PROBLEMS AND PROSPECTS OF OILSEEDS ECONOMY IN KARNATAKA: AN EVALUATION STUDY

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CHAPTER I

INTRODUCTION

1.0 Place of Oil seed crops in the national economy

The prominence of oilseeds in the nation's economy need hardly be stressed. Being the main source of vegetable oils, oilseed crops are put to both edible and non edible usages. In addition to providing fat and protein, vital components of the human diet, oilseed crops form a base for a number of agro-based industries such as soaps, cosmetics, paints, varnishes, lubricants etc. Further, bye products such as husk, oilcakes and defalted meal obtained in the proces of oil extraction finds their usage as high quality protein, both for human and animal feeds. The substantial weightage (10-96) enjoyed by the oil seeds in computing the All India Index number of Agricultural Production and its contribution to the foreign exchange earnings, about 2.1 percent of the total world export of principal commodities in 1981 amounting to about 252 crore rupees[1], makes obvious the importance of oil seed crops in our economy.

Next to cereal crops, oilseed crops contribute significantly to the agricultural economy of the country. Oilseeds are cultivated in India on an area of about 160 lakh hectares, constituting roughly ten percent of the total cropped area in the country comprising groundnut, rapseed, mustard, sesame, safflower, niger, soyabean, sunflower, linseed and castor. Of these, while linseed and castor are mainly put to non edible use, soyabean and sunflower are, however, non-traditional oilseed crops. The area under groundnut

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1. Economic Survey, Government of India, 1983-84.

is the highest, accounting for nearly 40 percent of the total area under the oilseeds, followed by rapeseed-mustard (24 percent), sesamum (14 percent), linseed (10 percent), Sufflower (4.26 percent), Niger (3.50percent), castor (3 percent), sunflower (0.66) and Soyabean (0.58 per cent).[2]

1.1 Growth Trends in Oilseeds in India

The area under oilseed crops had increased from about 140 lakh hectares in 1960-61 to about 166 lakh hectares in 1982-83 (See Table 1.1), thus registering a growth rate of about 0.40 percent per annum (See Table 1.2). This was in contrast to a rate of growth of 1.4420 percent per annum in respect of production which had enabled an increase in production from about 70 lakh tonnes in 1960-61 to about 93 lakh tonnes in 1982-83. This substantial increase in production despite a low growth rate in area was, however, due to increased productivity, the growth rate of which in the said period was about 1.04 percent per annum.

The year 1969-70, the period in which the centrally sponsored Intensive Oilseeds Development Programme (IODP) was launched, had accounted for an area and production of about 148 lakh hectares and 77 lakh tonnes respectively. The growth rates in area prior to and after 1969-70, though positive (0.6167 and 0.5187 percent per annum respectively), were found nonsignificant indicating stagnancy or near stagnancy during the said periods.

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2. Area and production of principal crops in India,1980-81. Directorate of Economics and Statistics, Dept.of Agriculture and Cooperation, Ministry of Agriculture, Government of India.

The production, though seemed to be almost stagnant prior to 1969-70, had increased at the rate of 1.1163 percent per annum after the implementation of the IODP. A rate of growth of 0.60 percent per annum in the productivity for the period 1969-70 through 1982-83 had probably contributed to increased production. Stagnancy in production earlier to the implementation of the programme was due to stagnancy in area as well as in productivity. On the whole, during the last decade and a half, despite stagnancy in area, production seemed to have increased considerably owing to the increased level of productivity.

GROUNDNUT ECONOMY - INDIA

Groundnut is one of the chief sources of vegetable oil and as it happens to be a legume, known to fix considerable quantum of atmospheric nitrogen into the soil, the crop is assuming increasing importance in the face of booming nitrogenous fertilizer prices. Brazilian in origin, it is now grown extensively in India, China, West Africa, Burma and U.S.A. India's contribution in total world area and production of 19.775 million hectares and 18.901 million tonnes (in shell) a year, was of the order of 31.9 and 33.9 percent respectively, as of 1980.[1]

1.2 Growth trends in Groundnut crop in India

Among the major oilseed crops in India, groundnut occupies a premier position with regard to both area and production which stood at about ~~the~~ 74 lakh hectares and 56 lakh tonnes respectively in 1982-83 (Table 1.1). Except

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1. Indian Agriculture in Brief - Nineteenth Edition, P.350, Directorate of Economics and Statistics, Department of Agriculture and Cooperation.

for the period 1960-61 through 1968-69, during which the area under groundnut crop had increased at the rate of about 1.2940 percent per annum, it had remained almost stagnant during the period after the implementation of the programme, However, no significant change in the growth rate could be evidenced during the period 1960-61 through 1982-83.

The production, too, had remained almost stagnant during the periods prior to and after the implementation of the programme as the growth rates were found to be non significant. The same was evidenced for the period 1960-61 through 1982-83 also. Further, despite a marginal increase in the area from about 64 lakh hectares to about 71 lakh hectares during the period 1960-61 through 1968-69, thus registering a growth rate of about 1.2940 percent per annum (found non significant), the production had remained static. This might be due to the fact that the productivity of groundnut which was quite high during the early sixties (about 750 kgs.per hectare) had eventually declined to about 650 kgs. per hectare in 1968-69, registering a decline in rate of about 1.6845 percent per annum. Thus, for the nation as a whole, area and production of groundnut had been static for the period 1960-61 through 1982-83 and as a result of which the production too was stagnant.

1.3 Groundnut Economy in Karnataka

Among the major groundnut producing states of the country (Gujarat, Andhra Pradesh, Tamilnadu, Maharashtra and Karnataka), Karnataka with nearly 7.8 lakh hectares and about 6.2 lakh tonnes in 1981-82, ranked fifth both in area and production (Table 1.3). Groundnut is basically a rainfed

kharif crop with hardly five percent of the area being irrigated. Groundnut alone had accounted for about 63 per cent and 77 per cent of the area and production of oilseeds in Karnataka in 1981-82 which stood around 13.74 lakh hectares and 6.4 lakh tonnes respectively.

Average annual area under groundnut in the state during 1960 - 1963 was around 9 lakh hectares, which though seemed to have risen gradually to about 10 lakh hectares during 1969-1972, had eventually declined. The same during the years 1980-82 was about 8.25 lakh hectares. However, the growth rate for the period 1960-61 through 1981-82 was not significantly different from zero implying non-exponential growth in the area.

During the same period, production too did not follow an exponential model with the result the growth rate was found to be non significant. The production, however, had increased from five to seven lakh tonnes during the years 1960-61 through 1975-76, the period prior to implementation of the programme. This increase in the production, despite relative stagnancy in area, was due to an increase in the level of productivity from 550 kgs in the period 1960-61 to 62-63 to about 715 kgs per hectare in the period 1972-73 to 74-75. The production and productivity, after the implementation of the programme, seem to be almost static.

The districts of Raichur, Belgaum, Dharwar, Tumkur, Gulbarga, Bijapur, Bellary and Kolar (arranged in the descending order of total production), in all account for more than 80 percent of the total production of groundnut in the state. Of these, Kolar and Tumkur are relatively smaller districts situated in the southern part and the

rest, relatively larger ones, belong to the northern part of the state.

Based on the tri-annium average for the period 1979-82, the districts Belgaum and Dharwar ranked first as far as the area under groundnut was concerned with almost identical figures of about 1.2 lakh hectares, followed by Raichur and Bijapur with 1.17 and 1 lakh hectares respectively (Table 1.4). However,as far as production was concerned, Raichur ranked first (84,000 tonnes) followed by Belgaum (79,000) and Dharwar (69,000) respectively. Higher production, despite relatively lesser area, in Raichur could be attributable to the higher productivity which stood around 750 kgs. per hectare (triannium average for 1979-82) in contrast to about 625 and 610 kgs per hectare respectively for Belgaum and Dharwar. Except for the districts of Raichur and Tumkur, in the rest the production had declined or remained stagnant especially for the period 1975 through 1982. The rates of growth in production for Raichur and Tumkur during the above said period were 7.46 and 15.62 percent per annum.respectively. While the former was due to an increase in productivity, the latter was due to an increase in area only. While the districts of Belgaum, Bijapur and Gulbarga,seemed to have lost the area under groundnut (evidenced by declining growth rates) during the period prior to the implementation of the programme, the same was evidenced during the period after the implementation in the districts of Dharwar and Kolar. The growth rate in area for Dharwar, though less before the implementation of the programme,however, positive and significant in the later years.On the whole, during the years 1960-61 through

1981-82, both area and production seem to be either declining or remaining static especially for the districts of Belgaum, Bellary, Dharwar and Gulbarga.

1.4 Component Analysis - Changes in Production between the two Periods

Any increase or decrease in the production of a crop depends fundamentally on the changes in the area under crop and its average yield. And naturally one would be interested in measuring the effect of area, the yield as well as the interaction between the two on the variation in production. An analytical frame work developed in enabling us to work out the contributions of changes in area, yield and the interaction between the two, towards the changes in production of groundnut between the periods prior to implementing and after implementing the Intensive Oilseeds Development Programme in Karnataka. Earlier methods, due to Narula and Vidyasagar[1] and Varma[2] confine only to two end points of the reference periods and not the entire periods under consideration.

Analytical Frame Work

Let, area, production and yield be symbolically denoted by A, P and Y respectively and each be expressed mathematically in terms of the time element 't' in the form of a semi exponential model, $Y = e^{bt}$. Then, we have

$$A_{ji} = a_j e^{r_j t_i}, \text{ and } Y_{ji} = Y_{ie}{}^{j t_i}$$

Where j = 1 and 2, are the two different periods under consideration - prior to and after implementing

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1. S.S.Narula and Vidyasagar, Methodology for working out contributional of Area and Yield in increase in production, Agri.Situ.Ind.,(28(7), 473-47 , Oct.1973.
2. K.K.Verma, Agricultural Growth of Major Edible Oilseed Crops in India, Agri.Situ.Inst.,37(5), 277-282, Aug.1982.

the project,

i refer to the year under consideration.

As production (P_{ji}) is the product of Area and Yield,

$$P_{1i} = A_{1i} \times Y_{1i} \quad \text{and} \quad (1)$$

$$P_{2i} = A_{2i} \times Y_{2i} \quad (2)$$

We have

$$P_{1i} = (a_1 e^{r_1 t_i})(Y_1 e^{r_1 t_i}) \quad (3)$$

$$P_{1i} = a_1 y_1 e^{(r_1 + a)t_i}$$

$$P_{1i} = a_1 y_1 e^{(r_1 + 1)t_i}$$

P_{1i}, centered for the period 1, is given by

$$P_{1i} = a_1 y_1 e^{(r_1 + 1)t^*} \quad (4)$$

Taking logarithms,

$$\text{Log } P^*_{1i} = \text{Log } (a_1 y_1) + t^* (r_1 + 1) \quad (5)$$

Similarly,

$$\text{Log } P^*_{2i} = \text{Log } (a_2 y_2) + t^1 (r_2 + 2) \quad (6)$$

Then,

(5) - (6) =

$$\text{Log } \left(\frac{P^*_{1t^*}}{P^*_{2t}}\right) = \text{Log } \left(\frac{a_1 y_1}{a_2 y_2}\right) + t^* (r_1 + 1) - t (r_1 + 2) \quad (7)$$

$$\text{But } r_1 = \log \left(\frac{A^*_{1t^*}}{a_1}\right)^{1/t^*} \quad (8)$$

$$= \log \left(\frac{A^*_{2t^1}}{a_2}\right)^{1/t^1} \quad (9)$$

$$= \log \left(\frac{Y^*_{1t^*}}{Y_1}\right)^{1/t} \quad (10)$$

$$\text{and} \quad = \log \left(\frac{Y^*_{2t^1}}{Y_2}\right)^{1/t^1}$$

substituting the values of (8), (9), (10) and (11) in (7), and rearranging, we have

$$\text{Log}\left(\frac{P^{*}_{1t}{}^{*}}{P^{*}_{2t}{}^{1}}\right) = \text{Log}\left(\frac{a_1 y_1}{a_2 y_2}\right) + \text{Log}\left(\frac{A^{*}_{1t}{}^{*}}{A_{2t}{}^{1}}\right) - \text{Log}\left(\frac{a_1}{a_2}\right) + \text{Log}\left(\frac{Y^{*}_{1t}{}^{*}}{Y_{2t}{}^{1}}\right) - \text{Log}\left(\frac{Y_1}{Y_2}\right) \qquad (12)$$

LHS of 12 speak of the percent change in the production (averge) for the first period over the second period.

First bracketed expression on the RHS of (12) speaks of the contribution due to difference in the intercepts for the two periods i.e., the differences existing initially, to the changes in production. This is precisely what may be referred to as the contribution due to the technical change or due to interaction between Area and Yield. Second and the third bracketed expressions on the RHS of (12) speak of the contribution of changes in area and yield respectively towards changes in production. However, it may be noted that unless the semi logarithmic model is valid, the results may not be meaningful.

The contributions of area, productivity ~~(yield)~~ and the interaction between the two, in terms of percentages, towards difference in production between the period earlier to and after implementation of the programme, for some important districts in Karnataka and for the state as a whole ~~is~~ are presented in the Table 1.5

Table 1.5: Contributions of Area, Productivity and the Interaction between the two.

State/District		Area		Productivity	Interaction	
Karnataka State	0.0688	55.63(-)	0.0284	17.95(-)	0.0478	26.42
Belgaum	0.0001	0.09(-)	0.2189	34.98	0.5178	64.94
Bellary	0.1077	30.36(-)	0.0571	16.10	0.1899	53.54(-)
Bijapur	0.1519	35.02(+)	0.1712	32.45(-)	0.1684	31.92(-)
Dharwar	0.0918	00.04(-)	0.0428	9.25(+)	0.2189	21.81(-)
Gulbarga	0.0131	14.30(+)	0.2337	35.90(+)	0.3241	49.79(-)
Tumkur	0.0962	39.06(-)	0.1779	9.86(-)	0.1962	61.08(+)
Raichur	0.1594	70.62(+)	0.0467	20.69(+)	0.0196	8.68(+)
Kolar	0.4728	57.45(+)	0.1604	24.94(-)	0.9939	17.61(+)

(Percentages are computed considering the relative magnitudes onl

Thus, the state as a whole and the individual districts as well (except for the Raichur district) do not seem to exhibit an impressive scenario as regards the growth in area and production of groundnut. While, in Raichur an increase in area as well as an increase in the productivity especially after the implementation of IODP had resulted in increased production, a decrease in the two had led to decreased production in the Kolar district. Similarly in Tumkur an increase in the area, despite a decrease in productivity had resulted in increased production.

Considering the period 1960-61 to 1981-82 into account, it could be seen that the area under groundnut in the state has been almost static. This stagnancy in area may have arisen on account of institutional factors like irrigation, technical advancement in groundnut as well as in other competitive crops etc. Hence, inspite of favourable price factor, groundnut could not gain area as competing crops (like jowar & bajra) enjoyed a relative technological advantage and as a result of which institutional advantage also, which outweighed the price advantage of groundnut. Further, with the limited availability of irrigation in the state (around 15 percent), groundnut's share was also limited as it could not experience any comparative advantage in the form of major varietal improvements. In fact, there are no high yielding varieties for groundnut on a commercial scale at all and even the available improved varieties do not appear to be convincing.

1.5 Approaches of the Government

In the light of the constraints faced in the production of oilseeds, in general, the Government in the late seventies envisaged two lines of approach, viz., (a) the area basis

to attain a rapid growth in favourable years, and (b) the problem oriented basis to ensure predictable levels of production even in unfavourable years. In order to achieve this, a three pronged drive has been in operation since 1976 :

1.5.1. Increasing productivity through the adoption of package of practices in selected districts, the main ingredients of the package being improved seeds, fertilizer and plant protection measures,

1.5.2. Increasing area under irrigation especially for groundnut,

1.5.3. Insulating oilseed production from violent fluctuations through suitable agronomic measures and popularisation of non-traditional crops like sun-flower and soyabean.

In order to supplement the efforts of the State Government, the Central Government sponsored some schemes, two of these are in operation in Karnataka since 1976.

The first, 'Intensive Oilseed Development Programme', was proposed to cover mainly groundnut crop in seven districts and safflower in five of the seven groundnut districts during the year 1983-84. These districts were Dharwar, Belgaum, Gulbarga, Raichur, Bijapur, Tumkur and Kolar. In all, it was envisaged to cover a physical target of 700,000 hectares. Also planned were 2,500 free demonstrations at a total cost of Rs.200,000. Besides, it was proposed to supply minikits costing Rs.80 each for 0.1 hectares to some cultivators (free of cost) to try the latest improved varieties. The main object of the minikit programme was to learn the performance of the recent varieties under local conditions and to popularise the same if proved to be better

compared to the already existing varieties. Four new varieties (TG-3, TC-17, JL-24 and J-11) were tried in the said seven districts. The scheme also provided subsidies for plant protection chemicals and seed multiplication and procurement programmes. In all, the total financial requirement was estimated to be Rs.38 lakhs.

The second scheme was specifically a compaign for extension of oilseeds to new irrigated areas. It included the districts, Raichur, Bellary, Chitradurga and Shimoga (covered under Tungabhadra and Tunga project canals) and Tumkur, Kolar, Bangalore, Mysore, Mandya, Hassan, Chikmangalur and Belgaum, which are covered by tanks, wells, and other mi irrigation works providing scope for rabi/summer groundnut. Apart from compaigning for more irrigated areas for the groundnut crop, the scheme proposes to popularise new varieties and to increase per hectare yield by adopting improved agronomical practices. The physical target for the year 1983-84 was fixed at 2.21 lakh hectares with the usual extension programmes of minikits (315) and demonstrations (1250). The total financial requirement of the scheme was estimated at Rs.12,08,000. Apart from the canal served districts, Tumkur and Kolar were the prominent beneficiaries as they have considerable number of tanks and wells.

Under both the schemes, the main thrust of the programme implementation were popularising the basic oilseed production technology by way of improved variety of seeds, fertiliser recommendations, suitable agronomic practices, plant protection measures, as well as extension methods of demonstration and distribution of minikits.

1.6 ~~Scope and~~ Objectives of the Study

The present study undertook an evaluation of the

Centrally Sponsored Project, 'Intensive Oilseeds Development Programme, for critically examining the various aspects of implementation of the programme, specially those relating to the adoption of recommended package of practices and the impact of programme on individual incomes of the farmers. The study, however, was designed specifically to probe into the following objectives :

1.6.1 to assess the impact of the programme, especially with regard to the productivity of groundnut and the income of the individual farmers,

1.6.2 to assess the extent of adoption of improved package of practices and the reasons, therein, for the deviation (if any),

1.6.3 to assess the role of extension agencies in the availability of needed inputs and the technical know-how, and

1.6.4 to suggest steps for improving the effectiveness of the programme, with reference to the groundnut crop.

CHAPTER II

Intensive Oilseeds Development Programme in Karnataka

This scheme was implemented with effect from 1.4.1975 vide G.O.No.AAE/AML dated 1.9.76. The objectives of the scheme were,

a) to increase the production to meet the increased demand by increasing the area under oilseed crops,
b) to develop non-traditional oilseed crop rich in oil and protein contents,
c) to extend the area under multiple cropping including oilseed crops in cropping pattern, and
d) to increase per hectare yield through adoption of package of practices and production technology.

2.1 Progress achieved in 1982-83

Amount sanctioned by the Government of India for the year 1982-83 was of the order of Rs.38.55 lakh and an equal amount was to be sanctioned by the State Government also (Table 2.1). However, the Government of India's share in the expenditure was as high as 86 percent. The physical targets and achievements in terms of area covered under groundnut, presented in the table 2.2, show that nearly 82 percent of the targets had been achieved during 1982-83 as against a target area of about 1,54,000 hectares in Raichur and 1,07,049 hectares amounting to about 70 percent as against 66 percent in respect of the Kolar district. In Kolar district, only 13 percent of the target was achieved in the summer as against 23 percent and 37 percent achieved in respect of the Raichur district and the State as a whole.

The input distribution in 1982-83, in respect of the

improved seeds, fertilizers, plant protection chemicals, is presented in the Table 2.3. Eighty hectares of groundnut has been covered by the minikit programme to popularise the improved variety of seeds such as TG3, TG17, JL-24 or J-11 as against a target of sixty hectares (Table 2.3). While, in the districts of Raichur, Dharwar & Belgaum, the achievement had exceeded the target, only in Gulbarga 50 percent of the target had been achieved. As many as 1,112 hectares were covered by demonstrations in 1982-83 as against a target of 800/only hectares thus exceeding the target by 28 percent. This was mainly due to the districts of Dharwar, Belgaum and Raichur where the achievement was far in excess of the targets. Again in Gulbarga, as against a target of 120 hectares, only 23.6 hectares had been achieved. Table 2.4 may be referred to for details.

Thus, the coverage in the district, of Dharwar, Belgaum, Raichur, and Bijapur, seemed to be/quite satisfactory in 1982-83. The coverage in Gulburga, Tumkur and Kolar district/also seemed to be satisfactory. The main handicap was insufficient and erratic rainfall during kharif season of 1982-83, which resulted in low yields, reducing the normal production by about 40 percent in almost all the districts of the state. The summer season was also not prospective since there was no sufficient water in the tanks and wells.

2.2 Proposed Programme of the Work for 1983-84

The financial allocation for 1983-84 for the State of Karnataka was Rs.56,75,000 of which nearly 31 percent was for the seeds subsidy, followed by the components, minikits (25%) and plant protection chemicals/at 50% subsidy (20%) respectively (Table 2.5). The number of minikits allotted to the state for the ground crop (0.1 hect. @ Rs.85 each)

was 10,500, the financial requirement of which was Rs.8,92,500. The number of demonstrations allotted for groundnut (0.4 hect.@ Rs.80 each) was 4,000, the financial requirement of which was Rs.3,20,000. The district Raichur was allotted the highest number of minikits (1000) and demonstrations (750), the financial outlays being Rs.85,000 and 75,000 respectively. Next to Raichur were the districts of Shimoga and Chitradurga with 600 minikits and 500 demonstrations each. Plant protection chemicals at 50% subsidy; maximum outlay was for Bellary district (Rs.1,15,000) followed by Raichur and Chitradurga (Rs.1,00,000 each) and Shimoga (Rs.50,000). The details of districtwise physical & financial programme for 1983-84 are presented in the Table 2.6..

