GUIDELINES FOR TEST REARINGS OF SELECTED SILKWORM HYBRIDS (BIV X BIV AND MULTI X BIV) IN THE IDENTIFIED CSB/DOS FARMS UNDER RACE AUTHORISATION PROGRAMME

1. Before authorization of silkworm hybrids submitted/filed by the breeders, the selected hybrids are to be subjected for testing in each identified race authorization test centre and 10 dfls of each selected hybrids are to be reared. the breeder through linkage agencies shall arrange supply of dfils. 10 dfls of each recommended hybrid will be arranged by the concerned Research Institutes of CSB to serve as Control batches synchronizing with selected hybrids.

2. About 4000 silkworm larvae to be brushed for each hybrid and after III moult exactly 2500 larvae should be retained and divided into five replications consisting 500 larvae of each batch to facilitate undertaking assessment with respect to finalized characters for statistical analysis and reared according to the standard methods.

3. After harvest rate of perfect pupation of each cocoon should be checked verified and recorded.

4. 25 females and 35 male cocoons taken randomly from each replications for assessing cocoon weight, shell weight and shell percentage.

5. The remaining good cocoons (replication wise) shall be weighed (for green cocoon weight) stifled in accordance with the approved/recommended schedule temperatures as detailed in Annexure and the same should be sent to DCTSC, Rayapura, Dharward (South zone) SCTH, Jammu (North Zone) and SCTH Malda (East & North-East zone).

6. The rearing data (strictly without missing any character) and reeling character should be sent to Director, CSR&TI, Mysore/Berhampore/Pampore for compilation and statistical analysis. A The consolidated data is subjected to scrutiny for abnormality, if any, before statistical analysis. A copy (both hard and soft) of the compiled data along with zonal wise results has to be sent to the Director (Tech), CSB for further analysis at All India basis and to place before Silkworm Race Authorization Committee for discussion and finalization of selected silkworm hybrids.
ITEMS FOR REARING TEST / EXPERIMENT:

Rearing Test:

1. Rearing material and rearing conditions including log number, name of the hybrid, refrigerated days, date of brushing, rearing method, rearing environment, leaf quality, rearing season, place, weather, hatchability, basic larvae number, race characteristics and name of the scientist involved should be recorded in the enclosed format-I with five replications.

   [mounting time, temperature/humidity should be recorded up to 4 days after mounting] 24°C – 80% R.H]

2. Rearing performance including larval period, rearing environment, missing percentage, pupation rate, trimoult larvae number, number of non spinning larvae should be recorded in format-II with five replications.

   [Pupation rate of 3 ecdysed larvae (muscardine, uzifly infested silkworms should be made as exceptional)

   Number of live pupae / standard number of silkworms x 100

3. Cocoon yield and cocoon assessment characters viz., cocoon yield (kg/replication i.e per 500 larvae), cocooning percentage, cocoons/lt, cocoon weight, shell weight, shell ratio and qualitative traits should be recorded in format – III with five replications.

4. Reeling characters via., filament length, filament weight, filament size, reliability, raw silk percentage (dry basis) and neatness, boil of loss (shell) should be recorded in the format-IV with five replications. (The data will be forwarded by the CSTRI, Bangalore to the respective test centres with a copy for information to Director (Tech) CSB, Bangalore.

5. The details pertaining to stifling and cocoon characters should be furnished in format- V for all five replications.
ANNEXURE

COCOON DRYING

Drying of Multi x Bivoltine cocoons:

Cocoon should be dried using following temperature profile:

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>110°C</td>
<td>45-60 minutes</td>
</tr>
<tr>
<td>110°C</td>
<td>44-60 minutes</td>
</tr>
<tr>
<td>85°C</td>
<td>60 minutes</td>
</tr>
<tr>
<td>70°C</td>
<td>60 minutes</td>
</tr>
<tr>
<td>55°C</td>
<td>60 minutes</td>
</tr>
</tbody>
</table>

Drying of Bivoltine hybrid Cocoons:

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>115°C</td>
<td>1 hour</td>
</tr>
<tr>
<td>100°C</td>
<td>1 hour</td>
</tr>
<tr>
<td>85°C</td>
<td>1 hour</td>
</tr>
<tr>
<td>70°C</td>
<td>1 hour</td>
</tr>
<tr>
<td>55°C</td>
<td>1 hour</td>
</tr>
</tbody>
</table>

After drying and conditioning the cocoons for one day, degree of drying of cocoons can be calculated as follows:

\[
\text{Degree of drying (\%)} = \frac{\text{Dry weight of cocoons}}{\text{Green weight of cocoons}} \times 100
\]

In case the cocoons are not dried to the optimal level then the cocoon may be once aging dried at lower temperature viz, 70°C and 60°C for short duration to achieve optimum degree of drying.

Optimum degree of drying can be calculated on the basis of shell ratio of cocoon lots using the formula –

\[
\text{Optimum degree of drying (\%)} = 100 - \frac{\text{shell ratio (\%)} + \text{shell ration (\%)}}{4}
\]
Operational procedure of batch type hot air dryer:

1. Take the trays out of the chamber and spread the cocoons on the trays in thin layer.

2. Close the main door, open the forced ventilation inlet and outlet and switch on the drier and fan, raise the temperature inside the drier to the required level.

3. Open the drier door and place the trays and close the door.

4. Dry the cocoons with the above mentioned temperature and time profile (bring down the temperature by 11°C to 15°C every hour with the help of thermostat).

5. Switch off the heater and heater fan after about 5 hours.

6. Allow the cocoons to be inside the drier for half and hour without opening the door.

7. Open the door and remove the cocoons after half and hour.

8. Keep the cocoons for 24 hours in trays with proper aeration before estimating degree of drying.

Precautions:

1. Maximum temperature of drying should not exceed 120°C. This can be achieved with appropriate setting of thermostat for desired temperature.

2. Trays should not be over crowded with cocoons.

3. The drier door should not be opened during drying process.

4. Fan should not be put off during drying process.

5. The cocoon should not be packed in a container or sack immediately after drying for transportation.

6. Accuracy of the thermostat should be checked periodically.

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