

tomato fruits cv. Megha when stored under ambient conditions. The experiment was carried out at the Division of Horticulture, Dharwad during 1996-97.

The post-harvest treatment of fruits with neem oil, waxol (6%) at the stem scar, exposure of fruits to ethanol vapour (4 ml per kg fruits) and packing the fruits in cartoons with paper shreds sprayed with KMnO_4 at 2000 ppm concentration recorded significantly higher shelf-life (30.667, 29.000, 30.667 and 27.667 days, respectively) as compared to control fruits (20.333 days). The fruits under these treatments recorded lower PLW, TSS, decay loss and delayed

lycopene development and sugar accumulation throughout the storage period. Besides, they maintained higher ascorbic acid with acceptable organoleptic characters.

Eventhough the fruits packed in polyethylene bags with shreds sprayed with KMnO_4 had the longest shelf-life among the treatments tried, these fruits suffered higher decay loss due to sealed polyethylene bags. The fruits treated with neem oil, six per cent waxol and ethanol vapour at 4 ml per kg fruits were, therefore, found to be better treatments in extending shelf life and maintaining the quality of fruits.

Studies on Propagation of *Duranta plumieri* Jacq. var. Goldiana by Stem Cuttings with Growth Regulators Under Mist

SHASHIBHUSHAN A. GHATNATTI

1997

MAJOR ADVISOR : Dr. U. G. NALAWADI

The investigations on propagation of *Duranta plumieri* Jacq. var. Goldiana by different types of stem cutting as influenced by growth regulators under mist were carried out during 1996-97 at the Kumbapur farm attached to the Division of Horticulture, University of Agricultural Sciences, Dharwad.

The growth regulator treatments comprised of indole butyric acid (IBA) and naphthalene acetic acid (NAA) applied singly and in combination at different concentrations. The observations on rooting and root characters of the cuttings and various bio-chemical constituents such as reducing sugars, non-reducing sugars, total sugars, starch, total carbohydrates and total free phenols in different types of cuttings were analysed.

The cuttings treated with IBA 3000 ppm + NAA 3000 ppm recorded the highest percentage of rooting (72.21%) with desirable root characters such as higher number of primary roots (29.59), longer length of primary roots (14.30 cm), higher length of the rooting zone (7.67 cm) and higher dry weight of roots (0.61 g). The next best treatment was NAA 3000 ppm

(70.00%).

The highest rooting percentage was obtained in semi-hard wood cuttings treated with IBA 3000 ppm + NAA 3000 ppm (86.66%). And in tip and hardwood cuttings the treatments IBA 2000 ppm + NAA 2000 ppm (73.33%) and IBA 3000 ppm + NAA 3000 ppm (63.33) were found better respectively.

Semi-hardwood cuttings had moderate levels of bio-chemical constituents compared to tip hardwood cuttings. Among the growth regulators NAA either alone or in combination with IBA had significant influence on these biochemical constituents during the course of rooting. The changes in biochemical constituents showed that the breakdown of carbohydrates caused by application of IBA, NAA and their combination which helped in better rooting.

The studies revealed that *Duranta plumieri* Jacq. Var. Goldiana shrubs could be multiplied easily by pre-treatment of semi-hardwood cuttings with IBA 3000 ppm + NAA 3000 ppm in sand medium under mist.

Effect of Pre-harvest Treatment with Growth Regulators on Yield and Quality of Banana cv. Rajapuri (AAB)

Y. S. SHIRAGAVI

1997

MAJOR ADVISOR : Dr. N. C. HULAMANI

An experiment was conducted to work out the efficacy of growth substances viz., GA_3 (50/100 ppm), 2, 4-D (15-30 ppm), NAA (15/30 ppm), 2, 4, 5-T (50/100 ppm) KH_2PO_4 (0.50/1.00%) and ethep (0.25/0.50 ml) in regulating fruit growth and development in banana cv. Rajapuri (AAB) during 1996-97 in a private farm at Munavalli village of Belgaum district. The experiment was laid out in Randomised Block Design (RBD) with fourteen treatment combinations. The growth regulators were applied at 7 and 15 days after shooting (DAS). The effect of growth regulators was beneficial when they were applied at later stages (15 DAS) as compared to that of earlier stages (7 DAS).

Among the different treatment combinations, spraying GA_3 both @ 50 and 100 ppm were the most effective treatments with respect to increased finger length, girth, weight of finger, weight of hand, bunch weight and quality parameters. The next effective treatments are 2, 4-D application @ 30 ppm and NAA @ 30 ppm.

