissue Culture, Mutants, Pop
 Name : Prof. Dr. G. P. Redei
 Institution : University of Missouri, Dept. of Agronomy
 Street : 205 Curtis Hall
 P.O.B. :
 City : Columbia, Miss. 65201
 Country : USA

Receiver-Code : 88 Mutants,Populations
 Name : Dr. J. Cobley
 Institution : Dept. of Chemistry, U.S.F.
 Street : 2130 Fulton Street
 P.O.B. :
 City : San Francisco, Ca 94117
 Country : USA

Receiver-Code : 89 Mutants,Populations
 Name : Prof. Fernando Luis Caprio da Costa
 Institution : Universidade Federal de Pelotas
 Street : Pro-Reitoria de Gradacao e Prequisa
 P.O.B. :
 City : Pelotas
 Country : Brasilia

Receiver-Code : 90 Populations
 Name : Dr. Adriano Marocco
 Institution : Universita Cattolica des Sacro Cuore, Inst. di Agronomia
 Street : Via Emilia Parmense, 84
 P.O.B. :
 City : 29100 Piacenza
 Country : Italia

Receiver-Code : 91 Seed Banks, Gene Mapping, Protoplast, Mutant Screeni.
 Name : Dr. W.L. Ogren
 Institution : University of Illinois, S.215 Turner Hall
 Street : 1102 South Goodwin Avenue
 P.O.B. :
 City : Urbana, IL 61801
 Country : USA

Receiver-Code : 92 Gene Mapping, Classical, Mutants, Populations
 Name : Bernhard Netzroth
 Institution : Universität Mainz, Inst. für Genetik
 Street :
 P.O.B. :
 City : 6500 Mainz
 Country : FRG

Receiver-Code : 93 Gene Banks, DNA/Gene Mapping, Molecular, Tissue Cultu
 Name : Christiane Fauron
 Institution : University of Utah, Dept. of Biology
 Street : 201 Biology Building
 P.O.B. :
 City : Salt Lake City, Utah 84112
 Country : USA

Receiver-Code : 94 Gene Recombination/Mapping, Mutants
 Name : Prof. Dr. W.O. Abel
 Institution : Inst. für Allg. Botanik, Botanischer Garten
 Street : Ohnhorststr. 18
 P.O.B. :
 City : 2000 Hamburg 52
 Country : FRG

Receiver-Code : 95 Population Studies
 Name : Robert. C. Garber
 Institution : Cornell University, Dept. of Plant Pathology
 Street : 334 Plant Science Building
 P.O.B. :
 City : Ithaca, New York 14853
 Country : USA

Receiver-Code : 96 Gene Mapping Molecular, DNA/Gene Manipulation, Cult.
 Name : Prof. Dr. I.P. Bourgin
 Institution : Laboratoire de Biologie Cellulaire, C.N.R.A.
 Street :
 P.O.B. :
 City : 78000 Versailles
 Country : France

Receiver-Code : 97 Gene Mapping
 Name : Prof. Dr. I. Sybenga
 Institution : Dept. of Genetics, Agricultural University
 Street : 53 Generaal Foulkesweg
 P.O.B. :
 City : 6703 BM Wageningen
 Country : NL

Receiver-Code : 98 Mutants Screening, Gene Mapping
 Name : Dr. Lefebvre
 Institution : Ottawa Research Station, K.W. Neatby Bldg., Room 4014
 Street : C.E. Farm
 P.O.B. :
 City : Ottawa, Ontario, K1A 0C6
 Country : Canada

Receiver-Code : 99 Gene Mapping Classical, Mutants, Populations
 Name : Dr. Malepszy
 Institution : Institute of Molecular Biology, Dept. of Genetics
 Street : ul. Jagielloviska 28
 P.O.B. :
 City : 40-032 Katowice
 Country : Poland

Receiver-Code : 100 Mutants,Populations
 Name : Dr. E. Ebert,Prof Dr. Schwinn
 Institution : CIBA-GEIGY AG
 Street :
 P.O.B. :
 City : CH-4002 Basel
 Country : Swiss

Receiver-Code : 102 Mutants,Populations
 Name : Manuela Cerezo
 Institution : Instituto Agronomico Mediterraneo de Zaragoza
 Street : Apartado 202
 P.O.B. :
 City : Zaragoza
 Country : Spain

Receiver-Code : 103 Seed Banks,Gene Manipulation/Mapping,Mutants,Populations
 Name : Prof. C.R. Somerville
 Institution : Plant Research Laboratory,Michigan State University
 Street :
 P.O.B. :
 City : East Lansing, Mich. 48824
 Country : USA

Receiver-Code : 104 Mutant Screening,Population
 Name : Dr. Jaweed Ashraf
 Institution : Jawaharlal Nehru University, New Campus
 Street : New Mehrauli Road
 P.O.B. :
 City : New Delhi - 110067
 Country : India

Receiver-Code : 105 Gene/Cell/Tissue Banks,Manipulations,Mapping,Cultures
 Name : Doris Ruegg
 Institution : Friedrich-Miescher-Institut
 Street :
 P.O.B. : 273
 City : CH - 4002 Basel
 Country : Swiss

Receiver-Code : 106 Protoplast,Mutants
 Name : Prof. Dr. H. Metzner
 Institution : Universität Tübingen, Inst.f. chemische Pflanzenphys.
 Street : Corrensstr. 41
 P.O.B. :
 City : 7400 Tübingen 1
 Country : FRG

Receiver-Code : 107 Gene Mapping, DNA-Manipulation
 Name : Dr.E.M. Tobin
 Institution : Biol.Dept.,Mol.Biol.Inst.,Univ.California
 Street :
 P.O.B. :
 City : Los Angeles, CA 90024
 Country : USA

Receiver-Code : 108 Seed Banks,Populations,Data Banks
 Name : Prof. Dr. C. Gomez-Campo
 Institution : Universidad Politecnica,Catedratico d.Fisiolog.vegetal
 Street : Escuela T.S de Ingenieros Agronomes
 P.O.B. :
 City : 2444807 Madrid 3
 Country : Spain

Receiver-Code : 109 Seed Banks, Gene Mapping, Mutants, Population
 Name : Prof. Dr. H.J. van der Veen
 Institution : Dept. Genet., Agricult. University
 Street : 53 Generaal Foulkesweg
 P.O.B. :
 City : 6703 BM Wageningen
 Country : NL

Receiver-Code : 110 DNA Manipulation, Populations
 Name : Prof. Dr. W. Nagl
 Institution : Universität Kaiserslautern -Biologie-
 Street : Pfaffenbergstr. Gebäude 13
 P.O.B. :
 City : 6750 Kaiserslautern
 Country : FRG

Receiver-Code : 111 Populations, Biochemical
 Name : Prof. Dr. D. Ratcliffe, S. D'Souza
 Institution : Botanical Lab., University R. D.
 Street : Adrian Building
 P.O.B. :
 City : Leicester LE1 7RD
 Country : U.K.

Receiver-Code : 112 Seed Banks, Mutants, Screening
 Name : Dr. M. Pf. Marsden
 Institution : Dept. Bot. and Microbiol., Oklahoma State University
 Street :
 P.O.B. :
 City : Stillwater, Oklahoma 74078
 Country : USA

Receiver-Code : 113 Gene Mapping, Mutants
 Name : Dr. B. Deus - Neumann
 Institution : Universität München, Pharmazeutische Biologie
 Street : Karlstr. 29
 P.O.B. :
 City : 8000 München 2
 Country : FRG

Receiver-Code : 114 Gene Mapping, Mutants
 Name : Dirk Inze
 Institution : Rijksuniversiteit Gent, Laboratorium voor Genetika
 Street : Ledeganckstraat 35
 P.O.B. :
 City : B-9000 Gent
 Country : Belgium

Receiver-Code : 115 Gene Mapping, Mutants Screening, Populations
 Name : Dr. Urs Feller
 Institution : Universität Bern, Botanische Institute
 Street : Altenbergrain 21
 P.O.B. :
 City : CH-3013 Bern
 Country : Swiss

Receiver-Code : 116 Populations, Mutants
 Name : Prof. R.S. Hussey
 Institution : University of Georgia, Plant Pathology Division
 Street : Plant Sciences Building
 P.O.B. :
 City : Athens, Georgia 30602
 Country : USA

Receiver-Code : 117 Gene Mapping, Mutants, Populations
Name : Prof. Dr. J.B. Mitton
Institution : University of Colorado, Dept. EPO Biology
Street : Campus Box 334
P.O.B. :
City : Boulder, Colorado 80309
Country : USA

Receiver-Code : 118 Gene Banks, DNA/Gene Manipulation/Mapping, Mut., Pop
Name : Dr. C. Voytas
Institution : Massachusetts General Hospital, Dept. of Mol. Biology
Street : 100 Wellmann
P.O.B. :
City : Boston, Massachusetts 02114
Country : USA

Receiver-Code : 119 Population Screening
Name : Dr. F.F. White
Institution : Dept. of Plant Pathology
Street : Throckmorton Hall, KSU
P.O.B. :
City : Manhattan, KS 66506
Country : USA

Receiver-Code : 120 Gene Banks, Manipulation Molecular, Protoplast Cult.
Name : Dr. L. Willmitzer
Institution : Institut für Genbiologische Forschung
Street : Ihnestr. 63
P.O.B. :
City : 1000 Berlin 33
Country : FRG

Receiver-Code : 121 Gene Mapping Classical, Mutants, Populations
Name : Beata Skawinska-Zydron
Institution : Institute of Molecular Biology, Dept. of Genetics
Street : ul. Jagiellovska 28
P.O.B. :
City : 40-032 Katowice
Country : Poland

Receiver-Code : 122 Gene Mapping Classical, Mutants, Populations
Name : Jo Ann Banks
Institution : Carnegie Institution of Washington, Dept. of Embryology
Street : 115 West University Parkway
P.O.B. :
City : Baltimore, Maryland 21210
Country : USA

Receiver-Code : 123 Gene Mapping, Mutants
Name : Dr. Steven Ludwig
Institution : Botany Dept., University of Georgia
Street :
P.O.B. :
City : Athens, GA 30602
Country : USA

Receiver-Code : 124 Gene Mapping, DNA Manipulation, Populations
Name : Prof. Dr. D. Schweizer
Institution : Bot. Institut der Universität Wien, Cytologie
Street : Rennweg 14
P.O.B. :
City : 1030 Wien
Country : Austria

Receiver-Code : 125 Mutants Biochemical, Population
Name : Prof. Dr. S.S. Chase
Institution : State University of New York, College of Arts a. Science
Street :
P.O.B. :
City : Oswego, New York 13126
Country : USA

Receiver-Code : 126 DNA/Gene Manipulation, Mutants Biochemical
Name : R. Schmitt
Institution : Institut f. Biochemische Pflanzenpathologie, GSF München
Street : Ingolstädter Landstr. 1
P.O.B. :
City : 8042 Neuherberg
Country : FRG

Receiver-Code : 127
Name : Dr. R.J. Stout
Institution : College of Letters a. Science, Montana State University
Street :
P.O.B. :
City : Bozeman, Montana 59717-0001
Country : USA

Receiver-Code : 128 Gene Manipulation, Mutants, Populations
Name : Dr. Tetsuya Tabata
Institution : Dept. of Botany, Fac. of Science, Hokkaido University
Street :
P.O.B. :
City : Sapporo, Hokkaido 060
Country : Japan

Receiver-Code : 129 Gene Mapping, Mutants
Name : G. Jürgens
Institution : Inst. Biol. II, Univ. Tübingen, Lehrstuhl Genetik
Street : Auf der Morgenstelle 28
P.O.B. :
City : 7400 Tübingen
Country : FRG

Receiver-Code : 130 Populations
Name : Dr. Paul Frücht
Institution :
Street : Str. d. DSF 40
P.O.B. :
City : 3600 Halberstadt
Country : GDR

Receiver-Code : 131 Gene Mapping, Mutants, Populations
Name : Adrienne Roelofs
Institution : Dept. of Microbiology, Oregon State University
Street :
P.O.B. :
City : Corvallis, Oregon 97331
Country : USA

Receiver-Code : 132 Gene mapping
Name : Dr. I.M. Larrinua
Institution : Mol. Biol. Res., Lilly Res. Lab., Lilly Corporate Center
Street :
P.O.B. :
City : Indianapolis, Indiana 46285
Country : USA

Receiver-Code : 133 Mutants, Screening
Name : H.J. Scholten
Institution : Dept.of Genetics.,University of Groningen
Street : Kerklaan 30
P.O.B. :
City : 9751 NN Haren
Country : NL

Receiver-Code : 134 Biochemical Mutants
Name : Christiane Adler c/o Dr.N.Nasrallah
Institution : Div.Biol.Sci.,Sect.Plant Biol.,Cornell University
Street : Plant Science Building
P.O.B. :
City : Ithaca, N.Y. 14853-5908
Country : USA

Receiver-Code : 135 Mutants, Populations
Name : P.S. Frederick
Institution : Botany Dept.,Southern Illinois University
Street :
P.O.B. :
City : Carbondale, Illinois 62901
Country : USA

Receiver-Code : 137 Protoplast, Mutants, Populations
Name : Prof. Dr. D. Gerlach
Institution : Bot. Institut der Universität Erlangen Nürnberg
Street : Schloßgarten 4
P.O.B. :
City : 8520 Erlangen
Country : FRG

Receiver-Code : 138 Mutants, Populations
Name : L.C. Matten
Institution : Botany Dept.,Southern Illinois University
Street :
P.O.B. :
City : Carbondale, Illinois 62901
Country : USA

Receiver-Code : 139 Plant Pathogens
Name : Prof. Mann P. Ko
Institution : Dept.Plant Pathology, Cornell Univ.
Street : 334 Plant Science Building
P.O.B. :
City : Ithaca, N.Y. 14853
Country : USA

Receiver-Code : 140 Populations, Biometrical
Name : A. Kilian
Institution : Dept. of Genetics, Silesian University
Street : Jagiellovicka 28
P.O.B. :
City : 40-032 Katowice
Country : Poland

Receiver-Code : 141 Genetic Manipulation
Name : Dr. Peter Lammers
Institution : Dept.of Chemistry, New Mexico State University
Street :
P.O.B. : Box 3C
City : Las Cruces, New Mexico 88003

Receiver-Code : 142 Cell/Tissue Culture, Developmental Mutants
Name : Dr. Wernicke
Institution : Inst.Angew.Genetik, TU
Street : Albrecht-Thaer-Weg 6
P.O.B. :
City : 1000 Berlin 33
Country : FRG

Receiver-Code : 143 Gene Mapping,Mutants
Name : Prof. R.C. Woodruff
Institution : Dept. of Bot.Sci.,Bowling Green State University
Street :
P.O.B. :
City : Bowling Green, Ohio 43403
Country : USA

Receiver-Code : 144 Gene Mapping,Mutants,Screening
Name : G.N. Acedo
Institution : Environm. Health Res. Test.
Street :
P.O.B. : POB 12199
City : Research Triangle Park, N.C. 27709
Country : USA

Receiver-Code : 145 Cell/Tissue Culture, Gene Expression
Name : Dr. C.M. Bray
Institution : Dept.of Biochem.,Univ.of Manchester
Street : Oxford Road
P.O.B. :
City : Manchester M13 9PT
Country : UK

Receiver-Code : 146 Gene Mapping,Protoplast/Tissue Cultures,Mutants
Name : Dr. S.J. Demchenko
Institution : The Lenin Order Institute for Chemical Physics
Street : Kosygin Street 4
P.O.B. :
City : 117 977 Moscow B-334
Country : USSR

Receiver-Code : 147 Protoplast/Tissue Culture,Mutants Screening
Name : Dr.Henk Doddema
Institution : Department of Biol.Sci.,Fac.of Sci.,Univ.Jordan
Street :
P.O.B. :
City : Amman
Country : Jordan

Receiver-Code : 148 Seed Banks,Gene Mapping,Mutants,Publications
Name : Prof.Dr. W.J. Faenstra
Institution : Genetisch Instituut, Biologisch Centrum
Street : Kerklaan 30
P.O.B. :
City : 9751 NN Haren
Country : NL

Receiver-Code : 149 Cell/Tissue Banks,Protoplast/Tissue Cult.,Mutants
Name : Prof.Dr. P.M. Gresshoff
Institution : Dept.of Genet.Research School,Australian National Univ.
Street :
P.O.B. : 4 P.O.
City : Canberra City A.C.T. 2600
Country : Australia

Receiver-Code : 158 Mutants
Name : M.A. Babadzhanova
Institution : Biochem. Dept., Acad. Sci. of the Tajik SSR
Street :
P.O.B. :
City : Dushanbe
Country : USSR

Receiver-Code : 159 Protoplast/Tissue Culture, Mutants
Name : F.J. Braaksma
Institution : Genetisch Instituut, Biol. Centrum
Street : Kerklaan 30
P.O.B. :
City : 9751 NN Haren
Country : NL

Receiver-Code : 160 Mutants
Name : Prof. Dr. H. Bucker
Institution : DFVLR, Inst. f. Flugmedizin, Abt. Biophysik
Street : Linder Höhe
P.O.B. : 906058
City : 5000 Köln 90
Country : FRG

Receiver-Code : 161 Seed Banks, Gene Mapping, Population Studies
Name : Dr. I. Cetl
Institution : Abteilung f. Genetik, Purkyne-Universität
Street : Kotlarska 2
P.O.B. :
City : 611 37 Brno
Country : CSSR

Receiver-Code : 162 Classical/Molecular Gene Mapping/Recombination
Name : Prof. Dr. Kiyotaka Okada
Institution : National Institute for Basic Biology
Street : 38 Nishigonaka, Myodaijicho
P.O.B. :
City : Okazaki, 444
Country : Japan

Receiver-Code : 163 Mutants, Induction and Screening
Name : Dr. J. Veleminsky
Institution : Czechoslovakia Academy of Sciences
Street : Flemingovonam 2
P.O.B. :
City : Praha 6
Country : CSSR

Receiver-Code : 164 Mutants
Name : L.I. Grinikh
Institution : Inst. of Developmental Biology, Acad. Sci. USSR
Street : Vavilov Str. 26
P.O.B. :
City : Moscow 117334
Country : USSR

Receiver-Code : 165 Mutant(s), Biochemical Screening
Name : R. Grumbles
Institution : Yale Univ., Dept. of Molec. Biophysics and Biochemistry
Street : 260 Whitney Avenue
P.O.B. : P.O.B. 6666
City : New Haven, Connecticut 06511
Country : USA

Receiver-Code : 166 Mutant(s), Biochemical Screening
 Name : Belva L. Fisher
 Institution : Dept.of Molec. and Cellular Biol., Univ.Arizona
 Street : Biosciences West Building
 P.O.B. :
 City : Tucson, Arizona 85721
 Country : USA

Receiver-Code : 167 Populations
 Name : Prof.Dr.Michael F. Tomashov
 Institution : Dept.of Crop and Soil Science, Michigan State Univ.
 Street : Plant & Soil Sciences Building
 P.O.B. :
 City : East Lansing, Michigan 48824-1325
 Country : USA

Receiver-Code : 168 Classical/Molecular Gene Mapping/Recombination
 Name : Dr. Witold Filipowicz
 Institution : Friedrich-Miescher-Institut
 Street :
 P.O.B. : POB 2543
 City : CH-4002 Basel
 Country : Swiss

Receiver-Code : 169 Cell/Tissue Banks,Protoplast/Cell Culture
 Name : Dr. J.A.Amos
 Institution : Dept. of Biology,University of Northern Iowa
 Street : Area 318 273-2456
 P.O.B. :
 City : Cedar Falls,Iowa 50613
 Country : USA

Receiver-Code : 170 Seed Banks,Population Studies
 Name : Prof.Dr.I.T.Paponova
 Institution : Dept. of Botany, Pedagogical Inst.
 Street : Karl Marx Street 24
 P.O.B. :
 City : Perm/Ural
 Country : USSR

Receiver-Code : 171 Mutants,Population Studies
 Name : S. L. Pumpianskaya
 Institution : Research Inst.of Agrophysics
 Street :
 P.O.B. :
 City : Leningrad
 Country : USSR

Receiver-Code : 172 Tissue Culture, AIS-Subscriber
 Name : Dipl.Biol. H. Karesch
 Institution : Labor für Pflanzenbiologie
 Street : Hofwiesenweg 2
 P.O.B. :
 City : CH-8488 Turbenthal
 Country : Swiss

Receiver-Code : 173 Populations, Biometrical
 Name : Prof. Dr. I.D. Sokolov
 Institution : Dept. of Botany,Agricultural Institute
 Street :
 P.O.B. :
 City : 348008 Voroshilovgrad
 Country : USSR

Receiver-Code : 174 Seed Banks
Name : Dr. Ch. A. Rehwaldt
Institution : Dept. of Biology, St. Cloud State College
Street :
P.O.B. :
City : St. Cloud, Minnesota 56301
Country : USA

Receiver-Code : 175 Gene Banks, Gene Mapping/Manipulations, Publications
Name : Prof. Dr. L. Ledoux
Institution : Section of Cellular Biochemistry, Radiobiology
Street : C.E.N.
P.O.B. :
City : Mol
Country : Belgium

Receiver-Code : 176 Populations Studies
Name : Dr. R. Lichter
Institution : MPI für Pflanzengenetik
Street : Rosenhof
P.O.B. :
City : 6901 Ladenburg
Country : FRG

Receiver-Code : 177 Cell/Tissue Banks, Protoplast/Tissue Culture
Name : Dr. H. Lörtz
Institution : MPI für Pflanzengenetik
Street : Rosenhof
P.O.B. :
City : 6901 Ladenburg
Country : FRG

Receiver-Code : 178 Mutants, Biochemical Screening
Name : Prof. Dr. Marie H. Delmestre
Institution : Dept. of Biology, Univ. of Puerto Rico
Street :
P.O.B. :
City : Rio Piedras, Puerto Rico 00931
Country : USA

Receiver-Code : 179 Protoplast/Tissue Culture, Mutants, Populations
Name : Prof. Dr. G. Reuther
Institution : Botanisches Institut, Hess. Lehr- u. Forschungsanstalt
Street :
P.O.B. :
City : 6222 Geisenheim/Rh.
Country : FRG

Receiver-Code : 180 Popul., Biochem. and Biometr., DNA/Gene Manipulat.
Name : Prof. Dr. M. Maluszynski
Institution : Institute of Molecular Biology, Dept. of Genetics
Street : Jagielloviska 28
P.O.B. :
City : 40-032 Katowice
Country : Poland

Receiver-Code : 181 Gene Banks/Mapping, Mutants, Population Studies
Name : Dr. I. Relichova
Institution : Dept. of Genetics, Sci. Fac., Purkyne-University
Street : Kotlarska 2
P.O.B. :
City : 611 37 Brno
Country : CSSR

Receiver-Code : 182 Mutants
 Name : A.B. Rubin
 Institution : Inst.of Plant Physiol.and Biophysics,Tajik SSR
 Street :
 P.O.B. :
 City : Dushanbe
 Country : USSR

Receiver-Code : 183 Plant Pathogens
 Name : K. Richards
 Institution : CNRS,Inst.de Biologie Moleculaire et Cellulaire(IBM)
 Street : 15, Rue Descartes
 P.O.B. :
 City : F-67084 Strasbourg Cedex
 Country : France

Receiver-Code : 184 Seed Banks, Gene Mapping, Cultures, Mutants
 Name : Dr. V.V. Shevchenko
 Institution : Institute of Developmental Biology
 Street :
 P.O.B. :
 City : Moscow
 Country : USSR

Receiver-Code : 185 Mutants, Induction Screening
 Name : Dr. L.M.W. Dellaert
 Institution : Institute of Atomic Sciences in Agriculture
 Street : 6 Keyenbergsweg
 P.O.B. : 48
 City : 6700 AA Wageningen
 Country : NL

Receiver-Code : 186 Populations, Biometrical
 Name : Dr. M.W. Dishlers
 Institution : Institute of Biology, Acad.Sci. of the Latvian SSR
 Street : Miera iela 3
 P.O.B. :
 City : 229021 Salaspils
 Country : USSR

Receiver-Code : 187 Mutants, Induction and Screening
 Name : Dr. T. Gichner
 Institution : Czechoslovak Academy of Sciences, Dept. of Genetics
 Street : Flemingovo nam. 2
 P.O.B. :
 City : 160 00 Praha 6
 Country : CSSR

Receiver-Code : 189 Mutants, Population Studies
 Name : L.P. Velikanov
 Institution : Research Institut of Agrophysics
 Street :
 P.O.B. :
 City : Leningrad
 Country : USSR

Receiver-Code : 190 Population Studies
 Name : Dr. Hong-Pang Wu
 Institution : Institute of Botany, Academia Sinica Nankang
 Street :
 P.O.B. :
 City : ROC-115 Taipei
 Country : Republic of China

Receiver-Code : 191 Tissue Culture
Name : Dr. Howard Tenenbaum
Institution : Scripps Clinic and Research Foundation
Street : 10666 North Torrey Pines Road
P.O.B. :
City : La Jolla, California 92037
Country : USA

Receiver-Code : 192 Population Studies
Name : D.T. Tingey
Institution : U.S. Environmental Protection Agency
Street :
P.O.B. :
City : Corvallis, Oregon 97333
Country : USA

Receiver-Code : 193 Cell Tissue Banks, Protoplast/Tissue Culture
Name : Dr.L. Menczel
Institution : Institute of Plant Physiology, Hungarian Acad. of Sciences
Street :
P.O.B. : 521
City : H-6701 Szeged
Country : Hungaria

Receiver-Code : 194 DNA/Gene Manipulation
Name : Prof. Dr. A. Pierard
Institution : Universite Libre des Bruxelles, Microbiologie
Street : Av. E. Gryson 1
P.O.B. :
City : B-1070 Bruxelles
Country : Belgium

Receiver-Code : 195 Plant Pathogens
Name : Ottoline Leyser
Institution : Genetics Dept., University of Cambridge
Street : Tennis Court Rd.
P.O.B. :
City : Cambridge, CB2 3EH
Country : U.K.

Receiver-Code : 196 Populations, AIS-Subscriber
Name : Prof. A.M. Dandekar
Institution : Dept. of Pomology, Agric. Exp. Station
Street : Coll. of Agricult. and Environm. Sciences
P.O.B. :
City : Davis, California 95616
Country : USA

Receiver-Code : 197 Populations
Name : Prof. Dr. Jack Maze
Institution : Dept. of Botany, Univ. of British Columbia
Street : 3529-6270 University Blvd.
P.O.B. :
City : Vancouver, B.C., V6T 2B1
Country : Canada

Receiver-Code : 198 Mutant(s), Biochemical, Protoplast/Tissue Culture
Name : Dr. Elizabeth A. Davis
Institution : Biol. Dept., Univ. of Massachusetts Boston
Street : Harbor Campus
P.O.B. :
City : Boston, MA 02125
Country : USA

Receiver-Code : 200 Mutant(s), Biochemical Screening
Name : Dr. L. Streit
Institution : CIBA-Geigy
Street :
P.O.B. :
City : CH-4002 Basel
Country : Schweiz

Receiver-Code : 201 Bioch.Screening, DNA-Manipulation
Name : Prof.Dr. H. Follmann
Institution : Fachbereich Chemie, Biochemie, Universität
Street : Hans-Meerweinstr.
P.O.B. :
City : 3550 Marburg
Country : FRG

Receiver-Code : 202 Mutant(s), Biochemical Screening
Name : Dr. Bernd Reiß
Institution : MPI für Züchtungsforschg., Abt. Genet. Grundlagen
Street : der Pflanzenzüchtg.
P.O.B. : Egelspfad
City : 5000 Köln 30
Country : FRG

Receiver-Code : 203 Mutants
Name : M. Ondrej
Institution : Institute of Experimental Botany, Czechoslovak Ac.of Sci.
Street :
P.O.B. :
City : Ceske Budejovice
Country : CSSR

Receiver-Code : 204 Mutant(s), Biochemical Screening
Name : Prof.Dr. H.J. Gross
Institution : Institut für Biochemie, Universität Würzburg
Street : Röntgenring 11
P.O.B. :
City : 8700 Würzburg
Country : FRG

Receiver-Code : 205 Mutants
Name : A.S. Azarov
Institution : Donetsk State University, Zoology Dept.
Street :
P.O.B. :
City : 34005 Donetsk
Country : USSR

Receiver-Code : 206 Populations
Name : V.F. Tolstikov
Institution : Donetsk State University, Zoology Dept.
Street :
P.O.B. :
City : 34005 Donetsk
Country : USSR

Receiver-Code : 207 Populations, Mutants
Name : Julie A. Schmid
Institution : Dept. of Biology, St. Cloud State University
Street :
P.O.B. :
City : St. Cloud, Minnesota 56301
Country : USA

Receiver-Code : 208 Populations,Mutants
Name : R.F. Henzell
Institution : Ruakura Agricultural Reseach Center
Street :
P.O.B. :
City : Hamilton
Country : New Zealand

Receiver-Code : 209 Populations,Mutants
Name : J.N. Phillips
Institution : CSIRO, Division of Plant Industry
Street :
P.O.B. :
City : Canberra
Country : Australia

Receiver-Code : 210 Populations,Mutants
Name : E.L. Kordyum
Institution : N.G. Kholodny Institute of Botany of the Ukrainian SSR
Street : Repina 2
P.O.B. :
City : 252004, Kiev
Country : USSR

Receiver-Code : 211 Populations,Mutants
Name : Dr. V.A. Tarasenko
Institution : N.G. Kholodny Institute of Botany of the Ukrainian SSR
Street : Repina 2
P.O.B. :
City : 252004 Kiev
Country : USSR

Receiver-Code : 212 Population(s),
Name : Dr. Michael Reck
Institution :
Street : Rua de Angola, 11
P.O.B. :
City : 2780 Paco de Arcos
Country : Portugal

Receiver-Code : 213 Population(s)
Name : Katrin Summa
Institution : Allgäu-Gymnasium
Street : Eberhard-Schobacher-Weg 1
P.O.B. :
City : 8960 Kempten/Allgäu
Country : FRG

Receiver-Code : 214 Cell/Tissue Culture
Name : M.M. Yeoman
Institution : Dept. of Botany,University of Edinburgh
Street : King's Building,Mayfield Road
P.O.B. :
City : Edinburgh
Country : U.K.

Receiver-Code : 215 Tissue Culture
Name : Dr. H.R. Kartashova
Institution : Dept.of Cell.Physiol.and Immunology,Fac.of Biology
Street : Moscow State University
P.O.B. :
City : Moscow, 1119899
Country : USSR

Receiver-Code : 216 DNA/Gene Manipulation
 Name : C. Gigot
 Institution : Centre National de la Recherche Scientifique, IBMC
 Street : 15, rue Rene Descartes
 P.O.B. :
 City : F-67084 Strasbourg Cedex
 Country : France

Receiver-Code : 217 Mutants, Induction and Screening
 Name : D. D. Akhundova
 Institution : N.K. Koltzov-Institute of Developmental Biology
 Street : Vavilov St. 26
 P.O.B. :
 City : Moscow
 Country : USSR

Receiver-Code : 218 Mutants, Induction and Screening
 Name : G.G. Mirza-Zadeh
 Institution : N.K. Koltzov-Institute of Developmental Biology
 Street : Vavilov St. 26
 P.O.B. :
 City : Moscow
 Country : USSR

Receiver-Code : 219 Plant Pathogens
 Name : Dr. Franz-Josef Fraundorfer
 Institution : Institut für Tumorbiologie
 Street : Borschkeg. 8A
 P.O.B. :
 City : A-1090 Wien
 Country : Austria

Receiver-Code : 220 Mutants, Induction and Screening
 Name : I.D. Rashals
 Institution : Institute of Biology, Acad. Sci. of the Latvian SSR
 Street : Miera iela 3
 P.O.B. :
 City : 229021 Salaspils
 Country : USSR

Receiver-Code : 221 Populations, Biochemical
 Name : Dr. K. D. Rodecap
 Institution : Northrop Services, Inc., Environmental Research Lab.
 Street :
 P.O.B. :
 City : Corvallis, Oregon 97330
 Country : USA

Receiver-Code : 222 Populations
 Name : Dr. Tadashi Amagasa
 Institution : Agricult. Chem. Res. Lab., Sankyo Co., Ltd.
 Street : 1041 Yasu, Yasu-cho, Yasu-gun
 P.O.B. :
 City : Shiga, 520-23
 Country : Japan

Receiver-Code : 223 Mutants
 Name : W.J. Cone
 Institution : Lab. of Plant Physiological Research, Agricultural Uni.
 Street :
 P.O.B. :
 City : 6703 BM Wageningen
 Country : NL

Receiver-Code : 224 Mutants,Populations
Name : A.P. Petrov
Institution : Biological Fac.,Donetsk State University
Street :
P.O.B. :
City : 340015 Donetsk-65
Country : USSR

Receiver-Code : 225 Populations
Name : Dr.T.Moxham, Jane Cavell
Institution : School of Biological Sciences, University of Bath
Street : Claverton Down
P.O.B. :
City : Bath, BA2 7AY
Country : U.K.

Receiver-Code : 226 Gene Mapping,Mutants,Population
Name : Kh. Kh. Khurmatov
Institution : Institute of General Genetics,USSR Academy of Sciences
Street :
P.O.B. :
City : Moscow
Country : USSR

Receiver-Code : 227 Host-Pathology,Populations
Name : Dr. Nevin Dale Young
Institution : Dept. of Plant Pathology,Cornell University
Street : 334 Plant Science Building
P.O.B. :
City : Ithaca,New York 14853
Country : USA

Receiver-Code : 228 Mutants,Biochemical,Population
Name : Prof. Bharat B. Chattoo
Institution : Dept.Microbiology, U.S.University of Baroda
Street :
P.O.B. :
City : Baroda 390 002, India
Country : USA

Receiver-Code : 260 Mutant Screening,AIS-Subscriber
Name : Dr. George Haugh
Institution : MSU-DOE Plant Res.Lab., Michigan State University
Street :
P.O.B. :
City : East Lansing, Michigan 48824-1312
Country : USA

Receiver-Code : 262 Plant Pathogens
Name : Dr. A. Eppler
Institution : Inst.f.Phytopathologie, Universität Gießen
Street : Ludwigstr.23
P.O.B. :
City : 6300 Gießen
Country : FRG

Receiver-Code : 289 Gene Mapping, Mutants
Name : Eva Huala
Institution : Dept.of Mol.Biol.,Wellmann Bldg.1027,Mass.Gen.Hospital
Street : Fruit Street
P.O.B. :
City : Boston, MA 02114
Country : USA

Receiver-Code : 320 Mutant(s)
Name : Prof.Dr.G. Czihak
Institution : Abt.f.Genetik u. Entwicklungsbiologie der Universität
Street : Heilbrunnerstr.34
P.O.B. :
City : A-5020 Salzburg
Country : Austria

Receiver-Code : 321 DNA/Gene Manipulation
Name : Dr. German Spangenberg
Institution : MPI für Zellbiologie, Abteilung Schweiger
Street : Rosenhof
P.O.B. :
City : 6802 Ladenburg bei Heidelberg
Country : FRG

Receiver-Code : 322 Mutants, Biochemical Screening
Name : George Haughn
Institution : MSU-DOE Plant Res.Lab., Michigan State University
Street : Plant Biology Building
P.O.B. :
City : East Lansing, MI 48824-1312
Country : USA

Receiver-Code : 324 Tissue Culture/Gene Manipulation
Name : Dr. Kailash C. Upadhyaya
Institution : Jawaharlal Nehru University, School of Life Sciences
Street :
P.O.B. :
City : New Delhi-110067
Country : India

Receiver-Code : 343 DNA/Cell Manipulation, Mutants
Name : G. Jürgens
Institution : Inst.Biol.II, Lehrber.Genetik, Univ.Tübingen
Street : Auf der Morgenstelle 28
P.O.B. :
City : 7400 Tübingen
Country : FRG

Receiver-Code : 355 Manipulation, Population Studies
Name : Prof.Dr.J.C. McFarlane
Institution : US Environm.Prot.Agency, Environm.Res.Lab.
Street :
P.O.B. :
City : Corvallis, Oregon 97333
Country : USA

3.2.

WILD TYPE POPULATIONS
OF ARABIDOPSIS THALIANA

3.2. 1

Name : Population Surname : Wildtype
 Pop.-Code : Aa-0
 AIS Acc-No. : 1(2500),848(-100),2128(65650)
 Phenotype :
 Char.-Code : 3,4,2,2,2,2,1,53
 Origin Location (Country) : Aua/Rhön (FRG)
 Habitat : field border
 Altitude <m> : 200-300
 Longitude / Latitude : E10/N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/7-8
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1959
 Reference Code :
 Receiver Code : 41,42,43,44

Name : Population Surname : Wildtype
 Pop.-Code : Ag-0
 AIS Acc-No. : 2(1000),849(-500),1660(43650)
 Phenotype : small,compact,weakly hairy,smooth leaf marginDIA2892
 Char.-Code : 3,4,4,2,2,2,2,61
 Origin Location (Country) : Argentat (France)
 Habitat : railway ballast.
 Altitude <m> : 100-200
 Longitude / Latitude : E1-E2/N45
 Daily Temp. mean (spring/autumn) <C> : 7-8/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Aberdeen (GB)
 Collector : Ratcliffe
 received : 1960
 Reference Code :
 Receiver Code : 41,228,35,139,162,119,183

Name : Population Surname : Wildtype
 Pop.-Code : Ak-1
 AIS Acc-No. : 3(2000),850(-600),2188(6650)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Achkarren/Freiburg (FRG)
 Habitat : vineyard
 Altitude <m> : 200-300
 Longitude / Latitude : E8/N48
 Daily Temp. mean (spring/autumn) <C> : 7-8/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 50-60/50-60
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1955
 Reference Code : 2,5
 Receiver Code : 41,42,183

Name : Population Surname : Wildtype
 Pop.-Code : A1-0
 AIS Acc-No. : 1587(4000),1860(2400),1889(4500)
 Phenotype : large,compactness loose,leaf margin sparsely dentate
 Char.-Code : 4,2,2,2,3,2,8,180
 Origin Location (Country) : Allerup (Denmark)
 Habitat :
 Altitude <m> :
 Longitude / Latitude : E12/N55-56
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Kopenhagen (Denmark)
 Collector : Bot. Gardens
 received : 1978
 Reference Code :
 Receiver Code : 42,328

Name : Population Surname : Wildtype
 Pop.-Code : Am-0
 AIS Acc-No. : 2238(3000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Amay,Prov.de Liege(B)
 Habitat :
 Altitude <m> : 100
 Longitude / Latitude : E5-6/N50-51
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Liege (B)
 Collector : Bot. Garden
 received : 1987
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : An-1
 AIS Acc-No. : 4(500), 851(5000), 1777(85400)
 Phenotype : wildtype of mutants F1-15 and V1-51
 Char.-Code : 3.3.3.2.3.2.4.35
 Origin Location (Country) : Antwerpen
 Habitat : Bot.Garden
 Altitude <m> : 1-100
 Longitude / Latitude : E4-E5/N51-N52
 Daily Temp. mean (spring/autumn) <C> : 3-4/13-14
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Antwerpen (Belgien)
 Collector : Bot. Gardens
 received : 1954
 Reference Code : 2,5,9,13,
 Receiver Code : 5,8,16,31,42,45,46,47,49,50,51,52,53,142,197 cont.pg.328

Name : Population Surname : Wildtype
 Pop.-Code : An-1
 AIS Acc-No. : 4(500),851(5000),1777(85400)
 Phenotype : wildtype of mutants F1-15 and V1-51
 Char.-Code : 3.3.3.2.3.2.4.35
 Origin Location (Country) : Antwerpen
 Habitat : Bot.Garden
 Altitude <m> : 1-100
 Longitude / Latitude : E4-E5/N51-52
 Daily Temp. mean (spring/autumn) <C> : 3-4/13-14
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Antwerpen (Belgien)
 Collector : Bot.Gardens
 received : 1954
 Reference Code : 2,5,9,13,
 Receiver Code : cont.of pg.4:165,212

Name : Population Surname : Wildtype
 Pop.-Code : An-2
 AIS Acc-No. : 5(1000),1609(12900), 1776(61600)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Antwerpen
 Habitat : Bot.Garden
 Altitude <m> : 1-100
 Longitude / Latitude : E4-E5/N51-N52
 Daily Temp. mean (spring/autumn) <C> : 3-4/13-14
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Antwerpen (Belgien)
 Collector : Bot. Gardens
 received : 1954
 Reference Code : 2,5,9,13,17,21,
 Receiver Code : 29,30,41,54,55,56,51

Name : Population Surname : Wildtype
 Pop.-Code : An-3
 AIS Acc-No. : 4a(2000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Antwerpen
 Habitat : Bot.Garden
 Altitude <m> : 1-100
 Longitude / Latitude : E4-E5/N51-N52
 Daily Temp. mean (spring/autumn) <C> : 3-4/13-14
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Antwerpen (Belgien)
 Collector : Bot. Gardens
 received : 1954
 Reference Code : 2,5,9,13,
 Receiver Code :

Name : Population
 Pop.-Code : Ang-0
 AIS Acc-No. : 2243(23000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Angleur,Prov.de Liege(B)
 Habitat :
 Altitude <m> : 50-100
 Longitude / Latitude : E5-6/N50-51
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Liege (B)
 Collector : Bot. Garden
 received : 1987
 Reference Code :
 Receiver Code :

Name : Population
 Pop.-Code : Ang-1
 AIS Acc-No. : 2239(21000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Angleur,Prov.de Liege(B)
 Habitat :
 Altitude <m> : 50-100
 Longitude / Latitude : E5-6/N50-51
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Liege (B)
 Collector : Bot.Garden
 received : 1987
 Reference Code :
 Receiver Code :

Name : Population
 Pop.-Code : Ba-1
 AIS Acc-No. : 6(500),852(1700),1441(24500)
 Phenotype : compact, weakly hairy, sinuate leaf margin
 Char.-Code : 4,3,4,2,2,2,93
 Origin Location (Country) : Blackmount (GB)
 Habitat : Roadside 300m
 Altitude <m> : 500-600
 Longitude / Latitude : E3-E4/N52
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Aberdeen (GB)
 Collector : Ratcliffe
 received : 1959
 Reference Code :
 Receiver Code : 43,228,35,139,162,119,65

Name : Population Surname : Wildtype
 Pop.-Code : Bay-0
 AIS Acc-No. : 2044(20000)
 Phenotype : light green, large
 Char.-Code : -, -, -, -, -, -, -, -, -, 31
 Origin Location (Country) : Bayreuth (FRG)
 Habitat : fallow land
 Altitude <m> : 300-400
 Longitude / Latitude : E11/N49-N50
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Frankfurt (FRG)
 Collector : Kranz
 received : 1983
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Bch-1
 AIS Acc-No. : 7(500),853(23800)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Büchen/Lauenburg (FRG)
 Habitat : deposited sand
 Altitude <m> : 1-100
 Longitude / Latitude : E10-E11/N53-N54
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/40-50
 Source Location (Country) : Lauenburg(FRG)
 Collector : v. Prollius
 received : 1957
 Reference Code : 2,5,
 Receiver Code : 42,43,45

