

Impacts of Climate Change on Agriculture

Mannava Sivakumar

Former Director, Climate Prediction and Adaptation Branch, World Meteorological Organization,
Switzerland, Founding Editor-in-Chief, Weather and Climate Extremes (Elsevier)
and Consultant, World Bank

Nutrient Management in Zero Till Maize for North Coastal Zone of A P

S Sravanthi, A V Ramana, K V Ramana Murthy and J Jagannadam

Department of Agronomy, Agricultural College, Naira 532 185, Andhra Pradesh

ABSTRACT

A field experiment was conducted during *rabi*, 2014-15 on sandy loam soils of Agricultural College Farm, Naira, to study the effect of N levels and micronutrient management practices on maize under zero till conditions. The experiment was laid out in split-plot design with three nitrogen levels and seven micronutrient management practices, each replicated thrice. Significantly higher growth stature, yield structure and yield were obtained with the highest level of N supplied (240 kg ha⁻¹) compared to successive lower levels. Among the micronutrient management practices, foliar application of micronutrient mixture @ 0.2% twice at 20 & 40 DAS was found to significantly enhance growth, yield attributes and kernel yield. The highest kernel yield was obtained with the highest level of nitrogen applied @ 240 kg ha⁻¹ and supplemented with micronutrient mixture, which was however found parity with same micronutrient management practice at immediate lower level of N @ 180 kg ha⁻¹. While, the kernel yield with 120 kg N ha⁻¹ and supplemented with foliar application of ZnSO₄ @ 0.2% twice at 20 & 40 DAS produced the lowest kernel yield (4090 kg ha⁻¹). Maximum gross returns, net returns and B: C ratio were observed with the application of N @ 240 kg ha⁻¹ and supplemented with micronutrient mixture, which was however found parity with same micronutrient management practice at immediate lower level of N @ 180 kg ha⁻¹.

Key words : Nitrogen levels, Micronutrients, Yield, Zero till maize.

Response of Direct Seeded Rainfed Low Land Rice to Organics and Zinc Application

M Jayasankar, N Venkata Lakshmi, B Venkateswarlu, P Ratna Prasad

Department of Agronomy, Agricultural College, Bapatla 522 101, Andhra Pradesh

ABSTRACT

A field experiment was conducted during *kharif*, 2014 at Agricultural College Farm, Bapatla. The experiment was laid out in RBD and replicated thrice. Treatment combinations include FYM and Urban Compost as organic sources and two methods of zinc application. The results showed that significantly higher growth parameters viz., plant height, no. of tillers m⁻², drymatter accumulation, yield attributes (no. of productive tillers m⁻², total grains panicle⁻¹, no. of filled grains panicle⁻¹ and test weight) and yield of direct seeded rice were with RDF (120: 60: 40 kg NPK ha⁻¹) along with FYM @ 10 t ha⁻¹ and ZnSO₄ @ 50 kg ha⁻¹ basal soil application combination which was at par when zinc was applied as foliar spray @ 0.5% at 20 and 40 DAS with RDF + FYM @ 10 t ha⁻¹.

Key words : FYM, Urban Compost, Zinc and Direct Seeded Rice.

Influence of planting densities and nitrogen levels on yield of *rabi* maize

K Revathi, M Sree Rekha, N Venkata Lakshmi and P Prasuna Rani
Department of Agronomy, Agricultural College, Bapatla 522 101, Andhra Pradesh

ABSTRACT

A field experiment was conducted during *rabi* 2014-2015 at Agricultural College Farm, Bapatla, to study the influence of planting densities and nitrogen levels on yield of *rabi* maize. The experiment was laid out in a split plot design and replicated thrice. The results revealed that planting density of M_2 (83,333 plants ha^{-1}) and S_8 (300 kg N ha^{-1} + 0.5% $ZnSO_4$ as foliar spray at tasseling) recorded highest kernel yield which was on par with M_1 (1,00,000 plants ha^{-1}) and S_8 (300 kg N ha^{-1} + 0.5% $ZnSO_4$ as foliar spray at tasseling). Foliar application of $ZnSO_4$ along with nitrogen at tasseling influenced yield attributes, kernel and stover yield significantly. The interaction between planting densities and nitrogen levels was found to be non significant.

Key words : Maize, Nitrogen levels, Planting densities, Zinc foliar spray.

Influence of Plant Population and Varieties on Growth and yield of Clusterbean (*Cyamopsis tetragonaloba*) in Vertisols of A. P

E Narayana, G Subba rao and E Venkateswarlu
Regional Agricultural research Station, Lam , Guntur,-522034. Andhra Pradesh.

