

4. TECHNOLOGY ASSESSED AND TRANSFERRED

Demonstrations on farmers' field

Nagpur

Seventy five FLDs on interventions ICM (41), *desi* cotton under HDPS (15) and intercropping (9) were conducted in Nagpur and Wardha districts. ICM technologies included integrated nutrient management, foliar application of DAP & MgSO₄, plant protection and weed management packages. In *desi* variety Phule Dhanwantary and Roja were undertaken while in cotton intercropping G cot Hy 8 was intercropped with cluster bean Navbharat. Critical inputs along with package of practices were provided to farmers. In the ICM FLD's, average productivity was 1462 kg/ha in ICM FLD as compared to farmers practice of 1119 kg/ha.

Coimbatore

HDPS technology was demonstrated to 15 farmers' (one acre each) in Andhiyur Taluk of Erode district. The season was characterized by unprecedented drought and even irrigated farmers harvested very low yield. Despite this adversity, the HDPS demonstration recorded an average seed cotton yield of 1250 kg/ha while control plots (with Bt hybrid) registered only 750 kg/ha. The B:C ratio under HDPS was 1.68 as against 1.31 in control (BG II hybrid).

Front line demonstrations on Integrated Crop Management were conducted in forty hectares in one hundred farmers' fields. The technologies *viz.*, improved variety Suraj, Integrated Weed Management, Integrated Nutrient Management and Integrated Pest Management, application of growth regulators and soil test based fertilizer recommendation were demonstrated in forty hectares. Due to severe drought the average seed cotton yield obtained in FLD on ICM was only 1235 kg/ha as against the farmers' practice yield of 1094 kg/ha. Ten demonstrations on ELS cotton variety Surabhi are being conducted during summer irrigated season in Tirupattur Taluk, Vellore District of Tamil Nadu.

Sirsa

One hundred demonstrations were conducted

using *G. arboreum* variety, CICR 3, planted under HDPS in 53 villages spread across 12 tehsils in 4 districts *viz.* Sirsa, Fatehabad, Hisar and Hanu-mangarh. Seed cotton yield ranged from 500 - 3250 kg/ha. Twelve demonstrations of CSH-3075, identified for HDPS (planted at 67.5 x 10 cm) were conducted in 7 villages of Haryana and Rajasthan. Average seed cotton yield was 2850 kg/ha under HDPS as against 2447 kg/ha with Bt hybrids thus giving an average increase of 17%. The B:C ratio of CSH-3075 was 2.43 against 1.93 with Bt hybrid.

Front line demonstrations in 95 hectares of land allotted by Ministry of agriculture, cooperation and farmers welfare under NFSM (CC) were planned, implemented and monitored during the season in 40 ha ICM technology with Bt hybrids, 40 ha HDPS with *Desi* cotton variety CICR-3 and 15 ha ICM with *G. hirsutum*. The other varieties demonstrated under HDPS was CSH 3129 (5 ha) and CSH 3129 (10 ha) under normal sowing.

- FLDs of CSH-3129 on 10 ha with 25 farmers of 17 villages in Haryana & Rajasthan States were conducted during 2016-17 crop season through AICRP. Highest seed cotton yield of variety CSH-3129 obtained was 30.17 q/ha whereas seed cotton yield of Bt hybrid grown by corresponding farmers was 27.50 q/ha. The variety gave 9.70 % increase over the Bt hybrid RCH 773. Average seed cotton yield of 25 FLDs conducted with variety CSH-3129 was 25.51 q/ha whereas average seed cotton yield of Bt hybrids at farmers field was 23.22 q/ha. An average increase of 10.37 % was obtained by the farmers for the variety CSH-3129 over the Bt hybrids. Average fibre quality parameters (length, strength & micronaire) of this variety for FLDs conducted in Haryana & Rajasthan was better than Bt hybrid.
- FLDs of CSH-3075 on 5 ha with 12 farmers of 7 villages in Haryana & Rajasthan states was conducted during 2016-17 crop season through AICRP. Highest seed cotton yield of the variety CSH-3075 (HDPS in spacing of 67.5 x 10 cm) was obtained as 32.5 q/ha whereas seed cotton yield

of Bt hybrid (67.5 × 60 cm) grown by corresponding farmer was 26.3 q/ha. The variety gave 23.80 % increase over the Bt hybrid RCH 773. Average seed cotton yield of 12 FLDs conducted with variety CSH-3075 (HDPS) was 28.5 q/ha whereas average seed cotton yield of Bt hybrids at farmers field was 24.5 q/ha. An average increase of 17.12 % was obtained by the farmers for the variety CSH-3075(HDPS) over the Bt hybrids. The cost benefit ratio of CSH-3075 was 2.43 against Farmer's (1.93) and farmer was benefited by Rs 27022/ha by growing CSH-3075 (HDPS) as compared to Bt hybrid.

