paper shreds impregnated with $KMnO_4$ and stored under ASC extended the shelf life upto 10 days with lower PIW, higher TSS, sugars and better organoleptic characters followed by 8.8 days of shelf life with fruits packed in sealed polyethylene bag containing bag containing $KMnO_4$ on vermiculate block.

Variability and Correlation Studies for Yield and Its Components in Segregating Populations of Processing Tomato

MOHD. PARVEZ H. BANTHANAL 1999 MAJOR ADVISOR : Dr. M.G. PATIL

The study was under taken to elicit information on genetic variability for yield and its components and their association. The experiment was carried out on medium black soils of Regional Research Station, Raichur during 1998-99.

Three parents viz., 1) SP-2-2, 2) 10b-4, 3) L-15, three F_2's (1x2, 1x3 and 2x3) and Roma as a commercial check were used for the study. The F_2 population consisted of 450 plants in cross 1x2, 360 plants each in 2x3 and 1x3 crosses and 30 plants each in the parents and check were observed for 15 characters. Considering various genetic parameters, selection for number of clusters per plant and number of fruits per cluster would result in greater improvement in the present material. The cross SP-2-2 x 10b-4 and SP-2-2 x L-15 showed least incidence of leaf curl and early blight diseases, respectively. Selection may be practiced in these two crosses to isolate high yielding and disease resistant plants.

Number of clusters per plant and fruits per plant had very high degree of positive association with yield. Path analysis also showed that these two characters had high direct effect on yield. Selection based on these two characters in the present material may result in greater improvement in yield.

Evaluation of Chilli (*Capsicum annuum* L.) Genotypes for Green Chilli Yield and Its Attributes

SHANKARAGOUDA R. 1999 MAJOR ADVISOR : Dr. M.G. PATIL

The study was undertaken to compare different cultivars to elicit the extent of genetic variability for yield and yield contributing characters and their association with fruit yield. The experiment was carried out on black loamy soils of Regional Research Station, Raichur during 1997-98.

Thirtyfour genotypes of green chilli were evaluated by planting 10 plants per genotype per replication in randomized block design with three replications.

Varieties differed significantly for all the growth parameters studied at different growth stages. Among 34 genotypes evaluated for their yield potential Arka Lohit recorded maximum fruit yield (17.78 t/ha) followed by KDSC-6 (16.66 t/ha) and G-4 (15.79 t/ha). Least was observed in Pusa Jwala (5.58 t/ha).

The variability study indicated wide range of variation for all the characters studied except for number of flowers per plant, fruit length and average fruit weight The least difference between phenotypic coefficients of variation PCV) and genotypic coefficient of variation (GCV) was noticed for number of flowers per plant, fruit length and average fruit weight. High heritability and high genetic advance over mean was observed for number of branches per plant, number of flowers per plant and pericarp weight.

The results of correlation and path analysis indicated that selection of genotypes for higher yield should be based on more number of leaves per plant, leaf area, number of flowers per plant, per cent fruit set and fruit length.

SERICULTURE

Effect of Few Botanicals, Flours and Iodine Compounds on Eri Silkworms *Samia cynthia ricini* Boisduval

JAYAPRAKASHRAO 1998 MAJOR ADVISOR : Dr. G. M. PATIL

Studies on the effect of botanicals, flours and iodine compounds on eri silkworm *Samia cynthia ricini* Biosduval were conducted at DBT Ericulture Laboratory, Department of Sericulture, University of Agricultural Sciences, Dharwad during 1997-98. Four separate experiment consisted were laid out as per the suitable experimental design. The first

experiment of evaluating botanicals (*viz.*, *Lantana camara*, *Clerodendron inermae*, *Vitex negundo*, *Tribulis terrestris* and *Cassia sericea*) with different concentrations (5, 10, 20 and 50%) for IGR activity on eri silkworms. Among these, exogenous dust application of *C. sericea* (20%) @ 4 g/sq feet bed area on 48 h old V instar eri silkworm increased significantly the larval weight (79.63 g/10), pupal weight (35.52 g/10), cocoon weight (40.71 g/10), shell weight (5.38 t/10), shell ratio (13.1 g) and fecundity (385 egg). The second experiment consisted of evaluating botanicals (*viz.*, *Parthenium hysterophorus*, *Curcuma longa*, *Bambusa vulgaries*, *Amaranthus spinosus* and Tridax procumbens) for phagostimulant properties. Among these extrafoliation of *A. spinosus* (10%) aqueous extract with castor leaves daily once during V instar increased significantly the weight of larvae (79.17 t/10), cocoon weight (40.79 q/10), pupal weight (34.92 g/10), shell weight (56.3 t/10) and shell ratio (1315). While *T. procumbens* at all the concentrations increased the fecundity significantly. In third set of experiment, nine flours (consisting of four protein and five carbohydrate rich flours) were supplemented along with castor leaves during V instar. Among the flours, supplementation of soybean flour @ 4 g/sq. feet bed area recorded significantly higher larval weight (34.86 g/10), pupal weight (34.86 g/10), cocoon (40.44 g/10), shell weight (5.06 g/10), shell ratio (12.33%) and fecundity (395 eggs/ female). The fourth set of experiment consisted dipping of different aged pupae (viz. 1, 5 and 10 days old) in different concentraitons (20, 30, 40 and 50 ppm) of iodine compounds and disinfectants (viz., Potassium iodide (KI), Asiphor and Iodized salt, Bleaching powder and Formalin). Among these, dipping of five day old eri pupae for a minute in KI (30 ppm) resulted in significantly higher fecundity (430 eggs) and minimum retentivity of eggs in the ovarioles (10 eggs). However, treating the eri pupae in bleaching powder and formalin solution resulted in significantly decreased fecundity over check.