Shelf-life of fruit was longer in plants sprayed with growth regulators at 15 days after shooting as compared to 7 days after shooting. Spraying of GA_3 favourably increased the shelf-life of fruits.

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Effect of Pre-harvest Treatment with Growth Regulators on Quality and Shelf-Life of Pineapple (*Ananas comosus* Merr.) cv. Kew Fruits

VINOD C. SOANS

1997

MAJOR ADVISOR : A. K. ROKHADE

An investigation was carried out to study the influence of pre-harvest treatment with growth regulators like 2, 4-D (50, 100 and 150 ppm), Ethrel (250, 500 and 750 ppm), NAA (50, 100 and 150 ppm) and GA₃ (20, 40 and 60 ppm) on physicochemical changes, organoleptic quality and shelf-life of pineapple fruits stored under ambient conditions.

Among the different treatments GA₃ was found to show better results. GA₃ treatment at a concentration of 20 ppm was found to extend the shelf-life by four days with 21.8 per cent reduction in physiological loss in weight and slower rate of ripening. GA₃ at 60 ppm concentration treatment increased the fruit weight by 21 per cent, juice content by 5 per cent, TSS by 17 per cent, total sugars by 43 per cent, ascorbic acid by 4.5 per cent and reduced acidity by 12 per

cent over control leading to appreciable improvement in organoleptic quality.

Treatment of fruits with 750 ppm Ethrel was found to hasten ripening by 6 days over control with a shelf-life of 13.3 days and developed better internal and external colour but there was no improvement in the edible quality of fruits. Even though NAA treatment did not extend shelf-life of fruits, it significantly increased the fruit weight by 31.7 per cent and juice content by 101.1 per cent over control under 150 ppm treatment.

2, 4-D treatments were found to be injurious even at low concentration of 50 ppm resulting in cracking of fruit surface and failure to ripen.

Studies on Nutrient Management and Vase Life of Golden Rod (*Solidago canadensis* L.)

NAGARAJA C. GANGANAGUDAR

1997

MAJOR ADVISOR : Dr. U. G. NALAWADI

Experiments were carried out in two places during kharif season of 1996-97. Nutrient management study was conducted at the Kittur Rani Chennamma College of Horticulture, Arabhavi, University of Agricultural Sciences, Dharwad. Experiment on vase life was carried out in the Department of Horticulture, College of Agriculture, Dharwad. The nutrient experiment was laid out in factorial randomized block design with two levels of nitrogen (100 and 150 kg/ha) and three levels of phosphorus (50, 100 and 150 kg/ha) and potassium (50, 100 and 150 kg/ha) in all the combinations.

In the nutrient experiment, all the growth components were highly influenced by nitrogen and phosphorus application while, potassium had low effect. Flowering was delayed by nitrogen and phosphorus application. The maximum length (48.93 cm), weight (40.92 g) of flower stalk and highest flower stalk yield per plot (10.06 kg) and per hectare (24.42 t/ha)

were obtained with nutrient combination 150 kg N per ha, 100 kg of P₂O₅ per ha and 50 kg of K₂O per ha. The flower stalk yield per hectare had a significantly positive correlation with plant height, number of leaves, dry matter production per plant, number of flower stalks per plant, weight of flower stalk, total N and P uptake, while it had significantly negative correlation with total potassium uptake. The maximum net returns (Rs. 52,835/ha) realised with 150 kg of N, 100 kg of P₂O₅ and 50 kg of K₂O per hectare.

In vase life studied all the chemical combinations tried, increased the vase life of golden rod flower stalks significantly over control. The maximum vase life (14.00 days) was recorded with aluminium sulphate at 100 ppm along with two per cent sucrose and it was closely (13.33 days) followed by benzyl adenine at 10 ppm along with two per cent sucrose, as against 7.0 days of vase life in distilled water.

Performance of Sapota (*Manilkara achras* (Mill.) Fosberg) Varieties and Hybrids Under Transitional Tract of Karnataka

NAGARAJ S. HEGDE

1997

MAJOR ADVISOR : Dr. G. S. SULIKERI

A study was taken up to evaluate sapota hybrids along with their parents at the Division of Horticulture, College of Agriculture, University of Agricultural Sciences, Dharwad, during 1996-97 with main objectives being evaluation of varieties and hybrids for the yield, quality, keeping quality and to study their cropping pattern and compatibility.