Name : Population Surname : Wildtype
 Pop.-Code : Bch-3
 AIS Acc-No. : 8(1000),1610(26000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Büchen/Lauenburg (FRG)
 Habitat : deposited sand
 Altitude <m> : 1-100
 Longitude / Latitude : E10-E11/N53-N54
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/40-50
 Source Location (Country) : Lauenburg(FRG)
 Collector : v. Prollius
 received : 1957
 Reference Code : 5,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Bch-4
 AIS Acc-No. : 9(400),1611(37700)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Büchen/Lauenburg (FRG)
 Habitat : deposited sand
 Altitude <m> : 1-100
 Longitude / Latitude : E10-E11/N53-N54
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/40-50
 Source Location (Country) : Lauenburg(FRG)
 Collector : v. Prollius
 received : 1957
 Reference Code : 2,5,
 Receiver Code : 41,57

Name : Population Surname : Wildtype
 Pop.-Code : Bd-0
 AIS Acc-No. : 10(300),854(61000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Berlin/Dahlem (FRG)
 Habitat : Bot.Garden
 Altitude <m> : 1-100
 Longitude / Latitude : E13-E14/N52-N53
 Daily Temp. mean (spring/autumn) <C> : 6-5/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/40-50
 Source Location (Country) : Berlin Bot. Gardens (FRG)
 Collector : Noack
 received : 1939
 Reference Code : 2,5,15,
 Receiver Code : 11,42,45

Name : Population Surname : Wildtype
 Pop.-Code : Be-0
 AIS Acc-No. : 11(400),855(22000)
 Phenotype : used by JACOBS, Brussels
 Char.-Code : 4.1.2.2.2.6.35
 Origin Location (Country) : Bensheim/Bergstr. (FRG)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N49-N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Bensheim(FRG)
 Collector : Spilcher
 received : 1940
 Reference Code : 2,5,15,19,21,22,23
 Receiver Code : 11,41,42,43,56,58,59,228,47

Name : Population Surname : Wildtype
 Pop.-Code : Be-1
 AIS Acc-No. : 12(500),1612(27300)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Bensheim/Bergstr. (FRG)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N49-N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) :
 Collector : Spilcher
 received : 1940
 Reference Code : 15,19,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Bl-1
 AIS Acc-No. : 13(-),1440(12400)
 Phenotype : glabrous like Mut. glabra
 Char.-Code :
 Origin Location (Country) : Bologna (Italien)
 Habitat : Bot.Garden
 Altitude <m> : 100-200
 Longitude / Latitude : E11-E12/N44-N45
 Daily Temp. mean (spring/autumn) <C> : 9-10/15-16
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Bolgna (Italien)
 Collector : Bot. Gardens
 received : 1940
 Reference Code : 2,5,12,20
 Receiver Code : 60,167

Name : Population Surname : Wildtype
 Pop.-Code : Bla-1
 AIS Acc-No. : 14(1500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Blanes/Gerona (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 17-18/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 40-50/40-50
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1954
 Reference Code : 2,5,9,16,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Bla-2
 AIS Acc-No. : 15(1500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Blanes/Gerona (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 17-18/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 40-50/40-50
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1954
 Reference Code : 2,5,9,16,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Bla-3
 AIS Acc-No. : 16(1500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Blanes/Gerona (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 17-18/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 40-50/40-50
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1954
 Reference Code : 2,5,9,16,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Bla-4
 AIS Acc-No. : 17(500),1613(29500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Blanes/Gerona (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 17-18/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 40-50/40-50
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1954
 Reference Code : 2,5,9,16,21,
 Receiver Code : 41,56,167,172,183,200

Name : Population Surname : Wildtype
 Pop.-Code : Bla-5
 AIS Acc-No. : 18(200), 1668(1800)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Blanes/Gerona (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 17-18/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 40-50/40-50
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1954
 Reference Code : 2,5,9,16,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Bla-6
 AIS Acc-No. : 19(1500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Blanes/Gerona (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 17-18/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 40-50/40-50
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1954
 Reference Code : 2,5,9,16,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Bla-10
 AIS Acc-No. : 20(500),1661(33500)
 Phenotype : large, compact rosette, strongly hairy, leaf margin sinuate
 Char.-Code :
 Origin Location (Country) : Blanes/Gerona (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 17-18/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 40-50/40-50
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1956
 Reference Code : 2,5,9,16,
 Receiver Code : 57

Name : Population Surname : Wildtype
 Pop.-Code : Bla-11
 AIS Acc-No. : 21(500),1614(31100)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Blanes/Gerona (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 17-18/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 40-50/40-50
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1954
 Reference Code : 9,16,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Bla-12
 AIS Acc-No. : 1855(-),1596(41900),1818(61000)
 Phenotype : leaf posture flat, light green
 Char.-Code : 3,3,4,2,3,3,3,35
 Origin Location (Country) : Blanes (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N42
 Daily Temp. mean (spring/autumn) <C> : 17-18/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 40-50/40-50
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1963
 Reference Code : 9,16,
 Receiver Code : 63,64,228

Name : Population Surname : Wildtype
 Pop.-Code : Bla-14
 AIS Acc-No. : 1857(-),1597(500),1819(26000)
 Phenotype : small,light green,leaf margin smoothDIA2987
 Char.-Code : 2,4,4,3,2,1,1,35
 Origin Location (Country) : Blanes (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N42
 Daily Temp. mean (spring/autumn) <C> : 17-18/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 40-50/40-50
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1963
 Reference Code : 9,16,
 Receiver Code : 21

Name : Population Surname : Wildtype
 Pop.-Code : Bn-0
 AIS Acc-No. : 22(400),1191a(22000)
 Phenotype : DIA2318
 Char.-Code :
 Origin Location (Country) : Ben Dhorrain (GB)
 Habitat :
 Altitude <m> : 1000
 Longitude / Latitude : W4-W5/N57-N58
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) :
 Collector :
 received :
 Reference Code :
 Receiver Code : 42

Name : Population Surname : Wildtype
 Pop.-Code : Bor-0
 AIS Acc-No. : 273(-),1211(8200),1529(4900),1816(2200),2175(23550)
 Phenotype : hairy,leaf margin dentate,rosette posture upright
 Char.-Code : keine Daten, 107
 Origin Location (Country) : Bou Roubianne
 Habitat : border/Algeria and Maroc
 Altitude <m> : 1500-2000
 Longitude / Latitude : W3-W4/N35-N36
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Spain
 Collector : Gomez-Campo
 received : 1971
 Reference Code :
 Receiver Code : 8,16,42,62,35,139,162,167,119,225,65

Name : Population Surname : Wildtype
 Pop.-Code : Br-0
 AIS Acc-No. : 23(500),856(12400)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Brünn (Brno)/(CSSR)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E16-E17/N49
 Daily Temp. mean (spring/autumn) <C> : 5-6/17-18
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/10-20
 Source Location (Country) :
 Collector :
 received :
 Reference Code : 2,5,
 Receiver Code : 42,57,183

Name : Population Surname : Wildtype
 Pop.-Code : Bs-1
 AIS Acc-No. : 24(1000),857(35900)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Basel (Swiss)
 Habitat : Bot.Garden
 Altitude <m> : 300-400
 Longitude / Latitude : E7-E8/N47-N48
 Daily Temp. mean (spring/autumn) <C> : 9-10/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 40-50/90-100
 Source Location (Country) : Basel (Swiss)
 Collector : Bot. Gardens
 received : 1940
 Reference Code : 2,5,20,
 Receiver Code : 41,42,43,45

Name : Population Surname : Wildtype
 Pop.-Code : Bs-2
 AIS Acc-No. : 25(500),1615(34000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Basel (Swiss)
 Habitat : Bot.Garden
 Altitude <m> : 300-400
 Longitude / Latitude : E7-E8/N47-N48
 Daily Temp. mean (spring/autumn) <C> : 9-10/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 40-50/90-100
 Source Location (Country) : Basel (Swiss)
 Collector : Bot. Gardens
 received : 1940
 Reference Code : 2,4,5,20
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Bs-3
 AIS Acc-No. : 26(500),1616(35500),1662(2150)
 Phenotype : leaf margin sinuate, light green, flat leaf posture
 Char.-Code :
 Origin Location (Country) : Basel (Swiss)
 Habitat : Bot.Garden
 Altitude <m> : 300-400
 Longitude / Latitude : E7-E8/N47-N48
 Daily Temp. mean (spring/autumn) <C> : 9-10/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 40-50/90-100
 Source Location (Country) : Basel (Swiss)
 Collector : Bot. Gardens
 received : 1940
 Reference Code : 2,5,20,
 Receiver Code : 41,183

Phenotype :
Char.-Code :
Origin Location (Country) : Buchschlag/FFM (FRG)
 Habitat : near by hort.nursery
 Altitude <m> : 1-100
 Longitude / Latitude : E8-E9/N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/30-40
Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1940
Reference Code : 2,5,
Receiver Code :

Name : Population Surname : Wildtype
Pop.-Code : Bsch-2
AIS Acc-No. : 28(500)
Phenotype :
Char.-Code :
Origin Location (Country) : Buchschlag/FFM (FRG)
 Habitat : near by a rail line
 Altitude <m> : 1-100
 Longitude / Latitude : E8-E9/N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/30-40
Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1943
Reference Code : 2,5,
Receiver Code : 41,57

Name : Population Surname : Wildtype
Pop.-Code : Bu-0
AIS Acc-No. : 29(1000),859(31000)
Phenotype :
Char.-Code :
Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1941
Reference Code : 2,5,
Receiver Code : 41,42,43,45,61,62

Name : Population Surname : Wildtype
 Pop.-Code : Bu-1
 AIS Acc-No. : 30(1000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1941
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Bu-2
 AIS Acc-No. : 31(500),1617(34100)
 Phenotype : hairy, smooth leaf margin, leaf posture incompletely flat
 Char.-Code : 2,2,3,2,3,2,1,-
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 42,228

Name : Population Surname : Wildtype
 Pop.-Code : Bu-3
 AIS Acc-No. : 32(500),1618(28000)
 Phenotype : rosette compactness very loose, hairy, light green
 Char.-Code : 3,3,1,2,3,1,6,-
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Bu-4
 AIS Acc-No. : 33(300),1619(27000)
 Phenotype : rosette compactness:loose,glabrous,light green,smoth leaf margin
 Char.-Code : 2,3,2,2,1,1,1,-
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Bu-5
 AIS Acc-No. : 34(200),1621(31900)
 Phenotype : rosette compactness:loose,glabrous,light green,smooth leaf margin
 Char.-Code : 2,3,2,2,1,1,1,-
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 183

Name : Population Surname : Wildtype
 Pop.-Code : Bu-6
 AIS Acc-No. : 35(500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Bu-7
 AIS Acc-No. : 36(500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Bu-8
 AIS Acc-No. : 37(500),1620(35900)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Bu-9
 AIS Acc-No. : 38(400),1622(35000)
 Phenotype : flat leaf posture, hairy, light green, smoth leaf margin
 Char.-Code : 1,3,3,2,3,1,1,-
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 57

Name : Population Surname : Wildtype
 Pop.-Code : Bu-11
 AIS Acc-No. : 39(200),1623(31000)
 Phenotype : weakly hairy,light green,smoth leaf margin
 Char.-Code : 2,3,1,2,2,1,1,-
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 63

Name : Population Surname : Wildtype
 Pop.-Code : Bu-13
 AIS Acc-No. : 40(500),1624(35000)
 Phenotype : light green,large rosette size, smoth leaf margin
 Char.-Code : 2,2,3,2,3,1,1,-
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 63

Name : Population Surname : Wildtype
 Pop.-Code : Bur-0
 AIS Acc-No. : 41(200),860(47400),1625(28700)
 Phenotype : leaf margin strongly serrate
 Char.-Code : 3,2,4,2,3,2,5,45
 Origin Location (Country) : Burren (Eire)
 Habitat : wall by roadside
 Altitude <m> :
 Longitude / Latitude : W6-W10/N52-N55
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Aberdeen
 Collector : Ratcliffe
 received : 1958
 Reference Code :
 Receiver Code : 42,45,228,35,139,162

Name : Population Surname : Wildtype
 Pop.-Code : Bu-14
 AIS Acc-No. : 230(300),1646(14900)
 Phenotype : small, rosette compactness very loose, light green
 Char.-Code : 3,4,1,2,2,1,1,42
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 228

Name : Population Surname : Wildtype
 Pop.-Code : Bu-15
 AIS Acc-No. : 231(200),1647(24000)
 Phenotype : small, rosette compactness very loose, light green
 Char.-Code : 3,4,1,2,2,1,1,42
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Bu-16
 AIS Acc-No. : 232(150)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Bu-17
 AIS Acc-No. : 1642(5500),1811(20500)
 Phenotype : DIA2893
 Char.-Code : 5,4,2,3,2,2,1,42
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Bu-18
 AIS Acc-No. : 234(190)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Bu-19
 AIS Acc-No. : 235(190),1649(26000)
 Phenotype : rosette compactness very loose, weakly hairy, light green
 Char.-Code : 3,3,1,2,2,1,1,44
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 15

Name : Population Surname : Wildtype
 Pop.-Code : Bu-20
 AIS Acc-No. : 236(240),1650(14500)
 Phenotype : rosette compactness very loose, weakly hairy, light green
 Char.-Code : 3,3,1,2,2,1,1,38
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Bu-21
 AIS Acc-No. : 237(310),1664(15500)
 Phenotype : rosette compactness loose, weakly hairy, light green,
 Char.-Code : 3,3,1,2,2,1,1,44
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Bu-22
 AIS Acc-No. : 238(290),1651(17900)
 Phenotype : rosette, very loose, glabrous, light green DIA2891
 Char.-Code : 3,3,1,1,1,1,2,42
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 3,228

Name : Population Surname : Wildtype
 Pop.-Code : Bu-23
 AIS Acc-No. : 239(100).1643(16500)
 Phenotype : small,very loose rosette compactness,light green
 Char.-Code : 3,4,1,1,2,1,1,42
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Bu-24
 AIS Acc-No. : 240(260),1652(13750)
 Phenotype : leaf margin sinuate,glabrous,light greenDIA2891
 Char.-Code : 3,4,1,1,1,1,2,42
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Bu-25
 AIS Acc-No. : 241(280),1653(20500)
 Phenotype : small,rosette very loose,glabrous,light greenDIA2891
 Char.-Code : 3,4,1,1,1,1,2,42
 Origin Location (Country) : Burghaun/Rhön (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Bus-0
 AIS Acc-No. : 1581(3300),1820(4900),2176(4500)
 Phenotype : large,compactness loose,leaf margin smooth
 Char.-Code : 4,2,2,3,3,2,1,120
 Origin Location (Country) : Buskerud (Norway)
 Habitat : Røyken,Hövikkvollen
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) :
 Collector : Marker
 received : 1976
 Reference Code :
 Receiver Code : 42,35,139,162,167,183,225

Name : Population Surname : Wildtype
 Pop.-Code : Bus-1
 AIS Acc-No. : 1676(700),1827(16600),1890(16000)
 Phenotype : leaf posture strongly upright,large,compactness loose
 Char.-Code : 3,2,2,3,3,3,1,180
 Origin Location (Country) : Buskerud (Norway)
 Habitat : Røyken,Hövikkvollen
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Oslo (Norway)
 Collector : Marker
 received : 1976
 Reference Code :
 Receiver Code : 328

Name : Population Surname : Wildtype
 Pop.-Code : Ca-0
 AIS Acc-No. : 42(2000),861(21000),1884(10800)
 Phenotype : strongly hairy
 Char.-Code : 4,3,4,2,4,2,3,33
 Origin Location (Country) : Camberg/Taunus (FRG)
 Habitat :
 Altitude <m> : 300-400
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1959
 Reference Code :
 Receiver Code : 3,19,32,41,42,43,45,64,65,66,67,228,183

Name : Population Surname : Wildtype
 Pop.-Code : Cal-0
 AIS Acc-No. : 43(1500),862(1000),1626(30900)
 Phenotype : hairy, leaf margin sinuate
 Char.-Code : 3,3,3,2,3,2,2,60
 Origin Location (Country) : Calver (GB)
 Habitat : rocky limestone slope
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Aberdeen (GB)
 Collector : Ratcliffe
 received : 1954
 Reference Code :
 Receiver Code : 41,228

Name : Population Surname : Wildtype
 Pop.-Code : Can-0
 AIS Acc-No. : 2098(15000),2139(5150)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Canar.Islands
 Habitat : Las Palmas/Mirador
 Altitude <m> : 1260
 Longitude / Latitude : W15-16/N28
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Frankfurt (FRG)
 Collector : Grasmück
 received : 1985
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Cen-0
 AIS Acc-No. : 286(-),1451(25000),1573(10000)
 Phenotype : strongly hairy, leaf margin serrate
 Char.-Code : 3,3,3,3,4,2,4,73
 Origin Location (Country) : Caen (France)
 Habitat : Bot. Gardens
 Altitude <m> : 1-100
 Longitude / Latitude : W0-W1/N49
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Caen (France)
 Collector : Jardin Botanique
 received :
 Reference Code :
 Receiver Code : 42

Name : Population Surname : Wildtype
 Pop.-Code : Cha-0
 AIS Acc-No. : 1677(90000),1838(26000)
 Phenotype : compactness loose,dark green,leaf margin serrate
 Char.-Code : 2,3,2,2,3,3,4,97
 Origin Location (Country) : Champex (Swiss)
 Habitat : dry loam
 Altitude <m> : 650
 Longitude / Latitude : E7/N46
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Jardin Alpin,Florealpe
 Collector : Fondation J.M. Aubert
 received :
 Reference Code : 8,
 Receiver Code : 42

Name : Population Surname : Wildtype
 Pop.-Code : Cha-1
 AIS Acc-No. : 2097(25000)
 Phenotype : leaf margin dentate,dark green,large
 Char.-Code :
 Origin Location (Country) : Valais (CH)
 Habitat : alpine garden
 Altitude <m> : 700
 Longitude / Latitude : E7/N46
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Champex (CH)
 Collector : Bot. Gardens
 received :
 Reference Code : 8,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Chi-0
 AIS Acc-No. : 44(1500),863(900),2190(10400)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Chisdra (USSR)
 Habitat : river slope
 Altitude <m> : 100-200
 Longitude / Latitude : E 34/N54
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Briansk (USSR)
 Collector : Zickler
 received : 1943
 Reference Code : 2,5,10,12,15,
 Receiver Code : 11,41,42

Name : Population Surname : Wildtype
 Pop.-Code : Chi-1
 AIS Acc-No. : 45(500),1627(31700)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Chisdra (USSR)
 Habitat : river slope
 Altitude <m> : 100-200
 Longitude / Latitude : E 35/N 54
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Briansk (USSR)
 Collector : Zickler
 received : 1943
 Reference Code : 2,5,10,12,15,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Chi-2
 AIS Acc-No. : 46(500),1628(8000)
 Phenotype : DIA2888
 Char.-Code :
 Origin Location (Country) : Chisdra (USSR)
 Habitat : river slope
 Altitude <m> : 100-200
 Longitude / Latitude : E35/N 54
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Briansk (USSR)
 Collector : Zickler
 received : 1943
 Reference Code : 2,5,10,12,15,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Ci-0
 AIS Acc-No. : 47(300),1192a(40800)
 Phenotype : leaf margin sinuate, leaf half upright DIA2505,2578
 Char.-Code : 3,3,3,2,3,2,2,125
 Origin Location (Country) : Crieff (GB)
 Habitat : rocks on mica schist
 Altitude <m> : 100-200
 Longitude / Latitude : W3-W4/N56-N57
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Aberdeen (GB)
 Collector : Ratcliffe
 received : 1961
 Reference Code :
 Receiver Code : 62,228,183

Name : Population Surname : Wildtype
 Pop.-Code : Cit-0
 AIS Acc-No. : 2240(4500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Citou,Aude(F)
 Habitat :
 Altitude <m> :
 Longitude / Latitude : E2-3/N43-44
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Liege (B)
 Collector : Bot. Garden
 received : 1987
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Cl-0
 AIS Acc-No. : 48(800),864(62000),2170(38250)
 Phenotype : leaf margin sinuate
 Char.-Code : 3,3,3,2,3,2,2,125
 Origin Location (Country) :
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 42,45

Name : Population Surname : Wildtype
 Pop.-Code : Co-1
 AIS Acc-No. : 49(300),865(99800),2224(40350)
 Phenotype : weakly haired leaves,rosette size normal,
 Char.-Code : 4,2,3,2,2,2,1,36
 Origin Location (Country) : Coimbra (Portugal)
 Habitat : Bot.Garden
 Altitude <m> : 100-200
 Longitude / Latitude : W8-W9/N40-N41
 Daily Temp. mean (spring/autumn) <C> : 11-12/17-18
 Monthly Prec.mean (spring/autumn)<mm> : 60-70/30-40
 Source Location (Country) : Coimbra (Portugal)
 Collector : Bot. Gardens
 received : 1955
 Reference Code : 2,5,12,13,20,21,
 Receiver Code : 11,42,45,56,61,68,167,120

Name : Population Surname : Wildtype
 Pop.-Code : Co-2
 AIS Acc-No. : 50(500),1629(27000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Coimbra (Portugal)
 Habitat : Bot.Garden
 Altitude <m> : 100-200
 Longitude / Latitude : W8-W9/N40-N41
 Daily Temp. mean (spring/autumn) <C> : 11-12/17-18
 Monthly Prec.mean (spring/autumn)<mm> : 60-70/30-40
 Source Location (Country) : Coimbra (Portugal)
 Collector : Bot. Gardens
 received : 1954
 Reference Code : 2,5,12,13,20,21
 Receiver Code : 41,51

Name : Population Surname : Wildtype
 Pop.-Code : Co-3
 AIS Acc-No. : 51(500),1630(21500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Coimbra (Portugal)
 Habitat : Bot.Garden
 Altitude <m> : 100-200
 Longitude / Latitude : W8-W9/N40-N41
 Daily Temp. mean (spring/autumn) <C> : 11-12-/17-18
 Monthly Prec.mean (spring/autumn)<mm> : 60-70/30-40
 Source Location (Country) : Coimbra (Portugal)
 Collector : Bot. Gardens
 received : 1955
 Reference Code : 2,5,12,13,20,21,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Co-4
 AIS Acc-No. : 266(250000),1208(36300),1567(31800)
 Phenotype : normal
 Char.-Code : 4,3,3,2,3,2,3,62
 Origin Location (Country) : Coimbra (Portugal)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : W8-W9/N40-N41
 Daily Temp. mean (spring/autumn) <C> : 11-12/17-18
 Monthly Prec.mean (spring/autumn)<mm> : 60-70/30-40
 Source Location (Country) : Bot.Garden, Frankfurt (FRG)
 Collector : Grasmück
 received : 1975
 Reference Code : 12,13,20,21
 Receiver Code : 225,35,162,119

Name : Population Surname : Wildtype
 Pop.-Code : Col-0
 AIS Acc-No. : 52(500),866(3000),1749(116800),1986(500000),2062(51000)
 Phenotype : strongly hairy,leaf margin serrate,selected line by REDEI,Columbia
 Char.-Code : 3.3.4.2.4.2.4.34
 Origin Location (Country) : Columbia (USA)
 Habitat : greenhouse
 Altitude <m> : 1-100
 Longitude / Latitude : W92-W93/N38-N39
 Daily Temp. mean (spring/autumn) <C> : 15-16/21-22
 Monthly Prec.mean (spring/autumn) <mm> : 60-70/30-40
 Source Location (Country) : Columbia,Mo. (USA)
 Collector : Redei
 received :
 Reference Code : 2,4,12,13,15,16,17,18,19
 Receiver Code : 3,8,11,16,18,19,23,33,35,37,39,42,44,45,46,49 cont.pg.322

Name : Population Surname : Wildtype
 Pop.-Code : Col-0
 AIS Acc-No. : 52(500),866(3000),1749(116800),1986(500000),2062(51000)
 Phenotype : strongly hairy,leaf margin serrate,selected by REDEI,Columbia
 Char.-Code : 3.3.4.2.4.2.4.34
 Origin Location (Country) : Columbia (USA)
 Habitat : greenhouse
 Altitude <m> : 1-100
 Longitude / Latitude : W92-W93/N38-N39
 Daily Temp. mean (spring/autumn) <C> : 15-16/21-22
 Monthly Prec.mean (spring/autumn) <mm> : 60-70/30-40
 Source Location (Country) : Columbia,Mo (USA)
 Collector : Redei
 received :
 Reference Code : 2,4,12,13,15,16,17,18,19
 Receiver Code : cont.of pg.53:50,51,52,55,204,212,262,47,124,328

Name : Population Surname : Wildtype
 Pop.-Code : Ct-1
 AIS Acc-No. : 53(500),867(63800),2225(62000)
 Phenotype : longstalked leaves,stem upright,not ramified,strong rosette
 Char.-Code : 4,2,4,2,3,2,1,34
 Origin Location (Country) : Catania (Italy)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : W15/N37-N38
 Daily Temp. mean (spring/autumn) <C> : 13-14/21-22
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/10-20
 Source Location (Country) : Catania (I)
 Collector : Boss
 received : 1942
 Reference Code : 1,2,4,5,
 Receiver Code : 42,45,68,80,167,328

Name : Population Surname : Wildtype
 Pop.-Code : Cvi-0
 AIS Acc-No. : 1987(1800),1988(5000),1987(9900),2134(92300)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Capverd.Islands
 Habitat : rocky wall with moss
 Altitude <m> : 1200
 Longitude / Latitude : W23-W25/N15-N17
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Frankfurt (FRG)
 Collector : Lobin
 received : 1983
 Reference Code :
 Receiver Code : 35,139,162,167,172,183,200

Name : Population Surname : Wildtype
 Pop.-Code : Da-0
 AIS Acc-No. : 54(500),868(97000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Darmstadt (FRG)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/13-14
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/30-40
 Source Location (Country) : Darmstadt(FRG)
 Collector : Spilcher
 received : 1940
 Reference Code : 2,20,
 Receiver Code : 42,45

Name : Population Surname : Wildtype
 Pop.-Code : Db-1
 AIS Acc-No. : 1682(17000)
 Phenotype : DIA2971,2972
 Char.-Code :
 Origin Location (Country) : Tenne/Ts. (FRG)
 Habitat : stonyroadside
 Altitude <m> : 400-500
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30
 Source Location (Country) : Frankfurt (FRG)
 Collector : Kranz
 received : 1979
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Db-2
 AIS Acc-No. : 1683(17500)
 Phenotype :
 Char.-Code : DIA2973,2974
 Origin Location (Country) : Dombachtal/Ts. (FRG)
 Habitat : stony roadside
 Altitude <m> : 300-400
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30
 Source Location (Country) : Frankfurt (FRG)
 Collector : Kranz
 received : 1979
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Di-0
 AIS Acc-No. : 55(300),869(82900)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Dijon (France)
 Habitat : Bot.Garden
 Altitude <m> : 300-400
 Longitude / Latitude : E5/N47-N48
 Daily Temp. mean (spring/autumn) <C> : 7-8/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Dijon (France)
 Collector : Bot. Gardens
 received : 1937
 Reference Code : 2,3,4,5,8,9,11,12,13,15,19,20,21,23,
 Receiver Code : 8,42,43,45,68,80,172

Name : Population Surname : Wildtype
 Pop.-Code : Di-1
 AIS Acc-No. : 1583(650),1822(20800),1885(3500),2161(44400)
 Phenotype : large
 Char.-Code : 3,2,3,2,3,2,2,27
 Origin Location (Country) : Dijon (France)
 Habitat : Bot.Garden
 Altitude <m> : 300-400
 Longitude / Latitude : E5/N46-N47
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Bot.Garden
 Collector : Chamblane
 received : 1977
 Reference Code : 2,3,4,5,8,9,11,12,13,15,19,20,21,23,
 Receiver Code : 3,64,343,165,328

Name : Population Surname : Wildtype
 Pop.-Code : Dr-0
 AIS Acc-No. : 1524(10000)
 Phenotype :
 Char.-Code :

Origin	Location (Country)	: Donsbach/Westerw. (FRG)
	Habitat	: sunny, rocky soil
	Altitude <m>	: 200-300
	Longitude / Latitude	: E8/N50-N51
	Daily Temp. mean (spring/autumn) <C>	:
	Monthly Prec.mean (spring/autumn) <mm>	:

Source

Location (Country)	: Frankfurt/M. (FRG)
Collector	: Kirchheim
received	: 1976

Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Dr-0
 AIS Acc-No. : 56(500),870(555000)
 Phenotype :
 Char.-Code :

Origin	Location (Country)	: Dresden (GDR)
	Habitat	: Bot.Garden
	Altitude <m>	: 100-200
	Longitude / Latitude	: E13-E14/N51
	Daily Temp. mean (spring/autumn) <C>	: 7-8/9-10
	Monthly Prec.mean (spring/autumn) <mm>	: 30-40/30-40

Source

Location (Country)	: Bot. Gardens
Collector	: Söding
received	: 1939

Reference Code : 2,5,
 Receiver Code : 42,45,57

Name : Population Surname : Wildtype
 Pop.-Code : Edi-0
 AIS Acc-No. : 57(500),871(300),1791(23300)
 Phenotype : compact rosette, sinuate leaf margin
 Char.-Code : 3,3,4,2,2,2,3,45

Origin	Location (Country)	: Edinburgh (GB)
	Habitat	: Bot.Garden
	Altitude <m>	: 100-200
	Longitude / Latitude	: E3/N56
	Daily Temp. mean (spring/autumn) <C>	: 3-4/9-10
	Monthly Prec.mean (spring/autumn) <mm>	: 20-30/40-50

Source

Location (Country)	: Edinburgh (GB)
Collector	: Bot. Gardens
received	:

Reference Code : 12,
 Receiver Code : 8,42,45,68,165,183

Name : Population Surname : Wildtype
 Pop.-Code : Ei-2
 AIS Acc-No. : 58(500),872(700),2191(1750)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Eifel (FRG)
 Habitat :
 Altitude <m> : 400-500
 Longitude / Latitude : E6-E7/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/40-50
 Source Location (Country) :
 Collector : Neugebauer
 received :
 Reference Code : 2,5,11,
 Receiver Code : 66,68

Name : Population Surname : Wildtype
 Pop.-Code : Ei-4
 AIS Acc-No. : 59(500),1631(8500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Eifel (FRG)
 Habitat :
 Altitude <m> : 400-500
 Longitude / Latitude : E6-E7/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/40-50
 Source Location (Country) :
 Collector : Neugebauer
 received :
 Reference Code : 2,5,11,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Ei-5
 AIS Acc-No. : 60(100),1635(3500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Eifel (FRG)
 Habitat :
 Altitude <m> : 400-500
 Longitude / Latitude : E6-E7/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/40-50
 Source Location (Country) :
 Collector : Neugebauer
 received :
 Reference Code : 2,5,11,
 Receiver Code : 61

Name : Population Surname : Wildtype
 Pop.-Code : Ei-6
 AIS Acc-No. : 61(500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Eifel (FRG)
 Habitat :
 Altitude <m> : 400-500
 Longitude / Latitude : E6-E7/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/40-50
 Source Location (Country) :
 Collector : Neugebauer
 received :
 Reference Code : 2,4,5,11,
 Receiver Code : 11,57,61

Name : Population Surname : Wildtype
 Pop.-Code : Eil-0
 AIS Acc-No. : 1834(59600),2162(34000)
 Phenotype : large, compact, leaf margin serrate
 Char.-Code : 3,2,4,2,3,2,4,27
 Origin Location (Country) : Eilenburg (GDR)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E12-E13/N51-N52
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Halle (GDR)
 Collector : Bot. Gardens
 received : 1978
 Reference Code :
 Receiver Code : 3,42,51,64,65,66,101,102,343,165,328

Name : Population Surname : Wildtype
 Pop.-Code : El-0
 AIS Acc-No. : 62(200),873(101900)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Ellershausen (FRG)
 Habitat : limestone, south side
 Altitude <m> : 100-200
 Longitude / Latitude : E9-E10/N51-N52
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Ehrlich
 received : 1959
 Reference Code : 2,5,
 Receiver Code : 42,43,45,183

Name : Population Surname : Wildtype
 Pop.-Code : En-1
 AIS Acc-No. : 63(1000),874(89100),1194(83000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Enkheim/Frankfurt (FRG)
 Habitat : sandy loam
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/30-40
 Source Location (Country) : Frankfurt(FRG)
 Collector : Aufmuth
 received : 1940
 Reference Code : 2,3,5,6,8,9,10,11,13,14,15,16,23,
 Receiver Code : 13,41,42,45,81,82

Name : Population Surname : Wildtype
 Pop.-Code : En-2
 AIS Acc-No. : 1005(-),1006(149700)1007,1008,1009-1011(325000)
 Phenotype : wildtype of mutants F17-163 and V52-369 (acid phosphatase var.)
 Char.-Code : 3.2.3.1.3.3.7.35
 Origin Location (Country) : Enkheim/Frankfurt (FRG)
 Habitat : field border
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1939
 Reference Code : 2-23,
 Receiver Code : 125,20,86,329

Name : Population Surname : Wildtype
 Pop.-Code : En-2
 AIS Acc-No. : 1982(359700),2058(97000)
 Phenotype : wildtype of mutants F17-163 and V52-369 (acid phosphatase var.)
 Char.-Code : 3.2.3.1.3.3.7.35
 Origin Location (Country) : Enkheim/Frankfurt (FRG)
 Habitat : field border
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1939
 Reference Code : 2-23,
 Receiver Code : 53,52,90,12,51,89,69,134,65,5,225,137,139,141,37,201

Name : Population Surname : Wildtype
 Pop.-Code : En-2
 AIS Acc-No. : 64(100),1632(8700),1553(-100) cont see pg.318
 Phenotype : wildtype of mutants F17-163 and V52-369, (acid phosphatase var.)
 Char.-Code : 3.2.3.1.3.3.7.35
 Origin Location (Country) : Enkheim/Frankfurt (FRG)
 Habitat : field border
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1939
 Reference Code : 2-23,
 Receiver Code : 8,10,13,18,57,82,126,142,197,30,124,165,178,200,cont.pg.318

Name : Population Surname : Wildtype
 Pop.-Code : En-2
 AIS Acc-No. : 64(100),1632(8700),1553(-100),cont.see pg.336
 Phenotype : wildtype of mutants F17-163 and V52-369 (acid phosphatase var.)
 Char.-Code : 3.2.3.1.3.3.7.35
 Origin Location (Country) : Enkheim/Frankfurt (FRG)
 Habitat : field border
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1939
 Reference Code : 2-23,
 Receiver Code : 212,213,222,262,10,3,106,30,24,11,46,242,26,32,38 cont.pg.336

Name : Population Surname : Wildtype
 Pop.-Code : En-2
 AIS Acc-No. : 64(100),1632(8700),1553(-100)
 Phenotype : wildtype of mutants F17-163 and V52-369 (acid phosphatase var.)
 Char.-Code : 3.2.3.1.3.3.7.35
 Origin Location (Country) : Enkheim/Frankfurt (FRG)
 Habitat : field border
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1939
 Reference Code : 2-23,
 Receiver Code : 75,23,65,5,333,89,331,69,12,90,52,53

Name : Population Surname : Wildtype
 Pop.-Code : En-2
 AIS Acc-No. : 1665(15900),1685(10000),1883(50000),1971(28800),2018(GSI)
 Phenotype : wildtype of mutants F17-163 and V52-369 (acid phosphatase var.)
 Char.-Code : 3.2.3.1.3.3.7.35
 Origin Location (Country) : Enkheim/Frankfurt (FRG)
 Habitat : field border
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1939
 Reference Code : 2-23,
 Receiver Code : 2,106,30,24,11,46,47,26,49,50,16,55,32,38,cont.pg.324

Name : Population Surname : Wildtype
 Pop.-Code : En-2
 AIS Acc-No. : 1665(15900),1685(10000),1883(50000),1971(28800),2018(GSI)
 Phenotype : wildtype of mutants F17-163 and V52-369 (acid phosphatase var.)
 Char.-Code : 3.2.3.1.3.3.7.35
 Origin Location (Country) : Enkheim/Frankfurt (FRG)
 Habitat : field boarder
 Altitude <m> : 100-200
 Longitude / Latitude : E8-59/N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/30-40
 Source Location (Country) : Limburg
 Collector : Laibach
 received : 1939
 Reference Code : 2-23,
 Receiver Code : cont.pg.320:105,104,4,343,172,183,219,328

Name : Population Surname : Wildtype
 Pop.-Code : Ep-0
 AIS Acc-No. : 65(200),875(140000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Eppenheim/Taunus (FRG)
 Habitat :
 Altitude <m> : 300-400
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : -/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1941
 Reference Code : 2,5,
 Receiver Code : 42,45

Name : Population Surname : Wildtype
 Pop.-Code : Er-0
 AIS Acc-No. : 66(200),876(660),1633(18000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Erlangen (FRG)
 Habitat : dry, sandy way
 Altitude <m> : 200-300
 Longitude / Latitude : E11/N49-N50
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Erlangen (FRG)
 Collector : Mägedfrau
 received :
 Reference Code : 2,5,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Es-0
 AIS Acc-No. : 1774(1200),1831(10900)
 Phenotype : normal
 Char.-Code : 3,3,3,2,3,2,3,103
 Origin Location (Country) : Espoo (Finland)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E25/N60
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Helsinki (Finland)
 Collector : Bot. Gardens
 received : 1979
 Reference Code :
 Receiver Code : 16,42,228,167

Name : Population Surname : Wildtype
 Pop.-Code : Esc-0
 AIS Acc-No. : 274(-),1212(30000),1456(16800),1607(21000)
 Phenotype : strongly hairy,dark green,leaf margin smooth
 Char.-Code : 2,3,4,2,4,3,1,95
 Origin Location (Country) : El Escorial (Spain)
 Habitat :
 Altitude <m> : 1500
 Longitude / Latitude : W3/N41
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : (Spain)
 Collector : Gomez-Campo
 received : 1973
 Reference Code :
 Receiver Code : 42,167,183

Name : Population Surname : Wildtype
 Pop.-Code : Est-0
 AIS Acc-No. : 67(200),877(219800),2074(62000)
 Phenotype : glabrous leaves
 Char.-Code :
 Origin Location (Country) : Estland (UDSSR)
 Habitat : sandy hill
 Altitude <m> : 100-200
 Longitude / Latitude : E23-E28/N58-N59
 Daily Temp. mean (spring/autumn) <C> : 3-4/45-6
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/30-40
 Source Location (Country) : Frankfurt(FRG)
 Collector : Laibach
 received : 1940
 Reference Code : 2,3,4,5,6,7,8,9,11,12,13,15,16,17,18,19,
 Receiver Code : 8,11,42,43,45,46,56,60,65,68,80,82,85,86,87,88,89 cont.pg.323

Name : Population Surname : Wildtype
 Pop.-Code : Est-0
 AIS Acc-No. : 67(200),877(219800),2074(62000)
 Phenotype : glabrous leaves
 Char.-Code :
 Origin Location (Country) : Estland (USSR)
 Habitat : sandy hill
 Altitude <m> : 100-200
 Longitude / Latitude : E23-E28/N58-N59
 Daily Temp. mean (spring/autumn) <C> : 3-4/45-6
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/30-40
 Source Location (Country) :
 Collector :
 received : 1940
 Reference Code : 2-9,11,12,13,15-19
 Receiver Code : con.of pg.68:90,91,35,120

Name : Population Surname : Wildtype
 Pop.-Code : Est-1
 AIS Acc-No. : 68(100),1634(23000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Estland (UDSSR)
 Habitat : railway slope near Pinsa
 Altitude <m> : 100-200
 Longitude / Latitude : E23-E28/N58-N59
 Daily Temp. mean (spring/autumn) <C> : 3-4/45-6
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/30-40
 Source Location (Country) : Frankfurt(FRG)
 Collector : Laibach
 received : 1940
 Reference Code : 2-9,11,12,13,15-19
 Receiver Code : 41,51,60,80,82,83,87,90

Name : Population Surname : Wildtype
 Pop.-Code : Et-0
 AIS Acc-No. : 69(200),878(500),2210(34000)
 Phenotype : dark green, leaf weakly hairy
 Char.-Code : 3,3,4,2,2,3,4,34
 Origin Location (Country) : Entraygues (France)
 Habitat : rocky slope
 Altitude <m> : 400-500
 Longitude / Latitude : E 2-3/N 44-45
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Aberdeen (GB)
 Collector : Ratcliffe
 received : 1960
 Reference Code :
 Receiver Code : 228

Name : Population Surname : Wildtype
 Pop.-Code : Fe-1
 AIS Acc-No. : 70(500),879(97000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Freiburg (FRG)
 Habitat : Bot. Gardens
 Altitude <m> : 200-300
 Longitude / Latitude : E8-E9/N48
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 50-60/90-100
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1954
 Reference Code : 2,3,
 Receiver Code : 42,43,45

Name : Population Surname : Wildtype
 Pop.-Code : Fi-0
 AIS Acc-No. : 71(1000),880(286000)
 Phenotype : strongly hairy, light green, dentate leaf margin
 Char.-Code : 3,2,2,1,4,1,6,34
 Origin Location (Country) : Frickhofen (FRG)
 Habitat :
 Altitude <m> : 300-400
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 19,32,41,42,43,45,57,64,67

Name : Population Surname : Wildtype
 Pop.-Code : Fl-1
 AIS Acc-No. : 72(500),1703(75000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Frickhofen (FRG)
 Habitat :
 Altitude <m> : 300-400
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Fl-1
 AIS Acc-No. : 263(-),1205(19500),1469(4300)
 Phenotype : large rosette size DIA2506
 Char.-Code : 4,2,3,2,2,2,2,>96
 Origin Location (Country) : Finland
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) :
 Collector : Marker
 received : 1969
 Reference Code :
 Receiver Code : 63,183

Name : Population Surname : Wildtype
 Pop.-Code : Fl-3
 AIS Acc-No. : 265(-),1207(30200),1471(21400),1601(10000)
 Phenotype : dark green,very large,glabrous,leaf margin sparseley dentate
 Char.-Code : 3,1,3,1,1,3,7,-
 Origin Location (Country) : Finland
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E>22/N>60
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) :
 Collector : Marker
 received : 1969
 Reference Code :
 Receiver Code : 15,16,42,35,139,162,167

Name : Population Surname : Wildtype
 Pop.-Code : For-1
 AIS Acc-No. : 73(-),1186a(46500),1193a(48000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Fortingale (GB)
 Habitat : wall by roadside
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Aberdeen (GB)
 Collector : Ratcliffe
 received : 1956
 Reference Code : 16,
 Receiver Code : 65