Performance of Fifth Instar Silkworm, *Bombyx mori* L. on Tender Shoots

N. MAHESHKUMAR VAGE 1999 MAJOR ADVISOR: J. ASHOK

Studies on the effect of feeding tender shoots on fifth instar silkworm, *Bombyx mori* L. were conducted at the Department of Sericulture, University of Agricultural Sciences, Dharwad during 1997-98. The experiment was conducted by using Pure Mysore (PM), NB_4D_2 and PM x NB_4D_2 over three different seasons. Among different treatment combinations, feeding tender shoots to fifth instar silkworms upto third day and subsequently matured shoots significantly increased larval and cocoon parameters (*viz.*, full grown larval weight, effective rate of rearing, cocoon yield, productivity, cocoon weight, shell weight, shell ratio, pupal weight, silk filament length and weight) of silkworm breeds when compared to matured shoot feeding (control).

During all the three rearings, the larval and cocoon parameters were significantly higher in NB_4D_2; for the parameters *viz.*, cocoon yield by weight, productivity and shell ratio, NB_4D_2 was on par with PM x NB_4D_2. The survival parameters *viz.*, effective rate of rearing, cocoon yield by number, pupation rate and moth emergence were significantly higher in Pure Mysore, which was on par with PM x NB_4D_2 when tender shoots were fed to fifth instar silkworms upto third day and subsequently matured shoots. The larval and pupal duration remained unaltered by tender shoot feeding. But, fecundity was highest in PM x NB_4D_2 during winter when fifth instar silkworms were fed with tender shoots upto three days and subsequently matured shoots. Grasserie and Flacherie were lowest in PM when the fifth instar silkworms were fed with tender shoots during winter. However, grasserie incidence was highest in NB_4D_2 when silkworms were fed with tender shoots for entire fifth instar during summer.

Irrespective of season and breed when the fifth instar silkworm larvae were fed with tender shoots upto three days and subsequently matured shoots gave better performance for most of the economic traits in bivoltine breed NB_4D_2 and the survival parameters were better in multivoltine breed, Pure Mysore. The combination of economic as well as survival parameters in multi x biovoltine hybrid, PM x NB_4D_2.

PLANT BIOTECHNOLOGY

Random Amplified Polymorphic DNA Based Fingerprinting and Assessment of Genetic Diversity in Sorghum (*Sorghum biocolor* (L.) Moench)

R. THIMMARAJU 1999 MAJOR ADVISOR: Dr. M. S. KURUVINASHETTI

The investigation was undertaken to assess the genetic diversity within a sample of 12 rabi genotypes having tolerance / susceptibility to charcoal rot and drought. Since two of the genotypes were the parents of an F_1 hybrid, the hybrid was also included. RAPD profiles for all 13 genotypes were generated with 14 random decamer primers. Out of

14 primers OPB-07, OPJ-01, OPJ-07 and OPJ-08 produced distinct RAPD patterns for all the 13 genotypes. These primers can be used for identification of the genotypes studied. However, the primers could not produce a banding pattern for the F_1 hybrid that was expected based on the profile of the parents. Many male specific bands were not represented in the F_1. More number of individual F_1 seeds/ plants need to be analysed for assessing hybrid purity.

The primers generated 179 RAPD loci, of which 162 were polymorphic. The level of polymorphism generated by the primers was high (93.2%). The study indicated that RAPD markers are suitable for the assessment of genetic diversity among a group of genotypes, identification of diverse sources in crop germplasm collections, if large number of primers are employed. However, the random primers employed in the study could not group the individual genotypes into intended classes such as fairly tolerant / susceptible to drought for charcoal rot disease or relatedness by pedigree. Individually, some of the primers (OPA-04, OPB-07, OPF-15, OPJ-03, OPJ-04, OPJ-06 and OPJ-08 for drought and OPA-04, OPB-07, OPF-12, OPF-15, OPJ-04, OPJ-06 and OPJ-08 for charcoal rot) were able to group categories of genotypes into same or related clusters. These primers could be used in further studies, for mapping genes / QTL's for drought and charcoal rot. Further work with a number of primers is necessary to identify those that show high level of polymorphism among genotypes with contrasting phenotypes for desired characters.