All varieties and hybrids, except hybrid 12/24, exhibited maximum flowering (43.68% to 53.40%) during November-January followed by June-July (32.82% to 37.57%). But, the hybrid 12/24 showed the highest flowering (51.36%) during June-July followed by March (36.23%). The fruit-set in all the varieties and hybrids, except hybrid 12/24, was highest during

June-July (5.98% to 29.66%), while the hybrid 12/24 recorded the maximum fruit-set during March (30.41%). In general, the fruit-set was maximum in hybrid 12/24 followed by DHS-1 (10/25) and DHS-2 (10/17).

The hybrid 12/24 excelled all other hybrids and varieties with respect to number of fruits per tree (1381.29) and yield (116.10 kg/tree/year). The hybrid 3/13 took the maximum number of days (8.31) for ripening followed by hybrids 12/8 (7.70 days) and DHS-1 (10/25) (7.30 days). The varieties and hybrids did not differ much with respect to number

of days upto which the fruits were edible.

Among all the varieties and hybrids studied, DHS-1 (10/25) recorded the highest total soluble solids (26.08° Brix), reducing sugars (12.97%), non-reducing sugars (8.16%) and total sugars (21.13%), thus establishing its superiority. The fruit-set among all hybrids and varieties was lower (5.00% to 13.33%) under self-pollinated situation, while it was (14.28% to 80.00%) under cross-pollinated situation. This indicates the existence of self incompatibility in sapota.

Effect of Community Planting and Fertilizer Levels on Growth, Lowering and Flower Quality of Tuberose (*Polianthes tuberosa*) Cv.DOUBLE

PRABHAT RANJAN PATIL

1997

MAJOR ADVISOR : Dr.B.S.REDDY

Tuberose is one of the most popular flower crops cultivated in our country. Its spikes are used as cut flowers for indoor decoration in vases and for preparation of bouquets, while individual flowers are used for making veni garlands. Studies were carried out to study the effect of community planting and fertilizer levels on growth. Flowering and flower quality of tuberose Cv Double during 1996-97 at KRC College of Horticulture, Arabhavi, Karnataka.

Two to three bulbs per bill were optimum for planting in order to obtain better growth and flowering. Planting two to three bulbs recorded the highest plant height and optimum number of shoots and leaves per spot. Further, they produced longer leaves with optimum leaf area. Plants of single bulb per spot were late to flower. However, it resulted in the production of best quality spikes. For production of maximum flower production and also for quality spikes, planting of two to three

bulbs per hill found to be the best.

Among the different fertilizer levels the highest fertilizer level (F4) in particular produced plants with luxuriant vegetative growth, irrespective of number of bulbs planted per hill. However, F4 and F3 levels were on par with each other with respect to plant height, number of leaves and chlorophyll content. Application of 250:200:200 kg NPK/ha delayed flowering but resulted in increased spike and rachis length, spike girth and flower production. However, there was no significant difference between F3 and F4 fertilizer levels with respect to spike yield per ha.

With respect to interaction effect planting of two bulbs and application of fertilizers at 250:200:200 kg NPK/ha to obtain quality spikes and planting of three bulbs and application of fertilizers at 200:150:150 kg NPK/ha to obtain maximum flower production were optimum.

Evaluation of Varieties and Regulation of Flowering by Growth Regulators in Gladiolus (*Gladiolus hybridus* Hort.) under Ghataprabha Command Area

MAHESH S. SHIRAMAGOND

1997

MAJOR ADVISOR : Dr.S.I.HANAMASHETTY

The investigation was carried out during *rabi* season from November 1996 to March 1997 at Kittur Rani Chennamma College of Horticulture, Arabhavi to study the performance of varieties and regulation of flowering by growth regulators in gladiolus under Ghataprabha Command Area in two separate experiments. First experiment consisted of eight varieties of gladiolus and second consisted of three growth regulators of two concentrations each, which were laid out in a randomised block design with three replications.

Among the varieties 'Puppy tears' was early for sprouting (21.33 days) while 'Chipper white' was late (41.66 days). Based on duration of flowering, varieties can be classified into early, mid and late season types viz., early

varieties (80-87 DAP)- 'Puppy tears', 'Chipper white', 'American beauty' and 'Apple blossom' mid season types (87-95 DAP)- 'Pacific white' and 'Summer pearl' late season types (>95 DAP)- 'Summer sunshine' and 'Canadian blood red'. Mid season types exhibited maximum for spike characters like spike length, rachis length and number of florets per spike whereas, early varieties produced shorter and lighter spikes. Late season types showed higher corn yield of 11246 and 9889 kg/ha because of their heavy weight and large sized corns. However, corn yield of 4439 kg/ha was recorded more in variety 'Summer pearl'.

