

## Economics of Pesticide Use in Cotton Production in Mahaboob Nagar District of Andhra Pradesh

**Key words :** Cotton production, Economics of Pesticide

India is the largest producer and consumer of pesticides in South Asia and the pesticide use has been on the rise for the last three decades. Andhra Pradesh is the largest user of pesticides in the country followed by Gujarat, Maharashtra, Punjab and Tamil Nadu. Though pesticide use is claimed to have contributed to food security by way of reducing crop production and post harvest losses, there is a growing concern about the ill effect of pesticides on human health, natural resources and sustainability of agricultural production which are external effects of pesticide use. The present study was carried out to estimate the expenditure of plant protection chemicals on cotton production in MahaboobNagar district of Andhra Pradesh.

The data for this study was taken from the Cost Of Cultivation Scheme under DES sponsored by the Govt. of India. Random sampling procedure was adopted to select the respondents. In Mahaboobnagar district three mandals were selected and from each selected mandal one village was selected and 20 farmers were chosen randomly to make the total sample of 60 farmers for the present study. The data pertaining to the expenditure on plant protection chemicals on cotton production for block period of 2008-09. Multiple linear regression model was used to estimate the expenditure on plant protection chemicals on cotton production.

Multiple linear regression model is

$$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5$$

where Y= Expenditure on plant protection chemicals(Rs)

X1= Area under ctton crop (Ha)

X2= Expenditure on fertilizers(Rs)

X3=Expenditure on manures(Rs)

X4= Total family income(Rs)

X5= Dummy for pest intensity (0 for low and 1 for high)

Multiple linear regression model was fitted considering the expenditure on pesticides as dependent variable and area under cotton, fertilizers,

manures, total family income and pest intensity (0-1 dummy) as independent variables. It was evident from the that the area under cotton crop and pest intensity were positively contributing to expenditure on plant protection chemicals and were significant at one and 10 % level of probability respectively. The regression coefficient of area under cotton crop was 7368.3 indicating an increase in one hectare area under cotton crop there would be an additional expenditure of Rs. 7368.3 on plant protection chemicals. Similarly the pest intensity (0-1 dummy) was found to be positively contributing to expenditure on plant protection chemicals which were significant at 10 % level of probability. It clearly indicated that the farmers in the study area were incurring more expenditure on pesticides when high pest menaced was noticed in the field. The regression coefficient of manures was negatively significant(-3.873) at 1 % level suggesting that an increase in the expenditure on manures results in the reduction of plant protection chemicals expenditure by Rs.3.87. hence application of manures would result in reduction of expenditure on plant protection chemicals. This is in conformity with the opinion of James cook and Backer (1983) that "organic amendments can favor biological protection of the plant. The biological control achieved with organic amendments results in part, from enhanced competition among the micro organisms for nitrogen, carbon or both may be expressed as fewer prop gules germinated or less pre penetration growth of the pathogen in the infestation court'. However the regression coefficients of other variable i.e. expenditure on fertilizers and total family income were not contributing significantly to the expenditure on plant protection chemicals.

The area under cotton crop and pest intensity (dummy variable) was contributing positively and significantly to the expenditure on PPC's. The expenditure on manures was found to be negatively contributing to the expenditure on PPC's.

Table 1. Regression coefficients of factors effecting expenditure on Plant Protection Chemical's (PPC).

S.NO	Variable	Regression coefficient	Standard error	T value
1	Area under cotton crop	7368.3*	2041.0	3.610
2	Expenditure on fertilizers(Rs)	0.881	0.8385	1.051
3.	Expenditure on manures(Rs)	-3.873*	1.0598	3.655
4.	Total family income	-0.0158	0.0271	0.584
5.	Pest intensity (0-1 dummy)	6610.4**	2613.2	2.530
	intercept	3944.21		
	Standard error estimation	7342.35		
	R <sup>2</sup>	0.8950		
	R <sup>-2</sup>	0.8550		

#### LITERATURE CITED

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