ABSTRACT

A field experiment was conducted at Regional Agricultural Research station, Lam Farm, Guntur during kharif, 2012 season to find out the optimum plant population and suitable varieties of clusterbean for vertisols of Andhra Pradesh under rain fed condition. Number of branches, clusters and pods per plant increased by 18%, 15% and 24% respectively, under wider spacing (60x20cm) when compared with closer spacing (60x10cm). Though the no. of branches, clusters and pods per plant recorded were lower under closer spacing, as the plant stand was double and that has contributed for increased yield by 31% (853kg/ha) when compared to wider spacing (593kg/ha) . GG 1 recorded the highest grain yield (820 kg/ha) which was significantly superior to all the other varieties tested (RGC 936, RGC 1033, GG2 and RGC 1038) in vertisols of Andhra Pradesh under rain fed situation. Similar trend was also observed in respect of BCR.

Key words : Clusterbean, Plant Population and Vertisols.

Response of zero tillage maize to sub surface drip fertigation

V Prasada Rao, B Venkateswarlu, A S Rao, Balkrishna Yadav, K L N Rao and P Prasuna Rani
Department of Agronomy, Agricultural College, Bapatla 522 101, Andhra Pradesh

ABSTRACT

A field experiment was carried out for two consecutive years (2012-13 and 2013-14) on sandy loam soils of Jain Hi-tech Agri institute, Jalgaon, Maharashtra with the objective to study the response of zero tillage to subsurface drip fertigation. The experiment was laid out in split-plot design with four replications. The cultivars used for the study 'Dekalb' (Private hybrid) in maize. The growth parameters viz. plant height, drymatter accumulation and kernel yield, of zero till maize increased with increase in irrigation schedule from 75% Epan to 150% Epan irrigation schedule in drip irrigation. Increase in the level of N application from 120 to 240 kg N ha^{-1} resulted in the increase of all the growth parameters, kernel yield were higher with the irrigation schedule of 150% Epan and nitrogen dose of 240 kg N ha^{-1} applied through fertigation.

Key words : Fertigation, Sub surface drip, Zero tillage maize.

Influence of Nitrogen Management Practices with *Glyricidia* Leaf Manure on Yield and Nutrient uptake of Rice (*Oryza sativa* L.)

N Venkata Lakshmi, R Veeraraghavaiah, G Subbaiah, Y Ashoka Rani and P Ravindra Babu
Department of Agronomy, Agricultural College, Bapatla 522 101, Andhra Pradesh

ABSTRACT

Field experiments were conducted during *kharif* seasons of 2007-08 and 2008-09 on sandy clay loam soils of Agricultural College Farm, Bapatla to study the economics and productivity of rice with different levels of nitrogen (120, 180, 240 kg N ha⁻¹) and in combination with *Glyricidia* leaf manure @ 10 t ha⁻¹. The study revealed that application of 240 kg N ha⁻¹ + *Glyricidia* leaf manure (GLM) @ 10 t ha⁻¹ recorded significantly higher yield components and yield of rice and found on a par with that of application of 240 kg N ha⁻¹ alone and 180 kg N ha⁻¹ + GLM @ 10 t ha⁻¹, showing the benefit of GLM to a tune of 60 kg N ha⁻¹ in enhancing the yield of rice during both the years of the study. Across the treatments, application of 240 kg N ha⁻¹ with GLM resulted in significantly higher NPK uptake (162.2, 22.7, 201.7 kg N, P₂O₅, K₂O ha⁻¹), during *kharif*, 2007 and during *kharif*, 2008 145.2, 15.3, 157.2 kg N, P₂O₅, K₂O ha⁻¹, compared to that of 120 kg N ha⁻¹ with or without GLM and 180 kg N ha⁻¹ application alone. The status of available NPK in the soil was significantly higher in the plots, which received N levels along with GLM @ 10 t ha⁻¹ than that of fertilizer N alone during both the years of the study.

Key words : *Glyricidia* leaf manure, Nitrogen levels, Rice.

Economic Impact Analysis of Agrometeorological Advisory Services Issued Through Agromet Advisory Services Project For Farmers of Southern Zone of Andhra Pradesh

T Prathima, A Muneendrababu, T Muralikrishna And K Devaki
Regional Agricultural Research Station (ANGRAU), Tirupathi, Andhra Pradesh, India.

ABSTRACT

Weather based agro advisories play a vital role in agricultural production. Bi-weekly agrometeorological advisory bulletins based on medium range weather forecasting were effectively disseminated to assess the economic impact involving 20 AAS farmers and 20 non-AAS farmers. The study comprises of 2 panchayats. The weekly agromet advisory bulletin contains information on past weather, weather forecast for 3-5 days ahead, stage of the crops and advisory to be followed on crop management, technology adoption and crop protection measures based on weather forecast. Economic impact analysis of Agro advisories for adoptability among farming communities was also carried out by field surveys and regular monitoring during 2006-2010. Factors affecting crop production such as drought, excess rains, and pest disease under unfavourable weather conditions were evaluated. By employing the Agrometeorological advisory services, farmer can increase his farm productivity and reduce the crop loss. Analysis of medium range forecast of rainfall for 9 years (2001-2002 to 2009-2010) realized to extent of 51% during Kharif and 60% during Rabi and the forecast were found to be encouraging. Results on economic impact of weather based agromet advisories in rice, groundnut and redgram growing areas revealed that adoption of improved practices such as introducing redgram as intercrop in 7:1 ratio in groundnut, under normal and unfavourable weather conditions, by taking up timely plant protection measures improved the income of the farmer. Our analysis indicated an additional benefit of Rs.3500 to 15000/- per hectare can be achieved by duly following weather based agro advisories with respect to adoption of technology, pests and diseases for the crops under study.