Name : Population Surname : Wildtype
 Pop.-Code : For-2
 AIS Acc-No. : 74(200),1704(4000)
 Phenotype : rosette posture: upright, rosette compactness loose
 Char.-Code :
 Origin Location (Country) : Fortingale (GB)
 Habitat : wall by roadside
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Aberdeen (GB)
 Collector : Ratcliffe
 received : 1959
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Fr-2
 AIS Acc-No. : 75(500),881(2700),2192(9900)
 Phenotype : rosette size large like Mut. grandifolia
 Char.-Code :
 Origin Location (Country) : Frankfurt (FRG)
 Habitat : Bot.Garden
 Altitude <m> : 0-100
 Longitude / Latitude : E8-E9/N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/30-40
 Source Location (Country) : Bot. Gardens
 Collector : Laibach
 received : 1940
 Reference Code : 2,5,
 Receiver Code : 42,183

Name : Population Surname : Wildtype
 Pop.-Code : Fr-3
 AIS Acc-No. : 76(500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Frankfurt (FRG)
 Habitat : Bot.Garden
 Altitude <m> : 0-100
 Longitude / Latitude : E8-E9/N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/30-40
 Source Location (Country) : Bot. Gardens
 Collector : Laibach
 received : 1940
 Reference Code : 2,5,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Fr-4
 AIS Acc-No. : 77(200),1636(29300)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Frankfurt (FRG)
 Habitat : Bot.Garden
 Altitude <m> : 0-100
 Longitude / Latitude : E8-E9/N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/30-40
 Source Location (Country) : Bot. Gardens
 Collector : Laibach
 received : 1940
 Reference Code : 2,5,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Fr-5
 AIS Acc-No. : 267(5000),979(43700),1571(53000) 1560(1000)
 Phenotype : light green,leaf margin weakly serrate
 Char.-Code : 3,3,3,2,3,1,3,60
 Origin Location (Country) : Frankfurt/Niederrad (FRG)
 Habitat : roadside/river Main
 Altitude <m> : 1-100
 Longitude / Latitude : E8-E9/N50
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Frankfurt (FRG)
 Collector : Löttschert
 received : 1975
 Reference Code :
 Receiver Code : 42

Name : Population Surname : Wildtype
 Pop.-Code : Fr-6
 AIS Acc-No. : 2019(3000000),2200(9750)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Frankfurt/Ginnheim (FRG)
 Habitat : fallow land,house garden
 Altitude <m> : 1-100
 Longitude / Latitude : E8-E9/N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/30-40
 Source Location (Country) : Frankfurt (FRG)
 Collector : Grasmück
 received : 1984
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Ga-0
 AIS Acc-No. : 78(300),882(500),2193(15600)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Gabelstein (FRG)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Limburg
 Collector : Laibach
 received :
 Reference Code : 2,5,
 Receiver Code : 57

Name : Population Surname : Wildtype
 Pop.-Code : Ga-2
 AIS Acc-No. : 79(200),1705(7200)
 Phenotype : large, loose rosette, leaf margin dentate, 1.blossom 29 days
 Char.-Code :
 Origin Location (Country) : Gabelstein (FRG)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Limburg
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Gd-1
 AIS Acc-No. : 80(1500),883(134000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Gudow (FRG)
 Habitat : roadside
 Altitude <m> : 1-100
 Longitude / Latitude : E10-E11/N53-N54
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) :
 Collector : v. Prollius
 received : 1957
 Reference Code : 2,
 Receiver Code : 41,42,43,45

Name : Population Surname : Wildtype
 Pop.-Code : Ge-0
 AIS Acc-No. : 1582(1200),1821(9900),2174(550)
 Phenotype : compactness loose,light green,leaf margin sinuate
 Char.-Code : 3,3,2,2,3,1,2,45
 Origin Location (Country) : Geneve (CH)
 Habitat : Bot.Garden
 Altitude <m> : 500-600
 Longitude / Latitude : E6/N46-N47
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Geneve (CH)
 Collector : Bot. Gardens
 received : 1977
 Reference Code :
 Receiver Code : 35,139,162,183

Name : Population Surname : Wildtype
 Pop.-Code : Ge-1
 AIS Acc-No. : 1674(1650),1828(18900)
 Phenotype : leaf posture strongly upright,very large
 Char.-Code : 5,1,3,2,3,2,3,42
 Origin Location (Country) : Geneve (Swiss)
 Habitat :
 Altitude <m> : 500-600
 Longitude / Latitude : E6/N46-N47
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Geneve (Swiss)
 Collector : Bot. Gardens
 received : 1978
 Reference Code :
 Receiver Code : 228

Name : Population Surname : Wildtype
 Pop.-Code : Ge-2
 AIS Acc-No. : 1773(250),1826(22500)
 Phenotype : very large, strongly hairy, leaf margin sinuate
 Char.-Code : 4,1,3,3,4,2,2,97
 Origin Location (Country) : Geneve (CH)
 Habitat : Bot.Garden
 Altitude <m> : 500-600
 Longitude / Latitude : E6/N46-N47
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Geneve (CH)
 Collector : Bot. Gardens
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Bi-0
 AIS Acc-No. : 81(1000),884(1200),1637(24000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Gießen (FRG)
 Habitat : edge of the forest
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/30-40
 Source Location (Country) :
 Collector : Funk
 received : 1939
 Reference Code : 2,5,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : G8-0
 AIS Acc-No. : 82(1000),885(44000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Göttingen (FRG)
 Habitat : sunny slope
 Altitude <m> : 100-200
 Longitude / Latitude : E10-/N51-N52
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen(FRG)
 Collector : Steiner
 received : 1939
 Reference Code : 2,5,
 Receiver Code : 41,42,45,68

Name : Population Surname : Wildtype
 Pop.-Code : G6-2
 AIS Acc-No. : 83(1000),1706(51900)
 Phenotype : leaf margin dentate, 1. blossom 29 days
 Char.-Code :
 Origin Location (Country) : Göttingen (FRG)
 Habitat : near by a highway
 Altitude <m> : 100-200
 Longitude / Latitude : E10/N51-N52
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1958
 Reference Code : 2,5,
 Receiver Code : 183

Name : Population Surname : Wildtype
 Pop.-Code : Gr-1
 AIS Acc-No. : 84(500),1707(56000)
 Phenotype : large, loose rosette, smoth leaf margin, 1. blossom 35 days
 Char.-Code :
 Origin Location (Country) : Graz (Austria)
 Habitat :
 Altitude <m> : 300-400
 Longitude / Latitude : E15-E16/N47
 Daily Temp. mean (spring/autumn) <C> : 7-8/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/50-60
 Source Location (Country) :
 Collector : Buschmann
 received : 1939
 Reference Code : 1,2,5,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Gr-2
 AIS Acc-No. : 85(1000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Graz (Austria)
 Habitat :
 Altitude <m> : 300-400
 Longitude / Latitude : E15-E16/N47
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/50-60
 Source Location (Country) :
 Collector : Buschmann
 received : 1939
 Reference Code : 1,2,5,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Gr-3
 AIS Acc-No. : 86(500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Graz (Austria)
 Habitat : field border
 Altitude <m> : 300-400
 Longitude / Latitude : E15-E16/N47
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/50-60
 Source Location (Country) :
 Collector : Buschmann
 received : 1939
 Reference Code : 1,2,5,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Gr-4
 AIS Acc-No. : 87(500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Graz (Austria)
 Habitat :
 Altitude <m> : 300-400
 Longitude / Latitude : E15-E16/N47
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/50-60
 Source Location (Country) :
 Collector : Buschmann
 received : 1939
 Reference Code : 1,2,5,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Gr-5
 AIS Acc-No. : 88(1000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Graz (Austria)
 Habitat :
 Altitude <m> : 300-400
 Longitude / Latitude : E15-E16/N47-N45
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/50-60
 Source Location (Country) :
 Collector : Buschmann
 received : 1939
 Reference Code : 1,2,5,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Gr-6
 AIS Acc-No. : 89(1000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Graz (Austria)
 Habitat :
 Altitude <m> : 300-400
 Longitude / Latitude : E15-E16/N47
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/50-60
 Source Location (Country) :
 Collector : Buschmann
 received : 1939
 Reference Code : 1,2,5,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Gre-0
 AIS Acc-No. : 2266(50000)
 Phenotype : robust and small growth habit
 Char.-Code :
 Origin Location (Country) : Greenville,MI(USA)
 Habitat : agricultural field
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Montcalm county,MI(USA)
 Collector : F.R. Lehle
 received : 1987
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Gü-0
 AIS Acc-No. : 90(500),886(3300),2194(10250)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Glückingen (FRG)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg
 Collector : Laibach
 received : 1947
 Reference Code : 2,3,
 Receiver Code : 42,45

Name : Population Surname : Wildtype
 Pop.-Code : GÜ-1
 AIS Acc-No. : 91(500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Glückingen (FRG)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1947
 Reference Code : 2,
 Receiver Code : 61

Name : Population Surname : Wildtype
 Pop.-Code : Gy-0
 AIS Acc-No. : 2244(2750)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : La Miniere(France)
 Habitat :
 Altitude <m> : 100
 Longitude / Latitude : E2/N49
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Guyancourt/Versailles (F)
 Collector : Stat.Nat.d'Essays de Sem.
 received : 1987
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Ha-0
 AIS Acc-No. : 92(500),887(54000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Hannover (FRG)
 Habitat : Bot.Garden
 Altitude <m> : 1-100
 Longitude / Latitude : E9-E10/N52-N53
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-20
 Source Location (Country) : Hannover (FRG)
 Collector : Schacht (Tüxen)
 received : 1939
 Reference Code : 2,5,
 Receiver Code : 41,42,43,45

Name : Population Surname : Wildtype
 Pop.-Code : Hau-0
 AIS Acc-No. : 93(500),1194a(57800),1891(7800)
 Phenotype : leaf posture incompletely flat, weakly hairy, sinuate leaf margin
 Char.-Code : 2,3,2,2,2,2,126
 Origin Location (Country) : Hauniensis (DK)
 Habitat : Bot.Garden
 Altitude <m> : 1-100
 Longitude / Latitude : E12/N56
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Copenhagen (Denmark)
 Collector : Bot. Gardens
 received :
 Reference Code :
 Receiver Code : 35,139,162,163

Name : Population Surname : Wildtype
 Pop.-Code : Hel-1
 AIS Acc-No. : 303(-),1452(7200)
 Phenotype : light green, leaf margin smooth, leaf posture upright
 Char.-Code : 4,3,3,2,3,1,1,175
 Origin Location (Country) : Helsinki (Finland)
 Habitat : Bot. Gardens
 Altitude <m> : 1-100
 Longitude / Latitude : E25/N60
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Frankfurt(FRG)
 Collector : Grasmück
 received :
 Reference Code :
 Receiver Code : 42,167

Name : Population Surname : Wildtype
 Pop.-Code : Hh-0
 AIS Acc-No. : 242(180),973(164000)
 Phenotype : leaf posture strongly upright, weakly hairy, leaf margin sinuate
 Char.-Code : 5,3,4,1,2,2,2,90
 Origin Location (Country) : Hohenlieth (FRG)
 Habitat : field
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1962
 Reference Code :
 Receiver Code : 42,63

Name : Population
 Pop.-Code : HI-0
 AIS Acc-No. : 94(500),888(300),1708(74000),2160(29900)
 Phenotype : large, loose rosette, light green, weakly hairy
 Char.-Code : 2,2,1,2,2,1,2,29
 Origin Location (Country) : Hilversum (NL)
 Habitat : small road
 Altitude <m> : 1-100
 Longitude / Latitude : E5-E6/N52-N53
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/40-50
 Source Location (Country) :
 Collector : Arens
 received :
 Reference Code : 2,5,
 Receiver Code : 45,57

Name : Population
 Pop.-Code : HI-0
 AIS Acc-No. : 95(500),889(87900),2182(4000)
 Phenotype : light green, loose rosette compactness,
 Char.-Code : 4,3,2,1,3,1,2,35
 Origin Location (Country) : Holtensen (FRG)
 Habitat : field of winter rye
 Altitude <m> : 300-400
 Longitude / Latitude : E9-E10/N52-N53
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1960
 Reference Code :
 Receiver Code : 15,19,32,42,43,45,64,67,228

Name : Population
 Pop.-Code : HI-2
 AIS Acc-No. : 243(920),1654(37400)
 Phenotype : weakly hairy, light green,leaf margin smoothDIA2891
 Char.-Code : 3,3,3,2,2,1,1,42
 Origin Location (Country) : Holtensen (FRG)
 Habitat : field
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N51- N52
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1961
 Reference Code : 3,6,
 Receiver Code : 183

Name : Population Surname : Wildtype
 Pop.-Code : H1-3
 AIS Acc-No. : 244(185),1644(8500)
 Phenotype : weakly hairy,light green,leaf margin sinuate
 Char.-Code : 3,3,3,2,2,1,2,49
 Origin Location (Country) : Holtensen (FRG)
 Habitat : field
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N51-N52
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1961
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Hm-0
 AIS Acc-No. : 96(200),890(24000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Hannover/Münden (FRG)
 Habitat : Bot.Garden
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N51-N52
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/20-30
 Source Location (Country) : Hannover (FRG)
 Collector : Jahn
 received : 1939
 Reference Code : 2,4,5,12,16,
 Receiver Code : 10,42,45,77,89

Name : Population Surname : Wildtype
 Pop.-Code : Hn-0
 AIS Acc-No. : 245(5000),1812(46000)
 Phenotype : rosette size large,weakly hairy,leaf margin sinuate
 Char.-Code : 2,2,3,1,2,2,2,35
 Origin Location (Country) : Hennetalsperre (FRG)
 Habitat :
 Altitude <m> : 400-500
 Longitude / Latitude : E8-E9/N51-N52
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 42

Name : Population Surname : Wildtype
 Pop.-Code : Hs-0
 AIS Acc-No. : 97(500),891(45000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Hannover/Ströhen (FRG)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E9-E10/N52-N53
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) :
 Collector : Rusche
 received : 1961
 Reference Code : 2,5,
 Receiver Code : 42,43,45,57

Name : Population Surname : Wildtype
 Pop.-Code : In-0
 AIS Acc-No. : 98(2000),892(200),1727(31900)
 Phenotype : half upright,very large, highly compact
 Char.-Code :
 Origin Location (Country) : Innsbruck (Austria)
 Habitat : Bot.Garden
 Altitude <m> : 500-600
 Longitude / Latitude : E11-E12/N47-N48
 Daily Temp. mean (spring/autumn) <C> : 7-8/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/40-50
 Source Location (Country) :
 Collector : Bot. Gardens
 received : 1939
 Reference Code : 2,5,
 Receiver Code : 41,92,183

Name : Population Surname : Wildtype
 Pop.-Code : Is-0
 AIS Acc-No. : 99(1000),893(2000),1728(55000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Isenburg/Neuwied (FRG)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E7-E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 7-8/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/30-40
 Source Location (Country) :
 Collector : Burk
 received : 1939
 Reference Code : 2,5,
 Receiver Code : 41,42,43

Name : Population Surname : Wildtype
 Pop.-Code : Ita-0
 AIS Acc-No. : 279(-),1217(3500),1459(12000),1659(11800)
 Phenotype : leaf margin smooth,hairy,leaf posture half upright
 Char.-Code : 3,3,3,2,3,2,1,106
 Origin Location (Country) : Ibel Tazekka (Morocco)
 Habitat : soil undet
 Altitude <m> : 2000
 Longitude / Latitude : W4/NK35
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Madrid (Spain)
 Collector : Gomez-Campo
 received : 1968
 Reference Code :
 Receiver Code : 167,183

Name : Population Surname : Wildtype
 Pop.-Code : Je-0
 AIS Acc-No. : 101(500),894(600),1442(20000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Jena (GDR)
 Habitat : shaded new red sandstone
 Altitude <m> :
 Longitude / Latitude : E11-E12/N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/20-30
 Source Location (Country) :
 Collector : Herzog
 received : 1939
 Reference Code : 2,5,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Kas-1
 AIS Acc-No. : 333(-),1575(8000),2136(63200)
 Phenotype : light green,leaf margin serrate
 Char.-Code : 4,3,3,2,2,1,4,61
 Origin Location (Country) : Kashmir
 Habitat : disturbed sites
 Altitude <m> : 1580
 Longitude / Latitude : E74-80/N34-36
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Berhampur/Orissa(India)
 Collector : Sharma
 received : 1976
 Reference Code :
 Receiver Code : 16,42,63,228,35,139,162,167,172,183,200

Name : Population Surname : Wildtype
 Pop.-Code : Kä-0
 AIS Acc-No. : 102(1000),895(1000),1729(49900)
 Phenotype : upright, very large, compact
 Char.-Code :
 Origin Location (Country) : Kärnten (Austria)
 Habitat :
 Altitude <m> : 900-1000
 Longitude / Latitude : E14-E15/N46-N47
 Daily Temp. mean (spring/autumn) <C> : 3-4/<5-6
 Monthly Prec.mean (spring/autumn) <mm> : 90-100/80-90
 Source Location (Country) : Limburg
 Collector : Laibach
 received : 1957
 Reference Code : 2,5,
 Receiver Code : 41,45,91,183

Name : Population Surname : Wildtype
 Pop.-Code : Kb-0
 AIS Acc-No. : 103(200),897(5000)
 Phenotype : loose rosette compactness, weakly hairy
 Char.-Code : 2,3,2,2,2,2,35
 Origin Location (Country) : Kronberg/Taunus (FRG)
 Habitat : roadside
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/20-30
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1963
 Reference Code :
 Receiver Code : 32,42,43,45,64,67

Name : Population Surname : Wildtype
 Pop.-Code : Kil-0
 AIS Acc-No. : 105(500),898(5400),2247(3750)
 Phenotype : leaf posture upright, large rosette size, loose stem
 Char.-Code : 4,2,2,1,3,2,3,27
 Origin Location (Country) : Killean (GB)
 Habitat : rocks on mica schist
 Altitude <m> : 400-500
 Longitude / Latitude : W5-W6/N55-N56
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Aberdeen (GB)
 Collector : Ratcliffe
 received : 1959
 Reference Code :
 Receiver Code : 19,32,42,64,67,328

Name : Population Surname : Wildtype
 Pop.-Code : K1-2
 AIS Acc-No. : 108(1000),1195a(52000)
 Phenotype : DIA2577
 Char.-Code :

Origin Location (Country) : Köln (FRG)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E7/N51
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-20/20-30

Source Location (Country) : Bot. Gardens Köln
 Collector : Hülbruch
 received :

Reference Code : 2,3,5,
 Receiver Code : 41,62

Name : Population Surname : Wildtype
 Pop.-Code : K1-3
 AIS Acc-No. : 109(1000),900(500),1731(80900)
 Phenotype :
 Char.-Code :

Origin Location (Country) : Köln (FRG)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E7/N51
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/20-30

Source Location (Country) :
 Collector : Hülbruch
 received :

Reference Code : 2,5,
 Receiver Code : 41,42,57,183

Name : Population Surname : Wildtype
 Pop.-Code : K1-4
 AIS Acc-No. : 110(500),901(2000),1732(66000)
 Phenotype :
 Char.-Code :

Origin Location (Country) : Köln (FRG)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E7/N51
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/20-30

Source Location (Country) :
 Collector : Hülbruch
 received :

Reference Code : 2,3,5,
 Receiver Code : 42

Name : Population Surname : Wildtype
 Pop.-Code : Kl-5
 AIS Acc-No. : 104(500),896(18000)
 Phenotype : hairy, light green, leaf width:distal to the median
 Char.-Code : 3,3,2,1,3,1,3,35
 Origin Location (Country) : Köln (FRG)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E7/N51
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/20-30
 Source Location (Country) :
 Collector : Napp-Zinn
 received :
 Reference Code : 3,
 Receiver Code : 19,32,42,45,64

Name : Population Surname : Wildtype
 Pop.-Code : Kn-0
 AIS Acc-No. : 111(500),903(36000),1734(63900)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Kaunas (SU)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E23-E24/N54-N55
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/20-30
 Source Location (Country) : Kaunas
 Collector : Dapp
 received : 1942
 Reference Code : 2,5,
 Receiver Code : 42,43,57,167

Name : Population Surname : Wildtype
 Pop.-Code : Ko-2
 AIS Acc-No. : 112(300),1196a(39000)
 Phenotype : DIA2577
 Char.-Code :
 Origin Location (Country) : Copenhagen (Denmark)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E11-E12/N55-N56
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) :
 Collector :
 received :
 Reference Code : 2,5,8,
 Receiver Code : 62

Name : Population Surname : Wildtype
 Pop.-Code : Ko-3
 AIS Acc-No. : 1678(14000),1837(6000)
 Phenotype : small,leaf width:proximal to the median,leaf margin smooth
 Char.-Code : 3,4,3,3,3,2,1,120
 Origin Location (Country) : Gelsted (Denmark)
 Habitat : f.Hare Bjerge
 Altitude <m> : 50
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Copenhagen (Denmark)
 Collector : Bot. Gardens
 received :
 Reference Code : 8,
 Receiver Code : 42

Name : Population Surname : Wildtype
 Pop.-Code : Ko-4
 AIS Acc-No. : 1679(7500),1836(9000)
 Phenotype : large,leaf margin sparsely dentate
 Char.-Code : 3,2,3,2,3,2,7,120
 Origin Location (Country) : Copenhagen (Denmark)
 Habitat : Bot.Garden
 Altitude <m> : 50
 Longitude / Latitude : E12/N55-N56
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Copenhagen (Denmark)
 Collector : Bot. Gardens
 received :
 Reference Code : 8,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Ko-5
 AIS Acc-No. : 1680(4500),1861(5300)
 Phenotype : very large,compactness loose,leaf margin sinuate
 Char.-Code : 4,1,2,2,3,2,2,120
 Origin Location (Country) : Copenhagen (Denmark)
 Habitat : Bot.Garden
 Altitude <m> : 50
 Longitude / Latitude : E12/N55-N56
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Copenhagen (Denmark)
 Collector : Bot. Gardens
 received :
 Reference Code : 8,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Kr-0
 AIS Acc-No. : 113(1000),904(4000),1735(54400)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Krefeld (FRG)
 Habitat : Bot,Garden
 Altitude <m> : 1-100
 Longitude / Latitude : E6-E7/N51-N52
 Daily Temp. mean (spring/autumn) <C> : 5-6/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Krefeld (FRG)
 Collector :
 received : 1940
 Reference Code : 2,5,
 Receiver Code : 41,42,183

Name : Population Surname : Wildtype
 Pop.-Code : La-0
 AIS Acc-No. : 114(1000),906(3000),1985(369500),2061(60000)
 Phenotype : wildtype of many mutant lines of FEENSTRA,JACOBS,KOORNNEEF
 Char.-Code : 3.2.1.2.1.2.3.35
 Origin Location (Country) : Landsberg/Warthe (PL)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E15-E16/N52-N53
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/20-30
 Source Location (Country) : Landsberg/Warthe(PL)
 Collector : Michel
 received : 1939
 Reference Code : 2,5,9,11,13,15,16,19,20,21,
 Receiver Code : 8,28,35,41,44,47,49,51,52,55,56,69,72,79,92,93,cont.pg.326

Name : Population Surname : Wildtype
 Pop.-Code : La-0
 AIS Acc-No. : 114(1000),906(3000),1985(369500)2061(60000)
 Phenotype : wildtype of many mutant lines of FEENSTRA,JACOBS,KOORNNEEF
 Char.-Code : 3.2.1.2.1.2.3.35
 Origin Location (Country) : Landsberg/Warthe(PL)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E15-E16/N52-N53
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/20-30
 Source Location (Country) : Landsberg/Warthe(PL)
 Collector : Michel
 received : 1939
 Reference Code : 2,5,9,11,13,15,16,19,20,21,
 Receiver Code : cont.of pg.113:94,95,

Name : Population Surname : Wildtype
 Pop.-Code : La-1
 AIS Acc-No. : 115(1000),905(4000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Landsberg/Warthe (PL)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E15-E16/N52-N53
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/20-30
 Source Location (Country) : Landsberg/Warthe(PL)
 Collector : Michel
 received : 1939
 Reference Code : 2,5,9,11,13,15,16,19,21,
 Receiver Code : 41,42,43,57,80,

Name : Population Surname : Wildtype
 Pop.-Code : Lan-0
 AIS Acc-No. : 116(1000),907(-),1737(76200)
 Phenotype : small rosette size,weakly hairy
 Char.-Code : 3,4,3,2,2,2,3,55
 Origin Location (Country) : Lanark (GB)
 Habitat : Railway ballast
 Altitude <m> : 100-200
 Longitude / Latitude : W3-W4/N55-N56
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/40-50
 Source Location (Country) : Aberdeen (GB)
 Collector : Ratcliffe
 received : 1959
 Reference Code :
 Receiver Code : 41,228,172

Name : Population Surname : Wildtype
 Pop.-Code : Lc-0
 AIS Acc-No. : 117(500),908(55100)
 Phenotype : dark green, leaf margin weakly serrate
 Char.-Code : 2,3,3,2,2,3,3,48
 Origin Location (Country) : Loch Ness (GB)
 Habitat : rock ledges,moine schist
 Altitude <m> : 1-100
 Longitude / Latitude : W4-W5/N57-N58
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/40-50
 Source Location (Country) : Aberdeen (GB)
 Collector : Ratcliffe
 received : 1961
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Le-0
 AIS Acc-No. : 118(800),909(600),1738(72000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Leiden (NL)
 Habitat : Bot.Garden
 Altitude <m> : 1-100
 Longitude / Latitude : E4-E5/N52-N53
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/40-50
 Source Location (Country) : Leiden (NL)
 Collector : Bot. Gardens
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Li-1
 AIS Acc-No. : 119(800),910(5000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Limburg (FRG)
 Habitat : highway bright over Lahn
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1940
 Reference Code : 2,3,15,20
 Receiver Code : 42,57,79,80

Name : Population Surname : Wildtype
 Pop.-Code : Li-2
 AIS Acc-No. : 120(1000),1690(84300)
 Phenotype : small,glabrous,leaf margin sinuate
 Char.-Code : 2,4,3,2,1,2,2,-
 Origin Location (Country) : Limburg (FRG)
 Habitat : near by a lock
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1940
 Reference Code : 2,3,4,5,8,15,20
 Receiver Code : 228,183

Name : Population Surname : Wildtype
 Pop.-Code : Li-2-1
 AIS Acc-No. : 121(500),1638(32500)
 Phenotype : DIA2889
 Char.-Code :
 Origin Location (Country) : Limburg (FRG)
 Habitat : near by a lock
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1940
 Reference Code : 2,5,15,20
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Li-3
 AIS Acc-No. : 122(1000),1717(66000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Limburg (FRG)
 Habitat : near by a lock
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code : 2,5,15,20
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Li-3-3
 AIS Acc-No. : 123(1000),1197(53000)
 Phenotype : strongly hairy,leaf margin sinuate
 Char.-Code : 4,3,2,2,4,2,2,95
 Origin Location (Country) : Limburg (FRG)
 Habitat : near by a lock
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code : 2,5,15,20
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Li-5
 AIS Acc-No. : 124(1000),917(10400)
 Phenotype : small, strongly hairy, leafs like Mut. latifolia
 Char.-Code : 3,4,3,2,4,2,3,47
 Origin Location (Country) : Limburg (FRG)
 Habitat : roadside to Dietkirchen
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code : 2,4,5,13,15,20,16
 Receiver Code : 15,41,42,86

Name : Population Surname : Wildtype
 Pop.-Code : Li-5-2
 AIS Acc-No. : 125(300),1198(71500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Limburg (FRG)
 Habitat : roadside to Dietkirchen
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code : 2,5,15,20
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Li-5-3
 AIS Acc-No. : 126(1000),1718(67000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Limburg (FRG)
 Habitat : roadside to Dietkirchen
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code : 2,5,15,20
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Li-6
 AIS Acc-No. : 127(300),916(100)
 Phenotype : compact rosette, leaf margin dentate DIA2512,2515
 Char.-Code : 2,3,4,1,2,2,6,70
 Origin Location (Country) : Limburg (FRG)
 Habitat : railway embankment
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1944
 Reference Code : 2,5,15,20
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Li-6-1
 AIS Acc-No. : 128(300),1199(63000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Limburg (FRG)
 Habitat : railway embankment
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1944
 Reference Code : 2,5,15,20
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Li-7
 AIS Acc-No. : 129(500),917(7000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Limburg (FRG)
 Habitat : thrown up earth
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1954
 Reference Code : 2,5,15,20
 Receiver Code : 41,42,80

Name : Population Surname : Wildtype
 Pop.-Code : Li-8
 AIS Acc-No. : 130(1000),918(54000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Limburg (FRG)
 Habitat : fallow land
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1953
 Reference Code : 2,5,15,20
 Receiver Code : 42,43,80

Name : Population Surname : Wildtype
 Pop.-Code : Li-10
 AIS Acc-No. : 131(700),919(3800)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Limburg (FRG)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code : 2,
 Receiver Code : 42

Name : Population Surname : Wildtype
 Pop.-Code : Li-11
 AIS Acc-No. : 132(1000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Limburg (FRG)
 Habitat : Brückenvorstadt
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1961
 Reference Code : 2,5,15,20
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Li-12
 AIS Acc-No. : 133(2000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Limburg (FRG)
 Habitat : roadside "Am Rosenhang"
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1961
 Reference Code : 2,5,15,20
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Li-13
 AIS Acc-No. : 134(1000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Limburg (FRG)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E8/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code : 2,5,15,20
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Lip-0
 AIS Acc-No. : 1779(5000),1830(41900)
 Phenotype : very large,compact
 Char.-Code : 3,1,4,2,3,2,4,35
 Origin Location (Country) : Lipowiec/Chrzanow(PL)
 Habitat : loamy soil/limestone
 Altitude <m> : 500
 Longitude / Latitude : E19-20/N50
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Katowice/Krakow(PL)
 Collector : Sendek
 received : 1980
 Reference Code :
 Receiver Code : 42,64,228

Name : Population Surname : Wildtype
 Pop.-Code : Ll-0
 AIS Acc-No. : 135(500),920(6700),1443(43000)
 Phenotype : large rosette size, strongly hairy
 Char.-Code : 4,2,4,1,4,2,2,54
 Origin Location (Country) : Llagostera (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N42
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code : 42,43,228,35,162,167

Name : Population Surname : Wildtype
 Pop.-Code : Ll-1
 AIS Acc-No. : 136(500),1719(26900)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Llagostera (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N42
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code : 163

Name : Population Surname : Wildtype
 Pop.-Code : Ll-2
 AIS Acc-No. : 137(3000),1720(36000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Llagostera (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N42
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : L1-3
 AIS Acc-No. : 138(1000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Llagostera (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N42
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Lm-2
 AIS Acc-No. : 139(500),911(6000),2256(9850)
 Phenotype :
 Char.-Code : -, -, -, -, -, -, 34
 Origin Location (Country) : Le Mans (France)
 Habitat : wheatfield
 Altitude <m> : 1-100
 Longitude / Latitude : E0-E1/N48
 Daily Temp. mean (spring/autumn) <C> : 9-10/13-14
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/30-40
 Source Location (Country) :
 Collector : Dorn
 received : 1943
 Reference Code : 2,5,
 Receiver Code : 42,80

Name : Population Surname : Wildtype
 Pop.-Code : L6-1
 AIS Acc-No. : 140(1000),912(32900)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Lörrach (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E7-E8/N47-N48
 Daily Temp. mean (spring/autumn) <C> : 5-6/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 70-80/60-70
 Source Location (Country) :
 Collector : Hügin
 received : 1955
 Reference Code : 2,5,
 Receiver Code : 41,42

Name : Population Surname : Wildtype
 Pop.-Code : Lö-2
 AIS Acc-No. : 141(1000),1721(57900)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Lörrach (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E7-E8/N47-N48
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 70-80/60-70
 Source Location (Country) :
 Collector : Hügin
 received : 1955
 Reference Code : 2,5,
 Receiver Code : 183

Name : Population Surname : Wildtype
 Pop.-Code : Loh-0
 AIS Acc-No. : 142(500),913(21050),1722(47000)
 Phenotype : leaf margin weakly serrate,hairy
 Char.-Code : 3,3,3,2,3,2,3,70
 Origin Location (Country) :
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code : 42

Name : Population Surname : Wildtype
 Pop.-Code : Lu-1
 AIS Acc-No. : 143(300),915(1450),1723(62150)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Lund (Sweden)
 Habitat : Bot,Garden
 Altitude <m> : 1-100
 Longitude / Latitude : E13-E14/N55-N56
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) :
 Collector : Bot. Gardens
 received : 1939
 Reference Code : 2,5,
 Receiver Code : 183

Name : Population
 Pop.-Code : Lz-0
 AIS Acc-No. : 2242(10000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Lezoux, Puy-de-Dome (F)
 Habitat :
 Altitude <m> : 400-500
 Longitude / Latitude : E3-4/N46
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Liege (B)
 Collector : Bot. Garden
 received : 1987
 Reference Code :
 Receiver Code :

Name : Population
 Pop.-Code : Ma-0
 AIS Acc-No. : 144(600),921(38400)
 Phenotype : leaf like Mut. latifolia
 Char.-Code :
 Origin Location (Country) : Marburg/Lahn (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) :
 Collector : Claußen
 received :
 Reference Code : 2,3,
 Receiver Code : 42,57,77

Name : Population
 Pop.-Code : Ma-2
 AIS Acc-No. : 145(1000),1724(67750)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Marburg/Lahn (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) :
 Collector : Claußen
 received :
 Reference Code : 2,3,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Map-0
 AIS Acc-No. : 1218(500),1541(5000),1658(2000),1817(2000)
 Phenotype : small,loose rosette compactness,leaf margin sinuate
 Char.-Code : 4,4,2,3,3,2,2,120
 Origin Location (Country) : North of Madrid (Spain)
 Habitat : sandy granitic soil
 Altitude <m> : 1400
 Longitude / Latitude : W3-4/N40-41
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Madrid (Spain)
 Collector : Gomez-Campo
 received : 1967
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Mc-0
 AIS Acc-No. : 146(200),1200(21500),1725(7400)
 Phenotype : leaf width:distal to the median,dark green,smooth leaf margin
 Char.-Code : 3,3,4,1,3,3,1,95
 Origin Location (Country) : Mickles Fell (GB)
 Habitat : rockyground on limestone
 Altitude <m> :
 Longitude / Latitude : W3-W5/N56-N58
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Aberdeen (GB)
 Collector : Ratcliffe
 received : 1960
 Reference Code :
 Receiver Code : 43

Name : Population Surname : Wildtype
 Pop.-Code : Me-0
 AIS Acc-No. : 246(5000),1813(41000)
 Phenotype : leaf flat,small,weakly hairy,leaf margin sinuate)IA2510
 Char.-Code : 3,3,2,3,3,2,4,30
 Origin Location (Country) : Mechtshausen/Hessen (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N51-N52
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 15,42

Name : Population
 Pop.-Code : Mh-0 Surname : Wildtype
 AIS Acc-No. : 147(200),922(15700),2220(35850)
 Phenotype : loose rosette compactness,dark green,leaf margin weakly serrate
 Char.-Code : 4,3,2,2,3,3,3,36
 Origin Location (Country) : Mühlen (Poland)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E20-E21/N53-N54
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/20-30
 Source Location (Country) :
 Collector :
 received :
 Reference Code :
 Receiver Code : 42,35,139,162

Name : Population Surname : Wildtype
 Pop.-Code : Mh-1
 AIS Acc-No. : 148(600),1639(13800)
 Phenotype : very loose rosette compactness,smooth leaf margin
 Char.-Code : 3,3,1,1,3,2,1,-
 Origin Location (Country) : Mühlen/Ostpr,(PL)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E20-E21/N53-N54
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/20-30
 Source Location (Country) : Allenstein (PL)
 Collector :
 received :
 Reference Code :
 Receiver Code : 183,328

Name : Population Surname : Wildtype
 Pop.-Code : Mnz-0
 AIS Acc-No. : 2099(1000),2138(11450)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Mainz (FRG)
 Habitat : sandy soil,cemetery
 Altitude <m> : 1-100
 Longitude / Latitude : E8-E9/N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/30
 Source Location (Country) : Frankfurt (FRG)
 Collector : Kranz
 received : 1984
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Mr-0
 AIS Acc-No. : 150(500),923(12000),1444(19000)
 Phenotype : DIA2502
 Char.-Code :
 Origin Location (Country) : Monte/Tosso (Italy)
 Habitat :
 Altitude <m> : 1000-1500
 Longitude / Latitude : E9-E10/N44-N45
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : München (FRG)
 Collector : Staatssammlung
 received : 1952
 Reference Code : 2,3,
 Receiver Code : 58,62,77

Name : Population Surname : Wildtype
 Pop.-Code : Mrk-0
 AIS Acc-No. : 151(500),924(9000),2195(27100)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Markt/Baden (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E9-E10/N49
 Daily Temp. mean (spring/autumn) <C> : 5-6/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 70-80/60-70
 Source Location (Country) :
 Collector : Hügin
 received : 1955
 Reference Code : 2,5,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Ms-0
 AIS Acc-No. : 152(800),925(8100),2209(21750)
 Phenotype : large rosette size,strongly hairy,dark green,leaf margin serrate
 Char.-Code : 3,2,4,1,4,3,4,48
 Origin Location (Country) : Moskau (USSR)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E38/N56
 Daily Temp. mean (spring/autumn) <C> : <0-2/<5-6
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) :
 Collector : Kvitko
 received :
 Reference Code :
 Receiver Code : 16,45,63,68,228,35,139,162,119,225

Name : Population Surname : Wildtype
 Pop.-Code : Mt-0
 AIS Acc-No. : 153(800),926(18000),2263(2500)
 Phenotype :
 Char.-Code : -, -, -, -, -, -, -, 27
 Origin Location (Country) : Martuba/Cyrenaika(Libya)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E38/N56
 Daily Temp. mean (spring/autumn) <C> : 15-16/15-16
 Monthly Prec.mean (spring/autumn)<mm> : <10/<10
 Source Location (Country) :
 Collector : Boss
 received : 1942
 Reference Code : 1,15,18,2,5,12,
 Receiver Code : 11,42,43,45,68,80,82,

Name : Population Surname : Wildtype
 Pop.-Code : Mz-0
 AIS Acc-No. : 269(24000),981(39000),1600(10900)
 Phenotype : light green,leaf margin weakly serrate
 Char.-Code : 3,3,3,2,3,1,3,58
 Origin Location (Country) : Merzhausen/Ts. (FRG)
 Habitat : roadside,stoany loam
 Altitude <m> : 400-500
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 40/30-40
 Source Location (Country) : Frankfurt/M. (FRG)
 Collector : Kranz
 received : 1975
 Reference Code :
 Receiver Code : 42,183

Name : Population Surname : Wildtype
 Pop.-Code : Na-1
 AIS Acc-No. : 154(-),927(20000),2257(8500)
 Phenotype :
 Char.-Code : -, -, -, -, -, -, -, 41
 Origin Location (Country) : Nantes (France)
 Habitat : Bot,Garden
 Altitude <m> : 1-100
 Longitude / Latitude : W1-W2/N47-N48
 Daily Temp. mean (spring/autumn) <C> : 9-10/13-14
 Monthly Prec.mean (spring/autumn)<mm> : 40-50/40-50
 Source Location (Country) :
 Collector : Bot. Gardens
 received :
 Reference Code : 2,5,
 Receiver Code : 42,43

Name : Population Surname : Wildtype
 Pop.-Code : Nc-1
 AIS Acc-No. : 302(-),1565(19900)
 Phenotype : leaf posture incompletely flat,normal
 Char.-Code : 2,3,3,3,3,2,4,56
 Origin Location (Country) : Ville-en-Vermois (F)
 Habitat :
 Altitude (m) : 250
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) (C) :
 Monthly Prec.mean (spring/autumn)(mm) :
 Source Location (Country) : Frankfurt(FRG)
 Collector : Grasmück
 received : 1977
 Reference Code :
 Receiver Code : 42,228

Name : Population Surname : Wildtype
 Pop.-Code : Nd-0
 AIS Acc-No. : 155(1500),928(39800),1887(10000),2135(56250)
 Phenotype : very loose rosette,light green,weakly hairyDIA2508
 Char.-Code : 2.3.1.2.2.1.2.33
 Origin Location (Country) : Niederrhein (FRG)
 Habitat :
 Altitude (m) : 200-300
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) (C) : 5-6/9-10
 Monthly Prec.mean (spring/autumn)(mm) : 20-30/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code : used by MEYEROWITZ, Pasadena
 Receiver Code : 3,16,41,42,62,63,64,66,67,72,93,95,96,228,343,289 cont.pg.329

Name : Population Surname : Wildtype
 Pop.-Code : Nd-0
 AIS Acc-No. : 155(1500),928(39800),1887(10000),2135(56250)
 Phenotype : very loose rosette compactness,light green,weakly hairy
 Char.-Code : 2.3.1.2.2.1.2.33
 Origin Location (Country) : Niederrhein (FRG)
 Habitat :
 Altitude (m) : 200-300
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) (C) : 5-6/9-10
 Monthly Prec.mean (spring/autumn)(mm) : 20-30/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code : used by MEYEROWITZ, Pasadena
 Receiver Code : cont.of pg.155: 50,139,1,47,324

Name : Population Surname : Wildtype
 Pop.-Code : Nie-0
 AIS Acc-No. : 1525 (25000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Niederlauken/Ts. (FRG)
 Habitat : roadside, loam
 Altitude <m> : 350
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 4-5/8-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Frankfurt/M. (FRG)
 Collector : Kranz
 received : 1976
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : No-0
 AIS Acc-No. : 1687 (57700), 1833 (49900), 2163 (32400)
 Phenotype : normal
 Char.-Code : J,2,2,2,3,2,2,28
 Origin Location (Country) : Nossen (GDR)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E13-E14/N51
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Halle (GDR)
 Collector : Bot. Gardens
 received : 1978
 Reference Code :
 Receiver Code : 3,64,228,35,162,119,225

Name : Population Surname : Wildtype
 Pop.-Code : Np-0
 AIS Acc-No. : 156 (1000), 929 (18000), 2254 (9650)
 Phenotype :
 Char.-Code : -, -, -, -, -, -, 27
 Origin Location (Country) : Nieps/Salzwedel (FRG)
 Habitat : railway embankment, sand
 Altitude <m> : 1-100
 Longitude / Latitude : E11-E12/N52-N53
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) :
 Collector : Bürger
 received : 1963
 Reference Code : 2,5,
 Receiver Code : 41,42

Name : Population Surname : Wildtype
 Pop.-Code : NW-0
 AIS Acc-No. : 157(500),930(8400),2250(11500)
 Phenotype :
 Char.-Code : -, -, -, -, -, -, 27
 Origin Location (Country) : Neuweilnau (FRG)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1943
 Reference Code : 2,5,
 Receiver Code : 42

