

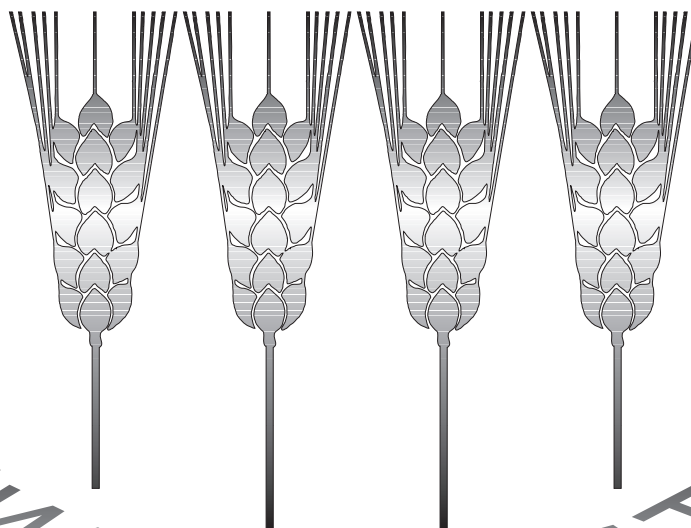
MUTATION BREEDING

NEWSLETTER

Joint FAO/IAEA Division
of Nuclear Techniques
in Food and Agriculture
and FAO/IAEA Agriculture and
Biotechnology Laboratory, Seibersdorf
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CONTENTS



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This is the third issue of Mutation Breeding Newsletter Index. The previous two issues were published in 1984 and covered numbers 1–10 and 11–20, respectively. The presented Index covers numbers 21–44. To simplify the use of all three Indexes we retained, as much as possible, the previous structure and key words (mutant varieties, other mutants mentioned, varieties treated, other varieties mentioned, mutagens used, breeding objectives, and country). However, it should be considered that Latin names of species, their taxonomic relationships and common names have been left as published in Mutation Breeding Newsletters (MBNLs), following author's classification. Synonym species names, as well as names of the same variety but with different spelling or with typing error are presented in brackets. It should be noted that over this period of time the transcription rules from other alphabets to English have been changed a few times, especially in relation to Chinese and Russian languages, which leads to duplications or misunderstandings in preparation of successive issues of MBNL.

We would like to thank Dr. I. Szarejko from the Department of Genetics, Katowice, Poland for her help in preparation and editing of the presented Index. The Index will also be available through our website

<http://www.iaea.org/programmes/nafa/d2/index.html>

(click on Publications/Newsletters). We hope that now, in the era of the renaissance of applications of mutation techniques, this Index will become a very useful tool for plant breeders, geneticists and molecular biologists searching for information on mutated lines, mutagens and applied doses.

M. Maluszynski
Editor

A

Abelmoschus esculentus

Moench

Mutant varieties	
MDU 2 (corrected as MDU 1)	33/21; 34/34
Other mutants mentioned	
EMS8	35/29
Varieties treated	
Pusa Sawani	24/1; 33/21
Mutagens used	
DES	33/21; 34/34
EMS	35/29
Gamma rays	24/1
Fast neutrons	24/1
Breeding objectives	
Leaf characters	24/1
Fruit colour and shape	33/21; 34/34
Fruit weight	24/2
Yellow mosaic virus (YMV)	34/34
tolerance	
Yellow vein mosaic virus	35/29
resistance	
Yield	24/2; 33/21; 34/34
Countries	
India	24/3; 33/21; 34/34; 35/29

African violet see *Saintpaulia*

Agropyron cristatum

Mutant varieties	
CD-II	44/31
Varieties treated	
HYCREST x natural tetraploid	44/31
Mutagens used	
Colchicine	44/31
Breeding objectives	
Vigour	44/31
Countries	
USA	44/31

Agrostis sp.

Mutant varieties	
Springs	32/19
Varieties treated	
Pencross	32/19
Mutagens used	
Gamma rays	32/19
Breeding objectives	
Heat tolerance	32/19
Countries	
Japan	32/19

Alfalfa see *Medicago sativa*

Allium cepa

Mutant varieties	
KIK-11	41/23

Tabys (KIK-13)	41/23
Varieties treated	
Octyabr	41/23
Other varieties mentioned	
Caratalinskii	41/23
Valencia	41/23
Mutagens used	
ENH (=ENU)	41/23
Breeding objectives	
Yield	41/23
Countries	
Russia	41/23
USSR	41/23

Almond see *Prunus dulcis*

Alopecurus pratensis

Mutant varieties	
Alko	34/26
Limosa	34/26
Mutagens used	
Gamma rays	34/26
Breeding objectives	
Seed retention	34/26
Countries	
FRG	34/26

Alstroemeria sp.

Mutant varieties	
Appelbloesem	31/8
Atlas	31/8
Audino	37/18
Chimbotina	37/18
Jacqueline	31/8
Kolibri Blau	37/18
Kolibri Gelb	37/18
Kolibri Orange	37/18
Kolibri Rosa	37/18
Kolibri Rot	37/19
La Paz	31/9
La Poza	37/19
Lilac Glory	31/8
Patricia	31/9
Pink Panther	31/9
Pink Tiger	31/9
Purple Joy	31/8
Quitona	37/19
Tucumana	27/19
Valparaisa	37/19
Varieties treated	
Carmen	31/8
King Cardinal	31/8
Red Sunset	31/8
Pink Panther	31/9
Pink Triumph	31/9
Rio	31/9
Rosario	31/8, 9
Mutagens used	
Gamma rays	37/18, 19

X-rays	31/8, 9	Somaclonal variation	44/21
Breeding objectives		Breeding objectives	
Early flowering	31/9; 37/18, 19	DNA methylation alternations	44/3, 4
Flower colour	31/8, 9; 37/18, 19	Gene silencing alternations	44/3, 4
Flower size	31/9	Valine resistance	44/21
Longer harvesting period	37/18, 19	Countries	
Long stem	31/9	Poland	44/23
Short stem	31/8	Other information	
Countries		<i>In vitro</i> cultures	44/21
GDR	37/18, 19	<i>Arachis hypogaea</i>	
The Netherlands	31/9	Mutant varieties	
Amaranth see <i>Amaranthus</i>		78961	37/19
<i>Amaranthus</i> sp.		8130	44/31
Mutant varieties		ANK-G1 (Tissa)	43/39
Sterkh	41/23	B 5000	31/9
Varieties treated		BP-1	32/19
F ₁ <i>A. paniculatus</i> x <i>A. nutans</i>	41/23	BP-2	32/19
Mutagens used		Co 2 (Co.2, Mutant 3)	25/5; 26/2 12; 28/13
Chemical mutagen	41/23	Fu 21	29/20; 30/3
Breeding objectives		Fu 22	37/19
Drought tolerance	41/23	Fushi	37/20
Frost tolerance	41/23	Ganhua No. 1	41/23
Countries		Huayu 16	44/31
USSR	41/23	Lainong 10	37/19
<i>Antirrhinum</i> sp.		Luhua 13	44/31
Mutagens used		Luhua 15	44/31
Transposon (Tam3) mutagenesis	35/15	Luhua 6	34/26; 44/31
Countries		Luhua No.7	32/19
The Netherlands	35/15	MH-2 (Mungphali Haryana 2)	37/20
<i>Apium graveolens</i>		P12	37/20
Varieties treated		Shanyou 27	30/3; 37/20
RRL-85-1	40/8, 9	Somnath (TGS-1)	41/24; 43/25
Mutagens used		TAG-24	41/24
EMS	40/9	TG-1	43/25, 26; 44/32
Gamma rays	40/8	TG-17	43/25; 44/32
Breeding objectives		TG-19A	43/25; 44/32
Dwarfness	40/9	TG-22	43/25; 44/32
Early flowering	40/8	TG-24	43/25
Countries		TG-26	43/25, 26; 44/32
India	40/9, 10	TG-3	43/25
Apple see <i>Malus pumila</i>		Virginia No. 3	30/20
Apple (flowers) see <i>Malus</i> sp.		Xianghua No. 1	41/24
<i>Arabidopsis thaliana</i>		Yangxuan 1	30/3; 37/20
Varieties treated		Yeuyou 551 (Yeuyou 551)	25/9; 30/2; 37/20, 21; 41/24
C-24	44/21	Yeuyou No. 22 (Yeuyou 22)	25/9; 30/2; 37/20, 21
RLD	44/21	Yuexuan 58	30/3; 37/20
Mutagens used		Yeuyou 169	30/3; 37/21
EMS	44/3, 4	Yeuyou 187	30/3; 37/21
Fast neutrons	44/4	Yeuyou 187-93	30/3; 37/21
Gamma rays	44/21	Yeuyou 33	30/2; 37/20
MNH	44/21	Yeuyou 551-116	30/2; 37/20, 21

Yueyou 551-38	30/2; 37/21	M-13	41/24
Yueyou 551-6	30/2; 37/21	No. 45	26/10
Other mutants mentioned		Robout-33-1	44/32
180/21	26/10	Runner	44/31
180/22	26/10	TG 18	33/9
BARRG-1	43/25, 26	TG-23	43/25, 26;
Fushi (Yushi)	25/9; 30/2;		44/32
	34/23	TGS-2	44/32
Irradiated Runner	44/31	TMV12	25/6; 26/2
JL-24	44/32	Yangxuan 1	37/21
mA 143 (MA 143)	37/19, 20;	Yeuyou 431 (Yueyou 431)	25/9; 30/2;
	44/31		37/20
Mutant 3	25/5	Yueyou 1	37/20, 21
RH77-4-2	37/19	Yueyou 320-14	37/20
RP1	44/31	Mutagens used	
TG-1	30/5; 33/9	Beta rays	25/9; 30/3
TG-18A	41/24; 43/26	Chemical mutagens	43/6
TG-23	43/26	EMS	25/5; 26/2,
TG-9	41/24; 43/26		12; 28/13;
TGE-1	43/26		44/16
TGS-2	43/26	Fast neutrons	30/4
Yushi (Fushi)	25/9; 30/2, 3	Gamma rays	26/10; 29/20;
Varieties treated			30/2, 4; 31/9;
41-C	32/19		32/4, 19;
Bachsa	31/9		34/26; 36/7;
Baisha 1016 (Baisa 1016)	34/26; 37/19		37/19; 41/23,
Chico	36/7		24; 43/6, 25,
JL-24	43/26		26, 39; 44/16,
GN 13	26/10		31, 32
Linhua No. 1	32/19	Laser	37/19; 43/6
NC 2	30/20	³² P	34/23
No. 534	30/4	Radiation	30/20
Po1-1 (POL.1)	25/5; 26/2,	Sodium azide	44/16
	12; 28/13	X-rays	30/5; 33/9;
Red Beauty	30/4		43/26; 44/32
Roxo	30/4	Breeding objectives	
Shitouqi	30/3	Arachin components	33/9
Shi Xuan 64	34/23	<i>Aspergillus flavus</i> resistance	37/19
Spanish Improved	30/5; 33/9;	Bacterial blight resistance	29/20
	43/26	Bacterial wilt resistance	30/2
TG-18 (virginia bunch)	43/26	Bold seed	28/13; 32/19
Vietnam	26/10; 43/39	Bud necrosis resistance	41/24
Virdhachalam 2 (VRI-2)	44/16	<i>Cercospora arachidicola</i>	32/4
Yue You 22 (Yueyou 22)	29/20; 30/2	resistance	
Yueyou 551-11	41/23	<i>Cecosporidium personatum</i>	32/4; 37/20
Other varieties mentioned		(<i>Cercospora personata</i>)	
76/30	37/21	resistance	
7896	44/31	Disease tolerance/resistance	43/25; 44/16
Baisa 1016 (Baisha 1016)	37/20; 44/31	Drought tolerance	44/16
Changda 6	37/20; 44/32	Dwarfness	25/9; 34/26
Col	25/6; 26/2	Earliness	41/23, 24;
Fuhuasheng	25/9; 37/20		44/31
Furong	41/24	Early maturity	31/9; 37/19,
GG-2	43/25		20; 43/25
ICGS-37	43/25	Gigas type	32/19
ICGS-44	43/25	Harvest index	43/25
J-11	43/25	Large kernel	26/10; 31/9;
Luhua 4	44/31		32/19
		Large pods	30/20
		Lodging resistance	32/19

Long seed dormancy	43/25	Kobaruto-gokuwase	21/12
Low input requirements	43/39	Kobaruto-okute	21/12
Luxurious growth	37/21	Kobaruto-wase	21/12
Nitrogen fixation rate	30/5	Tsuneyutaka	33/21
Photosynthetic rate	30/5	Varieties treated	
Pod number	25/9	Yanagawa-nakate	21/12
Pod size	37/21; 43/25; 44/16	Yanagawa-riso	21/12
Oil content	41/24; 44/16	Mutagens used	
Quality	37/19	Gamma rays	21/12
Rust resistance	30/3; 37/20	Breeding objectives	
Secondary branching	26/2	Earliness	21/12
Seed quality	44/31	Late maturity	21/12
Seed size	36/7; 41/24; 44/31, 32	Reduced pithiness	21/12
Semi-dwarfness	37/19, 20; 43/25; 44/32	Root elongation	21/12
Semi-erect	32/19	Short root	21/12
Shattering resistance	32/19	Storage quality	21/12
Short stem	29/20; 37/19	Countries	
Tallness	37/21	Japan	21/12
Thin pod shell	37/19, 20	<i>Astragalus huangheensis</i>	
Two-seeded pods	26/10	Mutant varieties	
Uniform maturity	26/2	Zaoshadawang	31/9
Vertical plant type	32/19	Varieties treated	
Wide adaptability	26/10	local variety	31/9
White testa	31/9	Yanagawa-risou	33/21
Waterlogging resistance	32/19	Mutagens used	
Yield	25/6, 9; 26/2, 10, 12; 28/13; 29/20; 30/2, 4; 31/9; 32/19; 34/26; 37/19, 20, 21; 41/23, 24; 43/25, 39; 44/16, 31, 32	Gamma raysa	31/9; 33/21
Countries		Breeding objectives	
Argentina	30/20	Adaptability	31/9
China	25/9; 29/20; 30/3; 32/19; 34/23, 26; 37/19, 20, 21; 41/23, 24; 43/7; 44/31	Earliness	31/9
India	22/11; 25/6; 26/2, 12; 28/14; 32/19; 36/8; 37/20; 41/24; 43/27; 44/17, 32	Quality	33/21
Sri Lanka	26/10; 43/39	Root characters	33/21
The Philippines	32/4	Yield	31/9
Uganda	30/4	Countries	
Vietnam	31/9	China	31/9
Other information		Japan	33/21
<i>In vitro</i> cultures	22/11	<i>Avena sativa</i>	
<i>Arctium lappa</i>		Mutant varieties	
Mutant varieties		Bay	44/32
		Belle	44/32
		Centennial	42/26
		Dolphin	28/19; 30/2
		Echidna	28/19; 30/2
		Gem	44/32
		Horicon	42/26
		Nasta	24/8
		Ozark	42/26
		Puhti	24/8, 9
		Ryhti	24/8, 9
		SIR-4	31/9
		Veli	24/8; 32/20
		Other mutants mentioned	
		Florida 501	
		Irr. 4	44/32
		Jo 50-2395	32/19
		KA 427/73	21/3
		KA 673/74	21/3
		KA 1076/76	21/3

OT 207	28/19; 30/2	Countries	
Varieties treated		Australia	28/19; 30/2
2CIav 6936 (Ciav 6936)	44/32	CSSR	21/3
6x amphiploid	44/32	Finland	24/8, 9; 32/20
AB3073	40/6	USA	40/6; 42/26; 44/32
Ascensao	44/32	USSR	31/9
Clintland	44/32		
Diadem	21/3	Avocado see <i>Persea americana</i>	
Diane	21/3	Azalea see <i>Rhododendron</i>	
Don	44/32	Azuki bean see <i>Vigna angularis</i>	
Fayette			
Flamingsnova	21/3		
Froker	44/32	B	
Garland	44/32	Banana see <i>Musa</i>	
Goodfield	44/32	Barley see <i>Hordeum vulgare</i>	
Hawkeye	44/32	Bean see <i>Phaseolus vulgaris</i>	
Hazel	44/32	Begonia sp.	
Hermes	21/3	Mutant varieties	
Holden	44/32	Manilla	31/10
Leanda	21/3	Manita	31/10
MO 0768	44/32	Manolito	31/10
Noble	44/32	Saanred	31/10
OT 184		Varieties treated	
Permit	21/3	Grete	31/10
Pollux	21/3	Renaissance	31/10
Ponta	21/3	Mutagens used	
Selma	21/3; 31/9	Gamma rays	31/10
Sisu	32/20	X-rays	31/10
Tiger	21/3	Breeding objectives	
Victoria	44/32	Flower colour	31/10
Other varieties mentioned		Flower shape	31/10
Hannes	25/9	Keeping quality	31/10
PI 296254	42/26	Countries	
Titus	32/20	Canada	31/10
West	28/19; 30/2	The Netherlands	31/10
Mutagens used		Bermuda grass see <i>Cynodon</i>	
1.4 Bis-diazoacetylbutan	31/9	Beta vulgaris	
EMS + sodium azide	40/6	Mutant varieties	
Gamma rays	21/3; 42/26	Mangel Tsenta	41/24
Thermal neutrons	42/26; 44/32	Timiryazevskaya	31/10
Breeding objectives		Timiryazevskaya 87	41/24
Adaptability	31/9	Timiryazevskaya odnos	41/24
Crown rust resistance	42/26	Timiryazevskaya okrug	41/24
Disease resistance	44/32	Umanskii polusakharnyi	41/24
Earliness	25/9	Varieties treated	
Grain quality	25/9	Ekkendorfer	31/10
Lodging resistant	21/3; 30/2; 44/32	F ₁ Ekkendorfskaya zheltaya x Perventes	41/24
Rust resistance	42/26	F ₁ Ekkendorfskaya zheltaya x single seed line	41/24
Semi-compact panicle	40/6	F ₁ Leitevitskaya x Perventes	41/24
Semi-dwarfness	40/6	Other varieties mentioned	
Short culm	21/3; 28/19; 30/2	MS sugar beet line	41/24
Stiff straw	25/9		
Winter hardiness	42/26		
Yield	25/9; 28/19; 30/2; 32/20; 42/26; 44/32		

Mutagens used			
Chemical mutagens		31/10	
EI		41/24	
Gamma rays + chemical mutagens		41/24	
Breeding objectives			
Disease resistance		41/24	
Dry matter content		31/10	
Insect resistance		41/24	
White rhizocarp		41/24	
Yield		31/10; 41/24	
Countries			
USSR		31/10; 41/24	
Bitter gourd see <i>Momordica charantia</i>			
Black currant see <i>Ribes nigrum</i>			
Black gram see <i>Vigna mungo</i>			
Blue Daisy see <i>Brachycome multifida</i>			
Blue lupin see <i>Lupinus angustifolius</i>			
<i>Bougainvillea</i> sp.			
Mutant varieties			
Los Banos variegata		37/21; 39/8	
Mahara variegata		43/39	
Pallavi		31/10; 39/8	
Poultoni Variegata		33/21	
Suvarna		33/22	
Varieties treated			
Cherry Blossom		39/8	
Lady Hudson of Ceylon		33/22	
Los Banos Beauty		37/21; 39/8	
Mahara		39/8; 43/39	
Polultoni		33/21	
Roseville's Delight		31/10; 39/8	
Other varieties mentioned			
Archana		39/8	
Marietta		39/8	
Mutagens used			
Colchicine		33/22	
Gamma rays		31/10; 33/21, 22; 37/21; 39/8; 43/39	
Spontaneous mutation		39/8	
Breeding objectives			
Bract colour		33/22	
Chlorophyll variegated leaves		31/10; 39/8	
Variegated leaves		33/21; 37/21; 43/39	
Countries			
India		31/10; 33/21, 22; 37/21; 39/9; 43/39	
<i>Brachycome multifida</i>			
Mutagens used			
Colchicine			33/3
X-rays			33/3
Breeding objectives			
Flower colour			33/4
Flower size			33/4
Leaf size			33/4
Morphological changes			33/4
Plant architecture			33/4
Plant size			33/4
Countries			
FRG			33/4
Other information			
<i>In vitro</i> cultures			33/3
<i>Brassica campestris</i>			
Mutant varieties			
Haya-natane			21/12
Other mutants mentioned			
17-5-83			33/10
70-7-82			33/10
BINA-1			29/14
BINA-2			29/14
Varieties treated			
Michinoku-natane			21/12
YS-52			29/14; 33/10
Other varieties mentioned			
Sampad			29/15
Sonali Sarisha			29/15
Tori 7			29/15
Mutagens used			
Colchicine			21/12
EMS			29/14
Gamma rays			29/14; 33/10
Breeding objectives			
<i>Alternaria brassicacae</i> resistance			29/14; 33/10
Earliness			21/12
Plant architecture			33/10
Yield			21/12; 29/15; 33/10
Countries			
Bangladesh			29/15; 33/10
Japan			21/12
<i>Brassica juncea</i>			
Mutant varieties			
Agrani			42/26
RL 1359			31/11
RL 514			31/11
Safal			42/27
Shambal			34/27
TM-2			43/39
TM-4			43/39
TM-18			31/3
Other mutants mentioned			
RS.104			31/3

RS.64	31/3	M11	33/22
RS.84	31/3	Varieties treated	
TM-1 (Trombay Mustard-1)	25/3; 43/39	92-B10	43/8, 9
TM-4	25/3; 28/9;	Ariana	35/13
	31/3	Bienvenue	35/13
TM-9	25/3; 28/9	D083	43/8, 9
TM-12	25/3; 28/9	F ₁ Chuannongchangjiao x	32/20
TM 17	28/9; 31/3	Qianyou 23	
Varieties treated		Gloria	41/25
BAU-M/14	34/27	Jet-Nef	41/25
Lethbridge	31/3	Oro	33/22; 35/8
RL-9	43/39	Primor	35/13
YS-52 (YS 52)	42/26, 27	Rapid cycling <i>B. napus</i>	35/13
Other varieties mentioned		Rapora	35/13
RLM 619	31/11	Shengliyoucail	25/9
Varuna	25/3; 31/3;	Shenli	32/20
	11; 43/39	Tower	44/33
Mutagens used		WRG-42	35/12
EMS	34/27; 35/29	Other varieties mentioned	
Gamma rays	35/29; 42/26,	Regent	33/22
	27	Mutagens used	
X-rays	43/39	EMS	33/22; 35/13
Breeding objectives		EMS (<i>in vitro</i>)	22/14; 35/13;
Aphid tolerance	31/11		43/8
Blight resistance	42/26, 27	Fast neutrons (<i>in vitro</i>)	43/10
Bold sees	31/1; 34/27	Gamma rays	25/9; 32/20;
Dwarfness	28/9		35/13; 41/24;
Earliness	28/9; 31/3,	Gamma rays (<i>in vitro</i>)	44/33
	11; 42/26		35/13; 43/10,
Glucosinolate content	35/29		12
Oil content	25/3; 31/11;	MNH	41/25
	42/27; 43/39	MNH (<i>in vitro</i>)	43/10
Plant type	31/11; 34/27	MNNG (<i>in vitro</i>)	22/14
Pod architecture	43/39	Somaclonal variation	35/29
Seed colour	43/39	UV (<i>in vitro</i>)	43/10
Yellow seed	25/3; 28/9;	Breeding objectives	
	31/3	Adaptability	44/33
Yield	31/11; 42/27;	<i>Alternaria brassicicola</i>	35/13, 14
	43/39	resistance	
Countries		Cold tolerance	25/9; 32/20
Australia	35/30	Disease resistance	25/9; 32/20;
Bangladesh	34/27; 42/26,		41/25
	27	Earliness	44/33
India	25/3; 28/9;	Early maturity	32/20
	31/3; 43/39	Eriuc acid content	33/22; 35/29
<i>Brassica napus</i>		Fatty acid composition	35/8
Mutant varieties		Glucosinolate content	33/22; 35/29
Abasin-95	44/33	Insect resistance	41/25
Binasharisha-3	44/33	Linoleic acid content	33/22
Binasharisha-4	44/33	Linolenic acid content	33/22
Ganyou No. 5	25/9; 32/20	Lodging resistance	43/9
H86-166	35/29	Long silique	43/8, 9
Hua-Yellow No. 1	41/25	Oil content	41/25; 44/33
Ivanna	41/25	<i>Phoma lingam</i> resistance	22/14; 35/14
Stellar	33/22	Plant regeneration <i>in vitro</i>	43/10, 12
Tismenitskii	41/25	<i>Sclerotinia</i> resistance	32/20
Xiuyou No. 1	32/20	Short stature	32/20; 43/8, 9
Other mutants mentioned		Viability	41/25
		White rust resistance	32/20

Yield	25/9; 32/20; 41/25; 44/33	Breeding objectives	
Countries		Cabbage head	33/5
Bangladesh	44/33	Disease resistance	33/5
Canada	33/22	Downy mildew resistance	33/6
China	25/9; 32/20; 35/29; 41/25; 43/9	Early maturity	25/10; 30/20; 33/5
FRG	35/8, 14	Storage quality	25/10; 30/20; 33/5
India	22/17	Yield	25/10; 30/20; 33/5
Pakistan	44/33	Countries	
Poland	43/11, 12	China	25/10; 30/20; 33/6
UK	35/14		
USSR	41/25	Brome grass see <i>Bromus</i>	
Other information		<i>inermis</i>	
Microspore cultures	35/13; 43/8	<i>Bromus inermis</i>	
<i>In vitro</i> culture	43/10, 12	Mutant varieties	
<i>In vitro</i> selection	35/14	Fakel 89	41/25
<i>Brassica oleracea</i> var. <i>acephala</i>		Varieties treated	
Mutant varieties		Morshanskii	41/25
Vekha	41/25	Mutagens used	
Other mutants mentioned		DMS	41/25
19 ^{P-2}	23/6	Breeding objectives	
20 ^{P-2}	23/6	Disease resistance	41/25
Varieties treated		Winterhardiness	41/25
Kjose 17	23/6	Countries	
Mozgovaya zel. vol.	41/25	USSR	41/25
Other varieties mentioned		Buckthorn see <i>Hippophaea</i>	
Balkan	23/6	<i>rhamnoides</i>	
Mutagens used		Buckwheat see <i>Fagopyrum</i>	
Chemical mutagen	41/25	<i>esculentum</i>; <i>F. sagittatum</i>	
Gamma rays	23/6	Burdock see <i>Arctium lappa</i>	
Breeding objectives		C	
Concentrated head	23/6	<i>Cajanus cajan.</i>	
Disease resistance	41/25	Mutant varieties	
Heterosis	23/6	Co.3 (Co 3)	28/13; 29/20
High stalk	23/6	Co.5 (Co 5)	28/13; 29/20
Insect resistance	41/25	TAT 5	28/19
Mechanized harvest	23/6	TAT 10	28/20
Countries		Trombay Vishakha-1	23/16
Bulgaria	23/6	Other mutants mentioned	
USSR	41/25	HY-1	42/8
<i>Brassica pekinensis</i>		HY-2	42/8
Mutant varieties		HY-3	42/8
Baicaï	25/10	HY-4	42/8
Beicaï No. 9	33/5	HY-5	42/8
Longbaï No. 1	30/20	TT-2	28/20
Other mutants mentioned		TT-8	28/20
79-21-2	33/6	Varieties treated	
Varieties treated		CIP-2836	24/8
Kerr/Feichenghuaxin	25/10	Co.1 (Co 1)	28/13; 29/20
F ₂ Ke No. 2 x Feichenghuaxin	33/5	Hy-2	21/5
F ₄ line of cross Jiorye x	30/20	ICP-7409	24/8
Tonghua			
Mutagens used			
Gamma rays	25/10; 30/20		
Radiation	33/5		

ICPL 265	35/24	Caixiao	32/20
Pusa 601	42/8	Caixui	32/20
Pusa 85	42/8	Xuhong	32/21
T-21	23/16; 24/8; 28/19, 20	Varieties treated	
Other varieties mentioned		Dahuahong	30/20, 21
Hy-3C	21/5	Mutagens used	
RSHP-55	21/5	Gamma rays	32/20, 21
Mutagens used		Breeding objectives	
DES	24/8	Flower colour	32/20, 21
EMS	24/8; 28/13; 29/20; 42/8	Countries	
Fast neutrons	23/16; 28/19, 20	China	30/20, 21
Gamma rays	21/5; 24/8; 28/13; 29/20; 35/24; 42/8	<i>Canavalia virosa</i>	
HZ	24/8	Mutagens used	
Breeding objectives		Gamma rays	41/11
Bold seed	28/13; 29/20	Breeding objectives	
Day-length insensitivity	28/13; 29/20	Conavanine content	41/11
Drought tolerance	28/13; 29/20	Countries	
Dwarfness	21/5; 24/8	India	41/11
Early maturing	24/8; 28/13; 28/19, 20; 29/20; 35/24	<i>Capsicum annuum</i>	
<i>Fusarium udum</i> resistance	35/24	Mutant varieties	
Harvest index	21/5	Frairi KS 80	37/22
Plant architecture	24/8	Gornooriahovska kapia	44/33
Plant type	21/5; 24/8	Horgoska slatka-X-3 (H.S-X3)	33/22
Protein content	42/9	Ljulin	24/9
Seed characters	24/8; 28/13	Nush 51	41/25
Seed size	21/5; 28/19, 20	Orangeva Kapia	39/9; 41/26
Short stem	35/24	Pirin	41/26; 43/28
Sterility mosaic disease resistance	35/24	Other mutants mentioned	
Yield	21/5; 28/13; 29/20; 42/8	Zlaten medal ms-8	44/33
Countries		Varieties treated	
India	21/5; 22/12; 23/16; 24/8; 28/14, 19, 20; 29/20; 35/24; 42/9	Albena	43/28
Other information		Kurtovska kapia	41/26; 43/28
<i>In vitro</i> cultures	22/11	Lastochka	41/25
<i>Calathea crocata</i>		Palmulagu	42/17
Mutant varieties		Pasardzhinshka kapia (Pasardjshka kapia)	39/9; 41/26
Esther	31/11	Pusa Jwala	37/7
Mutagens used		Zlaten medal	24/9
X-rays	31/11	Other varieties mentioned	
Breeding objectives		GO-201B	44/33
Flower colour	31/11	Mutagens used	
Flower shape	31/11	Chemical mutagens	37/7
Countries		EI	41/25
The Netherlands	31/11	EMS	37/22; 42/17; 43/28
<i>Canna indica</i>		Gamma rays	24/9; 33/22; 41/26; 43/28; 44/33
Mutant varieties		Physical mutagens	37/7
		Radiation	21/9
		X-rays	39/9; 41/26
		Breeding objectives	
		Beta caroten content	38/9; 41/26
		Capsaicin content	37/7
		CMV resistance	33/22
		Dwarfness	21/9
		Earliness	24/9; 44/33

