Important Crop Germplasm Introduced into India During 2002

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The paper contains the information about promising introductions made for various biotic, abiotic stresses and other value added traits during 2002. Overall, 22,193 accessions in 95 crops were introduced from 42 countries/International Agricultural Research Institutes.

Key Words: Exotic germplasm, Biotic, abiotic stresses

Introduction of exotic germplasm has contributed significantly in the development of Indian agriculture. Many important introductions have been utilized directly as varieties while others have played a pivotal role in the improvement of different crops. Exotic germplasm/ varieties have contributed to superior varieties notable among which are CPAN 1796, PBW 33, Raj 911 in wheat; BG 105, BG 108, Himani in barley, Barkat in rice; Vijay composite selection in pearl millet; Co. 1, K-1 in sunflower; BG 261, Pusa 244 in chickpea; Pusa Phalguni, Aseem, Rituraj in cowpea; MACS 13, NRC 7 in soybean; Pusa Harbhajan, Arpna, Utra in pea and many others. The information on the germplasm introduced by NBPGR during 2002 carrying genes for various biotic, abiotic stresses and other value addition traits are presented in Table 1.

Table 1. Promising introductions made during 2002

Crop name/EC No.	Country	Salient features	Distribution
		A. Biotic stress resistant/tolerant	
Oryza sativa (Paddy) EC 494302-43	IRRI, Phillipines	Resistant to rice blast *(Pyricularia grisea)*	• IGAU, Raipur, Chattisgarh
• Var. Suitou fujisaka-5 EC-494446	Japan	Resistant to rice blast *(Pyricularia grisea)*	• DRR, Hyderabad, Andhra Pradesh • NBPGR-RS, Cuttack, Orissa
Triticum aestivum (Wheat) • Var. Bruehl EC 498860	USA	Resistant to stripe rust *(Puccinia striiformis)*, speckled snow mould *(Typhula* spp.) and dwarf bunt *(Tilletia controversa)*	• Directorate of Wheat Research, Karnal, Haryana • NBPGR, New Delhi
EC 498861-62	Canada	Hard red spring wheat with Lr 21 and Lr 34 Leaf rust resistance genes	• Directorate of Wheat Research, Karnal, Haryana • NBPGR, New Delhi
Zea nays (Maize) • Var. EPM-6 EC 497581	USA	Resistant to corn earworm *(Heliothis zea)*, flinty or popcorn type	• Directorate of Maize Research, New Delhi • NBPGR, New Delhi
Hordeum vulgare (Barley) • Var. Niska EC 498168	Canada	Resistant to the spot form of net blotch *(Cohliobolus sativum)*, covered smut *(Ustilago hordei)* false loose smut *(Ustilago nigra)*	• NBPGR, New Delhi
Cicer arietinum (Chick pea) • Var. Evans EC 499759	USA	Resistant to Ascochyta blight *(Ascochyta rabiei)*	• IIPR, Kanpur, Uttar Pradesh • IARI, New Delhi • NBPGR-RS, Akola, Maharashtra
Glycine max (Soybean) (490206-208)	USA	Resistant to Phytophthora rot *(Phytophthora sojae)* and white mould *(Sclerotina sclertiorum)*	• NRC soybean, Indore, Madhya Pradesh
• Var. Kottman EC 493757	USA	Carries the RPSK and RPSS 3 genes for resistance to Phytophthora rot *(Phytophthora sojae)*	• NRC soybean, Indore, Madhya Pradesh
• Var. TN-5-95 EC 498112	USA	Resistant to soybean cyst nematode *(Heterodera glycines)*, stem canker *(Diaporthe phaseolorum)*, Frog eye leaf spot *(Cercospora sojina)* and Moderately resistant to sudden death syndrome *(Fusarium solani)*	• NRC soybean, Indore, Madhya Pradesh