Name : Population Surname : Wildtype
 Pop.-Code : NW-1
 AIS Acc-No. : 158(1000),1726(53000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Neuweilnau (FRG)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code : 2,5,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : NW-2
 AIS Acc-No. : 159(1000),1739(53000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Neuweilnau (FRG)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code : 2,5,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Nw-4
 AIS Acc-No. : 161(2000),1741(61500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Neuweilnau (FRG)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code : 2,5,
 Receiver Code : 41,57

Name : Population Surname : Wildtype
 Pop.-Code : Ob-0
 AIS Acc-No. : 268(26000),980(9100),1561(33400)
 Phenotype : normal
 Char.-Code : 3,3,3,2,3,2,4,57
 Origin Location (Country) : Oberursel/3Hassen (FRG)
 Habitat : roadside sandy loam
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 4-5/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30/30-40
 Source Location (Country) : Frankfurt/Main (FRG)
 Collector : Kranz
 received : 1975
 Reference Code :
 Receiver Code : 42

Name : Population Surname : Wildtype
 Pop.-Code : Ob-1
 AIS Acc-No. : 1593(9500),1824(58500),2164(28250)
 Phenotype : leaf posture strongly upright,very large,looseDIA2883,2884
 Char.-Code : 5,1,2,2,2,2,2,30
 Origin Location (Country) : Oberursel/Friedhof (FRG)
 Habitat : sandy stony wall
 Altitude <m> : 300-400
 Longitude / Latitude : E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 4-5/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30/40
 Source Location (Country) : Frankfurt (FRG)
 Collector : Kranz
 received : 1978
 Reference Code : 8,
 Receiver Code : 3,64

Name : Population Surname : Wildtype
 Pop.-Code : Ob-2
 AIS Acc-No. : 1602(53000),1825(30000)
 Phenotype : small,strongly hairy,dark green,weakly serrateDIA2885
 Char.-Code : 2,4,3,3,4,3,3,35
 Origin Location (Country) : Oberursel/Friedhof(FRG)
 Habitat : sandystony wall
 Altitude <m> : 300-400
 Longitude / Latitude : E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 4-5/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30/40
 Source Location (Country) : Frankfurt (FRG)
 Collector : Kranz
 received : 1978
 Reference Code :
 Receiver Code : 21,64

Name : Population Surname : Wildtype
 Pop.-Code : Ob-3
 AIS Acc-No. : 1603(150000)
 Phenotype :
 Char.-Code : DIA2886,2887
 Origin Location (Country) : Oberursel/Friedhof(FRG)
 Habitat : sandy loam
 Altitude <m> : 300-400
 Longitude / Latitude : E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 4-5/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30/40
 Source Location (Country) : Frankfurt (FRG)
 Collector : Kranz
 received : 1978
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Old-1
 AIS Acc-No. : 304(-),1453(26500),1570(13500),1566(26200)
 Phenotype : normal
 Char.-Code : 4,3,3,2,3,2,2,68
 Origin Location (Country) : Oldenburg (FRG)
 Habitat : Bot. Gardens
 Altitude <m> : 1-100
 Longitude / Latitude : E8/N53
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Frankfurt(FRG)
 Collector : Grasmück
 received : 1976
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Old-2
 AIS Acc-No. : 305(-),1454(35500),1562(21900)
 Phenotype : strongly hairy,dark green,leaf margin serrate
 Char.-Code : 4,3,3,2,4,3,4,6J
 Origin Location (Country) : Oldenburg (FRG)
 Habitat : Bot. Gardens
 Altitude <m> : 1-100
 Longitude / Latitude : E8/N53
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Frankfurt(FRG)
 Collector : Grasmück
 received : 1976
 Reference Code :
 Receiver Code : 228

Name : Population Surname : Wildtype
 Pop.-Code : öst-0
 AIS Acc-No. : 143(200),1201(57400)
 Phenotype : dark green,upright leaf width distal to the medianDIA2513
 Char.-Code : 4,3,3,1,2,3,2,>96
 Origin Location (Country) : östhammar (Sweden)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E17-E18/N60-N61
 Daily Temp. mean (spring/autumn) <C> : <0-2/<5-6
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/30-40
 Source Location (Country) :
 Collector : Almquist
 received : 1956
 Reference Code : 2,5,
 Receiver Code : 62,167

Name : Population Surname : Wildtype
 Pop.-Code : Or-0
 AIS Acc-No. : 162(700),931(27000),2183(8650)
 Phenotype : rosette size large, loose rosette compactness
 Char.-Code : 3,2,2,3,2,2,41
 Origin Location (Country) : Oranienstein (FRG)
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 42,43,57,228,183

Name : Population Surname : Wildtype
 Pop.-Code : Ove-0
 AIS Acc-No. : 164(200),932(19000),2259(5000)
 Phenotype : large rosette size,dark green,leaf margin sinuate
 Char.-Code : 2,2,3,2,3,3,2,34
 Origin Location (Country) : Ovelgönne (FRG)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E8-E9/N53-N54
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/<10
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 42,43

Name : Population Surname : Wildtype
 Pop.-Code : Oy-0
 AIS Acc-No. : 165(300),933(14900),2226(48000)
 Phenotype : compact rosette,strong,stem upright
 Char.-Code : 3,1,4,2,3,2,1,38
 Origin Location (Country) : Oystese (Norway)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> : 3-4/<5-6
 Monthly Prec.mean (spring/autumn) <mm> : 80-90/80-90
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1957
 Reference Code : 2,5,16
 Receiver Code : 4,43,45,68,80,167,328

Name : Population Surname : Wildtype
 Pop.-Code : Pa-1
 AIS Acc-No. : 166(300),934(9900),2227(56850)
 Phenotype : loose rosette,large,stem uprightDIA2517
 Char.-Code : 3,1,2,2,3,2,1,34
 Origin Location (Country) : Palermo (Italy)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E13-E14/N38
 Daily Temp. mean (spring/autumn) <C> : 13-14/21-22
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1955
 Reference Code : 2,5,
 Receiver Code : 42,61,62,66,167

Name : Population
 Pop.-Code : Pa-2
 AIS Acc-No. : 167(1000),1742(69900)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Palermo (Italy)
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> : 13-14/21-22
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) :
 Collector :
 received :
 Reference Code : 2,5,
 Receiver Code : 183

Name : Population
 Pop.-Code : Pa-3
 AIS Acc-No. : 168(1000),1743(57000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) :
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> : 13-14/21-22
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) :
 Collector :
 received :
 Reference Code : 2,5,
 Receiver Code :

Name : Population
 Pop.-Code : Per-1
 AIS Acc-No. : 328(-),1460(17200),1569(22700)
 Phenotype : large,dark green,leaf margin serrate
 Char.-Code : 3,2,3,2,3,3,4,65
 Origin Location (Country) :
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) :
 Collector :
 received :
 Reference Code :
 Receiver Code : 42,228,167,172,183,200

Name : Population Surname : Wildtype
 Pop.-Code : Per-2
 AIS Acc-No. : 329(-),1461(15400),1577(32000)
 Phenotype : normal
 Char.-Code : 4,3,3,2,3,2,4,79
 Origin Location (Country) : Perm (USSR)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E56/N58
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Perm (FRG)
 Collector : Paponova
 received : 1975
 Reference Code :
 Receiver Code : 228

Name : Population Surname : Wildtype
 Pop.-Code : Per-3
 AIS Acc-No. : 330(-),1462(28000),1576(23000)
 Phenotype : large,highly compact,leaf margin serrate
 Char.-Code : 3,2,5,2,3,2,4,77
 Origin Location (Country) : Perm (USSR)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E56/N58
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Perm (FRG)
 Collector : Paponova
 received : 1975
 Reference Code :
 Receiver Code : 8

Name : Population Surname : Wildtype
 Pop.-Code : PF-0
 AIS Acc-No. : 169(300),935(11400)
 Phenotype : rosette size large, glabrous,dark greenDIA2514
 Char.-Code : 4,2,3,1,1,3,3,47
 Origin Location (Country) : Pfrondorf (FRG)
 Habitat : sunny field
 Altitude <m> : 300-400
 Longitude / Latitude : E9/N48-N49
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) :
 Collector : Hummel
 received :
 Reference Code : 2,5,
 Receiver Code : 42,62

Name : Population Surname : Wildtype
 Pop.-Code : Pi-0
 AIS Acc-No. : 170(500),936(15900),2228(55500)
 Phenotype : strong,compact rosette,medium,stem upright,not ramified
 Char.-Code : 3,1,4,2,3,2,2,40
 Origin Location (Country) : Pitztal/Tirol
 Habitat : roadside
 Altitude <m> : 1000-1500
 Longitude / Latitude : E11/N47
 Daily Temp. mean (spring/autumn) <C> : 3-4/<5-6
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/40-50
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1942
 Reference Code : 2,4,5,6,9,
 Receiver Code : 42,57,167,328

Name : Population Surname : Wildtype
 Pop.-Code : Pi-2
 AIS Acc-No. : 171(1000),1744(69900)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Pitztal/Tirol
 Habitat :
 Altitude <m> : 1000-1500
 Longitude / Latitude : E11/N47
 Daily Temp. mean (spring/autumn) <C> : 3-4/<5-6
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/40-50
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code : 2,4,5,6,9,
 Receiver Code : 183

Name : Population Surname : Wildtype
 Pop.-Code : Pla-0
 AIS Acc-No. : 172(300),937(8500),1445(38900)
 Phenotype : dark green, strongly hairy, highly compact, large
 Char.-Code : 5,2,5,2,4,3,3,55
 Origin Location (Country) : Playa de Aro (Spain)
 Habitat :
 Altitude <m> : 0-100
 Longitude / Latitude : E2-E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code : 1,42,167

Name : Population Surname : Wildtype
 Pop.-Code : Pla-1
 AIS Acc-No. : 173(1000),1745(79900)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Playa de Aro (Spain)
 Habitat :
 Altitude <m> : 0-100
 Longitude / Latitude : E2-E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code : 57,183

Name : Population Surname : Wildtype
 Pop.-Code : Pla-2
 AIS Acc-No. : 174(2000),1745(64000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Playa de Aro (Spain)
 Habitat :
 Altitude <m> : 0-100
 Longitude / Latitude : E2-E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Pla-3
 AIS Acc-No. : 175(1000),1747(106000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Playa de Aro (Spain)
 Habitat :
 Altitude <m> : 0-100
 Longitude / Latitude : E2-E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Pla-4
 AIS Acc-No. : 176(2000),1748(81000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Playa de Aro (Spain)
 Habitat :
 Altitude <m> : 0-100
 Longitude / Latitude : E2-E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code ; 57

Name : Population Surname : Wildtype
 Pop.-Code : Pn-0
 AIS Acc-No. : 177(500),938(22000),2185(9650),2215(38350)
 Phenotype : rosette size large,compact,leaf width:proximal to the median
 Char.-Code : 4,2,4,3,3,2,2,39
 Origin Location (Country) : Pontivy (France)
 Habitat : roadside
 Altitude <m> : 100-200
 Longitude / Latitude : W3/N48
 Daily Temp. mean (spring/autumn) <C> : 9-10/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/30-40
 Source Location (Country) : Aberdeen (GB)
 Collector : Ratcliffe
 received : 1960
 Reference Code :
 Receiver Code : 16,32,42,57,67,228,183

Name : Population Surname : Wildtype
 Pop.-Code : Pa-0
 AIS Acc-No. : 178(800),939(21000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Poppelsdorf (FRG)
 Habitat : dry,sandy soil
 Altitude <m> : 1-100
 Longitude / Latitude : E7/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 7-8/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Bonn (FRG)
 Collector : Wiesmann
 received : 1939
 Reference Code : 2,5,
 Receiver Code : 42,43

Name : Population Surname : Wildtype
 Pop.-Code : Pa-1
 AIS Acc-No. : 179(1000),1794(46000)
 Phenotype : leaf posture strongly upright,very large rosette size
 Char.-Code : 5,1,2,2,2,2,35
 Origin Location (Country) : Poppelsdorf (FRG)
 Habitat : sandy ground
 Altitude <m> : 1-100
 Longitude / Latitude : E7/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 7-8/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Bonn (FRG)
 Collector : Wiesmann
 received : 1939
 Reference Code : 2,5,13,
 Receiver Code : 57,64

Name : Population Surname : Wildtype
 Pop.-Code : Pr-0
 AIS Acc-No. : 180(500),1778(2500),1790(46000),1857(21200),2165(35600)
 Phenotype : leaf width:distal to the median
 Char.-Code : 4,3,3,1,3,2,3,30
 Origin Location (Country) : Frankfurt-Praunheim(FRG)
 Habitat : loamy soil
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 7-8/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/30-40
 Source Location (Country) : Frankfurt (FRG)
 Collector : Kolbe
 received : 1941
 Reference Code : 2,5,16,17,18,19
 Receiver Code : 3,42,43,64,100

Name : Population
 Surname : Wildtype
 Pop.-Code : Pt-0
 AIS Acc-No. : 181(300),941(20000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Potrau/Lauenburg (FRG)
 Habitat : sandy follow land
 Altitude <m> : 1-100
 Longitude / Latitude : E10-E11/N53-N54
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/40-50
 Source Location (Country) :
 Collector : v. Prollius
 received : 1957
 Reference Code : 2,5,
 Receiver Code : 42,43

Name : Population
 Surname : Wildtype
 Pop.-Code : Ra-0
 AIS Acc-No. : 2241(2000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Randan,Puy-de-Dome(F)
 Habitat :
 Altitude <m> : 400-500
 Longitude / Latitude : E3-4/N46
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Liege (B)
 Collector : Bot. Garden
 received : 1987
 Reference Code :
 Receiver Code :

Name : Population
 Surname : Wildtype
 Pop.-Code : Rd-0
 AIS Acc-No. : 182(100),942(1500),2253(1650)
 Phenotype :
 Char.-Code : -, -, -, -, -, 31
 Origin Location (Country) : Rodenbach/Dill (FRG)
 Habitat :
 Altitude <m> : 500-1000
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/5-6
 Monthly Prec.mean (spring/autumn)<mm> : 80-90/60-70
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1941
 Reference Code : 2,5,
 Receiver Code : 42,43

Name : Population Surname : Wildtype

Pop.-Code : Ron-0

AIS Acc-No. : 276(-),1215(22000),1458(4500),1670(13900),2172(10000)

Phenotype : strongly hairy, leaf margin smooth

Char.-Code : 3,3,3,2,4,2,1,106

Origin Location (Country) : Ronda (Spain)
 Habitat : limestones
 Altitude <m> : 1000
 Longitude / Latitude : W5/N36-37
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Spain
 Collector : Gomez-Campo
 received : 1966

Reference Code :

Receiver Code : 42,62,167

Name : Population Surname : Wildtype

Pop.-Code : Rou-0

AIS Acc-No. : 183(500),943(1500),1446(29400)

Phenotype :

Char.-Code :

Origin Location (Country) : Rouen (France)
 Habitat : roadside
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N49-N50
 Daily Temp. mean (spring/autumn) <C> : 7-8/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Frankfurt (FRG)
 Collector : Kiehne
 received : 1943

Reference Code : 2,3,15,

Receiver Code : 183

Name : Population Surname : Wildtype

Pop.-Code : Rsch-0

AIS Acc-No. : 184(500),944(36800),2229(54600)

Phenotype : large, strong rosette

Char.-Code : 4,2,3,2,3,2,1,40

Origin Location (Country) : Rschew/Starize (USSR)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E34/N56-N57
 Daily Temp. mean (spring/autumn) <C> : <0-2/7-8
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/30-40
 Source Location (Country) :
 Collector : Hülsbruch
 received : 1942

Reference Code : 2,5,

Receiver Code : 42,57,167,172

Name : Population Surname : Wildtype
 Pop.-Code : Rsch-4
 AIS Acc-No. : 185(2000),1795(45800)
 Phenotype : large rosette size, compact
 Char.-Code : 3,2,4,3,3,2,3,35
 Origin Location (Country) : Rschew/Starize (USSR)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E34/N56-N57
 Daily Temp. mean (spring/autumn) <C> : <0-2/7-8
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/30-40
 Source Location (Country) : Hülsbruch
 Collector : 1942
 received :
 Reference Code : 2,5,
 Receiver Code : 57,64,42,183

Name : Population Surname : Wildtype
 Pop.-Code : Ru-0
 AIS Acc-No. : 186(300),945(26000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Ruppachtal/Taunus (FRG)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1958
 Reference Code : 2,5,
 Receiver Code : 42,43

Name : Population Surname : Wildtype
 Pop.-Code : Sac-0
 AIS Acc-No. : 277(-),1216(20000)
 Phenotype : small,strongly hairy,leaf margin weakly serrate
 Char.-Code : 3,4,3,2,4,2,3,79
 Origin Location (Country) : Sierra d.Alcararaz (Spai)
 Habitat : limestones
 Altitude <m> : W2-3/N38-39
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Spain
 Collector : Gomez-Campo
 received : 1967
 Reference Code :
 Receiver Code : 42,62

Name : Population Surname : Wildtype
 Pop.-Code : Sah-0
 AIS Acc-No. : 275(-),1213(15500),1457(30000),1572(1500),1669(17000)
 Phenotype : small,strongly hairy,dark green,leaf margin weakly serrate
 Char.-Code : 3,4,3,2,4,3,3,91
 Origin Location (Country) : Sierra Alhambra (Spain)
 Habitat :
 Altitude <m> : 1300
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Spain
 Collector : Gomez-Campo
 received : 1974
 Reference Code :
 Receiver Code : 42

Name : Population Surname : Wildtype
 Pop.-Code : Se-0
 AIS Acc-No. : 187(800),946(15300),2230(53450)
 Phenotype : upright,very large,longstalked leavesDIA2509
 Char.-Code : 4,1,4,2,4,2,4,42
 Origin Location (Country) : San Eleno (Spain)
 Habitat :
 Altitude <m> : 0-100
 Longitude / Latitude : E2-E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code : 16,42,62,63,91,167

Name : Population Surname : Wildtype
 Pop.-Code : Sei-0
 AIS Acc-No. : 188(1000),947(14100),2211(20000)
 Phenotype : small,glabrous, dark green,smooth leaf margin
 Char.-Code : 3,4,2,2,1,3,1,36
 Origin Location (Country) : Seis am Schlern (Italy)
 Habitat :
 Altitude <m> : 1000-1500
 Longitude / Latitude : E11-E12/N46-N47
 Daily Temp. mean (spring/autumn) <C> : 5-6/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/60-70
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code : 15,16,41,42,43,35,162,167,119,225

Name : Population
 Pop.-Code : Set-0
 AIS Acc-No. : 189(200),1202(32800)
 Phenotype : large rosette size,dark green, leaf margin sinuate
 Char.-Code : 4,2,4,1,3,3,2,-
 Origin Location (Country) : Settle (GB)
 Habitat : rocky ground/limestone
 Altitude <m> : 400-500
 Longitude / Latitude : W2/N54
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Aberdeen (GB)
 Collector : Ratcliffe
 received : 1955
 Reference Code :
 Receiver Code : 15,43,63,228,183

Name : Population
 Pop.-Code : Sf-0
 AIS Acc-No. : 190(500),948(3400),1796(30100)
 Phenotype : small,sinuate leaf margin, leaf width:distal to the median
 Char.-Code : 4,4,1,2,3,2,2,84
 Origin Location (Country) : San Feliu (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 11-12/19-20
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code : 42,167

Name : Population
 Pop.-Code : Sf-1
 AIS Acc-No. : 191(4100),1797(17900)
 Phenotype : large leaf posture strongly upright,very loose
 Char.-Code : 5,2,1,2,3,2,3,42
 Origin Location (Country) : San Feliu (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 11-12/19-20
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code : 57,183

Name : Population

Surname : Wildtype

Pop.-Code : 5f-?

AIS Acc-No. : 192(2200),1798(31000),2166(14000)

Phenotype : leaf posture strongly upright, rosette size very large

Char.-Code : 5,1,2,2,3,2,4,30

Origin Location (Country) : San Feliu (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 11-12/19-20
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40

Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :

Reference Code :

Receiver Code : 3,64

Name : Population

Surname : Wildtype

Pop.-Code : Sg-1

AIS Acc-No. : 193(100),949(22000)

Phenotype :

Char.-Code :

Origin Location (Country) : St.Georgen (FRG)
 Habitat : fallow land
 Altitude <m> : 200-300
 Longitude / Latitude : E7-E8/N48
 Daily Temp. mean (spring/autumn) <C> : 5-6/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/50-60

Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1954

Reference Code : 2,5,

Receiver Code : 42,43

Name : Population

Surname : Wildtype

Pop.-Code : Sg-2

AIS Acc-No. : 194(1500),1810(47000),2167(28150)

Phenotype : dark green, leaf posture upright, rosette size large

Char.-Code : 4,2,3,3,3,3,30

Origin Location (Country) : St.Georgen (FRG)
 Habitat : fallow land
 Altitude <m> : 200-300
 Longitude / Latitude : E7-E8/N48
 Daily Temp. mean (spring/autumn) <C> : 5-6/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/50-60

Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1954

Reference Code : 2,5,

Receiver Code : 3,42,64,183

Name : Population Surname : Wildtype
 Pop.-Code : Sh-0
 AIS Acc-No. : 195(700),950(29900),2186(21150)
 Phenotype : leaf margin sinuate, leaf posture incompletely flat
 Char.-Code : 2,3,2,2,2,2,47
 Origin Location (Country) : Schwiegershausen (FRG)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E10-E11/N51-N52
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbeien
 received :
 Reference Code :
 Receiver Code : 42,43,228

Name : Population Surname : Wildtype
 Pop.-Code : Si-0
 AIS Acc-No. : 196(300),951(14500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Siegen (FRG)
 Habitat : roadside to Hermesbach
 Altitude <m> : 200-300
 Longitude / Latitude : E8/N51
 Daily Temp. mean (spring/autumn) <C> : 3-4/<5-6
 Monthly Prec.mean (spring/autumn)<mm> : 50-60/50-60
 Source Location (Country) :
 Collector :
 received : 1940
 Reference Code : 2,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : So-0
 AIS Acc-No. : 1580(2700),1858(5000)
 Phenotype : leaf posture strongly upright, large, compactness very loose
 Char.-Code : 5,2,1,2,3,2,8,120
 Origin Location (Country) : Sogn og Fjordane (Norway)
 Habitat :
 Altitude <m> : 50
 Longitude / Latitude : E5-7/N60-61
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) :
 Collector : Röseng
 received : 1975
 Reference Code :
 Receiver Code : 16,42,167,172

Name : Population Surname : Wildtype
 Pop.-Code : Sol-0
 AIS Acc-No. : 1585(11000),1859(6600),1888(5200),2173(500)
 Phenotype : large
 Char.-Code : 3,2,4,2,3,2,3,180
 Origin Location (Country) : Solrød (Danmark)
 Habitat : beach
 Altitude <m> : 0
 Longitude / Latitude : E12/N55
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Kopenhagen (Danemark)
 Collector : Bot. Gardens
 received : 1978
 Reference Code :
 Receiver Code : 42,328

Name : Population Surname : Wildtype
 Pop.-Code : Sp-0
 AIS Acc-No. : 247(-),971(8400)
 Phenotype : light green, leaf margin smooth
 Char.-Code : 3,3,3,1,3,1,1,47
 Origin Location (Country) : Berlin/Spandau (FRG)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E13-E14/N52-N53
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 42

Name : Population Surname : Wildtype
 Pop.-Code : Sr-0
 AIS Acc-No. : 197(800),1293(67000)
 Phenotype : leaf posture upright, leaf margin weakly serrate
 Char.-Code : 4,3,3,2,3,2,3,-
 Origin Location (Country) : Soria (Spain)
 Habitat : sandy ground
 Altitude <m> : 1000-1100
 Longitude / Latitude : W2-W3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 9-10/13-14
 Monthly Prec.mean (spring/autumn) <mm> : <10/10-20
 Source Location (Country) : Aberdeen (GB)
 Collector : Ratcliffe
 received : 1960
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : St-0
 AIS Acc-No. : 198(1000),952(21300),2231(107600)
 Phenotype : DIA2511
 Char.-Code : 4,2,3,2,3,2,2,43
 Origin Location (Country) : Stockholm (Sweden)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E18/N59
 Daily Temp. mean (spring/autumn) <C> : 3-4/7-8
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) :
 Collector : Arnidtsen
 received : 1939
 Reference Code : 1,2,3,4,5,12,13,15,16,18,20
 Receiver Code : 41,80,167

Name : Population Surname : Wildtype
 Pop.-Code : Ste-0
 AIS Acc-No. : 1688(7500),1832(30000),2168(11250)
 Phenotype : leaf posture incompletely flat
 Char.-Code : 2,3,3,2,3,2,2,30
 Origin Location (Country) : Stendal (GDR)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E12/N53
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Halle (GDR)
 Collector : Bot. Gardens
 received : 1978
 Reference Code :
 Receiver Code : 3,64

Name : Population Surname : Wildtype
 Pop.-Code : Stw-0
 AIS Acc-No. : 199(1000),953(22000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Stobowa/Orel (USSR)
 Habitat : sandy fallow land
 Altitude <m> : 100-200
 Longitude / Latitude : E36-E37/N52-N53
 Daily Temp. mean (spring/autumn) <C> : <0-2/7-8
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) :
 Collector : Hülsbruch
 received : 1943
 Reference Code : 2,5,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Su-0
 AIS Acc-No. : 200(500),954(400),1691(42800)
 Phenotype : leaf margin serrate,normal
 Char.-Code : 3,2,3,1,3,2,4,90
 Origin Location (Country) : Southport (GB)
 Habitat : sand dune
 Altitude <m> : 1-100
 Longitude / Latitude : W3/N53-N54
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Aberdeen (GB)
 Collector : Ratcliffe
 received : 1955
 Reference Code :
 Receiver Code : 228,183

Name : Population Surname : Wildtype
 Pop.-Code : Sue-0
 AIS Acc-No. : 272(-),1214(12000),1455(7900),1657(1900),2171(2150)
 Phenotype : large rosette size,strongly hairy,weakly serrate leaf margin
 Char.-Code : 3,2,4,3,4,2,3,175
 Origin Location (Country) : Granada (Spain)
 Habitat : Sierra Nevada
 Altitude <m> : 2500-2600
 Longitude / Latitude : W3-W4/N35-N36
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Spain
 Collector : Gomez-Campo
 received : 1967
 Reference Code :
 Receiver Code : 1,42,167,183

Name : Population Surname : Wildtype
 Pop.-Code : Sv-0
 AIS Acc-No. : 1586(18000),1823(2500)
 Phenotype : very large,compact,dark green,leaf margin strongly serrate
 Char.-Code : 3,1,4,2,3,3,5,45
 Origin Location (Country) : Svebölle (Danmark)
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Kopenhagen (Danmark)
 Collector : Bot. Gardens
 received : 1978
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Sy-0
 AIS Acc-No. : 201(700),1204(49400)
 Phenotype :
 Char.-Code : 5,2,4,1,2,2,4,49
 Origin Location (Country) : Isle of Skye (GB)
 Habitat : rock ledge on basalt
 Altitude <m> : 300-400
 Longitude / Latitude : W6-W7/N57-N58
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Aberdeen (GB)
 Collector : Ratcliffe
 received : 1958
 Reference Code :
 Receiver Code : 15,16,228

Name : Population Surname : Wildtype
 Pop.-Code : Ta-0
 AIS Acc-No. : 202(700),955(15500),2261(17500)
 Phenotype :
 Char.-Code : -, -, -, -, -, -, 27
 Origin Location (Country) : Tabor (CSSR)
 Habitat :
 Altitude <m> : 400-500
 Longitude / Latitude : E14-E15/N49-N50
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 20-30/30-40
 Source Location (Country) :
 Collector :
 received : 1937
 Reference Code : 2,5,15,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Te-0
 AIS Acc-No. : 203(1000),956(8700),2232(14750)
 Phenotype : 4,2,5,2,3,2,1,
 Char.-Code :
 Origin Location (Country) : Tenela (Finland)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E21-E30/N60-N66
 Daily Temp. mean (spring/autumn) <C> : <0-2/7-8
 Monthly Prec.mean (spring/autumn) <mm> : 40-50/50-60
 Source Location (Country) :
 Collector : Collander
 received : 1956
 Reference Code : 2,3,5,
 Receiver Code : 41,45,68,80,167

Name : Population Surname : Wildtype
 Pop.-Code : Ts-1
 AIS Acc-No. : 204(1500),957(8000),1447(25800)
 Phenotype : leaf margin serrate, leaf posture upright, large
 Char.-Code : 4,2,2,1,3,2,4,50
 Origin Location (Country) : Tossa de Mar (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 17-18/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 40-50/40-50
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code : 23
 Receiver Code : 41,42,43,59,167,183

Name : Population Surname : Wildtype
 Pop.-Code : Ts-2
 AIS Acc-No. : 205(1000),1809(30500)
 Phenotype : strongly upright leaf posture, large, weakly hairy
 Char.-Code : 5,2,2,2,2,2,3,36
 Origin Location (Country) : Tossa de Mar (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 17-18/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 40-50/40-50
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Ts-3
 AIS Acc-No. : 206(1000),1808(31000)
 Phenotype : leaf posture strongly upright, large, leaf margin serrate
 Char.-Code : 5,2,2,2,3,2,4,36
 Origin Location (Country) : Tossa de Mar (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 17-18/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 40-50/40-50
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Ts-5
 AIS Acc-No. : 207(1000),1807(26900)
 Phenotype : leaf posture strongly upright,large, dark green
 Char.-Code : 5,2,1,3,3,3,4,90
 Origin Location (Country) : Tossa de Mar (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 17-18/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 40-50/40-50
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code : 228

Name : Population Surname : Wildtype
 Pop.-Code : Ts-6
 AIS Acc-No. : 208(1000),1806(26000)
 Phenotype : leaf posture strongly upright,leaf margin strongly serrate
 Char.-Code : 5,3,2,2,3,2,5,90
 Origin Location (Country) : Tossa de Mar (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 17-18/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 40-50/40-50
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code :
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Ts-7
 AIS Acc-No. : 209(1000),1805(13750)
 Phenotype : leaf posture strongly upright,large
 Char.-Code : 5,2,2,2,2,2,3,38
 Origin Location (Country) : Tossa de Mar (Spain)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E3/N41-N42
 Daily Temp. mean (spring/autumn) <C> : 17-18/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 40-50/40-50
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received :
 Reference Code : 15,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : Tsu-0
 AIS Acc-No. : 210(1000),958(40000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Tsu (Japan)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E36-E37/N34-N35
 Daily Temp. mean (spring/autumn) <C> : 9-10/19-20
 Monthly Prec.mean (spring/autumn)<mm> : 90-100/80-90
 Source Location (Country) :
 Collector :
 received : 1940
 Reference Code : 1,2,5,15,
 Receiver Code : 8,41,43,80

Name : Population Surname : Wildtype
 Pop.-Code : Tu-0
 AIS Acc-No. : 211(1000),959(30000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Turin (Italy)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E7-E8/N45
 Daily Temp. mean (spring/autumn) <C> : 9-10/15-16
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/10-20
 Source Location (Country) : Turin(I)
 Collector : Cappolotti
 received : 1940
 Reference Code : 2,5,12,
 Receiver Code : 41,43

Name : Population Surname : Wildtype
 Pop.-Code : Tu-1
 AIS Acc-No. : 212(1000),1804(53900)
 Phenotype : leaf posture strongly upright, very large,dark green
 Char.-Code : 5,1,3,2,2,3,3,38
 Origin Location (Country) : Turin (Italy)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E7-E8/N45
 Daily Temp. mean (spring/autumn) <C> : 9-10/15-16
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/10-20
 Source Location (Country) : Turin (I)
 Collector : Cappolotti
 received : 1940
 Reference Code : 2,5,
 Receiver Code : 41,183

Name : Population Surname : Wildtype
 Pop.-Code : Tu1-0
 AIS Acc-No. : 2265(50000)
 Phenotype : robust and small growth habit
 Char.-Code :
 Origin Location (Country) : Turk Lake,MI(USA)
 Habitat : near tree nursery
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Montcalm county,MI(USA)
 Collector : F.R. Lehle
 received : 1987
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Ty-0
 AIS Acc-No. : 213(500),960(40000)
 Phenotype : leaf posture strongly upright
 Char.-Code : 5,2,5,1,2,2,4,73
 Origin Location (Country) : Taynuilt (GB)
 Habitat : rock ledges on basalt
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Aberdeen (GB)
 Collector : Ratcliffe
 received : 1961
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Uk-1
 AIS Acc-No. : 214(500),961(1650)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Umkirch (FRG)
 Habitat : embankment/river Dreisam
 Altitude <m> : 200-300
 Longitude / Latitude : E7-E8/N48
 Daily Temp. mean (spring/autumn) <C> : 7-8/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 50-60/50-60
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1954
 Reference Code : 2,5,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Uk-2
 AIS Acc-No. : 215(1000),1803(41800),2169(35250)
 Phenotype : leaf posture strongly upright
 Char.-Code : 5,3,3,2,2,2,28
 Origin Location (Country) : Umkirch (FRG)
 Habitat : embankment/river Dreisam
 Altitude <m> : 200-300
 Longitude / Latitude : E7-E8/N48
 Daily Temp. mean (spring/autumn) <C> : 7-8/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 50-60/50-60
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1954
 Reference Code : 2,5,
 Receiver Code : 3,183,328

Name : Population Surname : Wildtype
 Pop.-Code : Uk-4
 AIS Acc-No. : 217(3000),1801(61250)
 Phenotype : weakly hairy, leaf margin sinuate
 Char.-Code : 3,2,4,2,2,2,35
 Origin Location (Country) : Umkirch (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E7-E8/N48
 Daily Temp. mean (spring/autumn) <C> : 7-8/11-12
 Monthly Prec.mean (spring/autumn) <mm> : 50-60/50-60
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1954
 Reference Code : 2,5,
 Receiver Code : 64

Name : Population Surname : Wildtype
 Pop.-Code : Vi-0
 AIS Acc-No. : 219(500),962(34000)
 Phenotype : DIA2504
 Char.-Code :
 Origin Location (Country) : Vilbel/Taunus (FRG)
 Habitat : near Dortelweil
 Altitude <m> : 100-200
 Longitude / Latitude : E8-E9/N50-N51
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 30-40/30-40
 Source Location (Country) : Limburg (FRG)
 Collector : Laibach
 received : 1940
 Reference Code : 2,5,
 Receiver Code : 43

Name : Population Surname : Wildtype
 Pop.-Code : Wa-1
 AIS Acc-No. : 220(300),963(13000)
 Phenotype : leaves like Mut.latifoliaDIA2516
 Char.-Code :
 Origin Location (Country) : Warschau (Poland)
 Habitat :
 Altitude <m> : 100-200
 Longitude / Latitude : E21/N52-N53
 Daily Temp. mean (spring/autumn) <C> : 3-4/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/20-30
 Source Location (Country) : Warschau (PL)
 Collector : Bot. Gardens
 received : 1937
 Reference Code : 2,5,22,
 Receiver Code : 62,99

Name : Population Surname : Wildtype
 Pop.-Code : Wc-1
 AIS Acc-No. : 248(-),972(15900),2252(19250)
 Phenotype : rosette size large,loose stem,light green
 Char.-Code : 2,2,2,2,1,2,30
 Origin Location (Country) : Wester-Celle (FRG)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E10/N53
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 42,328

Name : Population Surname : Wildtype
 Pop.-Code : Wc-2
 AIS Acc-No. : 1640(200),1663(650),1814(26000)
 Phenotype : small,rosette compactness very loose
 Char.-Code : 5,2,2,3,3,2,2,42
 Origin Location (Country) : Wester-Celle (FRG)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E10/N53
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Wil-1
 AIS Acc-No. : 221(300),964(42800),2233(66600)
 Phenotype :
 Char.-Code : 4,2,3,2,2,2,1,40
 Origin Location (Country) : Wilna/Litauen (USSR)
 Habitat : near Towniskaia
 Altitude <m> : 100-200
 Longitude / Latitude : E25/N55
 Daily Temp. mean (spring/autumn) <C> : <0-2/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/20-30
 Source Location (Country) :
 Collector : Johuber
 received :
 Reference Code : 2,5,10,23,14,
 Receiver Code : 3,8,16,43,45,56,68,77,99,167,120

Name : Population Surname : Wildtype
 Pop.-Code : Wil-2
 AIS Acc-No. : 222(1000),1783(39900)
 Phenotype : large,compact,glabrous,leaf margin sinuate
 Char.-Code : 4,2,4,2,1,2,2,35
 Origin Location (Country) : Wilna/Litauen (USSR)
 Habitat : near Towniskaya
 Altitude <m> : 100-200
 Longitude / Latitude : E25/N55
 Daily Temp. mean (spring/autumn) <C> : <0-2/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/20-30
 Source Location (Country) :
 Collector : Johuber
 received :
 Reference Code : 2,4,5,6,8,10,13,16,17,18,22,23,14
 Receiver Code : 4,43,58,64,80,183

Name : Population Surname : Wildtype
 Pop.-Code : Wil-3
 AIS Acc-No. : 223(1000),1800(46000)
 Phenotype : large,compact,leaf margin weakly serrateDIA2988
 Char.-Code : 4,2,4,2,3,2,3,35
 Origin Location (Country) : Wilna/Litauen (USSR)
 Habitat : near Towinskaya
 Altitude <m> : 100-200
 Longitude / Latitude : E25/N55
 Daily Temp. mean (spring/autumn) <C> : <0-2/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/20-30
 Source Location (Country) : Wilna (PL)
 Collector : Johuber
 received :
 Reference Code : 2,5,10,13,23,14,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : W1-0
 AIS Acc-No. : 224(200),965(10000),2262(7250)
 Phenotype : leaf posture strongly upright,highly compact,light green,
 Char.-Code : 5,3,5,1,2,1,4,30
 Origin Location (Country) : Wildbad (FRG)
 Habitat :
 Altitude <m> : 500-1000
 Longitude / Latitude : E8-E9/N48-N49
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received : 1974
 Reference Code :
 Receiver Code : 15,43

Name : Population Surname : Wildtype
 Pop.-Code : Ws-0
 AIS Acc-No. : 225(700),966(10800)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Vasljevici/Dnjepr (USSR)
 Habitat : sandy ryefield
 Altitude <m> : 100-200
 Longitude / Latitude : E30/N52-N53
 Daily Temp. mean (spring/autumn) <C> : 3-4/45-6
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/30-40
 Source Location (Country) :
 Collector : Hulsbruch
 received : 1943
 Reference Code : 2,12,15,
 Receiver Code : 11,82,42,172

Name : Population Surname : Wildtype
 Pop.-Code : Wt-1
 AIS Acc-No. : 977(7500)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Wietze (FRG)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E9-E10/N52-N53
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/40-50
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Wt-2
 AIS Acc-No. : 251(650),1655(42000)
 Phenotype : weakly hairy,light green,leaf margin smoothDIA2891
 Char.-Code : 4,3,3,1,2,1,1,44
 Origin Location (Country) : Wietze (FRG)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E9-E10/N52-N53
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/40-50
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 42

Name : Population Surname : Wildtype
 Pop.-Code : Wt-3
 AIS Acc-No. : 252(-),1656(27000)
 Phenotype : leaf posture strongly upright, small,very looseDIA2891
 Char.-Code : 5,4,1,2,2,2,1,44
 Origin Location (Country) : Wietze (FRG)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E9-E10/N52-N53
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/40-50
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code : 15,43

Name : Population Surname : Wildtype
 Pop.-Code : Wt-4
 AIS Acc-No. : 253(140),1645(7000)
 Phenotype : weakly hairy,light green,leaf margin sinuateDIA2893
 Char.-Code : 3,3,3,2,2,1,2,49
 Origin Location (Country) : Wietze (FRG)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E9-E10/N52-N53
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/40-50
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Wt-5
 AIS Acc-No. : 254(-),1648(43500)
 Phenotype : rosette very loose,light green,leaf margin sinuateDIA2892
 Char.-Code : 4,3,1,2,3,1,2,42
 Origin Location (Country) : Wietze (FRG)
 Habitat :
 Altitude <m> : 1-100
 Longitude / Latitude : E9-E10/N52-N53
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn)<mm> : 30-40/40-50
 Source Location (Country) : Göttingen (FRG)
 Collector : Röbbelen
 received :
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Wu-0
 AIS Acc-No. : 226(1000),967(20000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : Würzburg (FRG)
 Habitat : sandy soil
 Altitude <m> : 100-200
 Longitude / Latitude : E10/N49-N50
 Daily Temp. mean (spring/autumn) <C> : 5-6/11-12
 Monthly Prec.mean (spring/autumn)<mm> : 20-30/20-30
 Source Location (Country) :
 Collector : Zaidler
 received : 1939
 Reference Code : 2,5,
 Receiver Code : 41

Name : Population Surname : Wildtype
 Pop.-Code : X-0
 AIS Acc-No. : 227(500),968(46000),1448(17000)
 Phenotype :
 Char.-Code :
 Origin Location (Country) : ?
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) :
 Collector :
 received :
 Reference Code : 2,5,
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Xx-0
 AIS Acc-No. : 281(-),1449(15900),1450(1000),1574(7000)
 Phenotype : leaf margin smooth,normal
 Char.-Code : 3,3,3,2,3,2,1,65
 Origin Location (Country) : ?
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) :
 Collector : Grasmück
 received : 1976
 Reference Code :
 Receiver Code : 228

Name : Population Surname : Wildtype
 Pop.-Code : Xxx-0
 AIS Acc-No. : 982(-),1568(63000)
 Phenotype : light green,small,leaf width:proximal to the median
 Char.-Code : 3,4,3,3,3,1,3,57
 Origin Location (Country) :
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Madrid (Spain)
 Collector : Gomez-Campo
 received : 1976
 Reference Code :
 Receiver Code : 63

Name : Population Surname : Wildtype
 Pop.-Code : Yo-0
 AIS Acc-No. : 2237(200)
 Phenotype : small rosette, one stem, rel.large seeds
 Char.-Code :
 Origin Location (Country) : Yosemite/Nat.Park(USA)
 Habitat : granite sand.valley
 Altitude <m> : 1400-1500
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Frankfurt(FRG)
 Collector : E.Kranz
 received : 1987
 Reference Code :
 Receiver Code :

Name : Population Surname : Wildtype
 Pop.-Code : Ze-0
 AIS Acc-No. : 1780(42000),1829(17000)
 Phenotype :
 Char.-Code : -, -, -, -, 2, -, 84
 Origin Location (Country) : Zermatt (Swiss)
 Habitat : near a dry, rocky wall
 Altitude <m> : 1680
 Longitude / Latitude : E7-E8/N46
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Frankfurt/M. (FRG)
 Collector : Kranz
 received : 1980
 Reference Code :
 Receiver Code : 51,167,172,183,200

Name : Population Surname : Wildtype
 Pop.-Code : Zü-0
 AIS Acc-No. : 228(700),969(49800),1799(25900)
 Phenotype : upright, very large, compact, (acid phosphatase variant)
 Char.-Code : 4,2,4,2,3,2,3,42
 Origin Location (Country) : Zürich (Swiss)
 Habitat : Bot. Garden
 Altitude <m> : 500-600
 Longitude / Latitude : E8-E9/N47-N48
 Daily Temp. mean (spring/autumn) <C> : 5-6/9-10
 Monthly Prec.mean (spring/autumn) <mm> : 70-80/60-70
 Source Location (Country) :
 Collector : Bot. Gardens
 received :
 Reference Code : 2,3,3,10,
 Receiver Code : 43,91,183,10,42

3.3.

