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High Intensive, Demand Driven Vegetable Cultivation towards Doubling Farmers' Income in Tripura

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Abstract

Improving livelihood of small and marginal hill farmers from economically weaker sections, high intensive, demand driven vegetable cultivation towards doubling farmers' income in Tripura was implanted by ICAR Research Complex for NEH region, Tripura Centre under SCSP Project. Adoption of two most productive double story sustainable vegetable production system namely Sem [lablab bean (*Lablab purpureus*)] - Spine gourd (*Momordica dioica*) and Sem (lablab bean) - Ash gourd (*Benincasa hispida*) vegetable system raised the profit of farmers by Rs. 3-3.5 lakhs. Hence, it is recommended from based the success story that double story sustainable vegetable production may help in doubling income of small and marginal farmers of Tripura.

Background Information

The livelihood of small and marginal hill farmers from economically weaker sections solely depends on rice cultivation (Babu *et al.*, 2020; Yadav *et al.*, 2020). Declining rice productivity and increasing cost of production make the rice farming a non-profit venture to most of farmers of Tripura (Yadav *et al.*, 2019). However, there are possibilities to convert a certain portion of rice land to vegetable farming through adopting the available technologies to raise the income of farmers. ICAR Tripura Centre took an innovative initiative to convert low-lying paddy areas land into vegetable based farming cultivation by adopting a raised and sunken beds technology developed by ICAR NEH, with added structures supported by bamboo structure Machan and with nylon ropes on top.

Intervention

The demand Driven Vegetable Cultivation towards Doubling Farmers' Income programme is implemented at Brahmanpuskuni in West Tripura. Brahmanpuskuni village, Bamutia Block, West Tripura was adopted under SCSP-NICRA Project on "Enhancing Resilient and Adoptive Capacity of Farmers to Climate Variability in Tripura" during 2019-2020. ICAR Tripura centre undertook PRA for identifying climate change induced problem by the farmers in the village. The farmers of Brahmanpuskuni village took an innovative initiative to transform their low-lying paddy land into raised and sunken bed for vegetable based farming, a technology developed by ICAR NEH, with added structures of bamboo Machan (raised platform) of 1.5 m height with nylon ropes on top. The practice of market oriented high intensive vegetable based cropping system generated a huge profit over rice based systems. Sem [lablab bean (*Lablab purpureus*)]

- Spine gourd (*Momordica dioica*) and Sem (lablab bean) - Ash gourd (*Benincasa hispida*) is the most common system adopted by the farmers all throughout the village. Moreover, the understory space below *machan* was utilized to grow intercrops like okra, cowpea, brinjal, etc.

Results

The farmers cultivated lablab bean followed by vegetables like spine gourd, ash gourd, etc., is a highly innovative and remunerative practice as it greatly increase their earnings by 4-5 folds over the traditional practice of growing monocrop rice or rice based systems. Lablab bean grown in *kharif* followed by spine gourd in *rabi* is one of the common system in the village. They are able to produce nearly 6,500-9,000 kg/kani (~ 40,000-56,000 kg/ha) of lablab bean and 4,000-5,000 kg/kani (~ 25,000-31,000 kg/ha) of spine gourd, which provides them with a net income of nearly Rs. 1.6-2 lakhs/kani (~ Rs. 10-13 lakhs/ha) and Rs. 1-1.5 lakhs/kani (~ Rs. 6-10 lakhs/ha), respectively from lablab bean and spine gourd summing up a total of nearly Rs. 3,00,000.00 /kani (~Rs. 18-19 lakhs/ha) annually. Similarly, lablab bean followed by ash gourd generates an annual turnover of nearly Rs. 3.5-4 lakh/kani. Whereas, from the traditional practice of growing sole rice during *kharif* in the lowlands gives a net income of Rs. 6,000.00-8,000.00 /kani (~ Rs. 36,000.00-50,000.00 /ha) or rice-vegetable systems (Okra, Cowpea, etc.) provided them with a net earnings of around Rs. 80,000.00-1,50,000.00/kani (~ Rs. 5,00,000.00-9,37,000.00 /ha) Therefore, shifting the crops from traditional rice to vegetables like lablab bean and spine gourd or ash gourd significantly increased their remuneration and under the new system they could nearly increase their profit by Rs. 3-3.5 lakhs. This significantly contributes towards the government's approach towards doubling farmers' income. However, one out of every three year farmers face challenges of off season floods, water stagnation, cyclone etc. Hence, their livelihood gets severely affected. ICAR Tripura Centre promoted diversification and adoption of Integrated farming system to cope with climate vagaries.

Extension Aspects

The raised and sunken bed technology of vegetable farming generated nearly Rs. 3 lakhs/kani (6.25 kani = 1 ha) as net profit against Rs. 8,000.00 /kani from monocropping of rice. Thus, as an innovative practice, ICAR-NEH, is taking every efforts through its KVK's to disseminate the technology and improve the profitability of farmers by



Figure 1: High intensive vegetable cultivation in Brahmanpuskuni

raising high profit oriented crops.

Conclusion

High intensive, demand driven vegetable cultivation could increase income of small and marginal farmers of Tripura about Rs. 3–3.5 lakhs/kani/annum through adoption double story sustainable vegetable production.

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