AGRICULTURAL ECONOMICS

An Economic Analysis of Poultry Enterprises in Dharwad District

SHIVAPUTRA S. BAJANTRI 1998 MAJOR ADVISOR : DR. S. M. MUNDINAMANI

A study was conducted to analyses the economics of poultry enterprise in Dharwad district of Karnataka state. Both primary and secondary data were used. The primary data pertained to the year 1996-97 and was elicited from 50 randomly selected poultry enterprises using pre-tested questionaires. Tabular, Financial Ratio and Production Function analyses were employed. The study revealed that the Bab-cock strain fowl was the most widely reared. The enterprise establishment costs for, small, large and overall farms were Rs.3.66 lakhs, Rs.16.39 lakhs and Rs.8.75 lakhs, respectively. Feeds dominated by appropriating 81.51 per cent of the variable costs. The net returns realised by small, large and overall poultry enterprises were Rs.89,465, Rs.3,73,626 and Rs.2,03,529, respectively. The B-C ratio and IRR were found to be higher in small farms as compared to large farms. The pay back periods for small and large farms were 3.41 years and 3.83 years, respectively. The production function analysis revealed a significant contribution by chicks in egg production. The poultry entrepreneurs opined that high initial investment, non-availability of required chick breeds in the study area, wide fluctuation in egg prices, lack of egg storage facility and diagnostic laboratories were the major problems faced by them. Some of the policy implications that emerged were increasing the scale of finance by the lending institutions, expanding the demand for eggs by promoting and diversiying the use of eggs, establishment of regional processing units, implementation of support price for eggs, involvement of NAFED in egg marketing, setting up of poultry diagnostic centers, marketing, setting up of poultry diagnostic centers, educating the farmers on the optimum resource utilisation in poultry enterprise, and formation co-operative societies among poultry farmers would also benefit in availing many infrastructural facilities.

Performance of Commercial Banks in Financing Agriculture - A Case Study of Two Commercial Bank Branches in Malaprabha Command Area

G. D. DESHPANDE 1999 MAJOR ADVISOR : Dr. G. K. HIREMATH

The present study was conducted with the objective of analysing the performance of two commercial bank branches considering both primary and secondary data. The technique of tabular analysis, compound growth rate analysis and cluster analysis were adopted. The results revealed that the deposit accounts decreased by 35 per cent and 45 per cent in rural and semi-urban branches, respectively, due to stiff competition among financial institutions for deposit mobilisation, whereas, the deposit amount increased 1.44 times and 1.98 times in rural and semi-urban branch, respectively. In both the branches total priority sector and Agriculture advances outstanding to total advances crossed stipulated bench mark of 40 per cent and 18 per cent, respectively, with a major chunk of advances to crop loan.

The overdues in Agriculture stabilized at 40 per cent in rural branch whereas the same increased from 49 to 59 per cent in semi-urban branch, mainly due to poor recovery and followup, and uncertain agro-climatic conditions. The

credit gap pronounced mainly in crop loan (27 to 30%) due to inclusion of consumption credit into production credit and in case of dairy enterprise (0 to 40%) because of capital intensive nature of the activity. In both the branches crop loans were sanctioned between 9 to 16 days for small farmers adhering to NABARD and RBI guidelines whereas, medium term loan and long term took 24 to 50 days and 30 to 180 days, respectively as they involve disbursement of subsidy component. Cost of records formed major proportion of non-interest cost (2 to 100%) in semi urban branch for different categories of beneficiares as the villages served by the semi-urban branch are far off. Majority of the beneficiaries (more than 50%) opined cumbersome loan procedure adopted, security norms and technical guidance was not provided.

An Economic Analysis of Cropping Systems in Left Bank Canal Command Area of Tungabhadra Project - Karnataka

GOVARDHAN RAO 1998 MAJOR ADVISOR : Dr. H. BASAVARAJA

The focus of the study was on economic evaluation of the cropping systems in different locations of the TBP canal area. The multistage random sampling technique was employed to get the field level data for the agricultural year 1996-97 through surveying 180 farmers comprising equal number of small and large size groups across the locations. Paddy-paddy and cotton cropping systems occupied a major share in the net cropped area of the sample farmers. In head reach, 86 per cent of the sample farmers participated in paddy-paddy system while 23.34 per cent of the sample farmers participated in cotton cropping system. In middle reach, cotton cropping dominated the cropping systems. More diversification of crop systems was noticed in tail reach. In both head and tail reach, the benefit per rupee of expenditure was more in paddy-paddy system than in cotton system. In middle reach cotton system was beneficial over paddy-paddy system. The benefit cost ratio on small farms was highest in cotton cropping system whereas on large farms, paddy-paddy system was more beneficial with B:C ratio of 2.4. The functional analysis revealed that there existed an opportunity to intensify the use of plant nutrients to optimise output in most of the cropping systems. Only in sunflower-jowar system the output optimisation could be achieved by cutting down the use of the plant nutrients, seed and labour. Frequent breaches in the canal was one of the major problems faced by the farmers of the command area.

