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ABSTRACTS OF M. Sc. THESES

Janakaraj, P.D. 1987. An Evaluation of the Performance of the Cooperative Tea Factories in Nilgiris District. Tamil Nadu. University of Agricultural Sciences, Bangalore. *Major Advisor* : K.G. Mallikarjunaiah.

This study was undertaken with the overall objective of evaluating the growth of the co-operative tea factories as well as the cost of tea processing in the Nilgiris district of Tamil Nadu.

The exponential growth function was used to study the growth of the factories which indicated that these factories had been growing steadily by enrolling new members, covering larger area and ultimately helping the small growers to receive higher prices for the sale of green tea leaves.

The 12 factories were classified into 5 groups to study the business performance based on cluster analysis. The I group factories had performed well in their business activities followed by the II group factories. These factories had sound solvency, liquidity, profitability and turnover ratios. The performance of the IV group factories was satisfactory. But the III and V group factories had a poor performance as indicated by the ratio analysis.

To study the processing costs, these factories were again regrouped into 3 based on capacity utilization. The analysis indicated that I group factories had the lowest processing cost per kg of made tea (Rs. 23.96) followed by the II group factories (Rs. 24.35). The III group factories had the highest processing cost (Rs. 25.04). Material cost formed 72 to 78% of the total cost of processing for all the 3 groups of factories.

The break even price of green leaf was Rs. 4.98, Rs. 4.90 and Rs. 3.64 for the I, II and III group of factories, respectively. It was also observed that if the III group factories were to increase their out turn to 26%, sale price to Rs. 24.12 and increase the capacity utilisation to 75%, the rate that could be paid would be Rs. 4.80 as against the present rate of Rs. 4.43. This would enable the III group factories to avoid the losses and be at par with the performance of the I and II group factories.

Reddy, K. Suryachandra. 1987. Comparative Economic Analysis of Janata and KVIC Biogas Plants in Anantapur District, Andhra Pradesh. University of Agricultural Sciences, Bangalore. *Major Advisor* : C. Nanja Reddy.

The main objective of this study was to assess the comparative economic performance of Janata and KVIC biogas plants in Anantapur district of Andhra Pradesh.

An attempt was also made to know the socio-economic background of the adopters as well as sources of investment finance for adoption of both the types of plants.

The relevant data were collected from 70 adopters and 30 non-adopters for the year 1984-85 covering Hindupur and Penukonda blocks of Anantapur district. The discounted cash flow techniques like B : C ratio, NPW and IRR were used to assess the economic feasibility of the investment on these plants.

The major findings of the study were that the actual installation costs of 4 and 6 cu. m Janata plants were lower than that of similar sizes of KVIC type. The energy rates generated by Janata plants were competitive to firewood while the energy rates of KVIC plants were competitive to kerosene and dung cake. Discounted cash-flow measures indicated that the Janata plants were more profitable and performing better than the KVIC plants. The criterion of pay back period revealed that the investment in Janata plants can be recovered earlier than that of KVIC plants.

Incidentally the study noted that the adopters of biogas plants were relatively more affluent than the non-adopters. Majority of the adopters borrowed the funds from commercial banks for the installation of biogas plants. Majority of the adopters opined that comfort in cooking, scarcity of fuel and availability of subsidy were main reasons for the adoption. High cost of installation, non-availability of sufficient fuel and non-availability of space for construction were some of the reasons for non-adoption. Majority of adopters were happy about the performance of the Janata biogas plants.

Dinesh, K. 1987. A Study on the Performance of State Warehouses in Karnataka and Storage Utilization Pattern in the Central Warehouse, Bangalore. University of Agricultural Sciences, Bangalore. *Major Advisor* : K.G. Mallikarjunaiah.

The present study was undertaken with the objectives of assessing the progress and performance, analysing the storage utilization pattern and finding out the reasons for the poor utilization of the Karnataka State Warehousing Corporation (KSWC), Bangalore.

Mainly secondary data were collected from KSWC and the Central Warehouse, Bangalore. Along with tabular analysis, growth rates to understand the progress and performance of KSWC were calculated using the exponential growth function. Time series analysis was done for the Central Warehouse, Bangalore to know the seasonality of storage. An opinion survey to know the reasons for poor utilisation of the warehouse by farmers was conducted among 30 randomly selected farmers using the nearby regulated market.

The financial viability of KSWC has substantially gone up from the profit level of Rs. 2.87 lakhs in 1971-72 to Rs. 31.32 lakh in 1981-82. Capacity utilization rose at the rate of 8 per cent per annum. The percentage of warehouse utilisation by farmers has dwindled down to a negligible 5.5 during 1981-82. Regarding the commodity-wise utilization of warehouses, it is seen that the share of food grains has gradually declined over the years. Agricultural inputs, namely, fertilizers have constantly improved their share of utilization over the years and now occupy 68.85%.

In the Central Warehouse, Bangalore, the occupancy reaches a maximum in March after steadily increasing from October. It is the lowest in April. The public sector account for 60 per cent of the total storage. Merchants come next with 28 per cent and co-operatives 12 per cent. The commodity-wise analysis of storage pattern expressed as percentage of total storage is as follows : fertilizers 56.79, cereals 13.94, pulses 3.88, spices 1.90, oilseeds 1.00 and other commodities 22.49.