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Crop name/EC No.	Country	Salient features	Distribution
Vigna radiata (Mung bean) Kanpur, EC 501566-71	AVRDC, Taiwan	Resistant to powdery mildew *(Erysiphe polygonii)* and yellow mosaic virus (YMV)	• PC, MULLaRP, IIPR, Uttar Pradesh • NBPGR, New Delhi
Vigna unguiculata (Cowpea) EC 493644, EC 493648-49, EC 493652, 493655, EC 493658-61	UK	Resistant to black eye cowpea mosaic virus (BICMV)	• Kerala Agricultural University, Thrissur, Kerala
EC 493645-57	UK	Resistant to Cowpea aphid-borne mosaic virus	• Kerala Agricultural University, Thrissur, Kerala
• Var. California black EC 496737	USA	Resistant to fusarium wilt *(Fusarium oxysporum)* and root knot nematode *(Meliodigyne* sp.)	• PC (Arid legumes), CAZRI, Jodhpur, Rajasthan • NBPGR, New Delhi
Phaseolus vulgaris (French bean) Var. AC Scarlet EC 498445	Canada	Tolerant to common bacterial blight *(Xanthomonas axonopodis)* and bean common mosaic virus (BCMV) possessing the I gene	• IIPR, Kanpur, Uttar Pradesh • NBPGR, New Delhi
• Var. Rojo chiquito EC 502154-58	USA	Resistant to seed-borne poty virus, bean common mosaic virus (BCMV), bean common mosaic necrosis virus (BCMNV), stem blight and rust	• IIPR, Kanpur, Uttar Pradesh • NBPGR, New Delhi
EC 506078	USA	Multiple disease resistance and has dominant I gene resistant to BCMV, complete resistance to curly top virus (CTV)	• IIPR, Kanpur, Uttar Pradesh • NBPGR, New Delhi
Pisum sativum (Pea) EC 499761	USA	Resistant to poedery mildew *(Erysiphe polygonii)* and fusarium wilt race-1 *(Fusarium oxysporum)*	• IIPR, Kanpur, Uttar Pradesh • NBPGR, New Delhi
• Var. Joel EC 499762	USA	Resistant to race 1 of fusarium wilt *(Fusarium oxysporum)*, pea enation mosaic virus (PSbMV)	• IIPR, Kanpur, Uttar Pradesh • NBPGR, New Delhi
Gossypium hirsutum (Cotton) • Var. PSB-CT 9 EC 493755	IRRI, Phillipines	Resistant against leaf hopper and resistant to pink bollworm *(Heliothos armigera)*	• CICR, Nagpur
EC 499886-887	USA	Resistant to cotton leaf curl virus (CLCV)	• Monsanto India Ltd., New Delhi
Lycopersicon esculentum (Tomato) EC 497213-21	AVRDC, Taiwan	Resistant to tomato mosaic virus and tomato leaf curl virus	• Hort. College and Research Institute, Coimbatore, Tamil Nadu
EC 510445-450	AVRDC, Taiwan	Resitant to tomato yellow leaf curl virus, tomato Mosaic virus, race 1-2 of Fusarium wilt *(Fusarium oxysporum lycopersii)* and grey leaf spot *(Stemphyllium solani)*	• NBPGR-RS, Hyderabad Andhra Pradesh
Capsicum annum (Chilli) EC 497628-640	AVRDC, Taiwan	Resistant to bacterial wilt *(Clavibacter michiganensis)*	• IIVR, Varanasi, Uttar Pradesh • HPKV, Palampur, Himachal Pradesh
EC 498405-417	Korea	Resistant to bacterial wilt *(Clavibacter michiganensis)*	• HPKV, Palampur, Himachal Pradesh
Medicago sativa (Lucerne) • Var. Shaw, Ladak-65 EC 499771-72	USA	Resistant to AApharomyces root rot, northern root knot nematode, pea aphid, spotted aphid, Vertici neem wilt and anthracnoni	• IGFRI, Jhansi, Uttar Pradesh
		B. Abiotic stress resistant/tolerant	
Oryza sativa (Rice) EC 494242-301 EC 511744-760	IRRI, Phillipines	Germplasm tolerant to saline soil	• Pt. Jawaharlal Nehru College of A&R Instt., Karaikal, Kerala • CSSRI, Karnal, Haryana • RAU, Bihar