Key words : Agromet Advisory Services, Medium range weather forecasting.

Soil available Nutrient Status as Influenced by Various Organics and Inorganic Fertilizers in Maize – Maize Cropping system

A V Nagavani and P Subbian

Department of Agronomy, S V Agricultural College, Tirupati 517 502, Andhra Pradesh

ABSTRACT

A field experiment was conducted to evaluate the soil available nutrient status with the application of organic and inorganic source of nutrients during *kharif* and *rabi* seasons of 2008 and 2009 at the irrigated upland farm of Tamil Nadu Agricultural University, Coimbatore. The experiment was laid out in randomized block design with three replications and ten treatments. The results revealed that significant increase in soil available nitrogen, phosphorous and micro nutrients at the end of two years of cropping sequence was recorded with 100 per cent RDF supplied through poultry manure, while, higher soil available potassium was observed with the application of 100 per cent RDF through vermicompost.

Key words : Inorganics, Maize, Organics, Soil fertility.

Studies on the Effect of Plant Density, Type of Cutting and Method of Planting on Root to Shoot ratio of Medicinal Coleus [Coleus forskohlii (willd) Briq.]

Ch Chandrasekhar Rao, R Chandrasekhar and M Rajkumar

Department of Agronomy, College of Agriculture, Rajendranagar, Hyderabad 30

ABSTRACT

The results revealed that Root to shoot ratio was highest in wider spacing(60*30 cm). It might be due to wider spacing resulted in maximum utilization of inputs, that might have caused maximum bulking of root. Root to Shoot ratio was maximum in rooted cuttings could be due to the early established rooted cuttings increased the uptake of nutrients and water might have accumulated maximum dry matter .

Key words : Plant density, Medicinal coleus, Method of planting.

Response of Popcorn (*Zea mays everta*) to Different Fertilizer Levels and Plant Densities in *Kharif* Season”

B Jyothi Basu, P Venkata Rao, S Kiran Kumar and B V S Kiran
Division of Agronomy, College of Agriculture, Mahatma Phule Krishi Vidyapeeth,
Kolhapur,(Maharashtra) 416 004

ABSTRACT

An experiment entitled “Response of popcorn (*Zea mays everta*) to different fertilizer levels and plant densities in *kharif* season” was conducted during 2012 at Post Graduate Research Farm, College of Agriculture, Kolhapur, to study the effect of fertilizer and plant spacing levels on growth and yield of popcorn. The experiment was laid out in Factorial randomized block design with twelve treatments combinations comprising of three fertilizer levels viz., 75% RDF (90:45:30 Kg NPK ha⁻¹), 100% RDF (120:60:40 Kg NPK ha⁻¹) and 125% RDF (150:75:50 Kg NPK ha⁻¹) and four plant spacing levels viz., 60 x 15 cm², 60 x 20 cm², 75 x 15 cm² and 75 x 20 cm². The study has revealed that all the growth characters viz., plant height, number of functional leaves, leaf area and dry matter accumulation per plant were found significantly higher with application of 125% RDF (150:75:50 Kg NPK ha⁻¹) over 75% RDF (90:45:30 Kg NPK ha⁻¹) and it was on par with 100% RDF (120:60:40 Kg NPK ha⁻¹) at all the crop growth stages. The number of functional leaves, leaf area and dry matter accumulation per plant were significantly higher with plant spacing of 75 x 20 cm² over 60 x 15 cm², except 75 x 15 and 60 x 20 cm² spacing levels.

Key words : Fertilizer levels, Plant densities, Popcorn.