Fruit colour	21/9; 42/17		
Fruit size	21/9		
Lack of anthocyanin	41/26		
Long storage	24/9		
Male sterility	24/9		
Powdery mildew resistance	41/26; 43/28		
Provitamine A content	41/26		
Quality	41/25		
<i>Verticilium dahliae</i> tolerance	37/22		
Vitamin C content	42/18		
Yield	24/9; 41/25; 42/17; 44/33		
Countries			
Bulgaria	24/9; 39/10; 41/26; 43/29; 44/33		
India	37/7; 42/18		
Italy	21/9; 37/22		
USSR	41/25		
Yugoslavia	33/22		
<i>Carica papaya</i>			
Mutant varieties			
Pusa Nanha (Pusa nanha)	29/8; 30/20		
Varieties treated			
Ranchi	30/20		
Other varieties mentioned			
Pusa Delicious	29/7		
Pusa Dwarf	29/7		
Pusa Giant	29/7		
Pusa Majesty	29/7		
Mutagens used			
Gamma rays	29/8; 30/20		
Breeding objectives			
Dwarfness	29/8		
Reduced plant size	30/20		
Countries			
India	29/7; 30/20		
Carnation see <i>Dianthus caryophyllus</i>			
<i>Carthamus tinctorius</i>			
Varieties treated			
Giza-1	29/16		
Mutagens used			
Gamma rays	29/16		
Gammara rays (callus)	28/6		
Breeding objectives			
Callus radiosensitivity	28/6		
Seed number	29/16		
Countries			
Egypt	29/16		
Japan	28/6		
Carrot see <i>Daucus carota</i>			
Cassava see <i>Manihot esculenta</i>			
Castor bean see <i>Ricinus communis</i>			
Celery see <i>Apium graveolens</i>			
Centipedegrass see <i>Eremochloa ophiuroides</i>			
Chamomile see <i>Matricaria chamomilla</i>			
Chickpea see <i>Cicer arietinum</i>			
Chinese cabbage see <i>Brassica pekinensis</i>			
Chinese matgrass see <i>Cyperus malaccensis</i>			
Chinese potato see <i>Coleus parviflorus</i>			
Chinese chestnut			
Mutagens used			
Fast neutrons		27/13	
Breeding objectives			
Dwarfness		27/14	
Dense planting		27/14	
Yield		27/14	
Countries			
China		27/14	
Chrysanthemum see <i>Chrysanthemum</i> or <i>Dendrathera grandiflora</i>			
<i>Chrysanthemum</i> sp. or <i>Dendrathera grandiflora</i>		35/27	
Mutant varieties			
Agnisikha		37/22	
Alankar		23/16	
Apricot Deholta		31/12	
Apricot Impala		311/13	
Babette gelb		31/11	
Baigiku rainbow (orange)		32/21	
Baigiku rainbow (peach)		32/21	
Baigiku rainbow (pink)		32/21	
Baigiku rainbow (red)		32/21	
Baigiku rainbow (white)		32/21	
Baigiku rainbow (yellow)		32/21	
Basanti		23/16	
Batik		43/40	
Blue Redemine		31/15	
Bronce Kalinka		35/33	
Bronze Byoux		31/11	
Bronze Redemine		31/15	
Cheri Deholta		31/12	
Colchi Bahar		31/12	
Copper Marconi		31/15	
Coral Refla		31/15	

Cosmonaut	26/12	Orange Impala	31/13
Cream Deholta	31/12	Orrange Lymon	31/14
Cream Impala	31/13	Orange Mario	23/20; 26/15
Cristiane	43/40	Orange Refla	31/15
Dark Mario	23/20; 26/15	Pale Remember	31/16
Dark Gaby	31/13	Peach Deholta	31/12
Dark Lymon	31/14	Pearl Cindy	35/32
Dark Red Marconi	31/15	Pink Impala	31/13
Dark/Rolyal Randez-Vous	31/16	Pink-Orizuru	42/27
Dark Torino	31/17	Raktima	44/33
Enzett Axilla Gelb	37/22	Red Marconi	31/15
Enzett Balina Rot	37/22	Red Lymon	31/14
Enzett Balina Wiess	37/22	Repin Rosa	44/33
Enzett Dilana Gelb	37/23	Salmon Byoux	31/11
Enzett Dilana Rosa	37/23	Salmon Impala	31/13
Enzett Heli Bronze	37/23	Salmon Lymon	31/14
Enzett Heli Gelb	37/23	Shabnam	31/17
Enzett Mellit Gelb	37/23	Sharad Har	43/43
Enzett Minos Bronze	37/23	Sheela	31/17
Enzett Niva Bronze	37/23	Sonali	42/27
Enzett Niva Gelb	37/23	Subarna	42/27
Enzett Niva Lachs	37/24	Surekha Yellow	42/27
Franky Lane	31/13	Torino	31/17
Funny Redemine	31/15	Tulika	31/17
Funny Randez-Vous	31/16	White Cindy	35/32
Goldbronze Deholta	31/12	White Redemine	31/11
Golden Byoux	31/11	White Refla	31/16
Golden Cremon	34/27	White Rememeber	31/16
Golden Deholta	31/12	White Ronny	31/17
Golden Geos	23/19; 26/15;	Yellow Bettina	31/11
	35/33	Yellow Cindy	35/32
Golden Luck	31/14	Yellow Lymon	31/14
Hoof Lane	31/13	Yellow Redemine	31/15
Ingrid	43/40	Yellow Refla	31/16
IRB 88-30	43/40	Yellow Randez-Vous	31/16
IRB 88-47	43/40	Yellow Samba	31/17
IRB 88-59	43/41	Yellow Torino	31/17
IRB 88-60	43/41	Varieties treated	
Jungu	43/41	Babette white	31/11
Ki-uzushio	32/21	Bettina white	31/11
KU 1	34/27	BFA-seedling T 83/404/2	31/14
Kumkum	31/13; 34/34	(bronze)	
Lady Amber	43/41	Bravo	35/10
Lady Bronze	43/41	Byoux	31/11
Lady Pink	43/41	Cindy	35/32
Lady Rose	43/42	Clone 1230	24/15
Lady Salmon	43/42	Cremon	34/27
Lady Yellow	43/42	D-5	23/16; 31/17;
Lemon Deholta	31/12		37/22
Lilac Byoux	31/11	Dark Delta	31/12
Lilac Cindy	35/32	Delta	31/12
Main Lane	31/14	E-13	23/16
Man Bhawan	23/16; 33/16	Flirt	23/16; 33/16;
Marconi	31/14		42/27; 43/41
Navneet	37/24	Gaby pink	31/13
Navneet Yellow	43/42	Geos	23/19; 26/15;
OHB-14	43/42		35/33
OHB-8	43/43	Himani	31/17

Hangzhou	34/27		35/32, 33;
Horim	35/10		43/41, 42
Impala	31/13	X-rays (<i>in vitro</i>)	35/10
Indianapolis	35/10	Breeding objectives	
Kalinka	35/33	Disease tolerance	34/27
Kalyani Mauve	37/24	Early flowering	35/10
Lalima	43/41	Flower colour	23/16, 19, 20;
Lilac Cindy	35/32		24/14; 26/15;
Lymon	31/14		31/11, 12, 13,
M-24	31/17		14, 15, 16,
M-71	31/13		17; 32/21;
Mario	23/19; 26/15		33/16; 34/27;
Navneet	43/42		35/10, 27, 32,
Neptune	39/6		33; 37/22, 23,
Nimrod	26/12		24; 38/12;
Ohira	38/12		42/27; 43/40,
Pearl Delta	31/12		41, 42, 43;
Penny Lane	31/13	Flower shape	44/33
Pink cultivar	31/14, 15		24/14; 26/12;
Pink seedling	31/17		31/13, 17;
Princess Anne Bright Golden	39/6		35/27; 38/12;
Ratna	42/27	Flower size	39/6
Redemine	31/15	Growth type	34/27
Refla	31/15, 16	Leaf shape	24/14; 39/6
Remember	31/16	Low temperature tolerance	24/15
Rendez-Vous	31/16	Petal size	39/6
Repin	43/40	Plant height	39/6
Richmond	35/10; 43/41,	Short stem	31/13
	42	Countries	
Ronny Pink	31/17	Belgium	31/14, 15, 17
Samba white	31/17	Brazil	43/40; 44/33
Seikuono-kurnenai	32/21	FRG	23/19, 20;
Sei-Orizuru	42/27		24/15; 26/15;
Sharad Bahar	31/12		31/111, 13,
Sharad Mala	43/43		14, 17; 35/32,
Shyamal	44/33	GDR	33
Surekha	42/27	India	37/22, 23, 24
Taihei	43/40, 41, 42,		23/16; 26/12;
	43		31/12, 13, 17;
Uzushio	32/21		33/16; 34/34;
Westland	35/10		37/22, 24;
White Delta	31/12		42/27; 43/40,
Mutagens used			41, 42, 43;
Colchicine	31/12	Ireland	44/33
EMS (<i>in vitro</i>)	24/13	Japan	39/6
Gamma field	38/12		32/21; 38/12;
Gamma rays	23/16, 26/12;		42/27; 43/40,
	31/11, 13, 14,	Poland	41, 42, 43
	16, 17; 33/16;		35/10; 43/41,
	34/27; 37/22,	The Netherlands	42
	23, 24; 42/27;		31/11, 12, 13,
	43/40, 41, 42,	Thailand	14, 15, 16
	43; 44/33	Other informationend	34/27
Gamma rays (<i>in vitro</i>)	24/13; 32/21;	<i>In vitro</i> cultures	38/12
	35/10; 39/6	<i>Cicer arietinum</i>	
X-rays	23/19, 20;	Mutant varieties	
	26/15; 31/11,	CM 72	23/17; 39/3
	12, 13, 14,	CM-88	43/43
	15, 16, 17;	Hyprosola	33/7

Kiran (RSG-2)	26/12	Chaffa	22/2
Line 3	43/43	L-550	22/3
NIFA-88 (CM-1918)	37/3; 24	C-235	22/4
NIFA-95	44/34	Mutagens used	
Pusa 408 (Ajay)	29/21	EMS	35/26; 41/6
Pusa 413 (Atul)	29/21	Gamma rays	23/17; 29/21; 33/7; 34/19; 37/3, 4, 24; 41/6; 43/19, 43; 44/34
Pusa 417 (Grinar)	29/21	Gamma rays + EMS	43/43
Other mutants mentioned		Neutrons	26/12
BGM 403	21/6	Sodium azide	22/9; 35/26
BGM 405	21/6; 22/2	Breeding objectives	
BGM 408	21/6; 22/2,3	Bushy plant type	35/26
BGM 413	21/6; 22/2,3	<i>Ascochyta rabiei</i> blight	22/2; 23/17; 29/21; 37/24; 41/6
BGM 415	22/3	resistance	
BMG 416	22/3	Blight resistance	21/4; 37/3; 44/34
BMG 417	22/3	Chlorophyll deficient	35/26
BMG 418	22/3	Cold resistance	41/6
BMG 419	22/3	Collar rot resistance	22/3; 29/21
BMG 421	22/3	Disease resistance	21/5; 35/26; 39/3; 43/43
CM-1918	37/3	Earliness	21/5; 34/19; 35/26
CM 359	21/4	Early maturity	26/12; 37/3, 4, 24
CM 438	34/19	Flower colour	35/26
CM 68	21/4	Foot rot resistance	22/3; 29/21
CM 72	21/4	Harvest index	22/4
BMG 424	22/4	Nitrogen fixation	37/3, 24
BMG 425	22/4	Photoperiod insensitivity	34/19
BMG 426	22/4	Plant habit	26/12; 37/3
BMG 427	22/4	Plant architecture	21/5; 29/21
BMG 428	22/4	Pod number	21/5; 29/21
BMG 429	22/4	Pod length	43/19
BMG 430	22/4	Protein content	33/7
Desi mutants	22/3	Root rot resistance	21/9; 29/21
FLIP 94-501C	43/19	Salinity tolerance	26/12
FLIP 94-502C	43/19	Stunt virus resistance	22/2; 29/21
G-293	37/4	Wilt resistance	22/2; 29/21
G-302	37/4	Yield	21/6; 22/2, 3, 4; 23/17; 26/12; 29/21; 33/7; 37/3, 24; 43/43
Kabuli mutants	22/3	Countries	
Mutant No. 16119	41/7	Bangladesh	21/5; 22/9; 35/26; 37/4
Varieties treated		Chile	21/9
6153	21/4; 23/17; 37/3; 24	Egypt	43/43
BG 203	29/21	ICARDA	41/7; 43/20
C 727	21/4; 34/19; 43/43	India	21/6; 22/5; 26/12; 29/21
Desi	22/3	Pakistan	21/4; 23/17; 34/19; 37/3, 24; 39/3; 41/7; 43/43; 44/34
Faridupur-1	21/5; 33/7; 37/4		
G-130	20/21		
Hyprosola	22/9		
ILC 3279	41/6		
ILC 482	41/6		
ILC 5901	43/19		
ILC 6104	41/6		
Kabuli	22/3		
Line 6151	44/34		
NECL #055	43/43		
RS-10	26/12		
Other varieties mentioned			
Warangal	22/2		

Citronella see *Cymbopogon winterianus*

Citrullus lanatus

Mutant varieties	
Gibrid 218	31/18
Lu No. 1	32/21
Varieties treated	
Hybrid Bykovskii 22 x Melitopolskii 143 and subsequent cross with Yubileinyi 72	31/18
Taojian No. 8 x Lemi No. 1	32/21
Mutagens used	
Gamma rays	31/18; 32/21
Breeding objectives	
Disease resistance	32/21
Yield	32/21
Countries	
China	32/21
USSR	31/18

Citrus limon

Mutant varieties	
Eureka 22INTA	44/34
Varieties treated	
Eureka	26/1; 36/11
Frost Eureka	44/34
Israeli Villafranca	36/11
Mutagens used	
Gamma rays	26/1; 36/11
X-rays	44/34
Breeding objectives	
Fruit quality	44/34
Fruit set	44/34
Seedless	26/1; 36/11
Countries	
Argentina	44/34
Israel	26/2; 36/11

Citrus paradisi

Mutant varieties	
Rio Red	37/24
Valencia 2 INTA	44/34
Varieties treated	
Ruby Red	37/24
Valencia Late	44/34
Mutagens used	
Thermal neutrons	37/24
X-rays	44/34
Breeding objectives	
Fruit colour	37/24
Fruit quality	44/34
Fruit size	44/34
Juice colour	37/24
Yield	37/24
Countries	
Argentina	44/34

USA 37/24

Citrus sinensis

Other mutants mentioned	
Seedless Orange no. 7	37/8
Seedless Orange no. 8	37/8
Varieties treated	
Jin Cheng	37/8
Pera	36/11
Mutagens used	
Gamma rays	37/8
Gamma rays (protoplast culture)	36/11
Breeding objectives	
Cytogenetic studies	37/9
Izozyme analysis	37/8
Radiosensitivity	36/11
Seedless	37/8
Countries	
Brazil	36/11
China	37/9
Other information	
Protoplast culture	36/11

Citrus sp.

Mutant varieties	
Guoqin 1 to Guoqin 5	33/12
Hongju 420	34/27; 35/33
Xue Gan 9-12-1	29/22
Other mutants mentioned	
4790	34/24
563	34/24
Varieties treated	
Dahongpao	34/27; 35/33
Eureka	35/26
Mestnyi	34/24
Minneola	35/26
Shamauti	35/27
Unshu	34/24
Villafranca	35/26
Xue Gan	29/21
Other varieties mentioned	
Wilking	35/26
Mutagens used	
Chemical mutagens	34/24
EMS (<i>in vitro</i>)	33/13
Gamma rays	27/14; 29/22; 34/24, 27; 35/26, 33
Gamma rays (<i>in vitro</i>)	33/13
NEH	34/24
Penyamycin (<i>in vitro</i>)	33/13
Sodium azide (<i>in vitro</i>)	33/13
Breeding objectives	
Cold tolerance	34/27
Chromosomal translocations	27/14
Few seeds	34/27; 35/33
Fruit number	29/22
Increased variability	34/24

Parthenogenesis	29/22		
Salt tolerance	33/13		
Seedlessness	27/14; 29/22; 35/26		
Semi-compact plant type	35/26		
Countries			
China	27/14; 29/22; 33/14; 34/17; 35/33		
Georgian SSR	34/24		
Israel	35/27		
<i>Coix lachryma-jobi</i>			
Mutant varieties			
Hatomusume	42/27		
Varieties treated			
Okayama (local)	42/27		
Mutagens used			
Gamma rays	42/27		
Breeding objectives			
Earliness	42/27		
Semi-dwarfness	42/27		
Countries			
Japan			
<i>Coleus parviflorus</i>			
Other mutants mentioned			
CPM 25	34/5		
Varieties treated			
CP-11	32/5; 34/6		
Mutagens used			
Gamma rays	32/5; 34/5		
Breeding objectives			
Day-length insensitive	34/5		
Earliness	32/5		
Morphological characters	34/5		
Countries			
India	32/5; 34/6		
<i>Colocasia esculenta</i>			
Other mutants mentioned			
CM 1	34/5		
CM 17	34/5		
Varieties treated			
CM 9 (Thamarakkhannan)	34/5		
Other varieties mentioned			
Rasmi	34/5		
Mutagens used			
Gamma rays	32/4		
Breeding objectives			
Earliness	32/4		
Morphological characters	32/4		
Shelf life	34/5		
Starch content	34/5		
Yield	32/4		
Countries			
India	32/4; 34/5		
Common bean see <i>Phaseolus vulgaris</i>			
Comon vetch see <i>Vicia sativa</i>			
Cotton see <i>Gossypium</i>			
Cowpea see <i>Vigna unguiculata</i>			
<i>Corchorus capsularis</i>			
Mutant varieties			
Binadeshipat-2	44/10, 34		
Hyb 'C'	34/27		
JRC-6165	34/27		
JRC 7447 (Shymalia)	24/17		
Other mutants mentioned			
C-278	44/9, 10		
C-30	24/12		
C-37	24/12		
C-41	24/12		
C-47	24/12		
C-5	24/10		
Varieties treated			
CVL-1	44/9, 10, 34		
D 154	24/10; 24/11, 12, 17; 41/19		
JRC 212	24/17		
JRC-919	34/27		
Other varieties mentioned			
JRC 212	41/19		
JRC-412	34/27		
Mutagens used			
Gamma rays	24/10, 11		
Sodium azide	44/9, 34		
X-rays	24/17; 34/27; 41/19		
Breeding objectives			
Base diameter	44/10		
Chlorophyll mutants	24/11		
Dwarfness	24/10		
Fibre quality	24/17; 44/10		
Fibre yield	24/12; 44/10, 34		
<i>Macrophomina phaseolina</i>	24/11		
tolerance			
Morphological mutants	24/11; 41/19		
Photoperiod insensitivity	24/10		
Physiological mutants	41/19		
Plant architecture	24/17		
Seed colour	41/19		
Tallness	41/19; 44/10		
Thermoperiod sensitivity	24/10		
Water lodging tolerance	34/27		
Yield	24/13, 17		
Countries			
Bangladesh	24/10, 13; 44/10, 34		
India	34/27; 41/19		
<i>Corchorus olitorius</i>			
Mutant varieties			
IR 1 (JRO 68-Anobika)	24/17; 37/25		

JRO 3690 (Savitri)	24/17; 33/22	Altay	31/18
JRO 514	24/17	Altay ranii	31/18
Mahadev	23/3, 17	Ludi 1	35/33
Rupali	24/17	Varieties treated	
Other mutants mentioned		Jinyan 1	35/33
TJ-40	22/3	Lemon	28/7
Virescent	23/3, 17	M15	34/23
Involute leathery	23/3, 17	Nishikisuyo	32/2
Yellow Leaf	24/17	Other varieties mentioned	
Tobacco leaf	24/17; 33/22	Din-zo-cin	31/18
Long Internode	24/17; 33/22	Mutagens used	
Varieties treated		EI	34/23
JRO 632	23/3, 17; 24/17; 37/25	Gamma rays	32/2; 35/28
JRO 878	41/19	Laser	35/33
NH87/Co ₄	41/20	Somaclonal variation	35/16
Other varieties mentioned		Thermal neutrons	28/7
JRO 632	41/19	Breeding objectives	
Mutagens used		Earliness	31/18
Gamma rays	24/17; 37/25; 41/20	Downy mildew resistance	35/33
X rays	24/17; 33/22; 41/19	'Glaborus' mutant	28/7
Thermal neutrons	23/17	Leaf shape	32/2
Breeding objectives		Mutation technology	35/28
Breaking seed dormancy	41/20	Nematode resistance	34/23
Fibre quality	23/3	Sugar content	35/33
Fibre yield	23/3, 17	Vigorous growth	35/33
Fruit number/node	41/20	Yield	31/18
Leaf colour	24/17	Countries	
Leaf size	23/3; 24/17	China	35/33
Morphological mutants	41/19	Japan	32/3; 35/28
Number of internodes	24/17	USA	28/8
Physiological mutants	41/19	USSR	31/18; 34/23
Seed colour	41/19	Other information	
Talness	41/18	<i>In vitro</i> culture	35/16
Vigorous growth	37/25	<i>Cuphea</i> sp.	
Yellow mite tolerance	24/17; 33/22	Mutagens used	
Yield	24/17; 33/22; 37/25; 41/20	Gamma rays	33/11
Countries		Breeding objectives	
India	23/3, 17; 24/17; 33/22; 37/25; 41/19	Radiosensitivity test	33/11
Nigeria	41/20	Countries	
Crapemyrtle see <i>Lagerstroemia indica</i>		Poland	35/16
Creeping bent grass see <i>Agrostis</i>		USA	33/11
Cress see <i>Lepidium sativum</i>		<i>Curcuma domestica</i>	
Crested wheat grass see <i>Agropyron cristatum</i>		Mutant varieties	
Cucumber see <i>Cucumis sativus</i>		BSR 1	29/22
<i>Cucumis sativus</i>		Co 1	29/22
Mutant varieties		Varieties treated	
		Erode	29/22
		Mutagens used	
		X-rays	29/22
		Breeding objectives	
		Colour	29/22
		Curcumin content	29/22
		Curing percent	29/22
		Disease tolerance	29/22
		Plant architecture	29/22
		Countries	

India	29/22	Turf quality	44/10
<i>Cymbopogon winterianus</i>		Vigorous growth	33/23
Mutant varieties		Countries	
Bhanumati (OJC-11)	35/34	USA	33/23; 44/11, 34
Bibhuti (OJC-5)	35/34	<i>Cyperus malaccensis</i>	
Niranjan (OJC-6)	35/34	Mutant varieties	
Phuttara (OJC-22)	35/34	Toyomidori	21/13
Sourav (OJC-3)	35/34	Varieties treated	21/13
Subir (OJC-31)	33/35	Ohi2	
Other mutants mentioned		Mutagens used	
OJC-1	35/11	Gamma rays	21/13
OJC-11	35/11	Breeding objectives	
OJC-12	35/11	Lodging resistance	21/13
OJC-15	35/11	Yield	21/13
OJC-18	35/11	Downy mildew resistance	21/13
OJC-20	35/11	Countries	
OJC-21	35/11	Japan	21/13
OJC-22	35/11		
OJC-24	35/11	D	
OJC-26	35/11	<i>Dendranthema grandiflora</i>	
OJC-3	35/11	Mutant varieties	
OJC-30	35/11	Bronze Wonder	42/19
OJC-31	35/11	Cristiane	42/18
OJC-4	35/11	Ingrid	42/18
OJC-5	35/11	Lady Antee	42/19
OJC-6	35/11	Lady Bronze	42/19
Varieties treated		Lady Pink	42/19
Subirsourav (CKS-CW-S-1) or (KS-CW-S-I)	35/11; 34, 35	Lady Rosy	42/19
Mutagens used		Lady Salmon	42/19
X-rays	35/11; 34, 35	Lady Yellow	42/19
Breeding objectives		Red Wonder	42/19
Adaptability to marginal conditions	35/34	Varieties treated	
Hardiness	35/11	Lilac Wonder	42/19
Oil yield	35/11; 34, 35	Repin	42/18
Yield	35/11	Richmond	42/19
Countries		Mutagens used	
India	35/12, 34, 35	Gamma rays	42/18, 19
<i>Cynodon sp.</i>		X-rays	42/19
Mutant varieties		Breeding objectives	
Tifgreen II	33/23	Flower colour	42/18, 19
Tift 94	44/10, 34	Flower size	42/19
Varieties treated		Inflorescence form	42/19
Midiron	44/10, 34	Leaf morphology	42/19
Tifgreen	33/23	Countries	
Mutagens used		Brazil	42/18
Gamma rays	33/23; 44/10, 34	Poland	42/19
Breeding objectives		<i>Dianthus caryophyllus</i>	
Dense turf	33/23	Mutant varieties	
Fine texture	44/10	Accent	31/18
Leaf quality	44/34	Bonitas	37/25
Mole crickets (<i>Scapteriscus</i> ssp.) resistance	44/10, 34	Cerise Kortina	31/18
Nematode resistance	33/23	Chaichoompon	34/28
Root knot resistance	33/23	Dione	23/17
		Enzett Barther Frühling	23/17
		Enzett Folklore	23/17

Galatee-lonvego	33/23		
Lavendel Kortina	31/18		
Loncerda	33/23		
Maiella-lonchabi	33/23		
Pink Kortina	31/19		
Red Kortina	31/19		
Royal Red Kortina	31/19		
Scarlett Bell	32/22		
White Kortina	31/19		
Varieties treated			
Angel	32/22		
Arthur Sim	23/17		
Benoni	31/18		
Elsy-londonie	33/23		
Kortina	31/18, 19		
Pallas-londorga	33/23		
White Sim	34/28		
William Sim	23/17		
Mutagens used			
EMS	23/17		
Gamma rays	32/22; 33/23; 37/25		
Gamma rays (<i>in vitro</i>)	33/23; 34/28		
X-rays	31/18, 19		
Breeding objectives			
Flower colour	23/17; 31/18, 19; 32/22; 33/23; 34/28		
Miniature type	37/25		
Stiff stems	23/17		
Petal shape	23/17		
Resistance to <i>Fusarium oxysporum</i>	33/23; 37/25		
Yield	31/18		
Countries			
GDR	23/17; 37/25		
France	33/23		
Japan	32/22		
The Netherlands	31/18, 19		
Thailand	34/28		
<i>Daucus carota</i>			
Mutagens used			
MNNG (<i>in vitro</i>)	22/14		
EMS (<i>in vitro</i>)	22/14		
Colchicine (<i>in vitro</i>)	22/14		
Breeding objectives			
Biochemical mutants	22/14		
Countries			
India	22/17		
Other information			
<i>In vitro</i> cultures	22/14		
<i>Discorea alata</i>			
Mutagens used			
Gamma rays (<i>in vitro</i>)	30/17		
Countries			
FAO/IAEA	30/19		
<i>Dolichos lablab</i>			
Mutant varieties			
Co.10 (Co 10)		28/13; 29/22	
Varieties treated			
Co.6 (Co 6)		28/13; 29/22	
Mutagens used			
Gamma rays		28/13; 29/22	
Breeding objectives			
Plant type		28/13; 29/22	
Yield		28/13; 20/22	
Countries			
India		28/14; 29/22	
Dura see <i>Sorghum dura</i>			
Durum see <i>Triticum turgidum</i>			
ssp. durum			
<i>Echinochloa furmentaca</i>			
Varieties treated			
VL8		33/10	
VL11		33/10	
Mutagens used			
EMS		33/10	
Gamma rays		33/10	
Gamma rays + EMS		33/10	
Breeding objectives			
Chlorophyll mutants		33/10	
E			
Eggplant see <i>Solanum melongena</i>			
Egyptian clover see <i>Trifolium alexandrinum</i>			
<i>Eremochloa ophiuroides</i>			
Mutant varieties			
AU Centennial (AC-17)		30/20	
TifBlair		44/11, 35	
Varieties treated			
common centipede grass		30/20; 44/11	
Mutagens used			
Gamma rays		30/20; 44/11, 35	
Breeding objectives			
Cold tolerance		44/11	
Dwarfness		30/20	
Fast growth		44/11	
High leaf density		30/20	
Large seeds		44/11	
Quality		44/35	
Tallness		44/11	
Vigour		44/35	
Countries			
USA		30/20; 44/11, 35	

<i>Eriobotrya japonica</i>		EI	31/19; 40/13
Mutant varieties		MNH (MNU)	40/13
Shiro-mogi	21/13	Breeding objectives	
Varieties treated		Cooking quality	40/13
Mogi	21/13	Earliness	40/13
Mutagens used		Lodging resistance	31/19; 40/13
Gamma rays	21/13	Seed size	40/13
Breeding objectives		Yield	31/19
Fruit size	21/13	Countries	
Taste	21/13	USSR	31/19; 40/13
Countries		<i>Fagopyrum sagittatum</i>	
Japan	21/13	Mutant varieties	
<i>Euphorbia lagascae</i>		Aelita	30/21
Mutagens used		Galleya	30/21
EMS	37/8	Lada	30/21
Sodium azide	37/8	Podolyanka	30/21; 32/17
Breeding objectives		Varieties treated	
Determinate growth	37/8	Improved Radekhovskaya	30/21
Uniform ripening	37/8	Victoria (Viktoriya)	30/21; 32/17
Countries		Mutagens used	
FRG	35/8	Gamma rays	30/21
<i>Eustoma grandiflorum</i>		Gamma rays + NEH	32/17
Mutant varieties		Gamma rays + NMH	32/17
Purple Fantasy	44/35	Gamma rays + EI	32/17
Purpe Robin	44/35	Gamma rays + DMS	32/17
Red Robin	44/35	Gamma rays + DAB	32/17
Varieties treated		Radiation and chemical mutagens	30/21
Morgen Rot	44/35	Breeding objectives	
Pastel Murasaki	44/35	Early ripening	30/21; 32/17
Mutagens used		Grain quality	30/21
Gamma rays	44/35	Large seeds	32/17
Breeding objectives		Less branching	30/21; 32/17
Flower colour	44/35	Short stem	30/21; 32/17
Flower size	44/35	Plant architecture	30/21; 32/17
Countries		Yield	30/21; 32/17
Japan	44/35	Countries	
		USSR	30/21; 32/18
F		<i>Fenugreek</i> see <i>Trigonella foenum graecum</i>	
Faba bean see <i>Vicia faba</i>		<i>Festuca pratensis</i>	
<i>Fagopyrum esculentum</i>		Mutant varieties	
Mutant varieties		Fesko	34/28
Aromat	31/19	Lifesta	34/28
Chernoplodnaya	40/13	Liforte	34/28
Kurskaya 87	40/13	Mutagens used	
Skorospelaya	40/13	Gamma rays	34/28
Other mutants mentioned		Breeding objectives	
Line Orbita	40/13	Seed retention	34/28
Varieties treated		Countries	
Chernoplodnaya	40/13	FRG	34/28
Hybrid 1597/69 x Mayskaya	31/19	<i>Ficus benjamina exotica</i>	
Yunilenaya 2	40/13	Mutant varieties	
Other varieties mentioned		Golden King	31/19
DOV 1	40/13	Golden Princess	31/19
Temp 411	40/13		
Mutagens used			

