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in general and family labour in particular. By providing the needed infra-structural facilities at the macro and at the farm level, deliberate attempts are necessary to diversify the farm enterprise and to stabilize employment, thus obviating seasonal swings. However, prodigious difficulties stand in the way of mounting rural development programmes which will provide a sustained increase in the welfare level of a significant proportion of poor farmers in an under-developed country.⁶

Besides, the income and wage effects on family labour participation seems to be stronger in some regions. This may be rationalized through appropriate income with price supports and wage policies. Finally, the policy of distribution of surplus lands to landless labourers and small farmers should be based on sound criteria inasmuch as farming is necessarily a joint venture by family and hired labour and particularly, without the latter farming is impossible. Recognition of this significant limitation may perhaps lead to determination of what may be called 'land floor' below which the farm size is rendered strictly impartible through appropriate legal sanctions.

SMALL FARMERS AND AGRICULTURAL PRICES —A CASE OF COTTON

H. S. Gopala Rao and M. Sripathy Rao*

INTRODUCTION

Concerted efforts are being made both at the State and national level to develop the marketing organization in the country. As a part of the strategy consistently outlined in the Five-Year Plans for agricultural development, a network of regulated markets has been created in most parts of the country. In the States where marketing legislation has been promulgated, very little area is left unserved by regulated markets. The regulated markets are being equipped with well laid out market yards with trading facilities such as auction platforms and sale halls, grading and market intelligence service, etc., and other amenities such as portable water supply, sanitation measures, rest houses and so on. Massive development programmes for regulated markets have been launched by the State Governments of Bihar and Karnataka with the help of the International Development Association (IDA). Besides the implementation of the development project with IDA assistance at a cost of Rs. 9.484 crores in Karnataka,¹ the State Government is supple-

6. Albert Waterston, "A Viable Model for Rural Development," *Finance and Development*, Vol. 11, No. 4, December, 1974, p. 23.

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1. Project Implementation Plan, Karnataka State Marketing Department, 1974, p. 1.

menting development by carrying out what is popularly known as 'Surplus Fund Development Project' with an annual outlay of Rs. 2.5 crores financed by the current savings of the Agricultural Produce Market Committees (APMC) in the State.² Simultaneously, action is being taken to strengthen the marketing co-operatives so that they may account for a bigger share in the total trade and liberate the farmer from the stranglehold of middlemen and also to extend the work of the State and Central Warehousing Corporations so as to help in reducing storage losses.

In the contest of the development of the marketing organization in its various aspects so as to provide answers to all the marketing problems of the agriculturist, the interest of the small farmer should not be lost sight of. For it is the small farmers (defined in whatsoever terms) who form the majority among sellers of agricultural produce whether in the regulated markets or in village shandies. For this reason, it is the small farmer who has a real stake in the development of the markets of the country.

Prices received by producer-sellers in the markets being an important indicator of economic benefits of marketing, and the regulated markets being institutions where better competitive conditions exist when compared to unregulated bazars, the pricing mechanism in the regulated markets requires to be looked into. This will throw light on the fact whether the small farmer is receiving justice through the market mechanism, so that corrective action may be taken to set right the imbalances, if any. The present study is an attempt in this direction.

OBJECTIVES

The objectives of the study are : (i) to examine whether the small farmer has a price disadvantage over his bigger counterpart merely by virtue of the small size of the lots he offers for sale; (ii) to study whether the small farmers behave differently from the big sellers in the matter of grading their produce before sale and holding the produce for a better market; (iii) to study irregular variations in prices offered to the two groups of farmers in order to know whether the irregularity is more in the case of prices received by the small farmers; and (iv) to make suggestions for correcting the imbalances.

METHODOLOGY

As the bulk of the marketable surplus passes through the regulated markets of the country, a study of the price mechanism in these markets would throw light on the problem under study. The problem is therefore sought to be examined by conducting a case study of Hubli regulated market in

2. Facets of Agricultural Marketing in India, with special reference to Karnataka. Karnataka State Agricultural Marketing Board, 1975, p. 29.