Weather Health indices for ranges of rainfall in ITKs through Murthy’s concepts

VRK Murthy, P Venkata Rao, B Jyothi Basu and S Kiran Kumar
Department of Agronomy, Agricultural College, Bapatla 522 101, Andhra Pradesh

ABSTRACT

A study was conducted for 30 years from 1983 to 2013 to convert the farmers usage of qualitative terms into quantitative terms with respect to rainfall in the state of Andhra Pradesh. The qualitative terms which depict the ranges of rainfall in traditional knowledge like “ No, Low, Moderate and Heavy “ were scientifically and technically quantified as “ 0, 0-16, 16-24 and 24-40 mm “ respectively. Also, farmers qualitative terms in ITWks such as “Normal drought, moderate drought and severe drought” are quantified as “ < 25%, 25-50% and >50%” respectively of the normal rainfall of Andhra Pradesh. The quantitative terms are precisely defined as “Constants”, after the introduction of the terms “Weather health” and “Weather health indices” since 2012. A huge 81 per cent of the 2200 farmers/ teachers/ students who were interviewed / surveyed expressed that the weather health indices, thumb rules and agro-almanac helped them to overcome the daily weather related risks and uncertainties, more so during cyclones in their farms. In addition, the “Weather health indices” observed through Murthy’s Daily Weather and Agriculture (MDWA) were found suitable as “Service” through the “Weather health indices”.

Key words : Health indices, Weather.

Expressed Sequence Tags Identification for Fusarium Wilt Resistance in Chick Pea (*Cicer arietinum*)

G Naga Raju, Deepali ghai and Subhra Chakraborty

National Institute of Plant Genome Research, J.N.U. Campus, NewDelhi-110067,India.

ABSTRACT

Expressed sequence tags(EST)s have wide spread use viz., as a molecular marker and base material for gene expression studies. For the present analysis two subtracted libraries one from the resistant chickpea cultivar (WR315) and the other from the susceptible chickpea cultivar (JG62) to the *Fusarium* wilt pathogen were being used. Genes with altered expression upon pathogen infection were enriched by the subtraction procedure and were cloned in pGEMT Easy vector. Subtracted libraries after the insert screening were stored as glycerol stocks in 96 well microtitre plates and further analyzed by sequencing the inserts using automatic sequencing machine. The sequences were processed further to remove vector sequences like blast search against the existing databases available at the NCBI site. A cut off score of 100 was put to find the best matches and the top match was used for all the down stream work. Initially all the sequences were analysed using Blast-X Programme followed by Blast-N and Tblast-x. Sequences showing no significant match after the Blast search were further analysed using Stand alone Blast to remove redundant clones. Some of the interesting genes fall in the class of regulatory proteins, signaling proteins and defense response proteins as for example, bZIP, bHLH, Zn-finger transcriptional activators, kinases, phosphatases, G-protein coupled receptor and this study paved way to identify EST's upon Fusarium infection in Chickpea.

Key words : Chickpea, EST, Fusarium wilt.

Nature of Gene Action for Cane, Ccs Yields and Their Yield Components in Sugarcane (*Saccharum Officinarum* .L)

M Triveni, M Charumathi, P V Rama Kumar and A V Ramana

Department of Genetic and Plant Breeding, Agricultural College, Bapatla 522 101, Andhra Pradesh

ABSTRACT

The clones viz., 2000A 56, 2000A 240, 2001A 63, 2004A 55 and 2005A 128 were identified as the best clones among early group. 98A 163, 2000A 225, 2004A 104, 2000A 241 and 2005A 108 were registered as the superior clones among the midlate group based on higher mean values for shoot population at 120 DAP, 240 DAP, NMC at harvest, cane length, cane diameter, single cane weight, sucrose per cent, CCS per cent, cane and CCS yields. Additive gene action for NMC at harvest, cane length, single cane weight, cane volume, cane yield and CCS yield, where as germination per cent, shoot population at 90 DAP and purity per cent were under the influence of non additive gene action. Stalk population at 180 DAP and 240 DAP, cane diameter, brix per cent, sucrose per cent CCS per cent and fibre per cent indicated the importance of both additive and non additive gene action in inheritance of characters. The differential pattern of gene action for the characters could be due to environmental variation.

Key words :Gene Action, Genetic Parameters, Sugarcane.

Variability Studies in Sesame (*Sesamum indicum* L.)

G Pavani, S V S Gangadhara Rao, V Saida Naik and G Ramesh

Department of Genetics and Plant Breeding, Agricultural College, Naira 532 185, Andhra Pradesh

ABSTRACT

Fifty sesame germplasm lines were evaluated for genetic variability, heritability and genetic advance as per cent of mean based on 10 characters. In general the genotypic coefficient of variation observed was less than phenotypic coefficient of variation for all 10 quantitative characters, revealing the masking effect of environment. High heritability coupled with high genetic advance as per cent of mean was observed for days to 50% flowering, plant height (cm), number of branches plant⁻¹, number of seeds capsule⁻¹ and seed yield plant⁻¹ (g) indicating the role of additive gene action in governing the inheritance of these traits which can be improved by simple selection. However, high heritability coupled with low genetic advance was observed for capsule length (cm).

Key words : Sesame, Heritability, Variability parameters.

Variability, Heritability and Genetic Advance in Kenaf (*Hibiscus cannabinus* L.)