Varieties treated		Red Reflection	34/28
Green Ficus	31/19	Shobha	34/29
Mutagens used		Showwinner	31/20
X-rays	31/19	Tambari	43/43
Breeding objectives		Varieties treated	
Disease tolerance	31/19	Applause	31/20
Leaf colour	31/19	Oscar	43/43
Pest tolerance	31/19	Peter Pears	34/28
Plant type	31/19	Wild Rose	34/29
Countries		Mutagens used	
Belgium	31/19	Gamma rays	34/29; 43/43
		X-rays	31/20; 34/28
Flax see <i>Linum usitatissimum</i>		Breeding objectives	
Fodder beet see <i>Beta vulgaris</i>		Corm production	31/20
Forsythia x intermedia		Flower colour	31/20; 34/28, 29; 43/43
Mutant varieties		Countries	
Courtalyn	25/10	India	34/29; 43/43
Courtadic	25/10	The Netherlands	31/20; 34/28
Varieties treated		Glycine max	
Lynwood	25/10	Mutant varieties	
Vitellina	25/10	Aida (HM-S-78)	26/13
Mutagens used		Arkadiya Odesskaya	31/20
Gamma rays	25/10	Bangsa Kong (CB27-25-27)	26/13
Breeding objectives		Bisser	31/20
Erect form	25/10	Boriana	23/3, 18
Dwarf internode	25/10	Chudo Gruzii 74	37/25
Blooming on 1 year old shoot	25/10	Dioskuriye	37/25
Ramification type	25/10	Doi kham	33/24
Ground cover	25/10	Dorado	34/3, 29; 35/5
Countries		DT-83	43/44
France	25/10	DT-84	43/44
		DT-90	43/44
Foxtail millet see <i>Setaria italica</i>		Fengdou 1	34/29
G		Heilong 31	32/22
Geranium see <i>Pelargonium grandiflorum</i>		Heilong 32	32/22
Gerbera jamesonii		Heilong No. 16	33/6
Mutant varieties		Heilong No. 26	33/4
Red Raisa	42/19; 43/43	Heinong 16	44/35, 36
Varieties treated		Heinong 28	30/21
Raisa	42/19; 43/43	Heinong 32	35/24
Mutagens used		Heinong 34	44/35
Gamma rays	42/19; 43/43	Heinong 35	44/36
X-rays	35/9	Heinong 41	44/36
Breeding objectives		Heinong 8	35/24
Flower colour	42/19; 43/43	Heinong No. 26 (Heinong 26)	27/10; 35/24
Radiosensitivity	35/9	Heinoun No. 16	25/11
Countries		Heinoun No. 26	25/11
FRG	35/9	Heinoun No. 4	25/10
Poland	42/19; 43/43	Heinoun No. 5	25/10
Other		Heinoun No. 7	25/10
<i>In vitro</i> cultures	35/9	Heinoun No. 8	25/10
		Kartuli 7	37/25
Gladiolus sp.		Kosuzu	32/22; 35/35
Mutant varieties		Liaonong 1	34/29
		Liaodou No. 3	27/10
		Luchezarnaya	40/13

M-103	44/36		42/9; 43/44
Mageva (Lastochka-out)	40/13	Calland	43/45
Muria	35/35	CB-27	26/13
Mushi No. 6	25/11	CG 661 x 91-1	43/23
Mutant 2	37/25	Cocchum	43/44
Nanbushirome	21/13;	Dongnong No. 4	27/11
Nitrobean 60	43/44	Dongnoun No. 4	25/10
Noventa	41/8	F ₁ 45-15 x 5621	25/11; 27/10
Prikarpatskaya 81	40/13	F ₁ DT-80 x DH-4	43/44
Raiden	21/13; 24/13	F ₁ G7002 x Cocchum	43/44
Ryokusui	42/27	F ₂ (Qunxuan 1 x Qun Ying Dou) x 5621	34/29
S-31	43/44	F ₂ Heinong 11 x Tiefeng 9	34/29
Sui Nong 12	44/36	F ₂ Wundingzhu x Jingshanpu	25/11
TAEK A3	43/45	F ₄ Har 70-5072 x Har No. 53	32/22
TAEK C10	43/45	F ₆ [Suijio 83-432 x (Heihe 4 x Te 7604)]	44/36
Tengger	42/27	Fengshan	44/36
Tidar	35/35	Fengshou No.10 x Jilin No.3	25/11
Tiefeng 18	25/11; 27/10; 35/24	Fengshouhuang	32/23
Wase-suzunari	32/23	Fiskeby V	26/5; 34/3, 29; 35/5
Wei 7610-13	32/23	Fukura	42/27
Zarya	32/23	Hanying No. 1	43/23
Other mutants mentioned		Heinong No. 16 x Zyuushoo	30/21
14-3	32/9	Nagakal	
19510	42/9	H.PF ₆ x ZZ85-095	43/23
30	42/9	Gaurav	39/7
31	42/9	Kanto 101	38/11
31-17	42/9	Kanto 102	38/11
6405	27/10	Kirovogradskaya 2	40/13
72-12	42/9	Linzhen No. 1	43/23
82-16	42/9	Mancangjin	25/10
82-7	42/9	Maple Arrow	35/5
86-180	35/25	Nattou Kotsubu (Natto Kotubu)	32/22; 35/35
86-223	35/26	Nemashirazu	24/13
G-2120	35/35	No. 29 (Indonesia)	35/35
Ha 2294	25/11	Okushirome	32/23
Ha 63-2294 (Har63-2294)	27/10; 33/4	Orba	35/35; 42/27
Ha90-9825	44/36	Parana	36/9
Ha-Co73-8955	44/36	PK-472	39/7; 42/9
Har 75-6222	33/5	Sidou 11 x Jilin 22	43/23
Har 77-7594	33/5	Sidou 11 x Kefeng 6	43/23
Longfu 73-8955	33/6	S.J.4	33/24
Mufeng No. 5	27/12	Smena	26/13
Mufu 81-6009	27/12	Tie 6817	27/11
PI 360844	24/13	V-74	43/44
OX615	24/13	VNIMK 9186	31/20
SF7910-3	27/11	Wasesuzunari	38/11
SF7919-61	27/11	Williams	33/7
T ₁ 54 (NRC-1)	36/8	Yodou No. 2	35/25
T ₂ 14 (NRC-2)	33/16	Youdou 8 x D90	43/23
T285	33/7	Zakang F ₆ x Ludou 4	43/23
Varieties treated		Zora	32/23
Altona	41/7	Other varieties mentioned	
Amsoy 71	43/45	Amsoy	27/10
Bhat	36/8	Bhatmash	36/8
Beeson	23/4, 18; 31/20	Haman	21/6
Bragg	33/15; 39/7;		

Heihe 3	35/29	Early maturing	23/4, 18;
Kala Hulga	36/8		25/10; 26/13;
Kalitur	36/8		27/10; 30/21;
Kitami-nagaha	21/13		31/20; 32/22,
PI 96983	24/13		23; 33/5, 16;
L78-379	24/13		34/3, 29;
Suzu-yutake	38/11		35/5, 25, 35;
Tiefeng No. 18	27/11		36/8, 9;
Tokachinogaha	44/35, 36		40/13; 41/8;
Xiaojinhuang	33/4	Eating quality	42/9
Xiaojinhuang No.1	25/11	Extreme earliness	42/27
Mutagens used		Germinability	41/8
Chemical mutagenesis	40/13	Grain quality	33/16
DMS	31/20	High branch number	44/36
EI	43/44	Humidity tolerance	25/10, 11
ENH	40/13	Hypernodulation	25/10
EMS	26/13; 35/25;	Intermediate maturing	43/44
	36/9; 43/44	Large seed	21/13; 27/10
EMS (<i>in vitro</i>)	22/14; 33/15	Leaf characters	33/24; 43/23
Gamma rays	25/10, 11,	Lateness	27/11
	26/5; 27/10,	Lipoxigenase isozymes	42/27
	11; 32/22, 23;	Lodging resistance	38/11
	33/7, 15, 24;		23/4; 25/11;
	34/3, 29;		27/11; 31/20;
	34/5; 36/8, 9;		32/22, 35/35;
	37/25; 38/11;		43/23; 44/36
	39/7; 41/8;	Long day	35/5
	42/9, 27;	Long leaf	21/13
	43/23, 44, 45;	Long stem	26/5; 33/4,
	44/36		29; 35/5
Gamma rays + EMS	23/4, 18;	Low temperature tolerance	27/10
	31/20	Mechanized harvest	23/4; 35/5
Gamma rays + fast neutrons	32/23	Morphological mutants	41/8
Gamma rays + UV	33/15; 36/8;	Mosaic virus resistance	21/6; 24/13;
	39/7; 42/9		26/13
MNNG (<i>in vitro</i>)	22/14	Multi-leaflet	27/11
MMS	33/15	Nitrate tolerant nodulation	43/44
NMH (MNU) = (MNH)	26/5; 34/3,	Nitrogen carry-over	43/44
	29; 35/5;	Non-fluorescent root	33/7
	40/13	Oil content	27/10; 30/21;
Sodium azide	26/5; 34/3;		32/22; 39/7;
	35/5		43/23, 45
Thermal neutrons	30/21; 32/22;	Plant stature	25/11; 27/10
	44/36	Pod position	43/45
X rays	26/13	Protein content	23/4, 18;
Breeding objectives			27/10; 30/21;
Adaptability	32/22		31/20; 32/22,
Ascochytiopsis resistance	40/13		23; 39/7;
Bacteriosis resistance	40/13		43/23, 44, 45;
Biochemical mutants	22/14		44/35, 36
Cold tolerance	25/11; 33/4;	Quality	25/11; 27/10;
	43/44		30/21; 32/23;
Compact branched type	25/10		33/4, 6
Cyst nematode resistance	21/13	Resistance to rust (<i>Phakopsora</i>	33/24
Disease resistance	27/11; 32/22;	<i>pachyrrhizi</i>)	
	33/4; 35/25;	Root system	25/10
	40/13; 42/27;	Salt tolerance	33/6
	44/36	Seed colour	35/35; 36/8;
Drought tolerance	25/11; 27/10;		42/27; 43/44
	32/22; 33/4	Seed size	26/13; 44/36
Earliness	42/27; 43/45	Seed storage proteins	38/11

Shade tolerance	33/6	Khandwa-2	30/21
Short internode	25/10, 11	M.A. 9	30/21
Short petiole	23/15	MCU.7	28/13
Short stature	35/35	MCU.10 (MCU 10)	28/13; 29/22
<i>Sporotrichosis</i> resistance	32/23	NIAB-78	23/18; 31/7; 43/30
Stem fly resistance	42/9	Oktyabr (October)	31/20
Stem type	26/13; 30/21	Other mutants mentioned	
Virus resistance	32/22	72-563-3	27/12
Wide adaptability	25/11	AENB-85	43/30
Waterlogging tolerance	25/11	L-281	31/20
Yellow mosaic virus tolerance	36/8	Xinhai	27/12
Yield	21/13; 23/18; 25/11; 26/6, 13; 27/10, 11; 30/21; 31/20; 32/22, 23; 33/4, 5, 16, 24; 34/3, 29; 35/25, 35; 36/8; 42/9; 43/23, 44, 45; 44/35, 36	Varieties treated	
Countries		Brown lint	33/20
Australia	43/44	Deltapine x Ac134	23/18
Brazil	36/9	Dongtin 1	34/29
Bulgaria	23/4, 18; 31/20; 32/23	C.1412	26/7
Canada	35/5	C _o -2	30/21
China	25/10, 11; 27/10, 11, 12; 30/21; 32/22, 23; 33/6; 34/29; 35/24, 26; 43/24; 44/35, 36	G-27	42/28
CSRR	26/13	L1143 EE	28/13
GDR	26/7; 34/4, 29; 35/5	Liao 6496	35/35
Hungary	41/9	MCU.4 (MCU 4)	28/13; 29/22
India	22/17; 33/16; 36/8; 38/11; 39/7; 42/10	MU-4 (Dhar Kambodia)	30/21
Indonesia	42/27	Mutant line 9/1	31/20
Japan	21/13; 32/22, 23; 42/27	NIAB-78	43/30, 45
Korea, R.of	21/6; 26/13	Si Sumrong	33/20
Thailand	33/24	White lint	33/20
Turkey	43/45	Other varieties mentioned	
USSR	31/20; 37/25; 40/13	Tashkent 1	31/20
Vietnam	43/44; 44/36	Mutagens used	
<i>Gossypium</i> sp.		Gamma rays	23/18; 26/7; 27/12; 28/13; 29/22; 31/7, 20; 33/20; 34/29; 35/35; 42/28; 43/30, 45
Mutant varieties		Radiation	31/20
113	35/35	X-rays	28/13; 30/21
Agdash 3	31/20	Breeding objectives	
Badnawar-1	30/21	<i>Alternaria</i> resistance	28/13; 29/22
Chandi 95	43/30, 45	Black arm resistance	28/13; 29/22
Chuanpei	34/29	Boll weight	34/29
DS-1	42/28	Drought tolerance	28/13; 29/22; 30/21
Indore-2	30/21	Early maturity	23/18; 28/13; 34/29; 35/35
		Fibre quality	43/30, 45
		Hairy leaves	26/7
		Hybrid production	27/13
		Jassid resistance	26/7; 43/30
		Lint yield	34/29
		Male sterility	27/12
		Plant stature	23/18; 28/13; 31/20
		Quality	35/35
		Radiosensitivity	33/20
		<i>Rhizoctonia</i> resistance	29/22
		Semi-dwarfness	42/28

Staple length	28/13; 29/22	1607	41/16
Wilt resistance	31/20	211	41/16
Yield	23/18; 31/20; 43/30, 45	2934	41/16
Countries		2942	41/16
Bangladesh	33/20	3004	29/14
China	27/12; 34/29; 35/35	32	41/16
India	26/7; 28/14; 29/22; 30/21; 35/35; 42/28	33	41/16
Indonesia	35/35	3853	41/16
Pakistan	23/18; 31/7; 43/32, 45	4064	41/16
USSR	31/20	429	41/16
		69	41/16
		HA-300	41/16
		HA-89	41/16
		Nadejdii	41/16
		Peredovik	41/16
		Skorospelii	41/16
Grape see <i>Vitis vinifera</i>			
Grapefruit see <i>Citrus paradisi</i>			
Greengram see <i>Vigna radiata</i>			
Groundnut see <i>Arachis hypogaea</i>			
H			
<i>Helianthus annuus</i>			
Mutant varieties			
Perventes	35/8		
Other mutants mentioned			
CMS-Hemus	41/15		
CMS-Peredovik	41/16		
CMS-Stadion	41/15		
M-1155	44/24		
M-1584	44/24		
M-1624	44/24		
M-1700	44/24		
M-1925	44/24		
M-1927	44/24		
M-1967	44/24		
M-1991	44/24		
M-2006	44/24		
M-2007	44/24		
M-2008	44/24		
Varieties treated			
Peredovik	41/15		
Hemus	41/15		
Progres	41/15		
Vihren	41/15		
Trudovik	41/15		
Stadion	41/15		
Start	41/15		
Balkan	41/15		
VNIIMK	29/16		
1607	41/15		
1721	41/15		
3004	41/15		
Other varieties mentioned			
130	41/16		
		Mutagens used	
		Chemical mutagens	44/24
		EMS	29/16
		Gamma rays	41/15
		Ultrasound	41/15
		X-rays	29/16
		Breeding objectives	
		Cold tolerance	44/24
		Compact growth habit	44/24
		Dwarfness	44/24
		Fatty acid composition	29/16; 35/8
		Large seeds	44/24
		Lodging resistance	44/24
		Male sterility	41/15
		Short petiole	44/24
		Stalk breakage resistance	44/24
		Super-earliness	44/24
		Tolerance to high density growing conditions	44/24
		Countries	
		Bulgaria	41/16
		FRG	29/16; 35/8
		Russia	44/25
		<i>Helianthus tuberosus</i>	
		Varieties treated	
		Violet de Rennes	28/9
		Mutagens used	
		Gamma rays	28/9
		Breeding objectives	
		Carbohydrate metabolism	28/10
		Plant morphology	28/10
		Tuber number and size	28/10
		Countries	
		Italy	28/10
		<i>Hevea sp.</i>	
		Mutagens used	
		Gamma rays	27/13
		X rays	27/13
		Breeding objectives	
		Yield	27/13

Countries		Alpina	43/45
China	27/13	Amalia	33/24
<i>Hibiscus sp.</i>		Amazone	36/16
Mutant varieties		Amethyst (H464)	36/16, 17
Anjali	31/21	Ametyst	31/23
Purnima	30/21	Amil	43/46
Shirasagi-no-Yume (Shirasagi-no-yume)	28/20; 33/24	Anker	37/26
Varieties treated		Anna Abed	34/29
Alipore Beauty	30/21; 31/21	Anni	43/46
Sakai-no-hana	28/20; 33/24	Araraty	31/21
Mutagens used		Arena	36/16
Gamma rays	28/20; 30/21; 31/21; 33/24	Ariel	37/26
Breeding objectives		Atlas	42/28; 43/47
Flower colour	28/20; 33/24	Ayr	34/30
Flower type	31/21	Bacchus	37/26
Leaf colour	30/21	Balder J.	24/8
Leaf size	30/21	Baraka	37/26; 43/46
Sterile	28/20	Bastion	41/26
Countries		Beate	36/16
India	30/21; 31/21	Beauty	34/30
Japan	28/20; 33/24	Berolina	37/26
<i>Hippophaea rhamnoides</i>		Betina	36/18
Mutant varieties		BH-75	36/17
Zyrianka	28/4, 21	BIOS-1	41/26
Other mutants mentioned		Blazer	28/20
N118	28/4	Blenheim	36/17
Varieties treated		Bonus	31/21
Altai (wild form from Altai)	28/4, 21	Camargue	32/23
Mutagens used		Camen	37/26
Gamma rays	28/4, 21	Camir	36/17
NMU	28/21	Canor	37/27
Breeding objectives		Canut	37/27
Ascorbic acid content	28/4, 21	Cargine	37/27
Carotenoids content	28/4, 21	Carmen	29/23
Fruit yield	28/4, 21	Carnival	37/27
Oil content	28/4, 21	Carula	37/27
Sugar content	28/4, 21	Catrin	37/27
Countries		Cheri	36/17
USSR	28/4, 21	Comtesse	36/17
Hop see <i>Humulus lupulus</i>		Comtesse	33/24
<i>Hordeum vulgare</i>		Consista	32/23
Mutant varieties		Corgi	37/27
Aapo	24/8; 35/3	Corniche	32/23
Abed Deba	35/3	Cromarty	34/30
AC-Albright	43/45	Debut	29/4
Acclaim	37/26	Defia	37/27
Accord	31/21	Defra	32/23
AC-Stacey	43/45	Delita	32/23
Advance	28/20	Dera	32/24
Aizao No. 3	25/11	Derkado	32/24
Akdeniz M-Q-54	44/36	Diana	37/17
Alexis	36/16; 39/3	Diamant	31/21, 22, 23, 24; 32/23, 24, 25, 26; 36/17, 19, 20; 37/26, 27, 28, 29, 31; 43/46
Alis	36/16	Dinky	37/27

Donan	34/30	Kawamizuki	21/13
Dorett	36/17	Kazbek 1	31/22
Dorina	32/24	Kingspin	36/19
Doublet	30/22	Koral	31/22, 23; 34/31
Eero	24/8	Korinna	36/19
Eight-Twelve	41/26	Kormovy	44/37
Elo	43/46	Kosmos	44/37
Empress	28/20	Krassi	36/19
Esk	34/30	Kredit	31/23
Everest	37/28	Kristina	33/24; 34/31; 36/22; 37/29
Fatran	31/21	Krystal	31/23; 34/31
Favorit	37/31	Lada	32/25
Femina	32/24; 37/28	Larissa	36/20
Fergie	37/28	Laura	37/29
Fleet	37/28	Leelo	43/46
Formula (W 7200)	37/28	Leila	37/29
Frankengold	37/28	Lenka	32/25
Galant	37/29	Leo-INIA/CCU	37/30
Gavotte	37/29	Liisa	43/46
Gerlinde	32/24	Lina	25/11
Golden Promise	24/18; 36/17; 41/4	Lussi (=Vicky)	37/30
Goldfield	36/17	Luther	28/20; 36/18, 20; 41/26
Goldmaker	34/30, 31; 37/28	Madelon	37/30
Gorm	37/29	Maksim	29/4; 37/30
Grammos	37/29	Mal	36/20
Grisante	37/29	Mamluk	40/23; 41/26
Grit	32/24	Maresi	32/25
Gunnar	33/24	Mari ⁵	25/11; 34/25
Hana	31/22	Mari ⁶	33/24
Hanna	43/45, 47	Marina	43/46
Harkovskii 84	31/21	Markeli 5	36/19, 22
HE 497	37/31	Mars	31/23
Helena	37/29	Masakadomugi	35/35
Hellas	36/21	Matura	37/29, 30
Hellas 3	36/22	Midas	34/29; 36/18, 21; 37/26; 43/45
Heriot	30/22	Mikkell	37/30
Herzo	37/29	Mona	37/31
Hesk	36/18	Moskovskii	41/26
Horal	31/21	Moskovskii 2	30/22
Ilka	32/25	Nadia	40/14
Inga	36/18	Nairn	34/31
Ingot	36/18	Natasha	36/20
Jamina	36/18	Nebi	32/25
Jarek	31/22	Nomad	36/20
Jaspis	31/22	Nomini	42/28
Jupiter	37/26, 29	Noor Al Qadisyiha 17	43/47
Jutta	29/23	Noor Al Qadisyiha 68	43/47
K-2578	36/18	Novator	29/4; 31/23
Karan-15	36/19	Novum	34/31
Karan-201	36/19	Numar	43/47
Karan-265	36/19	Octave	36/20
Karan-3	36/18	Opal	31/22, 23; 43/45, 47
Karan-4	36/19	Orbit	31/23
Karat	31/22, 23, 24		
Kaskad	29/4; 31/22; 40/14, 23		

Otal	43/45, 47		20, 21, 22;
Othello	37/31		37/26, 27, 30,
Pacha	37/31		31
Pallas	36/21; 37/29;	Trumph	30/22; 35/3;
	44/37		36/17, 21;
Pallas 5	36/22		37/26, 27, 28,
Pamunkey	43/47		29, 30, 31;
Patricia	37/31	Tuteishy	40/23; 43/46
Peak	37/31		40/14
Perelom	40/14, 23	Tuwaittha	43/48
Perun	31/23	Tyne	34/31
PL 56	32/25	Tyra	33/25
Pression	37/31	UC 829	43/48
Prisma	36/20	UNA-La Molina 95	43/48
Profit	34/31	Ursel	36/22
Radikal	29/4; 31/23;	Valerie	37/31
	41/26	Vavilon	36/21; 41/26
Rajkiran (RD-387)	26/13	Vega Abed	34/31
Rapid	31/23	Veras	40/14
RD-103	26/13	Visir	37/30
RD-137	36/21	VITIM	40/13
RD-2035	36/21	Yubilei 100	36/22
RDB-1	36/17, 18, 19,	Zazerskij 85	37/31
	21	Zenit	31/24
Robin	29/23; 37/29	Zgoda (= Sgoda)	37/31
Romi	36/21	Other mutants mentioned	
Rosi	36/21	11/811	40/14
Rosi Abed	36/16, 19, 21	12/70	31/21
Rubin	31/24	2-6-26 (Tajoura 1)	36/3
Rumba	36/21	267 MK	24/16
Rupal	36/21; 37/26,	270 MK	24/16
	27	31M13	36/22
Salome	32/25; 43/47	392 JK	24/16
Samir	43/47	409 JK	24/16
Secret	43/47	421 JK	24/16
Semal	37/31	52M1	26/8; 31/23;
Seru	36/21		34/22
Shirokolistnii	31/24	538 DK	24/16
Shua	43/47	54M17	26/8; 34/22
Sila	36/21	555 DK	24/16
Sissy	37/31	57 M13	40/14
Skiff	35/3	592 DK	24/16
Skorokhod	40/14, 23	638 DK	24/16
Sold	33/25	648 AK	24/16
Spirit	32/25	66-289-1509	28/20
Stella	36/21	759/4	41/4
SVA 71164	33/25	809/5	43/18
Tamina	32/26	819/2	43/18
Taarn	36/22	820/6	43/18
Teele	35/36	84/11-1	36/22
Temp	29/4; 31/22;	862 PK	24/16
	40/23	B1101	30/5
Toga	36/22	BR 1519	21/3
Tone-nijo	41/26	CE DC/74	31/23
Troja	25/11	D170/3	43/18
Trumpf	29/23; 30/22;	DB 121	21/3
	31/22; 33/24;	Fakel	30/22
	34/30, 31;	E802	30/5
	36/16, 17, 19,	E292	30/5

E61	30/5	Baldi	43/46
Ea 52	35/35	Bomi	30/5
HE 1440	21/3	Bruce	42/14
INRC-BB-1	34/12	Buenavista	43/48
INRC-BB-3	34/12	C-164	32/25
INRC-BBR-4A	34/12	California Mariout	36/2
INRC-HB552	34/12	Carlsberg II	35/4
INRC-HB-553	34/12	Chikurin Ibaraki 1	35/35
INRC-BBH-1	34/12	Cyclon	34/22
INRC-HBR-3	34/12	Dema	43/17
INRC-BB-123	34/12	Delisa	24/16
INRC-HBR-88	34/12	Diamant	39/3
Intensivnyj	40/14	Diva	24/16
KH 1123	21/3	Dzveltesly	31/22
KH 1124	21/2	Georgia	24/16
KH 1124	21/3	H930-36	38/8
KH 1124	21/3	HDM	24/16
KH 1369	21/2	Heine's Haisa	39/2
KH 1369	21/3	Jotun	43/48
KH 1504	21/3	Julia	24/16
KH 1525	21/2	K-139	40/23
KH 1525	21/3	Kaler	31/21
KH 1742	21/2	Krasnodar 1	36/22
KH 2803	21/3	Krasnodar 35	40/23
KH 2938	21/3	Line 137/9	41/26
KH475	21/2	Magda	43/17
KH712	21/2	Maresi	43/17
KM 1038	21/3	Maythorpe	24/18; 41/4
KM 1192	21/3; 31/22, 23	Mg 4170	24/16
KNISKh 249	34/22	Miraj	36/17
KNISKh 60	34/22	Monolit	43/47
M4-66	41/26	Moskovskii 121	30/22
M66	39/2	Nadia	40/14
M-Att-73-337-1	33/12	Numar	43/46
Mut. G 259	37/30	Obroshinskii 1	31/24
Mutant of Franken III	37/28	Otra	35/36
N182	30/5	Plena	24/16
R167/3	43/18	Q448	24/16
R177/9	43/18	Quantum	44/36
RDB-1	26/13	R-16	35/16
Riso 1508 (Riso mutant 1508)	35/29; 36/18, 19; 37/30	Regia	26/8; 34/22
Riso 5678(R)	35/4	Rivale	37/29
Rtg Slov 802	21/3	Roland	43/17
Rtg Triumph	21/3	Rudzik	43/17
Rtg Valticky	21/2	Salka	24/16
SP 587	40/13	Slovensky 802	21/2,3
ST 6984	31/22	Sultan 5	34/22
UC 75021W	43/48	Triumph	21/2, 3; 37/29
Ukei H-79	21/13	Trumph	24/16
Ukei H-83	21/13	Union	31/21
VA-77-12-41	43/47	Valticky	21/2,3
Varieties treated		Vogelsanger Gold	26/8; 34/22
Aramir	24/16; 42/13; 44/28	Other varieties mentioned	
Arivat	43/47, 48	1109.2	43/46
Attiki	33/12	128-492	37/31
		15533 CO	37/27
		1622	36/16
		1B-65	36/19

270/1	26/8	Derkado	39/3
270/3	26/8	Dram	36/21
5/811	40/14	EB-20	36/19
5238-8-74	33/24; 36/17	EB-7576	36/18, 19
57510-44	33/24	EB-7725	36/19
741195	33/24	EB-795	36/17, 21
A61657	25/11	Egmont	36/17; 37/31
A61718	33/24	Emir	36/17
A6564	25/11	Ekonom	31/23
Abed 0625	36/21	F ₁ (1453 e 16 x Aufis-Him	36/16
Abed 079	36/21	T253)	
Ace	39/3	F ₁ (Helena x Ribari x 1455)	36/16
All 3109	37/26, 28	F ₁ LBB x Arivat	34/12
Alsa	31/22; 37/31	Firlbeck Union	44/37
Amsel	37/28	Foma	28/20
Ager	36/22	Forrest	35/3
Ahor-131'68	36/17	Frankengold	37/31
Akka	37/30	Gergie	34/30
Alquadisyiha	43/47	Gitane	37/29
Ammer	37/29	Goldspear 1976	30/22
Annmarie	29/23	Griffin	39/3
Apex	39/3	Grimmett	35/3
Aramir	29/23; 33/24; 34/30; 36/17, 20, 22; 37/29, 30, 31; 43/45	Grosso	39/3
Ark Royal	34/30	H357	34/31
Arivat	37/30	Hadm 46813/68	37/26
Atem	37/31; 39/3	Hart	39/3
Athos	34/30, 31; 37/28, 30, 31	HB 855/467/8	30/22; 34/31
Atos	40/14	HE 1728	31/23
Aufhammer 38/68	36/16, 17	HE 481	37/31
Ausgar	43/46	Henry	42/28; 43/47
Azam d1	36/19	Herta 8	37/29
Barberausse	37/26	Hiproly	35/29
Berenice	37/29, 31	HJ 69.74.272	37/29
Birgitta	43/45	Ho 465/CF 25	33/24
Bitrana	39/3	Hood	37/28
Boone	42/28; 43/47	HVS 91/76	40/14
Britannia	39/3	Hylkema	43/46
Byg 191	37/29	I 25	31/22
Cambrinus	36/20; 37/30	Ingrid	37/27, 29
Carina	37/29	Jantar	34/31
Carlsberg	37/30	Jone	36/18, 20
Celechovicky	31/22	Jubilane	34/31
CFU	31/22	K-18	26/13
Chariot	39/3	K-572/11	36/18
CIHO9608	43/47	Kantokawa 53	35/35
CIHO9623	43/47	KM1192	40/14
CIHO9658	43/47	KM 1402	31/24
CIV 195	36/17	Kym	36/20, 21
CIV P176	36/21	LBB	34/12
Claret	37/28	Lofa	25/11; 43/46
Claudia	37/31	Lofa Abed	34/31; 36/18
Conquest	28/20	Lokus	26/8
Dandy	39/3	Lola	43/46
Denso	21/3	Lotus	39/3
		Magda	39/3
		Magnum	34/30, 31; 37/27
		Maja 3	43/45, 47

Mala	36/18	Union	36/16
Malta	29/23; 36/22	VA 77-12-41	42/28
Manchuria	25/4	Vatonga	36/18
Marion	37/28	Vijaya	36/18
Maris Bulbeck	37/27	Vogelsanger Gold	31/21
Maris Jak	36/18	Volla	29/23; 37/29
Maris Mink	29/23	Voldagsen 2344	37/30
Marlen	39/3	Wasiro	35/29
Marocaine-079 (CI-8334)	26/13	Weib. 1947	37/29
Mazurka	37/31	Wellam	36/22
Medina	36/20; 37/26, 27	White Winter	28/20
Medusa	36/17	Wintermalt	41/26
Melvin	43/45	Mutagens used	
Menuet	37/27	Chemical mutagens	21/2; 34/25; 35/30
Meteor	36/22	DENH (dENH)	40/14
Minevra	37/29	DMS	40/14
Mirjam	37/26	DMSO	35/36
Monte Cristo	31/23	EMS	30/5; 32/25; 34/12, 22; 35/16; 39/3; 41/26
Morgenrot	43/45, 47	Ethyleneimine (EI)	30/22; 31/21; 34/22; 44/37
MSE Aramir 202	37/30, 31	Ethylenoxide	31/21
Multan	25/11	Fast neutrons	24/16; 43/47
Nery	37/26	Gamma field	35/35
Nittakei-1	41/26	Gamma rays	21/2, 13; 24/18; 25/11; 31/22; 34/12; 35/16; 36/2, 17; 37/29; 41/4; 42/13; 43/46, 47, 48; 44/36
Nordal	37/27	Gamma rays + EMS	35/16
Nota	29/23	Neutrons	34/25
Novator	34/22; 34/22	Nitroso-dimethyl-urea (NDH)	26/8; 34/22
NS 756123	37/31	Nitroso-ethyl-urea (NEH) = (NEU) = (ENH)	26/8; 31/24; 34/22; 36/22; 40/23; 43/47
Numar*2/CI 2376	43/48	Nitroso-methyl urea (NMH) = (MNU) = (MNH)	24/16; 38/8; 40/14, 23; 42/14; 43/17; 44/28
Nutanns 244	30/22	NTMU	41/26
Otra	43/45, 47	Physical mutagens	35/30
P21	37/29	Sodium azide	24/16; 30/5; 34/22, 25; 35/3; 37/29; 42/14; 43/17; 44/28
Palestine	31/23	Sodium azide + MNH	38/8; 44/28
Pallydum 394	40/14	X-rays	21/2; 34/25; 39/2
Paoly	31/23	Breeding objectives	
Piccolo	36/20	Adaptation	36/18, 21
Pitayo	37/30	Aluminum tolerance	43/17; 44/28
PL-101	36/21	Brewing quality	31/21, 23, 24; 32/23, 24, 25, 26; 36/16, 17,
Proctor	37/27		
Quantum	36/16		
RD-150	36/17		
Riso 5678(S)	35/4		
Ruppee	36/21, 22		
Salome	39/3		
Sejet 678263	37/30		
Sj 746570	37/31		
SK 1429	34/31		
SK 783	31/23		
Sladar	31/22, 23		
St. 11424-79	43/46		
Steveland	41/26		
Sumire Mochi	35/29		
SV 2552.2	43/46		
Svanhals	43/45, 47		
Tammi	43/45, 47		
Totem	39/3		
Triple Bearded Mariout	28/20		
UN 25	37/31		

