

CONSTRAINTS AND MEASURES OF SORGHUM PRODUCTION IN MADHYA PRADESH

A.M. Rajput¹, K.K. Saxena² & Y.S. Tomar³

In India there is a continuous decrease in the area from 8590 thousand hectares in 1990-91 to 5043 thousand hectares in the year 1998-99, the total production in the country has increased from thousand tonnes in 1966-67 to 5279 thousand tonnes in the year 1998-99, which is mainly due to increase in *kharif* productivity from 497 kg/ha in 1966-67 to 1047 kg/ha in the year 1998-99. Hybrid and high yielding varieties developed during last three decades have mainly contributed to this. Despite this yield increases sorghum could not remain competitive primarily due to alternate crops which are highly remunerative earning much higher returns due to higher price which farmers are ultimately interested for meeting their cash needs.

Madhya Pradesh, state of India situated between 21°6' to 26°31' North latitude and 74°9' to

81°48' east longitude (After dividing Chattishgarh) previously the state has been divided into twelve Agro-climatic zones (fig 1.1). Indore is located in zone number ten i.e. the Malwa plateau representing soybean/sorghum-wheat/gram zone. Sorghum is grown extensively in tropical and sub-tropical environments. Sorghum crop enjoyed the privilege of principal food crop in Malwa plateau and Nimar valley about 25 years ago, now it is staple food crop of small and marginal farmers of Malwa region who has lack of irrigation facilities and inputs. It is also a main source of fodder, feed and Industrial raw material in dry land farming condition owing to its ability to withstand drought condition to greater extent. Sorghum occupies a large area in this region due to wider adaptability of climatic condition and favoring nutritive value to the poor farmer of this region.

Table 1. Area, Production & Productivity of Sorghum & Soybean in M.P.

CROP		90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99
		Sorghum '000 ha	A	1648.2	1381.2	1423.0	1287.7	1043.1	994.2	922.4
	P	1490.3	1007.6	1555.2	1254.9	693.5	837.4	784.4	711.7	731.3
	Y	904.0	728.0	1094.0	986.0	669.0	848.0	858.0	851.0	970.0
Soybean '000	A	2149.4	2648.7	3053.9	3415.0	3225.2	3849.1	4165.7	4469.6	4588.6
	P	2183.7	2092.5	2598.9	3599.4	2870.4	3891.5	3940.8	4845.1	4639.1
Tonnes	Y	1016.0	798.0	851.0	1054.0	890.0	1011.0	946.0	1084.0	1011.0

A= Area in '000 ha, P= Production in '000 Tonnes,

Y= productivity in kg/ha

Source : Basic Agricultural Statistics, from Commissioner, Land Records and Settlement, Gwalior M.P.

In India, Madhya Pradesh stands third position in area and production but ranked fifth in productivity. The area of sorghum in Madhya Pradesh is 763.6 thousand hectare producing 731.3 thousand tons with an average productivity of 970 kg/ha (1998-99). The Indore division presently shares about 33% area and 38% production under sorghum in state with 950 kg/ha productivity

(1998-99) However after the introduction of soybean in the state the food habits of rural consumers have also changed. Sorghum is cultivated both in *rabi* and *kharif* over an area of 9795 thousand hectares in producing 8415 thousand tones of grain with an average productivity of about 859 kg/ha (1998-99).

1. Asso. Prof. 3. Deptt. of Agril. Eco. and Farm Management (JNKVV), College of Agriculture, Indore (M.P.) 452 001
2. Professor, Department of Extension Education, College of Agriculture, Sehore.

