

# Economic Aspects of Production and Constraints of Lemon Grass in Bilaspur District, Chhattisgarh, India

Shubham Kumar Thakur\*, B.C. Jain, Vijay Kumar Chaudhary, Shubhi Singh and Chandrakala

*Department of Agricultural Economics, Indira Gandhi Krishi Vishwavidyalaya, Raipur, Chhattisgarh, India*

\*Corresponding author: shubhamcks@gmail.com

Received: 11-06-2023

Revised: 23-08-2023

Accepted: 02-09-2023

## ABSTRACT

The cultivation of medicinal and aromatic plants (MAPs) has the potential to provide significant economic benefits to farmers in Bilaspur district, Chhattisgarh, India. However, there are a number of constraints that limit the growth of this sector. This study investigates the economic aspects of MAP production in Bilaspur district, and identifies the major constraints that farmers face. The study finds that the area under cultivation for MAPs has been increasing in Bilaspur district, but the growth rate has been slower than in other parts of Chhattisgarh. This is due to a number of factors, including the high cost of planting material, lack of technical knowledge, and limited access to markets. The study also finds that the profitability of MAP production varies depending on the crop. Lemon grass is the most profitable MAP in Bilaspur district. However, the profitability of MAP production is still lower than that of other crops, such as rice and wheat. The study recommends a number of policy interventions to promote the growth of the MAP sector in Bilaspur district. These include providing subsidies for planting material, improving access to technical knowledge, and developing market linkages for MAPs. The study concludes that the cultivation of MAPs has the potential to provide significant economic benefits to farmers in Bilaspur district. However, the growth of this sector is constrained by a number of factors. The study recommends a number of policy interventions to promote the growth of the MAP sector in Bilaspur district.

**Keywords:** MAPs (Medicinal and Aromatic Plants), CAGR (Compound Annual Growth Rate), Trends, constraints

The present study was conducted in Chhattisgarh state, where the Chhattisgarh Government had declared the state as "Herbal state" with an objective to conserve medicinal plants, cultivation of medicinal plants, non-destructive harvesting, promote organized trade and promotion of M&APs based industries for processing of M&APs so as to generate the additional employment opportunities in the state, improve socio-economic status of rural communities and provide health cover are the main activities taken up by the M&AP Federation to achieve the objectives

of herbal state. The Chhattisgarh State Medicinal Plant Board, in its survey, has identified occurrence of around 2,021 medicinal and aromatic plants (M&APs) in the state. Total area under medicinal & aromatic plants cultivation in Chhattisgarh is 11538.64 ha. It was felt necessary to probe in to

**How to cite this article:** Thakur, S.K., Jain, B.C., Chaudhary, V.K., Singh, S. and Chandrakala. (2023). Economic Aspects of Production and Constraints of Lemon Grass in Bilaspur District, Chhattisgarh, India. *Agro Economist - An International Journal*, 10(03): 209-212.

**Source of Support:** None; **Conflict of Interest:** None



the economic aspects of production, processing and marketing of major medicinal and aromatic crops which grown in Bilaspur region with following objectives:

- ♦ To analyze trend and growth rate in area, production and productivity of major medicinal and aromatic plants in the study area.
- ♦ To identify the constraints and to suggest remedial measures to overcome them.

## METHODOLOGY

The state of Chhattisgarh was purposively selected because it is a major producer of medicinal and aromatic plants (MAPs). The blocks of Kota and Masturi were purposively selected because they have the highest area under MAP cultivation in the state. The villages of Changori, Mohandi, Tilakdih, Loharsi, Masturi, and Seepat were selected using a proportionate method, with 2% of the total villages in each block being selected. A total of 45 lemon grass producers were identified in these villages, and they were stratified into three size categories: small, medium, and large. Multistage sampling method was used to select 20 small farmers, 17 medium farmers, and 8 large farmers for the study. Primary data was collected from the selected farmers through personal interviews using pre-tested questionnaires. Secondary data was collected from the Department of Horticulture, Directorate of Economics and Statistics, and other sources.

