

Evaluation and Utilization of Introduced/ Exotic Cotton Germplasm

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The National Cotton Gene Bank of India was established in Central Institute for Cotton Research (CICR), Nagpur. The total gene pool available in this bank today approximately represent 70 percent of the global genetic variation for over 60 attributes sought by the breeder for one or the other breeding objective. The present holding in National Genebank after eliminating the duplicates are given in Table 1. The collections are maintained both in medium-term cold storage module at CICR and long-term storage module at NBPGR, New Delhi, besides a short-term cold storage facility for all the working collections that are replenished once in 2 or 3 years, as needed. The wild species and cytogenetic materials are maintained in the species garden at CICR, Nagpur.

The evaluation studies were conducted on the exotic germplasm accessions of *G. hirsutum* (780), *G. barbadense* (383), *G. herbaceum* (19) and *G. arboreum* (43) for several agronomic and physiological attributes, 5 to 7 fiber quality parameters, 2-4 aspects of seed oil and protein, 4-6 biomass and harvest index attributes, 6-8 leaf attributes, 5-7 boll attributes, 5-6 seedling characters, 3-4 on boll setting efficiency, 5-6 on boll and seed setting efficiency, plant type, resistance attributes and potential for insect and disease resistance for nearly 4-6 insect pest and 5-6 disease, 9-10 marker character expression, earliness, drought resistance, male sterility, restorer system, reproductive potential influencing fertility, anthocyanin pigmentation, gossypol distribution pattern, amino acid profile, protein profile

Table 1. Current holdings in National Gene bank of Cotton at CICR, Nagpur

Represented by	Total number of accessions
<i>Gossypium hirsutum</i>	5980
<i>G. arboreum</i>	1989
<i>G. herbaceum</i>	548
<i>G. barbadense</i> +	383+
Wild species	25
Races	
<i>G. hirsutum</i>	7
<i>G. arboreum</i>	6
<i>G. herbaceum</i>	1
<i>G. barbadense</i>	1
Perennials	20
Wild species derivatives	25
Total	8985

+ maintained at CICR Regional Station, Coimbatore

and nectar gland pattern. Evaluation was also done on regular basis for multilocal testing and performance based in North, Central and South Cotton Zone.

A large number of exotic elite types were distributed to agricultural universities, government research and development organizations, breeders and researchers for genetic studies and breeding work and quite a large number of hybrid combinations and segregating material have been generated. At CICR, immunity to bacterial blight, immunity to grey mildew, higher oil content, compact plant type with short stature, high fibre strength, jassid tolerance, aphid resistance, high ginning outturn etc. have been incorporated in upland cotton.