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## Resource use efficiency in dry chilli cultivation

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### Abstract

The spice has innumerable uses for commercial, nutritional as well as medicinal. It is used for preparation of oleoresin that has great export potential and demand in the world market. Chillies are excellent source of Vitamin, A, B, C and E with minerals like molybdenum, manganese, folate, potassium, thiamin, and copper. In addition, medically used as pain killer, Antibiotic as well as included in Ayurvedic medicines. The medicinal properties in Chillies help to combat various disease like cancer, heart attack and Lung diseases. Chillies are used throughout the world as a spices.

**Keywords:** Work out, efficiency in chilli cultivation, Ayurvedic medicines

### Introduction

Chilli is not only used as a food additives but also for various medicinal purposes. The capsaicin extracted from ripe dried fruits is used in pharmaceutical preparations and medicines related to heart diseases. The daily use of Chillies stimulates saliva and enables proper digestion and good blood circulation. The extracts of Chillies are used in preparation of ginger beer and other beverages. It is also used as an anti-irritant in prickly heat powder, cosmetics, skin ointments and pain balms. Chilli has also acquired a great importance in food and beverages industries in the form of oleoresins, which permits better distribution of coloured and flavour in food as compared to Chilli powder. The food industry prefers the use of highly coloured and less pungent chillies for the preparation of oleoresin. Chilli has antioxidant, anti-mutagenesis, hypocholesterolemic and immunosuppressive properties.

World Chilli production is primarily concentrated in South Asian countries to an extent of about 55 per cent of total world production. India is the single largest producer contributing for about 38 per cent followed by neighbours China with 7 per cent Pakistan and Bangladesh contributing about 5 per cent each. Rest of the output spread across South American countries and African countries. India's Chilli exports are currently in bull stage and Chillies exports from India are mostly to UAE, Bangladesh, Pakistan, Saudi Arabia, UK, Bahrain, Qatar, Nepal, Oman, Maldives, Kuwait and US. Among these countries UAE, Pakistan, Bangladesh, UK, Saudi Arabia and Nepal are the major exporter of India's Chillies.

### Methodology

A schedule was designed for data collection by keeping in view the objectives of the study, the data were collected for the year 2017-18 through personal interviews of farmers, village-traders, Wholesalers, commission agents retailer and Agriculture produce market committee. The survey method was followed for data collection. Data pertaining to cropping pattern, input utilization, Cost of cultivation and returns were collected from the selected growers and other relevant information related to marketing of dry chilli was collected through a survey method with the help of pre-tested schedule.

The present study was undertaken in Buldhana district of Vidarbha region. The district was selected purposively. The data pertained for the year 2017-18. Total tahsils in Buldhana district is 13. Out of Thirteen tahsils in Buldhana district two tahsils viz. Sindkhed raja and Deulgaon raja were selected for the present study. From each tahsil, 3 villages were selected randomly for present study. schedule was designed for data collection by keeping in view the objectives of the study, The data were collected for the year 2017-18 through personal interviews of farmers, village-traders, Wholesalers, commission agents retailer and Agriculture produce market committee. The survey method was followed for data collection. Data pertaining to cropping pattern, input utilization, Cost of cultivation and returns were collected from the selected growers and other relevant information related to marketing of dry chilli was collected through a survey method with the help of pre-tested schedule.

## Result and Discussion

Cobb-Douglas production function the regression coefficient directly shows the production function elasticity hence, human labour, bullock labour, manure and fertilizers could not influence on dry chilli production significantly in small size group. About 70 per cent variation was explain by the variables included in function.

It is observed from that, in medium size grouped seed was

significant at one per cent level. The other remaining variables were non significant. In Cobb-Douglas production function the regression coefficient directly shows the production function elasticity hence, human labour, bullock labour, manure and fertilizers could not influence on dry chilli production significantly in small size group. About 70 per cent variation was explain by the variables included in function.