### Analytical procedure

Computation of growth rate

$$Y = a \beta^t$$

$$\text{Log } Y = \log a + t \log \beta$$

Where,

$Y$  = Area/ production / productivity of MAP's crops

$a$  = Constant

$\beta$  = Regression coefficient

$t$  = time in year

$$\text{Compound growth rate (\%)} = (\text{Antilog } \beta - 1)100.$$

## RESULTS AND DISCUSSION

### Growth rates of area, production and productivity of lemon grass

The compound and linear growth rate of area, production and productivity of lemon grass in Bilaspur district is estimated in this section.

**Table 1:** Area, production and productivity of Lemon Grass in Bilaspur district (2012-13 to 2021-22)

YEAR	LEMON GRASS		
	BILASPUR		
	Area (in ha.)	Production (in MT)	Productivity (in Tonnes)
2012-13	304	3945	12.98
2013-14	306	4150	13.56
2014-15	311	4422	14.22
2015-16	318	4695	14.76
2016-17	320	4707	14.71
2017-18	350	5153	14.72
2018-19	377	5882	15.60
2019-20	382	5402	14.14
2020-21	321	4132	12.87
2021-22	356	5059	14.21

**Source:** Directorate, Land Record, Raipur, Directorate of Economics and Statistics.

The average productivity of lemon grass in Bilaspur is 14.17 tonnes per hectare. The standard deviation of productivity is 0.84 tonnes per hectare, indicating that there is a moderate amount of variation in productivity from year to year. The maximum productivity was 15.6 tonnes per hectare in 2018-19.

There is a slight upward trend in productivity over the years, with the exception of a slight decrease in 2020-21. The increase in productivity may be due to a number of factors, such as improved cultivation practices, better varieties of lemon grass, or more favorable weather conditions.

- ♦ The productivity of lemon grass in Bilaspur is higher than the national average of 12.5 tonnes per hectare.
- ♦ The productivity of lemon grass in Bilaspur is comparable to the productivity of lemon

grass in other states, such as Uttar Pradesh and Karnataka.

- ♦ The area under cultivation for lemon grass has remained relatively stable over the years, suggesting that the increase in productivity is due to factors other than increased acreage.
- ♦ There is a positive correlation between the area under cultivation and productivity, indicating that larger farms tend to have higher productivity.

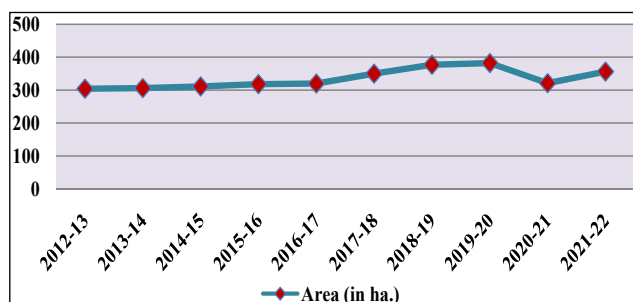


Fig. 1: Area of lemon grass in Bilaspur District

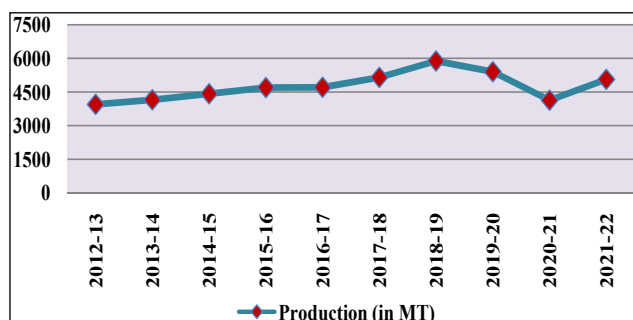


Fig. 2: Production of lemon grass in Bilaspur District

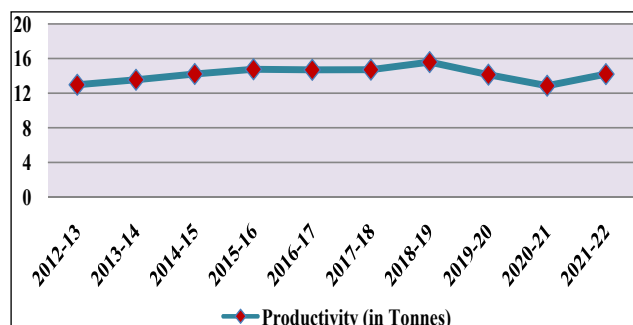


Fig. 3: Productivity of lemon grass in Bilaspur District

## Estimation of compound growth in area, production and productivity of lemon grass in Bilaspur district

Table 2: Compound growth in area, production and productivity of lemon grass in Bilaspur district

Crops	BILASPUR		
	Area	Production	Productivity
Lemon Grass	0.8947**	1.05048**	0.1551

\*\* Significant at 1% level; \* Significant at 5% level.

