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## **Farmers' Coverage under Market Intervention Scheme in Karnataka**

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### **Abstract**

The coverage of onion and maize growers has been analyzed under Market Intervention Scheme (MIS) in Karnataka by selecting two northern districts of the state, viz. Dharwad and Gadag. The study has used simple tabular analysis along with discriminant analysis. The coverage of farmers under the scheme has not been found satisfactory. The main problems being faced by the farmers in availing MIS benefits have been identified to include procedural complexities of the scheme, delayed payments and the requirement of meeting Fair Average Quality (FAQ) stipulations for the crops. It has also been revealed that farther are the procurement centres, more is the likelihood of the farmers to go in for open market sales. The study has suggested to cover a larger number of farmers under MIS by simplifying the procedures, making timely payments and increasing the number of procurement centres.

### **Introduction**

In India, agriculture is the source of livelihood for about 60 per cent of the population and contributes around 22 per cent to GDP of the country. As the domestic demand for manufactured goods depends, to a large extent, on the purchasing power of the farmers, farm prosperity is crucial for the growth of industrial sector. The realization that increased food production from green revolution alone would not ensure farm prosperity, had led to several institutional reforms in the country. These

included land reforms, agricultural extension and education, bank nationalization to facilitate farm credit, development of infrastructure like roads, godowns, market yards, processing units, etc., and evolving price policies.

Since 1965, when the Government of India had set up Agriculture Price Commission (APC), presently called as Commission for Agricultural Costs and Prices (CACP), the overall objective of the policy has been assuring remunerative prices to the farmers and providing food grains to the consumers at reasonable prices. The Minimum Support Price (MSP) programme has been an integral part of agricultural price policy in India. At present, 24 commodities are covered under MSP. Apart from MSP, there is another scheme called Market Intervention Scheme (MIS), for several commodities not covered under MSP. These commodities are the ones, which occupy a small proportion of the gross

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cropped area in the country as a whole, but are of considerable importance at the regional level (Koudal, 2005). For such crops, the need for price support does not arise every year in all the regions. However, once in two or three years, owing to good harvests, their prices might crash and consequently, the pace of their production might get thwarted. The MIS of the government provides price support in such cases. The crops for which this type of support is best suited include onion, potato, chillies, cumin, coriander, fenugreek, garlic, etc.

Karnataka is the eighth largest state of the country in terms of size, where agriculture is the means of livelihood for a majority of the population. Maize, onion, jowar, ragi, tur, potato, chilly, oilseeds, sugarcane and cotton are among the major crops of the state. In recent years, farmers' suicides have been a common phenomenon in Karnataka, like in some other parts of the country. Apart from crop failure due to droughts, untimely rains, pests, diseases, spurious seeds, substandard fertilizers and deep price crashes have been responsible for farmers' suicides.

Karnataka has evolved an MIS called the 'Floor Price Scheme' (FPS) for agricultural and horticultural commodities with a revolving fund of Rs 100 crores, which aims at procuring farm produce during the times of price crash. In addition to the procuring of commodities not covered under MSP of Government of India, the state government also uses this fund for making timely payments to the farmers under MSP. In the year 2004-05, commodities like onion worth Rs 6.58 crores and maize worth Rs 48 crores were procured in the state under FPS. After the start of this scheme, no systemic studies have been conducted to ascertain its impact. The present study was an attempt in this direction. The specific objectives of the study were: (i) to analyze the extent of coverage of farmers under MIS for the selected crops, (ii) to identify the problems faced by farmers in availing MIS benefits, and (iii) to examine the socio-economic factors influencing farmers' choice on sale between MIS and open market.