Karnataka. The justification for selecting Hubli market for study is that it is one of the biggest markets for cotton not only in Karnataka but in the entire country. Besides, Hubli is a primary market for cotton (Jayadhar variety) and most of the lots are brought by the farmers. The Small Farmers Development Agency (SFDA), Bangalore has defined a small farmer as one whose holding is between $2\frac{1}{2}$ acres and 5 acres of dry land or 1 and $2\frac{1}{2}$ acres of wet land and the marginal farmer as one whose holding is less than $2\frac{1}{2}$ acres under dry land or 1 acre under wet land.³ For the purpose of this study, the distinction between small and marginal farmers is ignored and those whose holdings are 5 or less than 5 acres are taken as small farmers, as the marketing problems of the marginal farmers will not be dissimilar to those of the small farmers. The yield of Jayadhar cotton in Karnataka is $1\frac{1}{2}$ quintals per acre.⁴ Thus the maximum quantity of Jayadhar cotton that could be produced by a small farmer in his holding is $7\frac{1}{2}$ quintals. Based on this figure, and on the fact that the entire production of cotton can be taken as marketable surplus, the lots offered for sale in Hubli market are categorised as : (1) lots belonging to the small farmers (5 or less than 5 *docras*⁵) and (2) lots belonging to the large farmers (more than 5 *docras*). It is possible that the large farmers sell their produce in lots of less than 5 *docras* also, but such circumstances are far and few between. However, it can be asserted that a small farmer cannot bring lots of more than 5 *docras* at a time.

The study is based on the secondary data maintained in the Agricultural Produce Market Committee, Hubli, as per bid registers for cotton. The data used refer to the market year 1974-75 (July, 1974 to June, 1975).

A simple random sampling procedure is used to study prices received by the small and large farmers. The duration considered for sample selection is the peak arrival period for cotton (Jayadhar) from March to May. Prices received by ten small and ten large farmers during every week of these three months are selected at random (except in the first week of March). During the first week of March, however, prices received by three each of the small and large farmers have been studied as only three large farmers brought their produce for sale during the week.

In order to test the significance of difference in prices received by the small and large farmers, a statistical test based on 't' distribution is used.

To study irregular variations in prices received by the two groups of farmers time-series analysis of weekly prices during the peak season (March-May) has been done. As the period considered is only three months it is assumed that there are no cyclical variations in the prices during the period. Using the additive model of price variations, $P=T+S+I$ and eliminating

3. Objectives of SFDA, SFDA, Bangalore, 1973.

4. Bureau of Economics and Statistics, Karnataka.

5. A *docra* is roughly equivalent to $1\frac{1}{2}$ quintals.

trend and seasonal components values regarding irregular variations are computed. Values of trend are computed using four weekly moving averages.

RESULTS OF ANALYSIS

As discussed earlier, the study has been necessitated by the fact that the small farmers preponderate in the market over their larger counterparts and it is this fact which leads to the question whether the small farmer is receiving a fair deal at the market place.

Small Farmer Component Among Sellers

Table I presents the number and percentages of small and large farmers who sold cotton (Jayadhar) in Hubli market and the quantity (along with percentages) sold by them during 1974-75.

TABLE I—NUMBER OF SMALL AND LARGE FARMERS AND QUANTITY SOLD BY THEM

Category	Farmers		Quantity sold (quintals)	
	No.	Percentage	Quantity	Percentage
Small farmers	6,244	83.4	19,475	35.0
Large farmers	1,246	16.6	36,124	65.0
All	7,490	100.0	55,599	100.0

More than 83 per cent of the producers who use Hubli market for the sale of cotton are small farmers. Even in absolute terms, their number is as high as 6,244 as against the meagre 1,246 of large farmers. The quantity sold by the small farmers is only 35 per cent as against 65 per cent sold by the large farmers. However, in the context of considering the difference in prices received by the two groups of sellers, 35 per cent of the quantity is considerable enough. This logic is reinforced by the fact that the number of small farmers assembling this quantity is very large.