MUTANT LINES
OF ARABIDOPSIS THALIANA

3.3.1.

Form Mutants

Name : formmutant Surname : semcolfol
Mutant-Code : F1 Gene-Symbol :
AIS Acc-No. : 334, 1254(240000)
Phenotype : yellow seeds, glabra, leaf margin incised, green
Char.-Code : 1.1.2., 3.3.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : An
line :
received : 1968
collector: G.Röbbelen, Göttingen
Reference Code :
Receiver Code : 1,52

Name : formmutant Surname : ros
Mutant-Code : F2 Gene-Symbol :
AIS Acc-No. : 335, 1137(7900), 1155(6600), 1531(15000)
Phenotype : dwarf; long inflor.; early flow.; green, dentata 1.
Char.-Code : 1.1.2., 1.3., 2.4.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : An
line :
received : 1968
collector: G. Röbbelen, Göttingen
Reference Code :
Receiver Code : 2,3,4,5

Name : formmutant Surname : ros, vir
Mutant-Code : F3 Gene-Symbol :
AIS Acc-No. : 336, 1268(20500)
Phenotype : procera, few flowers, rel. early
Char.-Code : 1.1.2., 2.3., 2.4., 3.1.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : An
line :
received : 1964
collector: G. Röbbelen, Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : flör
Mutant-Code : F4 Gene-Symbol :
AIS Acc-No. : 337, 1693(24050)
Phenotype : latifolia, multicaulus, seed sterility
Char.-Code : 1.1.2., 1.3., 2.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : An
line :
received : 1964
collector: G. Röbbelen, Göttingen
Reference Code :
Receiver Code : 6,4,35

Name : formmutant Surname : rosetomut
 Mutant-Code : F5 Gene-Symbol :
 AIS Acc-No. : 338,1269(20800)
 Phenotype : dwarf, virescens early, long stalkes, round lamina
 Char.-Code : 1.1.2.,1.2.,2.4.,3.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received : 1964
 collector: G. Röbbelen, Göttingen
 Reference Code :
 Receiver Code : 3,35

Name : formmutant Surname : rosetumut
 Mutant-Code : F6 Gene-Symbol :
 AIS Acc-No. : 339,1270(20800),1472(20800)
 Phenotype : dwarf, long stalk, hairy rhombic lamina,deltaidea
 Char.-Code : 1.1.2.,2.2.,2.4.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received : 1964
 collector: G. Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : foliomut
 Mutant-Code : F7 Gene-Symbol :
 AIS Acc-No. : 340,1271(20150),1272(3800),1473(19850)
 Phenotype : narrow deformed leaves, +/- dentata, early
 Char.-Code : 1.1.2.,2.2.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received : 1964
 collector: G. Röbbelen, Göttingen
 Reference Code :
 Receiver Code : 6,6,126,212

Name : formmutant Surname : foliomut
 Mutant-Code : F9 Gene-Symbol :
 AIS Acc-No. : 341,1159(9250)
 Phenotype : glabra, virescens, small leaves
 Char.-Code : 1.1.2.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received : 1964
 collector: G. Röbbelen, Göttingen
 Reference Code :
 Receiver Code : 9

Name : formmutant Surname : foliomut
 Mutant-Code : F10 Gene-Symbol :
 AIS Acc-No. : 342,1273(18900)
 Phenotype : round lamina, rotundifolia, early
 Char.-Code : 1.1.2.,2.4.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received : 1964
 collector: G. Röbbelen, Göttingen
 Reference Code :
 Receiver Code : 4,6

Name : formmutant Surname : rosetomut
 Mutant-Code : F11 Gene-Symbol :
 AIS Acc-No. : (343),1142(33400)
 Phenotype : lanceolata, +/- deformed lamina
 Char.-Code : 1.1.2.,2.2.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received : 1964
 collector: G. Röbbelen, Göttingen
 Reference Code :
 Receiver Code : 8

Name : formmutant Surname : foliomut
 Mutant-Code : F12 Gene-Symbol :
 AIS Acc-No. : 344,1274(600),1792(19750)
 Phenotype : dwarf,nana,virescens,late
 Char.-Code : 1.1.2.,2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received : 1964
 collector: G. Röbbelen, Göttingen
 Reference Code :
 Receiver Code : 8

Name : formmutant Surname : rosetomut
 Mutant-Code : F17 Gene-Symbol :
 AIS Acc-No. : 346,1784(46650)
 Phenotype : +/- dwarf, deformed leaves, alabaster/yellow seeds
 Char.-Code : 1.1.2.,2.2.,3.4.,35
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1968
 collector: G. Röbbelen, Göttingen
 Reference Code :
 Receiver Code : 10

Name : formmutant Surname : rosetomut
 Mutant-Code : F26 Gene-Symbol :
 AIS Acc-No. : 354,1896(37700)
 Phenotype : latifolia,hairy leaves
 Char.-Code : 1.1.2.,2.2.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1969
 collector: G. Röbbelen, Göttingen
 Reference Code :
 Receiver Code : 4,12

Name : formmutant Surname : rosetomut
 Mutant-Code : F30 Gene-Symbol :
 AIS Acc-No. : 355,1694(59900)
 Phenotype : nana,latifolia,hairy leaves
 Char.-Code : 2.2.,2.3.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1965
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 13,142

Name : formmutant Surname : semflormut
 Mutant-Code : F31 Gene-Symbol :
 AIS Acc-No. : 356,1695(8250)
 Phenotype : yellow seeds,nana,glabra,rotundifolia
 Char.-Code : 1.1.2.,1.3.,3.3.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1967
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : rosetomut
 Mutant-Code : F32 Gene-Symbol :
 AIS Acc-No. : (357),1141(3350)
 Phenotype : sessilis,hairy leaves
 Char.-Code : 1.1.2.,1.2.,2.4.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1967
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : foliomut
Mutant-Code : F33 Gene-Symbol :
AIS Acc-No. : 358,1277(11700)
Phenotype : +/-latissima,dentata,late
Char.-Code : 1.1.2.,2.4.,3.2.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received : 1968
collector: G.Röbbelen,Göttingen
Reference Code : 20,
Receiver Code : 2,11,14

Name : formmutant Surname : foliomut
Mutant-Code : F34 Gene-Symbol :
AIS Acc-No. : 359,1160(7750)
Phenotype : rhombic rolled up leaves,apetala,deltaidea
Char.-Code : 1.1.1.,1.1.2.,1.1.4.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received : 1968
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 6,9,15,16,35

Name : formmutant Surname : foliomut
Mutant-Code : F35 Gene-Symbol :
AIS Acc-No. : 360,1897(39050)
Phenotype : nana,virescens,latissima
Char.-Code : 1.1.2.,2.2.,3.2.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received : 1965
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 6,320

Name : formmutant Surname : semcolmut
Mutant-Code : F36 Gene-Symbol :
AIS Acc-No. : 361,1898(10000)
Phenotype : greyish seeds,nana
Char.-Code : 1.1.2.,1.3.,2.3.,3.3.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received : 1968
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : semhabmut
 Mutant-Code : F37 Gene-Symbol :
 AIS Acc-No. : 362,1134(21500)
 Phenotype : cup-shaped cotyledons, segregating 50% mutants
 Char.-Code : 1.1.1.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country :
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 8,
 Receiver Code :

Name : formmutant Surname : semhabmut
 Mutant-Code : F38 Gene-Symbol :
 AIS Acc-No. : 363,1139(100),1154(7000)
 Phenotype : monocotyledonous
 Char.-Code : 1.1.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1965
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : semhabmut
 Mutant-Code : F39 Gene-Symbol :
 AIS Acc-No. : 364,1138(205400)
 Phenotype : monocotyledonous, sublethal, heterozygous
 Char.-Code : 1.1.1.,1.2.,1.3.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1964
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 17

Name : formmutant Surname : florimut
 Mutant-Code : F40 Gene-Symbol :
 AIS Acc-No. : (365)
 Phenotype : fasciata
 Char.-Code : 1.1.2.,1.2.,1.3.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1967
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : semcolmut
Mutant-Code : F41 Gene-Symbol :
AIS Acc-No. : 366,1474(52450)
Phenotype : brown seeds,glabra,+/-chlorotic
Char.-Code : 1.1.2.,3.3.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1969
 collector: G.Röbbelen,Göttingen
Reference Code : 8,
Receiver Code : 15

Name : formmutant Surname : foliomut
Mutant-Code : F43 Gene-Symbol :
AIS Acc-No. : 368,1094(300),1095(35500),1096(35000)
Phenotype : nana,lineata,rolled up leaves,early
Char.-Code : 1.1.2.,2.2.,2.4.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1968
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 11,13,9

Name : formmutant Surname : foliomut
Mutant-Code : F44 Gene-Symbol :
AIS Acc-No. : 369,1107(50),1108(35500),1109(100000),1899(4000)
Phenotype : small rhombic leaves,very early,deltaoidea
Char.-Code : 1.1.2.,2.4.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1968
 collector: G.Röbbelen,Göttingen
Reference Code : 8,
Receiver Code : 9

Name : formmutant Surname : foliomut
Mutant-Code : F45 Gene-Symbol :
AIS Acc-No. : 370,1279(2250),1475(4500)
Phenotype : nana,long leave stalks
Char.-Code : 1.1.2.,3.2.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1968
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Reference Code :
Receiver Code : 4

Name : formmutant Surname : rosetomut
Mutant-Code : F56 Gene-Symbol :
AIS Acc-No. : 381,1287(2000),1479(28500)
Phenotype : nana,rotundifolia,late,obovate
Char.-Code : 1.1.2.,1.2.,2.4.,3.1.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received : 1967
collector: G.Röbbelen,Göttingen
Reference Code : 20,
Receiver Code : 2,35

Name : formmutant Surname : foliomut
Mutant-Code : F47 Gene-Symbol :
AIS Acc-No. : 372,1281(1500),1476(14000)
Phenotype : nana,yellow-hearted,rotundifolia
Char.-Code : 1.1.2.,2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received : 1965
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : semrosmut
Mutant-Code : F48 Gene-Symbol :
AIS Acc-No. : (373),1282(100),2197(4900)
Phenotype : brown seeds,nana,virescens,pin-shaped leaves
Char.-Code : 1.1.2.,2.2.,3.3.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received : 1964
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : foliomut
Mutant-Code : F49 Gene-Symbol :
AIS Acc-No. : (374),1256(4400)
Phenotype : nana,virescens,lineata,very late
Char.-Code : 1.1.2.,2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received : 1965
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 35

Name : formmutant Surname : foliomut
 Mutant-Code : F50 Gene-Symbol :
 AIS Acc-No. : 375,1283(25900)
 Phenotype : lineata,hairy leaves,very late
 Char.-Code : 1.1.2.,2.2.,3.2.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1965
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 1,11

Name : formmutant Surname : foliomut
 Mutant-Code : F51 Gene-Symbol :
 AIS Acc-No. : 376,1284(13500)
 Phenotype : +/-rotundifolia,rolled up leaves,early
 Char.-Code : 1.1.1.,1.1.2.,2.4.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1969
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : semfolmut
 Mutant-Code : F52 Gene-Symbol :
 AIS Acc-No. : 377,1110(50),1023(50000),1024(100000),1025(100000),1026(100000),
 Phenotype : greyish seeds,rotundifolia 1477(18700)
 Char.-Code : 1.1.2.,1.2.,2.3.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1967
 collector: G.Röbbelen,Göttingen
 Reference Code : 20,
 Receiver Code : 2,212,9

Name : formmutant Surname : foliomut
 Mutant-Code : F53 Gene-Symbol :
 AIS Acc-No. : 378,1285(27000)
 Phenotype : latifolia,late
 Char.-Code : 1.1.2.,2.2.,2.4.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1967
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : foliomut
Mutant-Code : F54 Gene-Symbol :
AIS Acc-No. : 379,1286(1100)
Phenotype : nana,glabra,early
Char.-Code : 1.1.2.,1.2.,1.3.,2.3.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1967
 collector: G.Röbelen,Göttingen
Reference Code :
Receiver Code : 3,4,12

Name : formmutant Surname : foliomut
Mutant-Code : F55 Gene-Symbol :
AIS Acc-No. : 380,1478(21800)
Phenotype : deformed leaves white margins X
Char.-Code : 1.1.2.,3.5.5.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1963
 collector: G.Röbelen,Göttingen
Reference Code : 13,
Receiver Code : 212

Name : formutant Surname : rosetomut
Mutant-Code : F56 Gene-Symbol :
AIS Acc-No. : 381,1287(2000),1479(28500)
Phenotype : nana,sessilis,+/-sublethal
Char.-Code : 1.1.2.,1.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1963
 collector: G.Röbelen,Göttingen
Reference Code : 13,
Receiver Code :

Name : formmutant Surname : rosetomut
Mutant-Code : F57 Gene-Symbol :
AIS Acc-No. : 382,1288(15000)
Phenotype : segregating+/-stalked,hairy leaves
Char.-Code : 1.1.2.,2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1963
 collector: G.Röbelen,Göttingen
Reference Code :
Receiver Code : 4

Name : formmutant Surname : rosetomut
 Mutant-Code : F58 Gene-Symbol :
 AIS Acc-No. : (383),1257(7000),2198(4675)
 Phenotype : flat rosette,+/-nana,latifolia
 Char.-Code : 2.2.,3.2.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : rosetomut
 Mutant-Code : F59 Gene-Symbol :
 AIS Acc-No. : 384,1289(50),2199(5500)
 Phenotype : nana,flat rosette
 Char.-Code : 2.2.,3.2.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1965
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : rosetomut
 Mutant-Code : F60 Gene-Symbol :
 AIS Acc-No. : 385,1290(2000),2206(43750)
 Phenotype : flat rosette,very late,dentate leaves
 Char.-Code : 1.1.2.,2.4.,3.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1965
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : semrosmut
 Mutant-Code : F61 Gene-Symbol :
 AIS Acc-No. : 386,1130(124200)
 Phenotype : small cotyledons,nana,long stalked leaves,sublethal
 Char.-Code : 1.1.1.,1.1.2.,2.2.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1964
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 17,18,42

Name : formmutant Surname : semrosmut
 Mutant-Code : F66 Gene-Symbol :
 AIS Acc-No. : 391,1161(2300),1129(60300)
 Phenotype : greyish cotyledons,pin-shaped leaves,suclethal
 Char.-Code : 1.1..2.2.,3.5.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : EN
 line :
 received : 1964
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 8,9,17

Name : formmutant Surname : rosetomut
 Mutant-Code : F67 Gene-Symbol :
 AIS Acc-No. : 392,1291(2000),2200(50)
 Phenotype : nana,club-shaped leaves
 Char.-Code : 1.1.2.,2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1964
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : rosflasmusut
 Mutant-Code : F68 Gene-Symbol :
 AIS Acc-No. : (393),1258(13700),1481(22300)
 Phenotype : rolled up leaves,apetala,early
 Char.-Code : 1.1.,2.2.,2.4. X
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 12,13,16,123,35

Name : formmutant Surname : folmut
 Mutant-Code : F69 Gene-Symbol :
 AIS Acc-No. : 394,1292(10400)
 Phenotype : rolled up leaves,early segregating
 Char.-Code : 1.1.2.2.4.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1968
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 3

Name : Formmutant Surname : folflormut
Mutant-Code : F95 Gene-Symbol :
AIS Acc-No. : (419)
Phenotype : undulata,cxcompressa,+/-sterile
Char.-Code : 1.1.2.,2.2.,2.5.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received : 1962
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : florimut
Mutant-Code : F96 Gene-Symbol :
AIS Acc-No. : (420)
Phenotype : deformed,fasciata
Char.-Code : 1.1.2.,1.2.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received : 1967
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :


Name : formmutant Surname : semflormut
Mutant-Code : F97 Gene-Symbol : pin
AIS Acc-No. : 421,1697(24650),2064(172500)
Phenotype : yellow seeds,glabra, 12% pinformed, telemoid
Char.-Code : 1.1.2.,3.3.,3.5.,5.1.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code : 23,
Receiver Code : 156,2

Name : formmutant Surname : semfolmut
Mutant-Code : F98 Gene-Symbol :
AIS Acc-No. : 422,1485(6800)
Phenotype : yellow seeds,glabra,non-stalked leaves
Char.-Code : 1.1.,1.3.,2.4.,3.3.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code : 8,
Receiver Code : 6,15

Name : formmutant Surname : rosetomut
 Mutant-Code : F99 Gene-Symbol :
 AIS Acc-No. : 423,1307(1400),1789(11400)
 Phenotype : nana,non-stalked leaves,glabra,early
 Char.-Code : 1.1.,1.2.,2.4.,3.1.,
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 11,16

Name : formmutant Surname : semrosmut
 Mutant-Code : F100 Gene-Symbol :
 AIS Acc-No. : 424,1904(19250)
 Phenotype : greyish-brown seeds,latifolia
 Char.-Code : 1.1.2.,1.5.,3.3.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 6

Name : formmutant Surname : foliomut
 Mutant-Code : F101 Gene-Symbol :
 AIS Acc-No. : 425,1700(7300)
 Phenotype : serrata,longstalked leaves,late
 Char.-Code : 1.1.2.,2.2.,2.4.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 1,35

Name : formmutant Surname : rosetomut
 Mutant-Code : F103 Gene-Symbol :
 AIS Acc-No. : (426),1308(6500)
 Phenotype : spotted leaves,dwarf,compressa
 Char.-Code : 2.2.,2.3.,3.5. 
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : rosetomut
Mutant-Code : F104 Gene-Symbol :
AIS Acc-No. : 427,1133(104800),1162(32650),1262(4800)
Phenotype : tortifolia
Char.-Code : 1.1.2.,2.2.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code : 8,
Receiver Code : 4,9,15,25

Name : formmutant Surname : rosetomut
Mutant-Code : F105 Gene-Symbol :
AIS Acc-No. : 428,1309(17500)
Phenotype : nana,non-stalked leaves,late
Char.-Code : 1.1.2.,2.2.,2.4.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 12,13,21,22

Name : formmutant Surname : rosetomut
Mutant-Code : F106 Gene-Symbol :
AIS Acc-No. : 429,1310(5300) X
Phenotype : dwarf,yellow-hearted,segregating,sublethal,late
Char.-Code : 1.1.2.,3.4.,5.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : semcolmut
Mutant-Code : F107 Gene-Symbol :
AIS Acc-No. : 430,1786(44150)
Phenotype : whitish seeds,dwarf,nana,early
Char.-Code : 3.3.,30
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 10

Name : formmutant Surname : semrosflor
Mutant-Code : F108 Gene-Symbol :
AIS Acc-No. : 431,1311(9000)
Phenotype : round cotyledons,rotundifolia,short inflor.,early
Char.-Code : 1.1.,1.3.,2.4.

Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen

Reference Code :
Receiver Code :

Name : formmutant Surname : folflormut
Mutant-Code : F109 Gene-Symbol :
AIS Acc-No. : 432,1312(12300)
Phenotype : compressa,tarda,late
Char.-Code : 1.1.,1.3.,2.4.

Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen

Reference Code :
Receiver Code : 16,35

Name : formmutant Surname : folrosmut
Mutant-Code : F110 Gene-Symbol :
AIS Acc-No. : 433,1313(5000)
Phenotype : permanently segregating,longifolia,compressa,early
Char.-Code : 1.1.2.,2.2.,2.4.,5.1.

Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen

Reference Code :
Receiver Code :

Name : formmutant Surname : flormut
Mutant-Code : F111 Gene-Symbol :
AIS Acc-No. : 434,1314(7500)
Phenotype : white leaf margin and pods,deformed,compressa
Char.-Code : 1.1.2.,2.3.,2.4.,3.1.

Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen

Reference Code :
Receiver Code :



Name : formmutant Surname : foliomut
 Mutant-Code : F112 Gene-Symbol :
 AIS Acc-No. : 435,1315(10500)
 Phenotype : spotted primary leaves, segregating nana virescens
 Char.-Code : 1.1.2.,2.4.,3.1.,5.1. X
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : foliomut
 Mutant-Code : F113 Gene-Symbol :
 AIS Acc-No. : 436,1317(7000)
 Phenotype : short stalked, rolled up leaves, very late
 Char.-Code : 1.1.,1.2.,3.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : semrosmut
 Mutant-Code : F114 Gene-Symbol :
 AIS Acc-No. : 437,1318(8900)
 Phenotype : yellow and brown seeds, rotundifolia
 Char.-Code : 1.1.2.,2.4.,3.3.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code : 10

Name : formmutant Surname : rosetomut
 Mutant-Code : F116 Gene-Symbol :
 AIS Acc-No. : 439,1263(4000)
 Phenotype : nana, rosula
 Char.-Code : 1.1.2.,1.2.,2.4.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code : 21,
 Receiver Code : 12,21,22,23

Name : formmutant Surname : rosetomut
 Mutant-Code : F117 Gene-Symbol :
 AIS Acc-No. : 440,1320(4050),1793(7250)
 Phenotype : nana,non-stalked leaves,virescent,early
 Char.-Code : 1.1.2.,1.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 8

Name : formmutant Surname : semfolmut
 Mutant-Code : F118 Gene-Symbol :
 AIS Acc-No. : 441,1321(11000)
 Phenotype : brown seeds,glabra,virescent,yellow hearted
 Char.-Code : 1.1.2.,3.3.,3.5.,5.1. X
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : folrosmut
 Mutant-Code : F119 Gene-Symbol :
 AIS Acc-No. : (442),1322(100),2045(10000)
 Phenotype : latissima,hairy leaves,late
 Char.-Code : 1.1.2.,2.4.,3.5.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : folrosmut
 Mutant-Code : F120 Gene-Symbol :
 AIS Acc-No. : 443,1323(9900),2208(700)
 Phenotype : nana,virescens,sessilis,late,+/-steril,yellow
 Char.-Code : 1.1.2.,2.4.,3.5.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 8

Name : formmutant Surname : rosetomut
Mutant-Code : F121 Gene-Symbol :
AIS Acc-No. : 444,1324(2500)
Phenotype : nana,undulata,sterile,heterozygous vital
Char.-Code : 2.2.,2.3.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : semfolmut
Mutant-Code : F122 Gene-Symbol :
AIS Acc-No. : 445,1345(2600)
Phenotype : nana,late
Char.-Code : 1.1.,1.2.,2.4.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 8

Name : formmutant Surname : semhabmut
Mutant-Code : F124 Gene-Symbol :
AIS Acc-No. : 446,1346(9000)
Phenotype : tiny cotyledons,segregating albinotic sublethals
Char.-Code : 1.1.1.,2.2.,3.1.,5.1.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : folrosmut
Mutant-Code : F125 Gene-Symbol :
AIS Acc-No. : 447,1347(28000)
Phenotype : virescens,dentata,segregating
Char.-Code : 1.1.2.,2.4.,3.2.,5.1.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : foliomut
 Mutant-Code : F126 Gene-Symbol :
 AIS Acc-No. : 448,1163+1164(8500)
 Phenotype : small flat rosette,virescens,tarda,late,segregating
 Char.-Code : 1.1.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 9

Name : formmutant Surname : semrosmut
 Mutant-Code : F127 Gene-Symbol :
 AIS Acc-No. : (449),1264(5000),1486(5400)
 Phenotype : dark brown seeds,nana,late
 Char.-Code : 1.1.2.,1.3.,3.3.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 15

Name : formmutant Surname : rosflormut
 Mutant-Code : F128 Gene-Symbol :
 AIS Acc-No. : 450,1348(12000)
 Phenotype : rotundifolia,compressa
 Char.-Code : 1.1.2.,2.3.,2.4.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : rosetomut
 Mutant-Code : F129 Gene-Symbol :
 AIS Acc-No. : (451),1349(2500)
 Phenotype : sessilis,flat rosette,segregating
 Char.-Code : 1.1.2.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : rosflormut
 Mutant-Code : F130 Gene-Symbol :
 AIS Acc-No. : 452,1351(20500)
 Phenotype : rolled up spoon-like leaves,early
 Char.-Code : 1.1.2.,1.2.,2.3.,3.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 8,
 Receiver Code :

Name : formmutant Surname : rosflormut
 Mutant-Code : F131 Gene-Symbol :
 AIS Acc-No. : 453,1352(22000)
 Phenotype : small rosette,little flowering inflorescence,early
 Char.-Code : 1.1.2.,1.3.,2.4.,3.3.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : semfolmut
 Mutant-Code : F132 Gene-Symbol :
 AIS Acc-No. : 454,1353(3400),1487(3400)
 Phenotype : dark brown seeds,+/-glabra,latifolia,late
 Char.-Code : 1.1.2.,2.3.,3.3.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 1,15

Name : formmutant Surname : semrosmut
 Mutant-Code : F133 Gene-Symbol :
 AIS Acc-No. : 455,1165(9700)
 Phenotype : round cotyledons,compressa
 Char.-Code : 1.1.1.,1.1.2.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 9

3.3. 31

Name : formmutant Surname : semfolmut
 Mutant-Code : F134 Gene-Symbol :
 AIS Acc-No. : 456,1354(3500)
 Phenotype : glabra,lata,segregating
 Char.-Code : 1.1.,1.2.,2.3.,3.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : semrosmut
 Mutant-Code : F135 Gene-Symbol :
 AIS Acc-No. : 457,1265(5100)
 Phenotype : greyish seeds,rotundifolia
 Char.-Code : 1.1.2.,2.4.,3.3.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : semfolmut
 Mutant-Code : F136 Gene-Symbol :
 AIS Acc-No. : 458,1355(37500)
 Phenotype : yellow seeds,glabra,nana
 Char.-Code : 1.1.2.,1.1.4.,2.2.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 3,16,19,123,289

Name : formmutant Surname : foliomut
 Mutant-Code : F138 Gene-Symbol :
 AIS Acc-No. : 460,1357(15900)
 Phenotype : grandiserrata,early
 Char.-Code : 1.1.2.,1.3.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 35

Name : formmutant Surname : folflormut
Mutant-Code : F139 Gene-Symbol :
AIS Acc-No. : (461),1358(3000),2047(3600)
Phenotype : narrow leaves,segregating sterile,early
Char.-Code : 1.1.2.,2.2.,3.5.,5.1.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : semfolmut
Mutant-Code : F140 Gene-Symbol :
AIS Acc-No. : 462,1359(11500)
Phenotype : latifolia,glabra,compressa,early
Char.-Code : 1.1.,1.3.,2.4.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : semfolmut
Mutant-Code : F141 Gene-Symbol :
AIS Acc-No. : 463,1360(21900)
Phenotype : large greyish cotyledons,narrow peaked leaves,early
Char.-Code : 1.1.,2.1.,2.4.,3.,5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 3

Name : formmutant Surname : semrosmut
Mutant-Code : F142 Gene-Symbol :
AIS Acc-No. : 464,1361(26400)
Phenotype : whitish seeds,long erect leaves,segregating
Char.-Code : 1.1.2.,1.2.,2.4.,3.3.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 10

Name : formmutant Surname : folchmut
Mutant-Code : F143 Gene-Symbol :
AIS Acc-No. : 465,1363(25000)
Phenotype : lutea-virescens, changing dark green, narrow leaves
Char.-Code : 1.1.,2.4.,3.1.,3.5. X
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : foliomut
Mutant-Code : F144 Gene-Symbol :
AIS Acc-No. : 466,1364(14500)
Phenotype : nana,narrow leaves,very late
Char.-Code : 1.1.2.,1.2.,2.4.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : folrosmut
Mutant-Code : F145 Gene-Symbol :
AIS Acc-No. : 467,1365(22900)
Phenotype : nana,narrow leaves,+/-yellow hearted,+/-late
Char.-Code : 1.1.2.,1.3.,2.4.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 8

Name : formmutant Surname : rosflormut
Mutant-Code : F146 Gene-Symbol :
AIS Acc-No. : 468,1366(19900)
Phenotype : nana,yellow hearted,changing green,leafy,late X
Char.-Code : 1.1.2.,2.2.,3.2.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 3

Name : formmutant Surname : rosetomut
Mutant-Code : F147 Gene-Symbol :
AIS Acc-No. : 469,1367(3400),2039(1500)
Phenotype : mana, cordifolia, early, large seeds
Char.-Code : 1.1.2., 1.2., 2.4.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
Reference Code :
Receiver Code : 11,142

Name : formmutant Surname : semrosmut
Mutant-Code : F148 Gene-Symbol :
AIS Acc-No. : 470,1266(9750)
Phenotype : round cotyledons, compressa, early
Char.-Code : 1.1., 1.2., 2.4., 5.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
Reference Code :
Receiver Code : 3

Name : formmutant Surname : semfolmut
Mutant-Code : F149 Gene-Symbol :
AIS Acc-No. : 471,1368(8400)
Phenotype : large round cotyledons, lata, variable height, +/-late
Char.-Code : 1.1., 2.3., 2.4., 3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
Reference Code :
Receiver Code : 3

Name : formmutant Surname : folflosmut
Mutant-Code : F150 Gene-Symbol :
AIS Acc-No. : 472,1369(1450)
Phenotype : lineata, rolled up leaves, green veined, very early
Char.-Code : 1.1., 2.3., 2.4., 3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
Reference Code :
Receiver Code : 8,123,289

Name : formmutant Surname : folflormut
Mutant-Code : F151 Gene-Symbol :
AIS Acc-No. : 473,1370(15900)
Phenotype : greyish +/-asymmetric leaves,+/-sterile,segregating
Char.-Code : 1.1.2.,1.3.,2.4.,5.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 123

Name : formmutant Surname : foliomut
Mutant-Code : F152 Gene-Symbol :
AIS Acc-No. : 474,1372(12500),1488(18500)
Phenotype : 5%yellow seeds,virescens,+/-yellow hearted,dentata X
Char.-Code : 1.1.2.,2.2.,3.3.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : foliomut
Mutant-Code : F153 Gene-Symbol :
AIS Acc-No. : 473,1373(10500)
Phenotype : variable short and broad leaves,late
Char.-Code : 1.1.2.,2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : folflormut
Mutant-Code : F154 Gene-Symbol :
AIS Acc-No. : 476,1374(25000)
Phenotype : glabra,short rich flowering inflorescence,+/-early X
Char.-Code : 1.1.2.,1.2.,2.4.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : foliomut
 Mutant-Code : F155 Gene-Symbol :
 AIS Acc-No. : 477,1166(39650)
 Phenotype : glabra,yellow hearted changing to green leaf margin X
 Char.-Code : 1.1.2.,2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 9,15

Name : formmutant Surname : rosetomut
 Mutant-Code : F156 Gene-Symbol :
 AIS Acc-No. : 478,1375(35400)
 Phenotype : loose rosette,inflorescence with few flowers
 Char.-Code : 1.1.2.,1.2.,2.4.,3.5.
 Mutagen : X
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 8

Name : formmutant Surname : rosetomut
 Mutant-Code : F157 Gene-Symbol :
 AIS Acc-No. : 479,1267(4900),2040(7100)
 Phenotype : nana,lineata,rolled up leaves, early
 Char.-Code : 1.1.2.,1.2.,2.4.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 6,11

Name : formmutant Surname : rosflormut
 Mutant-Code : F158 Gene-Symbol :
 AIS Acc-No. : (480),1376(30000)
 Phenotype : virescens,fasciata,reddish leaf stalkes+shoot,early
 Char.-Code : 1.1.2.,2.,3.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : formmutant Surname : florimut
Mutant-Code : F160 Gene-Symbol :
AIS Acc-No. : 481,1377(25400)
Phenotype : virescens,compressa,segregating in leaf colour
Char.-Code : 1.1.,2.4.,3.5.,5.1. X
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : Enm
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 128

Name : formmutant Surname : folflormut
Mutant-Code : F161 Gene-Symbol :
AIS Acc-No. : 482,1378(22500)
Phenotype : virescens,lata,compressa,+/-early
Char.-Code : 1.1.,2.3.,2.4.,5.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : rosetomut
Mutant-Code : F162 Gene-Symbol :
AIS Acc-No. : (483),1379(1000),2041(2850)
Phenotype : nana,lutea,erecta,late
Char.-Code : 2.3.,3.5.,5.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : foliomut
Mutant-Code : F163 Gene-Symbol :
AIS Acc-No. : 484,1380(8500)
Phenotype : virescens,+/-dentata,+/-deformed leaves,very late
Char.-Code : 1.1.2.,2.4.,5.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : formmutant Surname : folflosmut
 Mutant-Code : F164 Gene-Symbol :
 AIS Acc-No. : 1839
 Phenotype : undulata,rolled down leaves,apetala
 Char.-Code : 1.1.2.,1.1.4.
 Mutagen : EMS
 Source Location : Frankfurt/Main
 Country : FRG
 Origin : population : En-2
 line :
 received : WS80/81
 collector: A.R.Kranz,Frankfurt/Main
 Reference Code :
 Receiver Code :

Name : formmutant Surname : folrosmut
 Mutant-Code : F165 Gene-Symbol :
 AIS Acc-No. : 1841
 Phenotype : nana,small leaves
 Char.-Code : 1.1.2.
 Mutagen : EMS
 Source Location : Frankfurt/Main
 Country : FRG
 Origin : population : En-2
 line :
 received : WS80/81
 collector: A.R.Kranz,Frankfurt/Main
 Reference Code :
 Receiver Code :

Name : formmutant Surname : folflormut
 Mutant-Code : F166 Gene-Symbol :
 AIS Acc-No. : 1842
 Phenotype : long stalked spoonlike leaves,curved shoot
 Char.-Code : 1.1.2.,1.2.
 Mutagen : EMS
 Source Location : Frankfurt/Main
 Country : FRG
 Origin : population : En-2
 line :
 received : WS80/81
 collector: A.R.Kranz,Frankfurt/Main
 Reference Code :
 Receiver Code :

Name : formmutant Surname : rosetomut
 Mutant-Code : F167 Gene-Symbol :
 AIS Acc-No. : 1843
 Phenotype : loose rosette.tiny
 Char.-Code : shoot
 Mutagen : EMS
 Source Location : Frankfurt/Main
 Country : FRG
 Origin : population : En-2
 line :
 received : WS80/81
 collector: A.R.Kranz,Frankfurt/Main
 Reference Code :
 Receiver Code :

Name : formmutant Surname : folrosmut
Mutant-Code : F168 Gene-Symbol :
AIS Acc-No. : 2042(100)
Phenotype : nana,rolled up leaves,dentata,+/-sterile
Char.-Code : 1.1.2,,1.3.,2.3.,2.5.
Mutagen : EMS
Source Location : Frankfurt/Main
Country : FRG
Origin : population : En-2
line :
received : WS82/83
collector: A.R.Kranz,Frankfurt/Main
Reference Code :
Receiver Code :

Name : formmutant Surname : foliomut
Mutant-Code : F169 Gene-Symbol :
AIS Acc-No. : 2076(2500)
Phenotype : small,lightly dentate pointed leaf, cordifolia
Char.-Code : 1.1.2,2.4
Mutagen : HZE Ne
Source Location : Frankfurt/M.
Country : FRG
Origin : population : En
line : 2
received : 1984
collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : formmutant Surname : foliomut
Mutant-Code : F170 Gene-Symbol :
AIS Acc-No. : 2077(1250)
Phenotype : small,lightly dentate pointed leaf,cordifolia
Char.-Code :
Mutagen : HZE Ne
Source Location : Frankfurt/M.
Country : FRG
Origin : population : En
line : 2
received : 1984
collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : formmutant Surname : rosetomut
Mutant-Code : F171 Gene-Symbol :
AIS Acc-No. : 2078(23700) X
Phenotype : early flowering,many stems,long stalked leaves
Char.-Code : 1.1.2,1.2,2.4
Mutagen : HZE Ne
Source Location : Frankfurt/M.
Country : FRG
Origin : population : En
line : 2
received : 1984
collector: A.R.Kranz
Reference Code :
Receiver Code : 134

Name : formmutant Surname : rosetomut
 Mutant-Code : F172 Gene-Symbol :
 AIS Acc-No. : 2080(14000)
 Phenotype : dark green,deformed rosette
 Char.-Code : 3,1.2
 Mutagen : HZE Ne
 Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1984
 collector : A.R.Kranz

 Reference Code :
 Receiver Code :

Name : formmutant Surname : rosetomut
 Mutant-Code : F173 Gene-Symbol :
 AIS Acc-No. : 2081(15000)
 Phenotype : dark green,deformed rosette
 Char.-Code : 3,1.2
 Mutagen : HZE Ne
 Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1984
 collector : A.R.Kranz

 Reference Code :
 Receiver Code :

Name : formmutant Surname : rosetomut
 Mutant-Code : F174 Gene-Symbol :
 AIS Acc-No. : 2082(1000)
 Phenotype : dwarf,dark green,anthocynine coloured,nana
 Char.-Code : 3.2,1
 Mutagen : HZE Ne
 Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1984
 collector : A.R.Kranz

 Reference Code :
 Receiver Code :

Name : formmutant Surname : foliomut
 Mutant-Code : F175 Gene-Symbol :
 AIS Acc-No. : 2084(21250)
 Phenotype : late flowering,strong,latifolia
 Char.-Code : 2.4,1.1.2
 Mutagen : HZE Ne
 Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1984
 collector : A.R.Kranz

 Reference Code :
 Receiver Code :

Name : formmutant Surname : rosetomut
Mutant-Code : F176 Gene-Symbol :
AIS Acc-No. : 2085(10000)
Phenotype : dwarf,dark green,nana,late germination
Char.-Code : 2.1,1,3
Mutagen : HZE Ne
Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1984
 collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : formmutant Surname : foliomut
Mutant-Code : F177 Gene-Symbol :
AIS Acc-No. : 2086(36500)
Phenotype : latifolia,loose rosette
Char.-Code : 1.1.2
Mutagen : HZE Ne
Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1984
 collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : formmutant Surname : rosetomut
Mutant-Code : F178 Gene-Symbol :
AIS Acc-No. : 2089(10250)
Phenotype : dwarf,dark green,anthocyanine coloured,one stem,nana
Char.-Code : 1,3,2,1.2
Mutagen : HZE Ne
Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1984
 collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : formmutant Surname : foliomut
Mutant-Code : F179 Gene-Symbol :
AIS Acc-No. : 2090(32500)
Phenotype : dark green,very strong,latifolia,leaf margin rolled up
Char.-Code : 1.1.2,3
Mutagen : HZE Ne
Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1984
 collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : formmutant Surname : vridfolros
Mutant-Code : F184 Gene-Symbol :
AIS Acc-No. : 2142(30400)
Phenotype : nana,violet,loose rosette,smooth leaf margin
Char.-Code : 1.1.2.,2.2.,3.2.,7.3.
Mutagen : HZE Ne
Source Location : Frankfurt
 Country : FRG
 Origin : population : En
 line :
 received : 1986
 collector: Kranz, Frankfurt
Reference Code : 21,22
Receiver Code :

Name : formmutant Surname : connan
Mutant-Code : F185 Gene-Symbol :
AIS Acc-No. : 2148(9250)
Phenotype : nana, dark green violet
Char.-Code : 2.2.,3.2.,7.3.
Mutagen : HZE Ne
Source Location : Frankfurt
 Country : FRG
 Origin : population : En
 line :
 received : 1986
 collector: Kranz, Frankfurt
Reference Code : 21,22
Receiver Code :

Name : formmutant
Mutant-Code : F186
AIS Acc-No. : 2149(2100)
Phenotype : nana, dark green violet
Char.-Code : 2.2.,3.2.,7.3.
Mutagen : HZE Ne
Source Location : Frankfurt
 Country : FRG
 Origin : population : En
 line :
 received : 1986
 collector: Kranz, Frankfurt
Reference Code : 21,22
Receiver Code :

Name : formmutant
Mutant-Code : F187
AIS Acc-No. : 2152(7250)
Phenotype : nana, bushy, dark green, small but many pods
Char.-Code : 1.1.,1.1.2.,2.2.,7.3.
Mutagen : HZE Ne
Source Location : Frankfurt
 Country : FRG
 Origin : population : En
 line :
 received : 1986
 collector: Kranz, Frankfurt
Reference Code : 21,22
Receiver Code :

Name : formmutant
Mutant-Code : F188
AIS Acc-No. : 2153(6250)
Phenotype : nana, green, small but many pods
Char.-Code : 1.1.,1.1.2.,2.2.,7.3.
Mutagen : HZE Ne
Source Location : Frankfurt
 Country : FRG
 Origin : population : En
 line :
 received : 1986
 collector: Kranz, Frankfurt
Reference Code : 21,22
Receiver Code :

Name : formmutant
Mutant-Code : F189
AIS Acc-No. : 2155(33650)
Phenotype : dark green, nana
Char.-Code : 1.1.,2.2.,2.4.,3.2.,
Mutagen :
Source Location : Frankfurt
 Country : FRG
 Origin : population : En
 line :
 received : 1986
 collector: Kranz, Frankfurt
Reference Code :
Receiver Code :

Name : formmutant Surname : nana
Mutant-Code : F190 Gene-Symbol :
AIS Acc-No. : 2157(10250)
Phenotype : nana, dark green
Char.-Code : 1.1.,2.2.,2.4.,3.2.,7.3.
Mutagen : c HZE
Source Location : Frankfurt
 Country : FRG
 Origin : population : En
 line :
 received : 1986
 collector: Kranz, Frankfurt
Reference Code : 21,22
Receiver Code :

Name : formmutant Surname : flor
Mutant-Code : F191 Gene-Symbol :
AIS Acc-No. : 2158(45750)
Phenotype : short strong stem, multicaulous
Char.-Code : 1.2.,2.4.,7.3.
Mutagen : c HZE
Source Location : Frankfurt
 Country : FRG
 Origin : population : En
 line :
 received : 1986
 collector: Kranz, Frankfurt
Reference Code : 21,22
Receiver Code :

Name : formmutant Surname : linnana
Mutant-Code : F192 Gene-Symbol :
AIS Acc-No. : 2150(50),2205(2500)
Phenotype : virescens, narrow pointed leaf, nana
Char.-Code : 1.1.,1.1.2.,3.5.,7.3.
Mutagen : HZE Ne
Source Location : Frankfurt
 Country : FRG
 Origin : population : En
 line :
 received : 1986
 collector: Kranz, Frankfurt
Reference Code : 21,22
Receiver Code :