## Methodology

For the present study, two prominent crops (one cereal crop and one vegetable crop), viz. maize and

onion, covered under MIS in the state were considered. Over the years, maize has ranked first among cereals in terms of the quantity procured under MIS. Onion, first covered under the scheme in 2004-05, has ranked next to maize in terms of the quantity procured. The present study is related to two northern districts of Karnataka, namely Dharwad for maize and Gadag for onion. Based on the extent of procurement operations in 2004-05, Dharwad and Navalgund taluks from the Dharwad district, and Gadag and Mundaragi taluks from the Gadag district were selected to accomplish the objectives of present study. In the next stage, two villages that accounted for the maximum procurement of the selected crops were selected from each taluk. Thus, a total of eight villages were selected for the study – four each from the districts of Dharwad and Gadag. At the final stage of sampling, a random sample of 60 farmers, including 30 farmers availing MIS benefits and 30 not availing the benefits, was selected with the help of the records maintained by the village accountant. Thus, with 240 farmers from each district, the overall sample size was of 480 farmers.

Both primary and secondary data were collected at the village level. For accomplishing the first objective, information on the total number of farmers in general, and small farmers in particular, who grew the selected crops was collected from the records maintained by the village accountant. These records also provided information on the total number of growers and small growers, who availed MIS benefits for the study crops. Data were also collected from these growers regarding their education level, family size, level of production, total income of the family, distance from procurement centre, size of the holding, cropping pattern, etc.

A simple tabular approach was followed to analyze the coverage of farmers under MIS. For finding the socio-economic factors responsible for farmers' choice for sales through MIS or open market, the discriminant function analysis was carried out (Sarup and Pandey, 1982; Kalyankar and Rajmane, 1987; Pandey and Muralidharan, 1997). It was hypothesized that farmers' choice between MIS sales and open market sales would be influenced by variables like their age (AGE), education level (EDU), distance to the procurement centres (DIST),

quantum of production (PROD), and the economic standing of the farmers measured by their total income (TINC). The discriminant analysis included dummy dependent variable, which took the value '1' for the farmers choosing MIS and '0' for the farmers preferring open market sales, and the above five variables as the explanatory variables.

## Results and Discussion

The coverage of farmers under MIS for onion and maize crops has been presented in Tables 1 and 2, respectively. A perusal of Table 1 reveals that around 33 per cent of the onion growers availed of MIS benefits. The coverage of small farmers, who were supposed to be the primary focus of the MIS, was around 53 per cent. The coverage of maize growers under MIS was around 58 per cent (Table 2), while that of small farmers was 52 per cent. These values suggested that a large number of onion and maize growers did not enjoy the incentive prices offered under the MIS. The constraints being faced by the farmers in availing the benefits of MIS have been enlisted in Table 3. In respect of both onion and maize crops, a large number of farmers reported

that their top-most problem was of procedural complexities involved in selling their produce under MIS, followed by delayed payments and stipulations of fair average quality (FAQ) produce. About 40 per cent of the onion growers expressed lack of storage facility for this perishable crop among the problems. The lack of transportation facilities, long distance to procurement centres and high cost of marketing under MIS were the other problems reported by the growers.

To examine the socio-economic characteristics of the growers, discriminant analysis was carried out with all the five explanatory variables, viz. AGE, EDU, DIST, PROD and TINC (notations described in the methodology section) for both the crops. The estimated equations for onion and maize, respectively, were:

$$Z = 0.761 - 0.027AGE + 0.035EDU + 0.034DIST + 0.042PROD - 0.060TINC \quad \dots (1)$$

and

$$Z = -1.849 - 0.025AGE - 0.022EDU + 0.051DIST + 0.052PROD - 0.036TINC \quad \dots (2)$$

However, the data given in Tables 4 and 5 revealed that among these five variables, only two,

**Table 1. Coverage of farmers under MIS for onion crop**

Sample taluk	Sample village	Number of onion growers		MIS beneficiaries	
		Overall group*	Small growers	Overall group	Small growers
Gadag	Hulkoti	150	120	70 (46.66)**	70 (58.33)***
	Mulgund	1200	347	350 (29.16)	210 (60.50)
	Sub-total (A)	1350	467	420 (31.11)	280 (59.95)
Mundargi	Doni	350	290	214 (61.14)	214 (73.79)
	Dambal	1500	950	410 (27.33)	410 (43.15)
	Sub-total (B)	1850	1240	624 (33.72)	624 (50.32)
Overall (A+B)		3200	1707	1044 (32.62)	904 (52.95)

