

FARMERS' PARTICIPATORY RESEARCH - CUM- DEMONSTRATION PLOTS ON COCOA FOR ENHANCING PRODUCTIVITY AND PROFITABILITY IN ANDHRA PRADESH

D. Jaganathan and P. Chowdappa

Cocoa is considered as a profitable plantation crop which is grown as mixed crop in coconut and oil palm gardens in Andhra Pradesh. Cocoa is included in the developmental agenda of Mission for Integrated Development of Horticulture (MIDH) because of its commercial and export values. The present demand in the Indian chocolate industry is 33,000 MT as against the production of 15,133 MT. The projected demand of cocoa in India by 2050 is 212 thousand tonnes as against the estimated supply of 121 thousand tonnes. With the projected supply, there would be a demand supply gap of 90 thousand tonnes of cocoa beans in 2050. To achieve this target, the cocoa production in the country should increase at an annual growth rate of 7.68 per cent considering the market growth at 20%. Andhra Pradesh is a major producer of cocoa in the country with an annual production of 5600 tonnes (37 %) from an area of 22110 ha (31 %). There is great potential for enhancing production of cocoa in Andhra Pradesh by increasing area under cultivation especially as a mixed crop in coconut and oil palm plantations. Area under coconut and oil Palm in Andhra Pradesh are 121.92 lakh ha and 1.68 Lakh ha respectively.

Directorate of Cashewnut and Cocoa Development (DCCD), Kochi is involved in area expansion of cocoa by providing subsidy schemes and intensive publicity measures through trainings, workshops, field days, seminars and publications. ICAR- CPCRI has a history of 40 years of cocoa research with high yielding varieties, package of practices, post harvest technologies and research findings for the

improvement of cocoa. Keeping this in view, fifty demonstration plots have been established in farmers' gardens of Andhra Pradesh with improved varieties, scientific training and pruning operations, organic farming, integrated nutrient management, integrated pest and disease management and post harvest processing for enhancing the productivity and profitability from unit area. These plots will serve as model plots and also motivate other farmers to adopt cocoa as a profitable crop in coconut/ Oil Palm gardens.

State level launching of the Project

State level launching of this project on 'Farmers Participatory Research-cum-Demonstration plots on Cocoa for Enhancing Productivity and Profitability' implemented by ICAR-Central Plantation Crops Research Institute with financial support from Directorate of Cashew nut and Cocoa Development was held on 21.8.15 at ICAR-Indian Institute of Oil Palm Research, Pedavegi. The programme was inaugurated by Dr. N. K. Krishnakumar, DDG (Hort. Sci.), ICAR, New Delhi. Dr. P. Chowdappa, Director, ICAR-CPCRI presided over the inaugural function. Dr. B. M. C. Reddy, Vice Chancellor, Dr. Y.S.R Horticultural University delivered the keynote address. Dr. P. Kalidas, Acting Director, ICAR-Indian Institute of Oil Palm Research, Pedavegi Smt. G. Andal, Assistant Director of Horticulture, Office of Commissioner of Horticulture, Hyderabad, Andhra Pradesh, Mr. G. V. S. Prasad, Progressive farmer, West Godavari and Mr. G. Shivakumar, Manager, Mondelez India Foods Pvt. Ltd., Andhra Pradesh offered felicitations.

In the inaugural address, Dr. N. K. Krishnakumar informed that research on cocoa cultivation, cocoa processing will be strengthened further with emphasis on evolving improved technologies for organic cocoa production. Further he added that the project to demonstrate technologies on improved varieties of cocoa, pruning techniques, integrated nutrient management, organic farming techniques, Integrated pest and disease management and post harvest processing of cocoa will be highly beneficial for the cocoa growers of Andhra Pradesh for enhancing productivity and income from cocoa cultivation.

Dr. P. Chowdappa in his presidential address elaborated on the background of initiating the Project on Demonstration plots on Cocoa in Andhra Pradesh. Dr. Chowdappa concluded that for establishing cocoa as a mixed crop in coconut and oil palm plantations on scientific lines and also for enhancing productivity in the existing cocoa gardens through adoption of improved

technologies. Farmers needs research and extension support and also coordinated efforts of different stakeholders.

As part of the programme, an interface session on cocoa farming involving farmers, scientists, officials of Dept. of Horticulture and officials of Mondelez India foods pvt. Ltd, Andhra Pradesh was conducted. Field visit was conducted to the farmer's garden in which techniques of cocoa training and pruning was demonstrated as part of the project. About 350 cocoa growers covering five districts in Andhra Pradesh viz., West Godavari, East Godavari, Krishna, Vishakapatnam and Vizianagaram participated in the programme. Dr. C. Thamban, Principal Scientist, CPCRI, Kasaragod welcomed the guests and gathering. Dr. S. Sujatha, Principal Scientist, CPCRI, RS, Vittal proposed vote of thanks. Dr. D. Jaganathan, Scientist, CPCRI, Kasaragod and Principal Investigator of the project coordinated the programme.



