



**DECOMPOSITION ANALYSIS OF
SAFFLOWER PRODUCTION IN INDIA**



Introduction

The Oilseeds sector has been one of the most dynamic components of world agriculture surpassing the growth of agriculture and livestock products. India is one of the major oilseeds grower as well as the importer of edible oils. India's vegetable oil economy is world's fourth largest after USA, China & Brazil. The oilseed accounts for 14.96 % of the Gross Cropped Area, 1.4 % of the Gross National Product and 7 % value of all agricultural commodities. The production of oilseeds has increased from 26.68 million tonnes in 2015-16 to 29.82 million tonnes in 2017-18. Among seven edible annual oilseeds grown in India, safflower, a multi-purpose crop, grown for its flowers, seeds and as a leafy vegetable occupies an important position in dietary pattern with a production of 55 thousand MT in an area of 82 thousand MT during 2017-18. Globally, India is the largest producer of safflower occupying sixth position with a production 47 thousand MT during 2017-18 (FAOSTAT). Despite many dietary benefits and its uses, safflower remained as a minor crop. Keeping in view the importance of safflower, an attempt has been made to study the growth of total oilseeds in India, safflower in particular and to know the contribution of area and productivity towards production of safflower.

Material and Methods

To analyse the growth rates, time series data on area, production and Productivity of important oilseed crops grown in India from 2005-06 to 2017-18 were collected from annual reports of Directorate of Economics and Statistics (DES), Government of

India. In order to analyse the effect of area and productivity on production, potential safflower growing districts were identified from Karnataka and Maharashtra states which contribute to more than 90 % of safflower production in India. Belgaum, Bidar, Dharwad and Gulbarga districts of Karnataka, Osmanabad, Parbhani and Hingoli districts from Maharashtra were identified for which secondary data on area, production and productivity were collected concerned state agricultural departments based on the availability of the data i.e. for a period from 2007-08 to 2015-16 in Karnataka and from 2000-01 to 2018-19 in Maharashtra.

- To analyse the growth performance of oilseeds in India, Average Annual Growth Rates (AAGR) have been worked out.
- To measure the contribution of area and productivity towards production of safflower Decomposition Analysis was used.

$$P = A_o (Y_n - Y_o) + Y_o (A_n - A_o) + A.Y$$

Where,

A_o = Area in the base period, Y_o = Yield in the base period, A_n = Area in the current period, Y_n = Yield in the current period,

$A = A_n - A_o$ = change in area,

$Y = Y_n - Y_o$ = change in yield

Then, $P = A_o .Y + Y_o .A + A.Y$

Thus, total change in production can be decomposed into three components viz., yield effect, area effect and interaction effect due to change in yield and area.

Results and Discussion

Growth performance of oilseeds in India: The crop wise growth rates indicate (Table-1) that area under almost all the crops except soybean had declined in India. Annually, the area under

groundnut which is a leading oilseed crop declined by 2 %, sunflower by 15.30 %, safflower 10.27 %, sesame 0.41 %, rapeseed and mustard by 1.02 %, linseed by 1.91 % and niger seed by 4.70 %, whereas the area under soybean and castor increased annually by 2.63 % and 2.32 % respectively. Highest decline in area was seen in the case of sesame and rape seed and mustard. With respect to the production, negative trend was recorded in sunflower (-13.40 %), safflower (-7.41 %) and niger seed (-2.85 %). The decline in area and production of safflower and linseed in India was also reported by Gaddi *et al* (1999). Productivity of all the crops increased during the study period which might be the reason for increase in production of some crops even though area declined annually.

Contribution of area and productivity on production of safflower in Karnataka and Maharashtra: The results of decomposition analysis (Table-2) indicates that, area was the major contributor (56.94 %) in production of safflower in the case of Belgaum district followed by Dharwad (37.03 %) and Bidar (20.52 %) districts. While in the case of Gulbarga, the contribution of both area and productivity was negative. The contribution of productivity was remarkable in the case of Bidar (572.00 %). Both the area and productivity influenced the production in the case of Belgaum (409.06 %), Dharwad (1004.97 %) and Gulbarga (461.90 %) districts.

In the case of Maharashtra, during Period – I, productivity effect (114.00 %) was most responsible for increase in production of safflower in Osmanabad district, whereas area effect was negative (-47.00 %). Productivity was a driving force in

Parbhani district with an effect of 110.00 %. The interaction effect was highest in the case of Hingoli district (72.00 %) whereas negative in the case of Parbhani (-65 %) district. In Period II, area and productivity effect was negative in all the districts. However the interaction effect was again high in the case of Hingoli (766.20 %) district followed by Parbhani (573.60 %) district.