CHAPTER III

STUDY AREA, SAMPLING DESIGN AND THE DATA BASE

3.0 Choice of the area for study

3.1 Selection of the Districts

All the eight major groundnut producing districts are included in one or the other major schemes, currently in operation. However, Belgaum, Kolar, Raichur and Tumkur districts come under the purview of both the schemes.

Among these, the district Raichur occupies a premier position not only for the fairly larger area under groundnut (1.17 lakh hectares), but also that it was one of the two districts in the state where the production had increased at the rate of about 7.45 percent per annum after the implementation of the programme. This increase in production was despite the stagnancy in area under the crop which invariably was due to increased productivity. And the area under summer crop had amounted to about 35 percent of the total area under the crop.

On the other hand, Kolar, a smaller district in the southern part of the state, accounting for about 12 percent of its gross cropped area under groundnut, inspite of an increase in the area under groundnut from about 30,000 hectares in 1961-64 (triennium average) about 74,000 hectares in 1973-76 had shown a decline in the area at the rate of about 5.22 percent per annum in the subsequent years. Further, Kolar district has the least developed infrastructure in respect of marketing of agricultural produce which could be evidenced by the fact that the regulated markets in the district handle about 10% of the total production.[1] Comparing the number of regulated markets and the value of turn-over in them in Kolar district -

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1. Agricultural Marketing Statistics,1979-80, Karnataka State Agricultural Marketing Board,Banglore (unpublished).

with that of the Raichur district - 26 and Rs.77.50 crores[2] - the contrast becomes obvious.

3.1.1 RAICHUR DISTRICT AT A GLANCE

Raichur district is in the North-Eastern part of Karnataka and stands between 15.09° and 16.34° north latitude and 75.45° and 76.35° east longitude. Two major rivers, Krishna and Tungabhadra flow on either side of the district. Large part of the district is covered by black soils, but the are soils of red, sandy loams and red loams present in some

The total geographical area in the district according to census (1981) is 14,017 sq.kms. and the same according to village papers is 13,88,338 hectares, 74 percent of which was the net area sown in 1982-83. The net area irrigated was 1,06,356 hectares. The normal rainfall in the district is 601.6 m.ms., and the actual average rainfall during 1982-83 was 618.4 m.ms. Canals are the major source of irrigation accounting for 91,184 hectares. Tanks, wells and other sources accounted for 3,229; 9,418 and 2,525 hectares respectively.

Important crops grown in the district are cotton, jowar, groundnut and bajra. Among these, groundnut occupies a premier position (next to cotton and jowar) in the district with regard to both area and yield, with the figures of 1,16,942 hectares and 1,02,643 tonnes respectively (1982-83).

Raichur district comprising nine taluks (Deodurg, Gangavati, Koppal, Kustugi, Lingsugar, Munvi, Raichur, Sindhanur and Yelburga) was inhabited by 17,83,822 people

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2. Karnataka at a Glance, , Bureau of Economics & Statistics, Government of Karnataka, Bangalore.

and 88 percent of them live in rural areas, the villages numbering 1,401 in 1982-83. Numbers of owner-cultivators and landless agricultural labourers in the district were 2,18,973 and 1,93,736 respectively in 1982-83 (Table 3.1) marginal and small farmers accounted for about 37 percent of the total holdings in the district. Nearly 32 percent of the total operational holdings were in the size of less than 2 hectares. Maximum number of holdings was recorded in the size holding between 2 and 5 hectares. Taluk-wise distribution of land holdings by size is presented in the Table 3.1.

There were 370 registered factories in the district in 1982-83, with an annual value of the industrial output of about 19.70 crore rupees and employing 14,110 people. There were 129 textile factories (1982-83), 12 chemical factories and one engineering factory in the district. There were 2,200 handlooms with 1370 weavers' families operating outside the factories registered under the Factories Act.

Number of co-operative societies, in 1982-83 in the district, were 1,608 which, however, included the liquidated societies also, out of which 209 were Agricultural co-op. credit societies. Membership in all were 2,98,431 out of whom 1,50,053 were the Agricultural Co-operative credit societies. About 378.20 lakh rupees was advanced as loan, as on 30.6. 1982, 96.5 percent of which was short-term and the rest medium term loans.

At the end of 1983, 26 regulated markets comprising 17main and 9 sub markets were in the district. There were as many as 7 main markets in the Sindhunur taluk, one each in Gangavati and Koppal, 3 each in Raichur and Manvi, and 2 in one

Yelburga. Thus, Deodurg and Lingsugar taluks had no markets at all. In fact, it was in Raichur that the first regulated market was established in the state and perhaps one of the largest markets with an annual turnover of about Rs.60.50 crores (1982-83), out of a district total of about Rs.77.50 crores. Thus, Raichur has probably one of the best developed marketing infrastructure in the state.

3.1.2. Kolar District at a Glance

Kolar belongs to the maidan (plains) group of districts as distinct from the hilly, western portions of the state called Malnad and it is the easternmost district of the Karnataka State. It is situated between 12°46' and 13°58' north latitude and 77°21' and 78°35' east longitude. Its greatest length from north to south is about 85 miles and its greatest distance from east to west is also roughly the same. It is bounded by the districts of Bangalore and Tumkur on the west, and on all the other sides it is surrounded by the districts of the adjoining states of Andhra Pradesh and Tamil Nadu.

The total geographical area in the district, according to census (1981), is 8,223.00 sq.kms. and the same according to village papers is 7,79,467 hectares. The net area irrigated was 74,637 hectares. Thus, nearly 80 percent of the area is under rainfed condition and hence the life of the farming community is articulated by the raihs. Kharif being the main season of the district, the success is always under the shadow of the monsoon which is unpredictable and uneven in distribution. In the absence of any perenial rivers and the canals the irrigation is through wells and

tanks, which is again dependent on rains. The normal rainfall of the district is 730.5 m.ms., the maximum is received during the month of September, followed by it in the month of October. Hence, good precipitation, during kharif fills up the tanks and wells enabling rabi and summer crops.

The rainfall during the year 1982 was, however, 554.8 m.ms. only. The tanks, wells, and other sources had accounted for 29,014, 45,571 and 52 hectares respectively during 1981-82.

Important crops grown in the district are ragi, groundnut, pulses (other than gram and tur), paddy and mulberry. Among these, groundnut occupies a premier position (next only to Ragi) with regard to both area and yield with the figures of 47,092 hectares and 39,079 tonnes respectively

Kolar district comprising eleven taluks (Bagepally, Gudiba Bangarpet, C.B.Pur, Chintamani, Gauribidanur, Kolar, Malur, Mulbagal, Sidlaghatta, and Srinivasapur) was inhabited by 19,05, 492 people (1981 census) and 78 percent of them lived in rural areas. Number of owner-cultivators (families) and landless agricultural labourers were 2,86,254 and 71,659 respectively in 1982-83 (Table 3.2). Marginal and small farmers (farmers with size of holding less than one hectare and between one and two hectares respectively) accounted for about 84 percent of the total holdings, operating nearly 35 percent of the net area under cultivation in the district. Maximum number of holdings (1,08,851) were rewarded in the size holding less than one hectare, but covering just 13 percent of the net area under cultivation (Table 3.).

There were 1,429 registered factories in the district

in 1982-83 with about 16,306 workers employed in them. As against 89 chemical and 340 engineering factories, there were 1,157 handlooms in the district. There were 2,714 villages (out of a total of 2,848) coming under development of sericulture covering 48,221 sericulturists (both direct and indirect), having a cocoon production of 91.43 lakh kgs. valued at Rs.3,459 lakh rupees.

Number of cooperative societies, in 1982-83, in the district were 1,096 of which 215 were Agricultural Credit Co-op. societies. Membership in all were 4,60,266 of whom 2,94,023 were in the Agricultural Credit Co.op. societies. About Rs.230 lakh was advanced as loan during the year, the share of short, medium and long term loan being 58.40, 36.00 and 5.6 percent respectively.

At the end of 1983, there were 14 regulated markets in the Kolar district with equal number of main and sub markets. The taluks, Bagepally, Gudibanda, Sidlaghatta and Srinivasapur did not have any main market, with the other taluks having one each. Gudibanda taluk did not have even the sub-market. The value of the turnover in the regulated markets was of the order of Rs.1,023.74 lakhs. Sidlaghatta taluk in spite of having two sub-markets (there are no main markets), had not recorded any transaction. Thus, it is clear how the kolar district is least developed in respect of marketing infrastructure.

3.1.3 Selection of the Taluks

Two taluks from each of the district were selected from each of the districts chosen based on the area under groundnut and the extent of the adoption of practices under the Intensive Oilseeds Development Programme. The officials of the Department of Agriculture, however, were

consulted in the selection of the taluks as well as in the selection of the villages.

3.1.3.1 Raichur and Manvi Taluks:

The taluks selected in the Raichur district were Raichur and Manvi. The respective geographical areas of the taluks are 1,540 and 1,717 square kilometers or 151,415 and 179,273 hectares, amounting to around 11 and 12 percent of the total area in the district. Net area sown in the Raichur and Manvi taluks (1982-83) amount to 80 and 83 percent respectively. While, the net area irrigated in the Raichur taluk accounted for just 9.47 percent of the net area sown, the same for the Manvi taluk was about 17.46 percent respectively. The area under groundnut in the two taluks in 1982-83 were 5,048 and 13,750 hectares amounting to 4.31 and 11.76 percent of the total groundnut area in the district respectively. The number of regulated markets including sub markets were 3 in each of the taluks with the annual turnover, as on 31.3.1983, were about 60.50 and 2.23 crore rupees amounting to 78.06 and 2.88 percent of the total turn over in all the regulated markets in the district, respectively.

3.1.3.2. Gauribidnur and Bagepalli Taluks

The taluks selected in the kolar district were Gauribidanur and Bagepalli. The respective geographical areas of the taluks are 882.94 and 937.09 souare kilometers or 86,727 and 90,009 hectares amounting to 11.13 and 11.55 percent of the total area in the district respectively. Net area sown in the two taluks (1982-83) amount to 49.07 and 41.41 percent respectively. While, the net area irrigated in the gauribidanur taluk in 1982-83 was 13.91 percent and

the same in respect of Bagepalli taluk was 6.05 percent, of the net area sown. This amounted to 16.16 and 7.30 percent of the net area irrigated in the district. The normal area under groundnut in the two taluks in 1983-84 were 9,249 and 13,985 hectares amounting to 15.90 and 24.03 percent of the total groundnut area in the district. While there was only one main regulated market in Gauribidanur, there was none in Bagepalli. However, there were two sub markets in the Bagepalli taluk. The value of the turnover were about 61.79 and 71.38 lakh rupees amounting to 6.04 and 6.97 percent of the total turnover in all the regulated markets in the district, respectively.

3.2.0 Selection of Villages and respondents

Seventeen villages (including hamlets) eleven in Kolar and six in Raichur, spread over the four selected taluks in the two districts were selected in consultation with the officials of the Department of Agriculture so as to have sufficient number of beneficiaries and non beneficiaries under the programme and as well as to represent the crop grown in different conditions such as irrigated/dry, kharif/summer, etc. In the Kolar district, eight villages belonged to Gauribidanur taluk and the rest (3) to Bagepalli taluk. Manvi taluk in the Raichur had accounted for four villages and the rest (2) by the Raichur taluk. Names of the villages and hamlets selected are presented in the Table 3.3.

Stratified random sampling technique was employed in the selection of respondents, strata being based on the size of holding. Number of respondents in each strata was determined by proportional allocation. In all, eighty respondents (50 beneficiaries and thirty nonbeneficiaries) were selected from each of the district. The number of respondents, in total were one hundred and sixty.

The sampling was carried out separately for each of the district. The districtwise number of respondents in different strata is presented in the Table 3.4.

SOCIO ECONOMIC PROFILE OF THE RESPONDENTS

3.2.1 Kolar District

Eighty families, selected for the purpose, in the Kolar district had 453 people in total of whom 291 were in the category of beneficiaries (50 families) and the rest in the nonbeneficiaries (Table 3.5). Thus, the average size of the family was around 5.63 and the same for beneficiaries and the nonbeneficiaries was 5.80 and 5.40 respectively. There were 159 earners, comprising 112 male, 45 female and two children. As against 36 illiterates (11 beneficiaries and 27 nonbeneficiaries), the rest were literates comprising 19 upto 7th standard (middle school), 2 in the secondary school and 12 collegiates (Table 3.6). Main occupation being farming, 54 families had sub-occupations such as Agricultural labour, dairy, serilucture etc., the details of which are presented in Table 3.7.

Net agricultural land owned by the selected families was 158.41 hectares out of which 76.80 hectares belonged to the beneficiaries and the rest (81.61 hectares) to the non-beneficiaries (Table 3.8). Further, 32 marginal farmers had owned about 20 hectares of land as against 28 small farmers owning 39 hectares, and the rest (medium and large farmers) had owned about 99.40 hectares of land. Inclusive of 7.60 hectares of land taken on lease the area cultivated by the families was about 166 hectares. Area cropped more than

once was 42.06 hectares and hence the gross cropped area was about 208 hectares. The area irrigated by wells and tanks were about 16 and 62 hectares, amounting to about 7.0 and 30 percent of the gross cropped area (Table 3.8). Both the groups of farmers, beneficiaries and non beneficiaries, were almost identical with regard to the area under irrigation and also the area cropped more than once.

The total area under cultivation during the kharif season was about 161 hectares amounting to about 77 percent of the gross cropped area and the rest during summer (Table 3.9). Fortyfour percent of the gross cropped area under cereals (mainly ragi) as against 23 percent groundnut, 4 percent sugarcane, 3.4 percent sunflower, 3 percent mulberry and the rest under other crops. As far as the groundnut was concerned, about 35 percent of the area was irrigated and nearly 59 percent of the gross cropped area under groundnut was under local varieties.

Groundnut was the main crop grown in summer, in addition to cereals to a certain extent. Nearly forty one hectares amounting to about 20 percent was under groundnut during the summer season. The area under local varieties and improved varieties were almost identical and the entire area invariably being under irrigation.

The number of bullocks, cattle and sheep owned by the families were 67; 171 and 154, valued at Rs.84,350, Rs.2,22,220 and Rs.26,950 respectively (Table 3.10). Fourteen iron ploughs valued at Rs.1,715 were owned by the families of which eleven ploughs belonged to the beneficiaries group. Two tractors valued at Rs.1,25,000

belonging to the nonbeneficiaries and each belonged to the farmers in the size holding above four hectares were found in the Gauribidanur taluk of the district. Thirty four pumpsets valued at Rs.1,49,500 were found to be belonging to the respondent families of which 22 belonged to the beneficiaries.

3.2.2 RAICHUR DISTRICT

From among 468 people in the eighty families, selected for the purpose, 302 were in the category of beneficiaries (50 families) and the rest in the non-beneficiaries (Table 3.5). Thus, the average size of the family was around 5.85 and the same for the beneficiaries and non-beneficiaries were 6.64 and 5.53 respectively. There were 205 earners in all, comprising 120 male, 77 female and 8 children. As against 49 illiterates (29 beneficiaries and 20 non beneficiaries), the rest were literates comprising 22 up to 7th standard (middle school), 2 in the secondary school and 7 collegiates (Table 3.6). Main occupation being farming, 56 families had sub occupations such as agricultural labour, dairy, sericulture, etc., the details of which are presented in the Table 3.7.

Net agricultural land owned by the families was 179.43 hectares out of which 97.48 hectares belonged to the beneficiaries and the rest (81.95) to the non beneficiaries (Table 3.11). Thus, as against a per family availability of 1.95 hectares per beneficiaries, the non beneficiaries had a net available 2.73 hectares per family. Further, 31 marginal farmers had owned about 25 hectares of land as against 28 small farmers owning 42 hectares, and the rest (medium and large farmers) had owned about 112 hectares

of land. Inclusive of 5.2 hectares of land taken on lease (all on share rent) the area cultivated by the families was 184.63 hectares. The area cropped more than once was 112.38 hectares and the gross cropped area was 297.01 hectares as against an area of 117.83 hectares being irrigated by tanks/canals (mostly canals) which together amounted to about 41 percent of the gross cropped area (Table 3.11). As against an area of 75.48 hectares of land belonging to the beneficiaries being irrigated denoting available irrigated land as 1.51 hectares per family, non beneficiaries had 1.56 hectares of irrigated land per family.

The total area under cultivation during the kharif season was about 148.83 hectares, amounting to about 50 percent of the gross cropped area and of the rest 19.6 hectares or 6.60 percent was in the rabi season and 43.40 percent in the summer season (Table 3.12). Nearly 61 percent of the gross cropped area during kharif was under cereals, mainly Bajra and jowar, as against 19.27 percent for sunflower and 15.32 percent for groundnut respectively. Dry and the irrigated area under groundnut during the kharif season were almost identical. Nearly twelve percent of the area under groundnut had improved varieties and the rest were all local varieties only. In Raichur district, groundnut was not grown as a rabi crop. Only cereals and cotton were grown during the rabi season. Thirty three percent of the area was under groundnut during the summer season which amounted to about 98 hectares. The area under local and improved varieties were almost

identical and both were invariably under irrigation. (For details regarding other crops in the summer season, see Table 3.12).

The number of bullocks, cattle and sheep owned by the families were 132; 172 and 116, valued at Rs.1,04,750, Rs.1,11,350 and Rs.20,600 respectively (Table 3.13). Only two iron ploughs, valued at Rs.300/- were found in the families, and both belonged to the non beneficiaries. There were only eight pumpsets, three belonging to the beneficiaries and five to nonbeneficiaries, valued at Rs.39,500/-

3.3 DATA BASE

The information regarding production and marketing of the groundnut and other crops were collected from the respondents using structured interview schedules which were initially tested for their feasibilities. The format of the schedule used for the purpose is presented in the Appendix.

The secondary data, required for the purpose, was collected from the following sources :

1) Department of Agriculture, Government of Karnataka,
2) Karnataka State Agricultural Marketing Board, Bangalore, and
3) Bureau of Economics and Statistics, Government of Karnatka, Bangalore.

CHAPTER IV

ECONOMICS OF CULTIVATION OF GROUNDNUT - A COMPARATIVE ANALYSIS

Cost of Cultivation

Generally, the rainfall and irrigation are the deciding factors for allocation of area under the crop groundnut. The major requirement of the input in the groundnut cultivation, in addition to the human labour, is seeds. Not only the seeds are required in substantially larger quantities, but the quality of the same is also very important. The seeds of improved varieties of groundnut have been provided free of cost to the beneficiaries under the IODP Scheme. The other benefits such as fertilizers, plant protection chemicals and farm implements being provided have been negligible. The cost and returns are presented separately for the beneficiaries and the non-beneficiaries. However, in view of the diverse conditions prevailing in the two districts (Raichur and Kolar) under consideration, the same will be presented separately for the two districts and also in each season (Kharif and Summer).

It may be mentioned that groundnut is grown as a mixed crop especially in the Kharif season. In such cases, groundnut has been treated as the main crop and, therefore, 90 per cent of the common cost is accounted on the main crop. Similarly, allocation of area under the crop is also made on the same basis.* This seems reasonable especially under the absence of any prescribed procedure

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* Problems in growth of Oilseeds - A Study of groundnut in Tamil Nadu, Research Study No. 78, Agricultural Economic Research Centre, University of Madras, Madras, 1984.

in apportioning the area under each crop.* Imputed values for owned inputs have been calculated as per the prevalent prices and wages. Interest on working capital for those farmers who have not borrowed from any source was worked out at the rate of ten per cent per annum for four months, the duration of the crop. However, in the case of the farmers being loanees, the interest has been worked out on the amount drawn at the prescribed rate of interest. The loans from the private money lenders generally carry a rate of interest ranging between 3 and 5 per cent per month.

4.1 Cost of Cultivation - Raichur District

4.1.1(a) Beneficiaries - Improved Varieties - Summer Season

The average cost of cultivation of groundnut for the beneficiaries in the Raichur district growing improved varieties worked out to be around Rs. 3,644 per hectare (Table 4.1). Nearly 51 per cent of the total cost is due to human labour which amounted to Rs.1,864, of which 44 per cent is on hired labour and the rest is the imputed value for family labour. Followed by human labour were the components of Bullock Cost, fertilizers and the seed costs, the contribution of each towards the cost being 19.72 per cent, 19.44 per cent and 18.13 per cent respectively. Of the seed cost of Rs. 661 per hectare, nearly 78 per cent was being given free of cost as a part of the IoDP by the Government. Hence, taking the cost of seeds given free of cost also into account, the total cost turns out to be around Rs.4,157 per hectare. The interest on working capital amounts to about 1.74 per cent of the total cost of cultivation of groundnut.

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* Evaluation Report on Oilseeds Development Programme (1976-80), Planning Commission, Govt. of India, 1984.

The cost of cultivation was the highest in respect of the medium farmers (IIIrd Category, with size of holding between 2 and 4 hectares) with a value of Rs.3,823 followed by the large farmers (IVth category, with size holding 4 or more than 4 hectares) with a value of Rs.3,747. It was the least in respect of small farmers (IInd category, with size holding between 1 and 2 hectares).

The cost of human labour appeared to be identical for both the farmers in the Ist and IInd categories as well as for those in the categories III and IV when family labour value was imputed. But, the family labour had accounted for nearly 61 per cent of the value of the total labour cost for the former categories as against a mere 34 per cent in respect of the farmers in the latter categories. Similarly, the former categories had incurred a sum of Rs. 650 towards the fertilizers as against a sum of Rs. 900 by the farmers in the other categories.

It may be proper to mention that nearly 79 per cent of the beneficiaries were either marginal or small farmers, both being almost identical in numbers. Furhter, the value of the seeds of the improved variety received by the marginal and small farmers was around Rs. 560 per hectare (about 93 kgs.) which was nearly 62 per cent more than that received by the medium and large farmers. But the quantity of seeds purchased by the latter categories of farmers was almost double than that of the farmers in former categories which stood at Rs.226 per hectare.