The opinion survey conducted to know the reasons for poor utilization of warehouse by farmers showed that the main reasons were ignorance of the farmers of the ware-housing facilities, inadequacy of marketable surplus, availability of alternative storage facilities and uncertainty of better prices after storage.

Vijayakumar, D. 1987. Impact of Integrated Rural Development Programme on Income and Employment in Koratagere Taluk, Tumkur District, Karnataka. University of Agricultural Sciences, Bangalore. *Major Advisor* : J.V. Venkataram.

The present study was undertaken to examine the impact of Integrated Rural Development Programme (IRDP) assistance on income, employment, consumption expenditure, credit utilisation and repayment performance of beneficiaries in Koratagere taluk, Tumkur District. Necessary data were collected from 75 beneficiaries and 50 non-beneficiaries who were post-stratified into small farmers, marginal farmers, agricultural labourers and others. Tabular, average and percentage analyses were employed to study the data and multiple linear regression functions were fitted to analyse socio-economic factors influencing household income and overdues.

Results of the study indicated that the beneficiaries realised additional income of Rs. 436. However, the total family income rose from Rs. 1803.20 to Rs. 3516.60. But only 8 beneficiaries, forming 11 per cent, could get total income of Rs. 3500 and above to cross the poverty line. The IRDP activities financed and undertaken by sample farmers were she-buffaloes, dairy cow, bullocks, bullock cart and sheep-rearing. Majority of the beneficiaries expressed the desire to have

dairy animals which provide higher income than other activities. These activities created 23.75 per cent of total employment among beneficiaries. The total employment was 302 mandays for beneficiaries while it was 221 mandays among non-beneficiaries. The results also revealed that beneficiaries incurred higher consumption expenditure (Rs. 2011) compared to non-beneficiaries (Rs. 1796). Further, as high as 61 per cent of the beneficiaries partially utilised the credit, while 32 per cent fully utilised, and the remaining 7 per cent had fully mis-utilised the credit. The mis-utilisation of credit could be one of the reasons for realisation of low income by the beneficiaries. The recovery percentage was 52 per cent.

Regression analysis results indicated that none of the factors included in the function were significantly influencing overdues and thus indicated the willful default as the main reason for non-repayment of loans. Majority of the beneficiaries expressed their satisfaction about the performance with respect to benefits realised, quality of assets, subsidy, mode of purchase and quantum of loan.

Thus it can be concluded that the beneficiaries of IRDP in Koratagere taluk had higher income, employment and consumption expenditure than non-beneficiaries. However, in view of lesser number of beneficiaries crossing the poverty line and lower additional income, efforts should be made to provide larger amount of financial assistance for more number of activities which could assure continuous income and gainful employment.

Shivananda, 1987. Temporal and Spatial Variations in Fertilizer Use—A District-wise Study in Karnataka. University of Agricultural Sciences, Bangalore. *Major Advisor* : S. Bisaliah.

The study was undertaken to analyse the temporal and spatial variations in fertilizer use in the state of Karnataka during the period 1962-63 to 1983-84. The specific objectives of the study were : (1) to study the growth of per hectare fertilizer use in different districts of Karnataka, (2) to examine the extent of inter-district variations in fertilizer use and (3) to analyse the factors influencing fertilizer use.

The study was based on secondary data collected from several sources. The major techniques used in the analysis include growth functions, rank correlation, co-efficient of variation, index of inequality, cluster analysis, regression analysis, growth decomposition analysis and discriminant analysis.

The important results of the study are as follows :

- (1) Most of the districts with low fertilizer consumption in the base period

had registered comparatively high growth rates as compared to lower growth rates experienced by 'high based' districts. However, there was not much change in the relative positions of districts in respect of their fertilizer use status over the period of study.

(2) The inter-district disparities in per hectare fertilizer use showed the tendency of narrowing down over the years.

(3) High rates of fertilizer consumption were mainly concentrated in the districts with larger area under irrigation and HYVs. Irrigation and HYVs were the major factors explaining the variations in fertilizer use during the study period with the contribution of 59 per cent and 34 per cent, respectively.

(4) Contribution of average annual rainfall in determining the overall levels of fertilizer use in the past was only marginal.

(5) Trend variable representing extension of knowledge, technical know-how and quantitative changes in input use has provided fillip to growth in fertilizer use.

(6) The role of relative price in explaining increased per hectare fertilizer use during the study period is negated. Inelastic price demand for fertilizer was observed. Fertilizer consumption was more responsive to changes in crop prices than fertilizer prices.

Murthy, D. Sreenivasa. 1987 Effects of Mechanical and Biochemical Innovations on Functional Income Distribution and Employment in Dry-Land Agriculture : A Study in Bangalore District, Karnataka. University of Agricultural Sciences, Bangalore. *Major Advisor* : S. Bisaliah.

In agriculture, mechanical and biochemical innovations are of prime importance for accelerating the economic development of a country. The present study was to investigate effects of these technological innovations on functional income distribution and employment in dryland agriculture.