Prices Received by Small and Large Farmers

The weekly average prices received by the small and large farmers during the peak months of 1974-75 are presented in Table II.

TABLE II—WEEKLY PRICES RECEIVED BY THE TWO GROUPS OF FARMERS IN HUBLI MARKET
(Rupees)

Month	Week	Prices received by	
		Small farmers	Large farmers
March	I	299	312
	II	294	300
	III	277	299
	IV	270	281
Average for Month		285	298
April	I	265	273
	II	242	258
	III	281	294
	IV	280	291
Average for April		267	279
May		247	270
	II	257	273
	III	244	281
	IV	269	279
Average for May		254	276

Prices received by the small farmers are less than those received by the large farmers during all the weeks of the peak months. The average price received by the small farmers during three months is Rs. 269 per quintal whereas it is Rs. 284 per quintal in the case of the large farmers. Even when the averages for each month are considered, it could be seen that the figures relating to the small farmers are consistently lower than those in respect of large farmers.

As a sample of prices is studied it is necessary to test the significance of difference between the prices received by the small farmers and their larger counterparts. For this purpose, a statistical test based on "Student's-t"

distribution is conducted. The null hypothesis that there is no significant difference between the prices received by the two groups of farmers is tested

$$\text{by calculating } t = \frac{\bar{d} - 0}{\sqrt{\frac{\sum (d_i - \bar{d})^2}{n-1}}} \text{ where } d_i \text{ is the}$$

difference between the prices received by big farmers and those received by the small farmers during the i th week. The value of 't' thus calculated is found to be 1.83. The table value of 't' with 11 degrees of freedom and 5 per cent level of significance is 1.796. As the computed value of 't' is greater than the table value, the null hypothesis that there is no significant difference is rejected. Thus, on the basis of data provided in Table II, it could be concluded that prices received by the large farmers are significantly higher than those received by the small farmers.

Irregular Variations in Prices Received by Small and Large Farmers

Sellers enter the market with some uncertainty about getting a fair price for their produce. Values regarding irregular variations in prices received by the small and large farmers can help in measuring the level of uncertainty the two groups of farmers have to face in the matter of the price situation that may obtain at the time of sale. Table III presents the extent of irregular variations in prices received by the small and large farmers in Hubli market during March-May of 1974-75. Corrections for seasonal variations are made using figures given in Table IV.

The directions in which irregular variations occurred during different weeks are similar in both the groups of farmers. But the violence with which these variations occur during different weeks is more marked in the case of small farmers than in the case of large farmers. An unexpected decline in prices occurred during 4 weeks, out of 8 under study. In the remaining 4 weeks, a sudden rise in prices is observed, in both the categories of farmers; when this occurred, prices no doubt rose to a greater extent in the case of small farmers. But what is significant is that when a decline in prices occurred, the decline was far steeper in the case of their counterparts, and such steep falls often prove to be too difficult to be borne by the small farmers. Thus violent irregular variations in prices received by the small farmers expose them to a greater uncertainty, with the resultant price disadvantage which is not conducive to plan their marketing programme.

Holding the Produce for a Better Market

Under the bye-laws of the APMC, Hubli, the seller is permitted to refuse to sell his produce to the highest bidder if he considers the price offered as