In the second experiment, BA 100 ppm treated corns

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sprouted significantly earlier by 13 days than control. Flowering was observed to be significantly delayed by 10 days in ethrel 200 ppm while flowering was early by 4 days in GA₃ 50ppm. Ethrel treated corns produced spikes of lighter weight, more

number of spikes and more number of corns per plant. Corn yield was observed highest (4979 kg/ha in BA 50 ppm) followed by BA 100 ppm (4953 kg/ha). Generally, GA₃ 50 ppm and ethrel 200 ppm treatments proved best in regulation of flowering.

Growth Yield and Quality of Garlic (*Allium sativum* L.) as Influenced by Spacing and Manures

M.J. SURESH

1997

MAJOR ADVISOR : Dr.P.NARAYANA REDDY

A field experiment was conducted at the Regional Research Station, Raichur during *rabi* 1996 to study the effect of spacing and manures on growth, yield and quality of garlic (*Allium sativum* L.) There were four spacings (15x5, 15x7.5, 20x5, 20x7.5 cm) and eight manural treatments. The experiment was laidout in split plot design with three replications.

Spacings exerted significant effect on growth, total bulb yield and quality aspects. Better vegetative growth in terms of increased plant height, maximum leaf length and highest number of leaves were recorded in crop spaced at 15x7.5cm. Yield components viz., number of cloves per bulb, clove size, average bulb weight and diameter were found to be better in widely spaced crop. Highest yield (7.68 t/ha) was recorded in closely spaced crop (15x5 cm) followed were higher with closer planting of cloves.

Among the different manures, treatments receiving vermicompost with half or full dose of chemical fertilizers

produced plants with better vegetative growth as compared to other treatments. Applications of 50 percent RDF + vermicompost recorded bulbs with higher weight (8.07g), diameter (3.45 cm) and maximum number of cloves per bulb (12.78, highest yield (7.53 t/ha), TSS (40.13% and ascorbic acid (14.06 mg/100g).

Interaction effects of spacing and manures were found to be significant with respect to yield components, yield, nutrient uptake and quality aspects. Highest yield (8.39 t/ha) was recorded in 15x5 cm spacing with the application of 50 percent RDF + vermicompost. This was followed by treatment with 50 percent RDF + vermicompost at 15x7.5 cm spacing, which also recorded higher bulb size and highest net returns (Rs. 41,806.57/ha).thus, for total bulb yield, bulb size maximum net returns, growing the garlic crop at 15x7.5 cm by replacing 50 per cent RDF with vermicompost @ 2.5 tonnes per hectare was found advisable.

Effect of Homobrassinolide on Growth and yield of Rainfed Kharif potato (*Solanum tuberosum* L.)

S. B. SARANGAMATH

1997

MAJOR ADVISOR : Dr. M.B MADALAGERI

Experiments in field and pots were conducted at the Main Research Station (MRS), University of Agricultural Sciences, Dharwad during *kharif* season of 1996 to know the effect of homobrassinolide (a brassinosteroid) on the growth and yield of potato. Homobrassinolide was tried at two concentrations (0.25 and 0.5 ppm) with once (25 or 35 days after sprouting) twice (25 and 35 days after sprouting). The treatments also included the seed tuber soaking in 0.5 ppm homobrassinolide for 12 hours before sowing and spraying of mapiquat chloride, a growth retarding chemical @ 150 ppm at 30 days after sprouting along with untreated check.

Homobrassinolide failed to exert significant impact on the tuber yield per hectare and plot, even though twice spraying at 0.25 ppm and 0.5 ppm registered 9.94 percent (19.24 t/ha) and 9.08 per cent (19.09 t/ha) increase in the yield, respectively than the control (17.50 t/ha). Tuber storability and quality was

unaffected by these chemicals except w.r.t the physiological loss in weight.

Spraying of mapiquat chloride at 150 ppm 30 days after sprouting was found to be superior in increasing the tuber yield per hectare with 24.40 percent (21.77 t/ha) increase over check (17.50 t/ha) but this impact was statistically non-significant. This chemical had also not exerted any adverse effect on storability and chemical composition of the tubers except the loss in weight.

Regarding the cost effectiveness none of the treatments with homobrassinolide have exceeded the net production value (NPV) of the control (3.18). However, use of mapiquat chloride was found most beneficial among all the treatments tried recording highest (3.70) net production value.