The data were collected from 88 sample farmers in Bangalore district comprising 24 bullock operated local variety ragi growing farms (BLV), 25 bullock operated improved variety ragi growing farms (BIV), 14 tractor operated local variety ragi growing farms (TLV) and 25 tractor operated improved variety ragi growing farms (TIV). The major findings are as follows :

On an average tractor farms used relatively higher doses of material inputs per hectare than bullock farms. But the difference was statistically significant only for chemical fertilizer (126 per cent). It was also true in BIV and TIV farms over

corresponding BLV and TLV farms. Average yield (per hectare) was 40 per cent higher on tractor farms than on bullock farms. BIV and TIV farms had also produced higher yields over corresponding BLV and TLV farms.

Tractor farms had incurred about 57 per cent higher cost of production per hectare than bullock farms. BIV and TIV farms had also incurred higher costs over corresponding BLV and TLV farms.

Tractor farms realised higher gross returns (Rs. 3032) per hectare than bullock farms. BIV and TIV farms also realised higher gross returns over corresponding BLV and TLV farms. However net returns realised were higher on bullock farms than on tractor farms.

Analysis of production function estimates suggests Hicks-neutral technical change, indicating that introduction of new technology has not altered the functional income distribution, i.e., the functional income distribution effects with respect to almost all inputs were neutral. It was observed that actual factor shares almost approximated estimated factor shares. Almost all the inputs stand to increase their absolute factor shares under new technology.

There was no variation in per hectare human labour employment between bullock and tractor farms. However, BIV farms had employed 20 per cent higher human labour than BLV farms. Bullock farms employed significantly higher bullock labour than tractor farms. This was also true in BIV and TIV farms over corresponding BLV and TLV farms. The total change (179 man hours) in labour input as between bullock and tractor farms was decomposed into various technological effects—tractor ploughing, variety, mechanical threshing and interaction effects.

Pergade, H. Satish, 1987. Economics of Rice Based Cropping System in Different Land Situations of Dakshina Kannada. University of Agricultural Sciences, Bangalore. *Major Advisor* : G.S. Chandrasekhar.

The study was conducted in the up land, mid land and low land situation in Bantwal taluk of Dakshina Kannada. The economics of cultivation and the average production of resources used were studied. Further, the gaps in yields were identified along with the causes for the same.

The analysis of costs revealed a wide divergence between the situations but in general the cost of cultivation was higher in the HYV's. In the upland situations, the farmers incurred an average cost of Rs. 1,223.42 per acre for local varieties and Rs. 1,457.07 per acre for HYV's. Unlike the earlier case, in the mid land areas, two

crops of paddy are taken. The costs were higher during the *rabi* season both for local and HYV's at Rs. 1, 277.65 and Rs. 1,618.87, respectively. In the low land situations three crops were being taken, where the costs during the *kharif* season was similar to the other situation. However, the highest cost was incurred by the HYV's during the summer season at Rs. 1716 per ha.

The productivity of resources was studied through a Cobb-Douglas production function. The results indicated that increasing the scale of operation would improve the profitability of farming; labour however was excessively used and there was possibility of increasing profits further by the increased use of fertilizers and seeds.

Yield gap analysis was done to assess the gaps in yield on the farmers field. The results revealed that that average farmer was producing only 69.33% of the production achieved by the best in his peer group. However, the progressive farmers' yield gap was a meagre 17.73% and the demonstration plots too were yielding about 87% of the potential which speaks highly of the performance of the varieties under field conditions.

Meena, J.S., 1987. An Economic Analysis of Constraints in Gram and Wheat Production in Sawai Madhopur District of Rajasthan. Indian Agricultural Research Institute, New Delhi *Major Advisor* : B.M. Sharma.

The introduction of advanced technology brought improvements in crop productivity but there is still a wide gap between potential and average farm yields. So there is a need to identify the factors responsible for this yield variation. The present study is an attempt to examine the constraints in gram and wheat production in Sawai Madhopur district of Rajasthan.

A sample of 80 farmers (small 35, medium 25, large 20) were randomly selected for this study. Tabular and regression analysis were used for economic analysis in the study. Tabular analysis was used to ascertain the yield gap whereas regression analysis was carried out to find the growth rate constraint in wheat and gram production. The Cobb-Douglas type of production function was fitted to the data.

The growth rate of area, production and productivity of gram were found to be negative in pre-green revolution period whereas the growth rate of productivity was positive in the post-green revolution period and the growth rate of area and production were negative. Wheat crop showed negative growth rate in pre-green revolution period but situation was just reverse in post-green revolution period where area, production and productivity showed the positive growth rate.

The yield gaps estimated in gram and wheat for Sawai Madhopur district of

Rajasthan were 539.13 kg/ha and 1272.95 kg/ha, respectively. In case of wheat, the yield gap increased with the increase in the size of holding.

Tabular as well as regression analysis revealed that in case of wheat crop the working capital, manures and fertilizer, number of irrigations, high yielding varieties of seeds were the major constraints on all categories of farms. In case of gram crop, working capital, seed variety, time of sowing and plant protection measures were found to be the major constraints to gram production. Thus, there is lot of scope to increase the productivity by removing these constraints faced by the different categories of farmers.

