

IDENTIFICATION OF RICE-BASED CROPPING SYSTEMS FOR INCREASING CROPPING INTENSITY UNDER RICE FALLOWS OF GOA

Technology developed by :Dr. Paramesha V., Scientist (Agronomy)
Dr. Parveen Kumar, Director, ICAR-CCARI, Goa
Dr. Manohara K. K., Senior Scientist (Genetics & Plant Breeding)

PROBLEM AND RESEARCH GAP

Majority farmers take up single crop of rice leaving the land fallow during rabi although these lowlands have a huge potential to grow crops due to adequate residual soil moisture after rice harvest. Further, in the recent years, rice production is under threat in the region owing to increased cost of cultivation. Crop diversification is imperative for this region to achieve food and nutritional security. This could be achieved by increasing the cropping intensity by growing less exhaustive, water efficient and fertility restoring crops like vegetables, oilseeds and pulses.

PARTICULARS AND SALIENT FINDINGS

The significantly higher rice equivalent yield (23.5 t/ha) with rice-sweet corn followed by rice-brinjal (14.1 t/ha) as compared to a predominant rice-fallow system of the region (5.50 t/ha). Higher potential usable residue was also found higher with rice- sweet corn system (36.9 t/ha). Results of the energy ratio (46.5), specific energy (0.65 MJ kg⁻¹) and energy productivity (1.52 kg MJ⁻¹) indicate that the rice-sweet corn is most energy efficient system among all the evaluated systems. Although, rice-brinjal system depicted higher on farm employment potential (217 man days ha⁻¹ year⁻¹) with an increase of 317% over mono-cropping, while the economic analysis indicted higher net return (Rs. 95350) and benefit cost ratio (2.57) in rice-sweet corn system. The nutrient balance were positive for N and P, while in all the cropping systems the K balance was found negative. The rice-sweet corn system was found to be the most productive, economical and energy efficient cropping system for the West coast region of India under protective irrigated conditions.



IMPACT

We have found the Goan climatic condition suitable for the farming of sweet corn, the cash crop that is in good demand. Being a highly remunerative crop, sweet corn offers a golden opportunity for farmers, small scale industrialists and unemployed youth to tap the potential market for both fresh cobs and value-added products. We popularized sweet corn, cowpea and summer moong cultivation under rice fallow and increased farmers income by 22%, 12% and 8%, respectively. Approximately, each farmer harvest 1.5-2 quintals of vegetables, 30-40 kg cowpea, and 80-120 sweet corn cobs in the rabi season. The household requirements of vegetables (Tendli, Cucumber, Pumpkin, Red amaranth, palak) were met from the kitchen garden. The use of organics reduced the fertilizer consumption by 30% and the usage of micronutrients and macronutrients at right time in appropriate proportion increased the crop productivity. The usage of micronutrient mixture reduced flower and fruit drops in the vegetables and decreased the pest infestation. The mulching practice in chili and cowpea reduced the water consumption and its requirement. Each farmer got an additional mean net income of Rs. 0.65 lakh in the rabi season by growing crops after the rice harvest. Further, the promotion of crops during the rabi season provided food and nutritional security and also employment to the farm family.

REFERENCES

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