J Niranjana Kumar, A Appala Swamy, K Madhu Kumar and G Ramesh

Department of Genetic and Plant Breeding, Agricultural College, Naira 532 185, A P

ABSTRACT

An investigation was carried out to assess the variability, heritability and genetic advance for ten quantitative characters *viz.*, days to 50% flowering, plant height, basal stem diameter, bark thickness, number of nodes per plant, inter-nodal length, green plant weight, fibre length, fibre-wood ratio and fibre yield per plant in 28 genotypes (twenty one F₁S and seven parents) of kenaf (*Hibiscus cannabinus* L.). The analysis of variance indicated significant differences among the genotypes for all the characters studied. The results revealed high PCV and GCV for fibre yield per plant. The estimates of heritability and genetic advance as per cent of mean were high for the characters *viz.*, bark thickness, green plant weight and fibre yield per plant indicating that most likely the heritability is due to additive gene action and selection may be effective. High heritability coupled with moderate genetic advance as per cent of mean was observed for number of nodes per plant and fibre length whereas, moderate heritability combined with moderate genetic advance as per cent of mean for plant height and inter-nodal length indicating the role of both additive and non-additive gene actions; Moderate heritability coupled with low genetic advance as per cent of mean was observed for basal stem diameter while moderate heritability coupled with high genetic advance as per cent of mean for fibre-wood ratio whereas, high heritability coupled with low genetic advance as per cent of mean for days to 50% flowering indicating the role of non-additive gene action.

Key words : Genetic advance, Heritability, Kenaf, Variability.

Grain Yield Stability of Pearl Millet (*Pennisetum glaucum* (L.) R. Br.) in Scarce Rainfall Region of Andhra Pradesh under Rainfed Situation

P Shanthi, B Sahadeva Reddy and M Subba Rao

Agricultural Research Station (Dray Land Agriculture), Ananthapuram – 515 001

ABSTRACT

Genotype x environment interaction in pearl millet (*Pennisetum glaucum* (L.) R. Br.) was studied for grain yield by growing a total of ten genotypes including both public and private bred cultivars (six released hybrids and four released open pollinated cultivars). Studies were conducted during rainy season in three years viz., 2011, 2012 and 2013 at AICRP on Pearl Millet, Agricultural Research Station, ANGRAU, Ananthapuram center. The analysis of variance indicated that significance of environments suggesting the presence of considerable influence of differential environments on grain yield. Environment (linear) was significant and larger in magnitude, suggesting its importance in expression of grain yield performance in pearl millet and indicating the prediction of performance across the environments is possible. The significant pooled deviation (non-linear component) mean sum of squares for grain yield indicated that the genotypes differed considerably with respect to their stability for this character. Considering the environmental indices, the environment 1 (*khari* 2011) is observed to be more favourable environment for grain yield in pearl millet. Based on performance of ten genotypes studied, over the three years of study, the genotypes viz., ICMH 356, ICMV 221 and ICTP 8203 were found stable for grain yield, since these genotypes showed regression coefficient 'bi' nearer to one and values for deviation from regression is as small as possible, mean is higher than the general mean (1370.189 kg/ha).

Key words : Grain yield, Pearl Millet, G x E interaction, *Pennisetum glaucum* (L.), Stability, Scarce rainfall region of A.P.

Genetic Variability, Heritability and Genetic Advance Studies in Cotton (*Gossypium hirsutum* L.)

S Pradeep, Y Satish, D Ratnababu and V Srinivasa Rao

Department of Genetics and Plant Breeding, Agricultural College, Bapatla 522101, Andhra Pradesh

ABSTRACT

Sixty cotton genotypes were evaluated during *Khari*, 2014-15 for genetic variability, heritability and genetic advance as per cent of mean based on 15 characters. High genotypic coefficient of variation (GCV) and phenotypic coefficient of variation (PCV) values are observed for the trait number of monopodia per plant. High heritability coupled with high genetic advance as per cent of mean was recorded for characters viz., plant height (cm), number of monopodia per plant, number of bolls plant⁻¹, lint index (g), seed cotton yield per plant and lint yield per plant (g) indicating the preponderance of additive gene action making selection effective.

Key words : Cotton, Heritability, Variability parameters .

Correlation Studies Between Yield and its Components in Advanced Breeding Lines in Rice (*Oryza Sativa* L.) Under Salinity

K Vijaya Durga, P Venkata Ramana Rao, Jyothula D P B and V Srinivasa Rao

Department of Genetics and Plant Breeding, Agricultural College, Bapatla 522101, Andhra Pradesh

ABSTRACT

Correlation studies between yield and its components under saline conditions is carried out in 69 advanced breeding lines of rice. Results revealed that significant positive correlation of grain yield/plant with ear bearing tillers/plant, panicle length and spikelet fertility and positive non significant correlation with plant height, number of filled grains/panicle and test weight. The association between grain yield/plant and initial and final salinity scores was negative and significant. Based on the association between the yield and its traits, selections can be made for improvement of yield especially under saline conditions, by taking the positive significant associated traits.

