

SUPPLY RESPONSE OF CHILLIES IN ARID DISTRICTS OF WESTERN RAJASTHAN

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ABSTRACT

District-wise secondary data for arid districts of western Rajasthan reporting more than 500 ha area under chillies (Jalore, Jodhpur, Nagaur and Pali) were used to study its supply responses. The response was stipulated to follow dynamic Nerlovian model. The results revealed that price signals play a key role in the decision making process on area allocation. Extension of irrigation facilities leading to higher yield would inevitably attract more area under chillies in arid region of western Rajasthan.

INTRODUCTION

The chillies, with 12432 ha cropped area and 3960 tonnes of annual production, make a popular cash crop in the assured irrigation pockets of western Rajasthan. The crop now has greater cultivation potential in the newly developed irrigated lands. Past studies (Devi and Rajgopalan, 1965; Jhala, 1979; and Gajja et al., 1983) on the lagged responses support the hypothesis of positive supply response from the farmers. Supply responsiveness of chillies assumes great importance in the context of recent increase in the irrigated area in western Rajasthan. This study is, therefore, an attempt to evaluate district supply response and the factors influencing the mechanism of area allocation in favour of chillies.

MATERIAL AND METHODS

Four arid districts viz., Jalore, Jodhpur, Nagaur and Pali, having more than 500 ha area under chillies for over 26 years period, were selected for the present study. The principal data base constituted harvest price of chillies, yield per hectare, irrigated area, and the area under this crop in each district. Secondary data were collected from the Statistical Abstracts of Rajasthan (1956-57 to 1981-82). The supply response of the crop under study was stipulated to follow dynamic Nerlovian Model. Thus the long run desirable area represented by area (A^*_t) allocated to the crop in time 't' was stipulated to be determined by its lagged prices, yield and own area.

A^*_t was assumed to be related to the harvest prices (P) lagged by one year ($t-1$) as follows :

districts. Thus, it seems that current area allocation under chillies was affected by the considered determinants with uniformity in the districts taken for the study.

The lagged model usually suffers from serial dependence which violates the basic tenets of OLS of independence of error residual, resulting into biased estimates of the regression coefficients (Rao and Miller, 1972). In the present context Durbin-Watson 'd' and Durbin 'h' statistics were estimated to test the serial correlation (Table 1).

The computed value of 'h' statistics for each district does not exceed the critical value + 1.645 at 95 per cent confidence limit, which leads to acceptance of null hypothesis that errors were serially independent. Thus the model specification can be considered as reliable.

To measure the responsiveness of current area (A_t) under chillies, short run and long run elasticities of the same with respect to lagged price (P_{t-1}), productivity (Y_{t-1}), and irrigated area alongwith coefficient of adjustment were worked out (Table 2).

Table 2. Average response elasticity of chillies with respect to prices, yield and irrigation and the coefficient of adjustment in arid zone of Rajasthan (1956-82)

District	Price elasticity		Yield elasticity	Irrigation elasticity	Coefficient of adjustment
	Short run	Long run			
Jalore	0.39 25**	0.7298**	0.2891*	0.2346*	0.5378
Jodhpur	0.4503 **	1.7587**	0.0065*	0.0791**	0.2299
Nagaur	5.2537**	6.5094**	29.0936*	10.0560**	0.8071
Pali	0.2864**	0.3703**	0.3422	0.4844	0.7735

**Significant at 1 per cent level

*Significant at 5 per cent level

A perusal of Table 2 reveals that farmers in all the districts responded preponderantly to the price signals. The coefficient of yield elasticity and elasticity of irrigated area were positive in all the districts. Finally, from the coefficients of adjustment it can be inferred that area under existing pricing structures for chillies in all the arid districts endowed with irrigation may be augmented profitably.

The study conclusively reveals that decisions regarding area allocation of this crop strongly correspond to its harvest price. It is also expected that yields of the chillies and irrigated area would also exert positive influence on area allocation to this crop.

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