	19, 20, 21, 22	Low water requirement	36/21
Brown rust resistance	30/22	Lysine content	21/3; 35/29
Callose formation	25/4	Malting quality	34/30, 31;
Chlorophyll mutants	42/14		36/16, 17, 20,
CNN resistance	36/17, 21		21, 22; 37/26,
Cold tolerance	36/17, 22;		27, 28, 30,
	37/29; 44/36		31; 41/4;
Compact spikes	42/28		43/46, 47
Doubled haploid (DH) mutant production	38/8; 42/14	Mn deficiency tolerance	24/18
Disease resistance	31/21, 22;	Mutant collection	34/25
	32/23, 24, 25,	Mutation frequency	44/28
	26; 34/30, 31;	Nematode resistance	26/13; 36/16,
	36/19; 37/26;		21; 37/31
	40/24; 41/26;	Plant habit	24/16, 26/13
	43/45, 46, 47,	Powdery mildew resistance	21/3; 25/4, 5;
	48		30/5, 22;
Drought resistance/tolerance	34/12; 43/46;		31/22, 23;
	44/36		32/24, 25;
Dwarf type	26/13; 36/17,		33/24; 34/12,
	18, 19		22; 36/16
Ear morphology	24/16	Proanthocyanidin-free	35/3; 37/29
Earliness	21/13; 25/11;	Protein content	21/2; 33/12;
	26/8; 29/4;		35/36; 36/17,
	31/21; 32/25;		19, 20; 43/47
	33/24, 25;	<i>Rhynchosporium</i> resistance	30/22
	34/30, 31;	Rust tolerant	33/24
	35/36; 36/17,	Salt tolerance	35/16; 41/4
	20; 37/30;	Semi-dwarfness	24/16; 36/19;
	40/14, 23;		42/14 ; 43/45,
	41/26; 42/28;		47, 48; 44/37
	43/45, 47, 48	Semiprostrate plant habit	30/22
<i>Eceriferum</i>	42/14	Short culm	21/13; 24/18;
Ecological stability	36/22		25/11; 28/20;
Erectoid type	37/28		31/23; 33/25;
<i>Erysiphe graminis</i> resistance	35/4; 39/2, 3		34/30, 31;
Escape from leaf beetle (<i>Oulema melanopus</i>) attack	40/23		35/36; 36/16,
Feed barley	36/18, 20		18, 19, 22;
Foliage yield	40/14		37/26, 28;
Frost resistance	29/4; 31/21,	Silage production	41/4
	23; 40/23	Spike length	31/24
Grain colour	41/26	Stability	31/24
Grain quality	40/14	Stiffness	21/13; 30/22;
Grain size	36/17, 21, 22;		34/29, 31;
	40/23; 41/26		36/16, 20, 21;
Heterosis	42/13		37/26, 28;
Hulless	36/18, 19		41/4, 26;
Isozyme mutants	35/30; 42/14		43/45, 46, 47,
Leaf disease resistance	31/22, 23, 24	Stripe rust resistance	32/23, 25
Leaf rust resistance	32/23, 24, 25	Tallness	31/24
Lodging resistance	21/2; 25/11;	Tillering	26/13; 32/25;
	29/4; 29/23;		36/17, 19, 21;
	31/21, 22, 23,		42/14
	24; 32/23, 24,	Winter hardiness	29/4; 36/17,
	25, 26; 33/24;		22; 43/47
	34/30, 31;	Yield	21/13; 24/16;
	36/16, 17, 18,		25/11; 26/13;
	19, 20; 37/26,		28/20; 29/23;
	27, 30; 40/14,		30/22; 31/21,
	23; 41/26;		22, 23, 24;
	43/46, 47		32/23, 24, 25,
			26; 33/24, 25;

	34/30, 31; 36/3, 17, 18, 19, 20, 21, 22; 37/26, 27, 28, 30, 31; 40/14, 23; 41/4, 26; 43/46, 47, 48; 44/37		Sweden	25/11; 34/25; 36/21, 22; 37/26, 28, 30 36/20
			The Netherlands	
			UK	30/22; 34/30, 31; 36/17, 18, 19; 37/26, 27, 28, 29, 31; 41/4
Yellow rust resistance	30/22; 36/17		USA	28/20; 36/18, 20; 41/26; 42/28; 43/47, 48
Countries			USSR	26/8; 29/4; 30/22; 31/21, 22, 23, 24; 35/36; 36/22; 37/30, 31; 40/14; 41/26 38/9
Algeria	42/15		Zaire	
Australia	24/18; 35/3		Other information	
Austria	29/23; 33/24; 36/20; 37/26, 27; 43/45		Anther culture	38/8; 41/13; 42/13
Belgium	37/27		Horsegram see <i>Macrotyloma</i>	
Bulgaria	36/17, 19, 22		uniflorum	
Canada	28/20; 43/45, 47		Hoya carnosa	
Chile	37/30		Mutant varieties	
China	25/11		Compacta	31/24
CSSR	21/2, 3; 31/21, 22, 23, 24; 34/31 33/12		Compacta Regalis	31/24
Cyprus			Mauna Loa	31/25
Denmark	25/4, 5; 33/24; 34/29, 31; 35/4; 36/16, 17, 18, 21; 37/26, 27, 29, 30, 31 43/46		Rubra	31/25
Estonia			Mutagens used	
FAO/IAEA	38/9; 41/14; 42/15; 43/18; 44/30		Gamma rays	31/24, 25
Finland	25/8		X-rays	31/24, 25
France	36/20; 37/26, 28, 29, 30, 31		Breeding objectives	
FRG	36/16, 17, 20, 21, 22; 37/28, 29, 30, 31		Leaf colour	31/24, 25
GDR	32/23, 24, 25, 26; 36/19, 20; 37/26, 27, 28		Leaf shape	31/24
Germany	39/2, 3; 43/46		Countries	
Greece	37/29		USA	31/24, 25
India	26/13; 32/25; 35/16; 36/17, 18, 19, 21		Humulus lupulus	
Iraq	34/12; 35/31; 43/46, 47, 48		Mutant varieties	
Japan	21/13; 35/35; 41/26		Crystal	43/48
Libya	36/3		Santiam	44/37
Norway	33/25		Ultra	44/37
Peru	43/48		Other mutants mentioned	
Poland	24/16; 38/9; 41/14; 42/15; 43/18; 44/30		Hallertauer mittelfrüh	43/48; 44/37
Russia	40/24; 41/26; 43/47		Other varieties mentioned	
			Saazer	44/37
			Tettenanger	44/37
			USDA 21381	43/48
			USDA 21381M	44/37
			USDA 21618M	44/37
			Mutagens used	
			Colchicine	43/48; 44/37
			Breeding objectives	
			Oil quality	44/37
			Vigour	43/48
			Yield	43/48; 44/37

Countries		Ornamental Quality	37/32
USA	43/48; 44/37	Winter hardiness	37/32
Hyacinth bean see <i>Dolichos lablab</i>		Countries	
		USSR	37/32
J			
Hyacinthus sp.		Japanese pear see <i>Pyrus pyrifolia</i>	
Mutagens used		Job's tears see <i>Coix lachryma-jobi</i>	
X-rays	34/31	Juglans regia	
Breeding objectives		Mutagens used	
Flower colour	34/31	Gamma rays	34/24
Countries		Breeding objectives	
The Netherlands	34/31	Fast growth	34/24
I			
Indian jujube see <i>Ziziphus mauritiana</i>		Countries	
		Ukrainian SSR	34/24
Ipomoea batatas		Jerusalem artichoke see <i>Helianthus tuberosus</i>	
Mutant varieties		Juncus effusus	
Yan-shu 759	33/25	Mutant varieties	
Yan-shu-781	33/25	Fukunami	31/25
Varieties treated		Seto-nami	21/13
15 varieties	43/21	Varieties treated	
Bhadrakalichuvala	43/21	Asanagi	21/13; 31/25
F ₁ Feng Shou-huang x Hong-hong 1	33/25	Mutagens used	
F ₁ hybrids	27/13	Gamma rays	21/13; 31/25
F ₁ Yan-shun 3 x Xu-shu 18	33/25	Breeding objectives	
Kanhangad local	43/21	Hard stem	31/25
Mutavella	43/21	Long culm	21/13
Mutagens used		<i>Rhizoctonia solanii</i> resistance	31/25
Fast neutrons	27/13; 33/25	Quality	21/13
Gamma rays	43/21	Yield	21/13; 31/25
Breeding objectives		Countries	
Black spot resistance	33/25	Japan	21/13; 31/25
Disease resistance	27/13	Jute see <i>Corchorus</i>	
Plant type	33/25	K	
Radiosensitivity test	43/21	Kalanchoe sp.	
Starch content	27/13; 33/25	Mutant varieties	
Short internodes	33/25	Flores	31/25
Yield	27/13; 33/25; 43/22	Lombok	31/25
Countries		Sumba	31/25
China	27/13; 33/25	Varieties treated	
India	43/22	Singapur	31/25
Iris sp.		Mutagens used	
Mutant varieties		X-rays	31/25
Belyi Karlik (white dwarf)	37/32	X-rays (<i>in vitro</i>)	24/14
Chistoe Pole	37/32	Breeding objectives	
Marina Raskova	37/32	Branching	31/25
Marshal Pokryshkin	37/32	Flower colour	24/14; 31/25
Podmoskownaya Osen	37/32	Flower shape	24/14; 31/25
Mutagens used		Growth habit	24/14; 31/25
Gamma rays	37/32		
Breeding objectives			
Disease resistance	37/32		
Easy propagation	37/32		

Leaf shape	24/14	Mutagens used	
Countries		EMS	28/21
FRG	24/15	Breeding objectives	
The Netherlands	31/25	Leaf size and shape	28/21
Kale see <i>Brassica oleracea</i> var. <i>acephala</i>		Flower colour	28/21
Khasianum see <i>Solanum khasianum</i>		Plant stature	28/21
<i>Kohleria</i> sp.		Mildew resistance	28/21
Other mutants mentioned		Cold tolerance	28/21
II-2-0	34/8	Drought tolerance	28/21
II-2-32	34/8	Sterile	28/21
Varieties treated		Countries	
II-2-0	34/8	USA	28/21
Trihybrid (<i>K. amabilis</i> x <i>K. bogotensis</i> x <i>K. eriantha</i>)	34/7	<i>Lantana depressa</i>	
Mutagens used		Mutant varieties	
NMH (<i>in vitro</i>)	34/7	Lantana depressa bicoloured	37/33
Breeding objectives		Lantana depressa variegata	31/25
Early flowering	34/8	Niharika	37/33
Internode length	34/8	Mutagens used	
Leaf characters	34/8	Gamma rays	31/25; 37/33
Countries		Breeding objectives	
Germany, FR.	34/8	Flower colour	37/33
L		Variegated leaf	31/25
<i>Lactuca sativa</i>		Countries	
Mutant varieties		India	31/25; 37/33
Blush	43/48	<i>Lathyrus sativus</i>	
Ice Cube	43/49	Mutant varieties	
Mini-Green	43/49	Poltavskaya 2	40/14
Novogodnii	41/27	Varieties treated	
Varieties treated		BINA Acc. No. 1	33/20
81-1251-C-18-2 (F ₃)	43/48, 49	LSD 6	33/9
Moskovskii parnik	41/27	S 220	33/9
Mutagens used		Mutagens used	
EI	41/27	ENH	40/14
EMS	28/7; 43/48, 49	EMS	33/9
Breeding objectives		Gamma rays	33/9
Chlorophyll mutants	28/7	NMH	33/9
Dwarfness	43/48, 49	Sodium azide	33/20
Early flowering	28/7	Breeding objectives	
Leaf shape mutants	28/7	Disease resistance	40/14
Photosynthesis	41/27	Drought resistance	40/14
Vitamin C content	41/27	Insect resistance	40/14
Yield	41/27	Leaf colour	33/9
Countries		Morphological mutants	33/9, 20
USA	28/7; 43/48, 49	Countries	
USSR	41/27	Bangladesh	33/20
<i>Lagerstroemia indica</i>		USSR	40/14
Mutant varieties		Lemon see <i>Citrus limon</i>	
Centennial Spirit	28/21	Lentil see <i>Lens culinaris</i>	
Prairie Lace	28/21	<i>Lens culinaris</i>	
		Mutant varieties	
		Mutant 17 MM	44/37
		Other mutants mentioned	
		SKL 2659	21/5
		HR 73-76	21/5
		HR 32-35	21/5

HR 28-31	21/5		
RPL-1	32/11		
Varieties treated			
LL-78	32/11; 34/9		
Mutagens used			
EMS	35/26		
Gamma rays	32/11; 34/9; 44/37		
Sodium azide	35/26		
Breeding objectives			
Dwarf stature	32/11		
Earliness	21/5		
Late flowering	35/26		
Male sterility	34/9		
Pod size	44/37		
Seed size	44/37		
<i>Uromyces fabae</i> resistance	21/9		
Yield	21/5; 35/26		
Countries			
Bangladesh	35/26		
Bulgaria	44/37		
India	21/6; 32/11; 34/10		
Chile	21/9		
<i>Lepidium sativum</i>			
Mutant varieties			
Vest (News)	31/26		
Varieties treated			
Uzkolistnyi	31/26		
Mutagens used			
Electrons	31/26		
Breeding objectives			
Plasticity	31/26		
Quality	31/26		
Countries			
USSR	31/26		
Lettuce see <i>Lactuca sativa</i>			
Lily see <i>Lilium</i>			
<i>Lilium</i> sp.			
Mutant varieties			
Mies Bouwman	37/33		
TX 68-1	37/33		
Varieties treated			
Tabasco	37/33		
Mutagens used			
X-rays	37/33		
Breeding objectives			
Flower colour	37/33		
Forcing qualities	37/33		
Countries			
The Netherlands	37/33		
Linseed see <i>Linum usitatissimum</i>			
<i>Linum usitatissimum</i>			
Mutant varieties			
Baltyuchai	41/27		
Hei Ya No. 4 (Heiyi No. 4)	29/21; 33/5		
Heiya No. 6	32/26		
Linola 989	44/38		
M-5	41/27		
Ning Ya No. 10	29/21		
Zarya 87	31/26		
Other mutants mentioned			
γ-67-1-681	29/21; 33/5		
γ-67-681	33/6		
γ-7015-4	33/6		
M1589	30/11		
M1722	30/11		
r7107-2-4	32/26		
r7005-21-6-6	32/26		
Zero	44/38		
Varieties treated			
Bionda	35/9		
Glenleg	44/38		
LD142 x Complex	31/26		
Orshanskii 2	41/27		
Raulinus	35/9		
Vipegantas	41/27		
Yan Za No. 10	29/21		
Other varieties mentioned			
6409-640	29/21; 33/4		
CPI84495	44/38		
McGregor	44/38		
Mutagens used			
DMS	41/27		
EI	31/26		
EMS	35/9		
ENH (NMH)	41/27		
Gamma rays	29/21; 32/26		
Breeding objectives			
Alkali resistance	29/21; 32/26		
Branching	29/21		
Damp tolerance	29/21		
Disease resistance	32/26; 33/5; 41/27		
Drought tolerance	33/5		
Early maturing	29/21		
Fibre quality	33/5, 6		
Fatty acid composition	35/9		
Late flowering	31/26		
Linoleic acid content	30/11		
Lodging resistance	29/21; 32/26; 33/5; 41/27		
Oil quality	44/38		
Quality	29/21		
Salt tolerance	29/21; 32/26; 33/5, 6		
Yield	29/21; 31/26; 32/26; 33/5		
Countries			
Australia	30/11		

Canada	44/38	Yield	31/27; 40/15
China	29/21; 32/26;	Countries	
	33/6	USSR	31/26, 27;
FRG	35/9		40/15
USSR	31/26; 41/27		
Loquat see <i>Eriobotrya japonica</i>			
<i>Luffa acutangula</i>		<i>Lupinus angustifolius</i>	
Mutant varieties		Mutant varieties	
PKM-1	32/26	Bar	41/27
Varieties treated		Other mutants mentioned	
H.160	32/26	Mutant 1	41/27
Mutagens used		Varieties treated	
Gamma rays	32/26	Turkus	41/27
Breeding objectives		Other varieties mentioned	
Friut fly tolerance	32/26	1.456/76/78	
Leaf spot disease tolerance	32/26	Mutagens used	
Pumpkin beetles tolerance	32/26	MNH (NMH) = (MNU)	41/27
Yield	32/26	Breeding objectives	
Countries		Earliness	41/27
India	32/26	Self-completing	35/7
		Unbranched	35/7
		Uniform maturing	41/27
		Countries	
		Poland	35/7; 41/27
<i>Lupinus albus</i>			
Mutant varieties		<i>Lupinus luteus</i>	
Druzhba	31/26	Mutant varieties	
Olezhka	40/14	Kopilovskii	31/27
Pichevoy	31/26	Martin 2	31/27
Sinii parus	40/15	Narochanskii	31/27
Slavutich	40/15	Other mutants mentioned	
Solnechnyi	40/15	WTD 585	35/7
Start	31/27	Varieties treated	
Ukrainskii	40/15	R 6025	31/27
Vympel	40/15	Other varieties mentioned	
Other mutants mentioned		Niko	31/27
M-70VA	40/15	Mutagens used	
VI-M-70-S	40/15	Gamma rays	31/27
Varieties treated		Breeding objectives	
Kievskii mutant	40/14	Disease resistance	31/27
Pishochovoi	40/15	Earliness	31/27
Rannespelyi 31 uluchshen	40/15	Fodder quality	31/27
White 7	31/27	Fusarium resistance	31/27
Mutagens used		Self completing	35/7
Chemical mutagens	31/26; 40/15	Unbranched type	35/7
DMS	40/15	Yield	31/27
EI	40/15	Countries	
EMS	31/26	Poland	35/7
ENH	40/14	USSR	31/27
Gamma rays	31/27		
MNH	40/14, 15	<i>Lycopersicon esculentum</i>	
Breeding objectives		Mutant varieties	
Alkaloid content	40/14, 15	Bahar	42/28
Disease resistance	31/27; 40/15	Co.3 (Marudham)	28/13; 29/23
Earliness	40/14, 15	Kagyoku	32/27
Early maturity	31/27	Kyoryoku-ogata-reikou	32/26
Insect resistance	40/15	Kyoryoku-reikou	21/14
Lodging resistance	40/15	PKM-1	32/27
Plasticity	31/27	Ranii Nush	31/27
Protein content	40/15	Ryuugyoku	32/27

Other mutants mentioned		Yield	23/11; 31/27; 32/27; 41/12
Anobik	23/11; 42/28	Countries	
Chuukan-bohon Nou 4	32/27	Bangladesh	23/12; 42/28
Chuukan-bohon Nou 5	32/27	Bulgaria	23/7
D(10)	23/11	India	22/17; 28/14; 29/23; 32/27; 41/12
E(6)	23/11	Japan	21/14; 32/26, 27
IRB301-31	32/26	The Netherlands	35/14
Mutant 12/13	23/7	USSR	31/27
Mutant 12/14	23/7	Other information	
Mutant 12/6-17	23/7	<i>In vitro</i> cultures	22/14; 35/14
Mutant 43/10	23/7	<i>In vitro</i> selection	35/14
Mutant 77	23/7		
Mutant 95/9	23/7	<i>Lycopersicon</i> sp.	
Varieties treated		Other mutants mentioned	
Annanj	32/27	Line 108059/3 (GP-5)	29/10; 32/13
Araks 322	31/27	Line 108059/13 (GP-6)	29/10; 32/13
Co.1 (Co 1)	28/13; 29/23	Line 108059/15 (GP-7)	29/10; 32/13
XXIV ^a	23/7	Line 108-59/5 (GP-9)	29/10; 32/13
Oxheart	42/28	Line 108059/12 (GP-10)	29/10; 32/13
Pusa Ruby	41/12	Line 108059/10 (GP-11)	29/11; 32/13
Other varieties mentioned		Line 108059/17 (GP-12)	29/11; 32/13
Anahu	32/26	Line 108059/1-4 (GP-18)	29/11; 32/13
Chuukan-bohon Nou 3	32/27	Line 112140/2-1 (GP-3)	29/11; 32/13
Ichihara	32/26	Varieties treated	
Sekaiichi	32/26	<i>Lycopersion peruvianum</i>	21/14; 32/26, 27
Shugyoku	21/14	Currant tomato, Vir sample	29/9
Oxheart	23/11; 42/28	No. k-4053	
Mutagens used		Other varieties mentioned	
EI + gamma rays	31/27	Lebyzhinskij	32/12
EMS	28/13; 29/23; 41/12	Mutagens used	
Gamma rays	21/14; 23/7, 11; 32/27; 41/12	Gamma rays	29/9; 32/12
MNU (MNH)	41/12	Breeding objectives	
MNU (<i>in vitro</i>)	35/14	Agronomic characters	29/9
Breeding objectives		Fruit dry matter	32/13
Aluminium tolerance	22/14	Fruit quality	32/13
Determinate growth habit	23/7, 11; 28/13; 29/23; 32/27; 42/28	Multiple disease resistance	32/26, 27
Dwarfness	23/11; 28/13; 29/23	Countries	
Earliness	31/27	Japan	32/26, 27
Early maturity	41/12	USSR	29/12; 32/14
Fruit characters	28/13; 29/23		
Fruit number	42/28	M	
Fruit quality	42/28	Maize see <i>Zea mays</i>	
High content of soluble dry matter	23/7	<i>Macrotyloma uniflorum</i>	
Large fruit	23/7	Varieties treated	
Lateral supressor	23/7	CO 1	37/7
Lodging resistance	23/11	Kurungkollu	37/7
Multiple disease resistance	32/26, 27	Mutagens used	
Semi-dwarfness	23/7	Gamma rays	37/7
Streptomycin resistance	35/14	Breeding objectives	
TMV resistance	21/14, 23/12	Yield	37/7
Vitamin C content	28/13; 29/23	Countries	
Wilt resistance	21/14; 23/12	India	37/7

Macadamia nut see *Macadamia***Macadamia sp.**

Mutagens used	
UV (pollen)	42/15
Breeding objectives	
Dwarf rootsock	42/15
Countries	
Australia	42/17

Malus pumila

Mutant varieties	
Courtagold	30/22
Courtavel	30/22
Senbatsu-Fuji-2-Kei	37/33
Other mutants mentioned	
177 I-4	26/11
128	26/11
177-E-7	26/11
177 N-4	26/11
177 O-7	26/11
Varieties treated	
Fuji	37/33
Golden Spur	30/22
McIntosh	26/11
Starking delicious	30/22
Mutagens used	
Gamma rays	26/11; 30/22; 37/33
Breeding objectives	
Compact growth	26/11
Fruit colour	26/11; 37/33
Quality	37/33
Storability	26/11
Short internodes	30/22
Tree size reduction	30/22
Countries	
Czechoslovakia	26/11
France	30/22
Japan	37/33

Malus sp.

Mutant varieties	
Golden Haidegg	31/28; 32/1
Hongju No. 4	27/15
Shamrock (8C-1-15)	31/28
Other mutants mentioned	
clone 9-12-1	
Mc Intosh clone 10 C-8-43-1	
Varieties treated	
Cepiland	35/10
Fuji	27/15
Gala	35/10
Golden Delicious	31/28; 32/1; 35/10
Granny Smith	35/10
Lancep	35/10
Mark	35/10
Novole	35/10

Xoushuei	27/15
Xuegan	27/15
Other varieties mentioned	
Belgolden	32/2
Charden	32/2
Cloden	32/2
Golden 1972	32/2
Golden Delicious strain	31/28
'Starkspur'	
Golden Missouri	32/2
Golden Shay	32/2
Lysogolden	32/2
Mutsu	32/2
Smoothe	32/2
Mutagens used	
Fast neutrons	27/15
Gamma rays	27/15; 31/28; 32/1
Microwave	27/15
Radiation	31/28
Somaclonal variation	35/10
Breeding objectives	
Cold storability	31/28; 32/2
Earliness	31/28
Fruit colour	27/15; 31/28; 32/2
Fruit size	31/28; 32/2
Growth habit	31/28; 32/2
Non-russeting	31/28; 32/2
Smoot sheen fruit	31/28; 32/2
Taste	31/28; 32/2
Texture	31/28; 32/2
Uniform fruit maturing	31/28
Countries	
Austria	31/28; 32/2
Canada	31/28
China	27/15
France	35/10
Other	
<i>In vitro</i> culture	35/10

Manihot esculenta

Mutant varieties	
Tekbankye	44/38
Varieties treated	
H-165	30/18
H-2304	30/18
Isunikakiyan	44/38
Malayan 4 (M4)	30/18; 37/9
Mutagens used	
Gamma rays	30/18; 37/9; 44/38
Gamma rays (<i>in vitro</i>)	30/18
Breeding objectives	
Branching	30/18
Chlorophyll content	30/18; 37/11
Cooking quality	44/38
Dry matter content	37/11
Early flowering	30/18

Leaf colour	37/11	USA	36/14; 39/3
Leaf size and shape	30/18, 37/11		
Morphological characters	37/9	Millet see <i>Panicum miliaceum</i> or	
Petiole size	30/18; 37/11	Setaria	
Tuber characters	37/11	Mint see <i>Mentha arvensis</i>	
Vigour	44/38	Momordica charantia	
Countries		Mutant varieties	
FAO/IAEA	30/19	MDU 1	32/27
Ghana	44/38	Varieties treated	
India	30/18; 37/11	MC 103	32/27
Mat rush see <i>Juncus effusus</i>		Mutagens used	
Matricaria chamomilla		Gamma rays	32/27
Mutant varieties		Breeding objectives	
Podmoskovnaya	41/27	Fruit colour	32/27
Mutagens used		Fruit fly tolerance	32/27
Colchicine	41/27	Leaf spot disease tolerance	32/27
Breeding objectives		Pumpkin beetle tolerance	32/27
Disease resistance	41/27	Countries	
Lodging resistance	41/27	India	32/27
Ploidy level	41/27	Morus alba	
Countries		Mutant varieties	
USSR	41/27	7681	33/25
Meadow fescue see <i>Festuca</i>		S54	33/25
pratensis		Varieties treated	
Medicago sativa		Berhampore	33/25
Varieties treated		F ₁ Cangxi 49 x Yu 2	33/25
Augune II	34/25	Other varieties mentioned	
Mutagens used		Kanva 2	33/25
DMS	34/25	Mutagens used	
EI	34/25	EMS	33/25
EMS	34/25	Gamma rays (gamma field)	37/7
NMH	34/25	N ₂ laser	33/25
Breeding objectives		Breeding objectives	
Saponin level	34/25	Drought tolerance	33/25
Self-fertility	34/25	Leaf quality	33/25
Countries		Leaf yield	33/25
Lithuanian SSR	34/25	Mulberry bacterial blight	33/25; 37/7
Mentha arvensis		resistance	
Mutant varieties		Countries	
Murray Mitcham	36/13; 39/3	Cina	33/25
TN-8	44/38	India	33/25
Todd's Mitcham	36/13; 39/3	Japan	37/8
Varieties treated		Mulberry see <i>Morus alba</i>	
NV-74	44/38	Mungbean see <i>Vigna radiata</i>	
Regular Mitcham	36/13	Musa sp.	
Mutagens used		Mutant varieties	
Gamma rays	44/38	Klue Tom Thong KU1	35/36
Thermal neutrons	36/13	Novaria	44/38
Breeding objectives		Other mutants mentioned	
Disease resistance	44/38	FATOM-1	40/5, 6
Oil quality	44/38	FC GN #1	40/3
Pest resistance	44/38	FC GN #2	40/3
<i>Verticillium</i> resistance	36/13; 39/3	GN-60A	40/2, 4, 5
Countries		Varieties treated	
Vietnam	44/38		

Agbagba	40/4	American 307	41/27
Burro CEMSA	40/4	Baghdad-V77	43/49
Dwarf Parfitt	40/4	GSH-3	30/22
Grand Nain (Grand Naine)	40/2, 4, 5; 44/38	KY 907	43/49
Hom Thong	35/36	Sumar-V48	43/49
Maca	36/12; 41/16	Virginia 0454	32/27
Nanicao	41/16	Other mutants mentioned	
Paradiso al Rei	40/4	B14-7kR	43/33
Pisang Mas	40/4	B20-10kR	43/33
Pisang Rastali	40/4	B3-5kR	43/33
SH-3142	40/2	Krupolystnyi B-3	41/27
SH-3362	40/2, 5	LTH	30/22
SH-3436	40/2	M4	30/22
Williams	40/4	Mutant line 825	32/27
Other varieties mentioned		TI 1406	43/49
Williams	40/6	Varieties treated	
Mutagens used		Black Plantlet	27/15
Colchicine (<i>in vitro</i>)	40/5	Bursa-18000	43/33
EMS (<i>in vitro</i>)	35/13; 40/2	Quiaochung	27/15
Gamma rays	36/12; 44/38	Small Golden Leaf	27/15
Gamma rays (<i>in vitro</i>)	35/13, 36; 36/12; 40/2, 4, 5	Vargini	43/49
Breeding objectives		Xiangyin No. 1	27/15
Cold tolerance	40/4	Other varieties mentioned	
Earliness	44/38	290 A	43/49
Early flowering	40/2, 4, 5	Burley 49	43/49
Early fruiting	40/2, 4	Coker 347	32/27
Esterase isozyme changes	40/2, 5	CTR1 Special	30/22
Fruit quality	40/3; 44/38	Dubek 44	41/27
<i>Fusarium oxysporum</i> f. sp. <i>cubens</i> resistance	36/12, 13	EX4	43/49
<i>Fusarium</i> wilt (race 4) resistance	40/4	KY 10	43/49
Larger bundle	35/36	KY 15	43/49
Larger plant		KY 16	43/49
Phenotypic variation	35/13	KY 17	43/49
Radiosensitivity (<i>in vitro</i>)	35/13, 36/13	TN 86	43/49
Shorter plant	40/4	Mutagens used	
Soluble protein composition	40/2, 5	5BUdR (<i>in vitro</i>)	22/13
Tetraploidy	40/5	EMS (<i>in vitro</i>)	22/13
Yield	40/4	Gamma rays	43/33, 49
Countries		<i>In vitro</i> culture	27/12
Brazil	36/12, 13; 41/18	Irradiation (anther culture)	27/15
FAO/IAEA	35/13; 40/3	MNNG (<i>in vitro</i>)	22/13
Malaysia	40/6; 44/38	MNU	35/15
Quinsland	40/5	MNU (<i>in vitro</i>)	22/13
Thailand	35/36	NEU (<i>in vitro</i>)	22/13
Other information		Neutrons	30/22
<i>In vitro</i> cultures	35/13; 36/13; 40/2, 4; 41/16	TCNH (taurine-chloroethyl- nitrosourea)	35/15
RAPD analysis	40/2, 5	UV (<i>in vitro</i>)	22/13
		X-rays (<i>in vitro</i>)	22/13; 38/13
		Breeding objectives	
		Adaptation	43/49
		Biochemical mutants	22/13
		Blue mould (<i>Peronospora</i> <i>tabacina</i>) resistance	43/33
		Cytoplasmic male sterility	38/13
		Disease resistance	43/49
		DNA repair studies	35/15
		<i>Eryshiphe cichoracearum</i>	32/27

