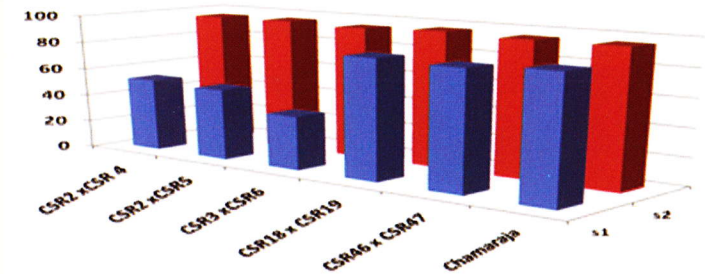


In India, the traditional breeding methods employed during the last few decades has resulted in the development of a number of productive silkworm breeds which have contributed significantly in maximizing the silk production in India. Of late, major thrust has been given for quality rather than quantity of silk produced. Efforts made in this direction during the '90s under JICA phase I, have led to the evolution of highly productive CSR bivoltine breeds which have the potential to produce international grade of silk. Thus, there was a paradigm shift from the production of non-gradable silk to quality silk of international standard. This was possible mainly because of the advances made in the field of silkworm breeding coupled with the adoption of appropriate package of practices.

However, these new breeds are being popularized with progressive farmers who can provide the high input and managerial skills. Even though they are known for their productive merit, absence of genetic plasticity to buffer against the tropical environmental stresses acts as a constraint to tap the full economic potential of these hybrids. The bivoltine breeds continue to suffer badly in adverse conditions of high temperature, humidity, germ-load, poor leaf quality and low management prevalent with the small and marginal farmers and hence they can rear only cross breeds which cannot produce high quality raw silk. Efforts made for the development of temperature tolerant bivoltine breeds has led to the development of robust bivoltine hybrids, like CSR18 x CSR19 for rearing in high temperature conditions of summer. However, due to the low productivity realised at the farmers level of this hybrid during summer months resulted in the non-acceptance by the farming community. Unlike temperate, tropical sericulture beset with wide fluctuating environmental conditions and poor leaf quality, urgently needs the development of broad based silkworm breeds with genetic plasticity to buffer these adverse situations. Keeping this in view, attempts were made to develop silkworm breeds relatively tolerant to high temperature environment has resulted in the development of CSR50 x CSR51. The new hybrid is relatively tolerant to high temperature environment was developed and is named as 'Chamaraja', CSR50 x CSR51. This hybrid is characterized by cocoon weight of 2.17 g, shell weight of 0.523 g shell percentage of 24.1 %, raw silk percentage of 19.5 %, filament length of 1175 m, reelability percentage of 86 %, neatness of 95 p and produces 2A to 3A gradable silk.

Performance of hybrids in the laboratory

Hybrids	Pupation (%)	Cocoon (Yield/ 10,000 larvae)	Cocoon weight (g)	Shell weight (g)	Shell (%)	Raw silk (%)	Filament length (m)	Neatness (p)
CSR18 x CSR19	95.1	16.9	1.853	0.393	21.2	16.4	950	93
CSR46 x CSR47	95.6	18.6	1.986	0.465	23.4	18.5	1020	94
CSR50 x CSR51	96.3	20.9	2.170	0.523	24.1	19.5	1175	95



Comparison of survival (%) in robust and productive bivoltine hybrids (S1 = 36±1°C and 85±5% RH, S2 = 25±1°C and 65±5% RH)

The comparative performances of robust hybrids with the productive hybrids indicated that the Chamaraja is more tolerant to high temperature than productive hybrids, CSR2 x CSR4, CSR2 x CSR5 and CSR3 x CSR6.

Field performance:

A total quantity of 19550 dfls of 'Chamaraja' CSR50 x CSR51 were tested at different locations of Karnataka, Tamil Nadu and Andhra Pradesh and the hybrid recorded an average cocoon yield of 65.88kg /100 dfls. The state wise break up shows that a total of 9750 dfls were distributed to 49 farmers in Karnataka and the hybrid recorded an average cocoon yield of 62.98 kg /100 dfls. In Tamil Nadu, a total quantity of 4650 dfls were distributed to 33 farmers and the hybrid recorded an average cocoon yield of 69.63 kg /100 dfls. In Andhra Pradesh, a total quantity of 5000 dfls were distributed to 23 farmers and the hybrid recorded an average cocoon yield of 67.55 kg /100 dfls.

Salient Features

- ✦ Robust hybrid and easy to handle by farmers under hygienic condition throughout the year
- ✦ The hybrid recorded an average cocoon yield 65-70 kg / 100 dfhs.
- ✦ The hybrid recorded producing high raw silk recovery and silk quality is of international standard (2A ~3A grade)
- ✦ Hybrid with high cocoon shell percentage (22-24%) and raw silk recovery (19.0 to 20.0%)
- ✦ Marked larvae with bluish white body colour
- ✦ Cocoons are bright white with intermediate shape and medium grains
- ✦ Renditta : 6.0



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NEW ROBUST BIVOLTINE SILKWORM HYBRID 'CHAMARAJA' (CSR50 x CSR51) FOR REARING THROUGHOUT THE YEAR



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