Chandra, Naresh. 1987. Impact of Technological Change on Resource Use, Productivity and Functional Income Distribution on Tribal Farms of 'Ratu' Block in Ranchi District (Bihar). Indian Agricultural Research Institute, New Delhi.
Major Advisor : R.P. Singh.

The objectives of the present study were (i) to estimate the existing pattern of resource use, productivity and profitability of farms with local and HYV paddy, (ii) to estimate the input-output relationship and examine the allocative efficiency of farm inputs for local and HYV paddy separately and (iii) to study the effect of technological change on functional income distribution in paddy production.

Production function analysis and computation of relative and absolute factor shares were undertaken to deal with the above objectives.

The results revealed that the area under study was dominated by smaller size group of farms with uneven distribution of land. Use of per hectare human labour, bullock labour and capital investment was found to be more on adopter farms.

The study of costs and returns from the farm as a whole revealed that the shares of all the variable inputs except that of seed in total cost of cultivation per hectare on adopter farms were more than that on non-adopter farms. Both, total cost and farm income per hectare, were found to be more on adopter farms as compared to non-adopter farms. On non-adopter group, the per hectare total cost of local paddy cultivation decreased with the increase in farm size, while reverse was the case of non-adopter group. The farm income from local variety of paddy varied inversely with the size of farm on both adopter and non-adopter groups. On an average, the per hectare cost of cultivation as well as return from HYV paddy was much higher than that of local varieties of paddy. The per hectare cost of cultivation of HYV paddy was found to increase with the increase in farm size, whereas a reverse trend was observed in case of farm income.

The investigation of the efficiency of farm inputs indicated under-utilization of land for both the varieties of paddy on both the categories of farms. Furthermore, bullock labour was found to be under-utilized on the adopter farms in the cultivation of both local and HYV paddy. The economic efficiency index revealed that there was a scope to increase the productivity of HYV paddy by nearly 26 per cent through reallocation of resources. The adopter farmers, however, were found to be efficient in utilizing their resources in the cultivation of local varieties of paddy.

The study of effect of technological change on functional income distribution in paddy production revealed that the effect of new seed technology was biased in favour of labour and against capital but was neutral to the use of land. This went to conclude that the new seed technology in paddy production would reduce the disparity of personal income distribution in the area under study.

Bage, Basant. 1987. Economic Analysis of Upland Rice and Kharif Pulse Production in Gumla District of Bihar. Indian Agricultural Research Institute, New Delhi
Major Advisor : R.K. Pandey.

Gumla district in Bihar state falls under rainfed and dryland area. In the district rice, millets, few pulses and oilseeds are grown mainly in the rainy season. The present study was, therefore, undertaken in a predominantly upland rice and *kharif* pulse farming region in Gumla district of Bihar.

The study was conducted in Basia development block in Gumla district. It utilised primary as well as secondary data. The primary data were collected from 100 randomly selected farmers from four villages in the selected Block. The farmers under study were classified into three categories, namely small, medium and large on the basis of their size of holding. The data used for the study pertained to the agricultural year 1985-86.

The time series data on area, production and productivity for rice and major *kharif* pulse crops, namely, arhar, urad, mung and kulthi for the period from 1960-61 to 1984-85 were collected from the secondary sources for Bihar state and Ranchi district. Since Gumla district which has recently been set up, was the part of Ranchi district, it was assumed that the trends of growth of the crops and the related variables for Ranchi district would be true for Gumla district as well.

To study the growth-rates of area, production and productivity, the entire analysis was divided into two periods, namely, (i) pre-green revolution period from 1960-61 to 1966-67, and (ii) post-green revolution period from 1967-68 to 1984-85. The production of rice and *kharif* pulse crops fluctuated widely in Bihar state as well

as in Ranchi district. In the post-green revolution period the growth rates of production and productivity were positive while the area under the crops had shown negative growth rates in Ranchi district. The increase in productivity of the crops was mainly because of the use of improved production technology.

Tabular analysis based on the weighted means and percentages was used to compare the costs, returns and constraints in achieving high yields of up-land rice and *kharif* pulse crops. Production function analysis was used to compare the productivity of different farm inputs among different size of farms and to examine the allocative efficiency. The study revealed that the average size of holding varied from 1.22 hectares on the small farms to 4.67 hectares on the large farms, with an overall average of 2.72 hectares indicating that the sample villages were dominated by the medium farms. There was an uneven distribution of land in the study area.

The size of family as well as family workers per farm increased with the increase in the size of holding, while the number of family workers per hectare tended to decline with the increase in farm size.

The study of costs and incomes for the farm as a whole revealed that small farmers had highest total cost of cultivation (Cost C) and net farm incomes per hectare cultivated area, mainly because of substitution of their own resources.

The Cobb-Douglas production function expressing the total yield as a function of different inputs were estimated separately for the different categories of farms. The selected crops for this purpose were upland rice, arhar, urad, mung and kulthi. The coefficients of human labour and fertilizer input were significant on almost all the three categories of farms with the exception of human labour on large farms. The production function for all the categories exhibited decreasing returns to scale. By working out the allocative efficiency of each individual input, it was noticed that the farmers were not using the resources at the optimal level. There existed substantial scope to increase the crop productivity on large farms by allocating the existing resources at the optimal level, but the scope for increasing the crop productivity on small and medium sized farms was less, unless the reallocation of resources was made with borrowed capital.