Key words : Components, Rice, Salinity.

Correlation Studies For Physical Quality Traits In Rice (*Oryza Sativa* L.)

Karuna Sri K, Chamundeswari N, Ratna Babu D and Ashoka Rani Y

Department of Genetic and Plant Breeding, Agricultural College, Bapatla 522101, Andhra Pradesh

ABSTRACT

Four F₂ populations were studied in order to understand the character association among the grain quality characters and yield components in rice (*Oryza sativa* L.) in pursuit of developing highly potential rice genotypes with good grain quality. The results of simple correlation analysis in F₂ population revealed that milling traits *viz.*, hulling percent, milling percent and head rice recovery showed a positive significant correlation among themselves and with yield components. Therefore, from the present study it is inferred that selection for more test weight will simultaneously improve grain yield with good milling traits.

Key words : Character association, Correlation, Rice.

Yield, uptake and available nutrient contents as Influenced by Organic and Inorganic Sources of Nitrogen in Soybean-Maize Cropping System.

R Uma Reddy, S Narendra Reddy

District Agricultural Advisory and Transfer of Technology Centre, Enumamula, Warangal

ABSTRACT

Effect of different organic sources of nitrogen with inorganic fertilizers on yield, yield attributes, availability and uptake of nutrients in soybean-maize cropping system was studied in a field experiment. Highest soybean yield 12.9 q ha⁻¹ was obtained with the application of 75% of recommended dose of nitrogen along with 100% recommended dose of P K through inorganic fertilizers + 25% recommended dose of nitrogen through vermin compost. Availability of nutrients in soil was improved consequently. The uptake of nutrients and available nutrient contents after soybean were improved with treatments that received integrated use of organic manures in combination with recommended dose of nutrients through inorganic fertilizers.

Key words : Farmyard manure, Poultry manure, Recommended dose of fertilizer, Vermicompost.

Long-Term Impact of ICDS on Intellectual Development of Rural Children

Sobharani M and Vazir S

National Institute of Nutrition, Hyderabad 500 007, Telangana state, India

ABSTRACT

The Intellectual development of young children has always been a matter of concern, especially for the disadvantaged groups in India. The Government of India has initiated several programmes with a view to stimulate the intellectual development of these groups. ICDS Scheme, one of the largest child welfare programmes in the world also includes this aspect of development in its objectives. The focus of the present paper is on the study of long-term impact of the ICDS on intellectual development and scholastic achievement of erstwhile Beneficiaries and control school children 7 to 9 years of age in A.P. Eight abilities of BK IQ test namely Speed of Response, Memory, Perception of Form, Comprehension, Sensation, Similarities, Reasoning, and Judgment were investigated. The results indicated that the abilities such as memory, perception of form, sensation and similarities are significantly higher among the erstwhile ICDS beneficiaries compared to erstwhile Non-ICDS control children. The programme content seems to stimulate these abilities more than others. These abilities, especially memory may be significantly associated with school achievement.

Key words : ICDS, Intellectual development.

Characterization of Saline Soils of Uppugunduru Region, Prakasam District, Andhra Pradesh

K Nancy Jasmine, P Prasuna Rani, P R K Prasad and R Lakshmi Pathy

Department of Soil Science and Agricultural Chemistry, Agricultural College, Bapatla-522 101

ABSTRACT

The present study was carried out by collecting 100 representative soil samples from Uppugunduru region of Prakasam district. Texture of the soils varied from clay to sandy clay. WHC ranged from 32.98 to 70.81 per cent with a mean value of 51.94 per cent and relatively high values were observed in clay soils. Higher bulk density values were recorded in sandy clays than clay soils. The soils were found to be neutral to moderately alkaline in reaction. The electrical conductivity of saturation extract (EC_e) of soil samples varied from 0.74 (non saline) to 40.02 dS m⁻¹ (very strongly saline) with a mean value of 13.61 dS m⁻¹. The soils of the region were low to medium in organic carbon. Cation exchange capacity of the soils ranged from 30.80 to 53.71 cmol (p⁺) kg⁻¹. The most dominant exchangeable cation was calcium followed by magnesium, sodium and potassium.

Key words : Exchangeable bases, Physico-chemical properties and Saline soils.