Name : formmutant Surname :
Mutant-Code : F193 Gene-Symbol :
AIS Acc-No. : 1002(2000),1001(1500),1003(1500),1004(150000)
Phenotype :
Char.-Code :
Mutagen :
Source Location : Frankfurt
 Country : FRG
 Origin : population : En
 line : 4
 received : 1966
 collector: Kranz, Frankfurt
Reference Code :
Receiver Code :

Name : colormut Surname : lutmaccost
 Mutant-Code : V26 Gene-Symbol :
 AIS Acc-No. : 1909(35100),508
 Phenotype : yellow green spotted leaves,bleaching,green veined
 Char.-Code : 1.1.1.,2.2.,3.3.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 3,
 Receiver Code :

Name : colormut Surname : albmaccost
 Mutant-Code : V28 Gene-Symbol :
 AIS Acc-No. : 1188a(750),1671(350),1712(14500),1750(4250),1752(1000)
 Phenotype : whitish green seedlings,spotted leaves,nana
 Char.-Code : 1.1.1.,2.2.,3.1.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 3,16,17,
 Receiver Code : 10,30,30,10,27,4,162,172,202,320

Name : colormut Surname : albmaccost
 Mutant-Code : V28 Gene-Symbol :
 AIS Acc-No. : 1870(4000),1871(1850),1872(4150),1873(4750),1874(4250)
 Phenotype : whitish green seedlings,spotted leaves,nana
 Char.-Code : 1.1.1.,2.2.,3.1.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 3,16,17
 Receiver Code : 10,30,30,10,27,4

Name : colormut Surname : albmaccost
 Mutant-Code : V28 Gene-Symbol :
 AIS Acc-No. : 1875(8250),509
 Phenotype : whitish green seedlings,spotted leaves,nana
 Char.-Code : 1.1.1.,2.2.,3.1.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 3,16,17
 Receiver Code : 10,30,30,10,27,4

Name : colormut Surname : flavichis
Mutant-Code : V29 Gene-Symbol :
AIS Acc-No. : 1392(25000),510
Phenotype : yellow green changing to green, long leaf stalkes
Char.-Code : 1.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen
Reference Code : 3,
Receiver Code :

Name : colormut Surname : vrid
Mutant-Code : V30 Gene-Symbol :
AIS Acc-No. : 1121(12400),1148(8100),511
Phenotype : nana, dark green
Char.-Code : 1.1.1.,2.2.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 26

Name : colormut Surname : chi
Mutant-Code : V33 Gene-Symbol :
AIS Acc-No. : 1910(16600),513
Phenotype : greenish yellow,nana,broad leaves,late.
Char.-Code : 1.1.1.,2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : flavimac
Mutant-Code : V35 Gene-Symbol :
AIS Acc-No. : 1172(7950),515(-200) X
Phenotype : yellow green margin, similar V24, late
Char.-Code : 1.1.1.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 9,6

Name : colormut
Mutant-Code : V36
AIS Acc-No. : 1393(3000),516
Phenotype : yellow green,nana,round leaf,dainty inflorescence
Char.-Code : 1.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : An
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code : 3,
Receiver Code :

Name : colormut
Mutant-Code : V39
AIS Acc-No. : 1189a(24300),517(-200)
Phenotype : nana,greenish white spotted,long leaf stalks
Char.-Code : 1.,3.1.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : An
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 6,29

Name : colormut
Mutant-Code : V40
AIS Acc-No. : 1146(650000)
Phenotype : nana,yellowgreen rosette
Char.-Code : 2.2.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : An
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : flavichis
 Mutant-Code : V41 Gene-Symbol :
 AIS Acc-No. : 1131(104000),1395(19000)
 Phenotype : small cotyledons,yellow hearted
 Char.-Code : 1.1.1.,2.2.2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : chis
 Mutant-Code : V42 Gene-Symbol :
 AIS Acc-No. : 1396(27600),1911(7650),521
 Phenotype : yellow hearted,segregating
 Char.-Code : 2.2.,3.5.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 3,
 Receiver Code : 26

Name : colormut Surname : chis
 Mutant-Code : V43 Gene-Symbol :
 AIS Acc-No. : 522(-100)
 Phenotype : yellow hearted,similar to V42
 Char.-Code : 2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 3,4,
 Receiver Code : 11

Name : colormut Surname : flavichis
 Mutant-Code : V44 Gene-Symbol : chl
 AIS Acc-No. : 1397(6500),1912(10000),523
 Phenotype : yellow green seedlings,vital,isogenic V161
 Char.-Code : 1.,2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 1,3,4,5,6,8,9,11,15,16,20
 Receiver Code :

Name : colormut Surname : clavi
 Mutant-Code : V46/6 Gene-Symbol :
 AIS Acc-No. : 1173(12700),526(-100)
 Phenotype : normal green,long stalked,late
 Char.-Code : 1.1.2.,2.4.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : '9,4

Name : colormut Surname : vrid
 Mutant-Code : V46/3 Gene-Symbol :
 AIS Acc-No. : 1398(31500),525
 Phenotype : hairy dark green leaves,early
 Char.-Code : 1.1.2.,1.3.,2.4.,5.4.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : chis
 Mutant-Code : V47 Gene-Symbol :
 AIS Acc-No. : 1913(9600),527
 Phenotype : yellow hearted
 Char.-Code : 2.2,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 3,
 Receiver Code :

Name : colormut Surname : vital
 Mutant-Code : V48 Gene-Symbol :
 AIS Acc-No. : 1914(16450),528(-100)
 Phenotype : withish green seedlings
 Char.-Code : 1.1.1.,3.1.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 3,
 Receiver Code : 26

Name : colormut Surname : chis
 Mutant-Code : V49 Gene-Symbol :
 AIS Acc-No. : 1221(33500),529
 Phenotype : yellow hearted dainty rosette
 Char.-Code : 1.1.1.,2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 3,
 Receiver Code :

Name : colormut Surname : vrid
 Mutant-Code : V50 Gene-Symbol :
 AIS Acc-No. : 1174(9650),1532(12000),530(-100)
 Phenotype : nana,dark green,late
 Char.-Code : 2.2.,2.4.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : An
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 3,
 Receiver Code : 9,5

Name : colormut Surname : vialalbmac
 Mutant-Code : V52 Gene-Symbol : im
 AIS Acc-No. : 532(-100),1021(730),1022(44000),1028(30000) cont.see pg.480
 Phenotype : +/-spotted leaves and shoots,dainty inflorescence,
 Char.-Code : 1.1.1.,1.3.,2.2.,2.3.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 3,5,6,10,11,14,15
 Receiver Code : 2,9,10,27,28,30,202,212

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Name : colormut Surname : vialalbmec
 Mutant-Code : V52 Gene-Symbol : im
 AIS Acc-No. : 1029(7500),1030(53000),1031(5700),1033(8400) cont.see pg.524
 Phenotype : +/- spotted leaves and shoots,dainty inflorescence
 Char.-Code : 1.1.1,1.3,2.2,2.3,2.4
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 3,5,6,10,11,14,15
 Receiver Code : 2,9,10,27,28,30,202,212

Name : colormut Surname : vialalbmec
 Mutant-Code : V52 Gene-Symbol : im
 AIS Acc-No. : 1034(25000),1035(3300),1399(2000),1535(1000) cont.see pg.526
 Phenotype : +/- spotted leaves and shoots,dainty inflorescence
 Char.-Code : 1.1.1,1.3,2.2,2.3,2.4
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1964
 collector: Röbbelen
 Reference Code : 3,5,6,10,11,14,15
 Receiver Code : 2,9,10,27,28,30,202,212

Name : colormut Surname : vialalbmec
 Mutant-Code : V52 Gene-Symbol : im
 AIS Acc-No. : 1544(15000),1537(14000),1538(550),1543(20000) cont.see pg.527
 Phenotype : +/- spotted leaves and shoots, dainty inflorescence
 Char.-Code : 1.1.1,1.3,2.2,2.3,2.4
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1964
 collector: Röbbelen
 Reference Code : 3,5,6,10,11,14,15
 Receiver Code : 2,9,10,27,28,30,202,212

Name : colormut Surname : vialalbmec
 Mutant-Code : V52 Gene-Symbol : im
 AIS Acc-No. : 1689(86000),1709(42000),1710(84500),cont.see pg.528
 Phenotype : +/- spotted leaves and shoots, dainty inflorescence
 Char.-Code : 1.1.1,1.3,2.2,2.3,2.4
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1964
 collector: Röbbelen
 Reference Code : 3,5,6,10,11,14,15
 Receiver Code : 2,9,10,27,28,30,202,212

Name : colormut Surname : vialalbmec
Mutant-Code : V52 Gene-Symbol : im
AIS Acc-No. : 1711(69500),1862(5250),1863(1500),1864(2000) cont.see pg.529
Phenotype : +/- spotted leaves and shoots,dainty inflorescence
Char.-Code : 1.1.1,1.3,2.2,2.3,2.4
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received : 1964
collector: Röbbelen
Reference Code : 3,5,6,10,11,14,15
Receiver Code : 2,9,10,27,28,30,202,212

Name : colormut Surname : vialalbmec
Mutant-Code : V52 Gene-Symbol : im
AIS Acc-No. : 1867(11250),1868(9500),1869(2200),1892(1000)
Phenotype : +/- spotted leaves and shoots,dainty inflorescence
Char.-Code : 1.1.1,1.3,2.2,2.3,2.4
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received : 1964
collector: Röbbelen
Reference Code : 3,5,6,10,11,14,15
Receiver Code : 2,9,10,27,28,30,202,212

Name : colormut Surname : albmac
 Mutant-Code : V53 Gene-Symbol :
 AIS Acc-No. : 533
 Phenotype : white green cotyledons, alabaster spotted seedling X
 Char.-Code : 1.1.1.,3.1.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector : G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : albmac
 Mutant-Code : V54 Gene-Symbol :
 AIS Acc-No. : 534
 Phenotype : white green spotted leaves, segregating, late X
 Char.-Code : 3.1.,3.5.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector : G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : albmac
 Mutant-Code : V55 Gene-Symbol :
 AIS Acc-No. : 535
 Phenotype : white green spotted leaves, late X
 Char.-Code : 2.4.,3.1.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector : G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : albmac
 Mutant-Code : V56 Gene-Symbol :
 AIS Acc-No. : 1400(3900),1915(50),536,1915(1800),2212(3300) X
 Phenotype : white green spotted leaves and inflorescence
 Char.-Code : 1.1.2.,3.5.,41
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector : G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code : 4

Name : colormut Surname : clavimarg
Mutant-Code : V57 Gene-Symbol :
AIS Acc-No. : 537
Phenotype : spotted leaves with white margins
Char.-Code : 1.1.2.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : albmcc
Mutant-Code : V58 Gene-Symbol :
AIS Acc-No. : 1401(6900),1916(5000),538
Phenotype : alabaster seedlings,white leave margins,deformed
Char.-Code : 1.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 16

Name : colormut Surname : vialutmac
Mutant-Code : V59 Gene-Symbol :
AIS Acc-No. : 1222(400),2048(3900)
Phenotype : nana,yellow spotted deformed leaf,white margin
Char.-Code : 1.1.2.,2.2.,2.4.,3.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
Reference Code :
Receiver Code :

Name : colormut
 Mutant-Code : V61
 AIS Acc-No. : 1402(18000),540
 Phenotype : spotted leaves,early
 Char.-Code : 1.1.2.,2.,3.1.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut
 Mutant-Code : V62
 AIS Acc-No. : 1223(41500),541
 Phenotype : green yellow spotted leaves
 Char.-Code : 2.2.,3.1.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut
 Mutant-Code : V64
 AIS Acc-No. : 1403(10000),543
 Phenotype : yellowgreen veined leaves,dainty rosette very large
 Char.-Code : 2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

3.3. 65

Name : colormut Surname : lutcostchl
Mutant-Code : V65 Gene-Symbol :
AIS Acc-No. : 1224(35000)
Phenotype : yellowish leaf,green margin,large very early
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : chis
Mutant-Code : V66 Gene-Symbol :
AIS Acc-No. : 1533(20000),545
Phenotype : bright green leaves changing to green,segregating
Char.-Code : 1.1.2.,2.2.,2.4.,5.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : chmarg
Mutant-Code : V67 Gene-Symbol :
AIS Acc-No. : 1917(50),546
Phenotype : bright green,nana,green leave margin
Char.-Code : 2.2.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : chcost
Mutant-Code : V68 Gene-Symbol :
AIS Acc-No. : 1918(6500),547
Phenotype : bright green veined rosette,nana,very late
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : flavicost
Mutant-Code : V69 Gene-Symbol :
AIS Acc-No. : 1225(3250),548
Phenotype : green yellow,green veined rosette,very late
Char.-Code : 2.2.,2.3.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : xachmac
Mutant-Code : V70 Gene-Symbol :
AIS Acc-No. : 1226(12900),549
Phenotype : small yellowish cotyledons,bright green hearted ros
Char.-Code : 1.,2.2.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 51

Name : colormut Surname : flavichis
Mutant-Code : V71 Gene-Symbol :
AIS Acc-No. : 550,1036(300),1037(94200),1039(10000), cont see pg. 558
Phenotype : yellow green,yellow hearted rosette change to green
Char.-Code : 2.2.,2.3.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 9,

Name : colormut Surname : flavichis
Mutant-Code : V71 Gene-Symbol :
AIS Acc-No. : 1038(150000),1404(20000)
Phenotype : yellow green,yellow hearted rosette change to green
Char.-Code : 2.2.,2.3.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1965
 collector: Robbelen,Göttingen
Reference Code :
Receiver Code : 9,

Name : colormut Surname : chi
Mutant-Code : V73 Gene-Symbol :
AIS Acc-No. : 1919(2850),552
Phenotype : bright green leaves,large,segregating
Char.-Code : 2.2,3.5.,5.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : cost
Mutant-Code : V75 Gene-Symbol :
AIS Acc-No. : 1406(400),554(-100)
Phenotype : bright green veined rosette,undulata,very late
Char.-Code : 1.1.2.,2.3.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code : 3,
Receiver Code : 25

Name : colormut Surname : flacovcost
Mutant-Code : V76 Gene-Symbol :
AIS Acc-No. : 1040(50),1041(95000),1042(30000),1407(4000)
Phenotype : yellow seedlings green yellow leaves,reddish veined
Char.-Code : 1.1.1.,2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code : 13,15,20
Receiver Code : 9,

Name : colormut Surname : lut
Mutant-Code : V77 Gene-Symbol :
AIS Acc-No. : 556
Phenotype : nana,yellow rosette with less than 4 leaves
Char.-Code : 1.2,2.2.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : xaflavchis
 Mutant-Code : V78 Gene-Symbol :
 AIS Acc-No. : 1920(35800),557
 Phenotype : yellowish green rosette,changing to green variable
 Char.-Code : 3.5.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 289,51

Name : colormut Surname : chi
 Mutant-Code : V80 Gene-Symbol :
 AIS Acc-No. : 1921(24750),559
 Phenotype : nana,bright green rosette
 Char.-Code : 2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : lut
 Mutant-Code : V81 Gene-Symbol : ch3
 AIS Acc-No. : 560(-100),561(-100),1043-1049(91000),cont.see pg.216
 Phenotype : nana,chlorophyll b-defect,strong light sensitive
 Char.-Code : 1.,2.2.,2.4.,3.1.,3.5
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 3,4,6,9,10,11,13,16
 Receiver Code : 9,6,10,78,20,3,30,39

Name : colormut Surname : lut
 Mutant-Code : V81 Gene-Symbol : ch3
 AIS Acc-No. : 1175het(3550),1176hom(300),1193hom(3700),cont.see pg.559
 Phenotype : nana,chlorophyll b-defect,strong light sensitive
 Char.-Code : 1.1.1.,2.2.,2.4.,3.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 3,4,6,9,10,11,13,16,
 Receiver Code : cont.of pg.215

Name : colormut Surname : lut
Mutant-Code : V81 Gene-Symbol : ch3
AIS Acc-No. : 1781(25500),2049hom(1500)
Phenotype : nana,chlorophyll b-defect,strong light sensitive
Char.-Code : 1.1.1.,2.2.,2.4.,3.1.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received : 1965
collector: G.Röbbelen
Reference Code : 3,4,6,9,10,11,13,16
Receiver Code :

Name : colormut Surname : flavi
Mutant-Code : V82 Gene-Symbol :
AIS Acc-No. : 1408(500),562
Phenotype : yellow green veined leaves,dainty plant,early
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : flavichis
Mutant-Code : V83 Gene-Symbol :
AIS Acc-No. : 1922(22850),563
Phenotype : nana,yellowish green rosette,white leaf margin,late
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : X

Name : colormut Surname : albmac
Mutant-Code : V84 Gene-Symbol :
AIS Acc-No. : 1923(79500),564
Phenotype : segregating 2types,nana,white spotted,yellow heart
Char.-Code : 2.2.,2.3.,3.5.,5.1. ✕
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : chichis
Mutant-Code : V84/1 Gene-Symbol :
AIS Acc-No. : 1923(79500)
Phenotype : segregating 2types,yellow hearted,virescens
Char.-Code : 2.2.,2.3.,3.5.,5.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : albmac
Mutant-Code : V84/2 Gene-Symbol :
AIS Acc-No. : 564,1923(77000)
Phenotype : segregating 2 types,nana,whitish spotted ✕
Char.-Code : 2.2.,2.3.,3.5.,5.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : flavi
 Mutant-Code : V85 Gene-Symbol :
 AIS Acc-No. : 1177(2800),1178(2450),565(-100)
 Phenotype : yellowish green plant
 Char.-Code : 3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 9

Name : colormut Surname : chi
 Mutant-Code : V86 Gene-Symbol :
 AIS Acc-No. : 1179(4100),566(-100)
 Phenotype : green yellow rosette,variable leaf form
 Char.-Code : 1.1.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 9

Name : colormut Surname : chichmarg
 Mutant-Code : V87 Gene-Symbol :
 AIS Acc-No. : 1409(9000),567
 Phenotype : yellow green leaves,yellow hearted,dainty plant
 Char.-Code : 1.1.2.,2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut
Mutant-Code : V90
AIS Acc-No. : 1227(18500),570
Phenotype : bright green,small plant
Char.-Code : 1.,2.1.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut
Mutant-Code : V91
AIS Acc-No. : 1925(15000),571
Phenotype : yellowish green leaves,bright hearted
Char.-Code : 2.2.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut
Mutant-Code : V92
AIS Acc-No. : 572
Phenotype : nana,white yellow green spotted,necrotic leaf late
Char.-Code : 1.1.1.,2.,3.1.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut
Mutant-Code : V93
AIS Acc-No. : 1411(14000),573(-100)
Phenotype : yellowish green rosette,early,uniform
Char.-Code : 2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code : 6,9,
Receiver Code : 10

Name : colormut Surname : lutargechs
 Mutant-Code : V94 Gene-Symbol :
 AIS Acc-No. : 574(-100),1061(300),1062(80000),1063(25000),1412(500)
 Phenotype : mana,greyish yellow leaf,dainty inflorescence late
 Char.-Code : 1.3.,2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 11,9

Name : colormut Surname : ch
 Mutant-Code : V95 Gene-Symbol :
 AIS Acc-No. : 1413(13400),575
 Phenotype : greenish yellow rosette,vital,uniform,early
 Char.-Code : 1.3.,2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 6,9,
 Receiver Code : 198

Name : colormut Surname : flavichis
 Mutant-Code : V96 Gene-Symbol :
 AIS Acc-No. : 1926(1500),576
 Phenotype : yellow green,green veined bleaching
 Char.-Code : 3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : flavi
 Mutant-Code : V97 Gene-Symbol :
 AIS Acc-No. : 1927(12500),577(-100)
 Phenotype : yello green,variable
 Char.-Code : 3.5.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 6

Name : colormut Surname : chargemarg
 Mutant-Code : V106 Gene-Symbol :
 AIS Acc-No. : 1416(2000),586
 Phenotype : bright green round,variable stem height,late
 Char.-Code : 1.1.2.,1.3.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : arge
 Mutant-Code : V107 Gene-Symbol :
 AIS Acc-No. : 1417(250),2050(12500),587(-100)
 Phenotype : nana,whitish,whitish greyish rosette
 Char.-Code : 2.2.,2.4.,3.1.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 26

Name : colormut Surname : virsubcoer
 Mutant-Code : V108 Gene-Symbol :
 AIS Acc-No. : 1931(1900),588
 Phenotype : green reddish rosette,heterozygous
 Char.-Code : 1.1.2.,2.2.,3.2.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : vrid
 Mutant-Code : V109 Gene-Symbol :
 AIS Acc-No. : 1932(750),589
 Phenotype : nana,dark green,smooth leaf margin
 Char.-Code : 1.1.2,2.2.,3.2.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : flavichit
 Mutant-Code : V110 Gene-Symbol :
 AIS Acc-No. : 1418(25500),590
 Phenotype : yellow green, serrated yellow hearted rosette, early
 Char.-Code : 1.1.2.,2.2.,2.4.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : grivialb
 Mutant-Code : V111 Gene-Symbol :
 AIS Acc-No. : 1229(3600),2056(1850),591
 Phenotype : green whitish, white margined leaves, nana
 Char.-Code : 3.1.3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 2

Name : colormut Surname : grivi
 Mutant-Code : V114 Gene-Symbol :
 AIS Acc-No. : 1419(14300),592
 Phenotype : bright green, early
 Char.-Code : 2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 26,3

Name : colormut Surname : clavicost
 Mutant-Code : V115 Gene-Symbol :
 AIS Acc-No. : 1420(18500),593
 Phenotype : bright green, darker middle vein
 Char.-Code : 1.1.2.,3.5.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

3.3. 79

Name : colormut
Mutant-Code : V116
AIS Acc-No. : 1933(19000),594
Phenotype : greenish white, large plant
Char.-Code : 3.1., 3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
Reference Code :
Receiver Code :

Name : colormut
Mutant-Code : V117
AIS Acc-No. : 844,1667(22500)
Phenotype :
Char.-Code :
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : cht
Mutant-Code : V118 Gene-Symbol :
AIS Acc-No. : 1934(225D),595
Phenotype : greenish yellow rosette,+/- similar to V91
Char.-Code : 3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : lutchis
Mutant-Code : V119 Gene-Symbol :
AIS Acc-No. : 1698(13500),596
Phenotype : dark brown seeds,nana,yellowish leaves dentata,late
Char.-Code : 1.1.2.,2.2.,3.3.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : vialchit
Mutant-Code : V120 Gene-Symbol :
AIS Acc-No. : 1422(9400),597
Phenotype : whitish cotyledons,bright green round leaves,early
Char.-Code : 1.,2.4.,3.1.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code : 5.
Receiver Code : 2

Name : colormut Surname : vrid
Mutant-Code : V121 Gene-Symbol :
AIS Acc-No. : 1423(39500),598
Phenotype : early,large plant
Char.-Code : 2.2.,2.4.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : clavialbs
Mutant-Code : V122 Gene-Symbol :
AIS Acc-No. : 1424(8400),599
Phenotype : green prim. whitish sec. leaves,tufted short infl.
Char.-Code : 1.3.,2.,3.1.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 2

Name : colormut Surname : virspurmac
Mutant-Code : V123 Gene-Symbol :
AIS Acc-No. : 1230(32400),600
Phenotype : bright green variable leaves
Char.-Code : 1.1.2.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 289

Name : colormut Surname : vridalbm
Mutant-Code : V124 Gene-Symbol :
AIS Acc-No. : 1425(16000),601
Phenotype : gray white spotted,variable,brown green seed,early
Char.-Code : 2.4.,3.,5.1. X
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : flavi
 Mutant-Code : V125 Gene-Symbol :
 AIS Acc-No. : 1935(18750),602(-100)
 Phenotype : yellowish green,nana,very late
 Char.-Code : 2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 9

Name : colormut Surname : virchit
 Mutant-Code : V126 Gene-Symbol :
 AIS Acc-No. : 1426(1000),603
 Phenotype : bright green,round leaves,+/-spotted,late
 Char.-Code : 1.1.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : vial
 Mutant-Code : V127 Gene-Symbol :
 AIS Acc-No. : 1427(900),1497(3000),604
 Phenotype : grey white rosette,nana,very late,dark brown seeds
 Char.-Code : 1.3.,2.2.,2.4.,3.3.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 15

Name : colormut Surname : flavimac
 Mutant-Code : V130 Gene-Symbol :
 AIS Acc-No. : 1936(7000),605
 Phenotype : whitish cotyledon,yellow green spotted leaves,nana
 Char.-Code : 1.1.1.,2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen
 Reference Code :
 Receiver Code :

Name : colormut Surname : flavimac
 Mutant-Code : V137 Gene-Symbol :
 AIS Acc-No. : 1937(1600),610
 Phenotype : yellow white green,+/-spotted leaves,variabel,nana
 Char.-Code : 2.2.,3.1.,3.3.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : virchost
 Mutant-Code : V140 Gene-Symbol :
 AIS Acc-No. : 1938(5550),611(-100)
 Phenotype : virescens,changing to green,green veined,late
 Char.-Code : 2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population :
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 6

Name : colormut Surname : vir
 Mutant-Code : V141 Gene-Symbol :
 AIS Acc-No. : 1939(7150),612(-100)
 Phenotype : virescens,nana,deformed plants
 Char.-Code : 1.1.2.,2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 26

Name : colormut Surname : virchit
 Mutant-Code : V143 Gene-Symbol :
 AIS Acc-No. : 1429(9500),1498(19500),613
 Phenotype : green,yellow hearted,round leaf,multicaulous,late
 Char.-Code : 1.1.2.,1.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : flavarmac
 Mutant-Code : V144 Gene-Symbol :
 AIS Acc-No. : 1430(250),614
 Phenotype : yellow hearted, smooth margin, spooned, nonorthotropic
 Char.-Code : 1.1.2.,1.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : virchocst
 Mutant-Code : V145 Gene-Symbol :
 AIS Acc-No. : 1128(22000)
 Phenotype : small cotyledon, yellow, strong+/-spooned leaf
 Char.-Code : 1.1.2.,1.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : virchis
 Mutant-Code : V147 Gene-Symbol :
 AIS Acc-No. : 1940(23500),616
 Phenotype : chloritic change to green, nana, similar V267
 Char.-Code : 1.1.1.,1.1.2.,3.5.,
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : vircht
 Mutant-Code : V148 Gene-Symbol :
 AIS Acc-No. : 1432(7000)617
 Phenotype : nana, virescens, yellow green inflorescens,+/-late
 Char.-Code : 1.3.,2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : vircht
 Mutant-Code : V149 Gene-Symbol :
 AIS Acc-No. : 845
 Phenotype : nana,virescence,+/-deformed rosette
 Char.-Code : 1.1.2.,2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : flichmac
 Mutant-Code : V150 Gene-Symbol :
 AIS Acc-No. : 1232(31500),1433(6000),618
 Phenotype : yellow hearted rosette,dentata,narrow spotted,early
 Char.-Code : 1.,2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : grivi
 Mutant-Code : V151 Gene-Symbol :
 AIS Acc-No. : 1941(50),619
 Phenotype : grey green,round rolled down,rough haired leaf,late
 Char.-Code : 1.1.1.,1.1.2.,1.3.,2.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : viralbmac
 Mutant-Code : V152 Gene-Symbol :
 AIS Acc-No. : 1434(6500),620
 Phenotype : bleaching white spotted leaf,yellow hearted,+/-late
 Char.-Code : 1.3.,2.,3.1.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut
 Mutant-Code : V153
 AIS Acc-No. : 1952(97600)
 Phenotype : grey green necrotic leaves
 Char.-Code : 1.1.2.,2.2.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut
 Mutant-Code : V154
 AIS Acc-No. : 1435(14500),622
 Phenotype : grey green long stalked round leaf,yellow infloresc
 Char.-Code : 1.1.2.,2.4.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut
 Mutant-Code : V155
 AIS Acc-No. : 1964(16100)
 Phenotype : some white spotted leaves
 Char.-Code : 1.1.2.,2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 6,7,15,
 Receiver Code : 322

Name : colormut
 Mutant-Code : V156
 AIS Acc-No. : 1436(10800),624
 Phenotype : gray green narrow leaf,yellow hearted rosette,early
 Char.-Code : 1.1.2.,2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 5,
 Receiver Code : 3,253

Name : colormut Surname : albhivitt
 Mutant-Code : V157 Gene-Symbol : alb-1
 AIS Acc-No. : 1182(9900)1124(40800),625(-200)
 Phenotype : albina change to green yellow,viable,allelic alb-1
 Char.-Code : 2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 6,9,16,
 Receiver Code : 9,10,3,141,198,253,212

Name : olormut Surname : vircostch
 Mutant-Code : V158 Gene-Symbol :
 AIS Acc-No. : 1437(8000),626
 Phenotype : green margin,round leaf,yellow hearted,similar V143
 Char.-Code : 1.1.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : cht
 Mutant-Code : V159 Gene-Symbol :
 AIS Acc-No. : 1953(14100)
 Phenotype : nana,yellow hearted rosette
 Char.-Code : 2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : x,253

Name : colormut Surname : flavi
 Mutant-Code : V160 Gene-Symbol :
 AIS Acc-No. : 1233(2300),628
 Phenotype : yellow green cotyledons,narrow deformed leaves
 Char.-Code : 1.1.,2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut
 Mutant-Code : V161
 AIS Acc-No. : 1965(12500)
 Phenotype : virescence,variable plants,allelic to chl(V44)
 Char.-Code : 2.2.,3.1.,3.5.,
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 3,4,5,6,8,9,10,11,15,16,20
 Receiver Code :

Name : colormut
 Mutant-Code : V162
 AIS Acc-No. : 1966(27200),630
 Phenotype : virescens stem+pods yellow pointed,dentata
 Char.-Code : 2.2.,2.4.,2.5.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut
 Mutant-Code : V163
 AIS Acc-No. : 1499(5400)
 Phenotype : green veined,deformed plants,late
 Char.-Code : 2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 4,
 Receiver Code : 253

Name : colormut
 Mutant-Code : V164
 AIS Acc-No. : 1967,632
 Phenotype : green veined leaves changing to yellow green
 Char.-Code : 2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

3.3. 91

Name : colormut Surname : virnarg
Mutant-Code : V169 Gene-Symbol :
AIS Acc-No. : 636
Phenotype : bright green rolled down leaf margin
Char.-Code : 1.1.2.,2.2.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : flvartran
Mutant-Code : V170 Gene-Symbol :
AIS Acc-No. : 637
Phenotype : nana,yellow hearted,smooth margin,spotted,early
Char.-Code : 1.,2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 10

Name : colormut Surname : lutcost
Mutant-Code : V171 Gene-Symbol :
AIS Acc-No. : 1234 (29550)
Phenotype : nana,yellow veined spotted leaf
Char.-Code : 2.2.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : lutgrivi
Mutant-Code : V173 Gene-Symbol :
AIS Acc-No. : 639
Phenotype : yellow grey green, narrow leaves, dentata, +/-early
Char.-Code : 1.1.2., 1.3., 2.4.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : cov
Mutant-Code : V174 Gene-Symbol :
AIS Acc-No. : 640(-100)
Phenotype : nana, tiny red rosette, late
Char.-Code : 2.2., 2.4., 3.2.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
Reference Code :
Receiver Code : 26

Name : colormut Surname : virflavi
Mutant-Code : V175 Gene-Symbol :
AIS Acc-No. : 641
Phenotype : segregating 1/4 nana yellow green, late 3/4 normal
Char.-Code : 2.2., 2.4., 3.5., 5.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : flavi
Mutant-Code : V176 Gene-Symbol :
AIS Acc-No. : 642
Phenotype : greenish yellow,nana,late
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : virsubcoe
Mutant-Code : V178 Gene-Symbol :
AIS Acc-No. : 643
Phenotype : virescens changing to dark reddishrosette,late
Char.-Code : 1.3.,2.2.,2.4.,3.2.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : flavivir
Mutant-Code : V180 Gene-Symbol :
AIS Acc-No. : 644
Phenotype : yellowish green changing to green rosette
Char.-Code : 3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname :
Mutant-Code : V181 Gene-Symbol :
AIS Acc-No. : 645
Phenotype :
Char.-Code :
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : lotalbmac
 Mutant-Code : V182 Gene-Symbol :
 AIS Acc-No. : 646
 Phenotype : white green leaf change to yellow, cordifolia
 Char.-Code : 1.1.1.,1.1.2.,2.4.3.5
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : albs
 Mutant-Code : V183 Gene-Symbol :
 AIS Acc-No. : 1954(50),647(-200)
 Phenotype : whitish green rosette,nana,very late
 Char.-Code : 2.2.,2.4.,3.1.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 26,4

Name : colormut Surname : flavi
 Mutant-Code : V184 Gene-Symbol :
 AIS Acc-No. : 648(-100),2216(1700)
 Phenotype : yellow green,short inflor.,few large flowers,early
 Char.-Code : 1.3.,1.4.,2.4.,3.5.,
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 162

Name : colormut Surname : flavialbs
 Mutant-Code : V185 Gene-Symbol :
 AIS Acc-No. : 649, 1136(4250),1156(12400)
 Phenotype : yellowgreen sdl.,nana,greenwhitish leaf,very late
 Char.-Code :
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1965
 collector: Röbbelen
 Reference Code :
 Receiver Code : 289

Name : colormut Surname : chichis
Mutant-Code : V186 Gene-Symbol :
AIS Acc-No. : 65,1235 (29000)
Phenotype : virescens,narrow leaves changing to green
Char.-Code : 1.1.2.,2.2.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : chi
Mutant-Code : V187 Gene-Symbol :
AIS Acc-No. : 651
Phenotype : yellow green,round leaves rotundifolia, +/-early
Char.-Code : 1.1.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : clavarmac
Mutant-Code : V188 Gene-Symbol :
AIS Acc-No. : 652
Phenotype : yellowish spotted leaves changing to virescens X
Char.-Code : 1.1.2.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : viralbmac
Mutant-Code : V189 Gene-Symbol :
AIS Acc-No. : 653
Phenotype : segregating 1/4 white green spotted 3/4 normal X
Char.-Code : 2.2.,3.1.,3.5.,5.1.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 289

Name : colormut Surname : viraut
 Mutant-Code : V190 Gene-Symbol :
 AIS Acc-No. : 654(-100),2223(30600)
 Phenotype : nana,virescens yellow hearted rosette
 Char.-Code : 2.2.,3.5.,36
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 289,253

Name : colormut Surname : virluts X
 Mutant-Code : V191 Gene-Symbol :
 AIS Acc-No. : 655(-50),1955(14900)
 Phenotype : green change to yellow necrotic inflorescence,early
 Char.-Code : 2.2.,2.4.,3.1.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 10,123

Name : colormut Surname : alb
 Mutant-Code : V192 Gene-Symbol :
 AIS Acc-No. : 656(-500),2217(1800)
 Phenotype : nana,nearly white rosette,late
 Char.-Code : 2.2.,2.4.,3.1.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 26,4,2,198,162

Name : colormut Surname : clavichis
 Mutant-Code : V193 Gene-Symbol :
 AIS Acc-No. : 657
 Phenotype : nana,virescens,changing to green rosette
 Char.-Code : 2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : lut
 Mutant-Code : V194 Gene-Symbol :
 AIS Acc-No. : 658,1237v1(5600),2236(900)
 Phenotype : nana,yellowish leaves,smaller than V88
 Char.-Code : 1.1.1.,2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 289,198,253

Name : colormut Surname : vialvis
 Mutant-Code : V195 Gene-Symbol :
 AIS Acc-No. : 659(-100),1546(150)
 Phenotype : white green leaf,change to green,bleaching,early
 Char.-Code : 2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 13,
 Receiver Code : 9

Name : colormut Surname : vir
 Mutant-Code : V196 Gene-Symbol :
 AIS Acc-No. : 660,1500(9500)
 Phenotype : virescens,nana,very late
 Char.-Code : 2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : chiaut
 Mutant-Code : V197 Gene-Symbol :
 AIS Acc-No. : 661(-100),1956(7900)
 Phenotype : greenish yellow hearted,round leaves,nana,late
 Char.-Code : 1.1.2.,2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 6,253

Name : colormut Surname : chi
 Mutant-Code : V203 Gene-Symbol :
 AIS Acc-No. : 666
 Phenotype : yellow green, large, +/-early
 Char.-Code : 2.2., 2.4., 3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname :
 Mutant-Code : V204 Gene-Symbol :
 AIS Acc-No. : 846, 1666 (30000)
 Phenotype :
 Char.-Code :
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : mac
 Mutant-Code : V205 Gene-Symbol :
 AIS Acc-No. : 667(-100), 2218 (8250)
 Phenotype : yellow seed, yellow leaf halves, change to large rose ?
 Char.-Code : 2.2., 3.1., 3.3., 3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code : 162

Name : colormut Surname : clavicht
 Mutant-Code : V207 Gene-Symbol :
 AIS Acc-No. : 669
 Phenotype : brown seed, yellow green change to green
 Char.-Code : 2.2., 2.4., 2.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

3.3. 101

Name : colormut Surname : vircost
Mutant-Code : V211 Gene-Symbol :
AIS Acc-No. : 673(-100)
Phenotype : virescens,green veined,glabra
Char.-Code : 1.1.2.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 15

Name : colormut Surname : ch
Mutant-Code : V212 Gene-Symbol :
AIS Acc-No. : 674
Phenotype : yellow,nana,late
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : flavi
Mutant-Code : V213 Gene-Symbol :
AIS Acc-No. : 675
Phenotype : yellow green,segregating,violet leaf stalk,late
Char.-Code : 2.,3.2.,3.5.,5.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : chi
Mutant-Code : V214 Gene-Symbol :
AIS Acc-No. : 676
Phenotype : +/-yellowish green rosette,similar to V115
Char.-Code : 2.2.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : grivi
 Mutant-Code : V215 Gene-Symbol :
 AIS Acc-No. : 677,1241(500)
 Phenotype : grey green reddish leaves,nana,late
 Char.-Code : 2.2.,2.4.,3.2.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : flavivit
 Mutant-Code : V216 Gene-Symbol :
 AIS Acc-No. : 678
 Phenotype : yellow green,green hearted,nana,late
 Char.-Code : 2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : vialvis
 Mutant-Code : V217 Gene-Symbol :
 AIS Acc-No. : 679
 Phenotype : whitish green,variable in hight,nana
 Char.-Code : 2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : flavi
 Mutant-Code : V218 Gene-Symbol :
 AIS Acc-No. : 680(-100),1185(100)
 Phenotype : yellowish green rosette,nana
 Char.-Code : 2.2.,3.5.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 9

Name : colormut Surname : flavialbs
 Mutant-Code : V219 Gene-Symbol :
 AIS Acc-No. : 681(-100)
 Phenotype : brown seed, yellow green bleaching leaf, segregating
 Char.-Code : 1., 2.2., 3.,
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code : 9

Name : colormut Surname : clavialbs
 Mutant-Code : V220 Gene-Symbol :
 AIS Acc-No. : 682(-100), 1787(22000)
 Phenotype : dark yellow seed, whitish leaves, early
 Char.-Code : 1., 3.1., 3.3., 35
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code : 10

Name : colormut Surname : virchi
 Mutant-Code : V221 Gene-Symbol :
 AIS Acc-No. : 683, 1501(10500)
 Phenotype : virescens, dainty, ramified stem, +/-early
 Char.-Code : 1.3., 2.2., 2.4., 3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : chi
 Mutant-Code : V222 Gene-Symbol :
 AIS Acc-No. : 684
 Phenotype : greenish yellow rosette, nana, late
 Char.-Code : 2.2., 2.4., 3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : ch
Mutant-Code : V223 Gene-Symbol :
AIS Acc-No. : 685(-100),1186(3350),1957(10200)
Phenotype : yellow,nana,late
Char.-Code : 2.2..2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 9,26,32,198

Name : colormut Surname : vir
Mutant-Code : V224 Gene-Symbol :
AIS Acc-No. : 686,2052(7200)
Phenotype : white green cotyledon,green pointed leaves,early
Char.-Code : 1.,2.2.,3.1.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : ch
Mutant-Code : V225 Gene-Symbol :
AIS Acc-No. : 687
Phenotype : greenish yellow leaves,nana,segregating wildtype
Char.-Code : 1.1.2.,2.2.,3.5.,5.1.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : vial
Mutant-Code : V226 Gene-Symbol :
AIS Acc-No. : 688(-100),1187(2950)
Phenotype : whitish green,narrow leaves,nana
Char.-Code : 1.1.2.,2.2.,3.1.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 2,9,289

Name : colormut Surname : virchis
Mutant-Code : V227 Gene-Symbol :
AIS Acc-No. : 690,1547(5000),1502(4000)
Phenotype : large,green cotyledon,green yellow round leaf,late
Char.-Code : 1.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : vialaut
Mutant-Code : V228 Gene-Symbol :
AIS Acc-No. : 691(-100),2053(23900)
Phenotype : white green cotyledon,yellow hearted,spotted,early
Char.-Code : 1.,2.2.,3.1.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 2,253

Name : colormut Surname : ch
Mutant-Code : V229 Gene-Symbol :
AIS Acc-No. : 692(-100),1958(34500)
Phenotype : greenish yellow cotyledons,bleaching,late
Char.-Code : 1.,2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 32

Name : colormut Surname : fltrvir
Mutant-Code : V230 Gene-Symbol :
AIS Acc-No. : 693
Phenotype : yellow green,+/-spotted bleaching,nana
Char.-Code : 2.2.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname :
Mutant-Code : V231 Gene-Symbol :
AIS Acc-No. : 694
Phenotype : +/-glabra,spotted,+/-sterile,segregating wildtype
Char.-Code : 1.1.2.,2.2.,2.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : albmacchs
Mutant-Code : V232 Gene-Symbol :
AIS Acc-No. : 695,1242(11000)
Phenotype : green cotyledon,white spotted leaf,yellow hearted
Char.-Code : 1.1.2.,2.2.,3.1.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : virvarmac
Mutant-Code : V233 Gene-Symbol :
AIS Acc-No. : 696
Phenotype : green cotyledon,spotted leaf change to green,late
Char.-Code : 1.1.2.,2.2.,3.1.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : virvarmac
Mutant-Code : V234 Gene-Symbol :
AIS Acc-No. : 697
Phenotype : virescens,+/-spotted,+/-fasciata
Char.-Code : 2.2.,3.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : costvir
Mutant-Code : V239 Gene-Symbol :
AIS Acc-No. : 702
Phenotype : +/-green veined,early
Char.-Code : 2.4.,3.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : luts
Mutant-Code : V240 Gene-Symbol :
AIS Acc-No. : 703
Phenotype : yellow vital rosette,spooned leaves
Char.-Code : 1.1.2.,2.2.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : flavichis
Mutant-Code : V241 Gene-Symbol :
AIS Acc-No. : 704
Phenotype : yellowish green rosette,very early
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : albmac X
Mutant-Code : V242 Gene-Symbol :
AIS Acc-No. : 705
Phenotype : white green spotted
Char.-Code : 2.2.,3.1.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut
Mutant-Code : V243
AIS Acc-No. : 706(-100)
Phenotype : white leaf margin,vital
Char.-Code : 1.,3.1.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 6