Economic Analysis of Coconut based Cropping System in Coastal Zone of Uttar Kannada District

MANGALA M. HEGDE 1999 MAJOR ADVISOR : Dr. G.K. HIREMATH

The study was conducted in Uttar Kannada district of Karnataka with an overall objective of studying economics of coconut based cropping system (coconut, coconut with arecanut, coconut with arecanut with banana and betelvine). Data were collected from 120 coconut based gardens from 12 villages of Honnavar and Kumata taluks with the help of pre-tested schedules. These taluks had the highest area under coconut based cropping systems. The average size of holding were 3.5, 2.51 and 3.05 hectares in cropping system I (coconut), II (coconut with arecanut) and III (coconut with arecanut with banana and betelvine), respectively. The per hectare establishment cost was Rs.1,87,866, Rs.2,29,771 and Rs.2,64,531 in cropping system I, II and III, respectively. The maintenance cost were Rs.31,548, Rs.40,296 and Rs.46,480 in cropping systems I, II and III, respectively.

The variation in yield and returns were observed at three different stages of the gardens (8-20, 21-35 and 36-50 years). Among all the systems, yield was the highest in 21 to 35 years category. The net returns amounted to Rs.67,383, Rs.59,870 and Rs.1,10,329 in cropping system I, II and III respectively. The study further revealed that at a common discount rate of 14 per cent and a gestation period of 7 years, the cropping system III had maximum NPV (Rs.1,88,572), BCR (2.59) and IRR (35%) and minimum pay back period 8.54 years compared to cropping system I (Rs.78,254, 1.94,32.5%, 9.5 years) and cropping system II (Rs.30,005, 1.44, 26.5%, 9.6 years).

Scarcity of irrigation water, lack of capital, high cost, ignorance regarding latest technological recommendations were the major constraints in using recommended levels of organic and inorganic fertilizers. Coconut pest 'Rhinocerous beetle', arecanut disease koleroga and poor horticulture oriented extensive network were other constraints faced by the farmers in the cultivation of these enterprises.

Economics of Production and Marketing of Banana in Maharashtra State

MORE SACHIN S. 1999 MAJOR ADVISOR : Dr. S.B. HOSAMANI

The study was conducted in Nanded and Parbhani districts of Maharashtra State, with an overall objective of studying the economics of production and marketing of Banana. Data were collected from 120 Banana growing farmers from six villages each of Nanded and Vasmat taluks. Tabular, growth rate and functional analysis were employed to analyse the data. The results revealed that increase in area was found to be higher in Nanded district (19.36%) followed by Parbhani district (10.07%) and Maharashtra State (4.50%). Similar trend was observed in respect of banana production. On the contrary the state productivity growth was the highest (1.43%) followed by Nanded (1.40%) and Parbhani (0.90%) districts of the state.

The per hectare cost of cultivation was high in small farmers (Rs.82,294.72) followed by pooled (Rs.78.506.76) and large (Rs.76,610,06) farmers. Among the farmers categories higher net income was recorded on the large farms (Rs.63,625.54) and the lower in small farms (Rs.58,402.08). The results of functional analysis indicated that land and capital contributed significantly to production (yield) of Banana in all categories of farms.

The analysis of Timmer's measure of technical efficiency revealed that about 21 small and 29 large farms obtained more than 75 per cent of the potential banana yield, while 19 small and 9 large farms got between 58 to 74 per cent and 20 small and 22 large farms got 57 per cent and below yield. The per quintal marketing cost of banana in the study are a was Rs. 105.72 and producer's share in consumer's rupee was worked out to be 58.44 per cent.

Economic Analysis of Post-Harvest Losses in Marketing of Grape and Lime in Bijapur Market, Karnatka

SHREENIVAS G. SHELLIKERI 1999 MAJOR ADVISOR : Dr. S.M. MUNDINAMANI

Bijapur district of Karnataka is known for the production of fruit crops, particularly grapes and lime. Inspite of this, considerable loss is observed due to improper post-harvest handling. The present study was conducted in Bijapur market of Karnataka to assess the economics of post-harvest losses in marketing of grape and lime. A multi-stage sampling procedure was adopted for the selection of samples. The data collected was subjected to growth rate analysis and tabular analysis. The results of growth rate analysis with respect to area, production and productivity of major fruit crops showed mixed results. The area and production of ber, lime, grape, mango and pomegranate showed positive growth whereas in the case of banana, area and production were declining in Bijapur district. Except in grapes and pomegranate, positive growth in productivity could be seen in other fruits. In the state, negative growth was observed only in the case of area under citrus fruits and productivity of pomegranate.

The post-harvest losses in grapes at farms levels amounted to Rs.3624.63 per farm (Rs.5548.83/ha). the monetary worth of losses suffered by pre-harvest contractor, commission agent-cum-wholesaler and retailer was to the tune of Rs.14,778.40 and Rs.1307.84 respectively. The estimation of post-harvest losses in lime worked out to be Rs.3562 per farm (Rs.4092/ha). The losses suffered by commission agent and retailer were valued at Rs.1,63,112 and Rs.1665,96, respectively.