4.1.2 Non-beneficiaries - Local Varieties - Summer Season

The average cost of cultivation of groundnut for

the non-beneficiaries growing local varieties in the summer season worked out to be around Rs. 2,816 per hectare, 22 per cent less than that for the beneficiaries (Table 4.2). Nearly 46 per cent of total cost was due to the human labour, of which about 67 per cent was towards the hired labour. Thus the proportion of imputed value for family labour for the non-beneficiaries was less compared to that of the beneficiaries. As against a sum of Rs. 719 incurred by the beneficiaries towards the bullock charges, the non-beneficiaries had incurred Rs. 378 per hectare. The amount towards fertilizer for the two groups was Rs. 708 and Rs. 516 respectively. The major difference, however, was in the form of seeds. As against a sum of Rs. 661 incurred towards seeds by the beneficiaries (about 110 kgs), the non-beneficiaries had incurred Rs. 437 (about 146 kgs). The former had used improved varieties and the latter had grown local varieties.

The coefficient of variability (cv) with respect to the expenditure incurred towards total cost for the beneficiaries was just around 3 per cent in contrast to nearly 30 per cent in respect of the non-beneficiaries. The variabilities did differ significantly from each other. The mean values, too, differed significantly indicating that the beneficiaries had incurred more expenditure compared to the non-beneficiaries. This was true in the case of seeds also. The variabilities in the case of seeds, however, did not differ significantly, the CVs being 29 and 23 per cent respectively.

4.1.3 The beneficiaries growing local varieties and Non-beneficiaries growing improved varieties in the summer season

The beneficiaries growing local varieties in the summer season had incurred on an average a sum of Rs. 2,998 as against a sum of Rs. 2,853 per hectare incurred by the non-beneficiaries growing improved varieties (Table 4.3). As against a sum of Rs. 524 incurred by the former categories towards seeds, the latter had spent a sum of Rs. 556 towards the same. The amount incurred towards fertilizer were Rs. 521 and 772 respectively. Further, as against 4 non-beneficiaries growing improved varieties, there were 41 beneficiaries growing local varieties. The difference in the total cost incurred by the beneficiaries and the non-beneficiaries growing local varieties was, however, found non-significant in spite of the significant difference in the variabilities.

Thus, combining the information from the Tables 4.1 to 4.3 the cost of cultivation per hectare for the beneficiaries growing groundnut in the summer season (irrespective of the varieties) work out to be Rs.1,337.25 in contrast to Rs. 1,129.08, thus registering approximately a difference of 18 per cent. Similarly, the total cost of cultivation of improved varieties of groundnut, in general in the summer season, works out to be Rs. 1,432.97 as against a sum of Rs. 1,177.71 required for growing the local varieties.

4.I.4 Cost of Cultivation - Kharif Season

It may be mentioned that the data in the present study pertains to the Kharif 1983 and summer 1984.

However, the actual benefit was accrued to the sample beneficiaries in the summer season only in the Raichur district. Thus, this may reflect the production pattern of the farmers, especially the beneficiaries, earlier to receiving the benefits.

Both beneficiaries and the non-beneficiaries, in the absence of any benefit, had grown only local varieties. The average cost of cultivation for the non-beneficiaries was around Rs. 2,608 in contrast to Rs. 3,698 incurred by the beneficiaries (Table 4.4), thus registering a significant difference of about 42 per cent. The expenditure incurred on seeds and hence the physical quantities also had differed significantly from each other. The same was true in the case of fertilizer also.

4.2 Cost of Cultivation - Kolar District

In Kolar district, among the sample farmers, the benefits had been provided both in the Kharif and Summer season, unlike in the Raichur district where we had beneficiaries only in the summer season. Further, it may be mentioned that in the summer season the cost of cultivation and the returns are the combined figures for both the improved and the local varieties as the same was not available separately.

4.2.1 Kharif Season - Beneficiaries - Improved Varieties

The average cost of cultivation of groundnut for the beneficiaries growing improved varieties in the Kharif season works out to Rs, 2,305.70 per hectare, 36 per cent of which was due to human labour (Table 4.5). Nearly 11 per cent of the total value of labour was on hired labour and the rest imputed value for the family labour. The amounts due to seeds and green manure were almost identical, forming nearly 19 per cent.

As high as 83 per cent of the beneficiaries were in the categories I and II, the value of the benefit in the form of the improved seeds being Rs. 168 per hectare. The value of the benefit accrued to the farmers in the categories III and IV was around Rs. 200 per hectare. The total cost of cultivation for the former categories was about Rs. 835 as against Rs. 1,345 for the rest of the farmers, thus registering a significant difference of about 61 per cent.

4.2.2 Kharif Season - Non-Beneficiaries and Beneficiaries - Local Varieties

The average cost of cultivation of groundnut for the non-beneficiaries growing local varieties which stood at Rs. 1,867 per hectare (Table 4.6), was significantly lower than that for the beneficiaries growing improved varieties. The value of the seeds incurred remaining the same, it indicated that the non-beneficiaries had used relatively higher valuation of seeds. The total cost of cultivation, on an average, for the beneficiaries growing local varieties was around Rs.2,270 per hectare, CV being just 7 per cent (Table 4.6). Though this differed significantly from that of the non-beneficiaries, as far as the beneficiaries growing improved varieties were concerned it was almost on par. As high as 20 per cent of the total cost was due to seeds which implied use of relatively greater quantities of seeds.

4.2.3 Summer Season - Beneficiaries and Non-Beneficiaries

As against a sum of Rs. 2,885 incurred by the beneficiaries towards the total cost of cultivation, the non-beneficiaries had incurred a sum of Rs. 2,443 per hectare (Table 4.7) thus registering a significant difference of

about 18 per cent. The value of the seeds in respect of beneficiaries was Rs. 639 and the same for the non-beneficiaries was Rs. 510 per hectare. Nearly 33 per cent of the total value of the seeds for the beneficiaries was provided free of cost.

Again, as high as 82 per cent of the beneficiaries were marginal and small farmers. The value of seeds being provided free of cost works out to Rs. 240 per hectare for the marginal and small farmers. In contrast, it amounts to Rs. 83 in respect of other farmers. The value of the seeds purchased for the two sets of farmers works out to Rs. 388 and Rs. 604 respectively. The same in respect of total cost are Rs. 2,749 and Rs. 3,495 respectively.

4.3.0 Output, Prices and Incomes

4.3.1 Raichur - Summer Season - Beneficiaries and Non-beneficiaries

The average yield per hectare of groundnut for the beneficiaries growing improved varieties was 16.63 quintals as against a quantum of 13.60 quintals realised per hectare by the non-beneficiaries growing local varieties, thus registering a significant difference of 22 per cent (Table 4.8). The prices received by them were Rs. 427.97 and 435.32 respectively and they did not differ from each other significantly. The marketing cost per hectare for the beneficiaries growing improved varieties in the summer season was Rs. 139 as against Rs. 187 in respect of the non-beneficiaries growing local varieties. Thus the net income for the former categories of farmers works out to be Rs. 3,331 per hectare and the same for the latter categories of farmers Rs. 2,913, thus registering a significant difference of about 14 per cent. However, the point to be noted is that the value of the seeds given

free of cost is not considered while computing the total cost for the beneficiaries. And the price received remaining the same whatever the difference in the net incomes is due to difference in the production pattern, especially the usage of improved seeds and fertilizers.

Further, the superior performance of the improved seeds could be ascertained from the fact that the yield in respect of the local varieties grown in summer season by the beneficiaries (13.10 quintals) was significantly lower than that of the improved ones (Table 4.8). With the result, the net income was less by 712.20, when local varieties were grown, registering a difference of about 27 per cent.

Non-beneficiaries growing improved varieties, though negligible in number, had realised a net income of Rs. 3,145, about Rs. 136 less than that of the beneficiaries registering a difference of just 6 per cent. Even this difference in net incomes could be attributable more to the difference in the prices received rather to the yields obtained.

The beneficiaries, in general (irrespective of the varieties), had been able to obtain an average yield of 6.01 quintals per hectare in contrast to about 5.61 quintals realised by the non-beneficiaries in the summer season. The net income realised by the beneficiaries was Rs. 2,999 as compared to an income of Rs. 2,961 realised by the non-beneficiaries.

4.3.2 Raichur - Kharif Season - Beneficiaries and Non-Beneficiaries

The beneficiaries and the non-beneficiaries, both growing only local varieties i.e., in the absence of the IODP, did not differ significantly from each other in respect of the output and prices and as a result the income

realised also. (Table 4.9). Further, it appeared that the farmers in general were able to realise more incomes in the summer season as compared to the Kharif season as they were able to obtain nigher yields and better prices during the summer season.

4.3.2 Analysis of Variance of the Yields - Summer Season

The average yields obtained by the beneficiaries and the non-beneficiaries in different categories in the summer season growing improved and local varieties were subjected to test for the analysis of variance to test for the differences. From the result presented in the Table 4.10 it is obvious that only the difference between the varieties (improved VS local) is significant, that too only at 10 per cent level of significance. But, this is to be viewed from the point that the degrees of freedom associated with error is just nine. The same is, hence, tried through a non-parametric test.

The non-parametric test under consideration is the Kolmogorovsmirnov's Two Sample Test, being used to compare the distributions of the number of farmers producing a particular quantum when the improved varieties are grown and when local varieties are grown.

Let $S^{(x)}$ denote the number of farmers growing improved varieties and local varieties, obtaining an yield of x or below respectively. Let n_1 and n_2 be the total number of farmers growing improved and local varieties separately. Under the null hypothesis of two distributions of yields are identical, the test statistic,

$$T = \frac{4\ D^2\ n_1 n_2}{n_1 + n_2}$$

follows a chisquare distribution with two degrees of freedom

$$D = \text{Maximum } (S_1^{(x)} - S_2^{(x)}$$

The value of T for our observed data came out to be 6.5.3 / ?, which is significant. Thus it could be concluded that the improved varieties do yield more than the local varieties. (See Table 4.11). This, in a way, registers the impact of the scheme also as it establishes the superior performance of the improved varieties supplied free of cost under the project.

4.3.2 Kolar - Kharif Season - Beneficiaries and Non-Beneficiaries

The average yield per hectare of groundnut for the beneficiaries growing improved varieties was 10.55 quintals as against a quantum of 8.10 quintals realised by the non-beneficiaries growing local varieties, thus registering a significant difference of about 30 per cent (Table 4.1.2). The prices received by them were Rs.451.75 and Rs.468.94 respectively per quintal and difference between the two was found to be non-significant. As almost all the farmers had sold their produce on the farm itself. No expenses had been incurred towards the marketing of the produce. The net income for the beneficiaries works out to be Rs.4,766 per hectare as against a sum of Rs. 3,798 realised by the non-beneficiaries, thus registering a significant difference of about 25 per cent. A sum of Rs. 433 towards the seed cost being supplied free of cost under the scheme is, however, not taken into account as far as the beneficiaries are concerned. And, as in the case of Raichur district (Ref. 4.3.1), the price received remaining the same whatever the difference in the net incomes is due to differences in the production pattern only especially in the usage of improved seeds.

However, as far as the beneficiaries growing local varieties were concerned, they were found on par with the those who were growing improved varieties both with regard to price and with regard to yields. With an yield of 9.58

quintals per hectare and realising a price of Rs.455.81 per quintal, the beneficiaries growing local varieties had an income of about Rs. 4,364 per hectare, around 9 per cent less than those who had grown improved varieties. Further, there were no non-beneficiary who had grown improved varieties.

4.3.2.1 Kolar - Summer Season - Beneficiaries and Non-Beneficiaries

In the summer season, with regard to the costs and yields of the beneficiaries, the data available was mixed viz., it could not be reported separately for the improved and the local varieties. And the non-beneficiaries had grown only the local varieties. With the result, no meaningful comparison could be made as the main difference or the impact of the project virtually lies in the usage of improved seeds exclusively. However, the results are presented in Table 4.13.

In general, it could be concluded that the seeds of the improved varieties, being provided free of cost of the beneficiaries, do perform better than the local varieties as far as the yields are concerned. To this effect, it may be said that the scheme has a positive impact and could be termed as success. However, how much of this could be attributable to the difference in the levels of technical officially achieved by the beneficiaries and the non-beneficiaries and how much of it could be due to the increased level of usage of the inputs is the real issue. The same is dealt in the next section.

CHAPTER-V

THE IMPLEMENTATION OF THE PROGRAMME AND ADOPTION OF THE RECOMMENDED PACKAGE OF PRACTICES

This chapter deals with the extent of adoption and the reasons for deviation (if any) from the recommended package of practice for adoption by the cultivators covered under the scheme. These practices relate to the use of improved seed, a specific seed rate, seed treatment, specified number of irrigations, use of farm yard manure/compost of a specified quantity, application of chemical fertilisers and inter-cultural operations.

5.1 Improved Seeds

Seeds of the improved varieties was provided free of cost to the beneficiaries with a view to evaluate its performance and then to popularise the same if found suitable. The important varieties which were provided free of cost to most of the beneficiaries, in general, were JL 24, TMV 2 and S 208. The varieties, DH 330, DH 302 and spanish improved, were tried on a smaller scale. While the variety S 208 had been tried only in the Raichur district in contrast to the variety TMV 2 only in the Kolar district, JL 24 had been tried in both the districts. DH 330 was also tried only in the Raichur district.

The average yield per hectare in respect of JL 24 in the Raichur district was 16.80 quintals as against a mere 11.45 quintals obtained in the Kolar district, thus registering a difference of about 47 per cent (Table 5.1). However, the point to be noted is that even in the Raichur district, the yield obtained in the Raichur taluk was just 11.08 quintals, about 7.50 qunitals less than that of the Munvi taluk. These differences in the yields could be attributable to the differences in the irrigation facility and hence

in the case of inputs also.

Further, with an yield of 11.45 quintals per hectare, JL 24 seems to have fared better compared to the other varieties in the Kolar district. Though spanish improved has yielded more than JL 24, as the estimate is based on very few number of observations it is refrained from inferring about the same.

On the other hand, S 206 had fared well in the Raichur district, both in the Raichur and Manvi taluks and could be branded as the most suitable one for the Raichur district. According to the farmers, DH 330 is very poor in shelling percentage and hence not suitable to the Raichur district.

5.2 Seed rate, seed and spacing treatment.

As against a required quantity of about 103 kgs. per hectare, the beneficiaries had used, on an average, about 101 kgs. per hectare, in spite of the fact that a little more than half the area under groundnut in the two districts were covered by the local varieties (Table 5.2). This is quite appreciable in view of the fact that the recommended seed rate ranges between 100 and 115 kgs. per hectare. The average amount of seeds used in the Kolar district was around 92 kgs. per hectare, 3 kg. shorter than the amount required. This was in contrast to a rate of 107 kgs. used by the farmers in the Raichur district, only one kg. shorter than the required quantum.

Prior to sowing, chemically treating the seeds ~~with fungicides~~ is recommended to protect them from the soil borne and externally seed borne diseases. In all, only 35 per cent of the farmers had resorted to this type of seed treatment. While in the Raichur district, 50 per cent of

the farmers had treated the seeds, only 20 per cent had done so in the Kolar district. The major reason for not resorting to the seed treatment was either they did not have money to purchase or enough of money to go to the taluk headquarters and then purchase the same (Table 5.3). This necessitates for arrangements to make available the input as the farmers are not in a position to incur an expenditure on the transportation. This reason was given by nearly 45 per cent of the farmers who had not carried out the seed treatment. Twenty-three per cent had not resorted to seed treatment as they felt that the seeds were quite healthy. Nearly 9 per cent of the farmers were reluctant and another 6 per cent seemed to be not convinced of the same.

The recommended spacing of 12" between the rows and 6" between the plants and a sowing depth of not more than 2" was followed by only 38 per cent of the farmers (Table 5.4). Nearly 5 per cent of the farmers had not followed the recommended spacing as the implements owned by them were not suitable for the purpose. The rest (95 per cent) were of the opinion that the recommended spacing was on the higher side and hence sufficient amount of cultivable land is lost which leads to a reduction in the plant population. These farmers had an inter row spacing of 6" only and the interplant spacing was, however, as per the recommendation.

The farmers' point of view that the recommended spacing is high as quite noteworthy as one of the developmental strategies laid out by the Ministry of Agriculture, Government of India, had aimed at increasing the plant population for a better yield. And, as the farmers are not convinced about the recommended spacing which in turn reflects the

plant population, the situation warrants for strengthening both the research and the extension services.

5.3 Number of irrigations

Depending on the soil and climate, the number of irrigations generally vary between 8 and 10, roughly about once in 10-12 days. The recommended practice was followed by 58 per cent of the farmers. Among the non-followers, the major reason for the non-adoption of the practice was due to either the failure of rains or due to nonavailability of sufficient water. Only one farmer had reported limited supply of power as the reason for lesser number of irrigations (Table 5.5).

5.4 Use of FYM/Compost

Though there seems to be no definite recommended dosage for the application of FYM/compost, nearly 40 per cent of the farmers had applied the same to their soil. The average amount of FYM/compost added was around 5 cart loads (=500 kgs.) per hectare as against a desired quantity (as expressed by farmers) of about 7 cartloads per hectare (Table 5.6). The reason for the non application of FYM/compost was either due to the lack of capital to buy the same or due to the non-availability in adequate quantities. Thus, the need to increase the local production of FYM/compost is quite obvious.

5.5 Use of Chemical Fertilizers

The recommended levels of fertilizer for the groundnut crop grown as irrigated crop is:

(a) for the northern districts: (Raichur)	25 kg. nitrogen, 75 kg. Phosphorous and 25 kg. Potash; per hectare.
(b) for the southern districts: (Kolar)	25 kg. Nitrogen, 75 kg. Phosphorus and 37.5 kg. Potash; per hectare.

As against a required quantity of 84 kg. N, 58 kg. P. and 32 kg. K (as expressed by the farmers), the levels used, in general, were 56 kg. N, 46 kg. P. and 24 kg. K (Table 5.7). This reflected that there is a tendency to use more of nitrogen than recommended (little more than twice the quantity recommended) and less of phosphorus than recommended. The quantum of potash used was, however, on par with the recommende level. This tendency to use more of nitrogen and less of phosphorus is quite alarming as the usage of nitrogen adds more towards the vegetative growth rather than the pod formation. And the situation may appear to be quite explosive considering the required quantities expressed by the farmers.

While the usage of nitrogen in the Raichur district was almost three times the quantity required, the level of phosphorus used was half the amount recommended. Thus, with the balanced levels of fertilizer application, it may be possible to increase the yield especially in the northern districts of the state like Raichur, Bidar, Belgaum, etc. In the Kolar district, except for the nitrogen usage, the P and K levels seem to be inadequate.

The commonly used fertilizers in both the districts were the complexes (17:17:17 or 19:19:19), urea, DAP, Potash and superphosphate. The Kolar district seemsto be using more of DAP which, however, is a healthy sign, thanks to the efforts of the extension agencies in the district. In contrast to this, urea has been used predominantly in the Raichur district. The efforts should be strengthened to educate the farmers as regard to the usage of balanced and proper kinds of fertilizers.

Considering both the districts, in general, as high as 78 per cent of the farmers had applied fertilizers as basal doges. And nearly half of them had resorted to the top

dressing as well in spite of the fact there exists no recommendation for the same.

Lack of money was the principal reason for the non application of the fertilizers. A sizeable proportion had also indicated that the high cost of fertilizer as the reason for not using the fertilizers.

5.6 Intercultural Operations

Weeding and hoeing are the main intercultural operations for the groundnut crop. A minimum of two to four such operations are recommended for adoption. Farmers seem to be, generally, aware of the need for carrying out these operations depending upon the extent of weed and the prevailing climatic conditions. Only 6 per cent of the farmers had deviated from the recommended practice mainly because of the cost constraints.

5.7 Plant Protection Measures

Generally it is reported that most of the oilseed crops are highly susceptible to various types of pests and diseases. The same was, however, not found true in the Kolar and Raichur districts as hardly 34 per cent of the farmers had felt the need for the usage of the plant protection chemicals. The rest did not need the same as no disease/pest attack ever occured or did not warrant for the usage. Among the farmers whose crops needed the same, nearly 80 per cent had applied and the rest could not do so for want of money.

5.8 Soil testing

The soil samples of the fields of half the number of farmers had been collected for testing by the departmental staff. The results had been made available only in 46 per cent of the cases. ~~In the remaining cases the same was not made available~~

only in 40 per cent of the cases. In the rest of the same was not made available to the farmers even after 3 months after collecting the soil samples. This was specially the case in the Kolar district where as high as 92 per cent of the soil test result was not made available (Table 5.8).

5.9 Application of Gypsum

Application of gypsum to the soil is reported to not only increase the productivity but also can improve the quality of kernals and increase the oil content. The recommended level of application is about 500 kgs. per hectare.

In the cases where the application of gypsum was necessary, as high as 70 per cent of the farmers had used the same (Table 5.9). The principal reason for the non-application was that the farmers seem to be not convinced of the effect of the usage of gypsum though it is available at relatively lower costs. And even in the cases where gypsum had been applied, it was far below the level of recommendation. This again depicts the need for the effective extension services.

5.10 Opinions of the farmers about the programme

Seventy three per cent of the farmers had obtained the information about the improved package of practices from the Gram Sevaks in the villages which speak of the earnest efforts on the part of the extension agencies. A small proportion of them carry out the day to day operations in farming after discussing among themselves or on the basis of their past experiences (Table 5.10).

Asked for their remarks about the improved varieties and the modern improved practices of package, 43 per cent of the farmers expressed the need for the chemical fertilizers the absence of which, they felt, would not result in higher yields (Table 5.11). This was more so in district Raichur where

nearly 80 per cent of the farmers had expressed for the same, in spite of the fact that what they were lacking in was more of balanced levels of fertilizers rather than adequate quantum of fertilizers. Seventeen per cent of the farmers were of the opinion that the improved varieties do fare better compared to the traditional varieties with regard to the yielding potentialities. A small proportion of the farmers wsre of the opinion that growing improved varieties pre-supposes adequate capital, irrigation and good managerial capabilities.