Evaluation of Tomato Genotypes for Productivity and Processing Traits Late Rabi Season

S.J. RATHOD

1997

MAJOR ADVISOR : Dr. P.NARAYANA REDDY

Tomato (*Lycopersicon esculentum* Mill.) is one of the most popular and widely grown vegetable in India. The temperature of 25-30°C is ideal for tomato cultivation but the temperature goes above 36°C in semi-arid condition during late rabi season. Hence, it is essential to identify the varieties or genotypes that can give higher yields with good processing quality traits under high temperature conditions.

Among 19 genotypes, DWD₁ x 79B 1390/29-3-sp-2-2 has recorded maximum yield of fruits (1.46 kg/plant) and was significantly superior over other genotypes except minimum per cent pollen sterility (6.02%) observed was in DWD₁/10b-4. Genotypes DWD₁ x DWD₂/10b-3, DWD₁/10b-4 and Arka Ahuti (3.00). The genotype DWD₁ x DWD₂/27-1 recorded maximum pericarp thickness (7.70mm) and was significantly superior than other genotypes. The minimum pericarp thickness was observed in DWD₁ x 79B 1390/29-4-sp-2-2 (3.57mm).

For processing quality parameters, the genotype,

DWD₁ x DWD₂/10b-3 has recorded significantly minimum p¹ value (3.50 when compared to all other genotypes while maximum in DWD₁ x 79B 1390/7-2 (5.21). Significantly, higher total acid content (0.81%) was recorded in DWD₁ x DWD₂/10b-3 than other genotypes. The genotype DWD₁ x DWD₂/10b-4 and Arka Ahuti recorded significantly higher TSS (6.00%) than other genotypes. The high yielding genotype DWD₁ x 79B 1390/29-3-sp-2-2 was found to possess the quality traits as per the standard specification required for processing.

Correlation study revealed that yield of fruits per plant was positively and highly associated with number of branches per plant and average weight of fruit whereas a negative and significant association with p¹ of fruit juice.

Path analysis revealed that number of flowers per cluster had the highest positive and direct effect (8.2388) on fruit yield whereas, least direct effect was exerted by most of the characters via number of flowers per cluster, number of fruits per cluster, percent fruit set and average weight of fruit.

Pathology of Aflatoxicosis in Pregnant Rabbit

Y. SUDHINDRA

1997

MAJOR ADVISOR : Dr. GOPALAKRISHNA RAO

The present study was undertaken with the objectives to experimentally assess the pathogenicity of aflatoxin in pregnant rabbits and its offsprings and to study the consequent haematological changes. For the experiment eighteen breedable female rabbits were obtained, after mating these were divided into three groups consisting of six in each.

First group served as control, second and third group were fed with aflatoxin at 1ppm levels in feed from the day conception upto parturition. Pregnant Rabbits were fed with aflatoxin in feed developed toxicosis and showed dose dependent signs of anorexia loss of body weight, furchewing dehydration, emaciation, abortions and still birth followed by death.

Haematological study revealed marked increase in clotting time and mild increase in total erythrocyte count, haemoglobin and decreased packed cell volume and total leucocyte count in treated groups.

The gross pathology and histopathology of organs were studied in dams, foetuses and neonates. Livers were enlarged and showed tan to brownish colour, lungs were congested. Haemorrhages were observed in kidney, uterus ovary and Oviduct. Foetuses having wrinkled skin and stunted growth whereas Neonates born were found with knuckled leg, shrivelled skin and disproportionate head. These changes were marked higher dose toxin fed groups viz 3ppm aflatoxin.

Histopathological changes in dams included megalocytosis bile duct hyperplasia and periportal fibrosis. Kidneys showed haemorrhages and heart revealed interstitial myocarditis. Uterus revealed interstitial myocarditis. Uterus revealed disorganization of endometrial layer. All these changes were dose dependent.

Liver of foetuses and neonates showed evidence of bile duct hyperplasia.

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AGRI. BUSINESS MANAGEMENT

Management of Gulbarga Co-operative Milk Producers Societies Union Limited

AHMED ANJUM SHKEEL

1997

MAJOR ADVISOR : Dr. H. S. SADATH ALI KHAN

India is the largest milk producer in the World. There are 170 and 13 milk unions operating in India and Karnataka, respectively. The major activities of milk unions are management of procurement, processing and marketing. Secondary data was analysed for evaluating the various management activities of the study union.