The producer's share in consumer's rupee varied from 58.13 per cent to 74.79 per cent in the two channels studied under grape marketing whereas it was 61.12 per cent in the lone channel studied under lime marketing. The opinion survey revealed problems like frequent price fluctuations, lack of cold storage facility, high commission charges etc., which required immediate attention of policy makers.

Economic Analysis of *Pandanus* spp. as an Intercrop in Coconut Gardens of Kerala

CHITHRA GOPAL R.S. 1999 MAJOR ADVISOR : Dr. G.K. HIREMATH

The coconut palm plays an important role in the economic, social and cultural activities of the people of India. In Kerala, about 5 million families depended on coconut for livelihood. With the spread of debilitating root (wilt) disease, both production and productivity are drastically affected which has resulted in taking up intercrops in coconut gardens. In the coastal areas where there is no feasibility of raising other intercrops, *Pandanus* is taken up as an

intercrop in coconut gardens, the leaves of which are used by farms women for weaving mats.

The study was conducted on two economically important species viz., *Pandanus anaryllifolius* and *vetchii*, the leaves of which are used for single layer and double layer mat making, respectively. A multistage sampling procedure was adopted for the selection of samples. Both financial and tabular analyses were used to arrive at the results. An analysis of financial feasibilities of investment in coconut (moncocropping) and coconut + *Pandanus* (intercropping) favoured the intercropping in general and coconut + *P. amaryllifolius* in particular.

The study revealed that a producer engaged in single layer mat making produced 115 mats per year. The net returns worked out to be Rs.2116 per year for a producer. A producer engaged in double layer mat making produced 50 pairs of unfinished mats in a year releasing a net return of Rs.2650 annually.

The study revealed the extraordinary influence and influx of middlemen in the marketing of single laver and double layer mats which reduced the producer's share in consumer rupee (varied from 33.33% to 41.67% in single layer mat marketing and 42.07% to 43.47% in double layer mat marketing). The opinion survey revealed problems like scarcity of *thazha*, drudgery of production technology, poor quality of mats, shifting of consumer preference etc., which required immediate attention from policy makers.

Production and Marketing of Soybean in Karnataka - An Economic Analysis

B.S. KULKARNI 1999 MAJOR ADVISOR : Dr. L.B. KUNNAL

The study aims at evaluating the economics of production and marketing of soybean in Belgaum district. A sample of 120 farmers were selected using multistage sampling method. The data was collected for the agricultural year 1997-98 through survey method. Belgaum district consisted of 2 soybean processing units, of which only one unit which was working was selected. The techniques of compound growth rate and tabular analysis were employed for analysing the data.

There was a significant increase in are a and production of soybean during the period 1986-87 to 1995-96 both in Belgaum District and Karnataka State as a whole but productivity showed a non-significant positive increase The total cost incurred (Cost 'D') for soybean production was Rs.17,953.48 per hectare by small farmers and Rs.16,602.06 per hectare by large farmers. An hectare of soybean generated a gross income of Rs.25,000 in small farmers and Rs.23,000 in large farms. Two marketing channels were identified in the study area for marketing of soybean. Channel-I was preferred mostly by large farmers (72.72%) compared to small farmers (27.80%) and Channel-II was preferred by small farmers (72.20%) compared to large farmers (27.28%).

The total capital invested in the processing unit was Rs.490.53 lakhs. The total cost of processing incurred per tonne of soybean was Rs.10,404.47, of which variable cost accounted for 96.50 per cent and fixed cost of 3.50 per cent. The net returns per ton of soybean processed was Rs.665.53 and the benefit-cost ratio for the processing unit was 1.06.

The major constraints faced by farmers in production were rust disease, non-availability of labourers. The problems of price fluctuation, high transportation cost were the bottlenecks in marketing of the crop. The major problems faced by the processing unit were regarding the seasonal availability of raw material and inadequate power supply.

AGRICULTURAL EXTENSION EDUCATION

A Study on Knowledge of Paddy Cultivation Practices and Adoption Behaviour of Andhra Migrant Farmers in Raichur District

N. SAIKRISHNA 1998 MAJOR ADVISOR : Dr. D. M. CHANDARGI

The study was undertaken in Raichur district to know the knowledge and adoption level of important paddy cultivation practices of Andhra migrant farmers. Gangavathi taluk in Raichur district was purposively selected for the study. Totally 150 respondents were selected on random for the study from three camp villages namely, Sriramnagar, Ayodhya and Ulikihal.The variables, knowledge and adoption were studied as the dependent variable and the variables

such as age, eduction, land holding etc. were studied as independent variables. Pre-tested schedule was used to collect the data from the respondents by personal interview method.