\* Means the group of small, medium and large farmers taken together

\*\* Numbers within the parentheses of column 5 were calculated as: [Column (5) ÷ Column (3)] × 100

\*\*\* Numbers within the parentheses of column 6 were calculated as: [Column (6) ÷ Column (4)] × 100

**Table 2. Coverage of farmers under MIS for maize crop**

Sample taluk	Sample village	Number of maize growers		MIS beneficiaries	
		Overall group*	Small growers	Overall group	Small growers
Dharwad	Narendra	208	177	62 (29.80)**	62 (35.02)***
	Navlur	200	100	47 (23.50)	47 (47.00)
	Sub-total (A)	408	277	109 (26.71)	109 (39.35)
Navalgund	Arekuratti	480	360	390 (81.25)	213 (59.16)
	Yamnur	215	140	137 (63.72)	80 (57.14)
	Sub-total (B)	695	500	527 (75.82)	293 (58.60)
Overall (A+B)		1103	777	636 (57.66)	402 (51.73)

\* Means the group of small, medium and large farmers taken together

\*\* Numbers within the parentheses of column 5 were calculated as:  $[\text{Column (5)} \div \text{Column (3)}] \times 100$ ;

\*\*\* Numbers within the parentheses of column 6 were calculated as:  $[\text{Column (6)} \div \text{Column (4)}] \times 100$

**Table 3. Constraints being faced by onion and maize growers in availing MIS benefits (n=120)**

Sl No.	Constraints	No. of farmers facing constraints			
		Onion		Maize	
		No.	Per cent*	No.	Per cent*
1.	Procedural problems	107	89.2	116	96.7
2.	Delayed payments	100	83.3	101	84.2
3.	Difficulty in meeting FAQ standards	98	81.7	119	99.2
4.	Lack of storage facilities	48	40.0	12	10.0
5.	Lack of transportation facilities	20	16.7	15	12.5
6.	High marketing cost	18	15.0	22	18.3
7.	Long distance to procurement centre	11	9.2	5	4.2

\* Expressed as percentages of 120 sample growers of respective crop

**Table 4. Mean values of socio-economic characteristics for beneficiaries and non-beneficiaries of MIS for onion crop**

Characteristics	Mean values for group of			F-value	Significance level
	MIS beneficiaries	Non-beneficiaries of MIS	Overall group		
AGE	40.28	40.07	40.17	0.054	0.8170
EDU	6.57	7.00	6.78	0.014	0.9070
DIST	17.50	24.77	21.13	14.34	0.0001*
PROD	52.54	62.88	57.71	13.10	0.0001*
TINC	25.37	25.53	25.45	0.517	0.4730

Note: \* Statistically significant at 1 per cent level

**Table 5. Mean values of socio-economic characteristics for beneficiaries and non-beneficiaries of MIS for maize crop**

Characteristics	Mean values for group of			F-value	Significance level
	MIS beneficiaries	Non-beneficiaries of MIS	Overall group		
AGE	37.76	37.13	37.45	0.612	0.4350
EDU	6.98	6.09	6.54	0.117	0.7330
DIST	7.50	14.72	11.11	50.784	0.0001*
PROD	47.54	72.43	59.99	129.819	0.0001*
TINC	20.99	21.33	21.16	2.084	0.1500

Note: \* Statistically significant at 1 per cent level

viz. DIST and PROD turned out to be statistically significant in respect of each crop. Therefore, a stepwise discriminant analysis was conducted and the estimated equations for onion and maize respectively were as follows:

$$Z = -1.538 + 0.034DIST + 0.042PROD - 0.064TINC \quad \dots (3)$$

$$Z = -2.946 + 0.052DIST + 0.052PROD - 0.036TINC \quad \dots (4)$$

The computed F values for Equations (3) and (4) (8.96 and 54.63, respectively) indicated the overall significance of the estimated models at 1 per cent significance level. The estimated models [Equations (3) and (4)] were tested for their validity by calculating the percentage of the cases correctly classified by the models into the groups of MIS beneficiaries and non-beneficiaries. As Table 6 reveals, the estimated discriminant model correctly classified 68 per cent of MIS beneficiaries and 49 per cent of non-beneficiaries in respect of onion, and 86 per cent of beneficiaries and 78 per cent of non-beneficiaries in respect of maize. On the whole, the estimated model correctly classified 59 per cent of onion growers and 82 per cent of maize growers.

