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Adoption of Improved Technologies of Kharif Crops in Arid Zone

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Abstract: A study was conducted in four districts namely, Jodhpur, Pali, Bikaner and Jaisalmer of Rajasthan to study the adoption of improved technologies of kharif crops and to find out the relationship between socio-economic characteristics of the farmers and adoption of technology. The study revealed that extent of adoption of improved technologies of kharif crops was between 29 to 32%. The study also revealed that majority of the farmers had adopted high yielding varieties, seed treatment, application of nitrogenous and phosphatic fertilizers and plant protection measures to a lesser extent.

Key words: Adoption, improved technology, kharif crops.

The arid region of India spread over 38.7 Mha area, out of which 19.6 Mha is located in Rajasthan. The arid region is constrained by environmental limitations such as low precipitation (100 to 450 mm year^{-1}), high temperature (above 45°C during May-June), high wind speed (30 to 40 km h^{-1}), high potential evapotranspiration (1500 to 2000 mm year^{-1}), poor soil physical and fertility conditions, low water retention capacity of soils and low and erratic rainfall (100 to 420 mm). The main crops grown in kharif season in the region are pearl millet, mung bean, moth bean, clusterbean and sesame. The productivity of these crops is very low (250-800 kg ha^{-1}) as compared to potential yield (600 to 2000 kg ha^{-1}). Despite many biotic and abiotic factors, low adoption of the improved technologies is the main problem in arid zone. Hence keeping this in view the study was undertaken to study the socio-economic characteristics of the farmers, the extent of adoption of improved technologies of kharif crops and the relationship between socio-economic characteristics and adoption of improved technologies of kharif crops.

Materials and Methods

The study was conducted in 4 districts of Rajasthan namely Jodhpur, Pali, Bikaner and Jaisalmer. Two panchayat samities from each district and from each panchayat samiti one village was selected. From each village 24 farmers were selected randomly during 2003. Thus the sample size was 192.

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For study the adoption of important practices namely high yielding varieties, recommended seed rate, seed treatment, time of sowing, method of sowing, application of nitrogenous and phosphatic fertilizers and plant protection measures of kharif crops i.e., pearl millet, mung bean, moth bean, clusterbean and sesame were considered. The data were collected using pre-tested structured schedule by personal interview method.

The extent of adoption was calculated by adoption index developed by Karthikeyan (1994). The adoption index (AI) of the farmers for the selected seven recommended practices was worked out by using the formula:

$$A1 = \frac{\text{Respondent's total score}}{\text{Total possible score}} \times 100$$

Respondent's total score = Total number of practices adopted by the farmers multiplied by respective practice weightage and summated.

The responses received from the respondents were categorized as low (up to 33.33%), medium (33.34 to 66.66%) and high adoption (above 66.66%).

Results and Discussion

Socio-economic characteristics of the respondents

Majority (63.02%) of farmers were in the age group of 31 to 50 years, belong to backward caste (60.94%), illiterate (65.10%) residing in the single family (55.21%) system with 6-10 members, had 11 to 20 years farming