The CAGR of the area under cultivation of lemon grass is 89%, while the CAGR of the production is 105%. This means that the productivity of lemon grass is increasing at a CAGR of 16%.

This suggests that lemon grass has the potential to become a more profitable crop in Bilaspur. These inferences suggest that lemon grass may have reached its peak in terms of growth. This could be due to a number of factors, such as the availability of resources, the demand for the crop, and the government policies that support its cultivation.

## CONSTRAINTS

### Production Related Problems

The problems faced by the farmers were classified broadly under production and problems and the results have been presented in Table 4.

Based on the data in the Table 4, it could be observed that all the farmers faced the major problem of high prices of the quality planting material in common. Thereafter discussing group wise, we could notice that the more than 57.00 per cent farmers in all the categories were facing the problem of non-availability of planting material. Irrigation facilities were lacking to more than 38.00 per cent of farmers in all categories.

Small, medium and large farmers were facing the problem of lack of technical knowledge followed by lack of availability of good planting material. Lack of irrigation facilities was the next major problem of the farmers. It was found that there was

**Table 4:** Problems in the production and marketing of lemon grass (Multiple response Percent)

Sl. No.	Problems Faced by Farmers	Small	Medium	Large	Overall
	Number of farmers	17	22	12	51
<b>Production related problems of sampled medicinal and aromatic plants growers</b>					
1	High cost of planting material	98.00	95.00	92.00	95.00
2	Lack of availability of planting material	61.54	62.50	57.14	62.00
3	Lack of irrigation facilities	38.46	50.00	42.86	44.00
4	Insect pest attack and disease	15.38	12.50	14.29	12.00
5	Lack of technical know how	69.23	87.50	71.43	74.00

Figures in parentheses indicate percentages to total.

not much problem of insect pest attack. More than 64.00 per cent farmers in all categories were found to have lack of technical knowledge to grow lemon grass crop.

On an average 74.00 per cent of the farmers reported the lack of technical knowhow. Nearly 62.00 per cent of the farmers were in need for help to meet the scarcity of planting material where as 44.00 per cent of them opined for the problem of lack of proper irrigation facilities

### Policy Implications

- ♦ Establishment of research and development centers: There is a need to establish research and development centers to develop new varieties of MAPs and improve the cultivation practices. This will help to increase the productivity of MAPs and make them more competitive in the market.
- ♦ It was also observed in the study area that there was no processing unit. So, the government should take up initiative to establish the processing facilities in the nearby tehsil or district level to safeguard the interest of the farmers.

### REFERENCES

- Singh, S., Gauraha, A.K., Pathak, H. and Chaudhary, V.K. 2023. Assessing resource use efficiency of paddy crop in tribal and non tribal farm household: A case study of Chhattisgarh. *The Pharma Innovation Journal*, **12**(6): 496-499
- Thakur, S. 2023. An economic analysis of production and marketing of major medicinal and aromatic plants in Bilaspur district of (Chhattisgarh). Ph.D thesis (unpublished). Indira Gandhi Krishi Vishwavidyalaya, Raipur, Chhattisgarh
- Singh, S.R. and Sharma, P. 2011. "Problems and prospects in production and marketing of mint oil in Moradabad district of Uttar Pradesh". *Indian Journal of Agricultural Marketing*, **25**(1): 21-35.
- Mittal, R. and Singh, S.P. 2007. Shifting from agriculture to Agribusiness: The case of Aromatic plants. *Agricultural Economics Research Review*, **20**: 541-550.
- Patra, D.D., Chattopadhyay Ashok K., Singh Tomar, V.K.S., Singh, A., Misra, H.O., Alam, M. and Khanuja, S.P.S. 2004c. Agro-technology of Kalmegh. *Journal of Medicinal and Aromatic Plant Sciences*, **26**(3): 534-537.
- Goswami. 2000. Commercial cultivation of Citronella: a cost- benefits analysis. *Agric. Situ. India*, **57**(1): 25-28.  
<https://agriportal.cg.nic.in/horticulture/>