Hybrid Evaluation and Selection of Promising Hybrids on the Basis of Cocoon Filament Size Deviation, Boil-off Loss Ratio and Neatness in the Dilkworm, *Bombyx mori* L.

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A study was carried out during summer, autumn and winter season by utilising 28 silkworm breeds comprising of medium yielding breeds 935 E, F HT, NB4D2, E HT, G HT, 916 B (Dumb-bell), A HT, B HT, A 104,A1, A3, KA (Oval) (shell ratio 20~22%) and high yielding breeds JPN8, A 70, 8 HT, CSR2, CSR3, CSR12, CSR17, CSR18 (Oval) and CSR4, CSR5, CSR6, CSR16, CSR19, B60, 5HT, B63 (Dumb-bell), (shell ratio 22 to 24 %) breeds in respect of cocoon filament size deviation, boil-off loss ratio and neatness. The cocoon filament size deviation in the oval breeds ranged from 1.55 (JPN8) to 2.90 (A104) against control KA (2.30). The cocoon filament size deviation in the dumb-bell breeds ranged 1.98 (916 B) to 3.26 (F HT) against control NB4D2 (2.84). The boil-off loss ratio in oval breeds ranged from 22.5 to 25.8% against control 26.2% and in dumb-bell breeds it was 24.4 to 26.7% against control 26.5%. Neatness in oval breeds ranged from 92~93p against 92p in KA control. In dumb-bell breeds it ranged from 91~93p against 93p in NB4D2 control. Eight oval breeds viz., JPN8, A70, CSR18, B HT, A3, CSR2, CSR3 and A1 and seven dumb-bell breeds viz., CSR6, CSR19, B 60, B63, G HT, 916 B, 935 E were selected based on targeted traits. The cocoon filament size deviation, boil-off loss ratio and neatness in the selected oval breeds ranged from 1.55 to 2.76, 22.5 to 25.8 and 92~93 p and in the dumb-bell breeds it was 1.98 to 2.65, 24.4 to 26.7 and 92.0~93.0 p. The selected breeds were crossed (dumb-bell x oval) and 56 hybrids were prepared, evaluated and short-listed. The data of the denier calculated against the 100m length of the filament was analysed using regression coefficient analysis. Among the 56 hybrids, the cocoon filament size deviation ranged from 1.51(916 B x A3) to 3.15 (GHT x CSR2). The slope of the curve, 'b' value ranged from -0.02699 (CSR6 x CSR2) to -0.02516 (916 B x A3).The boil-off loss ratio ranged from 22.7 (916 B x A3) to 26.2 (935 E x A1) and neatness ranged from 92.0p (935 E x A1) to 94.0p (B60 x CSR2). The hybrids were short-listed by using Index Score Method (Singh and Choudhary,1979). In thirty eight hybrids the total Index Score value was   (7) for all the three traits, in 15 hybrids it was 5, in 2 hybrids it was 6, and in 916 B x A70 it was 4. However one hybrid 916 B x A3 scored the highest Index value (9) for all the targeted traits viz., cocoon filament size deviation (1.51), boil-off loss ratio (23.7 %) and neatness (93.0p). This hybrid may be selected for commercial exploitation after large scale testing in the laboratory and in the field.