N

Nicotiana tabacum

Mutant varieties

tolerance	
Leaf colour	41/27
Leaf size	43/49
<i>Peronospora tabacina</i>	32/27
resistance	
<i>Phytophthora parasitica</i> var.	27/15
nicotiana resistance	
Potato virus Y resistance	32/27
Quality	30/22
Salt tolerance	27/12
<i>Thielaviopsis basicola</i>	32/27
tolerance	
Vigour	43/49
Yield	30/22; 43/49
Countries	
Bulgaria	32/27
China	27/12, 15
CSSR	35/15
India	22/17; 30/22
Iraq	43/49
Japan	38/13
Turkey	43/34
UK	35/15
USA	43/49
USSR	41/27
Other information	
Unequal cell fusion	38/13

O

Oat see *Avena sativa*

Okra see *Abelmoschus esculentus*

Onion see *Allium cepa*

Onobrychis viciifolia

Mutant varieties	
Kirovogradskij 13	31/28
Krasnodarskii 84	41/27
Varieties treated	
Krasnodarskii 2834	41/27
Peschanyj 1251	31/28
Mutagens used	
Chemical mutagen	41/27
MNU	31/28
Breeding objectives	
Green mass	31/28
Hay yield	31/28
Yield	41/27
Countries	
USSR	31/28; 41/27

Opium poppy see *Papaver somniferum*

Orange see *Citrus*

Oriental mustard see *Brassica*

juncea

Ornithopus compressus

Other mutants mentioned	
WTD-8008	28/18
Varieties treated	
Mazurska Biala	28/16
Other varieties mentioned	
Bydgoska	28/17
Lacerta	28/17
KOB-4189	28/17
Warta	28/17
Mutagens used	
EMS	28/16
Breeding objectives	
Bunchy plant type	28/16
Erectoides	28/16
Stem and branch number	28/18
Countries	
Poland	28/18

Oryza glaberrima

Varieties treated	
127/d	37/15
Mutagens used	
Gamma rays	37/15
Breeding objectives	
Avoidance of chimerism	37/15
Countries	
India	37/16
Other information	
<i>In vitro</i> culture	37/15

Oryza sativa

Mutant varieties	
2205	27/6
652	30/25
6B (6 B)	29/4; 31/30
7201	27/3
7404	31/30
7738	25/15
8013	27/2
A-20	42/28
A-201	44/38
Aichinokaori	42/29
Aifu No. 9	25/12; 27/3
Ailiutiaohong	37/34
Akichikara	32/28
Akihikari	21/16; 32/28
Amber-Baghdad	43/49
Amber-Furat	43/50
Amber-Manathera	43/50
Atomita 1	21/6,7,15; 25/7
Atomita 3	42/29
Atomita 4	42/29
Atomita-2 (627-5PsJ)	23/18; 25/7, 15; 29/4; 31/30

Au-1	29/23	Fuzhu	25/15
Aya	42/29	Fuzao No. 2	25/13; 43/3, 5
B-fu-1	29/15, 23	Gangai A/ Fuhai 06 (hybrid)	35/37
Binadhan 6	44/38	Ginnosei	42/30
Binasail	31/29	Guangdabai	25/15
Bioryza	35/5	Guangfu No. 1	25/16
Biraj (CNM 539)	29/24	Guifu No. 3	25/14
BPI Ri 10	42/29	H-4 dwarf mutant (Kota H-4)	23/5
Calmochi 101	28/22; 34/22; 36/13; 44/40	Hanahikari	21/14
Calmochi 201	25/15	Hangfeng	30/23
Calmochi 202	25/15	Hari (TR-RNR-21)	33/17; 34/31
Calpearl	23/18; 29/14; 36/13; 44/40	Hatsukogane	32/28
Calrose 76	23/18; 25/15; 29/13; 30/12, 13; 34/22; 42/32	Hatsuyume	35/22
Camago-8	43/50	Heiseimochi	42/30
Ce 48	27/3	Hirohikari	42/30
Chenzao No. 5	30/23	Hongmeizao	43/3, 5
Chuukan-bohon Nou-13	42/29	Hongnan	25/16
Chuukan-bohon Nou-14	42/29	Hongtu 31	31/29
Cilosari	44/39	Hokuriku 100	33/32; 42/31
Daisenminori	35/36	Houhai	21/16
Dalris 11	31/29	HPU 8020 (IET 5878)	29/24
Danau atas	35/36	Hu 2205	41/28
DB-2	42/29	Huangpiai	25/12
DB 250	30/23	HUR-36	42/30
DCM-1	42/29	Hyokei-sake 18	21/14, 15, 16
Dellmont	43/50	Ibuki-wase	32/28
Domannaka	42/29	Ikungbau 4-2	37/34
Dongting No. 3	21/14	Indira	29/24
DT-10	42/30	Intan Mutant	35/37
DT-11	43/50	IR 36	44/39
Er Jiu Feng (Erjiufeng) = (Erjiufong)	27/3; 30/23; 43/3, 5	IRAT 101 (M55)	33/27
Erfuzao	25/12	IRAT 104	34/32
Fu 709	25/13	IRAT 109	37/34
Fu 774	37/34	IRAT 110	37/34
Fu 78-12 ²	37/36	IRAT 112	34/32; 37/35
Fu Gui No. 1	27/5	IRAT 113	33/27
Fuchuerai	37/34, 35	IRAT 114	33/27
Fuhui 06	35/37	IRAT 115	33/27
Fukei 102	32/27, 28	IRAT 116	33/27
Fukei 104	42/32	IRAT 117	33/27
Fukei 70	21/14	IRAT 13	34/32; 35/37, 38; 37/34, 35
Fulianai	25/12; 43/3, 5	IRAT 133	35/37
Fu-no 101	33/26	IRAT 134	35/37
Funo 402	35/37	IRAT 136	37/34
Funong 709	35/39	IRAT 144	34/32
Fushe 31	25/12	IRAT 146	35/38
Fushe 94	25/13	IRAT 147	37/35
Fushenongken 58	29/24	IRAT 161	37/35
Fuxian 6 (Radiation 83-29)	37/34	IRAT 170	34/32
Fuwan 23	25/14	IRAT 177	34/32
Fuxuan 124	25/13	IRAT 191 (IREM 191)	33/28
Fuxuan No. 3	25/13	IRAT 192 (IREM 192)	33/28
		IRAT 193 (IREM 193)	33/28
		IRAT 194 (IREM 194)	33/28
		IRAT 195 (IREM 195)	33/28
		IRAT 196 (IREM 196)	33/29
		IRAT 213	37/35

IRAT 214	37/35	M-102	32/28; 36/13
IRAT 216 (IDSA 6)	34/32	M-103	36/13
IRAT 239 (IREM 779)	33/29	M112	27/3, 4
IRAT 240 (IRAEM 950)	33/29	M114	25/16
IRAT 241 (IREM 73-2)	33/29	M-202 (PI 494105)	28/21; 34/22; 36/13
IRAT 242 (IREM 575-1)	33/29	M-203 (86-Y-35)	37/35
IRAT 243 (IREM 15-2)	33/29	M-204	43/51
IRAT 244 (IREM 12-5)	33/29	M-302	25/15
IRAT 245 (IREM 431-1-1)	33/30	M-401	36/13; 37/35
IRAT 246 (IREM 346-3)	33/30	Malysh	40/15
IRAT 247 (IREM 75-1)	33/30	Marathon (Mara 136)	30/23
IRAT 248 (IREM 2-1)	33/30	Marjan	31/29
IRAT 249 (IREM 123-2-2)	33/30	Matsukaori	21/16
IRAT 250 (IREM 52-1)	33/30	Matsukomachi	21/16
IRAT 251 (IREM 297-3)	33/31	Megumi-mochi	32/27
IRAT 252 (IREM 46-4)	33/31	MI-273(m)	29/25
IRAT 253 (IREM 50-2)	33/31	Mercury	35/38; 44/39
IRAT 254 (IREM 53-2)	33/31	Miyamanishiki	42/30
IRAT 255 (IREM 35/2)	33/31	Mineasahi	32/28
IRAT 256 (IREM 46-2)	33/31	Minesaki	21/15
IRAT 257 (IREM 41-1-3)	33/31	Minnuo 706	35/38
IRAT 258 (IREM 41-1-4)	33/32	Minyuan 1	35/39
IRAT 268	37/35	Mohan	37/35
IRAT 269	37/35	MT-4	42/31
IRAT 320	37/35	MT-6	43/51
IRAT 4 (IRAT 51)	33/26	MTU-17	42/32
IRAT 5 (IRAT 52)	33/26	Musashikogane	21/16
IRAT 78 (M18)	33/26	Mutant 428	40/15
IRAT 79 (M45)	33/26; 34/32	Mutashali	30/23
IRATOM 24 (Iratom 24)	21/7; 29/24; 44/38	Mutsuhomare	32/28
IRATOM 38	21/7	Nadahikari	21/15
IRI 307	44/39	Niigatawase	21/15
ITA 123	42/30, 31	Nijihikari	42/31
ITA 235	42/30	NN 22-98	30/23
ITA 314	42/31	Norin PL 12	42/31
Jagannath	29/12, 24, 25; 34/21	Nucus 2	40/15
Jiasifu	25/13	Oltanita	44/39
Jiguang No. 4	31/30	Oryzella	30/24
Jinfu No. 8	25/12	Padmini	37/35
Jinfu No.1	25/12	PL-56	29/25
Jingnou No. 6	31/29	Prabhavati (PBN-1)	28/1; 29/25
Juangyebai	25/14	Pusa-NR-162	42/31
Jwate 21	35/38	Pusa-NR-166	42/31
K84	29/24	Pusa-NR-381	42/31
Kanto 79	42/29	Pusa-NR-519	42/32
Katsurawase	21/15	Pusa-NR-550-1-2 (JD-8)	44/39
Kefuhong No. 2	25/16	Pusa-NR-551-4-20 (JD-6)	44/39
Kemei	43/3, 5	Pusa-NR-555-28 (JD-10)	44/40
Keshari	29/24	Pusa-NR-555-5 (JD-3)	42/32; 44/40
Khao Jao Hawm Pitasanulok 1	44/39	Pusa-NR-570-17	42/32
Kinuhikari	42/31	Pusa-NR-571	44/40
Koihime	42/31	Pygmalion	35/39
Kunihikari	33/32	Qikesui	30/24
Lafitte	44/39	Qing-Hua-Ai No. 6 (Qinghuaai 6)	27/5; 37/35, 37
Liaoyan	41/28	Qing Wei No. 1 (Qingwei No. 1)	27/6; 37/36
M-101	32/28; 34/22		

Qiufu No. 1	31/29	Weiyuoji	31/30
R 462	30/24	Xiang-Fu 81-10	27/4
R817 (R 817)	30/1; 31/30	Xiangfu 81-10 (Xiangzaoluo 1)	30/25
Radiation 85-63	37/36	Xiangfudao	25/14
Radiation 9-1	37/36	Xianghu 24	35/39
Rasmi (PTB 44)	30/24	Xiaofuzao	25/13
Reimei	21/14, 16, 17; 30/23; 42/30, 31, 33	Xindao No. 1	31/30
Rokkonishiki	21/16	Xiongyue 613	25/11
Sachiminori	21/15	Xiushui 48	35/39
S-101	36/13	Yanzhengfu	37/37
S-102		Yeng-Hsing-1	29/25
S-201	34/22; 36/13	Yeng-Hsing-2	29/25
S2-Calpearl	37/36	Yuan Fengzao (Yuanfenzao) =	27/2, 3;
S-301	42/32	Yuangfenzao	30/23; 34/8; 43/3
Salir	30/24	Yumeminori	42/33
Sattari (CRM 13-3241)	29/25	Yifunuo No.1	25/13
Savitri (Ponmani) (CR 210-1009)	29/25	Zhefu 218	43/3, 4, 5
Shadab (IR 6-18)	30/24; 43/35	Zhefu 762	43/3, 4, 5
Shanghai Fragrant Japonica Rice 832	35/39	Zhefu 802	25/15; 26/2; 27/2, 4; 30/25; 43/3, 4, 5
Shanghai Fragrant Blood Glutinous Rice 861	35/39	Zhefu No. 7 Zhefu 7)	43/3, 4, 5, 51
Shinanosakigake	21/17	Zhefu No. 9	43/3, 4, 5
Shirakabanishiki	21/17	Zhenfu No. 1	25/13
Short Mars	35/38	Zhengguang No.1	25/14
Shua 92	42/32; 43/35	Zhongbao No. 2	25/14
Shuangchengnuo	25/15	Zhongtie	30/25
Shuangchiang 30-21 (SH-30-21)	30/24	Zhongtie 31	27/4
Shuangke No. 1	25/16; 43/3, 5	Zhu-Bao 384	27/5
Shuiyaa	27/2	Zhuyin C6965	37/34
Sifu 851	30/25	Zlotistyi	40/15
Simei No. 2	43/3, 4, 5	Other mutants mentioned	
Suifu 17	25/15	409 MU 15	28/6
Suzutakara	42/32	410 MU 28	28/6
Taifu No. 4	30/25	410 MU 30	28/6
Tang Er Nian (Tangernian)	27/6; 37/36	44-1086	43/3, 5
T131	27/3	54257	35/24
T151	27/3	627/10-3PsJ	25/7
Tori Kei 4	35/26	627/4/214-PsJ	21/6
Tottori-4	42/31	627/4-E/PsJ	25/7
Tsugaruotome	42/32	7056	35/38
UNP 9027	43/51	83-E 26	27/7
Valencia	36/13	A227/2/PsJ	25/7
Valencia 87	37/37	A227/3/PsJ	25/7
Vellayani	29/25	A227/5/PsJ	25/7
VN 10	29/4, 26	A5	
VN 20	29/4; 26	BE3-37-5	42/29
VN 4	29/4, 25	Boo 37	27/3
VND95-26	44/40	BPI 121-407	42/29
Wandao 23	43/3, 5	BU 79	30/17
Wanfu 33	25/14	C2-13	29/25
Wanhua	37/37	Calpearl S-1	29/14
Wangeng 257	25/14	Calpearl S-2	29/14
Wei A/Jiguang 4 (hybrid)	32/28	CICA 8 MU 37	28/7
		CICA 8 MU 53	28/6

CNM-RDP-35	29/12	M202	34/10
CNM-RDP-50	29/12	M207	34/10
CR 1010	29/12	M210	34/10
CR 1017	29/12	M41	35/21
CR 1018	29/12	M57	35/21
CRM 42 – CRM 54	44/23	M6	34/10
CRM 49	44/24	M7 (M-7)	28/22; 30/12, 13; 34/22;
CRM 51	44/24		43/51
CRM 53	44/24	MI-273 (m)	23/4,5
CRM 58	44/23	Mut 1-1	21/7
D7	29/13	Mut 1-2	21/7
D51	25/15	Mutant 17	44/40
Dan Fu Hei Nuo	27/3	Mutant of IR8	25/13, 16
Della X2	43/50	MW-10 mutant	42/32; 44/40
Dular mutant	42/32; 44/39, 40	N-20	42/28
FG-19	24/5	N-22 mut.	42/32; 44/39
Fu-06	27/6	N-30	42/28
Fu8238	27/3	NFD 137-127-3	29/14
Fu 9 Cong Shen	43/3, 5	NFD 137-127-4	29/14
Fukei 104	21/16	NFD 137-131-2	29/14
Fukei 71	21/15	NFD 137-131-3	29/14
Fukei 91	21/15	NM 391	42/29
Ginbozu dwarf	35/19	Nong Shi 4	27/3
Gora mut.	42/32	NS 1	26/9
Hong Tu31	27/3	NS2	23/10
Hokuriku 100	35/19	PBN1	28/1
IM-106	21/14	PI 457920	44/39
IR8-FG-26	24/5	PSBG-1	40/8
IR8-FG-33	24/5	R-16	29/14
IR-8 mut.	42/31	R-31	29/14
IRAT 115	31/6	R-34	29/14
IRAT 13	28/11, 31/6	R ₄ -B	21/15
IRAT 78, 79, 101, 113-117, 191-196, 239, 240, 241-249, 250-256, 257, 258	28/11	R462	27/5
IRAT 177	31/6	R813	27/3
IRAT 194	31/6	R8113	27/5
IRAT 250	31/6	SCC-1	40/8
IRAT 257	31/6	SH-30-21	29/25
IRm6	22/8	Sd mutant of OS-6	42/30
Jaya mut.	42/31	SM 268/PsJ	44/39
Jiguang 4	32/28	Suweon 290E	43/3, 5
Jm ₁	34/14	Tainan-3 mutant	42/31, 32; 44/40
Jm ₄	34/14	Tamakei 56	21/16
JJ _{1.4}	34/14	TC-2	35/23
Kanto 79	21/15	TR-5 (TR5)	33/16; 34/31
Karlyk Shylovskogo	40/15	TR-RNR-21	33/16
Kefuzao	25/16; 43/3, 5	W25	43/15
KT 20-74	29/25	W404	27/3
LA29-73-NFU-14-3-1-1	44/39	Xiang Jing Nuo	27/3
M 312 A	31/6; 34/32	Zhefu 219	43/5
M 327 A	31/6	Zhefu 37	43/5
M-101	28/21, 22	Zhefu 504	43/4
M102	34/10	Zhefu Lian Zhu Yu Xian	43/4, 5
M107	34/10	Zhu-yin C6969	27/5
M111	34/10	Varieties treated	
M2	34/10	129 x Ewan No. 3	30/25
		2004	25/15

501 Xuan	27/5; 30/24	F ₉ TB ₁ x IR 22	30/23
5450 x Yinnisuitiangu	25/16	Fukei 71	35/20
627/10-3/PsJ	42/29	Fuxuan No.1	25/13
63-83	28/11	Gimbosu (Gimbozu)	35/17, 21
72-10	25/14	Ginbozu	35/19
8004	37/36	Godavari isuka	24/5
Ai Shang Nuo	30/1	Gottelu	24/5
Ai Tang Zhu x IR24	27/6	Guangbeiguang	25/15
Aijing No. 23	27/5	Guangxuan	25/13
Aishungnou	31/30	Gui Chao No. 2 (Guichao No. 2) or (Guichao 2)	27/5; 33/26; 35/37
Akenohoshi	42/32	Guiluai No. 8	25/14
Ambemohor local	28/1; 29/25	Guizao No. 2	31/29
Amber-33	43/49, 50	H4	29/25
Autotetraploids of Fukunishiki	35/18	H-4	23/4, 5
Autotetraploids of Nipponbare	35/18	H-7	23/4
Azucena	29/14	H-8	23/4
Bala	29/24	Harebare	35/21
Bangaruteegalu	24/5	Hejiang 12	30/24
Basmati 370	35/23; 44/38	Hong 410	25/15, 16; 31/29
BG 90-2	29/15, 23	HR-2	35/23
BR-IRGA 409	28/6	HR-47	24/5
BR-IRGA 410	28/6	HR-5	24/5
C-164	29/25	Huangpizhong	25/12
C4-63	42/30; 43/50	Hu Nan Ruan Ming	43/5
California Belle	29/14	Huxuan	25/14
Calpearl	37/36, 37	Huxuan 19	25/14
Calrose	30/12	IAC 25	28/11
CICA 8	28/6	IAC 5100	28/11
CICA 9	28/6	Ikungbau	37/34
Cigalon	35/39	Intan	35/37
Cisadane	42/29	IAT 25	33/28, 29
CR 1014	37/35	IAT 5100	33/29, 30
CR 1113	43/51	IR-1821	43/50
Cuom	42/29	IR20	24/5
Daaizhi	25/13	IR-2070-199	42/28
Della	43/50	IR22	30/23
Dunghan Shali	30/23	IR26	38/9
Duanxin No. 3	21/14	IR30	29/4, 25
Early Bassangi	24/5	IR50	44/23
Early Pratao	28/11	IR54	35/24
Erjinqing	25/14	IR6	30/24; 43/35
Erjuuai	25/13	IR8	21/7; 22/8; 24/5; 29/4, 23, 24, 26; 30/23; 31/30; 37/35; 43/35
Erjuuai No. 7	25/12; 43/3, 5	IR910	38/9
Erjiufeng (Erjiufong)	43/3, 5, 51	IR 9729	44/40
ET 2938	41/28	IRAT 2	33/26, 27
F ₁ Chiapelli x Duborszkij 129	30/24	Jalagaon 5	28/1
F ₁ Fanu x KUR-127	40/15	Jarum	35/18
F ₁ IR8 x X6	43/51	Jaya	35/23
F ₁ NSJ 200 x Padma	29/25	Jhona	34/14
F ₁ Qing Er Ai x hybrid (V20 x Guo 630)	27/6	Jiahu No. 4	25/13
F ₁ Simei No.2 x Minyin No. 1	43/3, 5	Jinyin 37	25/12
F ₁ Xuan No. 2 x 2765	32/10	Kagoshima Hakamuri	28/11
F ₂ (Ningxi 62-2 x Panjin No. 1)	31/30		
F ₂ Hongmeizao x Guangnan	25/16		
F ₂ IR 29 x Wenxuanqinng	30/25		
F ₂ Iratom 24 x Dular	44/38		

Ke Zi 6	27/3	Randhunipagal	29/12
Kinmaze	42/29	Reimei	42/31
Kochihibiki	42/29	Rossiiskii	40/15
Koshihikari	21/15; 35/19, 22	Saloio	30/24
Krasnodar 424	44/39	Sanyeqi	35/39
Kumkumbantulu	24/5	Sasanishiki	35/38
KZR05356	31/29	Seratus Malam (Seratus Malami)	33/7; 35/36; 44/39
Liantangzao (Liantonzao)	25/12, 13; 43/3, 5	Shadab	42/32
Liutiaohong	37/34	Shuang chiang	30/24
Longzhen No. 13	37/37	Shwe Chay Chin	40/7
Lucai	25/12	Simei No. 2	25/15; 26/2; 27/4; 43/3, 4, 5
Lungjing 2	35/39	Sintane Diofor	33/26
M-401	37/35	Sirayuki	40/15
M7	42/32	SR-26-B	33/16; 34/31
Mahsuri	35/18; 42/30	Suewon 290	43/5
Makouta	28/11; 33/31, 32	Suiyia	25/15
Malish	31/29	T.141 (T141)	29/12; 34/21
Manik	35/18	Taichung 65 (T65)	29/24; 33/2; 35/17, 22
Maratelli	30/23	Tainan-31	29/24
Mars	35/38	Taiyin No. 1 (Taiyin 1)	27/6; 35/37
Mas	35/18	Taizhong No. 31	30/25
Mashuri	24/5	Taizhongyu 39	25/14
Minghui 63	38/9	Teiqiu	30/25
Moc Tuyen	42/31	Tellahamsa	24/5; 35/23
Moroberekan	28/11; 33/27	Tellakattera	24/5
Muda	35/18	TG4-7	38/9
Nanjing 11	35/18	TGMS line 2177s	43/15
Nanjing 15	35/18	TH	24/5, 7
Nep Hoa Vang	42/29	Tieqiu 15	27/4
Nizersail	23/10; 26/9; 31/29	TKM6	30/11; 34/21
Nizulu	24/5	Toyonishiki	21/17; 41/28
Nonghu No.6	25/13	Tuljapur 1	28/1
Nongken 58	29/24	W-1263	24/5
Nongkeu 20	25/11	Wuxian 203	35/39
Norin 8	35/36	Xiaozhan 101	25/12
OC 1393	29/24	Xinan 175	31/30
Oorpandy	30/24	Xiu Shui 77	34/21
Pachchaiperumal 2462/11	23/4	Yerragaluvadlu	24/5
Palkweng	44/39	YV	24/7
Pankaj	30/17	Zenith	35/23
Pan San Bay Gyar	40/7	Zhefu No. 9	43/5
Pelita I/1	21/6,15; 23/18; 25/7, 16	Zhenshuai	25/13
PMK 1	36/4	Zhulianai	25/15
Pongsu seribu	35/18	Zhu-yin No. 2 (Zhuyin 2)	27/5; 37/34
Poongar	36/4	Other varieties mentioned	
Pottibasangi	24/5	10-7	28/21
PR 106	32/5	580-19	21/15,16
Pratao Precoce	33/30, 31	Aichi 21	21/16; 42/30, 33
PTB-10 (Ptb10)	34/10	Aichi-mochi 27	32/27
Ptb28	34/10	Ai-jio-nan-te	35/18
Ptb9	34/10	Aikawa-1	42/30
Pusa 33	33/9	Ai-Zi-Zhan	35/18
Qiu quai	31/29	Bala	24/6

Basmati	34/14	IR456	29/14
Basmati-370	42/31, 32; 44/40	IR50	43/3, 5
Bellemont	30/12	IR54	35/24
Bikei	21/14	IR51500-AC-11-1	44/26
Bikei 53	21/14	IR58430-6B-14-1-2	44/26
Bluebelle	29/14	IR6	43/36
Bond	30/12	IR63731-1-1-4-3-2	44/26
BR 3	21/7	IR659-10-8-3	30/12
BR ₄	23/10	IR7	21/8
C19902	30/12	IR8	23/5, 8; 28/21; 30/11, 12; 33/16;
Calmochi 202	28/22		34/31; 43/3, 5; 43/36
CM-M3	25/15	IRAT 10	34/32; 35/34
Columbia 1	34/32	Ishikari	42/29
Colusa	25/15	Jaya	24/6; 33/16, 17
Corbetta	40/15	Jingyin 154	35/39
CS-M3 (Cs-M3)	25/15; 28/21; 34/22	Kalanamak	24/6
Dee-geo-woo-gen	35/18	Keking No. 3	30/23
Dourado Precoce	34/32; 35/38; 37/35	Kenqui	30/23
DR82	43/36	Kihou	42/29
DR83	43/36	Kita-ake	42/29
Earlirose	23/18; 29/14	Kohou	21/15
Erjioal 162-5	35/24	Kojonishiki	21/16
ESD7-3	43/51	Kokuhorose	43/51
Etsunan-119	42/33	Koshihikari	21/15; 42/31; 44/39
Fhu-Zhu-Er-Ai	27/5	L-202	30/12; 34/22; 44/38
Fu Nong 709	27/3	LA 110	30/12
Fuji 329	32/28	Leah	30/12
Fukei-130	42/30	Lemont	30/12; 34/22; 43/50
Fukei 67	21/15	Line 5495ms	35/19
Fukunohana	42/30	Line 5683 ms Milyang 55ms	35/19
G-aiA	27/6	M-201	30/12; 32/28; 43/51
Gui-Yang-Ai No. 1	35/18	M4	30/12
Guizhao 2	35/24	M7/3	43/51
Guoji 24	30/25	M9	28/21
Hatsushimo	42/29	M-301	25/15
Hokuriku	32/28	Male sterile line Gangai A	35/37
Hong 410	25/16	Manryo	21/15
Hourei	32/28; 42/29	Matsumae	32/28
HR22	24/5	Milyang 54ms	35/19
HR-5 japonica	24/7	Milyang 67ms	35/19
IR20	27/5; 37/34	Milyang 77ms	35/19
IR24	25/16; 27/6; 43/3	Moroberekan	34/32; 37/34, 35
IR26	37/34	Musashimochi	42/30
IR29	27/3	Mutsunishiki	21/16; 42/32
IR36	21/6	Mutukaori	42/32
IR36ms	36/19	N-22	44/40
IR1318	30/12	Naga 60	21/15
IR1318-16	23/18; 29/14	Nagoyutaka	33/32; 42/31
IR-13240-10-1	29/4, 25	Nato	35/38
IR24	35/24; 43/3, 5	Newbonnet	30/12
IR29	30/23; 35/38; 44/26		
IR36	35/24; 37/36		
IR42	29/4; 31/30		
IR46	42/31		

Nipponbare	42/30, 33	Chemical mutagens	35/39; 38/9
Nona Bokra	44/26	DES	24/5
Nongken 58	35/20	DMS	32/10; 43/51
Norin 28	35/18	EI	35/20, 21; 35/37
NR-417-3	42/32	Electron beam	31/29
Ohwu 305	42/32	EMS	22/8; 23/4, 8, 10; 24/5, 7; 26/8; 28/1, 11; 29/12, 24, 25; 30/17; 30/24; 32/5; 33/9; 34/10, 14; 35/20, 21; 36/4; 40/15; 42/32; 43/35; 44/23
Palawan	34/32; 37/35	ENH	40/15
Pankaj	29/12, 25; 33/17	Ethidium bromide	32/5
Pecos	30/12	Fast neutrons	27/4; 30/23; 33/16; 34/31; 43/35
PNR 351	44/40	Gamma rays	21/6, 7, 14, 15, 17; 23/4, 8, 10, 18; 24/5; 25/7, 11, 12, 13, 14, 15, 16; 26/2, 8; 27/4, 5, 6; 28/1, 6, 11; 29/4, 13, 14, 15, 23, 24, 25, 26; 30/1, 23, 24, 25; 31/5, 29, 30; 33/7, 26, 27, 28, 29, 30, 31, 32; 34/10, 21; 35/17, 18, 20, 21; 35/36, 37, 38, 39; 36/4; 37/34, 35, 36, 37; 40/7; 41/28; 42/29, 30, 31, 32; 43/3, 15, 49, 50, 51; 44/23, 38, 39, 40
Pokkali	43/36; 44/26		
PP2462-11	44/26		
Prahbat	33/17		
Ptb. 10	23/8		
Ptb. 28	23/8		
Ptb. 9	23/8		
OS-6	42/30		
Qinglian 32	37/37		
R57-362-4	25/15		
RNR-323341	33/17		
RP-4-14	33/17		
Rumani-45	29/4, 26		
S6	28/22; 34/22		
Satominori	35/36; 42/31		
Shiokari	35/19		
Shiranui	35/18		
Shu-2800 (Shuu-2800)	33/32; 42/31		
Shuan Er Zhan	35/24		
Shuu 2800	42/31		
Skybonnet	30/12		
Sona	33/16, 17		
Songhuaai	37/35		
Stripe 136	21/14		
Sureka	33/17		
T90/IR8	29/24		
Taichung N 1	29/25		
Taipei 309	44/24		
Tanginbozu	35/19		
Tatsumi mochi	28/22; 34/22		
Tellahamsa	24/6		
THsd-6-20	24/7		
TN1 = T(N) ₁ = (TN-1)	23/8; 24/6; 30/12		
Todoroki-wase	32/28		
Tokinkei 1011	21/15, 16		
Toro-2	30/12	Gamma rays (anther culture)	27/5, 6; 30/24
Toyonishiki	42/30, 31	Gamma rays (<i>in vitro</i>)	29/7; 35/23
Wagwag	44/26	Gamma rays + colchicine	30/25
Wei 20A	31/30	Gamma rays + DMNU	30/23
Wei A	32/28	Gamma rays + EMS	34/14, 42/30
Xuan No. 2	32/10	Gamma rays + laser	25/16
Yamadanishiki	21/14	Gamma rays + MNH	42/30
Yamagata-29	42/29	Gamma rays + NEU	43/50
Yamasenishiki	21/15	HZ	24/5
Zhengshan 97	35/24	Ion implantation	43/5
Mutagens used		Irradiation	35/18; 37/36, 37
5-azacytidine	35/19	Irradiation (<i>in vitro</i>)	35/23