As against 45 per cent of the farmers expressing lack of sufficient land as the reason for not going in more for the improved varieties of groundnut,* the same in respect of the farmers expressing inadequate irrigation facilities was 30 per cent (Table5.12). A sizeable proportion had expressed that the cost of seeds of improved varieties was quite high and hence they cannot cover more area under the same.

Further, majority of the farmers were happy that under the programme they were able to receive good quality seeds free of cost not only for the current season but also for the succeeding seasons (Table 5.13). Thus, this had served the seed multiplication purpose also. A sizeable proportion (13 per cent) felt that the amount of seeds supplied was substantially low and hence was not in a position to make any remark on the performance of the improved varieties. An equal proportion of the farmers had felt that the improved varieties were no better than the traditional varieties.

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* In view of the fact that in the last 5 years area under groundnut for the respondents had not changed, these reasons assume prominence.

CHAPTER VI

MARKETING OF GROUNDNUT

6.0 Cnannels of Marketing, Reasons for Selling to a particular agency, and the time of sale

The main channels of marketing for groundnut were

(a) Producer farmer - Mill owner/Mill agent (on the farm) - Oil Mill;

(b) Producer farmer - Landlord - Oil Mills/Direct Consumption;

(c) Producer farmer - Taluk merchant - Oil mills/Direct Consumption and

(d) Producer farmer - Regulated Market - Commission Agent/ Co-op. Societies-Oil Mills/Direct Consumption.

6.1 Kolar District

From Table 6.1, it could be seen that as high as 85 percent of the farmers in the Kolar district have sold their produce on the farm itself either to the millowner or to the mill agents. A small proportion of the farmers had sold their produce to the taluk merchant and again on the farm itself. The rest was accounted mostly by the landlord's purchases. By landlord we mean, a larger grower/farmer in the village purchasing from the smaller farmers. Except for the fact that among the farmers who had sold their produce to the taluk merchant, majority were beneficiaries of IODP, there appeared to be no difference between the beneficiaries and the nonbeneficiaries as far as the cnannel of disposal was concerned.

The major reasons for selling the produce to a particular agency were, the contractual sale which the farmer might have entered into or possible increase in marketing cost

by selling to other agencies (Table 6.2). And an equally good number of farmers had expressed that the absence of market (regulated) place within their reach as the reason for their selling to a particular agency. Some others opined that selling the produce on the farm itself saves a lot of botheration involved in transporting the produce over a distance. Again, there appeared to be no difference between the beneficiaries and the nonbeneficiaries in their reasons in selling the produce to a particular agency.

Further, nearly 50 percent of the farmers had sold their produce within a fortnight after the harvest which reflects the extent of immediate post-harvest sales the farmers have adopted (Table 6.3). The striking difference between the beneficiaries and the nonbeneficiaries was that quite a good number of non-beneficiaries had sold their produce a month after the harvest. As far as the beneficiaries were concerned, only 14 percent had sold their produce one month after the harvest in contrast to 40 percent in respect of the nonbeneficiaries.

6.2 Raichur District

As far as Raichur district was concerned, about 90 percent of the farmers had sold their produce in the regulated market through the commission agents. Among the rest, a sizeable proportion had sold their produce again in the regulated markets but through the co-operative society. The private traders and the larger farmers had accounted for the rest.

The major reasons for selling the produce to a particular agency were either the farmers had been tied up

because of earlier arrangements (contracts) or they had received competitive prices (Table 6.4). These two reasons had accounted for nearly 70 percent of the farmers. The other reasons, in the order of prominence were the earlier acquiantances the farmers had and the absence of other alternative marketing avenues.

The proportion of the farmers (in general) selling their produce in the three different periods specified (Table 6.4) appeared to be almost the same. However, it was interesting to note that relatively more number of nonbeneficiaries had sold their produce a fortnight after the harvest than the beneficiaries. This, at the same time, implied that relatively more number of beneficiaries had sold their produce within a fortnight after the harvest.

The striking difference between the Raichur and Kolar districts was that the majority of the farmers in Raichur district had sold their produce in the regulated markets and the same was not true in the case of farmers in Kolar district. Almost all the farmers in Kolar district had sold their produce on the farm itself. With the result, no expenditure was incurred towards the marketing in Kolar. This difference between the two districts with regard to the agency to whom the farmers sell their produce necessiates a comparitive study of the markets in the two districts. The same, making use of the relevant time series data and the current information on the sample respondents, follows herein.

6.3 Pace and Pattern of Arrivals

The markets considered for the purpose were Chintamani (Kolar district) and Raichur (Raichur district)

respectively. The monthly data on arrivals and prices (modal price) were collected from the respective Agricultural Produce Market Committees for the period 1974-75 through 1983-84 for Chintamani and for the period 1975-76 through 1983-84 for the Raichur market.

The general pace and pattern of arrivals reveal that for the period under consideration the months November through February had accounted for more than the average as far as the Chaintamani market was concerned as against the months September through December and March through May in respect of the Raichur regulated market (Table 6.5). The month of December had accounted for the maximum arrivals at Chintamani as against the minimum in the month of August. The same for the Raichur market were April and July respectively.

A suitable mathematical model was identified and fitted to the annual data on prices and arrivals at the regulated markets to study the trend, the general direction in which the graph of a time series could have moved over the periods under study.

6.4 Trend in the Prices

The trend in the prices was studied by fitting a semi-exponential model of the type

$$Pt = \quad ^{t} e^{u} \qquad (1)$$

for the annual data on average prices. Annual data were obtained by taking the weighted average for the monthly modal prices, weights being the quantity arrived. The expression (1) inter-relates the price (P) and the time (t)

and are the parameters; 'u' is the disturbance term

with usual assumptions and 'e' is the napierian logarithmic base. The parameters were estimated by reducing (1) to linear in logarithms and employing ordinary least squares.

The same for the Chintamani market cameout to be

= 1.6268 and = 1.0850 (2)

as against the value of

= 1.9106 and = 1.0747 (3)

for the Raichur market, the variabilities explained by the models being 76 and 72 percent respectively. The estimates of were found significant ('t' values : 3.07 and 2.76) indicating that the leries were increasing with a constant proportion of change, the rates of change for Chintamani and Raichur market were 8.16 and 7.02 percent per annum respectively

6.3.1 Trend in Arrivals

A second degree polynomial,

$$Q_t^* = \underset{}{2.5028} - \underset{(2.0676)}{0.6317}\, t + \underset{(1.9478)}{0.0535}t^2 \qquad R^2 = 0.5483 \qquad (4)$$

* in '000 Quintals

inter-relating the total quantum of the produce arrived annually (Qt) and the time element (t), was found appropriate in describing the trend in the arrivals at the Chintamani regulated market. This indicated that the arrivals had declined considerably in the initial stages and then had gradually started picking up. This could be evidenced from the fact that nearly 23,000 quintals of groundnut had arrived in the market in the year 1975-76, which slumped to or low as about 4,500 quintals in 1977-78 and then had risen to record about 17,000 quintals in 1983-84.

In contrast to this, the trend in arrivals at the

Raichur regulated market was somewhat complicated. For the first six years - period (1974-75 through 1979-80) the quantum of arrivals had remained almost the same (about 40,000 qtls.) which was evidenced by the fact that the slope coefficient in the linear regression equation

$$Qt = 44.5268 - 1.8852t \qquad (5)$$

obtained by regressing Qt on t, was found not to differ from unity. Further, the Raichur market which had recorded an arrival of about 7.2 lakh qtl. in 1980-81, had slumped to about 2.86 lakh qtl. in 1983-84 recording an annual decline of about 1.40 lakh qtl. in the process.

Thus, the trend in the arrivals of groundnut in the Raichur regulated market is virtually on the decline as against a slightly increasing trend witnessed in the Chintamani market. However, it may be noted that the arrivals in the Chintamani market might have exceeded production (of the hinterland) in the recent times, as the produce comes into the market jurisdiction (destined towards other places) not only by the nearby market areas but also by the neighbouring state, Andhra Pradesh. This results in double entry and registering of arrivals in more than one market.

6.5 Seasonality of Prices and Arrivals

A twelve month centered moving average was computed using the monthly data on prices and arrivals for the periods under consideration to approximate an estimate of trend-cycle component. This was divided into the original series to get an estimate of the seasonal irregular element. This amounted to assuming multiplicative model of the time serial.

Significant differences (if any) among the months as well

as among the several years under consideration were tested employing Friedman's two way analysis of variance. The usage of the non-parametric test follows as a result of the ratios being subjected to analysis. The significant difference among months would imply the presence of seasonality in the series. A significant difference among the years is an indication of the change in the seasonal pattern, referred to as the moving seasonal. Whereas a nonsignificant difference over years as well as a non-significant difference in the interaction between the months and years indicate a constant seasonal pattern.

In case, the seasonal pattern was found to be constant, the mean of the seasonal irregular component for each month (over the year under study) was calculated leaving off the values which appeared to be unusually low and also unusually high. The sum of such means were adjusted to 1200 to get an estimate of the monthly seasonal indices. In case, the results of two way analysis of variance indicate that the seasonal pattern was moving, then seasonal indices could be computed for two or more different periods (also in the case of constant seasonal pattern) so that the seasonality tends to remain constant at least during the different periods under consideration.

6.5.1 Arrivals

As regards the arrivals of groundnut in the markets of Chintamani and Raichur regulated markets, while the differences among the months were found to be significant (Chisquare values : 52.85 and 54.62), the differences among years was found to be nonsignificant (Chisquare values : 6.45 and 2.91). This not only indicated the presence of seasonality but also that the seasonal pattern was constant, i.e., it had

not changed over years.

The month of June had accounted for the minimum arrivals with an index of 39.45 percent as against the month of December which had the maximum arrivals (265.77 percent) in the Chintamani market (Table 6.6). The months of November through February had arrivals more than the average indicating the peak season for the marketing. From February onwards the arrivals start declining, reach the minimum in the month of June and then gradually increase to reach the peak in November.

In the Raichur market, the arrivals are minimum in the month of July (12.58 percent) and maximum in the month of April (217.72 percent). While the months of September through December and March and April account for arrivals more than the average indicating two different peak seasons, among the rest the months June, July and February account for substantially lower arrivals. The two different peak seasons in the Raichur market are due to two different crops, one in Kharif and the other in summer, being taken in the district as against only one crop (Kharif) in the Kolar district. Further, it could be seen that the post harvest months in Chintamani and Raichur account for nearly 65 and 71 percent of the total arrivals respectively indicating heavy post harvest sales and low holding capacities of the farmers. The difference in the ranger of variation in the seasonal indices of arrivals between Chintamani and Raichur does not seem to be too high (22.92 percent).

6.5.2 Prices

In the Chintamani market, not only the differenees among the months were found to be significant (Chisquare value : 28.79) indicating the presence of seasonality but

the difference among the years were also found significant (Chisquare value : 19.44) which pointed out that the seasonal pattern had changed over years. The seasonal pattern was, however, found to be constant when the periods 1974-75 to 1977-78 and 1978-79 to 1983-84 were considered separately (Chisquare values : 0.30 and 0.90).

In contrast, the differences among years in the seasonal pattern was found nonsignificant (Chisquare value : 5.2857) indicating that the seasonal pattern was constant. Significant differences found among the months (Chisquare value: 32.98), however, indicated the presence of seasonality.

The seasonal indices computed for two different periods, 1974-75 to 1977-78 (referred to hereafterwards as period I) and 1978-79 to 1983-84 (referred to as period II), for the Chintamani and that computed for the Raichur regulated market are presented in the table 6.7. In Chintamani market, the month August had accounted for the maximum price in both the periods as against the month of May in the Raichur market. Strangly, the month August had accounted for the minimum price at the Raichur market as against the months, November and October for the periods I and II at the Chintamani market.

At the Chintamani market, with reference to the period II, the price after registering a minimum in the month of October, tends to increase for the next four months, decreases in the next two months and again increases to reach the maximum in August. In contrast at the Raichur market, the prices after being minimum in the month of August, tend to increase in next 3 months, decrease in the next 3 months and again increase to reach a maximum in the month of May. The range of intra-year variation in prices at the Chintamani market was 42.78 percent as against just 28.19 percent in

respect of Raichur market.

The correlation coefficient(computed by spearman's rank method) between the seasonal indices of price and arrivals of Chintamani and Raichur markets worked out to be -0.2621 which however, was found nonsignificant. This revealed that the arrival pattern may not influence the price and that the market may be receiving the price from other sources. That is, price may be determined from forces not taken into account in the analysis. However, the relationship between the arrivals and the price could be ascertained in the two markets by computing elasticities and time lags through the harmonic analysis.

6.5.3 Seasonal Elasticities and Time Lag

To assess the cyclicality in the seasonal movement and then to compute the elasticities and time lag, a harmonic model of the type was fitted to the monthly seasonal indices of arrivals and prices of the two markets; and

$$Y_t = Y_o + A \cos \frac{2}{P} t^o + B \sin \frac{2}{P} t^o \quad (6)$$

Y_t = is the series under consideration;

A and B refer to the partial regression coefficients;

P is the period of the cycle in months; and

Y_o is the general mean of the series around which the series oscillate with changes in time, 't', ($t = 1,2,\ldots,12$).

The period 'P' is detected by trial and error method i.e., assuming a period initially and then testing for its significance. The test of significance involved the Schuster's method of comparing the empirical mean squared amplitude with the hypothetical mean squared amplitude of a no periodic series, in addition to the usual methods of testing R^2 and the partial

regression coefficient. The amplitude of the cycle of is given by $(A^2 + B^2)^{0.5}$ and the p angle by $Tan^{-1}(B/A)$.

The periodicity of the seasonal cycle of both the arrivals and prices was of 12 months duration at the Chintamani market as against a duration of 6 months at the Raichur market. This was in conformity with the single (Kharif) and the double crops (Kharif and Summer) being taken at the two districts respectively. However, it may be noted that there was no strong evidence of cyclicality in the seasonal pattern as far as the price of Chintamani market war concenned. The results are presented in the Table 6.8.

Seasonal price elasticity which indicates the responsiveness of arrivals to the price within a year, defined as the ratio of percentage change in the quantity arrived to a percentage change in the price of that commodity, was computed through the ratio,

$$E_{sp} = (A_1^2 + B_1^2)^{0.5} \; / \; (A_2^2 + B_2^2)^{0.5} \qquad (7)$$

(1) is the ratio of the amplitude of the arrival cycle (numerator) to the amplitude of the price cycle (denominator).

The seasonal price elasticities in respect of the Chintamani and Raichur regulated markets turned out to be 15.1413 and 7.2610, this implies that one percent change in the price will bring around 15 and 7 percent change in the arrivals at the Chintamani and Raichur markets respectively.

Using the expression,

a Cos x + b Sin x = $(a^2 + b^2)^{0.5}$ Cos (X - are Tan $\frac{b}{a}$ (8

the equation (1) could be rewritten as:

$$Y_t = Y_o + (A^2 + B^2)^{0.5} \text{ Cos } (30t^o - \text{are Tan } \frac{b}{a}) \quad (9)$$

It could be seen that, corresponding to the seasonal cycle, the price of groundnut reaches a maximum/minimum when $30t^o = T_1$, where,

$$T_1 = \text{are Tan } (B_2/A_2) \quad (10)$$

Similarly, arrivals reach the peak when $30t^o = T_2$, where,

$$T_2 = \text{are Tan } (B_1/A_1) \quad (11)$$

Difference between T_1 and T_2 (expressed in degrees) divided by 30^o yield the time lag. Time lag is the time required by the market to adjust itself for changes in either the price or arrivals. Time lag, infact, is indicative of the imperfections in the market conditions arising out of supply conditions especially due to seasonality in production and the time involved in transporting the commodity from the farm to the destination. Time lag, in general, refers to the extent to which the function is displaced from the arbitrary origin.

The time lag in respect of Chintamani and Raichur markets worked out to be 19 and 8 days respectively. This indicated that the Chintamani market needs little more than twice the number of days required by the Raichur market to adjust itself for changes in price/arrivals. Further, as far as the lead-lag relationships was concerned, at the Chintamani market price seems to be leading the arrivals. At the Raichur market, however, it was the arrivals which was leading the price.

6.6 Relation between Farm Harvest Price and the Regulated Market Price

In a competitive market system, the price of an agricultural commodity observed at different levels, viz., farm, wholesale and retail reflect the cost and profits of various intermediaries specializing in the provision of marketing services. Perfect competition among buyers and sellers of agricultural commodities would come in the way of realising excessive margins by various intermediaries. Perfect competition coupled with good infra-structural facilities like transportation, storage, processing etc., result in efficiency in transmission of price from one level of another. Thus, any change in the consumer demand could be reflected back to the producers and the changes on the supply side is reflected through the system from the producers to the consumers. To ascertain whether the price is transmitted efficiently or not, it is enquired into the relation between the farm harvest price and the regulated market price with reference to the two markets under consideration.

Let the farm harvest price and the regulatedmarket price be denoted by F and P, their difference (F - P) by S. Considering S as a function of F, we have*

$$S = A+BF$$

Then,

$$R = A + (1+B) \quad \text{as } R = S + F$$

or $$R = A + KF \qquad (12)$$

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* It is assumed that the farm level prices determine the regulated market price.

In (12), when the intercept (A) is zero, it leads to a scale of constant percentage spread and when K = 1, it leads to absolute spread.

In the place of original variables (prices), if logarithmic values are used, then the regression coefficient is interpreted as the elasticity of price transmission which in the ratio of proportionate change in the price at the regulated market for an unit change in the price at the farm level.

It could be seen from the Table 6.9 that the regression coefficient (original variables used) connecting F and R at the Chintamani market was significantly lesser than unity in contrast to no significant difference in respect of the Raichur market. This implied that an unit change in F in the Raichur district brings, at best, result in an increase in the price at the regulated market by a fixed amount indicating absolute market margins. Thus, it could be concluded that the price is transmitted more efficiently in the Raichur district as compared to the Kolar district.

As far as the regression with the logarithmic values were concerned, the scope of coefficients (both at Raichur and Kolar) were significantly different from unity (less than unity) only at 5 percent level of significance. The intercept was also significant only at 5 percent at the Raichur market as against being nonsignificant at the Kolar district. This implied that one percent change in the farm harvest price results in less than a percentage change at the Chintaman market in contrast to more than a percentage change at the Raicnur regulated market. However, the proportionate change was much higher in the Kolar market as compared to that of the Raichur market.

6.7 Comparison of the Prices between Kolar and Raichur

The differences in the prices prevailing in the two districts were assessed by running simple linear regressions and testing for the significance of the constants.

6.7.1 Farm level

Regressing F of Raichur on F of Kolar, we had

$$F_{(Raichur)} = 0.2692 + 0.9117\ F_{(Kolar)}$$

The regression coefficient (0.9117) was significantly different from unity only at 5 percent level of significance and the intercept was nonsignificant. This implied that the prices prevailing at the farm level in the two districts were identical for the period under consideration.

6.7.2 Regulated Market Level

Regressing R of Raichur on R of Kolar, we had

$$R_{(Raichur)} = 0.3305 + 0.9819\ R_{(Kolar)}$$

While the intercept was significantly different from zero, the slope coefficient was not significantly different from unity. This implied that the farmers at the Raichur regulated market have an absolute advantage as far as the prices for groundnut is concerned as compared to the Kolar market.

6.8 Comparison of the Farm Level Prices of Kolar (X_1) and Raichur (1/2) with that of the State (Z)

To enable the above comparison, we computed

$$R = \frac{X_i - Z_i}{Z_i} \quad ; \quad i = 1,2 \ldots, n, \text{ years.}$$

It could be seen that

if X = Z; then R = 0

X Z; then R 1 and

X Z; then R 1.

The value of R for Kolar was -1,1530 or against a value of +1.5280 in respect of Raichur. Thus, compared to the state level prices, while the price at Kolar seems to be lower by about 15 percent, the same at Raichur seems to be higher by about 53 percent.

Thus, it could be concluded that, based on the prices at the farm and at the regulated market for the last decade, that farm prices at Kolar and Raichur were almost identical. And the prices at the regulated market of Raichur was higher than that of the Chintamani market by a constant margin. That is, the farmers bringing the produce at the Raichur market had an absolute advantage compared to those of the Kolar district. This is due to the fact that larger number of oil mills are situated in the Kolar district and hence the competition among the mills is quite high. Infact the millers are complaining that they run short of raw material to such an extent that they are forced to purchase the same from places as far as 200-250 km. away. And in the process, the cost involved in transportation increases markedly. Thus, the millers rather prefer to move to the farms itself for their purchases than to wait at the regulated markets.

An unit change in the farm price resulted in an identical change in the prices at the regulated market of Raichur implying that the system was relatively more efficient in transmitting the price information, in contradiction to the general belief that farm prices do not often reflect the market forces of supply and demand which in turn pave way for reduction in the farmer's share. The relatively lower time lags in respect of the Raichur market also speak of the relative efficiency in the market conditions.

6.8 The average price received by any farmer(both the distri combined) was Rs. 450.12 per quintal of groundnut. The same for the Kolar and Raichur districts separately was Rs. 476.63 and Rs. 427.68 respectively per quintal. Among the several factors contributing to this difference, the season, the variety grown and the marketing conditions seemed to occupy prominente.

In general, in both the districts, the farmers had received a higher price for the summer crop compared to that grown in the Kharif season. The price received for the summer crop at the Raichur district was around Rs. 431 per quintal as against Rs. 414 for the kharif crop. The same for the Kolar district were Rs. 509 and Rs. 458 respectively per quintal of groundnut. This may be due to lower area covered under groundnut during the summer season and hence lower quantities offered for sale resulting in relatively more competition and thus higher prices.

Further, as mentioned earlier in the chapter 5, there was no significant difference in the prices received for the improved and the local varieties. However, the intra-varietal (improved) differences within and between the two districts was quite high.