Name : colormut
Mutant-Code : V244
AIS Acc-No. : 707
Phenotype : white green spotted
Char.-Code : 2.2.,3.1.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut
Mutant-Code : V245
AIS Acc-No. : 708
Phenotype : +/-white spotted,+/-early
Char.-Code : 2.2.,2.4.,3.1.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut
Mutant-Code : V246
AIS Acc-No. : 709
Phenotype : white green spotted
Char.-Code : 2.2.,3.1.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : albmac
 Mutant-Code : V247 Gene-Symbol :
 AIS Acc-No. : 1540(25000),1552(5000),1593(70000),1599(10500)
 Phenotype : white green spotted,segregating,green round leaves
 Char.-Code : 2.2.,3.1.,3.5.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 14,
 Receiver Code :

Name : colormut Surname : albmac
 Mutant-Code : V247 Gene-Symbol :
 AIS Acc-No. : 1672(800),1713(34500),1751(78000),1876(16000),1877(8400)
 Phenotype : white green spotted,segregating,green round leaves
 Char.-Code : 2.2.,3.1.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 35

Name : colormut Surname : albmac
 Mutant-Code : V247 Gene-Symbol :
 AIS Acc-No. : 1878(9000),1879(10000),1880(10750),1881(1350),1882(2750)
 Phenotype : white green spotted,segregating,green round leaves
 Char.-Code : 2.2.,3.1.,3.5.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 14,
 Receiver Code : 27

Name : colormut Surname : albmac
 Mutant-Code : V248 Gene-Symbol :
 AIS Acc-No. : 711,1503(12500)
 Phenotype : white green spotted,deformed leaf margin,sublethal
 Char.-Code : 1.1.2.,2.,3.1.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : albmacc
Mutant-Code : V249 Gene-Symbol :
AIS Acc-No. : 712
Phenotype : white green spotted
Char.-Code : 2.2.,3.1.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : albmaccvir X
Mutant-Code : V250 Gene-Symbol :
AIS Acc-No. : 713,1504(19000)
Phenotype : segregating 2/3white green spotted late 1/3virescent
Char.-Code : 2.2.,2.4.,3.1.,3.5.,5
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : albmacc X
Mutant-Code : V251 Gene-Symbol :
AIS Acc-No. : 714
Phenotype : white green spotted
Char.-Code : 2.2.,3.1.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 289

Name : colormut Surname : varalbmacc X
Mutant-Code : V252 Gene-Symbol :
AIS Acc-No. : 715,1505(9500)
Phenotype : white green spotted,variable,late
Char.-Code : 2.2.,2.4.,3.1.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :

Name : colormut Surname : macvis
Mutant-Code : V263 Gene-Symbol :
AIS Acc-No. : 726(-100)
Phenotype : spotted,similar to V39,nana,change to green,late
Char.-Code : 2.,3.1.,3.2.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 29

Name : colormut Surname : chivarmac
Mutant-Code : V264 Gene-Symbol :
AIS Acc-No. : 727
Phenotype : +/-spotted,similar to V101,early
Char.-Code : 2.2.,2.4.,3.1.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : glau
Mutant-Code : V265 Gene-Symbol :
AIS Acc-No. : 728(-100)
Phenotype : violet leaves,early
Char.-Code : 2.2.,2.4.,3.2.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 26

Name : colormut Surname : virvarmac
Mutant-Code : V267 Gene-Symbol :
AIS Acc-No. : 730(-100),1189(5850)
Phenotype : virescens,+/-spotted,dark leaf margin,+/-early
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 9

Name : colormut Surname : virchit
Mutant-Code : V268 Gene-Symbol :
AIS Acc-No. : 731,1243(2450)
Phenotype : small,green cotyledons,spotted,yellow hearted,late
Char.-Code : 1.1.1.,2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : virchit
Mutant-Code : V269 Gene-Symbol :
AIS Acc-No. : 732
Phenotype : virescens,yellow hearted nana,+/-late
Char.-Code : 1.3.,2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : viscost
Mutant-Code : V270 Gene-Symbol :
AIS Acc-No. : 733(-100),2055(7100)
Phenotype : white change to yellow,green veined leaf,bleaching
Char.-Code : 1.,2,3.1.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 2

Name : colormut Surname : chvarstri
Mutant-Code : V271 Gene-Symbol :
AIS Acc-No. : 734(-100),2219(10250)
Phenotype : white change to yellow leaf margin,small
Char.-Code : 2.2.,2.4.,3.5.,41
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : variomac
Mutant-Code : V272 Gene-Symbol :
AIS Acc-No. : 735
Phenotype : spotted,bleaching leaf tip,+/-early
Char.-Code : 2.2.,2.4.,3.1.,3.5. X
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : chmacvis
Mutant-Code : V273 Gene-Symbol :
AIS Acc-No. : 736
Phenotype : yellow green hearted,spotted leaves,change to green
Char.-Code : 1.2.,2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : virvis
Mutant-Code : V274 Gene-Symbol :
AIS Acc-No. : 737
Phenotype : virescens,bleaching steme tips
Char.-Code : 1.2.,2.2.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : vialchis
Mutant-Code : V275 Gene-Symbol :
AIS Acc-No. : 738,1508(11500)
Phenotype : whitish green,bleaching,nana,late
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : varmargch
Mutant-Code : V276 Gene-Symbol :
AIS Acc-No. : 739(-100),1190(8300)
Phenotype : green leaf margin,yellow hearted
Char.-Code : 1.1.2.,2.3.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : EN
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 9

Name : colormut Surname : vircost
Mutant-Code : V277 Gene-Symbol :
AIS Acc-No. : 740(-100),1191(8700)
Phenotype : virescens,green veined,early
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 9

Name : colormut Surname : vir
Mutant-Code : V278 Gene-Symbol :
AIS Acc-No. : 741,1244(13000)
Phenotype : virescens,early
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : cost
Mutant-Code : V279 Gene-Symbol :
AIS Acc-No. : 742
Phenotype : green veined,narrow leaves,nana,+/-late
Char.-Code : 1.1.2.,2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : grivi
Mutant-Code : V280 Gene-Symbol :
AIS Acc-No. : 743
Phenotype : grey green rosette, large
Char.-Code : 2.2., 3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen, Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : cov
Mutant-Code : V281 Gene-Symbol :
AIS Acc-No. : 744
Phenotype : dark green reddish leaves, few flowers, +/-early
Char.-Code : 1.3., 2.2., 2.4., 3.2.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen, Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : virglau
Mutant-Code : V282 Gene-Symbol :
AIS Acc-No. : 745
Phenotype : segregating 1/3 reddish rosette, nana, 2/3 wildtype
Char.-Code : 2.2., 3.2., 3.1.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen, Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : chchs
Mutant-Code : V283 Gene-Symbol :
AIS Acc-No. : 746, 1126 (31500)
Phenotype : green yellow hearted, late, cordifolia, nana,
Char.-Code : 1.1.1., 2.2., 2.4., 3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen, Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : flavichs
 Mutant-Code : V288 Gene-Symbol :
 AIS Acc-No. : 751,1245(6500)
 Phenotype : yellowish green,yellow hearted,nana
 Char.-Code : 2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : chi
 Mutant-Code : V289 Gene-Symbol :
 AIS Acc-No. : 752
 Phenotype : greenish yellow rosette,nana,late
 Char.-Code : 2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : ch
 Mutant-Code : V290 Gene-Symbol :
 AIS Acc-No. : 753,1692(35900)
 Phenotype : greenish yellow rosette,nana,late
 Char.-Code : 1.1.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 9,
 Receiver Code : 32

Name : colormut Surname : ch
 Mutant-Code : V291 Gene-Symbol :
 AIS Acc-No. : 754,1548(14900)
 Phenotype : greenish yellow rosette,variable height,+/-late
 Char.-Code : 2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 32

Name : colormut Surname : flavivis
 Mutant-Code : V292 Gene-Symbol :
 AIS Acc-No. : 755
 Phenotype : yellow green hearted rosette,dainty,nana
 Char.-Code : 2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : vircht
 Mutant-Code : V293 Gene-Symbol :
 AIS Acc-No. : 756,1510(10000)
 Phenotype : virescens,yellow hearted rosette,nana,late
 Char.-Code : 2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : chicht
 Mutant-Code : V294 Gene-Symbol :
 AIS Acc-No. : 757(-100)
 Phenotype : greenish yellow hearted rosette
 Char.-Code : 2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 6

Name : colormut Surname : chi
 Mutant-Code : V295 Gene-Symbol :
 AIS Acc-No. : 758
 Phenotype : greenish yellow rosette,late
 Char.-Code : 2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 9,
 Receiver Code :

Name : colormut Surname : flavicov
 Mutant-Code : V296 Gene-Symbol :
 AIS Acc-No. : 759
 Phenotype : yellow green large leaf, compressa, few flowers, early
 Char.-Code : 1., 2., 3.2., 3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : grivi
 Mutant-Code : V298 Gene-Symbol :
 AIS Acc-No. : 761,1246(11500)
 Phenotype : grey green leaves, long pink leaf stalk
 Char.-Code : 1.1.2., 2.2., 3.2.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : chi
 Mutant-Code : V299 Gene-Symbol :
 AIS Acc-No. : 762,1511(100)
 Phenotype : greenish yellow rosette, nana, late
 Char.-Code : 2.2., 2.4., 3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : flavi
 Mutant-Code : V300 Gene-Symbol :
 AIS Acc-No. : 763
 Phenotype : greenish yellow changing to virescens, rosette
 Char.-Code : 2.2., 3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code : 6,9,
 Receiver Code :

Name : colormut Surname : vitchit
 Mutant-Code : V301 Gene-Symbol :
 AIS Acc-No. : 764,1512(9000)
 Phenotype : virescens,notched leaf margin,late,dentata
 Char.-Code : 1.1.2.,2.4.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : chalbs
 Mutant-Code : V303 Gene-Symbol :
 AIS Acc-No. : 765
 Phenotype : yellow tiny leaf,bleaching,nana,late
 Char.-Code : 1.1.2.,2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 289

Name : colormut Surname : chalbs
 Mutant-Code : V304 Gene-Symbol :
 AIS Acc-No. : 766,1513(400)
 Phenotype : yellow bleaching leaves,nana,late
 Char.-Code : 1.1.2.,2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : xa
 Mutant-Code : V305 Gene-Symbol :
 AIS Acc-No. : 767(-200),2054(1050)
 Phenotype : whitish yellow tiny leaves,very late
 Char.-Code : 1.1.2.,3.1.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 26,2,289,51,198

Name : colormut Surname : ch
 Mutant-Code : V306 Gene-Symbol :
 AIS Acc-No. : 768,1247(26900)
 Phenotype : greenish yellow +/-green hearted rosette,nana,late
 Char.-Code : 2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 32

Name : colormut Surname : chi
 Mutant-Code : V307 Gene-Symbol :
 AIS Acc-No. : 769,1514(9500)
 Phenotype : virescens,nana,late
 Char.-Code : 1.1.1.,2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : flavichs
 Mutant-Code : V308 Gene-Symbol :
 AIS Acc-No. : 770
 Phenotype : greenish yellow hearted rosette,similar to V295
 Char.-Code : 2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : flavi
 Mutant-Code : V309 Gene-Symbol :
 AIS Acc-No. : 771
 Phenotype : yellow green +/-segregating,very early
 Char.-Code : 2.4.,3.5.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : flavimac
 Mutant-Code : V310 Gene-Symbol :
 AIS Acc-No. : 772
 Phenotype : greenish yellow rosette,+/-spotted,compressa
 Char.-Code : 2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : chicost
 Mutant-Code : V311 Gene-Symbol :
 AIS Acc-No. : 773
 Phenotype : yellow green veined rosette,segregating hight,late
 Char.-Code : 2.2.,2.4.,3.5.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : chichis
 Mutant-Code : V312 Gene-Symbol :
 AIS Acc-No. : 774
 Phenotype : yellow greenish hearted rosette,variable
 Char.-Code : 2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 9,
 Receiver Code :

Name : colormut Surname : chivis
 Mutant-Code : V313 Gene-Symbol :
 AIS Acc-No. : 775
 Phenotype : green hearted,narrow dentata leaf,bulky stem
 Char.-Code : 1.1.2.,1.3.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : grivichs
 Mutant-Code : V314 Gene-Symbol :
 AIS Acc-No. : 776
 Phenotype : gassy green changing to yellowish leaves,nana,late
 Char.-Code : 2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : ch
 Mutant-Code : V315 Gene-Symbol :
 AIS Acc-No. : 777(-100),1959(39500)
 Phenotype : virescens,nana,denata
 Char.-Code : 1.1.2.,2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 8,
 Receiver Code : 32

Name : colormut Surname : chi
 Mutant-Code : V316 Gene-Symbol :
 AIS Acc-No. : 778
 Phenotype : +/-greenish yellow rosette,short leaf stalk,early
 Char.-Code : 1.1.2.,2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : chichs
 Mutant-Code : V317 Gene-Symbol :
 AIS Acc-No. : 779(-200),1699(8750)
 Phenotype : long hypocotyl,virescens change to yellowish green
 Char.-Code : 1.1.1.,1.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 10

Name : colormut Surname : chis
 Mutant-Code : V318 Gene-Symbol :
 AIS Acc-No. : 780
 Phenotype : yellowish green inflorescens,large,early
 Char.-Code : 2.2.,2.3.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code : 6,9,
 Receiver Code :

Name : colormut Surname : chi
 Mutant-Code : V319 Gene-Symbol :
 AIS Acc-No. : 781,1248(17500)
 Phenotype : virescens,+/-large
 Char.-Code : 2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : vir
 Mutant-Code : V320 Gene-Symbol :
 AIS Acc-No. : 782
 Phenotype : short inflorescence,+/-early
 Char.-Code : 1.3.,2.2.,2.4.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : chivis
 Mutant-Code : V321 Gene-Symbol :
 AIS Acc-No. : 783
 Phenotype : virescens,green hearted rosette
 Char.-Code : 2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : chivis
 Mutant-Code : V322 Gene-Symbol :
 AIS Acc-No. : 784,1515(16500)
 Phenotype : virescens green hearted,deformed leaf margin,late
 Char.-Code : 1.1.2.,2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : chivis
 Mutant-Code : V323 Gene-Symbol :
 AIS Acc-No. : 785
 Phenotype : virescens yellow hearted,green change,narrow leaves
 Char.-Code : 1.1.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : flavichs
 Mutant-Code : V324 Gene-Symbol :
 AIS Acc-No. : 786
 Phenotype : yellowish green,yellow hearted rosette,late
 Char.-Code : 2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 6

Name : colormut Surname : flaviaus
 Mutant-Code : V325 Gene-Symbol :
 AIS Acc-No. : 787
 Phenotype : yellowish green hearted rosette,change to green
 Char.-Code : 2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 289

Name : colormut Surname : chichis
 Mutant-Code : V326 Gene-Symbol :
 AIS Acc-No. : 788
 Phenotype : yellow hearted green change, short infloresc. +/- late
 Char.-Code : 1.1.1., 1.3., 2.4., 3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : flavialb
 Mutant-Code : V327 Gene-Symbol :
 AIS Acc-No. : 789, 1249 (32000)
 Phenotype : yellow hearted, +/- large rosette
 Char.-Code : 2.2., 3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : flavichis
 Mutant-Code : V328 Gene-Symbol :
 AIS Acc-No. : 790
 Phenotype : yellow hearted change to green rosette, early
 Char.-Code : 2.4., 3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : flavichis
 Mutant-Code : V329 Gene-Symbol :
 AIS Acc-No. : 791
 Phenotype : yellow green, yellow hearted rosette
 Char.-Code : 2.2., 3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen, Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : chitvit
Mutant-Code : V330 Gene-Symbol :
AIS Acc-No. : 792(-100)
Phenotype : yellow hearted change to green rosette,+/-early
Char.-Code : 2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röb belen,Göttingen
Reference Code :
Receiver Code : 36

Name : colormut Surname : clavivis
Mutant-Code : V331 Gene-Symbol :
AIS Acc-No. : 793
Phenotype : +/-yellow hearted change to green rosette
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röb belen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : flavicht
Mutant-Code : V332 Gene-Symbol :
AIS Acc-No. : 794
Phenotype : virescens yellow hearted rosette
Char.-Code : 1.1.1.,2.2.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röb belen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : grivicost
Mutant-Code : V333 Gene-Symbol :
AIS Acc-No. : 795
Phenotype : grey green veined rosette,early
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röb belen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : grivicost
Mutant-Code : V334 Gene-Symbol :
AIS Acc-No. : 796(-100),1192(18000)
Phenotype : grey green veined,large,+/-early
Char.-Code : 2.2.,2.3.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 9

Name : colormut Surname : grivicost
Mutant-Code : V335 Gene-Symbol :
AIS Acc-No. : 797
Phenotype : +/-grey green veined,early
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : flavicost
Mutant-Code : V336 Gene-Symbol :
AIS Acc-No. : 798
Phenotype : yellowish green veined,+/-early
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : flavicost
Mutant-Code : V337 Gene-Symbol :
AIS Acc-No. : 799,1250(31900)
Phenotype : yellow green change to green veined,early
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 3

Name : colormut Surname : vircost
Mutant-Code : V338 Gene-Symbol :
AIS Acc-No. : 800,1516(24500)
Phenotype : green veined,nana,late
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : chi
Mutant-Code : V339 Gene-Symbol :
AIS Acc-No. : 801
Phenotype : spotted cotyledons,virescens,nana
Char.-Code : 1.,2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : coermac
Mutant-Code : V340 Gene-Symbol :
AIS Acc-No. : 802
Phenotype : dark green spotted,segregating wild type
Char.-Code : 2.2.,2.4.,5.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : ~~albmac~~
Mutant-Code : V341 Gene-Symbol :
AIS Acc-No. : 803
Phenotype : whitish spotted leaves
Char.-Code : 1.,3.1.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : vis
 Mutant-Code : V342 Gene-Symbol :
 AIS Acc-No. : 804,1517(9500)
 Phenotype : virescens smooth leaf margin,nana
 Char.-Code : 1.,2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : chchis
 Mutant-Code : V343 Gene-Symbol :
 AIS Acc-No. : 805
 Phenotype : yellow hearted,narrow hairy leaf,calyx rolled down
 Char.-Code : 1.,2.2.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : flaviaus
 Mutant-Code : V344 Gene-Symbol :
 AIS Acc-No. : 806(-100)
 Phenotype : greenish yellow change to green,nana,late
 Char.-Code : 2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code : 6,289

Name : colormut Surname : flavimac
 Mutant-Code : V345 Gene-Symbol :
 AIS Acc-No. : 807
 Phenotype : greenish yellow,nana,thiamine requiring,very late
 Char.-Code : 2.2.,2.4.,3.5.,5.1.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : chit
Mutant-Code : V347 Gene-Symbol :
AIS Acc-No. : 808(-100)
Phenotype : yellow hearted +/-pink stem,+/-early
Char.-Code : 2.,3.2.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 26

Name : colormut Surname : flavichs
Mutant-Code : V348 Gene-Symbol :
AIS Acc-No. : 809,1251(22000)
Phenotype : yellowish green bleaching,late
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : flavi
Mutant-Code : V349 Gene-Symbol :
AIS Acc-No. : 810
Phenotype : yellowish green narrow leaves,compressa,late
Char.-Code : 1.1.2.,2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : grivicost
Mutant-Code : V350 Gene-Symbol :
AIS Acc-No. : 811
Phenotype : grey green +/-veined,narrow leaves,late
Char.-Code : 1.1.2.,2.2.,2.4.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : grivi
Mutant-Code : V351 Gene-Symbol :
AIS Acc-No. : 812
Phenotype : grey green rosette,nana,leafy stem
Char.-Code : 1.3.,2.2.,2.4.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : flavicost
Mutant-Code : V352 Gene-Symbol :
AIS Acc-No. : 813
Phenotype : yellowish green veined rosette,nana,late
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : virnargch
Mutant-Code : V353 Gene-Symbol :
AIS Acc-No. : 814
Phenotype : yellow hearted,narrow hairy leaf,segregating
Char.-Code : 1.1.2.,3.5.,5.1.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : vircoers
Mutant-Code : V354 Gene-Symbol :
AIS Acc-No. : 815,1135(150),1157(3700)
Phenotype : narrow cotyledon,dark green reddish rosette,nana
Char.-Code : 1.1.1.,2.2.,3.2.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : virmarc
Mutant-Code : V355 Gene-Symbol :
AIS Acc-No. : 767,1518(5000)
Phenotype : virescens change to green,dentata,nana,few flowers
Char.-Code : 1.1.2.,1.3.,2.2.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : ch
Mutant-Code : V356 Gene-Symbol :
AIS Acc-No. : 816(-100),1960(104100)
Phenotype : virescens,high stem,very early
Char.-Code : 1.3.,1.4.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code : 32,16

Name : colormut Surname : flavicost
Mutant-Code : V357 Gene-Symbol :
AIS Acc-No. : 817,1252(4000)
Phenotype : yellow green veined,dentata,nana
Char.-Code : 1.1.2.,2.2.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : lutmacalb
Mutant-Code : V360 Gene-Symbol :
AIS Acc-No. : 820,2103(1000)
Phenotype : yellow seed,yellow whitish green spotted X
Char.-Code : 2.2.-,3.3.,3.5.
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : lutmac
Mutant-Code : V361 Gene-Symbol :
AIS Acc-No. : 821,1519(22000)
Phenotype : brown seeds,yellowish spotted,hairy,late
Char.-Code : 1.,2.,3.3.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : vircost
Mutant-Code : V362 Gene-Symbol :
AIS Acc-No. : 822
Phenotype : green veined,large rosette,+/-early
Char.-Code : 2.2.,2.4.,3.5.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G:Röbbelen
Reference Code :
Receiver Code :


Name : colormut Surname : vircoer
Mutant-Code : V367 Gene-Symbol :
AIS Acc-No. : 824
Phenotype : dark green,+/-large,early
Char.-Code : 2.2.,2.4.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G.Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : vircoer
Mutant-Code : V366 Gene-Symbol :
AIS Acc-No. : 825,1253(22500)
Phenotype : dark green,late
Char.-Code : 2.2.,2.4.
Mutagen :
Source Location : Göttingen
Country : FRG
Origin : population : En
line :
received :
collector: G:Röbbelen,Göttingen
Reference Code :
Receiver Code :

Name : colormut Surname : chmac
 Mutant-Code : V369 Gene-Symbol :
 AIS Acc-No. : 826
 Phenotype : +/-spotted,early
 Char.-Code : 2.2.,2.4.,3.5.
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : virdis
 Mutant-Code : V370 Gene-Symbol :
 AIS Acc-No. : 1854(5000)
 Phenotype : virescens,dainty loose rosette
 Char.-Code : 1.1.,2.2.,3.5.
 Mutagen :
 Source Location : Frankfurt
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: A.R.Kranz,Frankfurt
 Reference Code :
 Receiver Code :

Name : colormut Surname : luts
 Mutant-Code : V371 Gene-Symbol :
 AIS Acc-No. : 2043(5500)
 Phenotype : yellow,round leaves,strong fertile,late
 Char.-Code :
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received :
 collector: G.Röbbelen,Göttingen
 Reference Code :
 Receiver Code :

Name : colormut Surname : flavovir 
 Mutant-Code : V372 Gene-Symbol :
 AIS Acc-No. : 2079(42750)
 Phenotype : small,light green,leaves nerves dark green,costata
 Char.-Code : 1,3
 Mutagen : HZE Ne
 Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1984
 collector: A.R.Kranz
 Reference Code :
 Receiver Code :

Name : colormut Surname : flavovir
Mutant-Code : V373 Gene-Symbol :
AIS Acc-No. : 2083(65750)
Phenotype : early flowering,yellow green leaves,normal green nerves
Char.-Code : 2.4,3
Mutagen : HZE Ne
Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1984
 collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : colormut Surname : chloromut
Mutant-Code : V374 Gene-Symbol :
AIS Acc-No. : 2087(19250)
Phenotype : small,yellow hearted rosette,nana
Char.-Code : 1,3
Mutagen : HZE Ne
Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1984
 collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : colormut Surname : chloromut
Mutant-Code : V375 Gene-Symbol :
AIS Acc-No. : 2088(8250)
Phenotype : small,white-yellow,albescens
Char.-Code : 1,3
Mutagen : HZE Ne
Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1984
 collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : colormut Surname : marginata
Mutant-Code : V376 Gene-Symbol :
AIS Acc-No. : 2092(2750)
Phenotype : light green,leaf margin serrate,necrotic leaves
Char.-Code : 1.1.2,3
Mutagen : HZE Ne
Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1984
 collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : colormut Surname : marginata
 Mutant-Code : V377 Gene-Symbol :
 AIS Acc-No. : 2093(2250)
 Phenotype : light green,leaf margin serrate,leaves necrotic
 Char.-Code : 1.1.2,3
 Mutagen : HZE Ne
 Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1984
 collector: A.R.Kranz
 Reference Code :
 Receiver Code :

Name : colormut Surname : marginata
 Mutant-Code : V378 Gene-Symbol :
 AIS Acc-No. : 2094(1500)
 Phenotype : light green,leaf margin serrate,leaves necrotic
 Char.-Code : 1.1.2,3
 Mutagen : HZE Ne
 Source Location : Frankfurt/M
 Country : FRG
 Origin : population : En
 line : 2
 received : 1984
 collector: A.R.Kranz
 Reference Code :
 Receiver Code :

Name : colormut Surname : marginata
 Mutant-Code : V379 Gene-Symbol :
 AIS Acc-No. : 2095(3250)
 Phenotype : light green,leaf margin serrate,leaves necrotic
 Char.-Code : 1.1.2,3
 Mutagen : HZE Ne
 Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1984
 collector: A.R.Kranz
 Reference Code :
 Receiver Code :

Name : colormut Surname : marginata
 Mutant-Code : V380 Gene-Symbol :
 AIS Acc-No. : 2096(3500)
 Phenotype : light green,leaf margin serrate,leaves necrotic
 Char.-Code : 1.1.2,3
 Mutagen : HZE Ne
 Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1984
 collector: A.R.Kranz
 Reference Code :
 Receiver Code :

Name : colormut Surname : flavovir
Mutant-Code : VJ81 Gene-Symbol :
AIS Acc-No. : 2104(17750)
Phenotype : light green,small,nana
Char.-Code : 1,3
Mutagen : HZE Kr
Source Location : Frankfurt/M.
Country : FRG
Origin : population : En
line : 2
received : 1985
collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : colormut Surname : flavovir
Mutant-Code : VJ82 Gene-Symbol :
AIS Acc-No. : 2105(1000)
Phenotype : small,light green,nana
Char.-Code : 1,3
Mutagen : HZE Kr
Source Location : Frankfurt/M.
Country : FRG
Origin : population : En
line : 2
received : 1985
collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : colormut Surname : chloretic
Mutant-Code : VJ83 Gene-Symbol :
AIS Acc-No. : 2106(23400)
Phenotype : light green-yellow
Char.-Code : 3
Mutagen : HZE Kr
Source Location : Frankfurt/M.
Country : FRG
Origin : population : En
line : 2
received : 1985
collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : colormut Surname : chlorina
Mutant-Code : VJ84 Gene-Symbol :
AIS Acc-No. : 2110(8250)
Phenotype : yellow heart,like ch-mutant,chlorina
Char.-Code : 3
Mutagen : HZE Kr
Source Location : Frankfurt/M.
Country : FRG
Origin : population : En
line : 2
received : 1985
collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : colormut Surname : chlorina
 Mutant-Code : V385 Gene-Symbol :
 AIS Acc-No. : 2111(6250)
 Phenotype : like ch-mutant chlorina
 Char.-Code :
 Mutagen : HZE Kr
 Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1985
 collector: A.R.Kranz
 Reference Code :
 Receiver Code :

Name : colormut Surname : chlorina
 Mutant-Code : V386 Gene-Symbol :
 AIS Acc-No. : 2112(10500)
 Phenotype : like ch-mutant chlorina
 Char.-Code :
 Mutagen : HZE Kr
 Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1985
 collector: A.R.Kranz
 Reference Code :
 Receiver Code :

Name : colormut Surname : chlorina
 Mutant-Code : V387 Gene-Symbol :
 AIS Acc-No. : 2113(10500)
 Phenotype : like ch-mutant chlorina
 Char.-Code :
 Mutagen : HZE Kr
 Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : En
 line : 2
 received : 1985
 collector: A.R.Kranz
 Reference Code :
 Receiver Code :

Name : colormut Surname : virescens
 Mutant-Code : V388 Gene-Symbol :
 AIS Acc-No. : 2114(33750)
 Phenotype : revertant to wildtype in M3
 Char.-Code :
 Mutagen : HZE U
 Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : Col
 line : ch2
 received : 1985
 collector: A.R.Kranz
 Reference Code :
 Receiver Code :

Name : colormut
Mutant-Code : V393
AIS Acc-No. : 2119(500)
Phenotype : like ch-2 but short stems,bushy,compacta
Char.-Code : 1.2
Mutagen : HZE U
Source Location : Frankfurt/M.
Country : FRG
Origin : population : Col
line : ch2
received : 1985
collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : colormut
Mutant-Code : V394
AIS Acc-No. : 2120(8150)
Phenotype : dwarf,undulata,like ch-2
Char.-Code :
Mutagen : HZE U
Source Location : Frankfurt/M.
Country : FRG
Origin : population : Col
line : ch2
received : 1985
collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : colormut
Mutant-Code : V395
AIS Acc-No. : 2121(-)
Phenotype : dwarf,revertant to wildtype,green
Char.-Code :
Mutagen : HZE U
Source Location : Frankfurt/M.
Country : FRG
Origin : population : Col
line : ch2
received : 1985
collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : colormut
Mutant-Code : V396
AIS Acc-No. : 2122(100)
Phenotype : dwarf,revertant to wildtype,green
Char.-Code :
Mutagen : HZE U
Source Location : Frankfurt/M.
Country : FRG
Origin : population : Col
line : ch2
received : 1985
collector: A.R.Kranz
Reference Code :
Receiver Code :

Name : colormut Surname : lutsfol
 Mutant-Code : V399 Gene-Symbol :
 AIS Acc-No. : 2141(13000)
 Phenotype : yellow green,yellow hearted,smooth leaf margin
 Char.-Code : 1.1.2.,3.5.,7.3.
 Mutagen : HZE Ne
 Source Location : Frankfurt
 Country : FRG
 Origin : population : En
 line :
 received : 1986
 collector: Kranz,Frankfurt
 Reference Code : 21,22
 Receiver Code :

Name : colormut Surname : vial
 Mutant-Code : V400 Gene-Symbol :
 AIS Acc-No. : 2143(13900)
 Phenotype : albinotic green,thiamin-defective?
 Char.-Code : 2.4.,3.5.,6.1.,7.3.
 Mutagen : HZE Ne
 Source Location : Frankfurt
 Country : FRG
 Origin : population : En
 line :
 received : 1986
 collector: Kranz,Frankfurt
 Reference Code : 21,22
 Receiver Code :

Name : colormut Surname : virescens
 Mutant-Code : V397 Gene-Symbol :
 AIS Acc-No. : 2123(35000)
 Phenotype : revertant to wildtype
 Char.-Code :
 Mutagen : HZE U
 Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : Col
 line : ch2
 received : 1985
 collector: A.R.Kranz
 Reference Code :
 Receiver Code :

Name : colormut Surname : virescens
 Mutant-Code : V398 Gene-Symbol :
 AIS Acc-No. : 2124(46250)
 Phenotype : revertant to wildtype
 Char.-Code :
 Mutagen : HZE U
 Source Location : Frankfurt/M.
 Country : FRG
 Origin : population : Col
 line : ch2
 received : 1985
 collector: A.R.Kranz
 Reference Code :
 Receiver Code :

Name : colormut Surname : vrid
Mutant-Code : V401 Gene-Symbol :
AIS Acc-No. : 2144(11900)
Phenotype : albinotic green, thiamine defective
Char.-Code : 2.4.,3.5.,6.1.,7.3.
Mutagen : HZE Ne
Source Location : Frankfurt
Country : FRG
Origin : population : En
line :
received : 1986
collector: Kranz, Frankfurt
Reference Code : 21,22
Receiver Code :

Name : colormut Surname : lutsfol
Mutant-Code : V402 Gene-Symbol :
AIS Acc-No. : 2145(14750)
Phenotype : yellow green, yellow hearted, smooth leaf margin
Char.-Code : 1.1.2.,3.5.,7.3.
Mutagen : HZE Ne
Source Location : Frankfurt
Country : FRG
Origin : population : En
line :
received : 1986
collector: Kranz, Frankfurt
Reference Code : 21,22
Receiver Code :

Name : colormut Surname : chivridcos
Mutant-Code : V403 Gene-Symbol :
AIS Acc-No. : 2146(100)
Phenotype : yellow green, green leaf nerves
Char.-Code : 1.1.2.,2.4.,3.5.,7.3.
Mutagen : HZE Ne
Source Location : Frankfurt
Country : FRG
Origin : population : En
line :
received : 1986
collector: Kranz, Frankfurt
Reference Code : 21,22
Receiver Code :

Name : colormut Surname : folflor
Mutant-Code : V404 Gene-Symbol :
AIS Acc-No. : 2147(14750)
Phenotype : virescens, pointed dentate leaf, nana, bushy
Char.-Code : 1.1.2.,3.5.,7.3.
Mutagen : HZE Ne
Source Location : Frankfurt
Country : FRG
Origin : population : En
line :
received : 1986
collector: Kranz, Frankfurt
Reference Code : 21,22
Receiver Code :

Name : colormut
 Mutant-Code : V405
 AIS Acc-No. : 2151(8750)
 Phenotype : glabra,yellowgreen,green leaf nerves,nearly smooth marg.
 Char.-Code : 1.1.,1.1.2.,3.5.,7.3.
 Mutagen : HZE Ne
 Source Location : Frankfurt
 Country : FRG
 Origin : population : En
 line :
 received : 1986
 collector: Kranz,Frankfurt
 Reference Code : 21,22
 Receiver Code :

Name : formmutant
 Mutant-Code : F202
 AIS Acc-No. : 2154(50500)
 Phenotype : yellow green,compacta,heart shaped rolled down leaf
 Char.-Code : 1.1.,2.2.,3.5.,7.3.
 Mutagen : c HZE
 Source Location : Frankfurt
 Country : FRG
 Origin : population : Col
 line : ch2
 received : 1986
 collector: Kranz,Frankfurt
 Reference Code : 21,22
 Receiver Code :

Name : colormut
 Mutant-Code : V406
 AIS Acc-No. : 2156(26500)
 Phenotype : virescens,nana
 Char.-Code : 1.2.,3.5.,7.3.
 Mutagen : c HZE
 Source Location : Frankfurt
 Country : FRG
 Origin : population : En
 line :
 received : 1986
 collector: Kranz,Frankfurt
 Reference Code : 21,22
 Receiver Code :

Name : colormut
 Mutant-Code : V407
 AIS Acc-No. : 2159(26700)
 Phenotype : green, revertant from ch2?
 Char.-Code : 3.5.,7.3.
 Mutagen : c HZE
 Source Location : Frankfurt
 Country : FRG
 Origin : population : Col
 line : ch2
 received : 1986
 collector: Kranz,Frankfurt
 Reference Code : 21,22
 Receiver Code :

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Name : colormut
Mutant-Code : V409
AIS Acc-No. : 1053(2500),1054(9400)
Phenotype :
Char.-Code :
Mutagen :
Source Location : Frankfurt
 Country : FRG
 Origin : population :
 line : V81
 received : 1966
 collector: Kranz, Frankfurt
Reference Code :
Receiver Code :

Name : metabolmut Surname : columbia
Mutant-Code : E0 Gene-Symbol : +++++
AIS Acc-No. : 1973(4500),2213(29700)
Phenotype : Columbia wildtype,origin line of metabolic mutants
Char.-Code : 1,2,3,3.4,4,5,6.2,7.4
Mutagen :
Source Location : Columbia
Country : USA
Origin : population : Col
line : 1
received : 1963
collector: W.L. Ogren
Reference Code : Pl.Physiol.60,655
Receiver Code : 114,162,166,168,172,321

Name : metabolmut Surname : dicarbtran
Mutant-Code : E1 Gene-Symbol : dct
AIS Acc-No. : 1974(8500)
Phenotype : CS156,loss of chloropl. dicarboxylate transp. activ
Char.-Code : 6.5
Mutagen : EMS
Source Location : Urbana
Country : USA
Origin : population : Col
line : 1
received : 1963
collector: W.L. Ogren
Reference Code : Pl.Physiol.80,655
Receiver Code :

Name : metabolmut Surname : decarbreac
Mutant-Code : E2 Gene-Symbol : glyD
AIS Acc-No. : 1975(4250)
Phenotype : CS116,catalyz.defect-1.step of decarboxylase react.
Char.-Code : 6.5
Mutagen : EMS
Source Location : Urbana
Country : USA
Origin : population : Col
line : 1
received : 1963
collector: W.L. Ogren
Reference Code : Pl.Physiol.80,655
Receiver Code :

Name : metabolmut Surname : rubpcarbox
Mutant-Code : E3 Gene-Symbol : rca
AIS Acc-No. : 1976(12500)
Phenotype : CS 207!,no activation of RuBP carboxylase in vivo
Char.-Code : 6.5
Mutagen : EMS
Source Location : Urbana
Country : USA
Origin : population : Col
line : 1
received : 1963
collector: W.L. Ogren
Reference Code : Pl.Physiol.80,655
Receiver Code :

Name : metabolmut Surname : glyc
Mutant-Code : E4 Gene-Symbol : Stm
AIS Acc-No. : 1977(9500)
Phenotype : CS64,no mitochondr.serine transhydroxymethylase act
Char.-Code : 6.5
Mutagen : EMS
Source Location : Urbana
Country : USA
Origin : population : Col
line : 1
received : 1983
collector: W.L. Ogren
Reference Code :
Receiver Code :

Name : metabolmut Surname : serglycatf
Mutant-Code : E5 Gene-Symbol : sat
AIS Acc-No. : 1978(6500)
Phenotype : CS 51,no serine-glycolate aminotransferase activity
Char.-Code : 6.5
Mutagen : EMS
Source Location : Urbana
Country : USA
Origin : population : Col
line : 1
received : 1983
collector: W.L. Ogren
Reference Code :
Receiver Code :

Name : metabolmut Surname : pglycphosp
Mutant-Code : E6 Gene-Symbol : pcoA
AIS Acc-No. : 1979(8500)
Phenotype : CS 119, phosphoglycolate phosphatase deficient
Char.-Code : 6.5
Mutagen : EMS
Source Location : Urbana
Country : USA
Origin : population : Col
line : 1
received : 1983
collector: W.L. Ogren
Reference Code :
Receiver Code :

Name : metabolmut Surname : glutynact
Mutant-Code : E7 Gene-Symbol : gluS
AIS Acc-No. : 1980(7500)
Phenotype : CS 113 (lacking leaf glutamate synthetase activity)
Char.-Code : 6.5
Mutagen : EMS
Source Location : Urbana
Country : USA
Origin : population : Col
line : 1
received : 1983
collector: W.L. Ogren
Reference Code :
Receiver Code :

Name : metabolmut Surname : nitreduct
 Mutant-Code : E8 Gene-Symbol : chl+
 AIS Acc-No. : 1588(3650),1962(60400)
 Phenotype : Wildtyp for nitrate reductase defective mutant B1
 Char.-Code : 6.3
 Mutagen :
 Source Location : Groningen
 Country : NL
 Origin : population : Col
 line : erect
 received : 1978
 collector: W.J. Feenstra
 Reference Code : AIS 12,16
 Receiver Code : 56,98

Name : metabolmut Surname : nitreduct
 Mutant-Code : E9 Gene-Symbol : chl-1
 AIS Acc-No. : 1589(2050),1963(62600)
 Phenotype : B1 nitrate reductase defective mutant
 Char.-Code : 6.3-1/14.9
 Mutagen :
 Source Location : Groningen
 Country : NL
 Origin : population : Col
 line : erect
 received : 1978
 collector: W.J. Feenstra
 Reference Code : 10,12,16,13,18
 Receiver Code : 35,120,98,121,225,54,114,46,132,162,321

Trisomic Lines

Name : chromosmut Surname : trisom
 Mutant-Code : T1 Gene-Symbol : y
 AIS Acc-No. : 827(-),1325(16350),1326(1500),1328(22500),1520(33500)
 Phenotype : T-20,segregating in wildtype,yellow,leaf form mutan
 Char.-Code : 1.3,1.1.2,4.1-5/87.4
 Mutagen :
 Source Location : Columbia/Mo.
 Country : USA
 Origin : population : Col
 line :
 received : 1976
 collector: G.Röbbelen,G.P.Redei
 Reference Code : 16,
 Receiver Code : 10,41,124, cont.pg.483

Name : chromosmut Surname : trisom
 Mutant-Code : T1 Gene-Symbol : y
 AIS Acc-No. : 828(-),1329(40900),1327(2950),1549(24900)
 Phenotype : T-20,segregating in wildtype,yellow,leaf form mutan
 Char.-Code : 1.3,1.1.2,4.1-5/87.4
 Mutagen :
 Source Location : Columbia/Mi.
 Country : USA
 Origin : population : Col
 line :
 received : 1973
 collector: G.Röbbelen,G.P.Redei
 Reference Code : 16,
 Receiver Code : cont.of pg.482:18,124

Name : chromosmut Surname : trisom
 Mutant-Code : T3 Gene-Symbol : ch
 AIS Acc-No. : 829(-),1330(17500),1550(30000)
 Phenotype : T-22,like ch-42,green yellow
 Char.-Code : 3.5,4.1-4/34.9
 Mutagen :
 Source Location : Columbia/Mi.
 Country : USA
 Origin : population : Col
 line :
 received : 1973
 collector: G.Röbbelen,G.P.Redei
 Reference Code : 16,
 Receiver Code : 41,15,124

Name : chromosmut Surname : trisom
 Mutant-Code : T4 Gene-Symbol : ch
 AIS Acc-No. : 830(-),1331(33500),1521(56000)
 Phenotype : T-22,like ch-42
 Char.-Code : 3.5,4.1-4/34.9
 Mutagen :
 Source Location : Columbia/Mi.
 Country : USA
 Origin : population : Col
 line :
 received : 1974
 collector: G.Röbbelen,G.P.Redei
 Reference Code : 16,
 Receiver Code : 10,124

Name : chromosmut Surname : trisom
 Mutant-Code : T5 Gene-Symbol :
 AIS Acc-No. : 831(-),1332(12000),1522(11700)
 Phenotype : T-31,light green,small,hairy,five-cornered leaf
 Char.-Code : 1.1.2,3.5,4.1
 Mutagen :
 Source Location : Columbia/Mi.
 Country : USA
 Origin : population : Col
 line :
 received : 1974
 collector: G.Röbbelen,G.P.Redei
 Reference Code : 16,19
 Receiver Code : 10,41,15,124 cont.pg.487