Table 2. Division wise Area under Sorghum crop of Madhya Pradesh, 1990-91 to 1998-99 (Area in '000 ha)

SN.	DIVISION	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99
1.	Raipur	1.1	2.8	1.6	0.7	0.8	0.5	2.4	0.8	0.5
2.	Bastar	8.1	7.7	7.5	7.9	7.4	7.0	6.9	6.4	6.3
3.	Bilaspur	4.9	4.6	4.4	4.6	4.4	4.7	4.7	4.5	4.0
4.	Jabalpur	112.7	105.8	110.0	110.7	93.3	90.1	91.7	88.1	86.9
5.	Sagar	100.0	83.4	83.6	79.5	60.8	58.9	56.7	51.7	44.7
6.	Rewa	48.7	45.0	45.6	50.1	44.1	45.6	43.1	40.9	43.2
7.	Indore	427.0	389.8	394.6	360.3	326.0	312.6	304.0	286.3	262.2
8.	Ujjain	435.5	337.3	322.7	283.3	196.0	163.9	128.7	107.1	86.4
9.	Chambal	39.4	27.1	28.3	25.1	21.9	21.4	22.2	19.6	18.8
10.	Gwalior	211.9	151.7	181.6	146.3	104.7	111.1	96.9	88.5	68.9
11.	Bhopal	232.5	204.1	223.8	201.4	169.7	163.9	151.9	137.0	128.7
12.	Hoshangabad	16.5	11.9	9.3	7.8	4.0	4.5	3.2	2.0	3.0
	Reported Area	1638.2	1371.2	1413.0	1277.7	1033.1	984.2	912.4	833.7	753.6
	Non Reported Area	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
	M.P. state total	1648.2	1381.2	1423.0	1287.7	1043.1	994.2	922.4	843.7	763.6

Source : Basic Agricultural Statistics, from Commissioner, Land Records and Settlement, Gwalior M.P.

Table 3. Division wise Production under Sorghum crop of Madhya Pradesh, 1990-91 to 1998-99 (Production in '000 tonnes)

SN	Division	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99
1.	Raipur	0.9	2.2	1.4	0.7	0.5	0.4	1.8	0.6	0.5
2.	Bastar	7.8	7.4	8.3	6.1	4.5	5.4	5.3	4.5	5.7
3.	Bilaspur	4.8	4.0	3.3	4.2	3.2	4.1	3.9	3.6	4.1
4.	Jabalpur	142.4	105.8	129.8	121.4	62.8	95.7	93.0	46.0	61.5
5.	Sagar	108.8	59.6	85.0	79.3	41.5	45.7	49.1	37.1	47.5
6.	Rewa	40.8	24.6	36.4	40.7	27.8	32.3	29.9	27.1	39.9
7.	Indore	368.8	274.3	444.0	306.8	228.9	250.5	290.8	303.2	249.2
8.	Ujjain	403.6	289.4	395.8	341.1	162.0	155.8	103.0	104.1	104.2
9.	Chambal	43.7	28.7	37.1	30.4	20.1	21.7	24.3	19.8	24.7
10.	Gwalior	164.7	74.6	182.8	125.5	59.0	81.2	71.8	69.8	58.8
11.	Bhopal	187.3	117.1	212.3	182.5	71.5	131.5	99.3	84.0	122.5
12.	Hoshan-gabad	15.7	10.5	9.6	6.8	2.3	3.7	2.8	2.5	3.3
	Reported Area	1480.9	998.2	1545.8	1245.5	684.1	828.0	775.0	702.3	721.9
	Non Reported Area	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
	M.P. state total	1490.3	1007.6	1555.2	1254.9	693.5	837.4	784.4	711.7	731.3

Source : Basic Agricultural Statistics of M. P. 1990-91 to 1994-95 and 1994-95 to 1998-99

To step up and constantly maintain production level year after year and to obtain maximum cost-benefit ratio, optimum utilization of land and water resources by adopting efficient cropping system is of utmost important to meet challenge of population explosion. Due to limited area under cultivation, it is very important to increase the production per unit area. In view of the importance of sorghum in *kharif* as food feed and fodder crop, it is essential to retain this crop in the main cropping system of this area, it is therefore required

in the interest of the farmers that technological development are extended to increase the productivity and sustainability of sorghum production.

