Case Study on Popularization of CTCRI and TNAU Tapioca Varieties in Namakkal District of Tamil Nadu

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Tapioca is the major tuber crop cultivated in Namakkal District in an area of 15000 ha with a productivity of 32 tonnes / ha during 2006. It is almost grown in 15 blocks of this District. Namakkal District occupies second position in tapioca cultivation, which covers 40 per cent of tapioca area of the Tamil Nadu as an industrial crop for sago industry. Even though area is more in Namakkal District, its production is low due to low productivity which is lower than the state average productivity (48 t/ha). 99 % of tapioca area is under the variety of Mulluvadi. The yield potential of this variety is 30 /ha and it is also susceptible to Cassava Mosaic Disease and highly infected by red spider mite, mealy bug and spiralling whitefly. KVK,Namakkal has formulated five On Farm Testing (OFTs) and eight Front Line Demonstrations (FLDs) with an objective of maximizing yield through introduction of high yielding tapioca varieties (H226, Sree Vijaya, Sree Padmanaba, Sree Athulya, Sree Apporva, Sree Harsha, Sree Rekha and Sree Pavitha) released from Central Tuber Crops Research Institute, Trivandrum and (Co4 & Yethapur 1) TNAU, Coimbatore with integrated crop management practices since 2007 at Sendamangalam, Namagiripettai, Mohanur, Tiruchengode and Rasipuram blocks of Namakkal District of Tamil Nadu.

Plan and Implementation

In addition several multi location trails also conducted in farmer's field through supply of planting materials of new varieties released from CTCRI, Trivandrum at Tiruchengode and Sendamangalam blocks by KVK, Namakkal. These varieties also showing resistance as well as tolerance to the major pest and diseases of Tapioca (Table.1.). Then training cum demonstration on precision farming techniques in Tapioca was conducted at all blocks of Namakkal District in coordination with Department of Horticulture under the financial and technical guidance of Precision Farming Centre, TNAU, Coimbatore from 2006 to 2020. Rainfed Tapioca cultivation practices also demonstrated and totally 82 trainings were conducted at all blocks of Namakkal district from 2006 to 2022 in coordination with Department of Horticulture, Namakkal District. Recent production technology in Tapioca also popularized by means of regular advisory services, field visit, diagnostic visits and also made farmers exposure visit to CTCRI, Trivandrum since 2006. By seeing the yield potential of CTCRI tapioca varieties, 57 farmers from Rasipuram block got the planting materials from CTCRI, Trivandrum through prior booking.

Output

The area under CTCRI high yielding varieties has increased from 261 ha to 2770 ha especially in Sendamangalam and Namagiripettai block of Namakkal District through interchange of planting materials among the farmers for the past 15 years. Now 20 % of the farmers of these blocks are cultivating H226, Sree Vijaya, Sree Athulya, Co4, Yethapur 1 and Yethapur 2 varieties of Tapioca under irrigated condition mainly through drip fertigation and also obtained the yield of 38 – 42 tonnes / ha (Fig.1.). Among the four varieties H226, Sree Vijaya and Sree Athulya occupies major area of cultivation. In addition farmers also experienced complete control of red spider mite incidence, 90 % control of mealy bug through cultivation of resistant variety Sree Athulya and 100 % control of Cassava Mosaic Disease through cultivation of Sree Padmanabha variety.

Outcome

A total of 2700 ha of tapioca area in Namakkal district occupies CTCRI and TNAU varieties. Since tapioca price fixation is done based on starch content of the tubers. The new varieties also having high starch content (28 to 32 %) when compared to Mulluvadi (22 %) and provides good net income (Rs. 80,000/0.4 ha)

to the farmers. The undersized tubers used for making dried chips as a concentrate feed for cattle.

Impact

Apart from Namakkal district, the planting materials of improved varieties of tapioca also supplied by KVK farmers to other District farmers mainly through KVKs (Trichy & Salem) to cover 122 ha. The gradual reduction of area under Tapioca cultivation was noticed from 15260 ha to 7400 ha in 2010 – 2011 & 6000 ha in 2015 -16 due to occurrence of severe drought. But again, the area under tapioca also regained to 16150 ha producing 646000 MT with a productivity of 40 t/ ha since 2017 with new improved varieties (Source: State Department of Horticulture, Namakkal District, 2018). The productivity is increased from 32 tonnes / ha (2006) to 43 tonnes/ ha in 2020 -22. So, the farmers got better economic returns thus helped to educate their children in the good colleges.

Table 1. Varietal wealth – Introduced to Namakkal District by KVK, Namakkal from 2007 to 2022

Variety	Duration (Months)	Irrigated / rainfed	Yield (t/ha)	Starch content (%)	Special features
CTCRI Varieties					
H-226	10	Rainfed	30-35	28-30	Drought tolerant
Sree Prakash	7	Irrigated	30-35	29-31	Early maturing and tolerant to leaf spot
Sree Harsha	10	Rainfed	35-40	38-41	Drought tolerant
Sree Vijaya	6-7	Irrigated	25-28	27-30	Early maturing and tolerant to leaf spot
Sree Rekha	8-10	Irrigated	45-48	28-30	Excellent cooking quality
Sree Athulya	10	Both irrigated & rainfed	38.7	30.2	High extractable starch (30.2%)
Sree Apoorva	10	Both irrigated & rainfed	38.0	29.9	High extractable starch (30%)
Sree Padmanabha	9-10	Irrigated	38	25.8	CMD resistant
Sree Pavithra	10	Irrigated	38	35	High yielding (40 t/ha) & tolerant to CMD
Sree Reksha	10	Rainfed and Irrigated	45-50	27-31	The tubers with brown skin, cream rind and white flesh colour. It is completely resistant to cassava mosaic disease caused by both Indian cassava mosaic virus and Sri Lankan cassava mosaic virus. It is also tolerant to post harvest physiological deterioration.
TNAU varieties					
CO (TP) 4	8.5	Both irrigated and rainfed	50.6	40	Moderately susceptible to Indian Cassava Mosaic Virus
CO (TP) 5	9 to 10	Irrigated	38	28	Resistance to Cassava Mosaic Disease
Tapioca YTP 1 (Yethapur 1)	9 to 10	Both irrigated and rainfed	49.5	25 to 27	Very low incidence of mosaic virus
Yethapur 2	10	Both irrigated and rainfed	46.2	29	Tolerance to Casava Mosaic Disease

Fig. 1: Performance of Tapioca varieties in Namakkal District





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