The poor topography, non-adoption of high yielding varieties and chemical fertilizers were the major constraints in increasing upland rice and *kharif* pulse yields in the study area.

Atheeq, L.K. 1988. Optimum Land Use Pattern in Kabbalanala Watershed in Bangalore District, Karnataka. University of Agricultural Sciences, Bangalore. *Major Advisor* : J.V. Venkataram.

The relative scarcity of land as a productive resource and the ever increasing demand for food, fodder and fuel call for judicious use of land through proper management ensuring its optimum utilization. This study was taken up with the primary objective of determining optimum land use pattern for small and large farmers in the Kabbalanala watershed project of Bangalore District, and was based on the primary data pertaining to the year 1987-88 collected from 54 small and 46 large farmers.

Linear programming technique was used to develop optimum farm plans under limited capital, relaxed capital and improved technology situations. A total of 6 models, 3 each for small and large farmers were designed to accomplish the objective.

The major findings of the study were that both large and small farmers were using resources at less than optimum level and rational reorganisation of resources would increase the net incomes by 18 per cent for small and 17 per cent for large farmers over the income of existing plan.

The scarcity of capital constrained better use of land. Short term loan facility of Rs. 487.28 for small farmers and Rs. 1216.88 for large farmers would increase the net incomes by 44 per cent for small and 40 per cent for large farmers over the existing plan.

Adoption of improved technology and better crop alternatives with the available capital would increase income by 62 per cent and 44 per cent for small and large farmers, respectively.

Labour employment increased with increase in capital availability, thus showing a complementary relationship between capital use and labour employment.

The results of shadow prices indicated that marginal productivity of land increased with increase in capital availability and that of both land and capital increased with the adoption of improved technology. The shadow price of land for small farmers was higher than that for large farmers thus implying that under land reforms land needs to be redistributed in favour of small farmers.

Jayaram, H., 1988. An Analysis of Yield Gap in Paddy and Ragi (Irrigated) in Mandya District. University of Agricultural Sciences, Bangalore. *Major Advisor* : G.S. Chandrasekhar.

Agriculture, in India, has made a significant headway in the last one and half decades because of new agricultural technology. Unfortunately, the fruits of technology are not even. Consequently, there is a significant gap in the levels of agricultural production and productivity between traditional and modernised sectors. Hence, there is an imperative need to bridge this gap.

A study was conducted in Mandya district during 1986-87 to identify and quantify the yield gaps in paddy and ragi; to identify the major biological and socio-economic constraints in achieving higher yields; and to measure the technical efficiency in paddy and ragi production.

Data were collected from V.C. Farm, Regional Research Station, Mandya, State Department of Agriculture and farmers. The data was analysed using modified Cobb-Douglas production functions and the Kopp and Timmer measures of technical efficiency.

The results showed that, the yield gap-I, between research station yield and potential farm yield was 1.28 qtl/ha in case of paddy and 5.55 qtl/ha in case of ragi. Yield gap-II, between potential farm yield and the farmers' average yield was 5.99 qtl/ha in case of paddy and 4.84 qtl/ha in case of ragi.

The major biological and socio-economic factors that influence the potential yield realisation were seeds, FYM, fertilizers, plant protection chemicals, labour, age, education level and institutional participation. Labour was observed to be the most limiting resource.

The farmers achieved higher levels of output efficiency in growing paddy and ragi. With regard to resource use efficiency, large farmers were more efficient than small farmers, especially in the production of paddy. Among large farmers the over-use of resources was upto the extent of 17 per cent and 38 per cent in case of paddy and ragi, respectively. But small farmers revealed a greater degree of inefficiency in resource use in paddy and ragi cultivation, than large farmers. They tended to over-use the resources to the tune of 30 per cent in case of paddy and 47 per cent in case of ragi.

Yeshitila Teferra, W.Y., 1988. Economic Performance of Private, Collective and State Farms in Ethiopia : A Study in Arssi Region. University of Agricultural Sciences, Bangalore. *Major Advisor* : S. Bisaliah.

The significance of the agriculture sector to national development endeavour vis-a-vis the policy perspectives governing it prompted an empirical investigation of the economic performance of private, collective and State farms in Ethiopia. The study was conducted in the highland region of Arssi-Hetosa 'Woreda'. Data were collected for the 1986-87 crop year from 90 private small holder farmers, 23 collectives and 6 State farms. The analytical techniques used include production function analysis, discriminant analysis, Kruskal-Wallis constraint analysis and variance analysis.

The results of the study revealed that, on the average, the per hectare gross return for State farms was higher, Br. 993.67*, compared with Br. 575.57 and Br. 762.10 for collectives and private farms, respectively. The total cost per hectare was Br. 1272.95 for the State farms, followed by Br. 490.52 for the collectives and Br. 476.83 for the private farms. The gross profit per hectare was Br. 285.27 for private farms and Br. 85.05 for collectives while a loss per hectare of Br. 279.28 was registered for the State farms.