The farmers growing the improved variety JL24 had fetched a price of Rs. 507 per quintal for the farmers in the Gauribidanu taluk as against Rs. 460 per quintal received by the farmers in the Bagepalli taluk. Similarly, the farmers of the Raichur taluk had received a price of Rs. 452 and those in the Manvi taluk Rs. 426 for JL24. In contrast to this, S206 had fetched a price of Rs.441 as against DH 330 fetching a price of Rs. 426 for the farmers of Raichur taluk. TMV2 grown in the taluk of Bagepalli had fetched a price of Rs.436 and the

same in Gauribidanur, Rs,515 per quintal of groundnut.

Thus, it could be seen that the variety JL24 had fetched the maximum price, in general, and more so in the Kolar district. Hence, inspite of the fact that the farmers in the Raichur district sell their produce in the regulated markets, receive a lower price compared to their counterparts in the Kolar district. The farmers in the Kolar district might have received a higher price due to heavy competition among the buyers and their knowledge about the varietal performance in terms of shelling percentage. It could also be due to the unfair practices in weighing that might have allowed the millers in Kolar district in offering higher prices. Or the type of competition at the Raichur in questionable. In the absence of information, relevant to the issues, we refrain from arriving at any specific conclusion regarding the same.

CHAPTER VII

SUMMARY AND SUGGESTIONS

7.1 Objectives of the Study

The study undertook an evaluation of the Centrally Sponsored Intensive Oilseeds Development Programme in Karnataka to attain the following objectives:

i) to assess the impact of the Programme especially with regard to the productivity of groundnut and the income of the individual farmers;

ii) to assess the extent of adoption of improved package of practices and the reasons, therein, for the deviation (if any),

iii) to assess the role of extension agencies in the availability of needed inputs and the technical know-how, and

iv) to suggest steps for improving the effectiveness of the programme with reference to the groundnut crop.

7.2 Coverage of the Study

Two districts, Raichur and Kolar, the former in the northern part and the latter in the southern part of the State, were chosen initially. While the production of groundnut in the Raichur district had increased considerably after the implementation of the Programme, Kolar district had evidenced the decline in production during the same period. Seventeen villages and hamlets (eleven in Kolar and six in Raichur), spread over four selected taluks (two in each of the district) were selected in consultation with the officials of the Department of Agriculture so as to have sufficient number of beneficiaries and non-beneficiaries under the programme.

Stratified random sampling technique was adopted in the selection of respondents, strata being based on the size of the holding. In all, eighty respondents (50 beneficiaries and 30 non-beneficiaries) were selected from each of the district. Number of respondents in each strata was determined by proportional allocation and the sampling was carried out separately for each of the district.

The information regarding production and marketing of the crop groundnut and other crops (if any) were collected from the selected respondents using structured interview schedules which were initially tested for their feasibilities. The study (primary data) pertains to the year 1983-84.

7.3 Major Findings

The important aspect of the Programme was that the seeds of the improved varieties were distributed free of cost as a part of the minikit programme, the objective of which was to evaluate the performance of the improved varieties and to popularise the same if found suitable.

7.3.1 Type of Beneficiaries

The majority of the beneficiaries were either marginal or small farmers (the size of holding less than or equal to 2 hectares), both being almost identical in numbers. While, in Raichur, the proportion of marginal and small farmers was nearly 79 per cent of the total beneficiaries, it was 83 per cent in Kolar district. The value of the seeds of the improved variety received by these farmers in Raichur was around Rs. 560 per hectare (about 93 kgs.), nearly 62 per cent more than that received by the other farmers. In contrast to this, in Kolar, the value of the benefit for the marginal and small farmers was Rs. 168 per hectare, about 16 per cent less than that received by the other farmers.

7.3.2 Yields, Cost and Incomes

In general, it could be concluded that the improved

varieties do perform better compared to the local varieties as far as the yields are concerned. To this effect, it may be said that the scheme has a positive impact and could be termed as success.

The average yield per hectare of groundnut for the beneficiaries growing improved varieties in Raichur district during summer was 16.63 quintals as against 13.60 quintals realised per hectare by the non-beneficiaries growing local varieties, thus registering a significant difference of 22 per cent. The difference in net incomes was about 14 per cent which was, naturally, significant. And the prices received remaining almost the same, whatever the difference in the net incomes could be attributable to the differences in the production pattern, especially the usage of improved seeds and fertilizers.

The difference in the yield obtained by the beneficiaries growing improved varieties and the non-beneficiaries growing local varieties was significant and the same was about 30 per cent. Prices received being identical, the differences in the yield rates had led to a significant difference in the net income to the extent of about 25 per cent. The major contributor to this difference was the varietal differences.

The differences in the total costs incurred by the beneficiaries growing improved varieties and the non-beneficiaries growing local varieties were significant both in Kolar and in Raichur. The same was about 18 and 22 per cent respectively.

7.3.3 Varietal Performances

The major improved varieties, the seeds of which were distributed free of cost under the programme were JL 24, TMV-2 and S-206. The varieties, DH-330, DH-302 and Spanish Improved, were tried on a smaller scale. JL-24 had fared better compared to other varieties in both the districts.

And its performance was far better in Raichur compared to that in the Kolar district. At the same time S-206 had fared well in both the Taluks of Raichur (Manvi and Raichur). This was in contrast to JL-24 for which the difference in the yields between Manvi and Raichur taluks was as high as about 77 per cent. DH-330, owing to poor shelling percentage, was found not suitable in Raichur district.

7.3.4 Seed Rate, Spacing and Seed Treatment

The beneficiaries had followed the recommended package of practice as far as the quantum of the seeds to be used per unit of land was concerned. Hardly 35 per cent of the farmers had resorted to treating the seeds with Rhizobium culture as the same would prevent soil borne and externally seed borne diseases. The major reason for not resorting to the seed treatment was either they did not have money to purchase or did not have enough of money to go to the taluk headquarters to purchase the same. The recommended spacing of 12" between the rows and 6" between the plants and a sowing depth of not more than 2" was followed by only 38 per cent of the farmers. The majority of the farmers were of the opinion that the recommended spacing was on the higher side and hence sufficient amount of land is lost leading to a reduction in the plant population.

7.3.5 Number of Irrigations

About 58 per cent of the farmers had followed the recommended level of irrigation. The others could not do so for lack of sufficient water or due to failure of rains.

7.3.6 Use of FYM/Compost

Though there seemed to be no definite recommended dosage for the application of FYM/compost, nearly 40 per cent of the farmers had applied the same to their soil. The major reasons for the non-application was either due to the lack

of funds to buy the same or due to the non-availability in adequate quantities.

7.3.7 Use of Chemical Fertilizers

The study revealed that there was a tendency on the part of the farmers to use more of nitrogen than recommended and less of phosphorus than recommended. In fact the farmers had applied nitrogen as high as twice more than the recommended level. The quantum of potash used was, however, on par with the recommended level. The tendency to use more of nitrogen and less of phosphorus is quite alarming as the same leads more towards the vegetative growth rather than the pod formation.

As high as 78 per cent of the farmers had applied fertilizers as basal doses. And nearly half of them had resorted to top dressing as well in spite of the fact that there was no recommendation for the same. The farmers in ~~the~~ Kolar district had used relatively more of phosphatic fertilizers, especially DAP which help in pod formation. This was in contrast to the farmers in Raichur district who had used more of urea which mainly leads to vegetative growth. Lack of capital was the principal reason for the non-application of the fertilizers. The high cost of fertilizers also had prevented some of the farmers in using fertilizers.

7.3.8 Intercultural Operations

The farmers were, generally, aware of the need for carrying out the intercultural operations (weeding and hoeing) depending upon the extent of weed and prevailing climatic conditions.

7.3.9 Plant Protection Measures

In contrast to the general reports that most of the oilseed crops are highly susceptible to various types of pests and diseases, in the present study, however, hardly 34 per cent of the farmers had felt the need for the usage of the same.

And 80 per cent of them had applied the necessary chemicals and the rest could not do so for want of money.

7.3.10 Soil Testing

The soil samples of the fields of half the number of farmers had been collected for testing by the Departmental staff. In more than 50 per cent of the cases, the results were not made available even after 3 months of collecting the samples. This was especially the case in ~~the~~ Kolar district.

7.3.11 Application of Gypsum

Application of gypsum to the soil is reported to ~~not only~~ but only increase the productivity but also the quality of kernels and the oil content therein. Wherever found necessary, as high as 70 per cent of the farmers had applied gypsum, but, far below the recommended level. The main reason for the non-application of gypsum was that the farmers were not convinced of the effect of the usage of the same though it is available at relatively lower costs.

7.3.12 Farmers' Opinion About the Programme

Most of the farmers had obtained the information about the improved package of practices from the Gram Sevaks in the villages. The farmers were of the opinion that the improved varieties presupposes the need for chemical fertilizers and irrigation facilities, the absence of which would not result in higher yields.

The area under groundnut for the respondents had not changed in the last 5 years either for lack of sufficient land or for the lack of adequate irrigation facilities. The hi cost of the seeds of the improved varieties in addition to the requirement of higher seed rate, had impeded to extension of more area under groundnut.

The majority of the farmers were happy that under the programme they were able to receive good quality

seeds free of cost not only for the current season but also for the succeeding seasons. Thus, this had served the dual purpose of evaluating the performance of the improved varieties and the seed multiplication also.

7.3.13 Marketing of Groundnut

In ~~the~~ Raichur district, as high as 90 per cent of the farmers had sold their produce in the regulated markets through the commission agents. This was in contrast to Kolar where majority of the farmers had sold their produce on the farm itself either to the millowners or to the mill agents. The major reasons for selling the produce to a particular agency were either the contractual sale into which the farmers might have entered or the extra marketing cost to be incurred if the produce is to be sold to other agencies. A sizable proportion had also reported that they had received competitive prices. As far as the agency to whom the produce is sold or the reasons for the same, there appeared to be no difference between the beneficiaries and the non-beneficiaries. The same was true in respect of the prices received for their produce. However, relatively more number of beneficiaries had sold their produce within a fortnight after the harvest, implying post-harvest sales.

The price series (annual average) in both the districts were found to be increasing with a constant proportion of change, the rates of change (corresponding to two particular markets) were 8.16 per cent and 7.02 per cent, per annum respectively. The trend in the arrivals of groundnut in Raichur was virtually on the decline as against a slightly increasing trend witnessed in Kolar. The presence of seasonality was evidenced with respect to both the arrival and the price series. While the seasonal pattern was constant as far as the arrivals was concerned, the same was of moving nature with respect to prices in Kolar. There seemed to be no relation between arrivals and prices with regard to the

seasonal elements implying that the arrival pattern may not have influenced the price. Based on the prices at the farm and at the regulated market for the last decade, the farm prices at Kolar and Raichur were almost identical. And the prices at the regulated market of Raichur was higher than that of the Kolar market by a constant margin implying that the farmers bringing the produce at the Raichur market had an absolute advantage compared to those of the Kolar district.

Among the several factors contributing to the difference in the prices received between the farmers of Raichur and Kolar districts, the season, the variety grown and the marketing conditions seemed to occupy prominence. The variety JL-24 had fetched the maximum price, in general, and more so in ~~the~~ Kolar district.

7.4 Suggestion

7.4.1 The variety JL-24, though fared quite well in both the districts, had displayed wide intra variations not only between the regions (districts) but also within. The steps should be taken to achieve uniformity with regard to the yields obtained on the farmer's fields. Hereafterwards, all efforts should be concentrated to popularise the variety JL-24 in Kolar and S-206 in the Richur districts.

7.4.2 Arrangements should be made to see that enough of rhizobium culture, necessary for controlling the seed borne and soil borne diseases, available at the village level itself so that this saves a lot of expenditure to be incurred in going to the taluk headquarters to purchase the same.

7.4.3 The farmers' point of view that the recommended spacin is high is quite noteworthy as one of the developmental strategies laid out by the Ministry had aimed at increasing the plant population for a better yield. As the spacing reflects the plant population, the situation warrants fo strengthening both the research and the extension services.

7.4.4 There is a need to increase the local production of FYM/compost as the majority of the farmers had not applied the same due to the non-availability in adequate quantities.

7.4.5 The efforts should be strengthened to educate the farmers in regard to the usage of balanced and proper kind of fertilizers as there has been a tendency on the part of the farmers to use more of nitrogen and less of phosphatic fertilizers.

7.4.6 The results of the soil testing should be made available at the earliest so that the farmers can take up appropriate measures.

7.4.7 The fact that the farmers were not convinced of the effect of the usage of gypsum (though available at relatively lower costs) and those who applied had used substantially lower than the recommended level, calls for the need for the effective extension services.

Table 1.1 : Area, Production and Productivity of Oilseeds and Groundnut in India : 1960-61 to 1982-83.

(Area 000' hectares; Production 000' tonnes; Productivity Kgs./hect.)

Years	Oil Seeds			Ground Nut		
	Area	Production	Productivity	Area	Production	Productivity
1960-61	13770	6982	507	6403	4812	750
1961-62	14772	7284	493	6889	4994	730
1962-63	15335	7388	482	7283	5064	700
1963-64	14823	7133	481	6886	5298	770
1964-65	15255	8503	557	7376	6004	810
1965-66	15248	6396	419	7698	4263	550
1966-67	14995	6425	428	7299	4411	600
1967-68	15667	8303	530	7553	5731	760
1968-69	14472	6845	473	7088	4631	650
1969-70	14811	7734	522	7125	5130	720
1970-71	15418	9259	601	7326	6111	830
1971-72	16033	8746	545	7510	6181	790
1972-73	14749	6858	465	6990	4092	580
1973-74	15451	8854	573	7024	5932	840
1974-75	15638	8529	545	7063	5111	700
1975-76	15457	10173	658	7376	6991	950
1976-77	14669	7820	533	6948	5260	760
1977-78	15386	8930	580	7028	6070	870
1978-79	15904	9347	588	7433	6208	840
1979-80	15175	8078	532	7238	5772	800
1980-81	15557	8383	539	6801	5005	740
1981-82	16647	10902	655	7448	7239	970
1982-83	16600	9300	560	7400	5600	756

Source : Agricultural Situation in India for different years.

Table 1.2 : Growth Rates[1] in Area, Production and Productivity of Oilseeds and Groundnut in India for Different Periods.

	OILSEEDS			GROUNDNUT		
	Periods			Periods		
	I	II	III	I	II	III
a) Area	0.6167	0.5187	0.4035**	1.2940**	0.0505	0.1158
b) Production	-0.1308	1.1163**	1.4420**	-0.3905	0.3639	-0.1380
c) Productivity	-0.7425	0.5976**	1.0385**	-1.6840	0.3134	-0.2538

** Significant at 1 percent.

Period I : 1960-61 to 1968-69, period earlier to the implementation of IODP Scheme in the country;

Period II : 1969-70 to 1982-83, period after the implementation of the scheme; and

Period III : Years 1960-61 through 1982-83.

1 Growth rates in this study are computeol using the expression

$$Y = Ae^{rt}$$

where, Y is the variable under consideration,

r is the growth rate,

A is the intercept,

t is the time element in years, and

e in the natural logarithm base.

Table 1.3 : Area, Production and Productivity of Oilseeds and Groundnut in Karnataka: 1960-61 to 1981-82.

(Area 000' hectares; Production 000' tonnes Productivity kgs./hect.)

Years	OILSEEDS			GROUNDNUT		
	Area	Production	Productivity	Area	Production	Productivity
1960-61	1247	510	401	915	448	518
1961-62	1233	575	418	902	449	525
1962-63	1182	271	483	870	500	605
1963-64	1194	603	504	892	540	637
1964-65	1220	733	601	916	662	723
1965-66	1191	479	402	903	433	504
1966-67	1210	626	517	922	562	642
1967-68	1280	662	517	967	587	639
1968-69	1256	710	565	933	635	716
1969-70	1310	745	564	962	663	725
1970-71	1398	875	625	1027	780	799
1971-72	1429	876	613	1027	764	785
1972-73	1093	725	533	772	499	680
1973-74	1242	726	614	906	638	741
1974-75	1101	697	633	922	667	720
1975-76	1173	446	380	958	628	660
1976-77	1240	710	573	838	367	460
1977-78	1325	786	593	887	550	653
1978-79	1329	767	622	885	598	712
1979-80	1310		617	852	597	738
1980-81	1251	650	547	790	475	632
1981-82	1374	835	639	859	640	784

Source : Bureau of Economics & Statistics, Government of Karnataka upto 1973-74 published; the rest unpublished.

Table 1.4 : Growth Pattern of Groundnut Economy in Karnataka for Different Period

State/ District		Triennium Averages For 1961-64 (1)	1973-76 (2)	1979-82 (3)	Growth Rates for Periods I (4)	II (5)	III (6)
Karnataka State	A	8,87,858	9,84,093	8,33,667	0.1170	1.7540	0.5264
	P	4,96,108	6,68,586	5,70,667	2.2600**	2.3200 (-)	0.7900
	Y	559	679	685	3.1400**	4.0700	0.2636
Belgaum	A	1,39,769	1,26,358	1,20,325	1.6400** (-)	0.3900	0.9700** (-)
	P	73,933	83,770	79,297	0.2200	2.5600	0.1000
	Y				1.8600**	2.1700	1.0700**
Bellary	A	95,377	74,514	38,967	2.6900 (-)	7.6900** (-)	4.8000 (-)
	P	52,469	46,660	37,583	2.3000	3.1800**	0.3700 (-)
	Y				4.9900	10.8700**	4.4300
Binapur	A	1,12,417	11,11,597	99,496	3.3400**	1.5600	1.0900 (-)
	P	46,616	56,618	41,186	1.300 (-)	3.3300 (-)	0.9200 (-)
	Y				2.0400*	1.7700 (-)	0.1700
Dharwar	A	1,40,824	1,66,783	1,20.324	0.7500*	4.4500** (-)	0.8200 (-)
	P	90,046	96,900	69,132	0.0400	3.4600	2.1500** (-)
	Y				0.71 (-)*	7.9100**	1.3300** (-)
Gulbarga	A	94,038	99,388	82,770	4.1000 (-)	1.3600 (-)	2.7700** (-)
	P	40,556	77,475	44,765	7.8500 (-)	6.5900 (-)	4.0500* (-)
	Y				3.7500	1.2300	1.2800* (-)
Kolar	A	29,843	73,257	49,237	3.5200	5.2200** (-)	4.5900
	P	32,146	61,686	33,761	4.1100	8.1000 (-)	3.2100
	Y				0.5900	2.8800** (-)	1.3800 (-)

...2

		(1)	(2)	(3)	(4)	(5)	(6)
Raichur	A	1,05,024	1,18,738	1,16,796	0.2800 (-)	3.4600 *	0.2200
	P	46,739	70,782	83,669	1.2600	7.4600 *	1.8300
	Y				1.5400	4.0000 *	1.6100
Tumkur	A	41,610	55.617	82,862	0.1300 (-)	15.7600 *	3.5000
	P	26,790	46,369	52,738	3.5100	15.6200 *	5.1700 *
					3.6400	0.1400 * (-)	1.6700 *

Period I : 1960-61 to 1974-75 years earlier to the implementation of the scheme

II : 1975-76 to 1981-82 years after the "

III : 1960-61 through 1981-82.

Table 2.1 : The Amount Sanctioned and Expenditure incurred during 1982-83 in Karnataka for I.O.D.P.

Sl. No.	Items	Amount Sanctioned by the G.O.I. (1982-83)	Amount Sanctioned by the State Govt. (1982-83)	Expenditure incurred during (1982-83)	Govt.cf India's share in expenditure (1982-83)	State Govt.'s share in expenditure (1982-83)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Staff	471000	471000	483980	241990	241990
2.	Minikits	100000	100000	78152	39076	39076
3.	Demonstrations	250000	250000	196014	98007	98007
4.	Transport, handling and processing charges in seeds	250000	250000	250000	125000	125000
5.	Plant Protection					
	a) 50% subsidy on plant protection chemicals	1072000	1072000	975085	975085	
	b) Operational charges					
	i) Aerial					
	ii) Ground					

Table 2.1 (contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
6	Seed subsidy	1662000	1662000	1662000	1662000	-
	i) Certified seeds					
	ii) Truthfully labelled seeds					
7.	Nucleus seed production for (ICAR)	-	-	-	-	-
8.	Contingencies	50000	50000	10172	5086	5086
	Total	3855000	3855000	3655403	3146244	509159

The expenditure incurred during the year 1982-83 is satisfactory and there is no deviation in the amount sanctioned by Government of India and State Government

Table 2.2 : Physical targets and achievements (1982-83) Area in hectares(Groundnut)

Sl. No.	District	Coverage targets			Coverage achievements			Covage.achived in diff.progress			Remarks
		Kh.	Sum.	Total	Kh.	Sum.	Total	Impd. seeds	Ferti-lizers	plant prote-ction	
1.	Dharwad	124000	15000	139000	105000	12254	117254	117254	117254	17698	
2.	Belgaum	123000	15000	138000	99463	11190	110653	98463	109623	6565	
3.	Gulbarga	90000	-	90000	92742	-	92724	15200	92724	19147	
4.	Raichur	110000	43000	154000	97049	10000	107049	107049	107049	39512	
5.	Tumkur	58000	20000	78000	63320	2891	66211	15392	73320	4528	
6.	Bijapur	31000	-	31000	31000	-	31000	5000	5000	980	
7.	Kolar	60000	10000	70000	44655	1348	46003	46003	42759	7825	
	Total	597000	103000	700000	533229	37653	570882	404361	537729	96255	

Table 2.3 : Input Distribution, 1982-83

Inputs	Units	Distribution targets	Actual distribution
a) Improved seeds cropwise/varietywise	Tonnes	-	-
1. Certified seeds of Groundnut	-	-	1000
2. Truthfully labelled seeds of groundnut	-	-	9490
3. Good quality seeds of groundnut	-	-	61056
b) Fertilizers			
1. Nitrogenous (N)	-	16127	15385
2. Phosphatic (P_2O_5)	-	32254	30670
3. Potassic (K_2O)	-	16127	15385
c) Plant Protection C Chemicals			
1. Dust	-	5000	4337.5
2. Liquid	Liters	150000	155215

Minikits

Sl. No.	Crop	Impd. variety distributed	Size of Minikit	Districts	Target coverage (hect)	Coverage ach. (hect)	Avg. yield per hect. obtained kgs. Imp. variety	Avg. yield per hect. obtained kgs. Che plo
1.	Groundnut	TG_3, TG_{17},	½ ha.	Dharwad	10	22.5	815	729
2.		JL-24 or		Belgaum	10	14.5	1400	840
3.		J-11		Gulbarga	7.5	4	612	340
4.				Raichur	10	17	608	514
5.				Bijapur	7.5	7.5	956	750
6.				Tumkur	7.5	7.5	417	315
7.				Kolar	7.5	7.5	780	385
			Total :		60	80.5		

Table 2.4 : Demonstrations under IODP, 1982-83

Sl. No.	District	Crop	Coverage (Hects) Target Kharif	Target R/s	Target Total	Ach. (Hect.) Coverage Kharif	Ach. R/s	Ach. Total
1.	Dharwad	Groundnut	120	-	120	203.6	38.4	242
2.	Belgaum		120	-	120	126	35.2	171.2
3.	Gulbarga		120	-	120	23.6	76.4	100.0
4.	Raichur		120	-	120	184	46.4	230.4
5.	Bijapur		120	-	120	74	34.4	108.4
6.	Tumkur		100	-	100	96	64	160.0
7.	Kolar		100	-	100	91.2	8.8	100.0
		Total:	800	-	800	808.4	303.6	1112.0

Table 2.5 : IODP, 1983-84

Sl. No.	Schemes & its components	Crops	Production targets for the year 1983-84 in lakh tonnes	Financial allocation for 1983-84
1.	IODP	G.Nuts	5.0	
		Sesamum	0.45	
		Sunflower	0.25	
		Niger	0.15	
		Castor	0.22	
		Total for Kharif		
1.	Staff	-	-	5,10,000
2.	Contingencies	-	-	50,000
3.	Minikits			14,11,900
4.	Demonstration			4,52,000
5.	Transport, handling & Processing charges			3,14,100
6.	Seeds subsidy			17,82,000
7.	Plant Protection chemiclas 50% subsidy			11,55,000
		Total		56,75,000

Table 2.6 : Districtwise Physical and Financial Programme Proposed for 1983-84 Under IODP.