**Table 1:** Cobb-Douglas production function for dry chilli

Sr. No.	Particulars	Size of land holding			
		Small	Medium	Large	Overall
1	Constant (Intercept)	2.1067	-1.029	-1.1098	0.9732
		-1.377	-0.3238	-0.5639	-0.1915
2	<b>Coefficients</b>				
A	Human Labour (X <sub>1</sub> )	-0.0515 (-0.3617)	-0.0686 (-0.1092)	0.3550*** (-0.125)	0.0762 (-0.0818)
B	Bullock Labour (X <sub>2</sub> )	-0.0992 (-0.1853)	-0.0287 (-0.0758)	-0.0645 (-0.0529)	-0.0971* (-0.0728)
C	Seed (X <sub>3</sub> )	1.0172** (-0.476)	-0.0434 (-0.1222)	0.2187* (-0.1581)	0.6708*** (-0.079)
D	Manures (X <sub>4</sub> )	-0.1477 (-0.167)	-0.0151 (-0.0723)	0.5877*** (-0.1354)	0.0629 (-0.0727)
E	Fertilizers (X <sub>5</sub> )	-0.2493 (-0.4018)	1.0058*** (-0.1448)	0.3945*** (-0.12240)	0.0408 (-0.0547)
3	Coefficient of determination (R <sup>2</sup> )	0.70	0.87	0.97	0.82

**Note:** Figures in parenthesis are indicates standard errors

\* indicates significant at 10% level of significance.

\*\* indicates significant at 5% level of significance.

\*\*\* indicates significant at 1% level of significance.

It is observed from Table that, in large size grouped seed was significant at 10 per cent level. The other remaining variables were non significant. In Cobb-Douglas production function the regression coefficient directly shows the production function elasticity hence, human labour, bullock labour, manure and fertilizers could not influence on dry chilli production significantly in small size group. About 70 per cent variation was explain by the variables included in function.

It is observed from Table that, in overall size grouped seed was significant at one per cent level. The other remaining variables were non significant. In Cobb-Douglas production function the regression coefficient directly shows the production function elasticity hence, human labour, bullock labour, manure and fertilizers could not influence on dry chilli production significantly in small size group. About 70 per cent variation was explain by the variables included in function.

presents the distribution of farmers in the three categories i.e. small, medium and large according to their size of holding. Out of the total 90 selected cultivators 53.33 per cent cultivators belonged to small holding groups, 28.89 per cent medium landholding groups and 17.78 per cent were large farmers.

On the basis of average size of holding 90 chilli cultivator are categorized in to small, medium and large according to their size of holding contributed 1.70 hectare, 3.13 hectare and 5.33 hectare respectively. while average size of holding is 3.48 hectare for overall 90 farmers.

Family size and it's component are basically the functions of economic and social characteristics, custom and religious belief of society. The family size of farmers plays important role in managing the chilli crop. Family members work as a

farm labour as and when required. In view of this, the composition of family size of the selected farmers was studied to know the of labour force at his hand. The details of average family availability of labour force. revealed that, the share of male in family size was highest in medium size group i.e. (50%) where as share of female was highest in small size group (40%) and it is followed by large size group i.e. (33.33%). The share of children in family size was observed highest in small size group i.e. 4.

### Marginal value of product to factor cost

Sr. No.	Particulars	M.V.P. to factor cost size group			
		Small	Medium	Large	Overall
1.	Human Labour (X <sub>1</sub> )	-0.00763	-0.00910	0.04277	0.01019
2.	Bullock Labour (X <sub>2</sub> )	-0.23548	-0.09530	-0.38601	-0.34182
3.	Seed (X <sub>3</sub> )	31.1335	-1.14560	5.80026	18.5663
4.	Manures (X <sub>4</sub> )	-0.10840	-0.00985	0.33924	0.04111
5.	Fertilizers (X <sub>5</sub> )	-0.02205	0.10703	0.02979	0.00373

### Conclusion

The benefit cost ratio of dry chilli cultivation at cost 'C<sub>2</sub>' was 1.71 in small group, 1.64 in medium group and 1.63 in large group. This indicates that, cultivation of chilli crop was economically beneficial.

Cobb-Douglas production function analysis, Value of coefficient of determination i.e. R<sup>2</sup> was 0.87 means 87 per cent variation in yield explained by selected variable

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