“An Economic Analysis of Inter-Cropping (Groundnut + Castor) in Saurashtra Region of Gujarat”

ABSTRACT

Key words: Groundnut-castor intercropping, Cost-Returns analysis, Profitability, Resource use efficiency, Determinant, Constraints.

The intercropping system in dry farming area helps to minimize risk and uncertainty in producing higher yield and thereby to stabilize the total agricultural production in the area. Intercropping is the growing of two or more crops on definite row pattern in the same field.

In this connection, the study on “An Economic Analysis of Inter-Cropping (Groundnut + Castor) in Saurashtra Region of Gujarat” was undertaken with the objective to estimate the cost and returns and resource use efficiency of groundnut-castor intercropping production. The survey was carried out for the kharif season of 2015-17.

In all 144 respondents, of which 48 for sole groundnut, 48 for sole castor and 48 for groundnut-castor intercropping farms were selected using multistage sampling technique from two districts of Saurashtra region of Gujarat viz., Junagadh and Gir-somnath. The collected data were analyzed using tabular analysis for various cost concepts and income measures. Cobb-Douglas production function was used to work out the resource use efficiency and the garrets ranking technique was also used to identify constraints in groundnut-castor inter cropping production.

The findings revealed that the farmers having higher age (36-50 years), group indicating rich experience in their occupation. Most of the farmers (79%) were educated and having good education background leading to better awareness on each cropping system and their respective technological attributes.

The total cost of cultivation per hectare of the overall sample farms of sole groundnut, sole castor and intercropping of groundnut + castor was found about Rs. 71451, Rs. 63869, and Rs. 107944, respectively. The average yield of sole
groundnut, sole castor, intercropping of groundnut + castor was recorded about 1927 kg/ha, 2379 kg/ha, 3925 kg/ha, respectively. The average net income obtained from sole groundnut, sole castor and intercropping groundnut + castor were Rs.13189, Rs.38459, Rs.59405, respectively. This indicates that the intercropping groundnut + castor was found highly beneficial to the farmers. The equivalent yield of groundnut + castor intercropping ranged from 4007 kg/ha on marginal farm to 3789 kg/ha on large farms.

The resource use efficiency of groundnut + castor intercropping found about 67 per cent. The elasticities of output with the plant protection chemical and family labour negative and significant. Indicating over-utilized these inputs. It implies that the cost of hired labour were positive and significant. Indicating underutilized these inputs. Cost of seed, cost of fertilizer, cost of manure and irrigation have the also found to negative effect on intercropping production.

As result out of the total 144 observations used in the model, 33.33 per cent of the respondents (48) adopted intercropping, whereas 66.67 per cent (96) were not following the practice of intercropping, at least during the last the three years in the study area. The goodness of fit of the model reported by McFadden R² was 0.92 and the same reported by McFadden Adj. R² was 0.81. The prediction success with a 50-50 classification system revealed that about 97.22 per cent of the sample farmers were correctly classified on the basis of their preference to adopt intercropping in the last three years.

The respondents adopting groundnut + castor intercropping systems faces the production constraints *viz.*, non-availability of labour in timely, production of groundnut as a intercrop is less than the production of groundnut as a sole crop and castor as a sole crop, lack of proper knowledge of intercropping pattern, lack of sufficient irrigation facilities, *etc.* The input utilization pattern has revealed the possibilities of improving profit through reallocation of resource alone, the extension agency need to be intimated about the same which in turn would lead to improve farm efficiency as well as profits. The groundnut + castor intercropping system is highly beneficial to the farmers, need to be popularized in large extent in Saurashtra region.