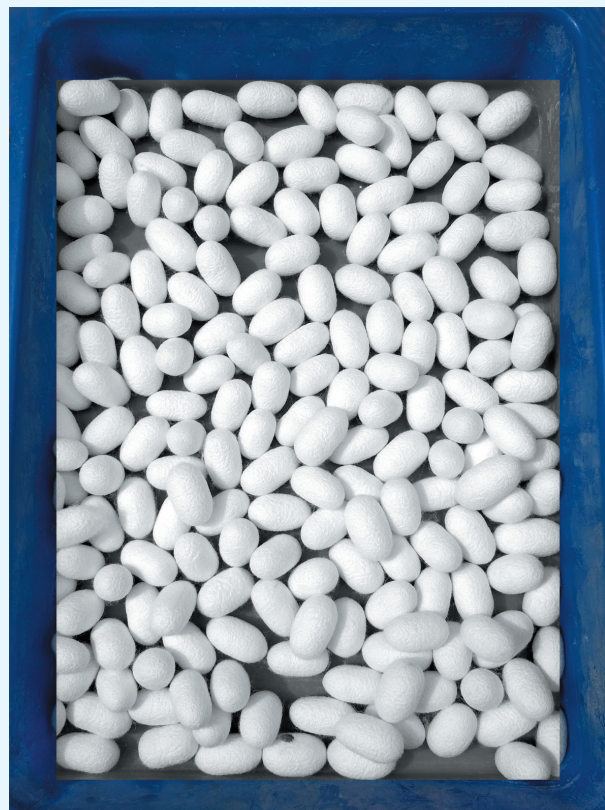


**Salient features of TT21 x TT56**

- Robust hybrid
- Easy to rear by farmers
- Suitable for rearing during summer season
- Better returns for cocoon producers & reelers
- Marked larvae with bluish white body
- Cocoon yield: 65-75kg/100dfls
- Cocoon shell ratio: 22-23%
- Reelability: >88%
- Neatness: 94p
- Renditta: 6.0



TT21 x 1156, a robust hybrid with sustainable productivity offers a better choice for the farmers during summer season. The large scale field evaluation would be conducted during summer seasons of 2018 and 2019 under the supervision of CSRTI-Mysuru.

***Contributions:***

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**TT21 x TT56 - A NEW BIVOLTINE  
DOUBLE HYBRID FOR  
SUMMER SEASON**

**Central Sericultural Research & Training Institute**

(ISO 9001 : 2015 Certified)

Central Silk Board, Min. of Textiles  
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Quite a good number of productive bivoltine hybrids were developed by CSRTI-Mysuru aiming high productivity and economic benefit to the farmers. It is a fact that, high silk content hybrids are sensitive to biotic and abiotic factors. High temperature during summer months coupled with inadequacies in silkworm rearing practices often results in the poor performance of silkworm crops. This leads to economic loss to the farmers. In order to ensure stable crops during summer months, CSRTI-Mysuru has come out with a new bivoltine double hybrid, which can be reared in the higher temperature conditions.

In this context, using biotechnological tools and adopting a strategy of marker assisted selection (MAS), the institute has identified a double hybrid for the sericulturists for summer season. Initially, molecular markers (SSR markers - LFL1123; LFL329; S0809; S0801) associated with thermo-tolerance in silkworms were identified. By utilizing the SSR markers, few thermo-tolerant bivoltine breeds were developed and introgressed the thermo-tolerance trait in silkworms through MAS. Further, thermo-tolerant hybrids were developed by utilising the thermo-tolerant breeds.

These hybrids were tested in laboratory under high temperature conditions, followed by On Station Trials (OSTs) at Regional Sericultural Research Stations (RSRS) of CSRTI-Mysuru situated in Ananthapur (Andhra Pradesh), Salem, (Tamil Nadu) and Kodathi & Chamarajanagar (Karnataka). Also limited scale trial with farmers of Tamil Nadu, Andhra Pradesh and Karnataka during summer (April-June'2017). TT21 x TT56 was found better and yielded 75 kg/100 dfls with shell% of 21.67 in farmers' level.

#### Field performance of TT21 x TT56

| State | No of dfls | Yield/ 100 dfls (kg) | SCW (g) | SSW (g) | Shell % |
|-------|------------|----------------------|---------|---------|---------|
| TN    | 2000       | 72.0                 | 1.84    | 0.38    | 20.65   |
| KA    | 500        | 84.0                 | 1.767   | 0.393   | 22.23   |
| AP    | 500        | 70.0                 | 1.67    | 0.370   | 22.15   |



#### On Station Trial at RSRS (Ananthapur; Salem; Chamarajanagar; Kodathi) (15 crops)

| Hybrid      | Fec.       | Hach. (%)     | ERR by        |                | Yield/100 dfls (kg) | SCW (g)         | SSW (g)         | Shell %        |
|-------------|------------|---------------|---------------|----------------|---------------------|-----------------|-----------------|----------------|
|             |            |               | No.           | Wt. (kg)       |                     |                 |                 |                |
| TT21 x TT56 | 523<br>±58 | 96.7<br>±2.2  | 7920<br>±1245 | 9.785<br>±3.21 | 61.19<br>±12.25     | 1.470<br>±0.245 | 0.316<br>±0.052 | 21.49<br>±0.91 |
| FC1 x FC2   | 550<br>±82 | 96.12<br>±2.6 | 4552<br>±1375 | 6.266<br>±2.55 | 42.34<br>±14.45     | 1.458<br>±0.235 | 0.325<br>±0.045 | 22.29<br>±0.59 |

(Temperature and RH during rearing: Salem: 27-34°C & 78-95%; Ananthapur: 28-36°C & 66-92%; Kodathi: 24-32°C & 65-90%; Chamarajanagar: 26-33°C & RH-68-90%)