Allocative efficiency measures suggested the existence of under-use in the case of power, fertilizer and seed inputs, and over-use of labour in the private farms, while power was over-used in the collectives. The technical efficiency scores for private farms and collectives were at least 76 per cent and 88 per cent, respectively.

The total productivity differential in gross return per hectare as between private and collective management was about 26 per cent higher in favour of private farms. A 12 per cent negative input use effect was offset by a 38 per cent organizational/technical factor effect under private farms.

Small holder private farms were the most constrained compared to collectives and State farms in respect of the aggregated as well as the individual constraints such as input constraints, credit constraints, etc.,

By and large, private management has registered a relatively better economic performance over collectives and State farms. However, the performance of the collectives, though not markedly high, was superior to that of State farms.

*US \$ 1 = Br. 2.07.

Parameswarappa, K.J., 1988. Pattern of Income, Investment and Employment in Irrigated Farms of Hoskote Taluk, Bangalore Rural District. University of Agricultural Sciences, Bangalore. *Major Advisor* : R. Ramanna.

The study was undertaken in Hoskote taluk of Bangalore rural district with the objective of analysing the pattern of income, investment and employment on irrigated farms.

For analytical purpose sample farms were classified into low, medium and high irrigation intensity categories and further sub classified into small and large size groups. Data were analysed using production function analysis.

Total farm family income was mainly influenced by holding size and irrigation intensity. Regarding its composition, share of crop income was more than 50 per cent and showed direct relationship with the holding size and irrigation intensity whereas income from other sources showed inverse relationship.

Total investment was mainly influenced by holding size, irrigation intensity and income. To some extent investment during the reference year was also influenced by earlier investment. During the reference year small and large farmers invested about 11 per cent and 15 per cent of their total money available for expenditure, respectively. Total investment showed direct relationship with the holding size and irrigation intensity. But on per hectare basis it was more on small farms. On an average, more than 50 per cent of the farm investment was on irrigation structures followed by livestock. This brought out the importance given by the farmers towards creating on-farm irrigation infrastructure.

Average number of mandays employed per farm for crop enterprise increased with the holding size and irrigation intensity. However, on per hectare basis reverse trend was observed with respect to holding size. On an average the contribution of family labour was 69 per cent on small farms and 40 per cent on large farms. In absolute terms the use of family labour showed direct relationship with the holding size and irrigation intensity, but its proportion decreased with the holding size and irrigation intensity.

Prabhakara, Y.S., 1988. An Economic Analysis of Silk Cocoon Marketing in Karnataka. University of Agricultural Sciences, Bangalore. *Major Advisor* : N.S.P. Rebello.

Karnataka state which continues to make a dominant contribution to silk cocoon production, revamped and strengthened the marketing system in Karnataka during the 1970's to correct certain malpractices. The study attempts to analyse various economic aspects of silk cocoon marketing in Karnataka using data from two prominent cocoon markets at Ramanagaram and Vijayapura in Bangalore

district. Main objective was to analyse the cyclical behaviour of arrivals and prices of silk cocoons. The study pertained to the period 1974-85. The harmonic model employed constituted a six month cycle which was not found to be significant.

There was evidence of seasonal fluctuations in arrivals in Ramanagaram market. The arrivals reached the peak in March, followed with a rise in the months of September through November and the trough was in May. Prices were generally depressed during September-November. Similar behaviour was observed in Vijayapura too. The response of arrivals to prices was more pronounced at Vijayapura than at Ramanagaram, as revealed by the coefficients of shortrun price elasticities. This is perhaps due to the dominant influence of the latter.

An instability coefficient of about 8 per cent indicates general stability in producers' price. However, Vijayapura had a marginal edge over Ramanagaram in price stability.

These two markets were spatially integrated, which implied that the prices are closely coordinated and thereby efficient. There appears to be a perfect transmission of price from the silk yarn market to the cocoon market as this elasticity was not significantly different from 1.

There is strong evidence to indicate that the regulatory measures have resulted in improving the efficiency of silk cocoon markets as indicated by the markets studied.

Reddy, Y. Sudhakar, 1988. Economic Analysis of Sunflower *Versus* Groundnut Production Under Rainfed Conditions in Kurnool District, Andhra Pradesh. University of Agricultural Sciences, Bangalore, *Major Advisor*: C. Nanja Reddy.

The main objectives of the present study were to compare the economics of sunflower production with groundnut production and to assess the resource productivity in these two crops in Kurnool district of Andhra Pradesh. The relevant data pertaining to the year 1986-87 *hhurif* were collected from 60 sample farmers.

The major findings of the study showed that the per acre average cost of sunflower cultivation was lower at Rs. 817.45 for small, Rs. 1050.17 for large farmers as compared to Rs. 1127.32 for small and Rs. 1278.41 for large farmers in groundnut cultivation. The higher total cost of cultivation in the groundnut was mainly on account of greater input costs. The average net return per acre of sunflower was greater in both the size groups (Rs. 755.16 for small and Rs. 1072.34 for large farmers) as compared to groundnut (Rs. 587.81 and Rs. 685.50). The coefficient of variation indicated that yield variability was greater in groundnut at 25 per cent as compared to 18.60 per cent in sunflower.