Majority of the respondents had medium knowledge level and cent per cent knew the recommended practices such as variety, season of transplanting and zinc chemicals. Majority of the respondents knew about the practices chemical seed treatment, time of raising nursery and green manuring. Majority of the respondents belong to medium adoption category and cent per cent of the respondents had adopted the recommended practices such as time of sowing, season of transplanting and majority adopted the practices chemical seed treatment, seed rate and zinc appliation. Majority of the migrant farmers had education upto primary school, belonged to middle age group, had nuclear family, had very low level of participatiion in social organisations, possessed big land holdings and good contact with extension workers. Small land holding,poor economic condition at native place and assured irrigation facility, low prices of land at destination were the reasons for migration expressed by the respondents.

'Hard working' introuduced new technologies to the destination place were the positive opinions and use of fertilisers and pesticides indiscriminately and responsible for inflation of lands prices were the negative opinions held by localites over migrant farmers.

A Study on Knowledge of Rural Women About Vegetables and Consumption Pattern of Their Families

N. RAJESHWARI 1998 MAJOR ADVISOR : Dr. B. SUNDARASWAMY

The study conducted in the year 1997-98 involving 167 women of Hangal taluka of Dharwad district to know their socio-economic characteristics revealed taht majority of the respondents (59.28%) had medium level knowledge about vegetables. The major green leafy vegetables consumed regularly by the families of the respondents were haravi soppu (66.46%), fenugreek (35.93%), frequently consumed were cabbage (91.02%), raddish leaves (80.24%) whereas, baibasale (22.75%) and honnaganni (19.16%) were consumed occassionally. The major regularly consumed roots and tubers were onion (100%) and potato (67.66%), frequently consumed was raddish (80.24%) and carrot (60.0%), colocasia (60%) were consumed occassionally. The major other vegetables consumed regularly were brinjal (90.41%), tomato (88.62%) and ridge gourd (87.42%), frequently consumed were beans and lady's finger (81.44%), capsicum (75%) and drumstick (75%) were consumed occassionally. Majority used bamboo basket to stored vegetables, all of them prepared bhaji and sambhar out of vegetables, used aluminium vessels to cook vegetables, 85 per cent felt that consumption of vegetables provide nutrients. Majority of the respondents reported seasonal availability of vegetables as the major constraint in consumption of vegetables.

Majority of the respondents were illiterates, belonged to young age group, an equal of families belonged to join and nuclear families, half of them had large land holding, 66 per cent belonged to forward caste, agriculture was the main occupation for 62.87 per cent, half of the respondents were farm workers and three fourth of the respondents had income above 11,500.

Excepet age, attributes like Education, Caste, Occupation of the respondents, income, landholding and training received by the respondent exhibited a significant relationship with the knowledge of the respondents.

A Study on the Knowledge and Adoption Behaviour of Rice Growers in Jammu District of Jammu and Kashmir State

VINOD GUPTA 1999 MAJOR ADVISOR : Dr. B. SUNDARSWAMY

The study on knowledge and adoption behaviour of rice growers was carried out during 1998-99 in RS. Pora taluk of Jammu district in Jammu and Kashmir State. By following proportionate random sampling 150 farmers were selected and data were collected by personal interview method.

The important findings of the study were; majority of the respondents possessed medium level of knowledge (62.00%) and adoption (70.67%) about recommended cultural practices of rice. Cent per cent of the respondents cultivated recommended variety, where as, majority of the respondents adopted practices like green manuring (71.33%), split dose of application of nitrogen (66.00%) and fertilizers to nursery (59.33) as recommended. The extent of adoption was poor in case of potash fertilizers to main field (81.33%) and plant protection measures (79.33%). The most consulted informal sources were relatives (94.00%) and neighbours (90.66%). With respect to mass media 98.66 per cent of the respondents got the required

information from radio and 80 00 per cent from television.

Cent per cent of the respondents expressed non-availability of inputs in time as 'very much a problem'. Whereas, high cost of inputs (98.00%), lack of finance (93.33%) and lack of technical guidance (43.33%) where as constraints expressed by rice growers. A considerable percentage of the farmers were educated upto middle school. Over half of the respondents (52.66^) had a land holding upto 2.5 acreas (small farms) and nearly one-third of the respondents participated in training programmes.

A positive and significant relationship was observed between level of knowledge, adoption and socio-economic characteristics like education, land holding and risk orientation. The relationship of yield was positively significant with the knowledge and adoption level of respondents. The benefit cost ratio in rice cultivation worked out to 2.12.

AGRICULTURAL MARKETING & CO-OPERATION

Business Management of Malaprabha Co-operative Sugar Factory Limited

UMESH C. GOJANUR 1998 MAJOR ADVISOR : Dr. H. S. SADATH ALI KHAN

In India about 25 milion farmers are engaged in the sugarcane cultivation on 3.5 million hectares of land. At present there are 416 sugar factories, of which 232 factories are in co-operative sector whose major activities includes management of procurement, processing and marketing of sugar and by products.