Laser	31/30; 32/28	43/3, 4, 51
Microwave	21/14	38/9
MNU (MNH)	31/29; 33/2; 35/22; 40/15; 42/28, 29	25/15
MNU (<i>in vitro</i>)	35/4	43/15
NEU (NEH) = (ENH)	30/23; 42/29, 31	29/25; 30/24; 34/32; 35/36, 38; 37/34, 36; 40/15; 41/28; 43/3, 50
NEH (<i>in vitro</i>)	29/7	32/6
Neutrons	23/4; 25/13, 14; 29/25; 35/20	31/29; 35/39
Physical mutagens	38/9	Disease resistance
Sodium azide	44/23	5, 6; 30/25; 31/30; 37/35, 36, 37; 42/29, 30, 32; 43/50, 51
Somaclonal variation	35/4, 22, 24	Drought tolerance
Spontaneous mutations	35/18, 19, 20	35/36
Streptomycin sulphate	32/5	Dwarfness
Thermal neutrons	35/21	24/7; 29/12; 33/7; 34/21; 35/18; 36/4; 37/34
X-rays	29/12, 24; 30/24; 34/21; 35/17, 39; 37/34	Eating quality
Breeding objectives		33/32
Adaptability	28/12; 30/25; 33/27; 35/39; 37/36; 43/3, 4	Earliness
Al tolerance	33/2	21/6, 14, 15; 22/8; 24/5; 28/21, 22; 29/23, 24, 25; 34/21; 35/38; 38/9; 40/15; 42/28, 29, 30, 31, 32; 43/3, 50, 51; 44/40, 41
Amylose content	35/20; 42/29	Early maturity
Awnless	25/15; 30/24	23/10, 18; 25/12, 13, 14, 15, 16; 26/2, 9; 27/2, 3, 5, 6; 28/6; 29/4, 13, 15, 24, 25; 30/1, 23, 24, 25; 31/29, 30; 32/28; 33/26, 28, 29; 34/32; 35/5, 18, 22; 35/37; 37/34, 35, 36; 40/7; 43/3, 51
Bacterial leaf blast (BLB) resistance	21/8; 27/4, 6; 30/25; 35/21; 37/34, 36	Eating quality
Biochemical mutants	22/15	42/29, 31; 43/3
Blast resistance	21/6, 15; 23/18; 25/11, 12; 13, 14, 15, 16; 26/2; 27/3, 4, 5; 30/1, 25; 31/29, 30; 35/36, 38, 39; 42/30, 31; 43/3, 4, 50; 44/23	Erectoid type
Blight resistance	30/23, 25; 31/29, 30; 35/39	29/25
Brewing quality	42/30	Embryo development
Brown plant hopper (BPH) resistance	21/6, 15; 23/18; 25/7, 15, 16; 31/29; 35/18 35/23	35/22
Callus induction and regeneration	35/22	Fertilizer tolerance
Cell fusion	35/22	25/14; 27/3
Chlorophyll mutants	22/15	Fulgorid resistance
Clustered spikelets	35/21	25/16
Cold tolerance	25/13, 14, 15, 16; 27/4; 29/4; 31/29, 30; 32/28; 35/39; 37/34;	GLH resistance
		21/6, 15
		Glutinosity
		27/4; 30/1, 25; 31/30; 32/27; 33/26; 35/18, 37, 38, 39; 44/40
		Grain quality
		21/14, 15; 22/8; 24/5; 25/15; 27/3, 4, 5, 6; 29/25;

	30/1, 24; 31/29, 33/28, 29, 30, 31, 32; 37/34, 35, 37; 43/50; 44/40		
Grain shape	37/34, 35		
Grain size	28/22; 29/24, 35/18; 37/35; 42/30, 31, 32		
Green leaf hopper resistance	31/29		
Heading time	35/17		
<i>Helminthosporium oryzae</i> resistance	33/9		
Herbicide tolerance	34/8		
Heterosis	27/6; 30/11; 32/28; 38/9		
Higher temperature resistance	25/16		
Hybrid seed production	35/37; 43/15		
Insect resistance	37/34		
Intermediate maturity	25/15, 16		
Iron chlorosis tolerance	28/1; 29/25		
Large grain	21/14, 15, 16,17; 25/14; 35/21; 37/35		
Large panicle	26/2; 27/4; 29/4; 31/29, 30		
Late maturing	43/3		
Leaf blight resistance	27/3		
Leaf morphology	43/51		
Lodging resistance	21/14,15,16; 23/5, 18; 25/13, 15; 28/1, 11; 29/25; 30/23; 31/30; 32/28; 33/28, 32, 32; 34/32; 35/36, 38; 36/4; 37/37; 40/15; 41/28; 42/29, 30, 31, 32, 33; 43/49, 50; 44/39		
Long grain	27/4; 30/24, 25; 35/18, 39		
Low pH tolerance	35/36		
Low temperature tolerance	21/14, 16; 27/3; 30/24		
Lush growth	30/24		
Male sterility	35/19, 24		
Nitrogen response	43/51		
<i>Orseolia oryzae</i> tolerance	34/21		
Panicle length	30/17		
Panicle size	42/30		
PEG resistance	24/6		
Pest resistance	42/29, 32		
Photonasty	35/39		
Photoperiod insensitive male sterility	35/20		
		Photoperiod insensitivity	28/21, 22; 35/37; 37/35; 43/51
		Photosynthetic rate	25/7
		Protein content	21/7; 24/5; 25/16; 26/2; 27/3, 4; 31/29; 34/21
		<i>Pyricularia oryzae</i> resistance	30/23; 31/6; 33/26; 34/32; 35/22; 37/34
		Quality	25/11, 14; 30/23, 24; 31/30; 43/5
		RYMV resistance	42/30
		Root growth	35/20
		RuP ₂ carboxylase activities	24/7
		Sake brewing	21/17
		Salinity test	44/26
		Salt tolerance	22/8; 23/18; 24/6; 25/16; 29/4, 7; 30/24; 31/30; 33/2; 35/22; 37/35; 41/28; 42/28, 32; 43/36
		Seed retention	40/15
		Semi-dwarfness	23/8; 24/5, 6; 27/5; 28/1, 11; 28/21, 22; 30/12; 31/5, 6; 33/7, 16; 34/10; 35/18, 19, 22; 35/38; 36/4; 37/37; 42/29, 30, , 31, 32; 43/50, 51; 44/38, 39, 40
		Shattering resistance	30/23; 33/27, 28, 32; 35/18 21/14,15,16; 23/5; 24/5; 25/12, 13, 14, 15; 27/2, 3, 5; 29/13, 23, 24, 25; 30/23, 24; 31/30; 32/27, 28; 33/26, 27, 28, 29, 31, 32; 34/14, 21; 34/31; 35/37, 38, 39; 37/34, 36; 40/7, 15; 42/32; 43/3, 4
		Short culm	27/3, 4
		<i>Sogatella</i> resistance	27/3, 4
		Stem borer resistance	30/24
		Stiffness	21/14, 15, 16; 23/18; 28/1; 32/27, 28; 42/30; 43/51
		Stress tolerance	25/12; 27/4

Strong culm	30/23, 24; 31/29		44/38
Submergence tolerance	29/24, 25; 30/23	Brazil	28/7; 33/28, 29, 30, 31, 32; 34/32
Sweet smell	27/3	Burkina Faso (Upper Volta)	34/32; 35/38; 37/35
Synchronous flowering	42/31	Cameroon	33/26, 27
Synchronous tillering	29/24	China	21/14, 25/11, 12, 13, 14, 15, 16; 26/3; 27/3, 4, 5, 6, 7; 29/15, 23, 24, 25; 30/1, 23, 24, 25; 31/29, 30; 32/28; 33/26; 34/9, 21; 35/17, 18, 20, 23, 24, 37, 38, 39; 37/34, 35, 36, 37; 38/9; 41/28; 43/5, 16, 51 43/50, 51
Tallness	26/9; 30/24; 31/29; 33/28, 29, 30, 31; 34/32	Costa Rica	
Taste	21/14, 15; 25/15; 27/15; 32/28; 42/29	Cote d'Ivoire	33/26, 27; 34/32; 35/37; 37/34, 35 44/28
Temperature stress tolerance	26/2	FAO/IAEA	
Thermosensitive GMS	42/31	France	28/12; 30/23; 31/6; 35/39
Thrip resistance	21/8	Guyana	33/28, 29, 30, 31, 32 34/32
Tillering	23/4; 25/13, 14; 29/25; 30/17, 23; 31/29; 33/26, 27, 28, 29, 30, 31; 34/32; 35/22, 38; 37/34, 36; 43/3	Haiti	
Treshability	40/15	Hungary	30/23, 24
Tungro virus resistance	31/29	India	22/8, 17; 23/8; 24/5, 6, 7; 28/1; 29/12 23, 24, 25; 30/17, 24; 32/6; 33/17; 34/10, 14, 21, 31; 35/21, 23, 37; 36/4; 37/35; 42/30, 31, 32; 44/24, 39, 40 21/7, 15; 23/18; 25/8, 16; 32/27, 28; 33/7; 35/36; 42/29; 44/39 43/49, 50
Virus resistance	43/50	Iraq	
Waxy endosperm	28/22; 35/20	Japan	21/14, 15, 16, 17; 33/32; 35/17, 18, 19, 20, 21, 22, 23, 36, 38; 42/29, 30, 31, 32, 33 35/19; 44/39
Wide adaptability	27/4	Korea	
Wine production	30/25; 31/30	Malayasia	35/18
White core grain	21/17	Myanmar	40/8
<i>Xanthomonas</i> resistance	25/12, 14; 27/5	Nigeria	42/30, 31
Yellow stunt resistance	25/14		
Yield	21/14, 15; 22/8; 23/5, 10, 18; 24/5; 25/11, 12, 13, 14, 15, 16; 26/2, 9; 27/3, 4, 5, 6, 7; 28/21; 29/4, 12, 13, 24, 25; 30/1, 17; 30/23, 24, 25; 31/29, 30; 32/10; 32/27, 28; 33/17, 26; 34/14, 31, 32; 35/36, 37, 38, 39; 37/34, 35, 36, 37; 40/15; 42/29, 32; 43/3, 4, 36, 49, 50; 44/23, 38, 39, 40		
Countries			
Bangladesh	21/8; 23/10; 26/9; 29/24; 31/29; 40/8;		

Pakistan	30/24; 42/32; 43/36	Cooking quality	40/16
Portugal	30/24	Green foliage yield	32/10
Romania	44/39	Non-flowering plant	32/10
Senegal	33/26	Protein content	32/10
Sri Lanka	23/4; 29/25	Tillering	32/10
Thailand	44/39	Countries	
The Philippines	33/2; 42/29; 44/28	India	32/10
Togo	34/32	USSR	40/16
USA	23/18; 25/15; 28/2, 22; 29/13; 30/12; 32/28; 34/22; 35/38; 36/13; 37/35, 36, 37; 42/32; 43/50, 51; 44/38, 39, 40	<i>Panicum miliaceum</i>	
USSR	31/29; 35/5; 40/15	Mutant varieties	
Vietnam	29/4, 7, 25, 26; 30/23; 31/30; 32/10; 42/28, 29, 30, 31; 43/50, 51; 44/40	Cheget	41/28
Other information		Lipetskoe 19	30/25
<i>In vitro</i> cultures	22/15; 24/6; 29/7; 34/22, 23, 24	Other mutants mentioned	
<i>In vitro</i> selection	35/22	Nan 72-4	33/5
Protoplast culture	35/22, 23	Varieties treated	
		F ₄ line of cross Flavum x Veselopodolyanskoe	30/25
		Mutagens used	
		Chemical mutagenesis	41/28
		DMS + NEH	30/25
		Breeding objectives	
		Disease resistance	41/28
		Drought resistance	30/25; 41/28
		Lodging resistance	30/25
		Mildew resistance	33/5
		Yield	30/25
		Countries	
		China	33/6
		Ukraine	41/28
		USSR	30/25
		<i>Papaver somniferum</i>	
		Mutant varieties	
		BC-28/9/4	42/33
		Vivek	42/11
		Varieties treated	
		Shweta	30/6; 42/10, 33
		Shyama	30/6; 42/10
		Other varieties mentioned	
		Sanchita	42/11
		Mutagens used	
		EMS	30/6; 42/10
		Gamma rays	30/6; 42/10, 11
		Gamma rays + EMS	30/6; 42/10
		Breeding objectives	
		Capsule number	30/6
		Capsule size	30/6; 42/10, 33
		Dwarfness	30/6
		Morphine content	30/6; 42/11
		Morphine yield	42/11
		Straw biomass yield	42/11
		Countries	
		India	30/6; 42/11, 33
		Papaya see <i>Carica papaya</i>	
P			
<i>Pachyrrhizus erosus</i>			
Mutagens used			
EMS	36/5; 39/10		
Gamma rays	34/20		
Breeding objectives			
Dwarfness	36/5		
Protein content	39/10		
Starch content	39/10		
Tuber quality	39/10		
Yield	34/20; 39/10		
Countries			
India	34/20; 36/6; 39/11		
<i>Panicum maximum</i>			
Mutant varieties			
Kharkovskoe 57	40/16		
Lipetskoe 19	40/16		
Varieties treated			
Kharkovskoe 37	40/16		
Line No. 947	40/16		
Mutagens used			
DMS	40/16		
Gamma rays	32/10		
MNH	40/16		
Breeding objectives			

Pea see <i>Pisum sativum</i>		
Pear see <i>Pyrus communis</i>		
Pearl millet see <i>Pennisetum</i>		
<i>Pelargonium grandiflorum</i> <i>hybrid</i>		
Mutant varieties		
Dark Mozart	35/40	
Varieties treated		
Mozart	35/40	
Mutagens used		
X-rays	35/40	
Breeding objectives		
Flower colour	35/40	
Countries		
FRG	35/40	
<i>Pennisetum</i> sp.		
Mutant varieties		
ICMH 451 (81 A/B)	30/25; 39/3	
NHB 3 (hybrid)	37/37	
NHB 4 (hybrid)	37/37	
NHB 5	39/3	
Pusa 46	23/19	
Other mutants mentioned		
81 A/B	30/25	
M46	23/19	
MS 5071A	37/37	
Tift 23A ₁ E ₁	26/3	
Tift 23B ₁ E ₁	26/3	
ICM A1 (81A)	29/23	
ICM B1 (82B)	29/13	
Varieties treated		
J104 x K559	23/19	
Tift 23	33/10	
Tift 23B	26/3; 37/37	
Tift 23 DB	29/13; 30/25	
Other varieties mentioned		
111 A	29/13	
5141 A	29/13	
Inbred 104	33/10	
Inbred 186	33/10	
J104	37/37	
K560-230	37/37	
Tifton 23DA	29/13	
Mutagens used		
EMS	26/3	
Gamma rays	29/13; 30/25; 37/37	
Radiation	23/19	
Thermal neutrons	26/3	
Breeding objectives		
Disease resistance	39/3	
Downy mildew resistance	23/19; 29/13; 30/25	
Earliness	26/3	
Heterosis	33/10	
		Hybrid production 26/3; 29/13; 30/25
		Plant architecture 26/3
		<i>Sclerospora graminicola</i> 37/37
		resistance
		Shortness 26/3
		Countries
		ICRISAT 29/13
		India 23/19; 30/25; 37/37; 39/3
		USA 26/3
		Pepper see <i>Capsicum annuum</i>
		Peppermint see <i>Mentha arvensis</i>
		<i>Persea americana</i>
		Varieties treated
		139 PLS 41/9
		175 PLS 41/9
		39 PMe 41/9
		Colin V-101 41/9
		Colin V-33 41/9
		Colinmex 41/9
		Fuerte 41/9
		Mutagens used
		Gamma rays 41/9
		Breeding objectives
		Dwarfness 41/9
		Countries
		Mexico 41/10
		<i>Phaseolus coccineus</i>
		Mutant varieties
		Eureka 41/28
		Varieties treated
		Local ecotype 41/28
		Mutagens used
		Gamma rays 41/28
		Breeding objectives
		Dwarfness 41/28
		Countries
		Poland 41/28
		<i>Phaseolus vulgaris</i>
		Mutant varieties
		AC Hensall 44/6, 7
		AC Skipper 44/6, 7, 8
		Albion 44/6, 7
		Arapaho 44/7
		Black Hawk 44/6, 8
		Black Magic 44/6, 8
		C-20 44/6, 7, 8
		Carioca Arbustivo Precoce 34/12, 33
		1070 (CAP-1070)
		Centralia 44/6, 7
		Crestwood 44/6, 7
		Domino 44/8
		Dresden 44/7
		Fleetwood 44/7

Frontier	44/8	Rio Negro	34/6
FT-Paulistinha	42/33	San Fernando	44/6
Harkovskaya 8	31/31	Shchedraya	40/16
Harofleet	44/7	Zaria	23/7
Harokent	44/7	Other varieties mentioned	
Huron	44/6, 7, 8	73130-E2-B	44/7
Gratiot	44/7	A-252	42/33
IAPAR 57	40/7; 44/6	BAC 32	40/7; 44/7
JM-126	44/8	Cannelino	31/31
JM-24	44/8	Imper	31/31
Kentwood	44/7	MD 632	40/7; 44/7
L-226-10	44/8	MSU 31906	30/25
L-227-1	44/8	Opal	31/31
Laker	44/6, 7, 8	San Fernando	30/25
Maverick	44/8	Tuscola	34/33
Mayflower	44/6, 8	U.I.111	28/22
Midland	44/7	Mutagens used	
Mitchell	34/33; 44/7	EI	40/16
Mogano	31/31	EMS	21/5; 31/31; 34/6, 18; 40/7; 44/7
Montalbano	31/31	Gamma rays	21/5; 23/7; 31/31; 34/12, 18, 33; 42/33; 44/6
MSU N7612	44/8	Gamma rays + EMS	34/18
MSU N80043	44/8	MNH	40/16
MSU N80051	44/8	X-rays	44/6, 7
MSU N81109	44/8	Breeding objectives	
MSU Sel. #61627	44/8	Bean common mosaic virus	28/22; 31/31
MSU x 80101	44/7, 8	resistance	
Mukhranula	40/16	Anthracnose resistance	42/33
NC Alberta Pink	44/7	Bushy growth habit	28/22; 34/12, 33; 44/6
NEP-2	44/6, 8	Canning quality	44/6
Neptune	30/25; 44/7	Disease resistance	44/6
Norstar	44/6, 7, 8	Dwarf habit	31/31
Northland	44/7	Earliness	40/16
OAC Seaforth	44/7	Early maturity	31/31; 34/12, 33
Ouray	28/22; 44/7	Golden mosaic virus resistance	40/7; 44/6, 7
Sanilac	28/22; 44/6, 7	Leaf spot resistance	42/33
Seafarer	30/25; 34/33; 44/6, 7	Lectin type	34/6
Stinger	44/6, 7	Morphological variation	34/19
Suncrest	44/7	Mosaic virus resistance	21/9
Svetlaya	40/16	Plant architecture	30/25
Swan Valley	44/8	Protein content	40/16
Wesland	44/7	Seed colour	31/31; 34/6
Other mutants mentioned		Upright short vine architecture	44/6
Carioca	42/33	<i>Uromyces phaseoli</i> resistance	21/5; 28/22
FT/CENA 245	34/6	<i>Xanthomonas phaseoli</i>	23/7
FT/CENA 247	34/6	resistance	
TMD-1	40/7; 44/6, 7	Yield	31/31; 40/7, 16; 42/33; 44/6
Varieties treated		Countries	
Carioca	34/12, 33; 44/7	Brazil	34/6, 12, 33; 40/7; 42/33; 44/6
F ₁ Sanilac x 6590	31/31		
Giza 3	21/5		
Giza 4	21/5		
Michelite	44/6, 7		
Mukhranula 4	40/16		
P106	31/31		
P224	31/31		
Prelom	34/18		

Bulgaria	23/7; 34/19	Ramenskii 77	
Canada	34/33; 44/6	F ₁ Arkel x Mahndorfer	37/16
Chile	21/9	Finale	25/2
Egypt	21/5	Lincoln	21/5
FAO/IAEA	44/9	Little Marvel	21/5
Italy	31/31	Mahndorfer	37/16
USA	28/22; 30/25; 44/6	Paloma	41/28
USSR	31/31; 40/16	Parvus	35/40
		Rondo	22/6
Pigeon pea see <i>Cajanus cajan</i>		S. Cristoforo	37/38
		Santa Croce	37/38
<i>Pisum sativum</i>		Sprinter	21/9; 35/40
Mutant varieties		Wt 3527	32/16; 33/10
Agra	43/51	Wt 4042	33/10
Bitug	40/16	Zernograd 2	31/31
Bosman	37/37	Other varieties mentioned	
Caoyuan 10	37/38	Allround	37/37
Diament	35/40	Aschersleben	30/26
Esedra	21/9	Biala	26/14
Hamil	30/26; 35/40	Cud Ameryki	35/40
Heiga	30/26	Delisa II	30/26
Jaran	30/26	Flavanda	26/14; 35/40
Kwestor	41/28	Gome	26/14
Mihan	26/14	Karat	43/51
Miko	35/40	Kujawski Wczesny	35/40
Milewska	26/14	Melzer	43/51
Navona	21/9	Nemnichovskii 766	31/31
Nemchinovskii 85	31/31	Neugatersleben	26/14
Orfej	41/28	Porta	26/14
Orphei	40/16, 17	Smaragd	40/16; 41/28
Paride	37/38	Sum	26/14
Piast	43/51	Wielkolistna	30/26
Pirro	37/38	Mutagens used	
Priamo	37/38	Chemical mutagenesis	40/17
Ramir	26/14	EI	31/31
Samara	40/17	EMS	21/5; 25/2; 37/16
Shikhan	37/38	Fast neutrons + NEU	32/16; 33/10
Stral	35/40	Fast neytrons	33/10
Streletskii 11	31/31	Gamma rays	21/5; 37/16, 38; 41/28
Sum	43/51	NEH (NEU) = (ENH)	33/10; 37/16; 40/17
Talovets 69	41/28	X-rays	37/38
Tatarastan 2	40/17	Breeding objectives	
Trevi	21/9; 35/40	Adaptability	41/28
Wasata	26/14; 30/26	Afila type	26/14; 30/26; 35/7, 40; 37/37
Other mutants mentioned		Agronomic characters	21/9
7238	35/40	Albumin/globulin ratio	21/9
JI 1358	32/16	Canning pea	30/26
L 34	37/37	Determinate growth	32/16; 35/40; 37/38
M235	35/40	Disease resistance	40/17
nod 3	22/6	Earliness	40/17
Shtambovy mutant	31/31	Early maturity	31/31; 35/40; 37/38
Wt 16100	32/16	Fodder pea	30/26
Varieties treated			
Alderman	37/38		
Arkel	37/16		
Arvika	40/17		
Caoyuan	37/38		
F ₁ Ahalkalaskii mestnyi x	40/17		

Forage pea	40/17	Flower shape and size	37/39
Garden pea	30/26	Plant regeneration <i>in vitro</i>	43/13
Green forage pea	30/26	Profuse blooming	37/39
Leaf size	37/38	Countries	
Lodging resistance	26/14; 30/26; 31/31; 37/37; 41/28; 43/51	India	37/39
Morphological mutants	33/10	Morocco	43/14
Mutation frequencies	37/16	Other information	
Nodulation	22/6; 25/2	<i>In vitro</i> cultures	43/13
Plasticity	31/31	Potato see <i>Solanum tuberosum</i>	
Pod number	41/28	<i>Prunus avium</i>	
Pod shape	37/38	Mutant varieties	
Pod size	37/38	Burlat C ₁	31/32
Protein content	21/9	Ferrovia spur	42/33
Seed colour	37/38	Lapinus	25/17
Seed size	40/16	Nero II C ₁	31/32
Seed smoothness	40/16	Sunburst	25/17
Shedding resistance	37/38; 40/17	Stella	25/17
Short stature	35/40	Varieties treated	
Stem length	41/28	Bigarreau Burlat	31/32
Stiffness	43/51	Bing	33/8; 34/24; 35/27
Tallness	37/38	Durone Nero	31/32
Terminal inflorescence	35/7	Ferrovia	42/33
<i>Uromyces pisi</i> resistance	21/5	Napoleon	34/24
Yield	31/31; 37/38; 43/51	Van	25/17
Countries		Other varieties mentioned	
China	37/38	Bing	25/17
Denmark	25/3	Mutagens used	
Egypt	21/5	Gamma rays	31/32; 33/8; 35/27
India	37/17	Radiation	34/25
Italy	21/9; 35/40; 37/38	X-rays	42/33
Poland	26/14; 30/26; 32/16; 33/10; 35/7, 40; 37/37; 41/28; 43/51	Breeding objectives	
Russia	41/28	Compact growth habit	31/32
The Netherlands	22/6	Earliness	42/33
USSR	31/31; 37/38; 40/16, 17	Fruit size	25/17
		Growth habit	25/17; 33/8
		Radiosensitivity	34/24; 35/27
		Shortness	42/33
		Yield	25/17; 42/33
		Countries	
		Canada	25/17
		Italy	31/32; 42/33
		USA	34/24; 35/27
Plavine see <i>Lathyrus sativus</i>		<i>Prunus cerasus</i>	
Plum see <i>Prunus domestica</i>		Other mutants mentioned	
<i>Portulaca grandiflora</i>		Padocerus A	35/11
Mutant varieties		Padocerus M	35/11
Ratnam	37/39	Varieties treated	
Varieties treated		Padocerus	35/11
PgBmj	43/13	Other varieties mentioned	
Mutagens used		Almaz	35/11
EMS (<i>in vitro</i>)	43/13	Mutagens used	
Gamma rays	37/39	Gamma rays	35/11
Sodium azide (<i>in vitro</i>)	43/13	X-rays	35/11
Breeding objectives		Breeding objectives	
Callus induction	43/13		
Cross-fertile flowers	37/39		

Apomixis	35/11	Semidwarfness	28/3
<i>Coccomyces hiemalis</i>	35/11	Countries	
resistance		Gahna	34/15
Countries		India	23/15; 28/3
USSR	35/11		
<i>Prunus domestica</i>		<i>Psidium guajava</i>	
Mutant varieties		Mutagens used	
Spurdente-Ferco	35/40	Gamma rays	35/27
Varieties treated		Breeding objectives	
Ente	35/40	Growth habit	35/27
Mutagens used		Seed sterility	35/27
Gamma rays	35/40	Countries	
Breeding objectives		India	35/27
Branching	35/40		
Early flowering	35/40	<i>Pyrus bretschneideri</i>	
Early fruiting	35/40	Varieties treated	
Countries		Crystal Pear	35/10
France	35/40		
<i>Prunus dulcis</i>		<i>Pyrus communis</i>	
Mutant varieties		Varieties treated	
Supernova (Fascionello K)	32/29	Comice	35/10
Varieties treated		Luise Bonne	35/10
Fascionello	32/29	Seckel	35/10
Mutagens used		Mutagens used	
Gamma rays	32/29	Gamma rays (<i>in vitro</i>)	35/10
Breeding objectives		ENU (<i>in vitro</i>)	35/10
Late flowering	32/29	Countries	
Countries		France	35/10
Italy	32/29		
<i>Psathyrostachys juncea</i>		<i>Pyrus pyrifolia</i>	
Mutant varieties		Mutant varieties	
Tetraean	43/52	Gold Nijisseiki	39/3; 44/40
Varieties treated		Kotobuki Shinsui	44/40
Open pollinated population	43/52	Varieties treated	
from 27 diploids		Nijisseiki	30/10; 44/40
Mutagens used		Other varieties mentioned	
Colchicine	43/52	Chojuro	30/10
Breeding objectives		Mutagens used	
Seed size	43/52	Gamma field	30/10; 44/40
Seed yield	43/52	Breeding objectives	
Vigour	43/52	<i>Alternaria alternata</i> resistance	30/10; 39/3
Countries		Disease resistance	44/40
Canada	43/52	Countries	
		Japan	30/10; 39/3; 44/40
<i>Psophocarpus tetragonolobus</i>			
Varieties treated		R	
Kade 6/16	34/15	Rapeseed see <i>Brassica napus</i>	
Trivandrum	23/15; 28/3	Raspberry see <i>Rubus idaeus</i>	
UPS 122	34/15	<i>Rhododendron simsii</i>	
Mutagens used		Mutant varieties	
Gamma rays	23/15; 28/3; 34/15	Ingana	31/32
Breeding objectives		Osta	28/22
Earliness	23/15; 28/3	Varieties treated	
Plant architecture	23/15; 28/3	Bertina	
Seed colour	34/15	Inga	31/32
Seed size	34/15	Mutagens used	
		Gamma rays	31/32

X-rays	28/22	HZ	24/8
Breeding objectives		NEU	36/1
Flower colour	28/22; 31/32	NMU	36/1
Countries		Breeding objectives	
Belgium	31/32	Chlorophyll mutants	24/9
FRG	28/22	Early maturity	24/9
<i>Rhododendron</i> sp.		GA response	24/9
Mutant varieties		Morphological mutants	24/8, 9; 36/1
Odilia	34/33	Oil content	41/29
Stefan	34/33	Plant architecture	24/8, 9
Varieties treated		Semi-dwarfness	24/8, 9
Silvester	34/33	Short stem	36/1
Mutagens used		Yield	36/1; 41/29
X-rays	34/33	Countries	
Breeding objectives		India	24/9
Earliness	34/33	USSR	36/2; 41/29
Flower colour	34/33	Ridged gourd see <i>Luffa</i>	
Countries		<i>acutangula</i>	
The Netherlands	34/33		35/27
<i>Ribes nigrum</i>		<i>Rosa</i> sp.	
Mutant varieties		Mutant varieties	
Burga	29/26	Abhisarika H.T.	25/6; 26/14
Varieties treated		Bridal Sonia	32/29
Noire de Bourgogne	29/26	Curio	31/32; 33/18
Mutagens used		Ji Guang	27/14; 31/33
Gamma rays	29/26	Light Pink Prize	33/18; 37/39
Breeding objectives		Madhosh	25/6
Earliness	29/26	Misu-ohmiya	42/33
Countries		Nan Hai Lang Hua	27/14; 31/33
France	29/26	Ohmiyabito	42/33
Rice see <i>Oryza sativa</i>		Paula	31/33
<i>Ricinus communis</i>		Pink Contempo	31/32; 33/18
Mutant varieties		Pink Hat	31/33
Khersonskaya	41/29	Pink Ilseta	28/23; 35/41
Other mutants mentioned		Pusa Christina	25/6; 26/15
M1-284	36/1	Sharada	33/18; 42/33
M1-83	36/1	Saroda	23/19
M2-119	36/1	Striped Christian Dior	25/6; 26/14
M2-323	36/1	Striped Contempo (Stripe Contempo)	33/18; 37/39
Varieties treated		Sukamari	23/19; 33/18
279	24/8	Tangerine Contempo	23/19; 33/18
Antika	36/1	Twinkle	31/33; 33/18
Chervonnaya	36/1	Xia Guang Wan Dao	31/33
HC6	24/8	Yellow Contempo	23/19; 33/18
HC8	24/8	Zhen Jie	31/33
VNIIMK 165-improved	36/1	Other mutants mentioned	
VNIIMK 18	36/1	Orange Folklore	25/7
Mutagens used		Varieties treated	
Chemical mutagen	41/29	America's Junior Miss	23/19; 33/18
DAB	36/1	Christian Dior	26/14, 15
DES	24/8; 36/1	Condesa de Sastago	27/14
DMS	36/1	Contempo	23/19; 31/32; 33/18; 37/39
EI	36/1	Crimson Glory	27/14
EMS	24/8	Doris Tystermano	25/6
Gamma rays	24/8	First Prize	33/18; 37/39
		Folklore	25/6