The study revealed that the compound growth rate of defunct dairy cooperative societies (DCS) as -31.06 per cent per annum. Out of 254 DCS, 57.4 per cent procured milk below 100 LDP. The procurement transportation cost decreased by 1.946 paise per kg for increase in 1000 kg of milk procurement per day. Four routes out of 25 operating routes had procurement cost above Rs.3.00/kg, if these routes discontinue the union could save Rs. 1300/day. Reduction in price during flush season increased milk procurement due to the seasonality of milk production.

The major source of milk was DCS (78.99%) and

91.79 per cent of total milk as sold as pasteurised milk. The union lost 0.08 per cent of milk handled (Rs.87510/year) every year which was less than permissible loss of one per cent. The LDPE film loss as 6.30 per cent (Rs.213352) in a year, within the limits set by the KMF. The break even point was 85.77 per cent capacity utilization. By 100 per cent capacity utilization the union could make a profit of Rs.28,34,359 per annum.

Milk was sold by the union through 265 commission agents and 13 distribution routes. The union paid least commission (Rs.0.25/litre) to agents among all brands in the study area. The major market for union's milk was Gulbarga (95.97%). Milk products were sold through the KMF. The sales promotion measures by the union did not increase the sales realisation. The main problems faced by the union were increasing defunct DCS and decrease in milk sales.

AGRICULTURAL EXTENSION

A Study of Sericultural Practices and Marketing Problems Faced by the Sericulturists of Belgaum District

S. MANJU

1997

MAJOR ADVISOR : Dr. M. R. ANSARI

The study on sericultural practices and marketing problems faced by the sericulturists was conducted during 1996-97 involving 120 sericulturists from villages of Chikodi talukas in Belgaum district. The findings of the study were; 68.34 per cent of the respondents had medium level of knowledge about recommended sericultural practices.

Majority of the sericulturists possess knowledge regarding mulberry variety (95.83%), soil (90%), pruning operation (90%), FYM application (87.5%), irrigation (87.50%), nicotine effect (85%), spacing (75.83%), yield/100 DLFs (83.33%) and number of feeding per day (81.66%). The knowledge level was poor in pest and disease management (20%), bed cleaning in shoot feeding method (16.66%) and bleaching powder for disinfection (10%).

Cent per cent of the sericulturists adopted the age of setts for planting, application of FYM, irrigation, silk worm races, use of DFLs, chemicals for disinfection, feeding of silkworms, storage of leaves, feeding of tender leaves to chawki worms and bed cleaning. The extent of adoption was poor in application of chemical fertilizers, shoot feeding method, separate house for silkworm rearing and pest and diseases management.

Sixty per cent of the sericulturists were literate. Nearly 90 per cent of the sericulturists had experience of more than 5 years in sericulture. Majority of them contact with sericultural demonstrator. Almost all the sericulturists possessed sericultural equipments; rearing stands, leaf cutting knives, gunny bags, rearing trays and mountages.

Significant relationship was observed between knowledge and annual income. Recurring expenditure of the sericulturists during 1996 was Rs.16942 and the net return was Rs.79336 from 604.15 kg of cocoon yield per hectare. Cent per cent of the sericulturists sold their cocoons through Government regulated markets (APMC's).

Inadequate power supply, water shortage and non availability of silkworm eggs were the major constraints in mulberry cultivation and silkworm rearing faced by the sericulturists. Majority of the sericulturists also expressed distant market place, no good price and problem of transportation are the major constraints in marketing of cocoons and hence preferred South Karnataka markets in Ramanagaram, Bangalore, Srinivasapura.

A Study on Knowledge and Adoption of Farmers Cultivating Tapioca in the Emakulam District of Kerala State

BINDU CHANDRAN

1997

MAJOR ADVISOR : Dr. M. RANSARI

The study was conducted in Kunnathanad Taluk of Emakulam district of Kerala State on 60 respondents growing tapioca. The highlight of the study was that 46.67 per cent and 36.67 per cent of the respondents belonged to the medium knowledge category and high adoption category, respectively. The gross returns realised by the respondents from cultivating one hectare of tapioca was Rs.46,455.625.

Fifty per cent of the respondents had completed their high school education, nearly 47.00 per cent of respondents

owned land from 1.01 and 2 hectares while 40 per cent of respondents had an annual income of below Rs.38,525. In general, the mass media exposure was high, while participation in the social organisations was low. Cent per cent of the respondents had contacted localities, like friends and neighbours for information. A high percentage of respondents belonged to the high scientific orientation category (38.00%) and economic motivation category (49.00%).