TABLE III—IRREGULAR VARIATIONS IN PRICES RECEIVED BY SMALL AND LARGE FARMERS

Month and week				Average price (Rs.)	Four weekly moving average price (trend) (Rs.)	Deviation from trend	Corrections for seasonal variation	Irregular variations
(1)				(2)	(3)	(4)=(2)—(3)	(5)	(6)=(5)—(3)
Small farmers								
March	I	..	..	299	—	—	—	—
	II	..	..	294	—	—	—	—
	III	..	..	277	281	— 4	270.125	—10.875
	IV	..	..	270	270	0	261.125	— 8.875
April	I	..	..	265	264	+ 1	271.125	+ 7.125
	II	..	..	242	264	—22	251.625	—12.375
	III	..	..	281	265	+16	274.125	+ 9.125
	IV	..	..	280	264	+16	271.125	+ 7.125
May	I	..	..	247	262	—15	253.125	— 8.875
	II	..	..	257	256	+ 1	266.625	+10.625
	III	..	..	244	—	—	—	—
	IV	..	..	269	—	—	—	—
Large farmers								
March	I	..	..	312	—	—	—	—
	II	..	..	300	—	—	—	—
	III	..	..	299	293	+ 6	287.5	— 5.5
	IV	..	..	281	283	— 2	275.5	— 7.5
April	I	..	..	273	277	— 4	279.0	+ 2.0
	II	..	..	258	278	— 20	269.0	— 9.0
	III	..	..	294	279	+15	282.5	+ 3.5
	IV	..	..	291	280	+11	285.5	+ 5.5
May	I	..	..	270	280	—10	276.0	— 4.0
	II	..	..	273	277	— 4	284.0	+ 7.0
	III	..	..	281	—	—	—	—
	IV	..	..	279	—	—	—	—

TABLE IV.—CORRECTIONS FOR SEASONALITY

Month	Week	Small farmers				Large farmers			
		I	II	III	IV	I	II	III	IV
March	—	—	— 4	0	—	—	+ 6	— 2
April	+ 1	—22	+16	+16	— 4	—20	+15	+11
May	—15	+ 1	—	—	—10	— 4	—	—
Total	—14	—21	+12	+16	—14	—24	+21	+ 9
Average	— 7	—10.5	+ 6	+ 8	— 7.0	—12	+10.5	+4.5
Adjusted average		—6.125	—9.625	+6.875	+8.875	—6.0	—11.0	+11.5	+5.5

low. Under such circumstances, the seller withdraws his goods and offers the same for sale on a subsequent day when he thinks the price is favourable to him. The number of withdrawals can thus act as an indicator of the seller being price conscious. It could also be an indicator of the extent of distress sales resorted to by the sellers. Table V presents the number of lots kept for sale, number withdrawn and the percentage of lots withdrawn by the small and large farmers during all the months of 1974-75.

A perusal of Table V reveals that during the year under study 33.1 per cent of the lots kept for sale were withdrawn by the large farmers, whereas the smaller farmers withdrew only 16.4 per cent. Even when individual months are considered, the percentage of withdrawals by the small farmers is consistently lower (except February figures, which are negligible) than that of withdrawals by the larger farmers in all the months. The seriousness of the effect of this situation can be best realised in the context of the fact that the prices received by the small farmers are consistently lower than those received by the large farmers throughout the year. If the small farmer had conformed to the laws of supply, the situation would have been the other way about. Although the percentages of withdrawals by both the groups have risen during the peak arrival months of March-May when prices are lower than in the other months of the year, the fact that these percentages are lower in the case of small farmers goes to show that they are less price conscious and that they have resorted to distress sales to a greater degree than their counterparts.

TABLE V—WITHDRAWAL OF LOTS KEPT FOR SALE DURING 1974-75

Months	No. of lots kept for sale	No. of lots withdrawn	Percentage withdrawn
Small farmers			
July	12	—	—
August	5	—	—
September	4	—	—
October	—	—	—
November	—	—	—
December	—	—	—
January	—	—	—
February	79	5	6.3
March	1,617	144	8.9
April	3,879	624	16.1
May	1,636	353	21.5
June	242	104	42.9
Large farmers			
July	6	—	—
August	3	3	100.0
September	1	—	—
October	—	—	—
November	—	—	—
December	1	—	—
January	—	—	—
February	—	—	—
March	267	147	17.6
April	930	218	23.4
May	412	146	35.4
June	92	52	56.5
Total			
Small farmers	7,474	1,230	16.4
Large farmers	1,712	566	33.1

Grading and Small Farmers

As grading fetches a premium price for the produce, the attitude of the farmers towards grading their produce before offering it for sale is an indicator of their being quality conscious. Table VI presents details of the number of small and large farmers who offered their produce for being graded before sale and the quantities so offered along with percentages during 1974-75.