Production function analysis revealed that seed, labour and fertilizers were the significant contributors to the production of sunflower and groundnut in both the size groups. The ratio of MVP to MFC of the resources were greater than unity which indicated the greater potentiality to realise higher yields through increased use of resources in both the crops. Further, relatively higher ratios in sunflower than in groundnut revealed that farmers would be better placed by shifting resources (particularly seed and fertilizer) from groundnut to sunflower to a limited extent.

The major constraints in the production of sunflower were non-availability of good quality seeds, high cost of fertilizers, credit inadequacy and lack of technical guidance. The important problems faced by the respondents in marketing of sunflower were delay in cash payment, improper grading and weighment, high commission charges and distress selling.

The study indicated that sunflower enterprise was more remunerative than groundnut enterprise under rainfed conditions.

Alankaram, V., 1988. An Economic Evaluation of Investment in Dairy Enterprise in Bangalore North Taluk, Karnataka. University of Agricultural Sciences, Bangalore. *Major Advisor* : J V. Venkataram

The present study was undertaken with the overall objective of examining the economic feasibility of investment in dairy enterprise and to study the impact of dairy on employment opportunities with special emphasis on women labour. The data were collected for 1984-85 agricultural year from 75 sample respondents who were classified into landless, marginal, small, medium and large farmers, based on the size of land holding.

The results indicated that the sample farmers' dairy consisted of atleast one of local cows, crossbred cows and buffaloes categories. It was found that the establishment costs and maintenance costs increased with the increase in size of land holding for all categories of milch animals. The net returns ranged between Rs. 772.38 to Rs. 1870.58 from local cow and Rs. 2153.25 to Rs. 3018.75 from buffaloes which increased with decrease in size of land holding. But, in case of crossbred cows, the net returns increased with increase in size of land holding with a range from Rs. 5498.63 to Rs. 6625.13.

The investment evaluation criteria such as NPV, B : C and IRR indicated that the investment in crossbred cows was financially sound and economically feasible among all categories of farmers while the investment in local cows was financially sound and economically feasible only among marginal and small farmers and the investment in buffaloes was economically feasible and financially sound among landless, marginal, small and medium farmers. The dairy enterprise has strong potential for family women labour employment among low land based farmers contributing to 50 per cent of total mandays employed in dairy.

The investment evaluation criteria indicated that the crossbred cows in particular have better prospects for popularisation and investment than local cows and buffaloes.

Shashikumara, H.S., 1988. Economics of Production and Marketing of Rainfed Potato in Hassan Taluk, Karnataka. University of Agricultural Sciences, Bangalore.
Major Advisor : C. Nanja Reddy.

Potato is an important rainfed vegetable crop in Hassan taluk and ragi is a competing crop. A study was undertaken to inquire into the comparative economics of the production of potato and ragi crops and also economics of potato marketing in this region. The relevant data was collected from 90 farmers and 61 market intermediaries.

The total cost of cultivation of potato and ragi worked out to Rs. 2,915 and Rs. 843 per acre, respectively. In potato production, seed, manures and fertilizers and labour charges together accounted for 91 per cent of the total cultivation cost. Whereas in ragi production, charges of human and bullock labour and manures and fertilizers were the major items (85 per cent). The net return obtained from potato and ragi per acre were Rs. 2,288 and Rs. 453, respectively. Thus, net return obtained per acre in potato was 5 times more than that of ragi.

Production function analysis for potato showed that seed and FYM were the major factors which contributed significantly to the production and analysis for ragi showed that land, FYM and fertilizer were the major contributing factors. Production function analysis clearly showed that there were possibilities for reallocating resources like FYM, fertilizer and land and also suggested withdrawal of certain resources.

The analysis of marketing channels indicated four important channels involving village level traders, commission agents, wholesalers, retailers, trader-cum-retailers and cart vendors. The price spread analysis showed that producers realised only 51 to 36 per cent of the consumer rupee in different channels.

It was observed that potato producers were facing numerous problems with regard to the availability of inputs, credit, storage and marketing. It was also observed that they were not following the recommended package of practices. So it is imperative to educate the farmers to follow modern practices through proper extension activities. Cooperative efforts should be encouraged for the supply of inputs and also marketing the produce. Necessary policy measures should also be taken to increase the producer's share in consumer's rupee.

Chandrashekhar, K., 1988. Comparative Study of Economics of Sunflower with Groundnut in Hiriyur Taluk, Chitradurga District. University of Agricultural Sciences, Bangalore. *Major Advisor* : R. Ramanna.

The main objectives of the present study were to compare the economics of sunflower with that of groundnut production and to assess the resource productivity in these two crops in Hiriyur Taluk, Chitradurga District, Karnataka State. The relevant data pertaining to the year 1986-87 *kharif* was collected from 120 sample farmers. Tabular analysis and Cobb-Douglas production function were employed to realise the objectives.

The major findings of the study showed that on an average pooled sample farmers incurred a total cost of Rs. 1,545 per hectare in case of sunflower and Rs. 2,510 per hectare in case of groundnut production. The same trend was observed in small and large farmer categories also. The increased total cost of groundnut production as compared to that of sunflower was due to higher cost of seeds and labour. However, the cost of both sunflower and groundnut production has increased with the size of holding. All the categories of farmers used less than the recommended quantity of inputs like seeds, fertilizers and farm yard manure in case of both the crops.

