Important Crop Germplasm Introduced into India During 2001

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The introduction of exotic germplasm has enriched the Indian agriculture since times immemorial. The short statured, lodging resistant, input responsive, high yielding introductions of wheat and rice have played a pivotal role in ushering in the era of Green Revolution. Genotypes carrying cytoplasmic-nuclear male sterility and fertility restoration genes brought in the era of hybrid breeding in crops like sorghum, pearl millet and rice that enabled the exploitation of heterosis. Further, it was the introduced germplasm which enabled soybean and sunflower to become major field crops in India. During the year 2001, 23,368 accessions of germplasm of 60 crops were introduced from 35 countries/International Agricultural Research Institutes. The information on the germplasm carrying genes for specific traits, that has been introduced by National Bureau of Plant Genetic Resources (NBPGR), New Delhi is presented in Table 1.

Table 1. List of promising and useful germplasm in various crops introduced by NBPGR during 2001 and the recipient Indian institutes

Crop Name/ EC Number	Source Country/Institute	Traits of interest	Recipients
Cereals			
Oryza sativa (rice)			
EC 467691-719	IRRI, Philippines	Lowland rice, fine slender grains	• Agriculture College and Research Station, Madurai, Tamil Nadu
Var. CP-SLO-17 EC 469595	IRRI, Philippines	Variety having wide compatibility genes	• NBPGR Regional Station, Cuttack, Orissa
EC 478048-52	IRRI, Philippines	Glutinous rice	• Directorate of Rice Research, Hyderabad, Andhra Pradesh
Triticum aestivum (wheat) EC 467256-265	CIMMYT, Mexico	Resistant to septoria leaf blotch, stem rust, leaf rust and high yielding	• Directorate of Wheat Research, Karnal, Haryana • NBPGR, New Delhi
EC 467328-344	Germany	Septoria leaf blotch resistant lines	• Institute of Agricultural Sciences, BHU, Varanasi, Uttar Pradesh • NBPGR, New Delhi
EC 479350-374	USA	Hard and soft homozygous waxy germplasm	• Directorate of Wheat Research, Karnal, Haryana • NBPGR, New Delhi
EC 479375-78	USA	Soft red winter wheat, resistant to *Stagonospora nodurum*, stripe rust, powdery mildew and leaf rust	• Directorate of Wheat Research, Karnal, Haryana • NBPGR, New Delhi
Var. Bobcat EC 467937	Canada	Resistant to stem and leaf rust	• Directorate of Wheat Research, Karnal, Haryana • NBPGR, New Delhi
Var. Club Bvuchi and Eltan EC 468368-69	USA	Soft white winter wheat	• Directorate of Wheat Research, Karnal, Haryana • NBPGR, New Delhi
Var. Edwin EC 468366	USA	High grain yield	• Directorate of Wheat Research, Karnal, Haryana • NBPGR, New Delhi

Crop Name/ EC Number	Country	Traits of interest	Recipients
Var. Prowers and Prowers 99 EC 481176-77	USA	Hard red winter wheat, superior baking quality, high grain yield, resistant to stem rust	• Directorate of Wheat Research, Karnal, Haryana • NBPGR, New Delhi
Var. Scholar EC 467720	USA	Hard red spring wheat, resistant to stem rust	• Directorate of Wheat Research, Karnal, Haryana • NBPGR, New Delhi
Var. Finley EC 468367	USA	Stripe rust resistant and good milling quality	• Directorate of Wheat Research, Karnal, Haryana • NBPGR, New Delhi
Var. Harding EC 467680	USA	Red winter wheat, excellent winter survival, high yielding	• Directorate of Wheat Research, Karnal, Haryana • NBPGR, New Delhi
Var. Wesley EC 477993	USA	Superior bread making quality, resistant to stem rust, high yielding	• Directorate of Wheat Research, Karnal, Haryana • NBPGR, New Delhi
Zea mays (Maize) EC 468257-285	CIMMYT, Mexico	Drought tolerant lines	• Tirhut College of Agriculture, Muzzaffarpur, Bihar • Directorate of Maize Research, New Delhi
Hordeum vulgare (barley) Var. Orca EC 473921	USA	Large grain, high protein content, resistant to stripe rust	• Directorate of Wheat Research, Karnal, Haryana • NBPGR, New Delhi
Avena sativa (oat) Var. Sandy EC 469501	USA	High grain yield, good malting quality	• NBPGR Regional Station, Bhowali, Uttaranchal
Var.-Riser EC 469502	USA	Early maturing, resistant to crown rust	• NBPGR Regional Station, Bhowali, Uttaranchal
Var. Trucker EC 469503	USA	Spring oat, high grain yield	• NBPGR Regional Station, Bhowali, Uttaranchal
Var. Florida EC 473801	USA	Early maturing, high yielding, resistant to crown rust	• NBPGR New Delhi
Millets and Forages			
Sorghum bicolor (sorghum) EC 478277-303	Canada	Forage and grain type	• NRC for Sorghum, Hyderabad, Andhra Pradesh
EC468940, 468942	Nigeria	Large grain type	• Division of Genetics, IARI, New Delhi
GP- N 316-320 EC 482673-77	USA	Nuclear male sterility lines	• NRC for Sorghum, Hyderabad, Andhra Pradesh
GP- N 313-15 EC 482670-72	USA	Fertility restores in A 1 cytoplasm suited for the production of high quality grain for feed or food	• NRC for Sorghum, Hyderabad, Andhra Pradesh