Sl. No.	Name of the District	Minikit Programmes on G.Nut		Demonstration on G.Nut		Plant Protection Chemicls 50% subsidy
		Physical	Financial	Physical	Financial	
1.	Bangalore	500	42500	200	20000	20000
2.	Kolar	500	42500	200	20000	10000
3.	Tumkur	550	46750	300	30000	10000
4.	Shimoga	600	51000	500	50000	50000
5.	Chitradurga	600	51000	500	50000	100000
6.	Mysore	200	17000	200	20000	20000
7.	Mandya	200	17000	100	10000	10000
8.	Hassan	200	17000	100	10000	10000
9.	Chickmagalur	200	17000	100	10000	10000
10.	Belgaum	450	38250	320	32000	20000
11.	Raichur	1000	85000	750	75000	100000
12.	Bellary	500	42500	400	40000	115000
	Total	5500	467500	3670	367000	475000

Table 3.1 : Talukwise owner Cultivators and Agricultural Labourers in the Raichur District;1982-83.

Sl. No.	Taluk	Agril. Labourers	Holdingwise Cultivators (in hectares) 0 - 1	1 - 2	2 - 5	5-10	10 & above	Total
1	Raichur	19,985	4,693	4,693	8,740	5,485	2,920	26,511
2	Manvi	27,466	2,011	5,036	9,335	4,962	2,732	25,842
3	Deodurga	19,751	3,777	4,073	2,531	6,615	4,097	19,327
4	Sindhanur	21,325	2,462	4,959	11,414	7,553	4,010	29,889
5	Ling-sugur	16,138	1,953	5,357	4,979	5,742	3,099	21,689
6	Kulhtugi	13,728	2,044	4,449	8,137	4,329	1,948	22,533
7	Koppal	21,462	2,995	4,604	7,874	4,085	1,940	21,498
8	Gangavati	30,945	3,249	3,543	7,499	4,671	2,681	20,438
9	Yelburga	22,956	3,720	6,515	11,756	6,702	3,024	31,246
	Total:	1,93,736	26,904	43,229	72,265	50,194	26,451	2,18,973

Table 3.3 : The Villages Selected for Drawing the Households

Villages in the Talus

Raichur	Manvi	Gauribidanur	Bagepalli
1. Turukana Dona	1. Neer Manvi	1. Thondebhavi	1. Potepalli
2. Yedlapura	2. GovinaDoddi (Grama)	2. Belachikka--vahalli	2. Rayadurgam-palli
	3. GovinaDoddi (Camp)	3. Chikkahusena-mara	3. Nanjreddy--palli
	4. Chimalapura	4. Kallinayakana halli	
		5. Bandaradahalli	
		6. Watadahosa-halli	
		7. Sabbana halli	
		8. Srinivasacharla halli	

Table 3.11 : Land holding pattern & utilization among the respondents. (a) Dist.: Raichur, Taluk: Manavi

(Beneficiaries)

Size of cultivated holding	Land owned	Given on cash rent	Given on share rent	Total owned land cultivated	Land taken on cash rent	Land taken on share rent	Total cultivated	Irrigated by well	Irrigated by Tank canal	Dry	Current fallow	Permant. fallow	Net cultivated	Cropped area	Ar cr -ec mor tha onc 1
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Upto 2.50	22.75	-	3.00	19.75	-	-	19.75	-	19.75	-	-	-	19.75	39.25	19.5
2.51 - 5.00	34.00	-	-	34.00	-	-	34.00	-	30.00	4.00	-	-	34.00	62.00	28.0
5.01 - 10.00	18.95	-	-	18.95	-	8.00	26.95	-	18.95	8.00	-	-	26.95	45.90	18.9
10.01 and above	33.00	-	-	33.00	-	-	33.00	-	33.00	-	-	-	33.00	66.00	33.0
Total	108.70	-	3.00	105.70	-	8.00	113.70	-	101.70	12.00	-	-	113.70	213.15	99.45

Table : Land holding pattern & utilization among the respondents.

(b) Dist.Raichur, Taluka Manavi

(Non-Beneficiaries)

Size of cultivated holding	Land owned	Given on cash rent	Given on share rent	Total owned land cultivated	Land taken on cash rent	Land taken on share rent	Total cultivated	Irrigated by well	Irrigated by Tank canal	Dry	Current fallow	Permant. fallow	Net cultivated	Cropped area	Area cropped more than once
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Upto 2.50	5.50	-	-	5.50	-	-	5.50	-	5.50	-	-	-	5.50	11.00	5.50
2.51-5.00	15.50	-	-	15.50	-	-	15.50	-	15.50	-	-	-	15.50	31.00	15.50
5.01-10.00	33.88	-	-	33.88	-	-	33.88	-	33.88	8.00	-	2.00	31.88	50.88	19.00
10.01 and above	93.00	25.00	-	68.00	-	-	68.00	-	56.00	12.00	15.00	-	53.00	109.00	56.00
Total :	147.88	25.00	-	122.88	-	-	122.88	-	100.88	20.00	15.00	2.00	105.88	201.88	96.00

Table : Land holding pattern & utilization among the respondents. (c) Dist. Raichur, Taluka: Raichur

(Beneficiaries) -3-

Size of cultivated holding	Land owned	Given on cash rent	Given on share rent	Total owned land cultivated	Land taken on cash rent	Land taken on share rent	Total cultivated	Irrigated by well	Irrigated by Tank canal	Dry	Current fallow	Permant. fallow	Net cultivated	Cropped area	Area cropped more than once
	1	2	3	4	5	6	7	8	9	10	11	11	12	14	15
Upto 2.50	12.50	-	-	12.50	-	-	12.50	-	11.50	1.00	-	-	12.50	24.00	11.50
2.51 - 5.00	46.50	-	-	46.50	-	-	46.50	5.00	36.50	5.00	-	- -	46.50	80.50	34.00
5.01-10.00	24.00	-	-	24.00	-	4.00	28.00	-	15.00	13.00	-	-	28.00	43.00	15.00
10.01 and above	52.00	-	-	52.00	-	-	52.00	-	19.00	33.00	-	-	52.00	63.00	11.00
Total	135.00	-	-	135.00	-	4.00	139.00	5.00	82.00	52.00	-	-	139.00	210.50	71.50

Table: Land holding pattern & utilization among the respondents. (d) Dist.:Raichur, Taluka:Raichur

(Non-Beneficiaries)

	Land owned	Given on cash rent	Given on share rent	Total owned land cultivated	Land taken on cash rent	Land taken on share rent	Total cultivated	Irrigated by well	Irrigated by Tank canal	Dry	Current fallow	Permant. fallow	Net cultivated	Cropped area	Ar cr -e mo th on
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	1
Upto 2.50	22.00	-	10.00	12.00	-	1.00	13.00	-	9.00	4.00	-	-	13.00	21.00	8.0
2.51 - 5.00	10.00	-	-	10.00	-	-	10.00	3.00	-	7.00	-	-	10.00	12.00	2.0
5.01 -10.00	25.00	-	-	25.00	-	-	25.00	3.00	1.00	21.00	-	-	25.00	29.00	4.0
10.01 and above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	57.00	-	10.00	47.00	-	1.00	48.00	6.00	10.00	32.00	-	-	48.00	62.00	14.0

Table 3.2 : Talukwise Agricultural Families in the Kolar District; 1982-83

Sl. No.	Taluk	Agril. Families	Agril. Labourers	Category of Agril. Families in hectares 0-1	1-2	2-4	4-10	10 & above
1.	Kolar	27,488	7,660	13,812	7,689	4,080	1,514	393
2.	Mulbagal	20,386	5,560	8,098	5,988	3,989	1,854	550
3.	Bangarpet	24,027	7,676	11,204	7,482	3,778	1,096	467
4.	Srinivas-pur	21,106	5,619	7,218	7,418	3,078	2,797	600
5.	Malur	21,972	3,456	7,184	6,248	3,200	4,820	520
6.	Chickballa-pur	22,821	9,237	13,653	5,628	2,350	1,001	189
7.	Chintan-paul	25,141	6,770	10,925	8,032	4,255	1,591	278
8.	Sidlagha-tta	22,035	5,663	12,627	5,822	2,410	933	243
9	Gowribida-nur	25,730	15,668	12,820	6,879	3,823	1,760	348
10	Gudibanda	4,665	325	2,650	960	585	320	140
11.	Bagepalli	20,893	4,005	8,560	6,863	3,843	1,720	907
	Total:	2,86,254	71,659	1,08,851	68,059	35,308	19,406	4035

Size of holding in hectares	No.of Agril. Families	Percentage of holdings to total	Net area cultivated	Percentage of area to the total
0-1	1,08,851	46.08	45,198	12.93
1-2	68,059	28.81	75,499	21.60
2-4	35,303	14.94	98,902	28.31
4-10	19,406	8.21	90,259	25.83
10 & above	4,635	1.96	39,594	11.33
	2,36,254	100.00	3,49,452	100.00

Table No.3.4 : Distribution of selected families according to size of cultivated holding

Categories	Size of cultivated holding	Taluka:Gauri Bidanur			Taluka:Bagepalli			Taluka: Manavi			Taluka:Raichur			Total		
		Beneficiaries	Non-Beneficiaries	Total	Beneficiaries	Non Beneficiaries	Total	Beneficiaries	Non-Beneficiaries	Total	Beneficiaries	Non Beneficiaries	Total	Beneficiaries	Non Beneficiaries	Total
I	upto 2.50 acres	12	8	20	8	4	12	11	4	15	7	9	16	38	25	63
II	2.51 to 5.00	7	2	9	14	5	19	9	4	13	12	3	15	42	14	56
III	5.01 to 10.00	4	2	6	3	4	7	3	4	7	3	3	6	13	13	26
IV	10.01 and above	2	3	5	-	2	2	2	3	5	3	-	3	7	8	15
	Total	25	15	40	25	15	40	25	15	40	25	15	40	100	60	160

Table 3.5 : Population pattern among the Selected Respondents.

	Dist.Kolar						Dist.Raichur						Total		
	Taluka:Gauri Bidanur			Taluka:Bagepalli			Taluka:Manavi			Taluka:Raichur					
	Beneficiaries	Non-Beneficiaries	Total	Beneficiaries	Non Beneficiaries	Total	Beneficiaries	Non Beneficiaries	Total	Beneficiaries	Non Beneficiaries	Total	Beneficiaries	Non Beneficiaries	Total
No.of Families	25	15	40	25	15	40	25	15	40	25	15	40	100	60	160
Male Adults	49	32	81	40	27	67	44	27	71	51	26	77	184	112	296
Female Adults	49	27	76	38	26	64	39	23	62	46	28	74	172	104	276
Children	65	31	96	50	19	69	65	31	96	57	31	88	237	112	349
Total	163	90	253	128	72	200	148	81	229	154	85	239	593	328	921
Male Earners	41	25	66	28	18	46	38	20	58	38	24	62	145	87	232
FEmale Earners	9	2	11	21	13	34	24	13	37	25	15	40	79	43	122
Children Earners	-	-	-	1	1	2	5	3	8	-	-	-	6	4	10
Total Earners	50	27	77	50	32	82	67	36	103	63	39	102	230	134	364

Table 3.6 : Literacy of Head of the Families among the Respondents.

	Kolar Dist.						Dist.Raichur						Total		
	Taluka:Gauri Bidanur			Taluka Bagepalli			Taluka: Manavi			Taluka:Raichur					
	Beneficiaries	Non Beneficiaries	Total	Beneficiaries	Non Beneficiaries	Total	Beneficiaries	Non Beneficiaries	Total	Beneficiaries	Non Beneficiaries	Total	Beneficiaries	Non Beneficiaries	Total
Illiterates	6	5	11	16	11	27	16	9	25	13	11	24	51	36	87
Upto 7th	10	6	16	9	3	12	5	5	10	10	2	12	34	16	50
Upto S.S.L.C. & S.S.L.C./above	2	-	2	-	-	-	1	-	1	-	-	1	4	-	4
	7	4	11	-	1	1	3	1	4	1	2	3	11	8	19
Total	25	15	40	25	15	40	25	15	40	25	15	40	100	60	160

Table 3.7 : Number of families having suboccupation.

Occupation	Dist.Kolar						Dist.Raichur						Total		
	Taluk:Gauri Bidanur			Taluka:Bagepalli			Taluka:Manavi			Taluka: Raichur					
	Beneficiaries	Non Beneficiaries	Total	Beneficiaries	Non Beneficiaries	Total	Beneficiaries	Non Beneficiaries	Total	Beneficiaries	Non Beneficiaries	Total	Beneficiaries	Non Beneficiaries	Total
1. Agril. labour	6	3	9	11	8	19	13	9	22	17	11	28	47	31	78
2. Dairy	1	1	2	-	-	--	-	-	-	-	-	-	1	1	2
3. Silkworm keeping	5	2	7	2	-	2	-	-	-	-	-	-	7	2	9
4. Cycle shop	1	-	1	-	-	-	-	-	-	-	-	-	1	-	1
5. Cloth shop	1	-	1	-	-	-	-	-	-	-	-	-	1	-	1
6. Kirana shop	2	1	3	-	-	-	-	-	-	-	-	-	2	1	3
7. Hotel	-	-	-	-	-	-	2	-	2	-	-	-	2	-	2
8. Floor Mill	1	-	1	-	-	-	-	-	-	-	-	-	1	-	1
9. Tailoring	-	1	1	-	1	1	1	-	1	-	-	1	1	2	3
10. Carpenter	-	-	-	1	-	1	-	-	-	1	-	1	2	-	2
11. Washerman	-	-	-	2	-	2	-	-	-	1	-	1	3	-	3
12. Service	-	2	2	1	-	1	1	-	1	-	-	-	2	2	4
13. Pension	-	-	-	1	-	1	-	-	-	-	-	-	1	-	1
	17	10	27	18	9	27	17	9	26	19	11	30	71	39	110

Table 3.8 : Land Holding Pattern and Utilization among the respondents.

(a) Dist: Kolar, Taluk: Gauri-Bidanur

(Beneficiaries)

Categories	Size of cultivated holding	Land owned	Given on cash rent	Given on share rent	Total owned land cultivated	Land taken on: cash rent	Land taken on: share rent	Total cultivated	Irrigated by: well	Irrigated by: Tank canal	Dry	Current fallow	Permit fallow	Net cultivated	Cropped area	Area cropped more than acre
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
I	Upto 2.50	15.50	-	-	15.50	-	-	15.50	2.50	10.50	2.50	-	-	15.50	27.50	12.00
II	2.51 - 5.00	21.00	-	-	21.00	1.00	3.00	25.00	3.50	16.75	4.50	-	0.25	24.75	32.25	7.50
III	5.01 - 10.00	29.50	-	-	29.50	-	-	29.50	2.00	22.00	5.50	-	-	29.50	35.50	6.00
IV	10.01 and above	42.00	-	-	42.00	-	-	42.00	-	27.00	15.00	-	-	42.00	64.00	22.00
	Total:	108.00	-	-	108.00	1.00	3.00	112.00	8.00	76.25	27.50	-	0.25	111.75	159.25	47.50

Table : Land Holding Pattern and Utilization among the respondents. (b) Dist. Kolar, Taluk : Gauribidanur

(Non-Beneficiaries)

Size of cultivated holding	Land owned	Given on cash rent	Given on share rent	Total owned land cultivated	Land taken on cash rent	Land taken on share rent	Total cultivated	Irrigated by well	Irrigated by Tank canal	Dry	Current fallow	Permit fallow	Net cultivated	Cropped area	Area cropped more than acre
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Upto 2.50	13.02	-	-	13.02	-	1.00	14.02	1.27	11.25	1.00	-	0.50	13.52	24.05	10.53
2.51 - 5.00	7.00	-	-	7.00	-	-	7.00	-	7.00	-	-	-	7.00	12.00	5.00
5.01 - 10.00	9.00	-	-	9.00	-	7.00	16.00	-	16.00	-	-	--	16.00	26.00	10.00
10.01 and above	73.00	-	-	73.00	-	-	73.00	-	43.00	30.00	-	-	73.00	92.00	19.00
Total	102.02	-	-	102.02	-	8.00	110.02	1.27	77.25	31.00	-	0.50	109.52	154.05	44.53

Table : Land Holding Pattern and Utilisation among the respondents.

(c) Dist. Kolar, Taluka : Bagepalli
(Benefiticiaries)

(Area in Acres)

Size of cultivated holding	Land owned	Given on cash rent	Given on share rent	Total owned land cultivated	Land taken on cash rent	Land taken on share rent	Total cultivated	Irrigated by well	Irrigated by Tank canal	Dry	Current fallow	Permit fallow	Net cultivated	Cropped area	Area cropped more than acre
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Upto 2.50	14.50	-	-	14.50	-	-	14.50	-	-	14.50	-	-	14.50	14.50	-
2.51 - 5.00	49.50	-	-	49.50	-	5.00	54.50	12.00	-	42.50	-	-	54.50	61.12	6.62
5.01 - 10.00	20.00	-	-	20.00	-	1.50	21.50	3.50	-	18.00	-	-	21.00	23.00	1.50
10.01 and above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	84.00	-	-	84.00	-	6.50	90.50	15.50	-	75.00	-	-	90.50	98.62	8.12

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Table : Land Holding Pattern and Utilization among the respondents. (d) Dist.:Kolar, Taluka; Bagepalli

Size of cultivated holding	Land owned	Given on cash rent	Given on share rent	Total owned land cultivated	Land taken on cash rent	Land taken on share rent	Total cultivated	Irrigated by Well	Irrigated by Tank canal	Dry	Current fallow	Permanent fallow	Net cultivated	Cropped area	Area cropppe more than once
Upto 2.50	7.00	-	-	7.00	-	-	7.00	1.50	-	5.50	-	-	7.00	7.00	-
2.51 - 5.00	20.00	-	-	20.00	-	0.50	20.50	2.50	1.00	17.00	-	-	20.50	20.50	--
5.01 - 10.00	30.00	-	-	30.00	-	-	30.00	1.00	1.00	28.00	-	-	30.00	31.00	1.00
10.01 and above	45.00	-	-	45.00	-	-	45.00	10.00	-	35.00	-	-	45.00	49.00	4.00
Total	102.00	-	-	102.00	-	0.50	102.50	15.00	2.00	85.00	-	-	102.50	107.50	5.00

Table 3.9 : Area under different crops among the respondents.

(a) Dist. : Kolar, Taluk :Gauri Bidanur

(Beneficiaries)

Size holding	Cereals		Groundnut Local		Mulbung	Sugar cane	Other Crops		Summer Groundnut		Grountnut improved		Others		Total Cropped		
	Non irrigated	Irrigated	non irrigated	Irrigated	Irrigated	Irrigated	non-irrigated	Irrigated	non irrigated	Irrigated	Non-irrigated	Irrigated	Non-irrigated	Irrigated	Non-irrigated	Irrigated	Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Upto 2.50	1.50	9.50	1.00	1.25	1.75	-	-	-	-	-	-	12.50	-	-	2.50	25.00	27.50
2.51 - 5.00	3.00	10.50	-	4.00	0.50	1.25	-	3.00	-	-	-	9.00	-	1.00	3.00	29.25	32.25
5.01 - 10.00	3.50	14.00	-	4.00	4.00	1.00	2.00	-	-	-	-	6.00	-	1.00	5.50	30.00	35.50
10.01 and above	-	17.00	7.00	5.00	1.00	-	8.00	4.00	-	-	-	22.00	-	-	15.00	49.00	64.00
Total	8.00	51.00	8.00	14.25	7.25	2.25	10.00	7.00	-	-	-	49.50	-	2.00	26.00	133.25	159.25

(Non-beneficiaries)

Size holding	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Upto 2.50	1.00	10.75	-	1.27	-	0.50	-	-	-	10.03	-	-	-	0.50	1.00	23.05	24.04
2.51 - 5.00	-	6.50	-	0.50	-	-	-	-	-	5.00	-	-	-	-	-	12.00	12.00
5.01 - 10.00	-	11.00	-	2.25	0.75	2.00	-	-	-	8.00	-	-	-	2.00	-	26.00	26.00
10.01 and above	10.00	26.00	-	7.00	1.00	9.00	20.00	-	-	19.00	-	-	-	-	30.00	62.00	92.00
Total	11.00	54.25	-	11.02	1.75	11.50	20.00	-	-	42.03	-	-	-	2.00	31.00	123.05	154.05

Table : Area under different crops.