The low level input application by the farmers indicated the ignorance of the farmers regarding recommended packages and it is reflected by the low level of both sunflower and groundnut yields. However, owing to the higher cost of production, the net returns in case of groundnut were (Rs. 1,064 per hectare) lower than that of sunflower (Rs. 1,854 per hectare). The same trend was observed in small and large farmer categories also.

Production function analysis revealed that seed and plant nutrients were contributing significantly towards yield in both sunflower and groundnut production in all the categories of farmers. The ratio of MVP to price of the resources were greater than unity indicating the greater potentiality to realise higher returns through increased use of the resources in both the crops. The major constraints in the production of sunflower were non-availability of good quality seeds, credit facility and lack of technical guidance. The study indicated that sunflower enterprise was more remunerative than groundnut enterprise under rainfed conditions.

Sonnad, J.S., 1988. Economics of Cropping Pattern in Ghataprabha Command Area of Bijapur District, Karnataka State—A Case Study of Conjunctive Use of Surface and Ground Water. University of Agricultural Sciences, Dharwad. *Major Advisor* : K.C. Hiremath.

The study focused on the economic evaluation of cropping patterns on lands

with and without conjunctive use of water on different sized farms. Stratified random sampling technique was used to select 96 small, 92 medium and 108 large farms covering 3,145 acres spread over six villages. Field level data for the agricultural year 1985-86 were collected through survey method. Necessary secondary data were also obtained.

Cropping patterns on lands with conjunctive use of water in the three size groups were practically identical. The highest proportion was under annual and perennial crops. Planted sugarcane, ratoon sugarcane, *kharif* maize and cotton were the most important crops yielding a net income of Rs. 4,268.04, Rs. 5,428.93, Rs. 654.29 and Rs. 304.12 per acre, respectively. *Rabi* cropping was dominant on lands without conjunctive use of water. The important crops raised and the net profits per acre realised were wheat (Rs. 563.11), bengalgram (Rs. 725.37), *rabi* maize (Rs. 480.37) and *rabi* jowar (Rs. 130.59). Farm size had an inverse relationship with (i) the area under conjunctive use of water, (ii) cropping intensities and (iii) farm business income. The value of gross output per acre on the conjunctively irrigated lands (Rs. 6,441.76) was almost four times that on lands without conjunctive use of water (Rs. 1,664.01). The production function analysis revealed that the cost incurred on irrigation water, manures and fertilisers were higher than warranted for most of the crops. The conjunctive use of surface and ground water generated considerable improvement in the levels of yields and returns of crops besides bringing about less inequity in spatial development and increase in stability and sustainability in the growth of production and productivity of crops.

Nazhat, Massoma, 1988. Capital Formation and Resource Productivity of Sampled Farms of Union Territory of Delhi. Indian Agricultural Research Institute, New Delhi. *Major Advisor* : D. Srivastava.

An attempt was made to examine the magnitude of capital formation and also to assess the productivity of various farm resources in the Union Territory of Delhi. The selection of this area was because of the availability of the data in the Division of Agricultural Economics, Indian Agricultural Research Institute, New Delhi and also because this area was considered as one of the key areas for intensive work in the agricultural extension activities. The data used pertained to the years 1979-80 and 1983-84. The sample size consisted of randomly selected 50 farm households for each year under study. Various financial ratios were used as analytical tools for examining the magnitude and pattern of capital formation, resource productivity and resource allocation under different farm situations. The results revealed that

- (1) the magnitude of capital formation increased with the increase in the farm size;
- (2) resource productivity of various farm inputs differs under different farm resource

situation; (3) the calculated financial-test ratios indicated higher return on variable capital as compared to that on fixed capital for larger farm as against their small and marginal counterparts.

It was, therefore, suggested that the expansion of capital should only be carried out after ascertaining the resource productivity of the concerned inputs under varying farm situations. Further, it is suggested that in depth large scale researches on capital formation and resource productivity be conducted in different areas so as to offer guidelines for future action for agricultural planning and development.

Dogra, Pradeep, 1988. A Study of Changes in Income and Consumption in Rural Households of Himachal Pradesh. Indian Agricultural Research Institute, New Delhi. *Major Advisor* : D. Srivastava.

This study focusses on the changes in income and consumption of rural households in Himachal Pradesh. Specifically, the objectives of the study were, to examine the changes in income and elasticity of demand of various commodities consumed by rural households and to examine the disparities of income and consumption of rural households. The data for this study was compiled from the published three rounds, 28th (1973-74), 32nd (1977-78) and 38th (1983-84) of the NSS Organisation pertaining to household consumption expenditure. Gini coefficients and Double-log function were used for analysis.

The results revealed that income/expenditure elasticity of demand for various commodities differed between different years. There was a shift in demand in favour of vitamin and protein based food as against all food items taken together. The poverty ratio declined during the period of study which may be attributed to the implementation of poverty alleviation programmes. With growth of income, inequalities of income and consumption tended to increase.