Management of Nitrogen Through the Use of Leaf Colour Chart (LCC) and Soil Plant Analysis Development (SPAD) or Chlorophyll Meter for Sweet Corn in Sandy Loam soils

M N Venkatesh, P Ratnaprasad, P R K Prasad and K Jayalalitha

Department of Soil Science and Agricultural Chemistry, Agricultural College, Bapatla 522 101

ABSTRACT

A field experiment was conducted in sandy loam soils of Agricultural College Farm, Bapatla, Andhra Pradesh, India to evaluate the best site specific real time nitrogen management strategies for sweet corn (var. sugar75) during *kharif* of 2014-15 by taking 120 kg N ha⁻¹ and 150 kg N ha⁻¹ in three to four splits as treatment combinations through SPAD and LCC. The experiment was laid out in randomized block design with nine treatments and replicated thrice. The experimental soil (0-15 cm) had pH 6.81; organic C 0.19 %; available N 242.8 kg ha⁻¹; available P₂O₅ 20.6 kg ha⁻¹ and available K₂O 164.2 kg ha⁻¹. The results show that values of both LCC and SPAD significantly increased with an increasing level of N. The mean values of LCC and SPAD varied from 3.0 to 5.4 and 42.2 to 51.2, respectively in sweet corn and they were significantly correlated with N content and uptake at 30 and 60 DAS. The results show that the amount of N can be saved as 20-40 and 40-60 kg N ha⁻¹ through the use of SPAD and LCC in sweet corn over T₁ where 120 kg N ha⁻¹ was applied in three splits. The plot received 120 kg N ha⁻¹ in four splits and SPAD- treated N plots produced the maximum grain yield. The results further show that 40 kg N ha⁻¹ as basal + 20 kg N ha⁻¹ if SPAD value is <48.0 has been proved to be superior treatment for the best management of N in sweet corn in sandy loam soil.

Key words : Chlorophyll meter, LCC, Nitrogen uptake, Sweet corn ,Yield.

Influence of Biochar on Yield and Yield Attributes of Sweet Corn

O Sivadevika, P Ratna Prasad, P Prasuna Rani and R Lakshmi Pathy

Department of Soil Science and Agricultural Chemistry, Agricultural College, Bapatla 522 101

ABSTRACT

A field experiment was conducted in field number 28 of northern block, Agricultural college farm, Bapatla, Andhra Pradesh to study the influence of biochar on soil properties and yield of maize (sugar cane-var. sugar 75) during *kharif* season of 2014-15. The experimental soil was clay loam in texture, slightly alkaline reaction, low in organic carbon, low in available nitrogen, medium in available phosphorus and high in available potassium. All the micronutrients were sufficient in the soil with values above their critical limits. The treatments comprised of control (no fertilizers) (T₁), RDF (T₂), RDF+Azophos (T₃), 75% RDF+biochar @ 5 t ha⁻¹ (T₄), 75% RDF+biochar @ 5 t ha⁻¹+Azophos (T₅), 75% RDF+FYM @ 5 t ha⁻¹ (T₆), 75% RDF+FYM @ 5 t ha⁻¹+ Azophos (T₇) were replicated thrice in randomised block design (RBD) with three replications. Biochar, FYM and Azophos were incorporated one week before sowing. Entire phosphorus was applied as basal dose in the form of SSP, nitrogen and potassium were applied in 3 and 2 splits, respectively in the form of urea and MOP as per the treatments. Application of 75% RDF+biochar @ 5 t ha⁻¹ +Azophos favoured the growth, yield and its attributes besides increasing the content, uptake and post harvest soil fertility with reference to N and P. The results further showed that combined application of 75% RDF and Azophos along with either biochar or FYM have been proved to be superior treatments for the best management of soil fertility in clay loam soils.

Key words : Azophos, Biochar, FYM, RDF and Yield.

Mungbean Yellow Mosaic Infection and Biochemical Variability in Blackgram Genotypes

**H Chandrajini Devi, V Prasanna Kumari, V Manoj Kumar, Y Ashoka Rani and
M Adinarayana**

Department of Plant Pathology, Agricultural College, Bapatla 522 101, Andhra Pradesh

ABSTRACT

Mungbean yellow mosaic disease varied from 3.73 (DKU-87) to 96.15% (LBG-623) in 16 blackgram [*Vigna mungo* (L.) Hepper] genotypes tested. Of the 16 genotypes nine genotypes were categorised as resistant, one as moderately resistant, four genotypes as susceptible and two as highly susceptible genotypes. Significant variation was observed among the genotypes tested with respect to the amount of total phenols, total proteins, total chlorophyll, peroxidases and phenylalanine ammonia lyase activity. High amount of biochemical substances were recorded in resistant genotypes than other genotypes.

Key words : Blackgram, Chlorophyll, *Mungbean Yellow Mosaic Virus*, Peroxidases, Phenols, Phenylalanine Ammonia Lyase and Proteins.