(b) Dist. : Kolar, Taluk : Bagepalli.

(Beneficiaries)

Size holding	Kharif										Summer				Total Cropped Area		
	Cereals		Groundnut Local		Groundnut Improved		Suryakati		Mulbany	Sugar cane	Cereals		Groundnut (Local)				
	Non-irrigated	Irrigated	Non-irrigated	Irrigated	Non-irrigated	Irrigated	Non-irrigated	Irrigated	Irrigated	Irrigated	Non-irrigated	Irrigated	Non-irrigated	Irrigated	Non-irrigated	Irrigated	Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Upto 2.50	0.50	-	6.00	-	7.00	-	1.00	-	-	-	-	-	-	-	14.50	-	14.50
2.51 - 5.00	7.50	6.75	21.00	-	6.00	2.75	8.00	1.00	1.50	-	-	1.00	-	5.62	42.50	18.62	61.12
5.01 - 10.00	5.00	2.00	10.00	0.50	2.00	0.50	1.00	-	-	0.50	-	1.50	-	-	18.00	5.00	23.00
10.01 and above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	13.00	8.75	37.00	0.50	15.00	3.25	10.00	1.00	1.50	0.50	-	2.50	-	5,62	75.00	23.62	98.62

Dist. Kolar, Taluk Bagepalli

(Non-beneficiaries)

Size holding	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Upto 2.50	0.50	-	5.00	1.50	-	-	-	-	-	-	-	-	-	-	5.50	1.50	7.00
2.51 - 5.00	1.50	2.50	15.50	1.00	-	-	-	-	-	-	-	-	-	-	17.00	3.50	20.50
5.01 - 10.00	11.00	2.00	16.00	-	-	-	1.00	-	-	-	-	-	-	1.00	28.00	3.00	31.00
10.01 and above	7.00	8.00	28.00	-	-	-	-	-	-	2.00	-	-	-	4.00	35.00	14.00	49.00
Total	20.00	12.50	64.50	2.50	-	-	1.00	-	-	2.00	-	-	-	5.00	85.00	22.00	107.50

Table 3.10 : Pattern of agricultural Implements and animals owned among the respondents.

(a) Dist.Kolar, Taluk :Gauri Bidanur

(Beneficiaries)

Size holding	Bullocks		Cow Milch Cattle				Buffelos		Sheep		Iron Plough		Bullock cart		Tractor		Sprayer		Oil Engines Elec. pumpset		Vehicles		Others	
	No.	Value	Working No.	Value	Milch cattle No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
	1		2		3		4		5		6		7		8		9		10		11		12	
Upto 2.50	4	1600	-		3	4300	12	10400	7	1050	1	35	-		-		-		3	9000	-		-	
2.51 - 5.00	4	4000	-		5	8450	9	11000	-		2	75	1	500	-		-		6	23700	2	8400	-	
5.01 - 10.00	10	15300	-		8	9000	19	28700	65	12000	3	325	3	3100	-		1	250	6	18800	3	1100	-	
10.01 and above	2	10000	-		4	6500	16	16120	-		1	120	1	1200	-		2	290	2	6000	1	300	-	
Total	20	30900	-		20	28250	56	66220	72	13050	7	545	5	4800	-		3	540	17	57500	6	9800	-	

Dist.Kolar, Taluk :Gauri Bidanur

(Non-beneficiaries)

Size holding																								
	1		2		3		4		5		6		7		8		9		10		11		12	
Upto 2.50	4	3200	-		5	8000	-		2	300	-		1	500	-		-		-		-		1	350
2.51 - 5.00	2	3500	-		2	1600	4	3800	-		1	120	-		-		-		1	4000	1	120	-	
5.01 - 10.00	2	1800	-		2	10000	3	3000	-		-		-		-		1	150	1	3000	2	800	-	
10.01 and above	2	2500	-		13	43500	13	13500	-		-		-		2	125000	1	1200	6	19000	-		-	
Total	10	11000	-		22	63100	20	20300	2	300	1	120	1	500	2	125000	2	1350	8	26000	3	920	1	350

...le : Agricultural implements

(b) Dist. Kolar, Taluk : Bagepalli

(Beneficiaries)

...ize holding	Bullocks		Milch cattle cow: Working		Milch cattle		Buffelow		Sheep		Iron plough		Bullock cart		Tractor		Sprayer		Oil Eng. Elec.Pump		Vehi-cles		Others	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Va
	1		2		3		4		5		6		7		8		9		10		11		12	
Upto 2.50	2	3000	2	1500	8	4800	3	4100	3	450	1	200	-		-		-		-		-		8	600
2.51 - 5.00	16	15450	6	4500	6	8800	2	2800	38	2750	3	550	3	2800	-		-		5	31000	1	500	1	800
5.01 - 10.00	5	5100	-		5	3450	-		27	5400	-		2	1800	-		-		-		-		-	
10.01 and above	-		-		-		-		-		-		-		-		-		-		-		-	
Total	23	23550	8	6000	19	17050	5	6900	68	8600	4	750	5	4600	-		-		5	31000	1	500	9	1400

Dist.Kolar, Taluk :Bagepalli

(Non-beneficiaries)

...ze holding	1		2		3		4		5		6		7		8		9		10		11		12	
to 2.50	-		6	3500	1	600	-		-		-		-		-		-		-		-		-	
51 - 5.00	4	3800	4	3250	4	2000	-		4	500	1	450	1	600	-		-		1	5000	-		1	1200
01 - 10.00	8	12900	-		1	1000	-		8	4000	1	150	2	1600	-		-		1	15000	-		-	
01 and above	2	2200	2	1850	3	2200	-		-		-		2	1700	-		-		2	15000	-		-	
Total	14	18900	12	8600	9	5800	-		12	4500	2	300	5	3900	-		-		4	35000	-		1	1200

Table 3.12 : Area under different crops among the respondents.

(a) Dist. : Raichur, Taluk : Manavi

(Beneficiaries)

Size holding	Groundnut (Rabi) Cereals										Groundnut Summer Cereals									
	Cereals		Local		Improved		Suryakanti		Cereals		Cereals		Local		Improved		Suryakanti		Total cropped area	
	Non irrigated	Irrigated	Non irrigated	Irrigated	Non irrigated	Irrigated	Non irrigated	Irrigated	Non irrigated	Irrigated	Non irrigated	Irrigated	Non irrigated	Irrigated	Non irrigated	Irrigated	Non irrigated	Irrigated	Non Irrigated	Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Upto 2.50	-	10.00	-	8.00	-	-	-	1.75	-	-	-	-	-	16.08	-	3.42	-	-	39.25	39.25
2,51 - 5.00	-	24.00	-	1.00	-	2.00	4.00	3.00	-	-	-	-	-	11.85	-	15.15	1.00	4.00	58.00	62.00
5.01 - 10.00	-	10.00	-	-	-	2.00	-	6.95	8.00	-	-	-	-	1.80	-	17.15	-	8.00	37.90	45.90
10.01 and above	-	25.00	-	-	-	3.00	-	5.00	-	-	-	4.00	-	-	-	26.08	2.92	-	66.00	66.00
Total	-	69.00	-	9.00	-	7.00	4.00	16.70	8.00	-	-	4.00	-	29.73	-	61.80	3.92	12.00	201.15	213.15

Dist.: Raichur, Taluk : Manavi

(Non-beneficiaries)

Size holding	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Upto 2.50	-	4.50	-	1.00	-	-	-	-	-	-	-	-	-	5.50	-	-	-	-	11.00	11.00
2.51 - 5.00	-	11.00	-	3.00	-	-	-	1.50	-	-	-	-	-	7.00	-	8.50	-	-	31.00	31.00
5.00 - 10.00	2.00	21.88	6.00	2.00	-	-	-	-	-	-	-	-	-	9.00	-	8.00	2.00	8.00	42.88	50.88
10.01 - and above	4.00	36.00	8.00	-	-	-	-	20.00	-	-	-	10.00	-	4.00	-	17.00	10.00	12.00	97.00	109.00
Total	6.00	73.38	14.00	6.00	-	-	-	21.50	-	-	-	10.00	-	25.50	-	33.50	12.00	20.00	181.88	201.88

Table : Area under di ferent crops

(b) Dist. Raichur, Talu :Raichur.

(Beneficiaries)

Size holding	Kharif (Khārīf) Cereals Non irrigated	Cereals irrigated	G.Nut(Local) Non-irrigated	G.Nut(Local) Irrigated	Suryakanti Non irrigated	Suryakanti Irrigated	(Rabi) Cereals Non-irrigated	Cereals irrigated	Cotton Non irrigated	(Summer) Cereals Non-irrigated	Cereals irrigated	G.Nut(local) Non-irrigated	G.Nut(local) Irrigated	Improved Non irrigated	Improved Irrigated	Surya kanti irrigated	Total cropped are Non irrigated	Total cropped are Irrigated	To
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Upto 2.50	2.00	1.00	-	5.00	-	4.50	-	-	-	-	-	-	7.25	-	3.25	1.00	2.00	22.00	24
2.51 - 5.00	3.00	16.50	2.00	11.00	-	14.00	-	-	-	-	2.00	-	22.12	-	5.88	4.00	5.00	75.50	80
5.01 - 10.00	9.00	6.00	-	2.00	-	4.00	7.00	-	-	-	-	-	13.00	-	2.00	-	16.00	27.00	43
10.01 and above	8.00	15.00	-	-	-	4.00	20.00	-	5.00	-	-	-	9.63	-	1.37	-	33.00	30.00	63
Total	22.00	38.00	2.00	18.00	-	26.50	27.00	-	5.00	-	2.00	-	52.00	-	12.50	5.00	56.00	154.50	210

(Non-beneficiaries)

Size holding	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Upto 2.50	2.00	4.00	4.00	-	-	3.00	-	-	-	-	-	-	8.00	-	-	-	6.00	15.00	21
2.51 - 5.00	1.00	3.00	6.00	-	-	-	-	-	-	-	-	-	2.00	-	-	-	7.00	5.00	12
5.01 - 10.00	10.00	1.00	2.00	3.00	-	-	9.00	-	-	-	2.00	-	2.00	-	-	-	21.00	8.00	29
10.01 and above	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	13.00	8.00	12.00	3.00	-	3.00	9.00	-	-	-	2.00	-	12.00	-	-	-	34.00	28.00	62

Table 3.13 : Pattern of Agricultural Implements and animals owned among the respondents. Dist. Raichur (a) Taluk : Raichur

(Beneficiaries)

Size of holding	Bullocks		Milch cattle: Cow Working		Milch cattle: Milch cattle		Milch cattle: Buffeloes		Sheep		Iron Plough		Bullock cart		Tractor		Sprayer		Oil Eng. Elec. pump set		Vehicles		Others	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
	1		2		3		4		5		6		7		8		9		10		11		12	
Upto 2.50	4	2550	-		6	3350	-		-		-		-		-		-		-		-		-	
2.51 - 5.00	20	16950	-		17	7600	11	6700	5	700	-		3	4600	-		-		2	9000	1	500	-	
5.01 - 10.00	8	5600	-		2	1400	4	4300	-		-		2	2700	-		-		-		-		-	
10.01 and above	8	8500	-		14	5400	3	2600	-		-		3	3900	-		-		1	6000	-		-	
Total	40	33600	-		39	17750	18	13600	5	700	-		8	11200	-		-		3	15000	1	500	-	

Dist. Raichur, Taluk : Raichur

(Non-Beneficiaries)

Size holding	1		2		3		4		5		6		7		8		9		10		11		12	
Upto 2.50	11	8050	-		6	3300	1	900	15	3000	-		1	1500	-		-		-		-		-	
2.51 - 5.00	7	4900	-		6	2400	2	1900	1	150	-		2	3000	-		-		1	5000	-		-	
5.01 - 10.00	8	4800	-		2	1200	5	4800	-		-		2	2800	-		1	120	2	13000	1	500	-	
10.01 and above	-		-		-		-		-		-		-		-		-		-		-		-	
Total	26	17750	-		13	6900	2	7600	16	3150	-		5	7300	-		1	120	3	18000	1	500	-	

Table 3.13 :

Dist.: Raichur (b) Taluk : Manavi

(Beneficiaries)

Size of holding	Bullocks		Milch cattle						Sheep		Iron Plough		Bullock cart		Tractor		Sprayer		Oil Eng. Elec. pump set		Vehicles		Others	
			Cow Working		Milch cattle		Buffeloes																	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
	1		2		3		4		5		6		7		8		9		10		11		12	
Upto 2.50	16	11550	-		8	5400	3	1600	55	11650	-		2	2700	-		-		-		-		-	
2.51 - 5.00	16	13700	-		20	9800	14	11200	5	600	-		2	3000	-		-		-		2	300	-	
5.01 - 10.00	4	3000	-		3	1600	-		-		-		-		-		-		-		-		-	
10.01 and above	6	5800	-		7	5400	6	6100	-		-		2	-4200	-		-		-		1	500	-	
Total	42	34050	-		38	22200	23	18900	60	12250	-		6	9900	-		-		-		3	800	-	

Dist.: Raichur, Taluk : Manavi

(Non Beneficiaries)

Size holding	1		2		3		4		5		6		7		8		9		10		11		12	
Upto 2.50	2	1200	-		3	1500	1	1800	-		-		-		-		-		-		-		-	
2.51 - 5.00	6	4550	-		5	2800	1	1000	-		-		-		-		-		-		-		-	
5.01 - 10.00	6	4800	-		5	2000	3	1500	-		-		-		-		-		-		-		-	
10.01 and above	10	8800	-		7	5200	8	8600	35	4500	2	300	2	2800	-		-		2	6500	-		-	
Total	24	19350	-		20	11500	13	12900	35	4500	2	300	3	4300	-		-		2	6500	-		-	

Table 4.1 : Cost of cultivation of groundnut for the beneficiaries growing improved varities in the summer season (Raichur District).

(Per hectare in Rs.)

Category of the farmers	Seeds		Manure	Fertilizers		Pesticides		Bullock labour		Interest on working capital	Human labour		Grand
	Free	Purchased		Free	Purchased	Free	Purchased	Owned	Hired		Family	Hired	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
I	658.13	54.70	85.43	-	724.80	-	112.20	457.60	281.25	73.75	1184.28	718.75	3692.75
II	464.88	193.75	26.10	-	592.60	2.00	64.58	581.00	152.48	52.58	1117.00	740.00	3520.08
III	369.60	142.93	125.00	-	927.30	-	44.18	641.68	44.60	41.05	868.55	987.30	3822.58
IV	321.05	308.75	-	-	871.25	5.00	85.43	583.98	41.25	91.05	363.13	1401.88	3746.70
Total	513.45	147.33	56.58	-	708.48	1.55	82.85	540.50	178.45	63.55	1036.13	828.58	3644.50

Table 4.2 : Cost of cultivation of groundnut for the non beneficiaries growing local varieties in the summer reason (Raichur district)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
I	-	402.50	75.00	-	478.88	-	61.88	196.25	169.20	82.88	537.50	834.88	2864.20
II	-	466.25	-	-	617.50	-	40.63	256.25	15.63	72.50	302.50	857.50	2628.75
III	-	462.50	-	-	441.88	-	3.75	330.00	106.88	88.75	326.25	709.38	2469.38
IV	-	562.50	375.00	-	837.50	-	-	475.00	100.00	135.00	325.00	1737.50	4550.00
Total	-	437.28	16.78	-	515.73	-	40.80	254.70	123.38	85.50	433.95	862.43	2815.53

Table 4.3 : Cost of Cultivation of groundnut - Raichur district

(a) Beneficiaries growing local varieties in the summer season.

Category of the farmers	Seeds		Manure	Fertilizers		Pesticides		Bullock Labour		Interest on working capital	Human labour		Grand Total
	Free	Purchased		Free	Purchased	Free	Purchased	Owned	Hired		Family	Hired	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
X	-	XXXXXX	XXXXXX	XXXXXX	-	XXXXXX	-	XXXXX	XXXXXX	XXXXX	XXXXX		
I	-	513.98	103.50	-	645.00	-	41.35	231.43	251.73	77.88	448.75	872.88	3186.55
II	-	525.93	-	-	428.23	-	55.45	321.48	137.43	56.20	478.70	854.88	2858.25
III	-	459.60	83.35	-	490.00	-	15.43	273.35	7.93	14.60	376.68	837.10	2565.53
IV	-	652.50	103.33	-	390.00	-	64.18	524.18	34.18	67.50	340.83	1126.68	3303.35
Total	-	523.75	58.65	-	521.33	-	46.33	294.28	164.63	61.95	446.25	880.50	2997.65

(b) Non beneficiaries growing improved varieties in the summer season.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
II	-	621.25	-	-	800.00	-	51.25	360.00	115.00	91.25	378.75	791.25	3208.75
III	-	470.00	-	-	550.00	-	30.00	162.50	10.00	62.50	142.50	617.50	2040.00
IV	-	631.25	-	-	937.50	-	38.75	236.25	7.50	51.25	87.50	961.25	2951.25
V	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	585.63	-	-	771.88	-	42.83	279.70	61.88	74.08	246.88	790.33	2853.18

Table 4.4: Cost of cultivation of groundnut in the Kharif season for the farmers growing local varieties (Raichur district).

(per hectare in Rs.)

Category of the farmers	Seeds	Manure	Fertilizers	Pesticides	Bullock Labour		Interest on working capital	Human Labour		Grand Total
					Owned	Hired		Family	Hired	
(a) Beneficiaries										
I	568.13	325.00	551.25	08.25	403.75	163.13	70.63	381.25	1045.00	3516.88
II	353.53	253.90	317.38	70.33	246.10	128.90	88.48	219.93	803.53	2482.05
III	607.50	1012.50	1890.00	-	540.00	112.50	172.50	2265.00	1047.50	7647.50
IV	600.00	825.00	1465.00	30.00	532.50	-	165.00	600.00	2400.00	6627.50
Total	473.65	401.83	652.45	37.95	353.18	131.48	96.55	539.83	1011.38	3698.28
(b) Non beneficiaries										
I	325.00	296.05	250.00	-	355.28	78.95	9.88	177.50	317.78	1810.28
II	345.00	334.83	325.90	-	401.78	23.23	33.93	238.85	746.88	2450.38
III	360.00	500.00	565.00	60.00	440.00	20.00	72.00	205.00	1303.00	3525.00
IV	-	-	-	-	-	-	-	-	-	-
Total	343.18	380.80	385.25	21.83	398.78	42.33	39.03	204.23	793.08	2608.48

Table 4.5 : Cost of Cultivation of Groundnut for the Beneficiaries Growing Improved Varieties in the Kharif Season (Kolar District)

(Per hectare in Rs.)

Category of the farmers	Seeds		Manure	Fertilizer		Pesticides		Bullock labour		Interest on working capital	Human labour		Grand Total
	Free	Purchase		Free	Purchase	Free	Purchase	Hired	Owned		Family	Hired	
I	342.18	-	231.08	-	50.00	-	-	127.85	461.78	54.65	211.78	304.65	1441.78
II	461.88	-	573.65	-	227.13	-	-	17.30	671.73	136.55	229.43	589.63	2445.40
III	342.50	-	335.00	-	398.75	-	-	-	545.00	72.50	151.25	603.75	2106.25
IV	660.00	-	450.00	-	510.00	-	-	-	1500.00	40.00	480.00	1640.00	4620.00
Total	433.53	-	443.55	-	213.38	-	-	46.68	668.95	99.28	238.65	595.23	2305.70

Table 4.6 : Cost of Cultivation of Groundnut in the Kharif Season Growing Local Varieties (Kolar District)

(Per hectare in Rs.)

Category of the farmers	Seeds		Manure	Fertilizer		Pesticides		Bullock labour		Interest on working capital	Human labour		Grand Total
	Free	Purchase		Free	Purchase	Free	Purchase	Hired	Owned		Family	Hired	
(a) Beneficiaries													
I	-	422.15	213.93	-	87.15	-	-	75.00	366.42	63.93	394.65	498.23	2126.45
II	-	457.65	261.48	-	139.25	-	20.60	129.55	367.35	110.45	146.60	521.90	2154.33
III	-	450.00	280.83	-	223.33	-	25.00	30.00	583.33	80.83	51.68	774.18	2499.15
IV	-	495.95	223.75	-	413.13	-	7.50	71.25	381.25	66.25	40.63	752.50	2452.20
Total	-	456.25	247.75	-	170.95	-	14.68	100.08	389.83	92.50	427.23	570.73	2269.98
(b) Non-beneficiaries													
I	-	392.50	120163	-	37.00	-	-	-	523.50	40.00	234.00	265.50	1613.13
II	-	426.00	254.50	-	157.00	-	-	109.50	378.50	120.50	112.00	503.50	2061.50
III	-	451.00	71.95	-	140.50	-	-	151.50	333.75	58.50	102.50	477.50	1787.20
IV	-	470.00	146.68	-	364.18	-	-	140.00	217.50	60.00	51.68	895.83	2345.85
Total	-	430.98	148.63	-	113.13	-	-	95.83	379.53	70.83	153.20	495.55	1867.65

Table 4.7 : Cost of Cultivation of Groundnut in the Summer Season (Kolar District)

(per hectare in Rs.)