Name : chromosmut Surname : trisom
 Mutant-Code : T5 Gene-Symbol :
 AIS Acc-No. : 832(-),1333(2450)
 Phenotype : T-31,light green,small,hairy,five cornered leaf
 Char.-Code : 1.1.2,3.5,4.1
 Mutagen :
 Source Location : Columbia/Mi.
 Country : USA
 Origin : population : Col
 line :
 received : 1974
 collector: G.Röbbelen,G.P.Redei
 Reference Code : 16,19,
 Receiver Code : cont.of pg.486:124

Name : chromosmut Surname : trisom
 Mutant-Code : T7 Gene-Symbol : y
 AIS Acc-No. : 833(-),1334(1500),1701(65200)
 Phenotype : I from Ts 125,segregating 3:1(wildtype:y-Trisom)
 Char.-Code : 3.5,4.1-5/87.4
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : Col
 line :
 received : 1973
 collector: G.Röbbelen
 Reference Code : 19,
 Receiver Code : 124

Name : chromosmut Surname : trisom
 Mutant-Code : T8 Gene-Symbol :
 AIS Acc-No. : 834(-),1335(4300)
 Phenotype : I from Ts152,segregating wildtype,light green leaf
 Char.-Code : 1.1.2,3.5,4.1,5
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population : Col
 line :
 received : 1974
 collector: G.Röbbelen
 Reference Code :
 Receiver Code : 10,41,124

Name : chromosmut Surname : trisom
 Mutant-Code : T13 Gene-Symbol :
 AIS Acc-No. : 839(-),1340(8000),1341(4400)
 Phenotype : segregating in trisomic IV (small,short)
 Char.-Code : 1.2,4.1,5
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population :
 line :
 received : 1973
 collector: G.Röbbelen
 Reference Code :
 Receiver Code : 124

Name : chromosmut Surname : trisom
 Mutant-Code : T14 Gene-Symbol : NcNs
 AIS Acc-No. : 840(-),1342(11000)
 Phenotype : Nc Ns
 Char.-Code : 4.1
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population :
 line :
 received : 1973
 collector: G.Röbbelen
 Reference Code : 19,
 Receiver Code : 18,41,124

Name : chromosmut Surname : trisom
 Mutant-Code : T15 Gene-Symbol : Nc Ns
 AIS Acc-No. : 841(-),1343(39400)
 Phenotype : trisomic, Nc + Ns
 Char.-Code : 4.1
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population :
 line :
 received : 1974
 collector: G.Röbbelen
 Reference Code :
 Receiver Code : 10,124

Name : chromosmut Surname : trisom
 Mutant-Code : T16 Gene-Symbol : +++++
 AIS Acc-No. : 842(-),997(1000),998(121200),1000(27900)cont.see pg.517
 Phenotype : origin.line of trisomics,autotetraploid
 Char.-Code : Wildtype
 Mutagen :
 Source Location : Göttingen
 Country : FRG
 Origin : population :
 line :
 received : 1976
 collector: G.Röbbelen
 Reference Code : 4,
 Receiver Code : 9,38,41,18,10,124,125,201,329

Name : chromosmut
Mutant-Code : T17
AIS Acc-No. : 2010(-),2031(20750)
Phenotype : telotrismic 1A, necrotic rosette leaves
Char.-Code : 4.1
Mutagen :
Source Location : Wageningen
 Country : NL
 Origin : population :
 line :
 received : 1982
 collector: J.H.van der Veen
Reference Code : 15,
Receiver Code : 289,46,195,129

Name : chromosmut
Mutant-Code : T18
AIS Acc-No. : 2011(-),2032(24450)
Phenotype : telotrismic 1B, lozenge and dark leaves
Char.-Code : 4.1
Mutagen :
Source Location : Wageningen
 Country : NL
 Origin : population :
 line :
 received : 1982
 collector: J.H.van der Veen
Reference Code : 15,
Receiver Code : 289,46,195,129

Name : chromosmut
Mutant-Code : T16
AIS Acc-No. : cont.of pg.497:999(250000),1344(20400),1551(49800)
Phenotype : origin.line of trisomics,autotetraploid
Char.-Code : Wildtype
Mutagen :
Source Location : Göttingen
 Country : FRG
 Origin : population : En
 line :
 received : 1965
 collector: Röbbelen
Reference Code : 4,
Receiver Code : 9,38,41,18,10,124,125,201,329,

Name : chromosmut . Surname : primtrisom
Mutant-Code : T23 Gene-Symbol : Tr4
AIS Acc-No. : 2016(-),2037(32000)
Phenotype : primary trisomic chrom.4, thicker flower buds
Char.-Code : 4.1
Mutagen :
Source Location : Wageningen
Country : NL
Origin : population :
line :
received : 1982
collector: J.H.van der Veen
Reference Code : 15,
Receiver Code : 123,289,46,195,129

Name : chromosmut Surname : primtrisom
Mutant-Code : T24 Gene-Symbol : Tr5
AIS Acc-No. : 2017(-),2038(18000)
Phenotype : primary trisomic chrom.5, narrow leaves
Char.-Code : 4.1
Mutagen :
Source Location : Wageningen
Country : NL
Origin : population :
line :
received : 1982
collector: M. Koornneef
Reference Code :
Receiver Code : 123,289,46,195,129

Marker Lines

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Name : markerline Surname : msmsxMsmS
Mutant-Code : M1 Gene-Symbol : ms
AIS Acc-No. : 895(-), 1943(49350)
Phenotype : segregating 1:1 malesterile:malefertile
Char.-Code : 5/26.4
Mutagen :
Source Location : Wageningen
 Country : NL
 Origin : population : La
 line : erect
 received : 1975
 collector: J.H.van der Veen
Reference Code : 5,17,19
Receiver Code : 19,37,38,28,39,40

Name : markerline Surname : gibsens
Mutant-Code : M2 Gene-Symbol : ga-1
AIS Acc-No. : 1527(-),1846(24400),2132(43300)
Phenotype : non germinating,GA-requiring, nana
Char.-Code : 2.1,2.3,6.4-4/0
Mutagen : n fast
Source Location : Wageningen
 Country : NL
 Origin : population : La
 line : erect
 received : 1977
 collector: L.W.N. Dellaert
Reference Code : 5, 17,19,21
Receiver Code : 36,50,60,120,114,142,321

Name : markerline Surname : apetagam
Mutant-Code : M3 Gene-Symbol : ag-ap
AIS Acc-No. : 1528(-),1556(-700),1557,1558(-600),1559,1684(10000)
Phenotype : F2 9:3:3:1,no pistils+stamens,many or no petals
Char.-Code : 1.1.4,2.5,5.-4/33,2
Mutagen :
Source Location : Wageningen
 Country : NL
 Origin : population : La
 line : erect
 received : 1977
 collector: M. Koornneef
Reference Code :
Receiver Code : 15,19,35,37,39,128

Name : markerline Surname : longhypo
Mutant-Code : M4 Gene-Symbol : hy-2
AIS Acc-No. : 1844(29900),1944(11200)
Phenotype : long hypocotyl, normal green
Char.-Code : 1.2.3-3/0
Mutagen : EMS
Source Location : Wageningen
 Country : NL
 Origin : population : La
 line : erect
 received : 1980
 collector: J.H.van der Veen
Reference Code : 1,17,21,23
Receiver Code : 37,120,46,132,162

Name : markerline Surname : asynlohyp
 Mutant-Code : M5 Gene-Symbol : asERhy
 AIS Acc-No. : (1845),1945(7800),2005(-100),2137(6650)
 Phenotype : asymetr. lobed leaf,long hypocot.,light green,compacta
 Char.-Code : 1.2,1.1,3.5-2/33,16.9,15.9
 Mutagen :
 Source Location : Columbia,Mo.
 Country : USA
 Origin : population : La
 line : erect
 received : 1981
 collector: G.P. Redei
 Reference Code : 1,5,9,17,21
 Receiver Code : 28,35,98,115,120,46,132,162,119

Name : markerline Surname : apetclav
 Mutant-Code : M7 Gene-Symbol : apiclV
 AIS Acc-No. : 1847(50),1946(86700)
 Phenotype : apetala,clublike pods
 Char.-Code : 1.1.4,1.4-1/102.4,113.5
 Mutagen :
 Source Location : Wageningen
 Country : NL
 Origin : population : La
 line : erect
 received : 1980
 collector: M. Koornneef
 Reference Code : 16,
 Receiver Code : 92,115,35,120,98,121,128,46,132,156,162,119,195

Name : markerline Surname : pyhymalest
 Mutant-Code : M8 Gene-Symbol : pyhymS
 AIS Acc-No. : 1848(2)
 Phenotype : long hypocotyl,male sterile,thiamine pyrimidine req.mut.
 Char.-Code : 1.2,2.5,6-2/2.2,22-5/26.4
 Mutagen :
 Source Location : Wageningen
 Country : NL
 Origin : population : La
 line : erect
 received : 1979
 collector: M. Koornneef
 Reference Code : 1,5,17,18,19,21
 Receiver Code :

Name : markerline Surname : longhyglab
 Mutant-Code : M9 Gene-Symbol : hy2gll1
 AIS Acc-No. : 1849(50),1947(59500),1984(419900),2060(30000)
 Phenotype : long hypocotyl,glabra (no trichomes on leaf and stem)
 Char.-Code : 1.1,1.2-3/0,40.9
 Mutagen :
 Source Location : Wageningen
 Country : NL
 Origin : population : La
 line : erect
 received : 1980
 collector: M. Koornneef
 Reference Code : 1,3,4,5,17,20,21,23
 Receiver Code : 28,92,35,122,40,120,131,114,46,132,162,320

Name : markerline Surname : apeteceer
 Mutant-Code : M10 Gene-Symbol : **cerap2**
 AIS Acc-No. : 1850(100),1948(44600),1996(-100),2021(11500)
 Phenotype : waxless bright green, reduced petals, large sepals
 Char.-Code : 1.1.1.4,1-4/42,58.9
 Mutagen :
 Source Location : Wageningen
 Country : NL
 Origin : population : La
 line : erect
 received : 1981
 collector: M. Koornneef
 Reference Code :
 Receiver Code : 26,92,35,120,98,121,123,46,132,343,162

Name : markerline Surname : transpyell
 Mutant-Code : M11 Gene-Symbol : **ttgyi**
 AIS Acc-No. : 1851(100),1949(52200),1983(385000),2059(23000),2003(-)
 Phenotype : transparent testa, glabra, yellow seeds and flowerbuds
 Char.-Code : 1.1,1.5,3.2-5/32.3,87.4
 Mutagen :
 Source Location : Wageningen
 Country : NL
 Origin : population : La
 line : erect
 received : 1980
 collector: M. Koornneef
 Reference Code : 17,18,19,20
 Receiver Code : 28,92,115,35,120,56,52,131,46,132,343,195,162,119

Name : markerline Surname : gibsttesta
 Mutant-Code : M12 Gene-Symbol : **ga4tti**
 AIS Acc-No. : 1852(50),1950(43400)
 Phenotype : gibberellin sensitive dwarf, transparent testa, yell. seed
 Char.-Code : 1.3,2.3,6.4-1/21.8,55.1
 Mutagen :
 Source Location : Wageningen
 Country : NL
 Origin : population : La
 line : erect
 received : 1980
 collector: J.H. van der Veen
 Reference Code : 15,19,22
 Receiver Code : 35,113,121,131,46,132,60,162,321

Name : markerline Surname : angudistri
 Mutant-Code : M13 Gene-Symbol : **andisi**
 AIS Acc-No. : 1853(100),1951(29500),2004(-100),2028(6200)
 Phenotype : narrow leaves, crinkled siliquae, distorted trichomes
 Char.-Code : 1.1,1.4-1/0,17.6
 Mutagen :
 Source Location : Groningen
 Country : NL
 Origin : population : La
 line : erect
 received : 1980
 collector: W. Feenstra
 Reference Code : 3,4,15,16,19,21,22,
 Receiver Code : 28,121,123,46,132,162,119,129

Name : markerline Surname : transpmale
 Mutant-Code : M14 Gene-Symbol : **ttgms1**
 AIS Acc-No. : 1995(-100),2020(6750),2214(14000)
 Phenotype : transparent testa,yellow seed,anthocyaninless,male ster.
 Char.-Code : 1.9,3.2,2.5-5/32.3,26.4
 Mutagen :
 Source Location : Wageningen
 Country : NL
 Origin : population : La
 line : erect
 received : 1983
 collector: M. Koornneef
 Reference Code : 5,16,17,18,19
 Receiver Code : 35,56,98,131,46,132,134,195,156,162,119

Name : markerline Surname : gibdisecer
 Mutant-Code : M15 Gene-Symbol : **gadisc**
 AIS Acc-No. : 1997(-100),2022(9300)
 Phenotype : gibberell.sens.,eceriferum,distort.hair(ga-4,dis-2,cer-5)
 Char.-Code : 1.1,6.4-1/21.8,46.1,69.4
 Mutagen :
 Source Location : Wageningen
 Country : NL
 Origin : population : La
 line : erect
 received : 1982
 collector: M. Koornneef
 Reference Code : 15,16,19,21,22
 Receiver Code : 35,121,123,56,46,132,162,321

Name : markerline Surname : comasyecer
 Mutant-Code : M16 Gene-Symbol : **cpasce**
 AIS Acc-No. : 1999(-),2024(13800)
 Phenotype : dry sens.,asym.leaves,eceriferum,(cp-2,as,cer-8)
 Char.-Code : 1.1,2.3-2/6.8,33,51.2
 Mutagen :
 Source Location : Wageningen
 Country : NL
 Origin : population : La
 line : erect
 received : 1982
 collector: M. Koornneef
 Reference Code : 1,9,
 Receiver Code : 98,46,132,343,195,162

Name : markerline Surname : hypglatest
 Mutant-Code : M17 Gene-Symbol : **glhytt**
 AIS Acc-No. : 2000(-100),2025(21000)
 Phenotype : long hypoc.,glabra,transp.testa,(gl-1,hy-2,tt-5)
 Char.-Code : 1.1,1.2,1.5-3/0,40.9,77.9
 Mutagen :
 Source Location : Wageningen
 Country : NL
 Origin : population : La
 line : erect
 received : 1982
 collector: M. Koornneef
 Reference Code : 1,3,4,17,21,23
 Receiver Code : 35,98,114,46,132,195,162,119

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Name : markerline Surname : landserect
 Mutant-Code : M23 Gene-Symbol : +++++
 AIS Acc-No. : 2008(-300),2129(15000)
 Phenotype : wildtype original of marker lines
 Char.-Code : 1.2,1.3
 Mutagen :
 Source Location : Wageningen
 Country : NL
 Origin : population : La
 line : erect
 received : 1982
 collector: M. Koornneef
 Reference Code : 2,4,5,6,9,15,17,18,20,22,23
 Receiver Code : 120,343,50,114,142,145,60,294,150,141,197,191, cont.pg.30

Name : markerline Surname : glaecerthi
 Mutant-Code : M24 Gene-Symbol : cer3tz
 AIS Acc-No. : 2009(-200),2222(13000)
 Phenotype : hairless,glabra,thiazole requirering,(gl-3,tz,cer-3)
 Char.-Code : 1.1.1,6.1-5/54.9,78.7,81.9
 Mutagen :
 Source Location : Wageningen,Columbia
 Country : NL US
 Origin : population : La
 line : erect
 received : 1982
 collector: M. Koornneef,G.P. Redei
 Reference Code : 18,
 Receiver Code : 35,113,56,,98,114,46,132,141,162

Name : markerline Surname : landserect
 Mutant-Code : M23 Gene-Symbol : +++++
 AIS Acc-No. : 2008(-300),2129(15000)
 Phenotype : wildtype original of marker lines
 Char.-Code : 1.2,,1.3
 Mutagen :
 Source Location : Wageningen
 Country : NL
 Origin : population : La
 line : erect
 received : 1982
 collector: M. Koornneef
 Reference Code :
 Receiver Code : cont.of pg.28:195,162,165,168,172,50,120,262,321,324

Name : markerline Surname : apeglachlo
 Mutant-Code : M25 Gene-Symbol : chapp1
 AIS Acc-No. : 1998(-),2023(10050)
 Phenotype : apetala,green yellow,glabra,(ch-1,ap-1,gl-2)
 Char.-Code : 1.1,1.4-1/60.7,103.5,123
 Mutagen :
 Source Location : Wageningen,Columbia
 Country : NL US
 Origin : population : La
 line : erect
 received : 1982
 collector: M. Koornneef,G.P. Redei
 Reference Code : 1,3,4,16,18,21
 Receiver Code : 40,56,94,121,123,46,132,343,195,156,162,129

Name : markerline Surname : chlorina
Mutant-Code : M29 Gene-Symbol : ch-2
AIS Acc-No. : 1982(40000),1086(30000),1085(25000),cont.see pg.45
Phenotype : green yellow, less chlorophyll a and b
Char.-Code : 1,59.8
Mutagen :
Source Location : Columbia
Country : USA
Origin : population : Col
line :
received : 1965
collector: Redei
Reference Code : 3,4,7,9,10,14,16,17,19,20,21
Receiver Code : 9,61,25,6,10,3,30,242,23,100,331,52

Name : markerline Surname : chlorina
Mutant-Code : M29 Gene-Symbol : ch-2
AIS Acc-No. : 1970(50000),1981(50000),2063(23250),2065(100000)
Phenotype : green yellow, less chlorophyll a and b
Char.-Code : 1,59.8
Mutagen :
Source Location : Columbia
Country : USA
Origin : population : Col
line :
received : 1965
collector: Redei
Reference Code : 3,4,7,8,9,10,14,16,17,19,20,21
Receiver Code :

3.4.

OTHER SPECIES
OF ARABIDOPSIS

3.4.1. Key to the species

Obviously, the limits and criteria of the genus and of the species of *Arabidopsis* are uncertain (REDEI, 1970). Thus, the new key of *Arabidopsis* species, published by NAQSHI and JAVEID (1985) has been shortened for practical purposes; additionally, European *A. suecica* as well as the Middle Asian *A. griffithiana*, *A. parvula* and *A. korshinskyi* have been enclosed. In this way, thirteen species including the species of the AIS-Bank can be identified.

1. Petals absent, plant glabrous

A. parvula

1. Petals present:

2. Petals white or pinkish in colour:

3. Cauline leaves amplexicaulous and auricled:

4. Cauline leaves dentate; flowers bracteate;

siliquae 10-45 mm long; seeds all mature:

5. Flowers lower few bracteate; septals 2-4 mm long; petals 1.5-2 mm broad; siliquae 30-40 mm long; valves with distinct median vein

A. mollissima

5. Flowers bracteate through out; septals 2-2.5 mm long; petals 1-1.5 mm broad; siliquae 10-35 mm long; valves obscurely veined

A. himalaica

4. Cauline leaves entire; flowers ebracteate; siliquae 8-18 mm long; mature seeds only one or two

A. drassiana

3. Cauline leaves narrowed below, rarely minutely auricled at base or cuneate:

6. Siliquae linear, moniliform; cauline leaves slightly auricled; humid seeds not mucilaginous

A. sarbalica

- 6. Siliquae linear-oblong, not moniliform; cauline leaves not auricled:
 - 7. Flowers 4.5-5.5 mm across
 - A. *suecica*
 - 7. Flowers 2-3.5 mm across:
 - 8. Cauline leaves usually entire; siliquae 9-21 mm long, upcurved
 - A. *thaliana*
 - 8. Cauline leaves toothed or lyrate; siliquae up to 80 mm long, straight, erect:
 - 9. Plant rough; racemes 30-70-flowered; siliquae up to 56 mm long
 - A. *stricta*
 - 9. Racemes 5-30-flowered:
 - 10. Cauline leaves lyrate (entire); petals 2.5-5 mm long; pedicels 2-6 mm long; siliquae 40-80 mm long
 - A. *wallichii*
 - 10. Cauline leaves spatulate, dentate with raised venation; petals 2-2.5 mm long, pedicels 3-5 mm long; siliquae up to 20 mm long
 - A. *tibetica*
- 2. Petals yellow
 - 11. Septum absent or perforated; petals up to 1.8 mm long
 - A. *korshinskyi*
 - 11. Septum present, not perforated:
 - 12. Petals 2-3 mm long; cauline leaves with arrow-shaped base, obovate entire; basale leaves dentate to dentate-pinnatifid
 - A. *pumila*
 - 12. Cauline leaves dentate, auricled; basale leaves sparsely covered with rough hairs, dentate
 - A. *griffithiana*

- Arabidopsis thaliana* (L.) Heynhold 2n=10
 Habitat: open grounds; sandy, poor soil
 Distribution: Europe, and Temperate Asia
- ✓ *Arabidopsis suecica* (Fries) J.P. Norrlin 2n=26
 Habitat: open grounds; sandy, poor soil
 Distribution: N. Europe
- ✓ *Arabidopsis wallichii* (Hook f. et Thoms.) Busch 2n=16
 Distribution: Himalaya, Central Asia
- ✓ *Arabidopsis pumila* (Steph.) Busch 2n=32
 Habitat: Caves and salt steppe, c. 1800 m
 Distribution: Turkey, Iran, E. Mediterranean region,
 S. W. Asia
- ✓ *Arabidopsis korshinskyi* Botsch. 2n=48
 Distribution: Central Asia, Himalaya up to 4300 m
- ✓ *Arabidopsis griffithiana* (Boiss.) Busch 2n=32
 Distribution: Central Asia
- Arabidopsis stricta* (Camb.) Busch
 Distribution: N.W. Himalaya, Pakistan, Central Asia
- Arabidopsis mollissima* (C.A. Mey.) Busch
 Distribution: Central Asia, Himalaya, Pakistan
- Arabidopsis parvula* (Schrenk) Schulz
 Habitat: Saline habitats, c. 1000 m
 Distribution: S. E. Russia, Turkey
- Arabidopsis himalaica* (Edgeworth) O.E. Schulz
 Habitat: Grazing grounds, screes, c. 2400-4300 m
 Distribution: Iran, Pakistan, Afghanistan to Bhutan, Tibet
- ✓ *Arabidopsis drassiana* Naqshi et Javeid
 Habitat: open, dry waste places
 Distribution: Himalaya
- Arabidopsis sarbalica* Naqshi et Javeid
 Habitat: humus rich soil
 Distribution: Himalaya
- Arabidopsis tibetica* Naqshi et Javeid
 Distribution: Tibet

3.4.2. Species Code

For the species the data structure has been modified. Name stands for the genus, Surname for the species and among Spec.-Code first denotation was given by the capital of S and subsequent numbers for population samples of variant origin.

3.4.3. Additional Arabidopsis Species

Name : Arabidopsis Surname : suecica
 Spec.-Code : S1
 AIS Acc-No. : 256(683),974(9460),1465(10160)
 Phenotype : A. suecica
 Characters : 2n=26 TKG=60 mg
 Origin Location (Country) :
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) :
 Collector :
 received : 1966
 Reference Code : 4,13
 Receiver Code : 8,129

Name : Arabidopsis Surname : pumila
 Spec.-Code : S2
 AIS Acc-No. : 257(057),1464(8114),2260(930)
 Phenotype : A. pumila
 Characters : 2n=32 TKG=70mg
 Origin Location (Country) : Dushanbe
 Habitat :
 Altitude <m> : 500-1000
 Longitude / Latitude : E68/N41
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) : Dushanbe
 Collector : USMANOV
 received : 1967
 Reference Code : 3,6,7,9,13,15
 Receiver Code : 62,69

Name : Arabidopsis Surname : griffithiana
 Spec.-Code : S3
 AIS Acc-No. : 259(383),975(2316),2248(3640)
 Phenotype : A. griffithiana
 Characters : 2n=32 TKG=60 mg,leaves dentate,petals yellow
 Origin Location (Country) :
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn) <mm> :
 Source Location (Country) :
 Collector :
 received : 1968
 Reference Code : 6,13,15 Acc.No.975 fot.
 Receiver Code : 62,125,129,42,8,69

Name : Arabidopsis Surname : korshinskyi
 Spec.-Code : S4
 AIS Acc-No. : 261(266),976(0),1467(4000),1702(300)
 Phenotype : A. korshinskyi
 Characters : 2n=48 TKG=60 mg
 Origin Location (Country) :
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) :
 Collector :
 received : 1968
 Reference Code : 6,7,9,13,14,15 Acc.No.976 fot.
 Receiver Code : 125,62,129,42,8,69

Name : Arabidopsis Surname : wallichii
 Spec.-Code : S5
 AIS Acc-No. : 262(0),1468(8600)
 Phenotype : A. wallichii
 Characters : 2n=16 TKG=50 mg,tall,lyrate leaves with white hairs,petals white
 Origin Location (Country) :
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) :
 Collector :
 received : 1968
 Reference Code : 6,7,9,13,14 Acc.No.262 fot.
 Receiver Code : 62,129,8,69

Name : Arabidopsis Surname : suecica
 Spec.-Code : S6
 AIS Acc-No. : 1579(0)
 Phenotype : A. suecica
 Characters : 2n=26 TKG=60 mg
 Origin Location (Country) : Oulu (Finland)
 Habitat : Etelä-Häme
 Altitude <m> : 0-100
 Longitude / Latitude : E26/N65
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Oulu (Finland)
 Collector : Hortus Botanicus
 received :
 Reference Code : 4,13
 Receiver Code :

Name : Arabidopsis Surname : suecica
 Spec.-Code : S7
 AIS Acc-No. : 1673(8460)
 Phenotype : A. suecica
 Characters : 2n=26 TKG=60 mg,tall white petals
 Origin Location (Country) : Göttingen (FRG)
 Habitat :
 Altitude <m> : 200-300
 Longitude / Latitude : E10/N51-52
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Göttingen (FRG)
 Collector : Bot. Garten d. Univer.
 received : 1979
 Reference Code : 4,13
 Receiver Code :

Name : Arabidopsis Surname : suecica
 Spec.-Code : S8
 AIS Acc-No. : 1675(380)
 Phenotype : A. suecica
 Characters : 2n=26 TKG=60 mg
 Origin Location (Country) : Brüssel (Belgien)
 Habitat :
 Altitude <m> : 0-100
 Longitude / Latitude : E4-5/N50-51
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Brüssel (Belgien)
 Collector : Hortus Botanicus
 received : 1979
 Reference Code : 4,13
 Receiver Code :

Name : Arabidopsis Surname : suecica
 Spec.-Code : S9
 AIS Acc-No. : 1775(580)
 Phenotype : A. suecica
 Characters : 2n=26 TKG=60 mg
 Origin Location (Country) : Helsinki (Finland)
 Habitat : Espoo,Olari
 Altitude <m> : 0-100
 Longitude / Latitude : E25/N60-61
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) : Helsinki (Finland)
 Collector : S. Vuokko
 received :
 Reference Code : 4,13
 Receiver Code :

Name : Arabidopsis Surname : pumila
 Spec.-Code : S10
 AIS Acc-No. : 255(371),146J(8800),2255(570)
 Phenotype : A. pumila
 Characters : 2n=32 TKG=70 mg,petals yellow
 Origin Location (Country) :
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) :
 Collector :
 received : 1968
 Reference Code : 3,6,7,9,13,15
 Receiver Code :

Name : Arabidopsis Surname : griffithiana
 Spec.-Code : S11
 AIS Acc-No. : 260(400),1466(6160),2251(2850)
 Phenotype : A. griffithiana
 Characters : 2n=32 TKG=70 mg,yellow petals
 Origin Location (Country) :
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) :
 Collector :
 received : 1968
 Reference Code : 6,13,15
 Receiver Code : 62

Name : Arabidopsis Surname : suecica
 Spec.-Code : S12
 AIS Acc-No. : 264(500),1206(6500),1470(7750)
 Phenotype : A. suecica
 Characters : 2n=26 TKG=60 mg,tall,white great petals
 Origin Location (Country) :
 Habitat :
 Altitude <m> :
 Longitude / Latitude :
 Daily Temp. mean (spring/autumn) <C> :
 Monthly Prec.mean (spring/autumn)<mm> :
 Source Location (Country) :
 Collector :
 received : 1969
 Reference Code : 4,13 Acc.No.264 fot.
 Receiver Code : 62

4.

HANDLING
OF ARABIDOPSIS

FROM:

"GENETIC RESOURCES IN ARABIDOPSIS"

A.R. KRANZ AND B. KIRCHHEIM

PLS vol 24, June 1987.

Since this "wonder weed" has been used no serious problems have been reported in handling this subject. It grows very well in sandy garden-mold at lab windows as well as in a normal glasshouse under moderate temperature, humidity and light conditions. Long day or continuous light accelerate the life cycle so that most of the genotypes will flower in 4 to 5 weeks with sequent period of 2 weeks for seed ripening. Protect the plants against parasitic aphides and diptere.

Experimenters, however, are interested to grow this plant under particular conditions; references of this kind will be found in a lot of contributions published in the AIS-newsletter.

Handling *Arabidopsis* the "state of the art" is reviewed below to make first experiences with this subject most successful.

4.1. Conservation and sampling in open nature

Although the theory of a sampling strategy must be founded upon an optimum knowledge of the pattern of genetic variability of populations which, presently, is missing, in practice sampling can be started on the following background. Ecological factors are the major determinants of natural genetic diversity. Consequently, the distribution of variation induced by such factors should influence the topographical frequency of sampling. Thus, on a global and clinal scale, presently, missing links of the genetic resources of *Arabidopsis* in open nature are the following: Representative samples from the Asian, African and Australian continents, as well as from higher altitudes (>1500m above sea level). Since the center of diversity and origin has been assumed to be in the middle Asian plains and mountains, sampling in this region should be preferred.

From the studies undertaken on the nature and distribution of variation in wild species populations it is possible to formulate some recommendations for the sampling strategy. First we shall deal with the sample size and the number of sites to samples within each area:

- a) in order to avoid the extinction of a population, it should consist of more than 50 reproducing individuals per habitat
- b) sample size per habitat should include 25 reproducing plants at a minimum which resemble less than 50% of the total number of individuals per habitat
- c) the amount of seeds per sample should be restricted to 20mg which is equal to 1000 seeds approx.
- d) sampling of a few seeds from many plants will represent the quantitative genetic pool of a population better than the reverse
- e) the harvested seeds must be mature and dry, free of pathogens and filled in a closed paper or a small glass, avoiding loss and contamination; small amount of siccative (silicagel) deposited in a water transmitting capsule can be added to tight containers,
- f) for each of the samples indispensable informations should be documented:
 - i) botanical name (genus, species)
 - ii) provisional name of the ecotype, race, population
 - iii) name of habitat
 - iv) geographical description (degree of latitude and longitude)
 - v) altitude in meters above sea level
 - vi) soil composition and plant community
 - vii) date and name of the collector
 - viii) good fotos of the habitat and of a typical plant if practical
 - ix) instead of fotos of a typical plant, xerocopies of preserved herbarium material are sufficient.

- g) long-time storage of viable seeds will be secured only by deep freezing below -18°C in a conventional freezer,
- h) in handling deep frozen samples use desiccators with sili-cagel to warm up the seeds without moistening,
- i) a copy of the original sample and all information about that should be mailed directly to the regional Arabidopsis germ plasm center and/or the AIS-germ plasm center of the following address:

Arabidopsis Information Service
Prof.Dr.A.R.KRANZ
POB 111 932
Siesmayerstr.70
D-6000 Frankfurt am Main 11

4.2. Growth, crossing and mutagenesis

Arabidopsis prefers a well-drained medium under cool humid conditions at a moderate to low light intensity (i.e., $200 \mu\text{E m}^{-2} \text{s}^{-1}$). A suitable support medium is provided by 12.5 cm pots (in which the drainage hole is covered with mosquito screen) filled with 1:1:1 mixture of perlite, fine vermiculite and sphagnum. The pots are prepared for sowing by drenching with a mineral nutrient solution prepared from the following stock solutions in the indicated amounts. The vermiculite is a weak ion exchanger so it is important to drench the pots with enough solution to saturate the binding sites. Approximately one litre per pot is generally adequate. The stock solutions should be added to the water (not vice versa) in order to prevent precipitation of insoluble calcium phosphate complexes.

1 M KNO_3	5 ml
1 M KPO_4 (pH 5.5)	2.5 ml
1 M MgSO_4	2 ml
1 M $\text{Ca}(\text{NO}_3)_2$	2 ml
20 mM Fe.EDTA	2.5 ml
* Micronutrients	1 ml
Water	985 ml

* Micronutrient solution contains: 70 mM H_3BO_3 , 14 mM MnCl_2 , 0.5 mM CuSO_4 , 1 mM ZnSO_4 , 0.2 mM NaMoO_4 , 10 mM NaCl , 0.01 mM CoCl_2 .

Small populations are sown by simply sprinkling seed on the surface of the prepared medium. Better control of planting density is obtained by suspending the seed in a cooled mixture of 0.1% agar and distributing the seed suspension with a pipet. The agar holds the seed in a uniform suspension. One thousand seed weighs about 20mg. For genetic studies several hundred plants can be grown in a 12.5cm pot, but for physiological studies or for producing the maximum amount of leaf material the plants should be thinned to fewer than 20 plants

per pot so that increased plant size is encouraged. After sowing, the pots should be covered with plastic film to prevent desiccation. The film should be removed or shredded with a razor once the seedlings are established (about 7 days).

Because of the small size of the seedlings, substantial care is required during the early stages of cultivation when watering. We generally subirrigate with water for the first several weeks by simply placing the pots in trays containing about 4cm of water. When the plants are established, the pots should be drenched with nutrient solution to reequilibrate the salt distribution.

The plants grow well under continuous fluorescent illumination without red supplement, at 21-23⁰C and 75% RH. The continuous illumination reduces the plant size and shortens the life cycle. The use of an alternating day/night cycle (eg., 16 light/8 dark) results in larger leafier plants.

The seed is harvested when a large number of siliques have begun to shatter, by cutting at ground level and placing the aerial portion in a bag for about one week to allow drying. The seeds are recovered by hand threshing and screening out debris through fine wire screens. The seed can be planted several days after harvest but the germination rate appears to improve if a longer drying period intervenes. Red light is absolutely required for germination (i.e., plants will not germinate in absolute darkness).

Arabidopsis is a self pollinating species. The frequency of outcrossing under laboratory conditions, i.e. in absence of small insects, is reported to be less than 0.001. Thus, various genotypes can be grown in close proximity with minimal cross contamination.

Sterilization of Seed

Put seed in a screw capped tube containing about 25ml of 30% (v/v) bleach (i.e., 5% hypochlorite) and 1 μ l/ml of 20% Triton-X100. Shake vigorously so that a layer of foam develops on the solution. Most of the light trash (which contains most of contaminants) will collect in the foam which should be removed by aspiration with a sterile pasteur pipet. Continue to mix slowly by inversion for 5 to 10 minutes then allow the seeds to settle for 1 or 2 min and decant the bleach. Fill the tube with sterile water, let seeds settle and decant. Repeat this process several times to remove as much bleach as possible.

The seed should be plated within a day. To do this simply draw the seed up into a sterile 9 in pasteur pipet and dispense by slowly forcing the seed suspension out onto a suitable surface. A convenient method, in this respect, is to rotate a petri plate on a bacteriological turntable and, beginning in the center of the plate, to describe a tight spiral with the ejected seed. A piece of sterile cheesecloth placed on the surface of the agar is useful since it traps the seed and prevents clumping.

Use the same mineral medium as for growing plants in potting mixture except add 5g/litre sucrose and 7g/litre of agar to solidify the medium. The sucrose is not absolutely required but gives greatly improved growth because plants growing in sterile containers have very restricted gas exchange and cannot, therefore, maintain high rates of photosynthetic carbon dioxide fixation. Adjust the pH of the medium to 5.8 with KOH before autoclaving. (Note: Agar does not gel at low pH).

Sterilization of Stem Explants

Stem sections can be sterilized by soaking in 40% (v/v) bleach containing 0.02% Triton-X100 for 4 min then rinsing with distilled water.

Crossing of Arabidopsis

Materials: Fine forceps (Miltex #5)

95% ethanol for sterilizing forceps

Magnifying glasses (for example "opti visors" from Donegan Optical Co., Kansas City, MO.)

"Female" plant - pistil donor, 4-6 weeks old.*

"Male" plant - pollen donor, 4-6 weeks old.*

* If the plants are transferred from high humidity growth condition to low humidity in a lab for crosses, they may wilt badly. Several hours exposure to the low humidity is usually sufficient for the plants to recover.

1. Begin with the "female" parent plant. Choose several young flower buds that are located at the top of the inflorescence on the main flowering stalk (Fig.1). The newly emerging white petals should be barely visible in the most mature flower bud chosen (Fig.2). Do not use any flower bud that has opened and potentially exposed its pistil to parental pollen or another pollen source. A bud at the correct stage will contain short immature stamens with anthers that are greenish-yellow in color (Fig.3). Remove all other flower buds and flowers from the inflorescence.

Before dissecting the flower buds, sterilize the forceps and your fingers in 95% ethanol and air dry (to remove contaminating pollen). Next, remove the sepals, petals, and stamens from the flower buds. This is most easily accomplished by beginning with the tissue near the base of the flower bud. Generally, the most difficult step is the removal of the first sepal. Great care should be taken not to injure the pistil or flower stalk while dissecting the flower bud. When finished, the pistil should be free of sepals, petals, and stamens (Fig.4).



Fig. 1

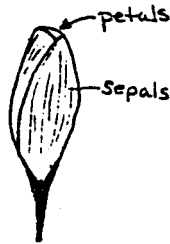


Fig. 2

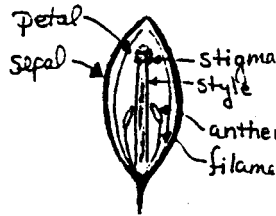


Fig. 3



Fig. 4

2. From the "male" parent plant choose a suitable pollen-donor flower. For example, for wild type *Arabidopsis* choose a flower that has opened and has petals that are perpendicular to the main flower body (Fig.5). Usually these flowers are in the process of releasing pollen. However, this is not always the case and therefore you should visually examine anthers from several flowers to identify the flowering stage associated with pollen release. Remove the flower from the flowering stalk and then remove the petals and sepals from the flower. There will be 6 stamens (2 short and 4 tall) in each flower. Remove several stamens and check their anthers for pollen. The pollen grains should be clearly visible when viewed under a dissecting microscope. The pollen releasing anthers will be grainy not smooth in appearance. When anthers brimming with pollen are identified, use them to pollinate the stigmas of the previously prepared pistils (Fig.6) To maximize the pro-

bability of pollination, pollinate each pistil with several anthers.



Fig. 5



Fig. 6

3. When pollination is complete, cover the pistil with a small piece of plastic wrap (1cm x 1cm) to protect it from other pollen sources. Carefully fold the plastic wrap in half around the pistil (Fig.7). Next, mark the pollinated pistil by applying a small piece of tape describing the cross on the corresponding flowering stalk (Fig.7). Check the cross and remove the plastic wrap in 1 to 2 days. Following a successful pollination, the pistil will elongate as the seeds develop. When silique is fully elongated and has dried to a golden-brown color, remove it from the plant. Take care not to shatter the silique and loose the seeds. Allow the seeds to dry for at least one week before planting. The seeds can also be chilled at 4⁰C for several days following imbibition to increase the frequency of germination.

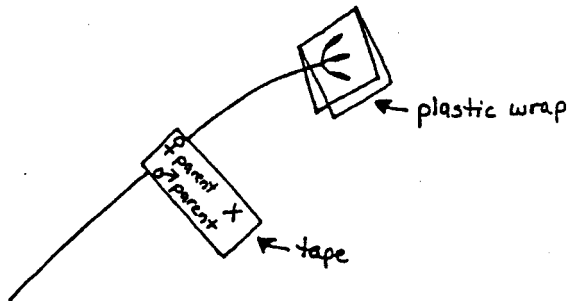


Fig. 7

Mutagenesis of Arabidopsis

Ethyl methane sulfonate (EMS) is a volatile mutagen. It should be handled only in a fume hood and all solutions and materials which it contacts should be properly disposed of. Anything that comes in contact with EMS can be decontaminated by soaking for a few minutes with 1.0 M NaOH and used EMS solutions can be destroyed by adding an excess of 1.0 M NaOH.

1. Dry seeds are placed in about 100ml of a 0.3% (v/v) solution of EMS (obtained from SIGMA). There may be some variation from batch to batch of EMS so it may be necessary to adjust this concentration somewhat. We routinely mutagenize 20,000 to 250,000 seeds at a time.
2. Seeds should be mixed occasionally and left at room temperature for 8-12 hours.
3. Seeds are washed with distilled water 10 to 15 times over the course of 2 to 3 hours by decanting the solution, adding fresh water, mixing, allowing the seeds to settle, and decanting again. After about 8 washes the seeds are transferred to a new container and the original is decontaminated.
4. After washing, the seeds are immediately sown at about 1 seed per square cm.
5. After several weeks it is useful to estimate the number of seeds which have germinated in order to know the size of the M_1 generation. In general about 75% of the mutagenized seeds germinate. (Ideally the M_1 estimate is the number of plants which produce M_2 seed, but this is much more difficult to measure.)
6. Plants are grown until they begin to die naturally and are then allowed to dry completely before harvesting. Complete drying improves the yield and simplifies harvesting.
7. Select for "point"-mutations only by breeding non-segregating M_3 -lines. For estimating the mutation rate use REDEI's formula (LI and REDEI 1968).

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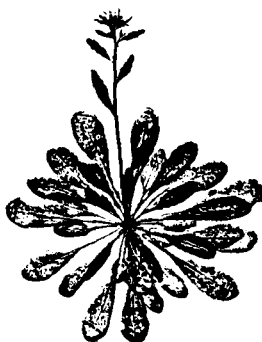
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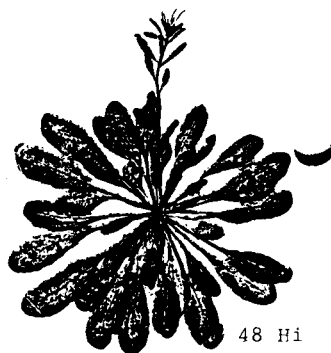
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F. LAIBACH and E. REINHOLZ



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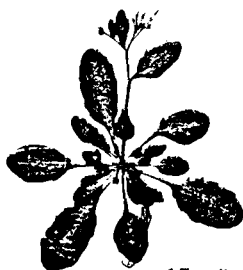
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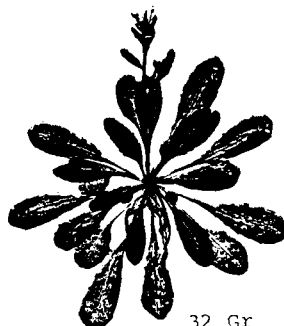
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