Crop Name/ EC Number	Country	Traits of interest	Recipients
Pennisetum glaucum (pearl millet)			
EC 470391-97	USA	Drought tolerant and dual purpose type	• Rajasthan Agricultural University, Bikaner, Rajasthan • NBPGR, RS, Jodhpur, Rajasthan
Oilseeds			
Arachis hypogaea (groundnut)			
EC 470030	Sudan	Bold seeded	• ICRISAT, Patancheru, Andhra Pradesh
Brassica nigra (mustard)			
EC 472729-38	Germany	Genotypes resistant to Alternaria blight	• Department of Plant Breeding, Punjab Agricultural University, Ludhiana, Punjab
Glycine max (soybean)			
EC 468377-424, 468499, 468509, 468599	USA	Rust resistant lines	• NRC for Soybean, Indore, Madhya Pradesh
EC 483054-55	Australia	Rust resistant lines	• NRC for Soybean, Indore, Madhya Pradesh
EC 468443, 468448, 468472, 468529,468542,468568, 468585,468600,468606,468610	USA	Lines resistant to Soybean mosaic virus	• NRC for Soybean, Indore, Madhya Pradesh
EC 468455, 468504,468528, 468535	USA	Root knot nematode resistant lines	• NRC for Soybean, Indore, Madhya Pradesh
EC 468458, 468462,468511	USA	Resistant to downy mildew	• NRC for Soybean, Indore, Madhya Pradesh
EC 468490, 468594	USA	Linolenic acid less than 5.5 %	• NRC for Soybean, Indore, Madhya Pradesh
EC 468491, 468555,468557	USA	Drought and heat tolerant	• NRC for Soybean, Indore, Madhya Pradesh
EC 468505, 468533	USA	Resistant to multiple foliar feeding insects and stink bugs	• NRC for Soybean, Indore, Madhya Pradesh
EC 468563	USA	Low lipoxygenase line	• NRC for Soybean, Indore, Madhya Pradesh
EC 468623	USA	Resistant to Soybean scab	• NRC for Soybean, Indore, Madhya Pradesh
EC 473774-780	AVRDC, Taiwan	Vegetable type soybean	• Annamalai University, Annamalai Nagar, Tamil Nadu
EC 478225	USA	Resistant to Soybean cyst nematode	• NRC for Soybean, Indore, Madhya Pradesh
EC 483041	USA	Resistant to foliar feeding insect and stem canker, processing type with high protein	• NRC for Soybean, Indore, Madhya Pradesh
EC 483042	Australia	Genetic male sterile lines	• NRC for Soybean, Indore, Madhya Pradesh
EC 483043-46	Australia	Vegetable types	• NRC for Soybean, Indore, Madhya Pradesh
EC 483048	Australia	Low trypsin inhibiting enzyme	• NRC for Soybean, Indore, Madhya Pradesh

Crop Name/ EC Number	Country	Traits of interest	Recipients
EC 483049-50	Australia	Photoperiod insensitive lines	• NRC for Soybean, Indore, Madhya Pradesh
EC 483052-53	Australia	Insect tolerant lines	• NRC for Soybean, Indore, Madhya Pradesh
EC 483056-59	Australia	Bacterial pustule resistant lines	• NRC for Soybean, Indore, Madhya Pradesh
EC 483060-61	Australia	Drought tolerant lines	• NRC for Soybean, Indore, Madhya Pradesh
Vegetables			
Lycopersicon esculentum (tomato)			
EC 468370-72	USA	High β-carotene content, mid season maturity, suitable for processing	• NBPGR, New Delhi
EC 468337-41	AVRDC, Taiwan	Tolerant to tomato leaf curl virus, tomato mosaic virus and bacterial wilt	• IIHR, Bangalore, Karnataka
EC 490117-43	AVRDC, Taiwan	Heat tolerant inbred lines, tolerant to bacterial wilt	• Indian Institute of Vegetable Research, Varanasi, Uttar Pradesh
Capsicum annum (chilli)			
EC 468630	AVRDC, Taiwan	Cayenne type for bright red colour pepper powder	• Nirmal Agricultural Research Development Foundation, Pacchora, Maharashtra
Allium cepa (onion)			
Var.-Early red			
EC 473300	Israel	High yielding	• Indo-Israel Project, IARI, New Delhi
Fruits			
Juglans regia (walnut)			
Var.-Pleral lara, De montignal, Meylannaise, Hartley EC 467892-95	France	High yielding varieties	• Dr.YS Parmar University of Horticulture and Forestry, Solan, Himachal Pradesh
Prunus avium (cherry)			
Var.-Vivo, Vogue, Viscount EC 469405-407	Canada	High yielding varieties	• Central Institute of Temperate Horticulture, Srinagar, Jammu and Kashmir
Physalis sp. (gooseberry)			
EC 467434-462	USA	Sweet and sour type fruit with good amount of pulp	• NBPGR Regional Station, Phagli, Shimla, Himachal Pradesh
Pistacea vera (pistachio nut)			
Var. Kerman EC 468651	USA	High yielding varieties	• Regional Research Station, Kinnaur, Himachal Pradesh
Hippophae rhamnoides (seabuckthorn)			
EC 468632-33	Russia	High vitamin-C content	• Directorate of Research, Ch. SK HPKVV, Palampur, Himachal Pradesh

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.