Category of the farmers	Seeds		Manure	Fertilizer		Pesticides		Bullock labour		Interest on working capital	Human labour		Grand Total
	Free	Purchase		Free	Purchase	Free	Purchase	Hired	Owned		Family	Hired	
(a) Beneficiaries													
I	220.63	370.20	236.45	33.33	144.18	7.30	25.83	270.20	152.70	59.18	339.80	782.30	2380.83
II	279.18	423.75	285.43	-	891.25	-	56.68	386.68	66.68	65.00	254.18	1056.67	3486.30
III	150.00	450.00	337.50	-	332.50	-	55.00	422.50	71.25	16.25	176.25	582.50	2443.75
IV	13.75	758.75	287.50	-	1042.50	31.25	260.00	171.25	240.00	128.75	43.75	1613.75	4545.75
Total	211.38	427.38	263.63	18.18	446.70	6.83	58.18	306.83	129.78	63.18	274.68	914.55	2884.78
(b) Non-beneficiaries													
I	-	547.85	138.93	-	136.08	-	-	152.85	226.43	50.35	161.78	454.65	1868.93
II	-	483.33	-	-	701.68	-	31.68	266.68	66.68	84.18	156.68	924.18	2715.05
III	-	667.50	125.00	-	607.50	-	-	125.00	-	102.50	92.50	1562.50	3282.50
IV	-	425.00	81.25	-	533.13	-	39.38	37.50	556.25	101.25	91.25	1171.25	3036.25
Total	-	510.15	94.83	-	386.50	-	16.84	143.00	267.33	74.18	137.28	813.50	2443.60

Table 4.8 : Outputs, prices and the incomes of the beneficiaries, non-beneficiaries in the summer season Raichur Dist.

Category of the farmers	Output (Qtl.)	Prices (Rs./Qtl.)	Income* (Rs./ha.)	Marketing Cost (Rs./ha.)
(a) Beneficiaries - Improved varieties				
I	15.05	412.58	2516.63	154.18
II	16.58	434.67	3684.53	143.18
III	13.88	438.29	2284.93	118.50
IV	25.25	466.19	7320.80	91.00
Total	16.63	427.97	3470.58	139.20
(b) Nonbeneficiaries - Local varieties				
I	12.20	428.53	2363.93	191.00
II	17.63	425.73	5350.63	250.00
III	13.75	431.55	3464.38	131.25
IV	13.60	450.00	1570.00	-
Total	13.60	435.32	3104.88	187.13
(c) Beneficiaries - Local varieties				
I	13.65	448.10	2930.05	154.18
II	12.28	427.20	2385.68	143.18
III	12.93	426.89	2951.98	118.50
IV	16.16	430.28	3624.15	91.00
Total	13.20	436.04	2758.00	139.20
(d) Non-Beneficiaries - Improved Varieties				
I	-	-	-	-
II	11.75	407.66	1581.88	250.00
III	20.33	400.00	6085.00	131.25
IV	19.68	395.68	4833.75	-
Total	15.88	401.44	3519.65	187.13

* Net income is calculated without taking marketing cost into account. Marketing cost does not include the cost incurred at the market which approximately work out to be % of the gross value.

Table 4.9 : Output, prices and the net incomes of the beneficiaries and the non beneficiaries growing local varieties in the Kharif season in the Raichur district.

Category of the farmers	Beneficiaries				Non beneficiaries			
	Output	Prices	Net Income	Mkt.cost	Output	Prices	Net income	Mkt.cost
I	12.73	438.95	2068.75	154.18	6.58	342.21	439.73	191.00
II	9.00	372.53	935.93	143.18	6.25	442.50	315.25	250.00
III	18.75	450.00	790.00	118.50	17.00	409.56	3437.50	131.25
IV	17.50	480.00	1772.50	91.00	-	-	-	-
Total	11.96	423.54	1368.35	139.20	10.28	399.44	1495.78	187.13

Table 4.10 : The output of beneficiaries and the non-beneficiaries in quintals/hactare growing local and improved varieties and the analysis of variance.

Categories	Improved		Local	
	Benefi-ciaries	Non bene-ficiaries	Benefi-ciaries	Non bene-ficiaries
I	15.05	15.88	13.65	12.20
II	16.58	11.75	12.28	17.63
III	13.88	20.33	12.93	13.75
IV	25.35	19.68	16.10	13.60

Analysis of Variance

Source	Dt	Sums of	Mean S.S.	Fobserves
Varieties (Impr. Vs. Local)	1	43.4281	43.4281	3.8179
Farmers (Benifi. Vs. Non Beni.)	1	0.0625	0.0625	1
Varieties x Farmers	1	1.8496	1.8496	1
Size holding of farmers	3	50.7322	16.9107	1.4867
Error	9	102.3720	11.3747	

Table 4.11 : Distributions of the number of farmers obtaini a particular yield when the cultivar grown is improved and when the cultivar is local, in th Raichur district.

Yield Interval (Qtl./hect.)	Improved variety		$S_1(x)$	Local variety		$S_2(x)$
	Frequency	Cumulative frequency		Frequency	Cumulative frequency	
less than 6.25	0	0	0	2	2	0
6.25 - 8.75	6	6	0.1132	6	8	0.1379
8.75 - 11.25	9	15	0.2830	17	25	0.4310
11.25 - 13.75	5	20	0.3774	6	31	0.5345
13.75 - 16.25	5	25	0.4717	9	40	0.6847
16.25 - 18.75	6	31	0.5849	8	48	0.8276
18.75 - 21.25	10	41	0.7736	5	53	0.9138
More than 21.25	12	53	1.0000	5	58	1.0000
Total	53	53	-	58	58	-

$D = 0.5849 \quad 0.8276$

$$T = \frac{4 D^2 n_1 n_2}{n_1 + n_2} = 6.53$$

Table 4.12 : Output, prices and the net incomes of the beneficiaries and the non beneficiaries in the Kharif season (Kolar district).

Category of the farmers	Output Qtl./ha.	Prices Rs./Qtl.	Net Income Rs./hect.
(a) Beneficiaries	Improved varieties		
I	5.53	420.17	879.65
II	12.33	449.24	3092.10
III	11.25	451.00	2967.50
IV	16.00	500.00	3380.00
Total	10.55	451.75	2460.23
(b) Beneficiaries	Local varieties		
I	6.90	435.89	881.20
II	9.33	486.86	2385.15
III	12.50	486.78	3385.60
IV	13.13	470.23	2250.10
Total	9.58	455.81	2094.43
(c) Nonbeneficiaries - Local varieties			
I	6.60	444.91	1323.28
II	10.15	465.42	2662.53
III	7.38	485.17	1790.93
IV	8.33	487.62	1713.58
Total	8.10	468.94	1930.75

Table 4.13 : Output, prices and the net incomes of the beneficiaries and nonbeneficiaries in the summer season (Kolar district)

Category of the farmers	Output Qtl./he	Prices Rs./Qtl	Net Income Rs./he.	Output Qtl./ha.	Prices Rs./Qtl.	Net Income Rs/Qtl.
I	13.70	506.63	4565.28	10.43	522.82	3581.48
II	11.03	545.33	2525.98	13.13	571.00	2979.33
III	18.45	472.22	5524.98	13.89	571.00	4648.69
IV	14.83	523.03	3208.18	20.53	516.25	7572.10
Total	13.51	507.80	3973.05	13.89	533.63	4968.50

Table 5.1 : The Yield Potentialities of Different Improved Varieties Tried in the Different Taluks of the Raichur and Kolar Districts

(Quintals per hectare)

Variety	Taluk		Dist.	Taluk		Dist.
	Manavi	Raichur	Raichur	Bage-palli	Gouri-Bidanur	Kolar
1) JL-24	7.42 (23)	4.43 (7)	6.72 (30)	4.28 (8)	4.71 (19)	4.58 (27)
2) TMV-2	-	-	-	4.14 (15)	5.00 (2)	4.24 (17)
3) Spanish Improved	-	-	-	2.53 (1)	7.40 (2)	5.78 (3)
4) DH-302	-	-	-	-	4.20 (1)	4.20 (1)
5) S-206	8.00 (1)	7.03 (12)	7.03 (13)	-	-	-
6) DH-330	-	5.50 (5)	5.50 (5)	-	-	-

Table 5.2 : Adoption of the Recommended Seed Rate by the Beneficiaries in the Raichur and Kolar Districts

(Quintals per hectare)

Category of the farmer	Raichur		Kolar	
	Quantity		Quantity	
	Required	Used	Required	Used
I	69.42	69.42	86.94	85.41
II	113.59	112.25	74.58	74.58
III	65.74	65.74	104.56	65.74
IV	177.92	177.92	124.12	112.57
Total	107.65	107.16	95.38	92.03

Table 5.3 : Adoption of the Recommended Seed Treatment Technique by the Beneficiaries in the Raichur and Kolar Districts

S.No.	Particulars	Raichur				Kolar				Total
		Categories of farmers				Categories of farmers				
		I	II	III	IV	I	II	III	IV	
1)	No. of farmers adopting the seed treatment	7	12	1	5	2	3	4	1	35
2)	No deviating	7	8	5	4	13	14	6	2	65
	REASONS FOR DEVIATION:									
1)	Good seeds, hence no necessary	1	1	-	-	6	3	3	1	15
2)	Shortage of money	3	3	3	2	1	1	-	-	13
3)	Costly	-	-	-	-	-	5	2	-	7
4)	Reluctant	1	-	1	1	-	2	1	-	6
5)	Not convinced of the pruitile	-	-	-	-	2	1	-	-	3
6)	Too costly as it involves going to the taluk headquarters	3	3	1	1	7	-	-	-	15
7)	Lack of sufficient time	-	-	-	-	2	2	-	-	4
8)	Good seeds were not available and hence not necessary	-	1	-	-	-	-	-	1	2

Table 5.4 : Adoption of Spacing by the Beneficiaries in the Raichur and Kolar Districts

S.No.	Particulars	Raichur				Kolar				Total
		Categories of farmers				Categories of farmers				
		I	II	III	IV	I	II	III	IV	
1)	No. of farmers adopting the recommended spacing	2	2	2	1	9	12	8	2	38
2)	No deviating	12	19	4	8	11	5	2	1	62
	REASONS FOR DEVIATION:									
1)	Loss of cultivable land	12	19	4	8	11	3	1	1	59
2)	Implement not suitable	-	-	-	-	-	2	1	-	3
3)	Not convinced	-	-	-	-	-	-	-	-	-

Table 5.5 : Adoption of the Recommended Level of Irrigation by the Beneficiaries in the Raichur and Kolar Districts

S. No.	Particulars	Raichur				Kolar				Total
		Categories of farmers				Categories of farmers				
		I	II	III	IV	I	II	III	IV	
1)	No. of farmers following the recommended level	5	11	5	5	14	8	3	2	53
2)	No. of deviating	9	10	1	4	6	9	7	1	47
	REASONS FOR DEVIATION:									
1)	Lack of sufficient rains	-	-	-	-	6	-	-	-	6
2)	Lack of sufficient water	9	10	1	4	-	8	7	1	40
3)	Lack of power	-	-	-	-	-	1	-	-	1

Table 5.6 : Use of FYM/Compost by the Beneficiaries in the Raichur and Kolar Districts

Sl. No.	Particulars	Raichur				Kolar				Total
		Categories of the farmers				Categories of the farmers				
		I	II	III	IV	I	II	III	IV	
1)	No. of farmers applied:	6	11	3	5	11	5	1	0	42
	a) Quantity required CL*/ha	6.19	10.68	7.25	5.69	7.62	6.32	7.17	5.70	7.40
	b) Quantity used CL/ha	2.43	4.98	1.81	5.01	6.17	6.56	7.17	5.15	4.78
2)	No.of farmers not applying	8	10	3	4	9	12	9	3	58
	REASONS FOR NOT APPLYING:									
1)	Lack of money	1	-	-	-	8	12	-	-	21
2)	Non-availability	-	10	-	-	1	-	9	3	23
3)	Not necessary	-	-	-	-	-	-	-	-	-
4)	High cost	7	-	3	4	-	-	-	-	14

* One cart-load = 500 kgs.

Table 5.7 : Adoption of the Recommended Levels of Fertilizers by the Beneficiaries in the Raichur and Kolar Districts

S. No.	Particulars	Raichur				Kolar				Total
		Category of the farmers				Category of the farmers				
		I	II	III	IV	I	II	III	IV	
1)	Number of farmers applying fertilizers - Basic dosage	12	18	4	6	11	14	10	3	78
2)	Number of farmers applying fertilizers - Top dressing	11	18	3	8	1	2	1	3	47

(Kg. per ha)

Fertilizers	Raichur			Kolar			Average	
	Required	Used	Recommended	Required	Used	Recommended	Required	Used
1) Nitrogen	104-51	73.00	25	53.39	31.11	25	83.77	56.02
2) Phosphorous	46.32	38.53	75	74.34	58.31	75	57.57	46.47
3) Potassium	38.12	30.11	25	23.62	14.66	38	32.23	23.84

Table 5.8 : Number of Soil Samples of the Beneficiaries Fields Reported to Testing in the Raichur and Kolar Districts

S. No.	Particulars	Raichur				Kolar				Total
		Categories of farmers				Categories of farmers				
		I	II	III	IV	I	II	III	IV	
1)	Number sent for testing and got the results	5	4	-	2	2	-	-	-	13
2)	Number sent for testing and did not get the results	4	3	2	3	6	10	7	2	37
3)	Number not tested	5	14	4	4	12	7	3	1	50

Table 5.10 : Sources from Whom the Farmers Obtain the Information on the Improved Package of Practices in the Raichur and Kolar Districts

S. No.	Rank Source	Raichur				Kolar				Total
		Categories of farmers				Categories of farmers				
		I	II	III	IV	I	II	III	IV	
1)	Gram Sevak	11	19	5	7	12	10	7	2	73
2)	Other farmers	3	2	1	2	6	6	3	-	23
3)	Own experience	-	-	-	-	2	-	-	1	3
4)	Following traditional method only	-	-	-	-	-	1	-	-	1

Table 5.11 : Opinions About the Improved Varieties and Modern Improved Package of Practices

S. No.	Particulars	Raichur				Kolar				Total
		Categories of farmers				Categories of farmers				
		I	II	III	IV	I	II	III	IV	
1)	Need chemical fertilizers	9	18	5	8	2	1	-	-	43
2)	Requires more money	2	1	0	0	4	2	3	-	12
3)	Presupposes assured irrigation	-	-	-	-	3	2	1	-	6
4)	Need to be more vigilant	2	2	1	1	3	5	3	1	18
5)	Good yields are obtainable	1	-	-	-	8	6	1	2	18
6)	No effect	-	-	-	-	-	1	2	-	3

Table 5.12 : Reasons for Not Extending the Area Under Groundnut Under Improved Varieties If Found Profitable

S. No.	Particulars	Raichur				Kolar				Total
		Categories of farmers				Categories of farmers				
		I	II	III	IV	I	II	III	IV	
1)	Lack of sufficient land	8	11	2	6	14	3	1	-	45
2)	Lack of adequate irrigation	2	8	0	2	2	8	6	2	30
3)	Two crops not possible	-	1	-	-	-	-	-	-	1
4)	Lack of money	4	1	4	-	1	2	1	1	14
5)	Prefer foodgrains	-	-	-	1	3	4	2	0	10

Table 5.13 : Farmers' Opinion About the Programme in the Raichur and Kolar Districts

S. No.	Particulars	Raichur				Kolar				Total
		Categories of farmers				Categories of farmers				
		I	II	III	IV	I	II	III	IV	
1)	Saved the expenditure completely on seeds	4	8	3	5	8	6	5	-	39
2)	The amount given is not sufficient	-	-	-	-	9	3	1	-	13
3)	Low yields due to lack of attention	-	-	-	-	-	5	3	-	8
4)	Obtained good seeds for the next season	8	10	1	3	3	3	-	-	28
5)	Saved a part of expenditure on seeds	-	-	-	-	-	-	-	-	-
6)	No use	2	3	2	1	-	-	1	3	12

Table 6.1 : Farmer's Preference on the Channel of Sale of Groundnut in the Kolar District

Channel of Sale	Beneficiaries				Non-beneficiaries				Total
	Categories of Farmers								
	I	II	III	IV	I	II	III	IV	
1 Regulated Market	-	-	-	-	-	-	1	-	1
2 Farm									
(a) Millowner	11	6	5	-	2	4	3	3	34
(b) Landlord	3	-	-	-	1	-	-	-	4
(c) Mill agent	4	8	4	3	7	2	2	4	34
(d) Taluk Merchant	2	3	1	-	1	-	-	-	7
TOTAL	20	17	10	3	11	6	6	7	100

Table 6.2 : Reasons for Selling the Produce to a Particular Agency (Kolar District)

Reasons	Beneficiaries				Non-beneficiaries				Total
	Categories of Farmers								
	I	II	III	IV	I	II	III	IV	
1 Contractual Sale	5	5	-	-	2	2	2	1	19
2 Competitive price	1	3	-	-	4	1	1	-	10
3 No botherations as the buyers came to the farm	1	2	2	-	-	-	1	-	6
4 No other alternatives	1	1	-	-	-	1	-	-	3
5 Costly to sell outside	7	-	2	-	4	1	-	2	16
6 Need money badly	-	2	2	-	-	-	-	-	4
7 No other market	2	1	3	3	1	1	1	2	14
8 Earlier acquintance	-	-	-	-	-	-	-	1	1
9 If needed, Can get the loan	-	2	-	-	-	-	1	1	4
10 3+5	3	1	1	-	-	-	-	-	5
TOTAL	20	17	10	3	11	6	6	7	

Table 6.3 : Extent of post Harvest Sales in the Kolar District

Time/Period	Beneficiaries				Non-beneficiaries				Total
	Categories of Farmers								
	I	II	III	IV	I	II	III	IV	
1 Less than 15 days after the harvest	17	11	4	-	10	3	2	-	47
2 15 days to one month	3	2	4	2	1	2	-	-	14
3 More than a month	-	4	2	1	-	1	4	7	19

Table 6.4 : Reasons for Selling the Produce to a Particular Agency (Raichur District)

Reasons	Beneficiaries				Non-beneficiaries				Total
	Categories of Farmers								
	I	II	III	IV	I	II	III	IV	
1 Contractual Sales	7	12	2	4	8	3	1	2	39
2 Competitive price	6	5	3	2	2	1	4	-	23
3 No botherations as the buyers came to the farm	-	-	-	1	2	1	1	1	6
4 Earlier acquiantance	-	1	-	-	1	-	-	-	2
5 If needed, can get the loan	-	2	-	-	-	-	1	1	4
6 No other alternative	1	1	-	2	-	1	-	-	5

Table 6.4 : Extent of Post Harvest Sales in the Raichur District

Time/Period	Beneficiaries				Non-beneficiaries				Total
	Categories of Farmers								
	I	II	III	IV	I	II	III	IV	
1 Less than 15 days after the harvest	6	14	1	1	5	1	2	-	30
2 15 days to one month	5	3	3	5	4	2	3	1	26
3 More than a month	3	4	2	3	4	3	2	3	24

Table 6.5 : Pace and Pattern of Arrivals of Groundnut in the Regulated Markets of Raichur (1975-76 to 1983-84) and Chintamani (1974-75 to 1983-84).

Months	Raichur		Chintamani	
	Arrivals	Percentage to the total	Arrivals	Percentage to the total
July	53,567	1.51	4,123	3.79
August	1,61,277	4.54	3,467	3.19
September	3,81,863	10.76	4,188	3.85
October	3,72,303	10.49	7,944	7.31
November	4,68,715	13.20	16,191	14,90
December	3,15,758	8.90	24,470	22.52
January	2,30,498	6.49	17,220	15.85
February	1,15,483	3.25	10,180	9.37
March	3,63,791	10.25	7,315	6.73
April	5,99,202	16.88	4,584	4.22
May	3,73,701	10.53	4,508	4.15
June	1,13,486	3.20	4,478	4.12
TOTAL	35,49,644		1,08,665	

Table 6.6 : The Monthly Seasonal Indices of Arrivals of Groundnut for the Regulated Markets of Raichur and Chintamani

Month	Seasonal Indices	
	Chintamani	Raichur
July	12.58	44.13
August	95.48	44.43
September	117.74	46.50
October	123.08	76.51
November	142.85	193.26
December	117.79	261.51
January	93.79	198.95
February	48.95	120.83
March	128.66	76.81
April	217.72	48.42
May	65.79	43.20
June	35.36	39.45
Range of variation	205.14	228.06

Table 6.7 : Monthly Seasonal Indices of Prices of Groundnut for the Regulated Markets of Chintamani and Raichur

Month	Chintamani Period		Raichur
	I	II	
1 July	113.03	104.14	99.27
2 August	113.34	116.89	82.86
3 September	110.19	105.95	98.86
4 October	101.21	74.11	84.89
5 November	72.56	87.02	109.65
6 December	77.01	99.49	101.71
7 January	101.80	100.24	100.95
8 February	100.39	107.52	99.01
9 March	99.35	104.71	102.28
10 April	103.29	102.35	108.04
11 May	102.56	93.25	111.05
12 June	105.27	104.36	102.04
Range of Variation	40.78	42.78	28.19

Table 6.8 : Results of the Harmonic Analysis

Particulars	Chintamani		-Raichur	
	Arrivals	Price*	Arrivals	Price
1 Y_o	100	100	100	100
2 A	-90.5088(5.21)	5.3899(292)	-29.6237(1.68)	4.9058(1.77)
3 B	-12.3963(0.71)	-2.7122(1.47)	-43.1045(2.45)	-5.2740(1.71)
4 R^2	0.7542	0.1745	0.4945	0.4295
5 Amplitude	91.3538	6.0334	2735.5615	51.8820
6 K	4.5048*	0.9840	2.9834*	3.1417*
7 Period(Months)	12	12	6	6
8 $Tan^{-1}(B/A)$	7.7988	-26.7031	-55.5011	47.0715
9 Elasticity	15.1413		7.2610	

* Refers to Period 11 (Figures in the brackets refer to 't' values)

Table 6.9 : Estimates of the linear regression between farm Harvest Price and the Regulated Market Price

Market/Area	A	K	t_A	t_K	Correlation Coefficient
(a) Original Variables					
1 Chintamani	0.2637	0.8609	14.72**	21.48**	0.9875
2 Raichur	0.4438	0.8884	1.84	1.29	0.9681
(b) Logarimic Values					
1 Chintamani	0.1024	0.8770	1.84	2.23*	0.9811
2 Raichur	0.2315	0.8225	2.69*	2.04*	0.9632.

't' $_A$ Values test for the significant difference between zero and A

't' $_K$ Values test for the significant difference between unity and K.