Table-1 : Average Annual Growth Rates of Area, Production and Productivity of Oil seed crops in India

S.No	Crop	Area	Production	Productivity
1	Groundnut	-2.00	9.69	9.60
2	Sunflower	-15.30	-13.40	3.18
3	Safflower	-10.27	-7.41	2.04
4	Sesame	-0.41	2.85	3.09
5	Soybean	2.63	4.43	2.18
6	Rapeseed and Mustard	-1.02	1.68	2.28
7	Linseed	-1.91	1.06	3.12
8	Nigerseed	-4.70	-2.85	2.15
9	Castor Seed	2.32	7.02	4.77

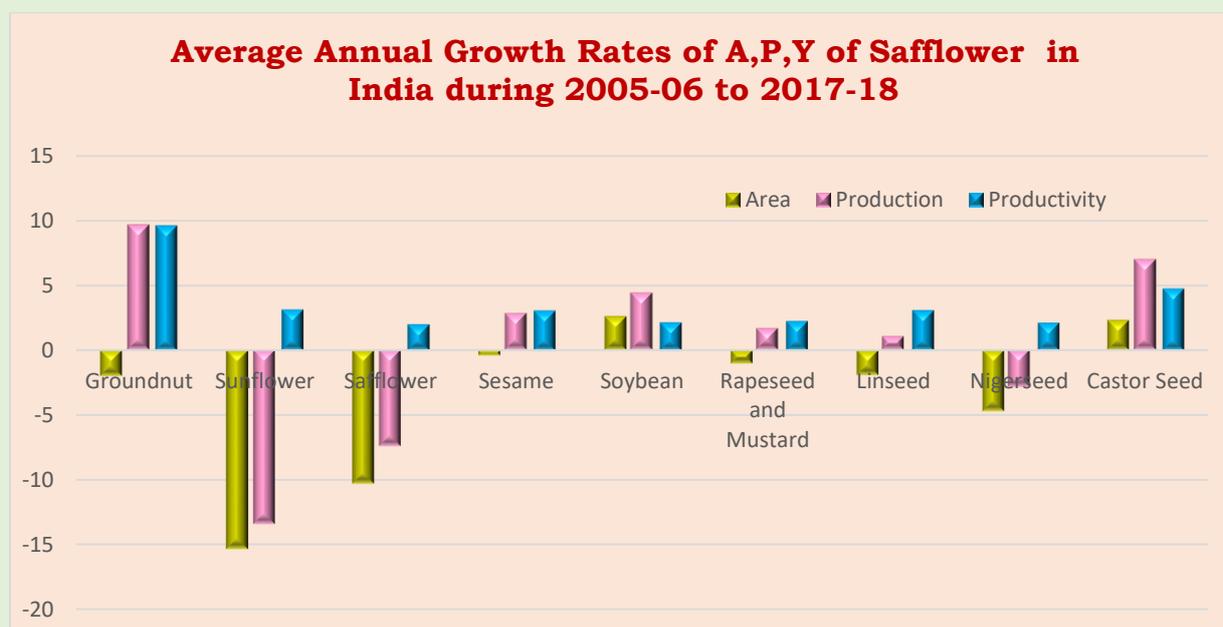


Table-2: Contribution of area and productivity on production of safflower in Karnataka and Maharashtra

State	District	Area Effect	Productivity Effect	Interaction Effect
Karnataka	Belgaum	56.94	-366.00	409.06
	Bidar	20.52	572.00	-492.52
	Dharwad	37.03	-942.00	1004.97
	Gulbarga	-68.90	-293.00	461.9
Maharashtra				
Period – I (2000-01 to 2009- 10)	Osmanabad	-47.00	114.00	33.00
	Parbhani	55.00	110.00	-65.00
	Hingoli	-8.00	36.00	72.00
Period – II (2010-11 to 2018- 19)	Osmanabad	- 206.70	-228.00	534.70
	Parbhani	- 358.60	-115.00	573.60
	Hingoli	- 262.20	-404.00	766.20

From the above analysis, it is revealed that despite several programs and schemes in the form of “Technology Mission on Oilseeds,” the area and production have witnessed negative growth for most of the oilseed crops except soybean and castor. Though, safflower and sunflower are minor oilseeds, they assume importance in dietary pattern and hence, efforts should be made to promote these oilseeds, keeping in view of increasing demand in the international market.

Promoting the latest technologies of oilseed processing such as cold press and extraction of virgin oil will go a long way in boosting production of safflower and sunflower which in turn substantially increases their share in export market.

Reference:

Gaddi G M, Koppad M B, Gummagolmath K C and Naik A D 1999. An economic analysis of growth performance of oilseed crops in India. *Karnataka Journal of Agricultural Sciences*, **12** (1-4 combined): 93-98.