The aim of the study to analyse the economics of Sorghum in the light of resource availability of farmers in production of Sorghum in Indore and Mhow tehsil of Indore district of Madhya Pradesh. To get the maximum production and profit in Sorghum, it is essential to make an efficient use of various factors of production viz. Land, labour, capital and entrepreneurship.

In this study one of the main objective is to estimate cost and returns of Sorghum crop in the study area. Findings of the present study may help farmers to enhance profitability from Sorghum crop. The important aspect of the study lies in the determination of the cost-benefit ratio of Sorghum crop, so that farmers may get maximum profit with available inputs.

With these main objectives keeping in view the study of the said problem was undertaken. The study was, carried in Indore and Mhow tehsil of Indore district during the *kharif* season of year 1999-2000 with the following objectives:

To identify constraints in Sorghum production and to suggest measures to overcome it.

METHODOLOGY

Indore and Mhow tehsils had been selected for the study and 4 sorghum growing villages were selected from each tehsil. A list of sorghum cultivators was prepared of 8 villages and they were arranged according to their size of holding viz., small (0-2 hectare), medium (2.1-5 hectare) and large (above 5 hectare) and now 10 farmers were selected randomly from each villages. In this way 33 farmers were taken into small holding size, 28 farmers were taken into medium holding size and 19 farmers were taken into large holding size group, on the basis of their holding size. Thus, the present study has accounted total 80 farmers from Indore and Mhow tehsils of Indore districts in Madhya Pradesh. The holding data collected and analysed using tabular method to achieve the stated objectives of the study.

RESULTS AND DISCUSSION

During the study, which was carried out when the data were collected from farmers of five villages. After problems have been noted which was being commonly faced by each group farmers as given below:

1. Lack of technical knowledge—Maximum farmers due to high percentage of illiteracy faced the constraint 'Lack of technical knowledge'.

2. Scattered cultivation—Large area of sorghum being occupied by soybean crop and scattered sorghum cultivation was greatly affected by bird attack, which led sorghum to be fodder crop.

3. Change in cropping pattern—Farmers adopted double cropping and multiple cropping systems, thus early maturing crop was being preferred by the farmers; hence soybean replaced the sorghum area to a great extent.

4. Market prize fluctuations—It was also extracted from farmers views, which were disclosed during contact with them that market prize fluctuation was common in Mhow and Indore mandi, thus farmers would not be able to get reasonable market prize of their produced.

5. Increase in irrigated area—Increase in irrigated area has led to decrease of sorghum area and its production.

6. Producers share was low in selling prize—It was also noted that producers share in selling prize was low and producers pay a lot of amount in various marketing services during marketing. It was seen that Rs. 50 per quintal was charged only for storage, and transportation charges were also very high. Middle man also claimed 6% commission in mandi.

7. Malpractices are involved in the marketing—One more thing was revealed by farmers that a large no of malpractices were involved in the marketing, such as in weighing, unloading, auction and in other services. Farmers were cheated and unnecessary charges are imposed.

8. Low prize—Low selling prize of Sorghum as compared to other competing crop such as soybean, led to decrease in area of sorghum cultivation and its production.

9. Costly seed—It was also told by farmers that purchased seed of improved variety from market was very costly. Small size group farmers purchased seed of improved variety from local agents, who get substantial profit. The profit of agents thus increased the cost of cultivation.

10. Lack of cooperation—Agriculture state department does not fully cooperate to farmers in regard to the solutions of their basic draw backs viz., to provide healthy seed at reasonable prize and also regarding the control measure of various diseases i.e. anthracnose, leaf blight, loose smut and grain smut.

11. Weeds problems—This area was suffering from serious weeds problem, which was increasing day by day. Large number of Farmers did not use weedicides due to lack of capital.

12. Costly fertilizer—The major complaint of farmers was that the desired fertilizers were very costly and rare in market.