Using the secondary data the various management activities of the factory were studied. The study revealed that the area of operation of the factory was 45 kilometer in radius, covering 585 villages. On an average the sugar factory procured only 70.71 per cent of total sugarcane produced due to low installed capacity (3500 t/day). 81.17 per cent of the sugarcane area was under late maturing varieites. 78.13 per cent of total cane bill was paid in first installment. Major cost of procurement included prime cost of cane (85.10%) purchase tax on cane (6.14%), transport (4.07%) and harvesting (2.45%).

The average sugarcane crushed was 6.54 lakh tonnes with 4090 hours of crushing (186 days). Hourse lost due to cleaning was the highest (4.25%), followed by mechanical problem (4.24%), cane shortage (3.25%), miscellangeous (2.41%). Sugar loss in by product was 2.22 per cent which was lower than the norms fixed by Bhargava commission.

The cost of production per quintal of sugar was Rs.837.25 of which the raw material cost constituted a major share (78.03%), other variable costs (7.01%), fixed costs (14.96%). Factory earned a profit margin of Rs.0.33 per quintal of sugar and by products sold. It implied that the costs and returns obtained were almost equal with very nominal profit margin.

Sixty per cent of the sugar produced was sold in open market and 40 per cent was through levy quota. The price spread of sugar in Dharwad and Hubli market was Rs.102.81 (7.13% in consumer's price). Major problems faced by farmers were low price for cane, low harvesting charges paid by the Factory, delayed payment, shortage of labour during harvesting and problem of transportaion.

Management of Agribusiness Units - A Case of Grape Production and Raisin Making in Bijapur District, Karnataka

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India ranks next to Brazil in fruit production. But its share in global export is only one per cent and only 0.5 to 1.0 per cent of the total fruits and vegetables produced are processed in India. Grape is the second important fruit produce in India, with higher export potential. Karnataka ranks second in both area and production of grapes in India. Bijapur district in Karnatka is one of the important grape production centre with an annual proudction of 58865 M.T. of grapes. More than 90 per cent of the grape produced in the district is diverted to raisin making. An analysis of the potential for establishment of additional raisin making units was done keeping in mind the potential of grape productioin in the districts.

The primary data required for the study were collected from sample grape growers and oweners of raisin making units of the study are with a pre-tested schedule. The required secondary data were collected from nine departmetns. The study highlited the areas like cost return structure involved in raisin production, export potential for grapes, comparison of economics of marketing of raisins in two different market, estimation of raw grapes diverted to different purposes, financial and other infrastructural facilities needed for establishing raisin making units and problems confroting grape producers, raisin manufacurers and market middle men. The results showed that about 95 per cent of the grapes produced was diverted towards raisin

preparation and five per cent were sold as fresh grapes. Two types of raisin making units operate in the study area namely old model and new model. Both models used two methods of raisin making viz., sulphur fumigation method and dipping oil method. The cost of establishment of raisin making unit in the old model was Rs.1,01,625 and the new model it was Rs.4,03,125. But going for establishment of new model raisin making unit was more economical. The net returns per rupee of investment in sulphur fumigation method was 1.76 and 2.06 in dipping oil method. The study was also made to compare the raisin making industry with respect to grape growers groing for raisin production. The net return per rupee of investment was 0.28 and 0.45 incase of non grape grower going for raisin making, so it was proved to be uneconomical. The study was conducted on marketing of raisins in two different markets namely Bijapur and Tasgaon. In Tasgaon market the total net returns per tonne of raisins marketed was Rs.776 and Bijapur market it was Rs.389. Study of export potential showed that the potential for grape export was present, but at the same time there was lack of basic infrastructural facilities. However, the potential was very low for export of raisins. The problems confronted by farmers, producers, processors and market middle men were studied. The problems were relating to availability of technical assistant, water and electricity availability, improper method of harvesting, labour availability, improper grade standardisation of grapes and raisins. Based on the findings of the study appropriate package of policy was recommended.

Management Appraisal of Cashew Processing Industry in Uttara Kannada District (Karnataka)

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The cashew is an economically important tropical tree crop. Cashewnut processing on commercial basis was intially started in Managlore in Karnataka. Cashew industry in India is growing at the rate of 25 per cent per annum due to huge demand that exist for its products, both in domestic and export markets. Ineffective management on the part of processors, has led to the failure or poor performance of many Cashew Industries. Therefore to identify the managerial lapses if any and the problems faced by them in order to evolve appropriate policies for improving efficiency in their working, Uttara Kannada district was selected in Karnataka with 18 units established before 1991-92. Further they were catagorised into three groups namely, small (6 units) medium (8 units) and large (2 units) based on their installed capacity. The primary data was collected for the year 1997-98, by personal interview method with the help of pre-tested schedule. Similarly secondary data was collected from the industries from 1992-93 to 1996-97.