Ilseta	35/41	USSR	41/29
Imperator	31/32, 33; 33/18	Russian wildrye see <i>Psathyrostachys juncea</i>	
Kiss of Fire	26/14	Rye see <i>Secale cereale</i>	
Peace	27/14	S	
Pearl Ilseta	28/2328/21	<i>Saccharum officinarum</i>	
Pink Peace	27/14	Mutant varieties	
Quenn Elizabeth	23/19; 31/33; 33/18; 42/33	Co 8153	30/26
Sonia	32/29	Co 85017	31/33
South Seas	27/14	Co 85035	31/34
Super Star	27/14	Varieties treated	
Unnamed floribunda	31/33	BL4	44/19
Mutagens used		BO 91	37/14
Gamma rays	23/19; 25/6; 26/14, 15; 27/14; 31/32, 33; 32/29; 33/18; 37/39; 42/33	Co 740	31/33, 34
X-rays	28/23	CoC 671	34/23
X-rays (<i>in vitro</i>)	35/41	CoS 687	42/20
Breeding objectives		Cross Co 6304 x Co 6806	30/26
Floriferousness	31/33	Ni-5	38/11
Flower colour	25/7; 26/14; 27/14; 28/23; 31/32, 33; 32/29; 33/18; 35/27, 41; 37/39; 42/33	Other varieties mentioned	
Flower morphology	31/32, 33; 35/27	Co 6304	30/26
Globular bud	26/15	Co C761	30/26
Leaf characteristics	31/33	CoC 671	34/23
Mildew resistance	31/33	G80-454	34/23
Petal number	25/7	Mutagens used	
Countries		8-ethoxycaffeine (<i>in vitro</i>)	22/15
China	27/14; 31/33	Colchicine (<i>in vitro</i>)	22/15
FRG	28/23	EMS	42/20
India	23/19; 25/7; 26/14, 15; 31/32, 33; 33/18; 35/27, 41; 37/39; 42/33	EMS (<i>in vitro</i>)	22/15
Japan	32/29; 42/33	Gamma field	38/12
USA	31/33	Gamma rays	37/14; 42/20
Roselle see <i>Hibiscus</i>		Gamma rays (<i>in vitro</i>)	22/15; 30/26; 44/19
<i>Rubus idaeus</i>		MMS (<i>in vitro</i>)	22/15
Mutant varieties		MNH (<i>in vitro</i>)	44/19
Kolokol'chik	41/29	MNNG (<i>in vitro</i>)	22/15
Varieties treated		Breeding objectives	
Karnaval	41/29	Eye spot resistance	22/15
Mutagens used		Fiji disease resistance	22/15
ENH	41/29	Juice quality	30/26
Breeding objectives		Radiosensitivity test	44/19
Disease resistance	41/29	Red rot resistance	42/20
Winter hardiness	41/29	Smut resistance	22/15; 34/23
Countries		Sucrose content	31/33, 34; 37/14
		<i>Ustilago scitaminea</i> resistance	31/33, 43
		Yield	22/15; 30/26; 31/33, 34
		Countries	
		FAO/IAEA	44/21
		India	22/17; 30/26; 31/33, 34; 34/23; 37/14; 42/21
		Japan	38/12
		Pakistan	44/21
		Poland	44/21

Other			
<i>In vitro</i> cultures		34/23; 38/12; 44/19	
Sainfoin see <i>Onobrychis vicifolia</i>			
<i>Saintpaulia</i> sp.			
Mutant varieties			
Halley		31/34	
Varieties treated			
Superba		31/34	
Mutagens used			
Gamma rays		31/34	
Breeding objectives			
Flower colour		31/34	
Countries			
The Netherlands		31/34	
Scarlet runner bean see <i>Phaseolus coccineus</i>			
Sea buckthorn see <i>Hippophaea rhamnoides</i>			
<i>Secale cereale</i>			
Mutant varieties			
Donar		23/20	
HJA 6902		35/41	
Jussi		25/8	
Pollux		23/20	
Other mutants mentioned			
No. 2714		35/31	
Varieties treated			
Dankowskie Zlote		35/12	
LAD 2T80		35/12	
Petkuser Winterrogen Stamm 267/70		23/20	
Vjatka		35/41	
Mutagens used			
Fast neutrons		35/12, 31	
Gamma rays		35/41	
Gamma rays (<i>in vitro</i>)		35/12	
ISO-PMS		23/20	
ENH		35/31	
MNH		35/12	
Sodium azide		35/31	
Breeding objectives			
Lodging resistance		23/20; 35/12, 41	
Shorter culm		23/20; 35/12, 31	
Sprouting resistance		23/20	
Countries			
Finland		25/8; 35/41	
GDR		23/20	
Poland		35/12, 31	
Other			
<i>In vitro</i> cultures		35/12	
Serradell see <i>Ornithopus compressus</i>			
<i>Sesamum indicum</i>			
Mutant varieties			
Ahnsanggae (Ahnsankkae) = (Suwon 55)			29/6; 42/21
ANK-S2			43/52
Babil			43/52
Cairo White 8			42/34
Eshtar			43/52
Pungsankkae			43/52
Rafiden			43/53
Seodukkae			44/41
Sinai White 48			42/34
Suwon 155			44/41
Suwonkkae			42/21, 34
UMA			43/53
USHA			43/53
Yangbackkae			42/21, 34
Other mutants mentioned			
76ME-B-100-4-2 (Suwon 55)			29/6, 26
CF 25-9382			32/17
CF 35-9306			32/17
CF 53-8874			32/17
CF 6-N3H494			32/17
dt-45			42/22; 43/52
III-8408			32/17
ME-93-4			42/34
N62-32 mutants			22/5; 29/5
P-10-7412			32/17
S36-10			29/5
SI 90033-2B			42/22
Suwon 128			42/21
Varieties treated			
Criollo Falcon			32/17
Danbaeckkae			42/21, 34; 44/41
Early Russian			29/6, 26; 42/21, 34
Giza 24			42/34
Kanak			43/53
MI-1			43/52
N62-32			22/5; 29/5
Piritu			32/17
S36-10			22/6
S337-1			22/6
S1-7			22/6
S1-8			22/6
S22-2			22/6
S34-3			22/6
Venezuela 44			31/17
Other varieties mentioned			
Hansumkkae			43/52
Kyum (local)			42/34
Suwon 9			29/6
Mutagens used			
Chemical mutagen (Arsenic-			43/53

Q)	
EMS	29/5
Fast neutrons	29/5
Gamma rays	29/5; 42/34; 43/52, 53; 44/41
Sodium azide	29/6; 42/21, 34; 44/41
Thermal neutrons	29/5
X-rays	29/6, 26; 42/21, 34
Breeding objectives	
Capsule morphology	22/5; 29/5
Capsule number	22/5; 29/5; 42/34
Capsule size	43/52
<i>Cerospora</i> resistance	32/17
<i>Cylindrosporium</i> resistance	32/17
Determinate growth	42/22; 43/52
Disease resistance	29/6, 26; 42/21, 34; 43/52, 53; 44/41
Drought resistance	32/17
Earliness	43/52, 53
Early maturity	32/17; 42/22; 43/53
Habitus	43/52
Heterosis	29/5
Linoleic fatty acid content	42/21
Lodging resistance	42/21, 22, 34
<i>Macrophomina</i> resistance	32/17
Non-branching	22/5; 42/22, 34
Oil content	22/6; 29/5; 43/52, 53
Oil quality	42/21, 34
Plant colour	22/5; 44/41
Protein content	42/34
Seed colour	42/34
Seed retention	43/52
Seed size	42/22
Semi-dwarfness	42/21, 22
Split corolla	22/5
Uniform maturity	43/52, 53
Wilt resistance	42/34
Yield	22/6; 29/5, 26; 32/17; 42/21, 22, 34; 43/52, 53; 44/41
Countries	
Egypt	42/34
India	22/6; 29/5; 43/53
Iraq	43/52, 53
Korea	29/6, 26; 42/22, 34; 43/52; 44/41
Sri Lanka	43/52
Venezuela	32/17

Setaria italica

Mutant varieties	
Changwei 74	29/27
Changwei 75	29/27
Lugu No. 7	33/32
Varieties treated	
Changwei 69	29/27
Lugu No. 1	33/32
Shuilihun	29/27
Mutagens used	
Gamma rays	29/27; 33/32
Breeding objectives	
Disease resistance	29/27
Early maturing	29/27
Lodging resistance	33/32
Plant height	33/32
<i>Pyricularia setaria</i> resistance	29/27
Quality	29/27
Taste	29/27
Yield	29/27
Countries	
China	29/27; 33/32

Shadawang see *Astragalus huangheensis*

Sinapis alba

Mutant varieties	
Zlata	43/53
Varieties treated	
Prerovska Bila	43/53
Mutagens used	
X-rays	43/53
Breeding objectives	
Early flowering	43/53
Vigour	43/53
Countries	
Czech Rep.	43/53

Snapdragon see *Antirrhinum*

Solanum khasianum

Other mutants mentioned	
BARC	31/4
Glaxo	31/4
Other varieties mentioned	
Pusa	31/4
RRL (Bhuaneswar) Y-14	31/5
RRL (Jorhat)	31/4
Mutagens used	
X rays (<i>in vitro</i>)	22/14
Breeding objectives	
Morphological mutants	22/14
Physiological mutants	22/14
<i>Phytophthora infestans</i> resistance	22/14
Solasodine content	31/4
Spine character	31/4
Countries	

India	22/17; 31/5	Breeding objectives	
Other information		Blackspot bruise tolerance	37/11
<i>In vitro</i> cultures	22/14	Lateness	43/53
<i>Solanum melongena</i>		Morphological traits	22/14; 24/10
Mutant varieties		M-virus resistance	33/6
Floralba	32/29	Physiological traits	22/14
Macla	32/29	<i>Phytophthora infestans</i>	22/13
Picentia	32/29	resistance	
PKM 1	32/29	<i>Synchytrium endobioticum</i>	23/9
Varieties treated		resistance	
Florida Market	32/29	White skin	31/3, 34
Lunga Violetta	32/29	Yield	43/53
Puzhuthikathiri	32/29	Countries	
Other varieties mentioned		Estonia	43/53
Nagaoka	32/229	India	22/14
Mutagens used		Latvian SSR	23/9
EMS	32/29	Italy	24/10; 31/3; 34
Gamma rays	32/29	USA	37/13
Breeding objectives		USSR	33/6
Drought tolerance	32/29	Other information	
Earliness	32/29	<i>In vitro</i> culture	22/14; 24/9
Fruit colour	32/29		
Fruit size	32/29	<i>Solanum viarum</i> see <i>S.</i>	
Short plant	32/29	<i>khasianum</i>	
Suitable for processing	32/29	<i>Sorghum bicolor</i> (<i>S. vulgare</i>)	
Suitable for transport and storage	32/29	Mutant varieties	
<i>Veticiillium dahliae</i> tolerance	32/29	Co.21 (Co 21)	28/13; 29/27
Yield	32/29	Djeman	44/41
Countries		Djemanin	44/41
India	32/29	Donetskaya 5	31/34
Italy	32/29	Fambe	44/41
		Gnome	44/41
		Gnoumanin	44/41
		Jinfu No. 1	25/17
		Jinza No. 1	25/17
		Longfuliang No. 1	25/17; 27/14; 33/5
		Sadje	44/42
		Sofin	44/42
		Tiedjan	44/42
		Other mutants mentioned	
		CBA 81-1227	30/15
		CBA-109	30/15
		CBA-467	30/15
		CBA-469	30/15
		CRP-1261	30/14
		CRP-1265	30/14
		CRP-1279	30/14
		CRP-1359	30/14
		CRP-1543	30/14
		CRP-2085	30/14
		fuxin 9-1	33/5
		Lifu 119-3	33/5
		Varieties treated	
		Criollo Rojo Pequeno (CRP)	21/8; 30/13
		Criollo Rojo Alto	21/8
		Criollo Blanco Alto (CRP)	21/8; 30/13
<i>Solanum tuberosum</i>			
Mutant varieties			
Desital	31/3, 34		
Sarme	43/53		
Other mutants mentioned			
LM116	37/13		
LM232	37/13		
LM330	37/13		
LM382	37/13		
Varieties treated			
Desiree	24/9; 31/3, 34		
Early rose	23/9		
F ₁ Mariella x Xenia N	33/6		
Lemhi Russet	37/11		
Other varieties mentioned			
Commandeur	43/53		
USA No. 1	37/13		
Mutagens used			
DMS	33/6		
Gamma rays	23/9; 24/9; 37/13		
Gamma rays (<i>in vitro</i>)	31/3, 34		
X rays (<i>in vitro</i>)	22/13		
NEH	33/6		
NMH	33/6		

CSM 228	44/41, 42		44/42
CSM 338	44/41, 42	Tallness	28/13; 29/27;
CSV.5 (CSV 5)	28/13; 29/27		30/14, 15
IPS 0001	44/41, 42	Yield	21/8; 25/17;
Krupnosemyannaya 3	31/34		27/14; 28/13;
Male steile line 296A	35/31		29/27; 30/14;
Restorer line 5501	35/31		31/34; 33/5
Xinliang No. 7	25/17; 27/14;	Countries	
	33/5	China	25/17; 27/14;
Other varieties mentioned			33/6; 35/13
296A	35/13	India	28/14; 29/27;
3197A	25/17		35/31
Feterita	30/14	Mali	44/41, 42
Mironovskaya 10	31/34	Nigeria	36/5
P-815 B	30/14	USSR	31/34
Hybrid 11A x fuxin 9-1	33/5	Venezuela	21/8; 30/16
Mutagens used		<i>Sorghum dura</i>	
DMS	31/34	Mutant varieties	
EMS	36/5	Volzhskoye 4	40/20
Gamma rays	21/8; 25/17;	Varieties treated	
	30/13; 44/41,	F ₁ mutant of Efremovskoye 2 x	40/20
	42	mutant of Volgskoye 2	
Laser	27/14	Breeding objectives	
Microwaves	27/14	Shortness	40/20
MMS	35/13; 35/31	Treshability	40/20
Sodium azide + gamma rays	21/8; 30/13	Countries	
Thermal neutrons	27/14	USSR	40/20
X rays	28/13; 29/27	<i>Sorghum sudanense</i>	
Breeding objectives		Mutant varieties	
Adaptability	21/8; 25/17	Donetskaya 5	41/29
Charcoal rot resistance	21/8; 30/14,	Mironovskaya 8	41/29
	15	Other varieties mentioned	
Combining ability	35/13, 31	Kubanskii jantar 84/327	41/29
Disease tolerance	28/13; 29/27;	Mironovskaya 10	41/29
	31/34; 33/5	Mutagens used	
Drought resistance	30/14; 31/34	DMS	41/29
Dwarfness	33/5	Breeding objectives	
Earliness	44/42	Drought tolerance	41/29
Early maturity	25/17; 27/14;	Earliness	41/29
	30/14, 15;	Lodging resistance	41/29
	31/34; 33/5	Countries	
Fodder type	28/13; 29/27	USSR	41/29
<i>Fusarium</i> resistance	30/14	Sour cherry see <i>Prunus cerasus</i>	
Grain colour	44/41	Soybean see <i>Glycine max</i>	
Grain size	44/42	<i>Spinacia oleracea</i>	
Grain yield	44/41, 42	Mutant varieties	
Herbicide resistance	36/5	Lavewa	37/39
Insect tolerance	28/13; 29/27	Varieties treated	
Large grain	30/14, 15	Frü-Remona	37/39
Lodging resistance	44/42	Mutagens used	
Mechanical harvest	27/14; 33/5	EMS	37/39
Morphological mutants	36/5	Breeding objectives	
Panicle size	30/14, 15;	Dry matter content	37/39
	44/42	Late bolting	37/39
Panicle number	30/14, 15	Long harvest time	37/39
Pest resistance	31/34	Long vegetative growth	37/39
Quality	25/17		
Root activity	30/14		
Short straw	25/17; 30/15;		

Low nitrate content	37/39	40, 41
Countries		
FRG	37/39	
St. Augustine grass see <i>Stenotaphrum secundatum</i>		
<i>Stenotaphrum secundatum</i>		
Mutant varieties		
TXSA 8202	31/35	
TXSA 8212	31/35	
Varieties treated		
Floritam	31/35	
Gamma rays	31/35	
Breeding objectives		
<i>Blissus insularis</i> resistance	31/35	
Disease resistance	31/35	
<i>Panicum</i> mosaic virus resistance	31/35	
Countries		
USA	31/35	
<i>Streptocarpus</i> sp.		
Mutant varieties		
Aurora	37/39	
Blue Windor	31/35	
Dark Windor r	31/35	
Dolly	37/40	
Freya	37/40	
Helle Glocke	37/40	
Minidor	31/35	
Nanna	37/40	
Rosalie	37/40	
Selene	37/41	
Vando	31/35	
White Windor	31/35	
Varieties treated		
Cynthia	31/35	
Hera	37/41	
Margaret	31/35	
Mini Nymph	31/35	
Juwel	37/40	
Nadja	37/40	
Neptun blau (Cupido)	37/40	
Neptun rose (Carmen)	37/39, 40	
Mutagens used		
X-rays	31/35; 37/39, 40, 41	
Breeding objectives		
Compact growth habit	37/40	
Earliness	37/40	
Flower colour	31/35; 37/39, 40, 41	
Flower number	31/35	
Flower stalk length	31/35	
Flower size	31/35	
Leaf size	31/35	
Countries		
FRG	31/35; 37/39,	
Sugar beet see <i>Beta vulgaris</i>		
Sugarcane see <i>Saccharum officinarum</i>		
Sunflower see <i>Helianthus annuus</i>		
Sweet cherry see <i>Prunus avium</i>		
Sweet potato see <i>Ipomoea batatas</i>		
<i>Stylosanthes guyanensis</i>		
Varieties treated		
Accession No. 1336		41/5
Mutagens used		
Gamma rays		41/5
Breeding objectives		
Antracnosis (<i>Colletrichum gleosporiodes</i>) resistance		41/5
Forage production		41/5
Shrubby type		41/5
Upright growth habit		41/5
Countries		
Brazil		41/5
<i>Syringa vulgaris</i>		
Mutant varieties		
Prairie Petite		44/42
Mutagens used		
Thermal neutrons		44/42
Breeding objectives		
Dwarfness		44/42
Leaf morphology		44/42
Countries		
USA		44/42
T		
Tannia see <i>Xanthosoma sagittifolium</i>		
Taro see <i>Colocasia esculenta</i>		
Tea see <i>Camelia sinensis</i>		
Tobacco see <i>Nicotiana tabacum</i>		
Tomato see <i>Lycopersicon esculentum</i>		
Tossa jute see <i>Corchorus olitorius</i>		
<i>Trifolium alexandrinum</i>		
Mutant varieties		
BL-22		26/15
Other mutants mentioned		
BL-22		26/4
Varieties treated		

Mescavi	26/4, 15	EMS	24/7; 32/6
Other varieties mentioned		Fast neutrons	35/12
S-99-1	26/4	Gamma rays	24/7; 32/6
Mutagens used		Gamma rays (anther culture)	27/8
Gamma rays	26/4, 15	HZ	24/7
Breeding objectives		MNH	34/17; 35/12
Dry matter yield	26/4, 15	NEH	34/24
Green fodder yield	26/4, 15	Sodium azide	34/24
Late flowering	26/4, 15	Breeding objectives	
Countries		Amylase activity	24/8
India	26/5, 15	Chlorophyll mutants	34/24
<i>Trigonella corniculata</i>		Dwarfness	24/7; 32/6
Mutagens used		Early heading	24/7
DES	42/12	Early maturity	34/24
DMS	42/12	GA productuin and utilization	24/7, 8
Gamma rays	42/12	Grain characters	24/7
Breeding objectives		Lodging resistance	35/12
Chlorophyll mutants	42/12	Semi-dwarfness	32/6; 34/18, 24; 35/12
Countries		Stunted	32/6
India	42/13	Countries	
<i>Trigonella foenum graecum</i>		China	27/8
Varieties treated		Czechoslovakia	34/18, 24
FOS 8	24/3	India	24/8; 32/6
Mutagens used		Poland	35/12
EMS	35/26	Other information	
Gamma rays	24/3; 35/26	<i>In vitro</i> cultures	24/8
Irradiation	23/5	<i>Triticum aestivum</i>	
Breeding objectives		Mutant varieties	
Earliness	24/3	092	25/17
Reduced coumarins content	23/5	1161	25/18
Tolerance to water stress	24/3	62-8	30/27
Reduced bitterness	24/3	62-10	30/27
Yield	24/3; 35/26	79p-17	25/20
Countries		Albidum 12	31/36
India	24/3; 35/26	Bakhtawar-92	44/42
Italy	23/5	Bel'chanka 5	40/17
<i>Triticale</i>		Birlik	40/17
Other mutants mentioned		BR4	26/15
ADD 143-m8	34/18	Changwei 19	25/19
Varieties treated		Changwei 20	25/19
ADD 143/71	34/17	Chuanfu 1	27/7
Beagle	32/6	Chuanfu 2	37/41
Coorong	32/6	Chuanfu 3	37/41
DTS 330	24/7	Darkhan-35	44/42
DTS 34-3	24/7	Darkhan-49	44/43
h739	27/8	Deda	31/36
KS126	34/24	Dnestrjanka	40/17
KS60	34/24	Emai No. 6	25/17
Lasko	35/12	Eritropermum 103	40/17
PS728	34/24	Fu 66	32/30
TL 419	32/6	Fushiabo	37/41
V2-2Z	34/24	Fusi No. 4	25/19
V2-30	34/24	Henong 1 (Henong No. 1)	30/27; 41/29
Welsh	32/6	Hezu 8	41/29
Mutagens used		Inna	40/17
DES	24/7	Intesar	43/53

Iratom	43/54	Tambo	30/26
Jenmai No. 2	25/18	Tammuz-2	43/54
Jingfen No. 1	25/19	Tammuz-3	43/54
Jinmai 22	35/41	Wanyuan 28-88	25/20
Kazanskaya 84	40/18	Wei Fu 6757	32/31
Kharkovskaya 90	40/18	Xifu 4	37/42
Khara-86	44/43	Xifu 5	37/42
Khersonskaya 86	40/18	Xinchun No. 2	32/31
Kijanka	25/20; 40/18	Xin Cun 2	27/8
Kormovaya 30	31/36	Xinong-Mai 2	44/43
Krasnodarskii karlik 1	40/18, 19	Xinshukuang No. 1	25/19
Ljubov	35/41	Yannoun 685	25/19
Longfu 77-4096	32/30	Yuandong 94	30/27
Longfumai No. 1	30/26; 41/29	Yuandong No. 1	25/20
Longfumai No. 2	32/30	Yuandong No. 3	27/7; 30/26; 42/3
Longfumai No. 3	32/30	Yuanfeng No. 1	25/18
Longfumei No. 1	27/8; 33/5	Yuanfeng No. 2	25/18
Lu Mai No. 4	32/30	Yuanfeng No. 3	25/18
Lu Mai No. 5	32/30	Yuanfeng No. 4	25/19
Lu Mai No. 6	32/30	Yuanfeng No. 5	37/42
Lu Mai No. 8	32/30	Yubileinaya 75	40/20
Luten No. 1	25/18	Yunfunzao	25/20
Lutescens 7	40/18	Yunnant odesskii	40/20
Meshenskaya	40/18	Yuyuan No. 1	25/19
Moskovskaya 70	40/18	Zhemai No. 3	32/31
Moskovskaya nizkosteб.	40/18	Zhengliufu	25/20
Motsinave 100	37/41	Zlatostrui	32/31
Mriya Khersona	40/19	Other mutants mentioned	
MV-8	22/18	2460-2	26/3
Nanyang 75-6	25/20	2460-16	26/3
Nechinovskaya 52	40/19	2460-18	26/3
Nechinovskaya 86	40/17, 19	2460-19	26/3
Ningmai No. 3	25/19	2460-22	26/3
Nishte-95	44/43	2460-23	26/3
Odesskaya polukarlikovaya	40/17, 18, 19, 20	34157	36/4
Omskaya ozimaya	40/19	34158	36/4
Pitikul	40/19	63-5-1	34/16
Polukarlik 3	40/19	64-1	34/17
Polukarlikovaya 49	40/17, 18	64-4	34/17
Progress	40/19	72r-16	37/42
Qicheng 115	32/31	79p-17	27/7
Qunzhong 42	25/18	82 Nan 389	27/9
Rabia	43/54	Har Shi 82-14 (Harshi 82-14)	27/10; 33/6
Sali	43/54	Harshi 82-1-1	33/6
Shchedraya Polesya	31/36	Harshi 82-2-23-1	33/6
SGT 17	37/42	Har Shi 82-1-4	27/10
Shirowase-komugi	21/17	Har Shi 84-18	27/10
Short Mengiu	32/30	Har Shi 83-449	27/10
Sibirskaya niva	40/19	Har Shi 1294	27/10
Skifyanka	40/20	IAS 20*3/Sinvalochо gama	26/15
Soghat	42/34	KS-5	41/18
Spartanka	40/20	L30-3-2	27/9
Spinnaker	37/42	Longfu 5009	33/5
Taara	25/8	Longfu 80-7006	33/5
Tatara	44/43	Longfu 82-92072	27/9
Taifu 23	25/18	Longfu 82nen389	33/6
Taifu No. 6	25/17	Longfu 92027	33/6

M 1576	26/8	4	
M 1658	26/8	F ₁ Taishan No. 1 x Shanqian	32/31
M 169	26/8	mai	
M 1870	26/8	F ₁ triticale x wheat	27/9
M 20/127	26/8	F ₁ Xin No. 3 x Lio No. 8	27/8; 33/5
M 329	26/8	F ₁ Xinshuguang No. 1 x Lia	30/26
M 51/112	26/8	No. 8	
M 524	26/8	F ₂ Mexican 225 x Sadovo 1	32/31
M 687	26/8	F ₂ Saberbeg x (Mexipak x	35/30
M 688	26/8	AbuGhraib 4)	
M 773	26/8	F ₂ SaberBeg x Araz	35/30
MS-77	44/42	F ₂ SaberBeg x Mexipak	35/30
MK-62	40/18	F ₂ St2422/464 x Neixiang	25/19, 20
No. 1300	27/9	No.5	
No. 1309	27/9	F ₃ 12040 x Aurora	27/7; 30/26
No. 527	27/9	Fengchen No. 2/Bima No. 4 x	25/20
No. 650	27/9	Nanda 2419	
No. 663-1	27/9	Forlani	37/42
No. 7412	27/9	Guardian	34/11
UACH-2I	21/8	Hairy Afu	25/19
UACH-3-I	21/8	Heunufen	21/8
WM-6-17	32/14	Hobbit sib	38/3
WM-81-2	32/14	Huixianhong	25/18
WM-89-1	32/14	Inia-66	34/10
Yuandong 94	27/7	IXIII-4 White	41/29
Yuandong 96	27/7	Jingzuo 348	27/8
ZB103	34/10	Ironovskaya 61	35/12
ZC115	34/10	Karcagi 522	33/8
Varieties treated		Kharkovskaya	35/12
12040 x Aurora	30/27	Kiyanka	35/12
70-4-92-1	32/30	Line (Probus x Bankuti) x	30/26
77 Zhong 2882	44/43	Hoeser 52	
Abbodanza	30/27	Lalbahadur	34/23
Abo	37/41	Lovlin 10	27/9
AboM ₄ x Orofen	25/19	(Lovrin 13 x Yuoxuan 57) x	37/42
Afu	25/18	Xiayingsu	
Alondra	27/8	Lu-26	32/14
Anza	37/42	Lutescens 62	40/17
Austral	21/8	Lutescens 7	35/12
Avalon	32/3	Mironovskaya 808	35/12
Azadi	28/3	Motsinava	31/36
Beijing No. 6	25/18	Nanda 2419	25/17, 18
Belotserkovskaya 198	31/36	Nannoundaheimang	25/18
BH-1146	43/38	Ningmai 3	36/4
Bima No. 4	25/18	Ningmai 6	36/4
Changnoun 17 x Norin 77	27/7	Norman	32/3
Chuanyu No. 5	25/20; 27/5	Nounda 183	25/17
E 70	32/31	Nounda 183 x Neixiang No. 5	25/18
Express	21/8	Omid	34/17
F ₁ Baimai 18 x 79P-6007	37/41	Orkhon	44/43
F ₁ Chernomorskaya x	40/18	Pavon	42/34
Mironovskaya jubilejnaya		Polesskaya 70	31/36
F ₁ Chuanfu 1 x 78-2882	37/41	PPG-186	40/19
F ₁ Henong No. 1 x Zhemai No.	41/29	Rena	41/18
1		Saber Beg (SaberBeg)	34/14; 35/30;
F ₁ Longxi No. 35 x Ke 250	32/30		43/53, 54
F ₁ Qifu 04 x Yaan 74-550	32/31	San Pastore	35/2
F ₁ Siette Cerros x Qichun No.	32/31	Sarruvra	44/42

Shijiazhuang 63	25/19	Priboj	40/20
Shirogane-komugi	21/17	Pshenichno-pireen hybrid-186	23/13
Sonalika	33/19	S-A-25	32/30
Spartanka	40/20	Sadovo 1	32/3
St2422/464/506	25/19	Sava NS-611	40/17
Stepnyak	35/12	Skorospelka-35	23/13
Tabassi	34/16	Shen 68-71	27/9
Taishan No. 1	25/19	Youbo	25/19
Tifton	21/9	Zarja	40/17, 18
<i>Triticum-Agropyron</i> hybrid	31/36	Mutagens used	
870		Beta rays	25/20; 41/29
UACH-2-75	21/8	Chemical mutagens	35/30; 40/20
UK-8	35/12	DES	25/20; 40/18
Velutinum 97 x Albidum 114	40/18	EMS	21/9; 34/11
WH 147	26/3	ENH (ENU)	41/18
Yangmai 1	30/27	Ethylene imine (EI)	27/8; 40/19
Yangmai 3	36/4	Fast neutrons	30/27; 35/30; 37/42; 38/3; 43/54
Yuandong 767 x Lovrin	27/7	Gamma rays	21/8,9,17; 23/13; 25/17, 18, 19, 20; 27/7, 8, 9; 28/3, 5; 30/26, 27; 31/36; 32/3, 14; 32/30, 31; 33/6, 8; 34/10, 14, 16, 17, 21; 35/3, 12; 36/3; 37/41, 42; 41/29; 42/3; 43/38, 53, 54; 44/42, 43
Yuandong 767 x Aurora	27/7	Gamma rays (anther culture)	27/8
Yuandong 771 x Naixue		Gamma rays (<i>in vitro</i>)	28/5; 35/30
Yuandong 771 x 80076 early	27/7	Gamma rays + EI	40/17
Yuandong 777 x Gaodabei	27/7	Gamma rays + laser	32/15
Yuandong No. 1 x St.	27/7	Irradiation	35/30
2422/464		Irradiation (<i>in vitro</i>)	35/30
Yuobobei x San Pastore	27/7	Laser	32/30, 31
Yuobobei x Aurora	27/7	KH ₂ ³² PO ₄	27/7
Zaoyang x Dongfenhong	25/20	MNU (NMH) = (MNH)	31/36; 34/23; 40/18
Zhengzhou No. 6	25/20	Neutrons	27/9; 33/6
Other varieties mentioned		Sodium azide	33/19; 34/11; 42/34
1520	23/13	Somaclonal variation	35/30
Ahtyrchanka	40/18	Thermal neutrons	27/8; 30/26; 33/5
Aurora	23/13	X-rays	34/11
Belocerkovskaka-198	23/13	Breeding objectives	
Chika	40/20	Adaptability	25/17; 32/31; 37/42
Donskaya ostistaya	40/17	Adopted to late planting	32/30
Fanxiuimai	37/42	Alkaline tolerance	25/19; 32/31; 42/3
Hohentrurmer 4891-67	40/18	Aphids resistance	42/3
Jubilejnaya	40/17	Baking quality	40/17, 18, 20; 43/54
Kaukaz (Kavkaz)	23/13; 40/17, 20		
Kefeng 1	27/10		
Kefu	27/9		
Kharkovskaya 63-1	40/19		
Khersonskaya 170	40/19		
Kosutkz	41/18		
Lerma Roho	40/20		
LMPG	43/38		
Lutescens 1673h75	40/20		
Mexipak	23/14		
Mironovskaya 808	40/18, 19		
Mironovskaja jarovaya	44/42		
Norin 10	27/9		
Obriii	40/18		
Odesskaja-51 (Odesskaya 51)	23/13; 40/17, 19		
Odesskaya 16	40/19		
Pak-81	32/14		
Pavlovka	40/20		