A Study on Various Activities Engaged and Income Contribution to the Family by Lambani Women

I. M. RAVINDRAKUMARI

1997

MAJOR ADVISOR : Dr. M. RANSARI

This study was undertaken to know the activities performed by the Lambani women, their socio-economic status, their awareness and availing of benefit from the developmental programmes, their value orientation and problems faced by them. This investigation was conducted during 1995-96 in Honnali taluk of Shimoga district and the major findings were:

Cent per cent of Lambani women performed common agricultural activities during kharif and rabi seasons, however a considerable percentage of them also performed the agricultural activities for 223 days in a year in addition to Tobacco picking (13 days) coffee works (45 days) and stone crushing (51 days) respectively. Among the subsidiary and income generating activities all the respondents were found engaged in firewood collection and some are engaged in sheep and goat rearing. All the Lambani women daily performed the various household activities. The average wage earned by the Lambani women per year was Rs.5,198.07 from various sources was spent on food, clothing, recreation and medical. Cent per cent of Lambani women spent 0-30 minutes on each

and every household activities where as for firewood collection and marketing they spent 30-60 minutes/day. The Lambani women found participated in different fairs and festivals for one to two days. All the Lambani women were illiterate and belonged to nuclear type of families. Mass media participation of Lambani women was found to be very low and none of them are members of any local organisations. Nearly three forth of the Lambani women possess values related to family planning, girls education and work respectively. At the community level all the Lambani women availed facility of health and hygiene, education, Bhagya jyothi scheme, Ashraya yojana scheme. Low wages, wage discrimination between male and female and no medical facility were the most serious problems encountered at work place by majority of the Lambani women. Problems encountered by a large number of Lambani women in day today life were insufficient income, no rest, no time to take care of children, housing problem, alcohol addicted husband, latrine problem, electricity problem and no drinking water facility.

FOODS AND NUTRITION

Physico-chemical Parameters and Processing of Tomato Powder

G. NAGAMANI

1997

MAJOR ADVISOR : G. S. SHARADA

Three varieties of tomatoes namely, Pusa Ruby, Sadabahar and Vaishali grown in Dharwad in the year 1996-97 were studied for their physico-chemical parameters. Tomato powder was prepared and recipes evaluated for their organoleptic characteristics like appearance, colour, flavour, texture, taste and overall acceptability. Shelf life of powder was

studied in terms of chemical and sensory parameters. The physico-chemical parameters included in the study were physical characteristics, pH, total soluble solids, moisture, reducing and total sugars, ascorbic acid, titrable acidity, lycopene and b - carotene content. The composition of three varieties differed significantly. From the nutritional point of

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view, the variety Vaishali and Sadabahar has substantial amount of ascorbic acid and b - carotene contents. Among the three varieties, Sadabahar was selected for dehydration studies as it was available in large quantities and had more flesh content. Tomatoes were dehydrated by two methods viz , oven and sundrying. Pretreatments given before drying were Blanching, Blanching plus potassium metabisulphite 0.25%, Blanching plus potassium metabisulphite 0.5% and blanching plus potassium metabisulphite 0.75%.

Pretreated dehydrated powder was evaluated for sensory attributes by panel of ten judges. Among the drying methods, oven drying had a significantly higher mean score for all organoleptic parameters at one per cent level. The

pretreatment significantly influenced all the sensory parameters. Blanched plus potassium metabisulphite 0.5% plus 1% salt treated powder produced better quality product. From the sensory evaluation of recipes prepared by using powder and fresh tomatoes viz .m chutney, dosa, soup, burfi, rice etc. , it was evident that there was no significant difference between the two. The dehydrated powder was packed in polythene bags and kept in glass bottles at room temperature. The peroxide value increased with storage period, indicating deterioration. Even though, there was decrease in mean score of recipes for sensory characteristics, the product was acceptable by the judges.

Evaluation of Vitamin A Prophylaxis Programme Qualitative Approach

GEETA M. YANKANCHI

1997

MAJOR ADVISOR : Dr. RAMA K. NAIK

A sum of 180 children (9 months to 3 years) were randomly selected from these Primary Health Centres (PHC) o Dharwad taluka. The dietary, anthropometric, clinical and health assessment were made as per standard procedure. Nutrition knowledge of mothers and information about on-going prophylaxis programme were assessed by personal interview. Data from the literature review, key informant interviews, group discussion, market surveys and food consumption interviews were included under qualitative assessment.