TABLE VI—SMALL AND LARGE FARMERS OFFERING PRODUCE FOR BEING GRADED BEFORE SALE AND QUANTITIES

Item Category	Number of farmers grading	Percentage of farmers grading	Quantity graded (quintals)	Percentage quantity graded
Small farmers	256	4.1	1,002	5.1
Large farmers	241	19.3	4,340	11.5

It could be seen from Table VI that although the number and percentage of small and large farmers offering their produce for being graded before sale are rather low, it can be observed that these figures are far lower in the case of small farmers when compared to those of large farmers. The number of large farmers who sold their produce after grading is 19.3 per cent whereas it is as low as 4.1 per cent in the case of small farmers. The percentage of the quantity sold by the large farmers after grading is 11.5 per cent, while the small farmers graded only 5.1 per cent of their produce before sale. This shows that the large farmers, though small in number, are better aware of the advantages in offering their produce for sale after grading it, and the small farmer is yet to catch up with the idea. Among other reasons, therefore, absence of quality consciousness on the part of the small farmer has to some extent or the other contributed to the price disadvantage he is labouring under when compared to the large farmers.

CONCLUDING REMARKS

It could be seen from the analysis of prices and related data that the small farmer is at a serious price disadvantage, when compared to the large farmer. This underlines the fact that in any measure taken for the improvement of the marketing organization, the interest of the small farmer, who is the underdog in this context, should always be borne in mind.

As the price disadvantage essentially stems from the smallness of the quantity offered for sale by the small farmer, this handicap could be best overcome by organizing co-operative marketing societies for the small farmers which could arrange for pooling the produce of its members and enable them

to reap all the benefits of bulk sales. Pooling of the produce also enables the co-operatives to grade their members' produce before offering the same for sale. The regional units of SFDA may consider the possibility of promoting co-operation among small farmers. The Agricultural Produce Market Committees could exempt the lots offered for grading from the payment of grading fee so that this can act as an incentive to the small farmers to take to grading. Besides, propaganda and publicity regarding the benefits of grading may be stepped up by the market committees so that the small farmers could grade their produce at the farm level itself.

The warehousing corporations may consider the reduction of storage charges to small lots so that the small farmers may be enabled to hold their produce for a better market by storing it in warehouses. Bank advances on easy terms may also be extended against warehouse receipts to the farmers who use warehouses for storing small lots.

Among the buyers in a regulated market, there are always some whose turnover is small and who are interested in buying small lots. The market committee could consider the proposition of arranging direct sales (without the seller having to engage the services of a commission agent) of small lots to the buyers. For this purpose, special platforms may be earmarked in the market yard for such sales. On these platforms, the market committees could also grade and group the small lots belonging to particular grades for sale, which will give the small farmers the benefits of bulk sale and also grading.

COMPARATIVE ANALYSIS OF SMALL FARMERS ADOPTING NEW TECHNOLOGY AND NON-ADOPTERS IN WEST GODAVARI DISTRICT*

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In India, farming is the major occupation supporting about 75 per cent of the working force. But the average size of the operational holding is small and the distribution is uneven. The number of small holdings of 2 hectares and less is about 62 per cent of the total number. But the area cultivated is less than 20 per cent of the total cultivable area. Thus, the numerically strong but economically weak section of our rural community consists of small farmers owning less than 2 hectares. With modern technology, it is now possible to convert even small farmers into economically viable units by use

* This paper is based on the earlier work of the author at the G. B. Pant University of Agriculture and Technology, Pantnagar, Nainital, U.P.

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