Crop name/EC No.	Country	Salient features	Distribution
Hordeum vulgare (Barley) • Var. Peregrine EC 497614	Canada	Lodging resistant	• Directorate of Wheat Research Karnal, Haryana • NBPGR, New Delhi
EC 501046-47	USA	Lodging resistant, fodder type	• IGFRI, Jhansi, Uttar Pradesh • Directorate of Wheat Research, Karnal, Haryana • NBPGR, New Delhi
Glycine max (Soybean) EC 492128	USA	Lodging resistant	• NRC, Soybean, Indore, Madhya Pradesh
Vigna unguiculata (Cowpea) • Var. California black EC 496737	USA	Heat tolerant	• IIPR, Kanpur, Uttar Pradesh • NBPGR, New Delhi
Phaseolus vulgaris (French bean) • Var. AC Scarlet EC 498445	Canada	Lodging resistant	• IIPR, Kanpur, Uttar Pradesh • NBPGR, New Delhi
Pisum sativum (Pea) Var. Fallon EC 499761	USA	Lodging resistant	• IIPR, Kanpur, Uttar Pradesh • NBPGR, New Delhi
Lycopersicon esculentum (Tomato) EC 501573-85	AVRDC, Taiwan	Heat tolerant	• AAU, Assam • IIVR, Varanasi, Uttar Pradesh • NBPGR, New Delhi
		C. Value added and agronomic traits	
Oryza sativa (Rice) • Var. Mochi EC 494446-47	Japan	Glutinous rice	• Directorate of Rice Research, Hyderabad, Andhra Pradesh • NBPGR-RS, Cuttack, Orissa
Zea mays (Maize) EC 497580	USA	High *in vitro* dry matter digestibility, white cobs and yellow kernels with good grain quality	• IGFRI, Jhansi, Uttar Pradesh • Directorate of Maize Research, New Delhi • NBPGR, New Delhi
Hordeum vulgare (Barley) • Var. Niska EC 498168	Canada	A smooth awned, semi dwarf barley	• Directorate of Wheat Research Karnal, Haryana • NBPGR, New Delhi
• Var. Washford EC 501046	USA	Forage barley used primarily for hay production, also for grazing, haylage and Silage for ruminant livestock, mid late maturity	• IGFRI, Jhansi, Uttar Pradesh • Directorate of Wheat Research Karnal, Haryana • NBPGR, New Delhi
Sorghum bicolor (Sorghum) EC 496845-854	Canada	Multicut sorghum for fodder purposes	• NDRI, Karnal, Haryana
Cicer arietinum (Chickpea) EC 499759	USA	Long seeded 'kabuli' type, early maturing suitable for canning industry	• IIPR, Kanpur, Uttar Pradesh • IARI, New Delhi • NBPGR, New Delhi
Glycine max (Soybean) EC 497964	USA	High yielding, mid maturity with indeterminate habit, high protein contents	• NRC Soybean, Indore Madhya Pradesh
Lens culinaris (Lentil) • Var. Mason EC 499760	USA	Large seeded (wt. 7 g/100 seed), seed coat light as preferred in market, and high yielding	• NBPGR, New Delhi
Phaseolus vulgaris (French bean) • Var. AC Scarlet	Canada	High yielding, medium seeded, seed wt. 25-40 g/100 seed	• IIPR, Kanpur, Uttar Pradesh • NBPGR, New Delhi
EC 502154-58	USA	Upright determinate type and high yielding	• IIPR, Kanpur, Uttar Pradesh

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Crop name/EC No.	Country	Salient features	Distribution
			• NBPGR, New Delhi
EC 506078	USA	Upright short vine growth habit, midseason Maturity and most unique feature is retention of a bright red colour after cooking	• IIPR, Kanpur, Uttar Pradesh • NBPGR, New Delhi
Pisum sativum (Pea) • Var. Fallon EC 499761	USA	Bold seeded, upright growth habit, high yielding straight pods, blunt ended and contains 6-7 seeds	• IIPR, Kanpur, Uttar Pradesh • NBPGR, New Delhi
Vigna radiata (Mung bean) EC 501566-68	AVRDC, Taiwan	Early maturing type	• IIPR, Kanpur, Uttar Pradesh • NBPGR, New Delhi
Macrotyloma uniflorum (Horsegram) EC 501564-65	Ethiopia	Early determinate type suitable for maize intercropping	• Gramin Vikas Trust, Bhopal, Madhya Pradesh • AICRP on Arid Legumes, Jodhpur, Rajasthan • NBPGR-RS, Thrissur, Kerala
Gossypium hirsutum (Cotton) EC 501573-584	Mexico	Ultra high strength genetic line (high fibre strength)	• CICR, Nagpur
EC 493751-754	IRRI, Philippines	High ginning outturn	• CICR, Nagpur
EC 493755-756	IRRI, Philippines	High gossypol content, high ginning outturn	• CICR, Nagpur
Capsicum annum (Chilli) EC 497628-640	AVRDC, Taiwan	High yielding lines	• IIVR, Varanasi, Uttar Pradesh • HPKV, Palampur, Himachal Pradesh
• Var. Posidla type bajjo EC 501588	AVRDC, Taiwan	High carotenoid content	• IIVR, Varanasi, Uttar Pradesh • NBPGR-RS, Hyderabad, Andhra Pradesh
Lycopersicon esculentum (Tomato) EC 498863-865	USA	Compact determinate growth habit, fruits are firm and crack resistant, processig application	• IIVR, Varanasi, Uttar Pradesh • NBPGR, New Delhi
Sesbania afraspera EC 507728	IRRI, Philippines	Profuse nodulation type	• PC (UU & UEP), • NBPGR, New Delhi
Sesbania cannabina EC 507726	IRRI, Philippines	High nitrogen content lines	• PC (UU & UEP), NBPGR, New Delhi

The NBPGR is continuing its efforts to identify promising germplasm through literature search and personal contacts; and to introduce the same for utilization by Indian plant breeders.