The results revealed that, there was a direct relationship between the total capital investment and the size of the processing units. These cashew industries followed the line organisation type of structure, because it is simple. Totally five patterns of procurement of cashewnut were identified. Procurement of cashewnut was maximum during the months of April and May. The cost of carrying inventory per quintal of cashewnut was higher (Rs.558.33) in medium unit than the large and small processing units. The production cost of cashew kernels per quintal of cashewnut processed was Rs.4677.89 at an overall level. The value added as a result of processing activity at an overall was Rs.1288.50 per quintal (40.40 per cent) of cashewnut processed Maximum quantity of cashew kernel was marketed through Channel III (Commission agent). The marketing cost per tin of cashew kernel was high through Channel III (Rs.155.19). Taxes accounted for 54.55 per cent of the total cost of marketing. Large quantity of cashew kernel was marketed in domestic market (61.78 per cent) than the export market (38.21 per cent). This industry on an average utilised only 62.96 per cent of the installed capacity. The business performance as observed through the financial ratios showed that the large processing units were more efficient than the medium and small processing units.

Management Appraisal of an Agri-Business Unit - A Case Study of the Central Arecanut and Cooa Marketing and Processing Co-operative Limited - Mangalore

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Investigation was conducted to study the procedure and costs involved in procurement and sale of arecanut, grades and grading methods followed, development and growth pattern of the co-operative over the years. The primary data were collected by discussion with personnels and personal observations. Secondary data were obtained from the annual reports and records of the co-operative for ten years. Financial Ratio Analysis, Compound Growth Rate Analysis, Regression Analysis were employed along with other statistical tools such as percentages, averages etc., Details of different grades and grading method were recorded.

Three channels for procurement and one channel

for sale of arecanut were identified. The quantity of arecanut procured was maximum in Channel-I (63.6%) where no coast of procurement was incurred, which was maximum in Channel-III throughout the study period. Commission charges formed the major proportion (94.95%) of cost of procurement followed by delivery charges. The cost of sale was maximum for the produce which was procured through channel-III where commission charges of procurement resulted in higher sales tax which formed the major part. Six size based subgrades of main grade 'New Supari' in Mangalore, four subgrades of 'Saraku' ana three subgrades of 'Bette' in Shimoga four subgrades of 'Rashi' in Sirsi were identified. Satisfactory levels of current ratio (1.5754), acid-test ratio (0.46), inventory-turnover ratio (3.3413), gross ratio (5.8134), net capital ratio (1.1963) were obtained, whereas poor performance in profit based ratios such as net profits to total assets (0.00069), net profits to working capital (0.00025) was observed because of lower and also of negative profits. Two fold increase in price as well as quantity of arecanut handled resulted in the increase of turnover by four folds. Almost all the financial indicators showed the higher growth rate above ten, while lower growth rates were observed in case of physical indicators. There is a need to strengthen the procurement and sale network, transportation facility and developing scientific grading method.

Business Performance of the Belgaum Gradeners Co-operative Production, Supply and Sale Society Limited, Belgaum

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The objective of the study was to analyse the business performance of the Belgaum Gardeners Co-operative Society. Data were collected on important indicators for a period of ten years from 1987-88 to 1996-97. The study revealed that compound growth rate on almost all the variables had higher growth rate of above five per cent. But a few variables have drawn the attention as their growth rate were less than five per cent. The solvency ratio was in an increasing trend and it was observed to be more than unity over the study period. During some years the liquidity ratio was approaching unity indicating a low liquidity of assets and ratio declined to less than two. The society is highly successful in maintaining a fair level profit considering its non-profit and service motto. The test of efficiency showed a lower capital efficiency ratio which indicated less dependence of the society on its share capital for its business. The sales ratios revealed that the higher ratio was due to the tremendous increase in total sales.

Procurement of seeds by the society revealed that, member-farmers are attracted by brand, society has to supply the seeds of particular firms. Procurement of fertilizers by the society showed that, among the two firms. i.e., KSCMF and IFFCI, KSCMF commanded the major share of the total quantity in all type of fertilizers. Among the total quantity of pesticides procured, Folidol dust topped the list, followed by Dithane M-45, Metacid, Democron, etc., depending on the demand for pesticides from member-farmers. The facilities such as agricultural inputs supplied by the society would certainly attract the members to produce more and sell their produce through the co-operative and would imbibe co-operative spirit.

The main problems faced by the co-operative society were insufficient space for keeping vegetables and high electricity charges of the could storage unit.

Performance of Goa Diary Co-operative Union - A Management Appraisal

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Dairy development is a major component of strategies to expand agricultural output in India. Indian diary industry has emerged as the largest diary industry in the world with milk production exceeding 71 million tonnes, under the co-operative sector with large government assistance. However, recently this industry is delicensed under liberalised policies of the Government, hence, it is expected that the industry has to face heavy competition from private. Though it is having competitive edge in good network of production, processing and marketing in the country, which faces many inefficiencies in their working as compared to private, in general and particularly to Multi National Corporations (MNCs). Hence, in this context, it was undertaken to analysis in detail the management of Goa Co-operative Milk Union Ltd. (GMU), Goa.

The primary data was collected for the year 1998-99 with regard to consumer preference and market share