For interpreting the coefficients of discriminant functions, discriminant scores (Z values) were calculated by putting the mean values of variables (Tables 4 and 5) into the respective estimated equations [Equations (3) and (4)]. For onion, the scores were -0.3600, 0.3112 and -0.0246, respectively for MIS beneficiaries, non-beneficiaries and the overall group. This meant that an onion farmer with a discriminant score of less than -0.0246 was likely to be a MIS beneficiary, and the one with

a score of more than -0.0246 was likely to prefer open market sales. Similarly, for maize, the scores were -0.8396, 0.8179 and -0.0106, respectively for MIS beneficiaries, non-beneficiaries and the overall group. This meant that a maize farmer with a discriminant score of less than -0.0106 was likely to be a MIS beneficiary, and the one with a score of more than -0.0106 was likely to prefer open market sales.

As indicated by the signs of the coefficients in the equations for onion and maize [Equations (3) and (4), respectively], the discriminant scores would rise with increase in distance to the procurement centres and increase in the volume of production. This suggested that the farmers, located far away from the procurement centres, would prefer nearby open markets to MIS centres for their sales. This kind of choice behaviour could reflect farmers' intentions to avoid large costs on transportation to procurement centres. The farmers with a large volume of produce would also prefer open market sales because of the following facts: (i) procurement centres put a ceiling on the quantity to be purchased from a single farmer (50 quintals for onion and 100 quintals for maize), and (ii) there is no guarantee that a farmer would be able to sell the maximum quantity allowed in the procurement centres, as they may not fulfill the stipulations of FAQ imposed in these centres. The study has also revealed that farmers possessing large quantities of onion or maize prefer to sell the entire quantity in the open market rather than selling partly in the open market and partly under MIS. From the negative coefficients of the variable TINC in Equations (3) and (4), it was evident that the higher the total income of a farmer,

**Table 6. Prediction of onion and maize growers' groups by estimated models****(No. of growers in actual group for each crop = 120)**

Actual group of growers	Model prediction			
	Onion		Maize	
	Predicted group	No. of growers in predicted group	Predicted group	No. of growers in predicted group
Beneficiaries of MIS	Beneficiaries of MIS	82 (68.3)*	Beneficiaries of MIS	103 (85.8)*
	Non-beneficiaries of MIS	38 (31.7)**	Non-beneficiaries of MIS	17 (14.2)**
Non-beneficiaries of MIS	Beneficiaries of MIS	61 (50.8)**	Beneficiaries of MIS	26 (21.7)**
	Non-beneficiaries of MIS	59 (49.2)*	Non-beneficiaries of MIS	94 (78.3)*
	Overall correct prediction (%)	58.75***	Overall correct prediction (%)	82.08***

Note: \* Percentage of correct prediction; \*\* Percentage of incorrect prediction

\*\*\* Calculated as  $[(82 + 59) \div 240] \times 100$  for onion, and  $[(103 + 94) \div 240] \times 100$  for maize

the lesser would be the discriminant score, indicating that the given farmer would be more likely to sell under MIS. This finding implied that the high-income group farmers could put up with the delayed payments made under MIS and thus, chose to sell the produce in the procurement centres in the hope of realizing better prices.

## Conclusions

To study has revealed that the coverage of onion and maize farmers, especially small farmers, under MIS is not satisfactory, though the scheme is primarily meant to benefit them. The procedural complexities, delayed payments and the FAQ stipulations have been identified as the major hurdles for the farmers in availing the benefits of MIS. The proximity of the procurement centres has been found as an important factor in motivating the farmers to take advantage of MIS. The study has suggested that relaxations in procedural formalities, fast payments and setting-up of procurement centres in close

proximity of production centres are some of the steps that would motivate a larger proportion of the farming community, in general and small farmers, in particular towards MIS.

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