13. Lack of capital and credit—Lack of capital was an important constraint faced by every group of farmers. Credit for sorghum cultivation was not available to farmers as for soybean cultivation, thus farmers preferred soybean.

14. Seed problem and habits—It was also observed that farmers were not getting seed of improved varieties at the time of sowing. Changing food consumption habits from sorghum to wheat also led down the sorghum cultivation area.

The constraints in sorghum cultivation were identified for example no availability of improved variety of sorghum seed, scattered cultivation, changes in cropping system, low market prize and various malpractices in the market.

The farmers sold their sorghum produce in Krishi Upaj Mandi of Indore and Mhow to the businessmen and payment made within two days of the sale. Businessmen were taken 2 per cent commission of the total price of product or sold sorghum.

CONCLUSION

1. The farmers should use the available resources (input and labour) in most efficient and effective manner.

2. The yield per hectare can be increased by performing farming operations at the proper time and proper utilization of resources in farmer's field.

3. Agriculture co-operative seed marketing society for sorghum should be setup in view of providing good and authentic seed for farmers. Such co-operative societies have worked in case of other crops. Efforts should be made by government for Agriculture Co-operative seed marketing society for sorghum. So farmers could enable good quality of seeds from these societies.

4. Reasonable support price should be announced by state government, which can protect the interest of the farmers in face of less marketing price. It should be liability of government to provide storage facilities to producer, so that they can store their produce till appropriate price and gain reasonable profit.

5. During the marketing of produce various services are involved and charges are made for them, which reduces the share of producers in selling price. Thus to check this common drawback

government should either provide transport facilities at subsidy rates or settle marketing co-operative societies under effective control of government. In hilly regions government experimented such type of schemes in view to reduce the transportation charges of producers. It may be excellent factor to reduce transporting charges, which make a heavy charge in marketing cost.

6. Effective step should be taken for providing facilities of standardization, grading and weighing which may be helpful in checking malpractices during the marketing and farmers can be escaped from cheating.

7. State agriculture department of any other government agency should be authorized by government to provide the seed of latest high yielding varieties either on subsidy or credit basis, because it was observed during study that there are many such farmers who could not grow high yielding varieties due to lack of finance.

8. Farmers should be guided from time to time to check the attack of various diseases (Rust) of authorized agency of government.

9. Soil testing facility should be available to all farmers for testing soil nutrients through government of M.P.

10. Farmers should be adopt the mechanized farming to some extent initially, which would help them in saving time and solution of labour problems.

11. Government should adopt a well-planned scheme to enhance the sorghum production, keeping in view future needs of cereals, oil and pulse production.

12. Farmers should adopt weedicides for effective weed control in the study area and Government Agricultural workers should guide them about the use of weedicides.

13. Training facilities should be provided about advanced techniques of cultivation to farmers by nearest agriculture research Centre or Agriculture College.

REFERENCES

1. Raghuwanshi, R.K.S., Umat, R., Gupta, A.K. and Gurjar, N.S. (1994). "Performance of sorghum based intercropping system in black cotton soils under different fertility levels." *Crop Research*, Hisar Vol. 8 No. 2, pp. 233-238.
2. Rajput, A.M., Verma, A.R. and Sharma, A.K. (1997) "Economic evaluation of the watershed development programme (on crop productivity under dryland agriculture) in M.P." *Crop Research*, Hisar Vol. 11 No. 3, pp. 364-371.
3. Rana, B.S., Rao, M.H., Indra, S. Singh, B.U., Chari Appaji and Vilas Tonapi (1999). "Technology for increasing sorghum production and value addition". Published by AICSIP, N.R.C.S., Hyderabad, A.P., India, pp. 1-7.
4. Seetharama, P., Singh and Sardar and Reddy, B.V.S. (1990). "Strategies for improving rabi sorghum productivity." *Processing of the Indian National Sci. Academy part, biological Sci. Vol. 56 No. 5-6, pp. 455-467. Sorghum and Millets Abst. Vol. 17 No. 4, pp. 63.*