- Front line Demonstrations (FLDs) on ICM in Bt cotton hybrids were conducted in 40 ha with 100 farmers belonging to 30 villages of Haryana & Rajasthan. Highest seed cotton yield of the Bt hybrid Ankur 3028 was obtained (40 q/ha). Whereas other Bt hybrids namely RCH 773, Sriram 6588, RCH 650 yielded up to 35 q/ha under FLD on ICM. The average seed cotton yield of Bt cotton hybrids in Haryana and Rajasthan was 25.2 q/ha, respectively compared to the 22.4 q/ha under farmers practice. The ICM practice gave 12.5% more yield than Bt cotton hybrids, grown under the normal farmers practice. The cost benefit ratio was 2.25 and 2.2 in Haryana and Rajasthan, respectively compared to 1.79 and 1.7 in farmers practice. Farmers were benefited by Rs 22760 and Rs.17,570 /ha in Haryana and Rajasthan by adopting the ICM practices in Bt hybrid compared to adoption of normal farmers practices.

CROPSAP

Disseminated cotton pest management strategies through ICT tools as one of the stakeholders in Crop Pest Surveillance and Advisory Project (CROPSAP) 2016-17 in 28 districts of Maharashtra.

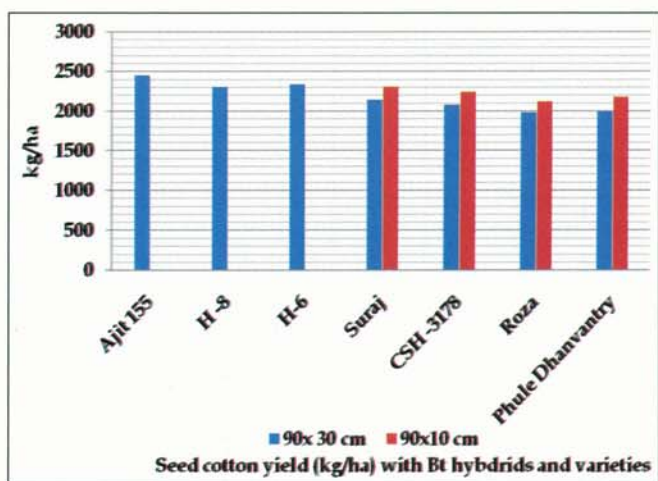
On Farm Demonstrations

Nagpur

The on farm demonstration was conducted during kharif 2016-17 to assess the performance of cotton varieties (*G. arboreum* - P. Dhanwantary and Roja and *G. hirsutum* - Suraj and CSH 3178) and BGII Bt hybrids viz Ajit 155, H8 and H6 (*G. hirsutum*) under

two crop geometries. The sowing of the cotton seed was done on 30.6.2016 and 1.7.2016. The recommended fertilizer dose for variety was 80:40:40 kg N, P₂O₅, K₂O/ha and for Bt hybrids was 120:60:60 kg N, P₂O₅, K₂O/ha and it was applied as splits application in case of nitrogen and as basal dose in case of phosphorus and potassium. Intercropping with green gram and dhaincha was also followed.

The results revealed that the seed cotton yield in case of Bt hybrids ranged from 2306 to 2455 kg/ha with the highest yield in case of Ajit 155 and lowest in H-8 when these Bt hybrids were planted in crop geometry of 90 x 30 cm. In case of straight varieties the seed cotton yield under the same crop geometry ranged from 2081 to 2144 kg/ha in case of *G. hirsutum* and 1984 to 2003 kg/ha in *G. arboreum*. As these straight varieties are not responsive to exploit available natural resources as well as the inputs added to the plants during the crop growing period the yields declined. However, when these varieties were planted at 60 x 10 cm spacing seed cotton yield increased to 2308 to 2245 kg/ha in case of *G. hirsutum* and 2118 to 2178 kg/ha in *G. arboreum* even though the total plant population was about 81 to 83 % of the designed plant population. Thus it is inferred that the straight varieties should be taken up under narrow row spacing (60 cm x 10 cm).



Coimbatore

HDPS demonstration

Large plot demonstration under HDPS was carried out at CICR, RS, Coimbatore. The results revealed

that manual sowing had a huge impact on Seed Cotton Yield (16.8 q/ha), which were higher by 48% and 97.64% as compared conventional plating (75 x 45 cm) of RCH BG II and of Suraj. The net return (Rs. 29,800/ha) was also higher by 113.6% and 635.8%. Benefit cost ratio (1.70) was maximum with HDPS planted by machine.

Varieties demonstration

A total of ten varieties (CCH 4474, CCH 2623, Suraj, Sumangala, Surabhi, Anjali, MCU 5 VT, Supriya, LRA 5166 and Suvin) were demonstrated in the institute farm for the benefit of visitors. The programme was coordinated by Dr (Mrs) S. Usha Rani, Principal Scientist (Agricultural Extension)

and Dr (Mrs) Isabella Agarwal, Principal Scientist (Agricultural Economics).

Sirsa

HDPS demonstration

G.hirsutum: CSH-3075 (67.5×10 cm) vs Bt RCH-773 (67.5×60 cm). CSH-3075 in HDPS gave 2708 kg/ha while Bt check gave 2106 kg/ha. Yield increase under HDPS was 28.6%

G arboreum: CICR-1 & CICR-3, were demonstrated at normal spacing of 67.5 x 30 cm and HDPS spacing of 67.5x20 cm. CICR-1 and CICR-3 gave 6.1 and 9.3% higher yield under HDPS than under normal spacing.

