

SCIENTIFIC PAPAYA CULTIVATION FOR ENSURING LIVELIHOOD SECURITY OF TRIBAL FARMERS: A SUCCESS STORY IN JHARKHAND

Papaya is one of the important fruit crop in Jharkhand. The tribal people of the state grow papaya plants mainly in backyard gardens. Although, the papaya fruits produced in the homestead are consumed by the farmers as well as being sold in the market, scientific papaya cultivation is at its infancy among the tribal farmers of the state. To bridge this gap, technology demonstration on scientific papaya cultivation was undertaken during 2018-19 by Farming System Research Centre for Hill and Plateau Region, Ranchi of ICAR RCER, in Gumla, Ranchi and Lohardaga district of Jharkhand, under the Tribal Sub Plan of ICAR-All India Coordinated Research Project (AICRP) on Fruits.

For mobilization of tribal farmers, hand-holding support of PRADAN (Professional Assistance for Development Action), a NGO working in the field of farm livelihood was obtained. Before planting, extensive field trainings (8 nos.) as well as exposure visits of tribal farmers regarding scientific papaya cultivation was undertaken. The emphasis was given on field trainings in village itself to the farmers group. The trainings were imparted cover around 1300 tribal farmers.



Technology demonstration with papaya varieties Red Lady, NSC 902 and Ranchi Local was undertaken in more than 600 tribal farmers fields (30,000 plants). The farmers were mainly growing Ranchi Local variety in the backyard gardens due its hardiness, comparatively less susceptibility to pest and diseases. But at the same time being dioecious in nature, only 50-60 % plants produce fruits. To resolve this problem, technology demonstration on “Planting of three seedlings per pit and removal of male plants after initiation of flowering” was undertaken in farmers’ fields. This practice gave 80-90% fruiting plants and ultimately increased the production by 30-40% over that of traditional method of planting of Ranchi Local variety. **Mrs Roopvanti Didi of village Dubang of Lohardaga** district planted 45 nos. papaya plants of variety Ranchi Local as per the above recommendation in an area of nearly 200 m². She obtained 38 fruiting plants and started selling vegetable purpose papaya after the plants attained 5-7 months of age. She sold around 65% of her produce as vegetable papaya with net income of Rs. 8,550/- and rest of the produce as ripe fruits with net income of Rs. 7400/- after 10-13 months of planting. So, she earned a total of Rs 15, 950/- by cultivation of papaya variety Ranchi Local.

The micronutrient application specially Boron application (0.3%) was also demonstrated among farmers. The boron application (4 sprays) minimized the flower and fruit drop to the tune of 22-35% and increased the yield up to 15-20% irrespective of the variety. The papaya ring spot virus (PRSV) is the major disease in the region. To limit its spread through vector, integrated approach was followed by planting of disease free seedlings, avoiding the virus host plants like

cucurbits and solanaceous vegetables near papaya field, uprooting of weeds, spray of neem oil at monthly interval and use of systemic insecticides. This approach helped in minimizing the PRSV incidence up to 50-60%.



Technology demonstration with papaya at farmers field

Impact of the technology

This initiative has proven successful in boosting income of farmers to the range of Rs 1200/- to 175,000/- depending upon area under cultivation and management practices adopted. This initiative worked as a catalyst and inspired other farmers in the nearby villages towards papaya cultivation. Considering the demand of the planting material and looking at the opportunity of entrepreneurship development among the tribal farmers, it was decided to promote papaya nursery raising in the region through participatory mode. For this, training on “Improved Papaya Nursery Raising” was imparted to 16 progressive farmers from Gumla and Lohardaga districts. The necessary inputs like poly bags and papaya seed were provided to the trainees under the TSP of ICAR-AICRP on Fruits. During the month of April-May, 2020, more than 28,000 number of papaya seedlings were produced and sold by the trained papaya nursery growers to nearly 1000 farmers of Lohardaga and Gumla district. By sell of the plants at a average rate of Rs10 per plant, the entrepreneurs could earn average profit of Rs. 12,000/ in a period of three months. The Additional income from the nursery particularly during the lockdown period of COVID-19 has been a boon for the farmers. Further, the profit earned by the papaya growers under this programme has acted as eye opener for other tribal farmers of the area. The Govt. of Jharkhand has also started promoting papaya cultivation among the tribal farmers under different State and Centrally Sponsored Schemes during last two years. It is hoped that scientific papaya cultivation with hand holding of scientific Institutions can prove to be an effective income generation activity for the migrant labourers of the district in the forthcoming years.



Distribution of papaya seed, preparing potting media and raising papaya nursery by farmers

Source: ICAR-Research Complex for Eastern Region, Patna & ICAR- All India Coordinated Research Project (AICRP) on Fruits