The results revealed that the mean anthropometric parameters of children were lower than NCHS (50%) standards. The mean height, weight and mid upper arm circumference were 73.15 cm, 9.11 kg and 13.98 cm, respectively. Boys were taller and heavier than girls. About 9.4, 43.9, 39.4 and 7.2 per cent of children were normal, mild, moderate and severely malnourished, respectively. The nutrient intake were below the ICMR recommendations. The mean adequacy of protein was above 80, energy and iron were

between 50-60, fat and calcium 60-70 and b - carotene was 37.58 per cent of the requirements. Anaemia and protein energy malnutrition were prevalent among children and found suffering from cold, cough, fever and diarrhoea. With respect to vitamin A deficiency only three cases of conjunctival xerosis and one case of Bitot spot were observed.

The medical doctors and PHC had better knowledge followed by District Health Officer and Auxiliary Nurse Midwives with respect to prophylaxis programme. About 40.55, 24.44 and 35 per cent of mothers had poor fair and good knowledge, respectively about vitamin A.

Qualitative research revealed that India is one of the vitamin A deficient (VAD) countries. Food availability and cost of foods suggest that VAD should not be critical health problem in the study area. Inadequate consumption of vitamin A foods, existence of local term for night blindness, food taboos indicate that VAD is potentially still a problem among children.

Evaluation of Mid-day Meal Programme at Dharwad Taluka

MEENAKSHI S. KABEDI

1997

MAJOR ADVISOR : Dr. MEERA RAO

The Mid-day Meal Programme (MDMP) in Dharwad taluka was evaluated. A random sample of 300 children were drawn from schools : 15 rural, 15 urban and 3 without MDMP. Mothers (300), teachers (30) and functionaries (20) involved in implementation of programme were assessed for knowledge and perception regarding MDMP using pretested schedules. Nutritional status of the children was assessed through anthropometry, dietary survey and clinical examination and healthy status by recording the ailments reported in the past three months. Functioning of MDMP in school was evaluated by repeated visits using pretested schedule. Beneficiaries were taller than non-beneficiaries, the difference being significant

among boys in 7+ and 8+ age group and among girls in 10+ age group. Anthropometric measurements of children were lower than NCHS standards at 50th percentile. Except protein and niacin the intake of all nutrients were below the RDA. The food supplement contributed about 0.4 - 6.65 g protein and 32-162 Kcal energy/day. The dietary levels of protein and niacin was significantly high in beneficiaries compared to non beneficiaries, while the intake of protein, calories and b - carotene was high in urban beneficiaries than rural beneficiaries. Minor signs of nutritional deficiency was 39 per cent in the children. Only 25 per cent of respondents opined that MDMP helps to improve the nutritional status of children.

Knowledge about MDMP was highest among functionaries (80%) followed by teachers (44%) and children (38%). Mothers (43.5%) had poor knowledge. Urban respondents were having significantly higher knowledge than rural respondents. Efficiency of programme in schools ranged from high (40%) to poor (26.7%). Considering the nutritional and healthy status

of beneficiaries, knowledge of beneficiaries and their mothers, only one urban school conducted the programme with high efficiency and majority of schools belonged to low efficiency category. Thus the effect of MDMP was not uniform among parameters studied.

Promoting Soybean Utilization Through Nutrition Education Among Families of Soybean Cultivars

RAJASHREE D. KAMBLE

1997

MAJOR ADVISOR : G. S. SHARADA

A study entitled Promoting Soybean Utilization Through Nutrition Education Among Families of Soybean Cultivars was undertaken in the selected three villages of Kalaghatagi Taluk in Dharwad district during 1996-97 to 90 rural women belonging to the soybean cultivating families. Based on the baseline information collected, the existing knowledge and practice of the rural women with respect to soybean utilization was assessed. Five pulse based recipes with 25% soybean substitution and Hurigalu a recipe of whole soybean were standardized and subjected to sensory evaluation by a trained panel. Among these recipes Thalipattu and maximum overall acceptability followed by Chakkuli, Hurigalu, Vada, Usali and Junaka. Nutrition education in terms of

nutritional significance of soybean, level of substitution of soybean to other foods, processing of soybean and soybean food preparations was imparted to the rural women and the extent of knowledge was evaluated for the period of three months in monthly interval. Due to nutrition education programme there was a significant increase in the level of knowledge and practices and the retention decreased with increased interval. Rural women stated using soybean in most of the food preparations. Rural women's age, family income, size of the family and type of family did not influence the knowledge of the women. There was a positive relationship between knowledge and practice of rural women with respect to soybean utilization.