Chlorophyll mutants	26/8	36/4; 41/18;
Callus induction	35/12	42/3
Cold tolerance	25/18; 26/8	Protein content
Combining ability	26/8	21/8; 26/8;
Disease resistance	25/19, 20;	27/9; 30/27;
	26/8; 27/9;	33/5; 37/42;
	32/30; 33/5;	42/34; 44/42
	38/2; 38/5;	Quality
	40/17, 18, 19,	30/26; 32/31;
	20; 43/54;	33/5; 37/42;
	44/42, 43	41/29
Drought tolerance	25/17, 18, 19,	Root rot resistance
	20; 27/8;	27/10; 33/5
	32/30, 31;	Rust resistance
	33/6; 37/42;	25/17, 19;
	40/17, 18, 19;	27/7; 30/26,
	44/43	27; 32/14, 31;
Dry and hot wind tolerance	25/18, 19;	34/23; 42/3
	27/7; 30/26;	Rye-wheat translocation
	32/30	27/9, 10; 33/6
Dwarfness	33/8	Salt tolerance
Earliness	21/9; 31/36;	25/19; 32/31;
	40/17, 19;	35/30; 42/3
	41/29; 44/43	Scab resistance
Early maturity	25/17, 18; 19,	27/7, 10;
	20; 27/7, 8, 9;	32/30, 31;
	30/26; 32/3,	41/29
	30, 31; 33/5;	Seed retention
	34/17; 37/41,	40/17, 18, 19
	42; 41/18, 29	Seed size
Enhanced recombination	27/8	40/17, 18, 19
<i>Erysiphe graminis</i> resistance	35/2	Semi-dwarfness
Frost resistance	31/36	25/18; 34/10;
Glume colour	33/19	44/43
Grain quality	25/18, 19, 20;	<i>Septoria tritici</i> resistance
	26/8; 27/7, 8	35/30
Hectolitre weight (HLW)	34/11	Shattering resistance
Humidity tolerance	25/20	28/3
Insect resistance	40/18, 20	Short culm
Isozyme pattern changes	34/21	23/13; 25/19,
Large grain	25/18, 19;	20; 26/8;
	32/30	27/7, 8, 9;
Leaf rust resistance	25/19; 26/3;	30/26, 27;
	27/10; 33/6;	32/30; 34/17;
	35/3; 37/42;	37/42; 40/17;
	42/34	41/18
Lodging resistance	25/17, 18, 19;	Silage production
	26/8; 27/8, 9;	31/36
	30/27; 31/36;	Spike length
	32/30, 31;	23/13, 25/19;
	34/16, 17;	27/9, 10
	37/42; 40/17,	Stem rust resistance
	18, 19, 20	25/17, 19;
Lysine content	21/8; 32/14;	26/15; 27/9;
	33/5	32/30; 33/6;
Morphological mutants	26/8; 35/12	35/3; 43/37,
Plant height	23/13; 27/10	38
Plant type	21/17	Stripe rust resistance
Powdery mildew resistance	25/19; 27/7,	25/17, 18, 19,
	10; 30/26;	20; 27/7, 9;
	32/30, 31;	30/27; 32/30;
	34/17, 21;	37/41, 42
		Strong stem
		25/19; 32/31
		Super early maturing
		27/8
		Talness
		31/35
		Tillering
		31/36; 32/30
		<i>Tilletia</i> ssp. resistance
		34/14
		Tissue culture response
		28/5
		Tolerance to wet, barren soil
		27/7
		Uniformity
		25/20
		White grain
		25/18
		Winter hardiness
		40/17, 18, 19;
		41/18
		Yield
		25/17, 19, 20;
		26/15; 27/8,
		10; 28/3;
		30/26, 27;
		31/36; 32/14,
		30, 31; 33/5,

	6; 37/41, 42; 40/19, 20; 41/29; 43/53, 54; 44/42, 43 35/3; 38/2		
Yellow rust resistance			
Countries			
Brazil	21/9; 26/15		
Bulgaria	23/13; 26/8; 32/3, 31		
Canada	43/38		
Chile	21/8		
China	25/17, 18, 19, 20; 27/7, 8, 9, 10; 28/5; 30/26, 27; 32/30, 31; 33/6; 34/21; 35/30; 36/4; 37/41, 42; 41/29; 42/3; 44/43		
Finland	25/8		
Hungary	22/18		
India	26/3; 34/23		
Iran	28/4; 34/16		
Iraq	34/10, 14; 35/30; 43/53, 54		
Ireland	34/11		
Italy	37/42		
Japan	21/17		
Mongolia	44/42, 43		
Pakistan	32/14; 33/19; 42/34; 44/42, 43		
Slovak Republic	41/18		
Switzerland	30/27		
UK	35/3		
USRR	25/20; 31/36; 32/15; 35/12; 37/41, 42; 40/17, 18, 19, 20		
Yugoslavia	35/3		
Other information			
<i>In vitro</i> cultures	35/12, 30		
<i>In vitro</i> selection	35/30		
RFLP analysis	38/5		
<i>Triticum turgidum ssp. durum</i>			
Mutant varieties			
Arpad	30/27		
Cargidurox	21/17		
Casteldelmonte	37/43		
Castelporziano	33/32, 33; 37/43		
Castelnuovo	29/27		
Creso	33/33; 37/43		
Febo	37/43		
Gergana	37/43		
Giano	37/43		
		Peleo	37/43
		Sredetz	33/32
		Signadur	26/15
		Ulisse	37/43
		Unidur (H 438)	29/27
		Zeveryana	33/33
		Other mutants mentioned	
		CpB132	26/15
		mutant of Capelli	30/27
		Varieties treated	
		F ₁ No. 788 x M5574/109	37/43
		K6800707	21/17
		Other varieties mentioned	
		Attila	30/27
		Cocorit 71	29/27
		Crane	29/27; 37/43
		Hercules	29/27
		Lacota	37/43
		Leeds	29/27
		Mexipak	33/32
		No. 788	33/32
		Pandur	26/15
		Mutagens used	
		Gamma rays	33/33; 37/43
		EMS	21/17
		Breeding objectives	
		Caroten content	33/33
		Cold tolerance	33/32
		Earliness	33/33; 37/43
		Lodging resistance	21/17; 29/27; 30/27; 33/32; 37/43
		Quality	37/43
		Short straw	21/17; 26/15; 29/27; 30/27; 33/33; 37/43
		Stem rust resistance	26/15; 33/32
		Yield	26/15; 30/27; 37/43
		Yellow rust resistance	30/27
		Countries	
		Austria	26/15; 29/27; 30/27
		Bulgaria	33/32, 33; 37/43
		France	21/17
		Italy	37/43
		<i>Tulipa sp.</i>	
		Mutant varieties	
		Den' Pobedy	41/29
		Dominique	31/37
		Ivette	31/37
		Orange Charles	31/37
		Rimo	37/43
		Santina	37/44
		Yvonne	31/37
		Varieties treated	
		Charles	31/37

London	41/29	Uladowskii x Fribo	31/37
Lustige Witwe	31/37; 37/43, 44	Other varieties mentioned	
Other varieties mentioned		3177/77	43/55
Frederica	31/37	Alfred	35/6
Success	31/37	Minica	35/6
Mutagens used		Mutagens used	
Chemical mutagen	41/29	Chemical mutagens	31/37
X-rays	31/37; 37/43, 44	DES	40/32
Breeding objectives		DMS	40/22
Bulb production	31/37	EI	40/22
Disease resistance	41/29	Gamma rays	29/27; 31/37,38; 37/44; 43/55
Flower colour	31/37; 37/43; 41/29	MNH	40/22
Short stalk	37/43	NEH (ENH)	31/37; 40/22
Variegated leaves	37/44	X-rays	30/27
Countries		Breeding objectives	
Russia	41/29	Determinate growth habit	35/6; 41/30
The Netherlands	31/37; 37/43, 44	Disease resistance	31/37; 43/55
		Dwarfness	41/30
		Earliness	43/55
		Early maturity	30/27; 31/37, 38; 41/30
		Erect plant	29/27
		Fodder type	29/27
		Indeterminate	29/27
		Lodging resistance	30/27; 35/5
		Mechanical harvest	30/27
		Protein content	40/22; 43/55
		Seed size	31/37, 38
		Short stem	31/37, 38; 35/6
		Stable yield	37/44
		Stiff straw	35/5
		Uniform maturity	30/27; 43/55
		Yield	29/27; 31/37; 40/22
		Countries	
		Austria	29/27
		FRG	35/6
		GDR	30/27
		Iraq	43/55
		Poland	31/37, 38; 37/44; 41/30; 43/55
		USSR	31/37; 40/22
		<i>Vicia sativa</i>	
		Mutant varieties	
		Nechinovskaya 84	40/22
		Nikian	43/55
		Toplesa	43/55
		Other mutants mentioned	
		Mutant TI	43/55
		Varieties treated	
		Mirabella	43/55
		VIR K-33583	40/22
		Other varieties mentioned	
		CIVI	43/55
Turmeric see <i>Curcuma domestica</i>			
Turnip see <i>Brassica campestris</i>			
V			
<i>Vicia faba</i>			
Mutant varieties			
Babylon	43/55		
Bronto	37/44		
Chabanskii	31/37		
Dino (RAH 182)	31/38		
Karna (H 448)	29/27		
KIU-82	31/37		
Martin	43/55		
Prikkarpatskie 4	40/22		
Severinovskie 1	40/22		
Stego (RAH 282)	31/37		
Ticol	35/6		
Ti-Nova	30/27		
Tinos	41/30		
Tuwaitha	43/55		
Other mutants mentioned			
KYU-82	40/22		
ti mutant	30/27; 35/6; 41/30		
TJ 3177/77	43/55		
Varieties treated			
Ekwadelgii	43/55		
F ₁ KYU-82 x Fribol	40/22		
Herz Freya	35/6		
Kornberger Kleinkönige	29/27		
Minden	41/30		
Nadwislanski	31/37, 38; 37/44		
Prikkarpatskie 2	40/22		

Mutagens used		Gamma rays	22/10; 28/23;
DES	40/22		33/17; 42/34;
EMS	43/55		43/55
Breeding objectives		Gamma rays + EMS	30/16; 33/8;
Biomass yield	40/22		38/6
Branching	43/55	Hydroxylamine	36/9
Dwarfness	43/55	MMS	28/13, 29/27
Leaf shape	43/55	Sodium azide	34/20; 35/26;
Leaf size	40/22		36/9
Countries		Breeding objectives	
CSFR	43/55	Branching	36/10
Italy	43/55	Bold seed	38/6
USSR	40/22	Bushy plant type	35/26
<i>Vigna angularis</i>		<i>Cerospora</i> leaf spot resistance	22/10
Mutant varieties		Day-length tolerance	28/13; 29/28
Beni-nambu	21/17	Determinate growth	28/13; 29/28
Varieties treated		Disease resistance	43/55
Mombetsu 26	21/17	Dwarfness	35/26; 36/10
Mutagens used		Early maturity	28/13; 29/28;
Gamma rays	21/17		34/20; 43/55
Breeding objectives		Grain weight	42/34
Earliness	21/17	Multifoliate	33/17
Shortness	21/17	Pentafoliate	30/16; 34/20
Seed colour	21/17	Plant height	33/8
Seed size	21/17	Plant size	38/6
Yield	21/17	Plant type	22/10; 28/13;
Countries			29/28
Japan	21/17	Powdery mildew resistance	28/23
<i>Vigna mungo</i>		Root nodulation	30/17; 36/10
Mutant varieties		Seed size	28/23
Binamash-1	43/55	Short stature	28/13
Co.4 (Co 4)	28/13; 29/28	Vigorous growth	
TAU 1	28/23	Vine type	33/8
TPU-4	42/34	Yield	22/10; 28/23;
Other mutants mentioned			35/26; 38/6;
4-196	28/23	YMV resistance	42/34
B-10/M-25	22/10	Countries	22/10; 34/20
B-10/M-23	22/10	Bangladesh	22/11; 35/26;
M-18	22/10		43/55
M-58	22/10	India	28/14, 23;
M-36	22/10		29/28; 30/17;
M-63	22/10		33/8, 17;
UM-201	42/34		34/20; 36/10;
Varieties treated			38/6; 42/34
B-10	22/10	<i>Vigna radiata</i>	
B-23	22/10	Mutant varieties	
BINA Acc. B-10	43/55	Binamoog-2	43/56
Co.1 (Co 1)	28/13; 29/28	Camar	42/35
Netimumu	33/17	Co.4 (Co 4)	28/13; 29/28
No. 55	28/23; 42/34	ML 26-10-3	33/33
T ₉ (T-9)	30/16; 33/8;	MUM-2	42/7; 43/56
	34/20; 36/9;	NIAB M 51 = (NIAB Mung	37/4; 42/35;
	38/5	51) = (NM51)	44/11, 12, 14
Other varieties mentioned		NIAB M 54 = (NIAB Mung	37/4; 42/35;
T-9	28/23; 42/34	54) = (NM54)	44/11, 12, 14
Mutagens used		NIAB Mung 121-25 (NM121-	30/28; 32/7;
EMS	35/26	25)	37/4; 44/11,
			12, 14

NIAB Mung 13-1 (NM13-1)	28/16; 29/28; 44/11, 14	Pak 22	28/15; 29/28; 30/28; 32/7, 9
NIAB Mung 19-19 (NM19-19)	30/28; 32/7; 37/4; 44/11, 14	Pak 32	32/11
NIAB Mung 20-21 (NM20-21)	28/16; 29/28; 37/4; 44/11, 12; 14, 43	Pant Mung-2	33/17
NIAB Mung 28 (NM28)	23/21; 44/11, 14	Pusa 105	30/12
NIAB Mung 36	44/43	RC 71-27	30/28; 32/7
NIAB MUNG 92 (NIAB Mung 92)	44/14, 43	S-8	22/7; 23/21
NIAB MUNG 98 (NIAB Mung 98)	44/11, 12, 43	T-44	22/1
Pant Moong 2	22/1, 2; 23/21	Other varieties mentioned	
TAP-7	23,21	CES 14	23/11
Other mutants mentioned		K 851	22/1
24/20	32/9	Kopergaon	23/21
25/20	32/9	MG50-10A	23/10
2/40	32/9	ML 5 (ML-5)	22/1, 11
6/20	32/9	Pant Moong 1	22/1
Hy I	30/12	Pant Mung 2	33/7
ML26/10/3	22/1	PS-16	42/6
M.76	22/7	Pusa 46	23/21
MB-55(4)	43/56	Pusa Baisakhi	42/6
MUM-1	42/6	S-8	22/11
MUM-2	42/6	V-2773	43/56
MUM-3	42/6	VC 1482E	44/12, 43
MUM-4	42/6	VC 2768B	44/14, 43
Mut. 30-71	29/3	Mutagens used	
Mut. 50-25	29/3	EMS	23/10; 35/25, 26; 42/6; 43/56
NM121-25	32/7	Gamma rays	22/1; 23/21; 28/13, 15; 29/28; 30/12, 28; 32/6, 7, 9, 11; 33/7, 17, 33; 35/25; 37/4; 38/6; 42/6, 35; 44/11
NM13-1	28/15	Gamma rays (<i>in vitro</i>)	22/11; 38/6
NM19-19	32/7	Gamma rays + EMS	32/6; 42/6
NM20-21 (NM 20-21)	28/15; 40/10	Sodium azide	35/25, 26
NM 36	44/14	X-rays	21/4
PAEC 1	29/8	Breeding objectives	
PAEC 2	29/8	Acidity tolerance	42/35
PAEC 3	29/8	Bold seeds	37/4
PAEC 5	29/8	Bushy plant type	35/26
PAEC 7	29/8	<i>Cercospora</i> leaf spot resistance	21/4; 29/28; 37/4; 44/12
Varieties treated		Determinate growth habit	28/15; 29/3; 30/28; 32/7; 40/10; 42/35
6601	28/14; 29/28; 32/9	Disease tolerance/resistance	35/26; 43/56; 44/43
6601 x 1973A	42/35	Drought tolerance	28/13; 29/28
Co.1 (Co 1)	28/13; 29/28	Dwarfness	29/3; 32/6
F ₁ 6601 x VC1973A (F ₁ CV 6601 x VC 1973A)	37/4; 44/11	Earliness	42/35; 44/43
K 851	32/6; 42/6; 43/56	Early maturity	23/21; 28/13, 15, 16; 29/28; 30/28; 32/6, 7; 35/25, 26; 37/4
Kunggi No. 5	21/4	Green manure production	32/11
LGG 127	33/7		
Manyar	42/35		
Mara 1	29/3		
ML 26	22/1; 23/21; 33/33		
ML-5	42/6		
Pak 17	23/21		

Hairiness	42/35		
Harvest index	32/7; 40/10		
Large seed	23/11		
Leaf spot resistance	23/21		
Mechanised harvest	37/4		
Multifoliata	23/10; 29/8; 33/17		
Mutation frequency	38/6		
MYMV resistance	22/1; 23/21; 28/16; 33/33; 37/4; 42/6; 44/12		
Nitrogen fixation	22/7		
Nodulation	33/7		
Non-shattering	42/35		
Pod number	28/15; 29/28; 30/12; 44/12		
Powdery mildew resistance	23/21		
Protein content	35/25		
Reduced cleistogamy	23/10		
Response to fertilizer	40/10		
Salt tolerance	42/35		
Seed size	43/56; 44/43		
Serrated leaf	32/11		
Shattering resistance	21/4; 37/4		
Short stature	28/15; 29/28; 32/7; 40/10		
Uniform maturity	32/7; 37/4; 42/6; 43/56		
Uniform grain size	28/15		
Yield	22/1,7; 23/11, 23; 28/13, 15, 16; 29/3, 8, 28; 30/12, 28; 32/6, 9; 33/33; 35/25; 37/4; 40/10; 42/6, 35; 43/56; 44/12, 43		
Countries			
Bangladesh	35/26; 43/56		
Korea	21/4		
India	22/2, 8, 11; 23/21; 28/13, 29/28; 30/12; 32/6; 33/7, 17, 33; 35/25; 42/7; 43/56		
Indonesia	42/35		
Pakistan	23/21; 28/16; 29/28; 30/28; 32/8, 9, 11; 37/4; 40/11; 42/35; 44/13, 43		
The Philippines	23/11; 29/9		
Venezuela	29/3		
USA	38/7		
Other information			
<i>In vitro</i> cultures	22/11; 38/6		
		<i>Vigna unguiculata</i>	
		Mutant varieties	
		Co 5	29/27
		Cowpea-88	37/5, 44; 41/7
		ICV 10	33/3
		ICV 11 (Reg. no. 62)	28/23; 33/3; 39/3
		ICV 12 (Reg. no. 63)	28/23; 33/3; 39/3
		Tvu 310	33/3
		Uneca Gama	34/33
		V16 (Amba)	25/21
		V37 (Shreshtha)	25/21
		V 38 (Swarna)	25/21
		V240	25/21
		Other mutants mentioned	
		Mut. 30-5	29/3
		Mut. 30-6	29/3
		Mut. 40-40	29/3
		Mut. 50-17	29/3
		V 16	21/6
		V 37	21/6
		V 38	21/6
		Varieties treated	
		C28	24/4
		Centa	34/33
		Co 1	29/27
		F ₁ Cowpea-74 x H-2	37/5, 44; 41/7
		FS-68	36/6
		ICV 1	28/23
		Ojo Negro	29/3
		Pusa Phalguni	25/21
		San Joaquin	29/3
		Other varieties mentioned	
		C 152	21/6
		Mutagens used	
		DMS	25/21
		Gamma rays	21/9; 24/4; 28/23; 29/27; 33/3; 34/33
		Radiation	37/5, 44; 41/7
		Sodium azide	21/9
		Sodium azide (pH=7)	36/6
		Breeding objectives	
		Anthracnose resistance	41/7
		Cooking quality	37/5; 41/8
		Cowpea aphids resistance	28/23; 33/3
		Delayed flowering	36/7
		Determinate growth	29/3
		Disease resistance	25/21; 37/5; 39/3
		Dwarfness	29/3
		Earliness	21/6
		Early maturity	25/21; 28/23
		Fasciated stem	36/7
		Forage type	25/21
		Green fodder yield	37/5, 44; 41/7
		Grain quality	21/6

Grain yield	37/44; 41/7
Green stems and pods	28/23
Large leaves	28/23
<i>Macrophomina</i> resistance	21/9
Nematode resistance	24/4
Nodulation	36/7
Plant architecture	21/9; 24/4; 28/23
Quality	25/21; 29/27
Reduced shattering	21/9
Reduced internodal length	36/7
Synchronous flowering	25/21
Vegetative growth	25/21
Yield	21/6; 24/4, 25/21; 28/23; 29/3, 27; 34/33; 36/7; 37/5, 44; 41/8
Yellow mosaic virus resistance	37/5, 44; 41/7
Countries	
Costa Rica	34/33
India	21/6; 24/4; 25/21; 29/27; 36/7; 37/6, 44; 41/8
Kenya	28/23; 33/3; 39/3
Venezuela	21/9; 29/3
<i>Vitis vinifera</i>	
Mutant varieties	
Fikreti (AZ U66-22)	32/31
Varieties treated	
Blauer Spätburgunder	33/15
Marandi	32/31
Müller-Thurgau	33/15
Ruländer	33/15
Trollinger	33/15
White Riesling	33/15
Mutagens used	
Fast neutrons	33/15
Gamma rays	32/31
X-rays	33/15
Breeding objectives	
Early ripening	33/15
Fruit colour	33/15
Quality	33/15
Resistance to stem rot	33/15
Yield	32/31
Countries	
FRG	33/15
USSR	32/31

W

Walnut see *Juglans regia*

Watermelon see *Citrullus lanatus*

Winged bean see *Psophocarpus tetragonolobus*

***Weigela* sp.**

Mutant varieties	
Couleur d'Automne Courtatom	25/21
Courtadur	31/38
Rubivif Courtavif	25/21
Varieties treated	
Bristol Ruby	25/21; 31/38; 35/10
Eva Rathke	35/10
Le Printemps	25/21
Mutagens used	
DMNH	44/18
ENH	44/18
EMS (<i>in vitro</i>)	35/10
Gamma rays	25/21
Gamma rays (<i>in vitro</i>)	31/38
MNH	44/18
Breeding objectives	
Compact growth habit	31/38
Flower colour	25/21
Leaf colour	25/21
Long flowering	31/38
Periclinal chimeras (<i>variegata</i> , <i>marginata</i> , <i>media picta</i>)	44/18
Shrub renewal	25/21
Countries	
France	25/21; 31/38; 35/10
Ukraine	44/19

Wheat see *Triticum aestivum*

White jute see *Corchorus capsularis*

White lupin see *Lupinus albus*

White mustard see *Sinapis alba*

White ramie see *Boehmeria nivea*

Wild sage see *Lantana depressa*

X

Xanthosoma sagittifolium

Mutagens used	
Gamma rays	37/11
Breeding objectives	
Leaf size and shape	37/11

Tuber shape	37/11	Yuanqi 123	31/38; 33/33
Morphological characters	37/11	Yuanqi 722	33/33
Yield	37/11	Yuanwu 02 (Yuan-wu 02)	25/22; 33/33;
Countries			41/30
India	37/11	Yubileinyi 60 (H)	40/21
		Yubileinyi 60 MV (H)	40/22
		Zhongyuandan No. 4	25/22
Y		Other mutants mentioned	
Yam see <i>Discorea alata</i>		7147	33/6
Yam bean see <i>Pachyrrhizus</i>		8005	33/6
<i>erosus</i>		8007	33/6
Yellow lupin see <i>Lupinus luteus</i>		ChK 1	41/30
		ChK 218 MV	40/21, 22
		ChK 2T	40/21
		ChK 2TV	40/21
		ChK 3	41/30
		ChK 3 3T	40/21
		ChK 3DTV	40/21
		ChK3 SV	41/30
		ChKR 8	40/21
		Cr 25 waxy	40/21
		DevizTV	30/28
		Fu 746 (fu746)	31/38; 33/5
		Longfu 1747	33/5
		Longfu 508	33/5
		Longfu 6227	33/6
		Mutant No. 50	37/45
		Mutant No. 61	37/45
		P 346M	40/21
		P 502M	40/21
		Shindelmayzer MV	40/21
		XM-199 rf ₃ rf ₄	41/30
		XM-199 rf ₃ Rf ₄	32/33
		XM-521 rf ₃ Rf ₄	32/32
		XM-532 Rf ₃ Rf ₄	32/32
		XM-552 rf ₃ rf ₄	32/32
		XM-552-1-C	32/32
		XM-568 rf ₃ Rf ₄	32/33
		Yaun-Wu No. 2	27/12
		Varieties treated	
		ChK208TV x Dbe42TV	30/28
		F ₁ Hua 160 x Feng Ke 1	41/30
		F ₁ T133 x C 103	31/38
		Huang-Zao No. 4	27/12
		Hybrid DE 04	41/30
		Tuxpeño	43/56
		Wudan Zao	41/30
		Other varieties mentioned	
		Drujba	40/21
		Druzhiba	30/28
		Hunzao No. 4	25/22
		Huangzao 4	33/33
		Pioneer 3978	40/21
		Mir	40/21, 22
		Mo 14	25/22
		Mo 17	25/22
		Q 31	33/33
		SONGLAM	43/56
Z			
Zea mays			
Mutant varieties			
De 2205 SC	37/45		
DT-6	43/56		
DT-8	43/56		
Hua Feng 100	41/30		
Hunfeng 100	25/22		
Hybrid ChK 3-18 TV	41/30		
Hybrid ChKG 280 MV	40/21		
Ji63	25/22		
Jidan 101	25/22		
KNEJA-674	41/30		
KNEJA-HP-510 (hybrid)	32/32		
KNEJA-HP-556 (hybrid)	32/32		
KNEJA-HP-633 (hybrid)	32/32		
KNEJA-HP-641 (hybrid)	32/33		
KNEJA-HP-666 (hybrid)	32/33		
KNEJA-HP-712 (hybrid)	32/32		
Knezha MHP 556	37/45		
Kollektivnyi 100SV	41/30		
Kollektivnyi 100 TV (H)	40/21		
Kollektivnyi 210 (H)	40/21		
Kollektivnyi 210 ATV	30/28		
Kollektivnyi 225 MV (H)	40/21		
Kollektivnyi 244 MV (H)	40/21		
Kollektivnyi 95 M (H)	40/21		
Krasnodarskii 303 VK	40/21		
Lau Yu No. 5 (Lauyu No. 5, hybrid)	27/12; 31/38		
Longfuyu No. 1 (hybrid) (Longfuju No. 1)	31/38; 33/5		
Lu Yuan S.C. No. 4	27/12		
Luyan S.C. 9 (hybrid)	33/33		
Luyu No. 3	25/22		
Luyu No. 5 (hybrid)	33/33		
Luyuandan No. 1	25/22		
Luyuandan No. 5	25/22		
Luyuandan No. 7	25/22		
Luyanshan No. 2	25/22		
Yuan 7123	31/38		
Yuanfu 01	25/22		
Yuanfu 17	25/22		

Va 35	25/22	Silage maize	32/33
W 64 waxy	40/21	Stiffness	40/21
Weifng 322	25/22	Yield	25/22; 27/12;
Zi 330	25/22		30/27; 31/38;
Mutagens used			32/32, 33;
Chemical mutagenesis	30/28; 37/45;		33/5, 33;
	40/21		37/45; 40/21
DMS	32/32	Countries	
EMS +DAB	32/33	Bulgaria	32/32, 33;
ENH	40/21, 22		37/45; 41/30
Fast neutrons	37/45	China	25/22; 27/12;
Gamma rays	23/9; 27/12;		31/38; 33/6,
	31/38; 33/33;		33; 41/30
	41/30	India	22/17
Gamma rays + NMU	43/56	Hungary	23/8; 37/45
NENG	40/21; 41/30	The Netherlands	35/15
NMU (MNU) = (MNH) =	32/32, 33;	USSR	30/28; 35/15;
(NMH)	35/15; 40/21		40/21, 22
Radiation	33/5	Vietnam	43/56
Sodium azide (<i>in vitro</i>)	22/15	Other information	
Transposon (Ac) mutagenesis	35/15	<i>In vitro</i> cultures	22/15
Breeding objectives		<i>Zinnia elegans</i>	
Adaptability	33/33	Varieties treated	
Biochemical mutants	22/15	Crimson Red	39/10
Cold tolerance	31/38	Mutagens used	
Combining ability	33/33; 41/30	Gamma rays	38/10
Disease resistance	25/22; 33/33;	Breeding objectives	
	40/21	Flower colour	38/10
<i>Drechslera maydis</i> resistance	22/15	Countries	
Dry matter content	32/33	India	38/10
Dwarfness	33/6	<i>Ziziphus mauritiana</i>	
Ear length	25/22; 41/30	Mutant varieties	
Earliness	40/21, 22;	Dao tien	34/13, 34
	41/30	Ma hong	34/13, 34
Early maturity	25/22; 31/38;	Varieties treated	
	33/5, 6, 33;	Gia Loc	34/13
	37/45; 41/30;	Thien Phien	34/13
	43/56	Mutagens used	
Endosperm and seedling	22/15	MNH	34/13, 34
mutants		Breeding objectives	
Grain size	25/22	Early maturing	34/14, 34
Grain weight	41/30	Fruit shape	34/13, 34
Head smut resistance	33/6	Fruit size	34/13, 34
Heterosis	27/12	Fruit taste	34/13, 34
Insect resistance	40/21	Countries	
Leaf blight resistance	31/38; 33/5, 6	Vietnam	34/13, 34
Leaf spot resistance	25/22; 31/38		
Lodging resistance	25/22; 40/21;		
	43/56		
Lysine content	31/38; 33/5		
Mutability studies	35/15		
Nutrient conversion	23/9		
Quality	25/22; 31/38;		
	33/5, 33		
Plant architecture	33/6		
Protein content	31/38; 32/32,		
	33; 33/5		
Root system	25/22		
Shorter vegetation period	23/9		
Shortness	43/56		

Mutation Breeding Newsletter, Issue No. 46

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