Dr. P. Chowdappa, Director, ICAR- CPCRI delivering presidential address



Inauguration by Dr. N. K. Krishnakumar Hon'ble DDG (Horti. Sciences), ICAR, New Delhi



Chief Guest address by Dr. N. K. Krishnakumar DDG (Horti. Sciences), ICAR, New Delhi



Participants of the state level launching of the project



Visit to Demonstration plot on cocoa pruning in West Godavari



Stakeholders interface in farmer's garden

Details of Demonstration plots on cocoa

Technology demonstration on improved varieties in cocoa (25 nos.), training and pruning in cocoa (5 nos.), integrated nutrient management (5 nos.), organic farming (5 nos.), integrated pest

and disease management (5 nos.) and post harvest processing (5 nos.) have been established during 2015 and will be monitored for three years in five districts *viz.*, West Godavari, East Godavari, Krishna, Vishakapatnam and Vizianagaram as given below.

S. No.		Technology demonstration on Details of demonstration
1	Improved varieties (25 nos.)	Establishment of demonstration plots in coconut/Oil Palm gardens with improved varieties of cocoa from CPCRI and other institutes. Planting and critical operations under the guidance of CPCRI scientists.
2	Training and pruning (5 nos.)	Scientific pruning for maintaining the canopy architecture in the existing cocoa gardens.
3	Integrated nutrient management (5 nos.)	Soil test based nutrient application. Combination of chemicals and organic manures will help in enriching the soil fertility.
4	Organic farming (5nos.)	Use of organic inputs for nutrient, pest and disease management. Emphasis on soil health by following principles of organic farming.
5	Integrated pest and disease management (5 nos.)	Use of organic and inorganic inputs for the management of pests and diseases.
6	Post harvest processing (5 nos.)	Scientific post harvest operations: pod breaking, fermentation, drying and packaging.

Partners in Farmers' participatory research

Farmers' participatory research involves the following partners in achieving the stable, sustainable and productive transfer of technologies in cocoa. The conceptual framework of the project is given in Fig 1.

- Cocoa growers
- Scientists of ICAR - CPCRI
- Directorate of Cashewnut and Cocoa Development, Kochi
- Mondelez India foods Pvt. Ltd., Andhra Pradesh
- Department of Horticulture, Andhra Pradesh
- Media – Press, Journals and Video

Farmers who had interest in taking up scientific interventions were selected with the help of Department of Horticulture and Mondelez International after following the principles of participatory research. Their socio-economic background, available resources, farming details, farming practices, knowledge on cocoa, constraints in farming etc. were collected in detail with the active participation of the farmers. One

hectare area each of 50 farmers' gardens was selected for establishing demonstration plots on cocoa. Funds for establishing 50 demonstration plots were sponsored by Directorate of Cashew nut and Cocoa Development, Kochi. Adoption of improved technologies by 50 farmers will be upscaled by Department of Horticulture, KVKs and Mass media. This conceptual model is an by will help in increasing the productivity and profitability of cocoa farming in Andhra Pradesh.

Expected Output of the FPR

- These demonstration plots will serve as model plots for other farmers
- Productivity and profitability of cocoa will be enhanced by the adoption of improved technologies
- Farm field Schools (FFS) will be established which will help in adoption of improved technologies
- Demonstration plots will pave way for achieving sustainability of cocoa sector in Andhra Pradesh.

Conclusion

Cocoa provides additional income and also acts as an income security against instability in price of main crop. It has potential to generate employment opportunities for improving the quality of rural life. Adoption of scientific practices is a prerequisite for a successful cocoa cultivation. It is strongly believed that Farmers participatory research cum demonstration plots established in Andhra Pradesh will help in increasing the productivity and profitability of cocoa. These plots will serve as model plots for other farmers to adopt improved technologies which warrant the efforts from all stakeholders *viz.*, ICAR- CPCRI, DCCD, Kochi, Department of Horticulture, Krishi Vigyan Kendra, Horticultural University, Mondelez India foods pvt. Ltd, Input dealers, marketing traders etc.

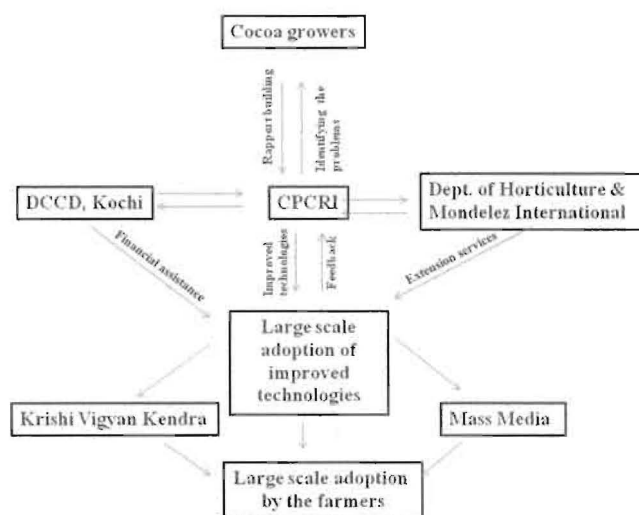


Fig. 1. Conceptual framework of the project