Reaction of Rice Genotypes to False Smut with Reference to the Host Factors Favouring the Disease

**P Pratyusha, J Krishna Prasadji, S Krishnam Raju, V Prasanna Kumari and
D V Sairam Kumar**

Department of Plant Pathology, Agricultural College, Bapatla – 522 101, Andhra Pradesh

ABSTRACT

An experiment was conducted with 16 rice genotypes to evaluate their reaction to false smut disease and to identify the host factors that contribute to false smut infection by path coefficient analysis during *kharif* 2014-15. Per cent rice false smut incidence was assessed hill-wise, panicle-wise and grain-wise. The rice false smut (rfs) incidence significantly varied among the genotypes when rice false smut incidence was recorded hill-wise and grain-wise but not panicle-wise. The least grain-wise disease incidence (0.02%) was observed in NP 9381 and MTU 1061 genotypes while the highest was in MTU 1075 (0.286%). Symptom expression varied among the genotypes screened for false smut. The smut balls of NLR 34449, RNR 15048 and MTU 1010 were dark green in colour, smut balls were initially yellow, later they transformed into dark green in MTU 1121 and NP 9381, infected grains showed black colour powdery mass in some of the genotypes like NLR 3041, WGL 283, JGL 384, JGL 19621, MTU 1081, JGL 20171 and JGL 11470 and yellow colour smut balls were observed in genotypes of MTU 1071, MTU 1061, MTU 4870 and MTU 1075. Plant height was found to be significantly and positively associated with rfs incidence while five traits *viz.*, boot leaf length, boot leaf breadth, grain length, test weight and grains/panicle recorded non-significant positive association whereas productive tillers and grain breadth recorded negative association when rfs incidence was recorded grain-wise. Plant height in addition to chaffiness and chaffy grains/panicle had not only a positive significant correlation but also a direct positive (0.0914) effect along with the highest positive indirect effects *via* boot leaf length (0.0475) indicating that these two traits could be considered as indicatives for false smut proneness in rice genotypes. The residual effects in path coefficient analysis were the least in grain-wise disease assessment than hill-wise and panicle-wise and hence grain-wise estimation of false smut incidence on rice genotypes is more reliable.

Key words : False smut, Host factors and Rice genotypes.

Evaluation of Different Insecticides Spray Schedules in The Management of Mango Leafhoppers

M Ramaiah, V Ramasubba Rao, M S V Chalam, M G Balahussaini, C Madhumathi, K Gopal, D Sreenivasulu Reddy and M Balakrishna

Department of Entomology, S V Agricultural College, Tirupathi 517 502, Andhra Pradesh

ABSTRACT

The studies on evaluation of most insecticides spray schedules in the management of mango leafhoppers were undertaken in the existing mango ground at Regional Horticultural Research Station, A.R. Peta (Dr. YSRHU) during 2006-08. Among all the insecticidal treatments. Thiamethoxam 25 WG @ 0.005% given in three sprayers gave significantly highest percentage redirects of leafhoppers. Similarly chlorfenapys 10 SC @ 0.01% sprayed thrice and the treatment with three spraying where in first spraying with chlorfenapyr 10 SC @ 0.01% second spraying with thiamethoxam 25 WG @ 0.005% and third spray with diafenthiuron @ 0.07% were also found good next in the order against mango leaf hoppers.

Key words : Bio-systematics, Insecticides, Leafhoppers, Mango, Spray schedules.

Evaluation of Certain Newer Insecticides against Spotted Pod Borer, *Maruca vitrata* on Greengram

D Sravani, M Sessa Mahalakshmi, C Sandhya Rani and V Prasanna Kumari
Department of Entomology, Agricultural College, Bapatla 522 101, Andhra Pradesh

ABSTRACT

A field experiment was conducted during *rabi* 2014-15, to evaluate the efficacy of some newer insecticides along with conventional insecticides against spotted pod borer in greengram. Among eleven treatments evaluated for their efficacy against *Maruca vitrata* on greengram, novaluron 5.25 % @ 0.005 % + indoxacarb 4.5 % SC @ 0.004 % was numerically the best treatment with 85.67 per cent reduction in larval population over untreated control and recorded lowest per cent inflorescence and pod damage of 9.03 and 11.20 %, respectively. However, the incremental cost benefit ratio was highest from acephate 95 % SP @ 0.071 % (1: 5.36) due to its cheaper cost followed by combination insecticides *i.e.*, chlorpyrifos 20 % EC @ 0.04 % + dichlorvos 50 % EC @ 0.05 % (1: 4.33) and novaluron 5.25 % @ 0.005 % + indoxacarb 4.5 % SC @ 0.004 % (1: 3.78). Hence, conventional insecticides can also be used along with new insecticides for management of spotted pod borer in greengram.

Key words : Efficacy, Greengram , Insecticide, *Maruca vitrata*, Spotted pod borer.

Influence of Water Quality on the Efficacy of Certain Insecticides on *Spodoptera litura* Fab. (Noctuidae: Lepidoptera)

S V D Divya, P V Krishnayya, T Madhumathi, V Manoj Kumar and P Prasuna Rani
Department of Entomology, Agricultural College, Bapatla 522 101, Andhra Pradesh

ABSTRACT

A laboratory experiment was conducted during 2014–2015 in the Department of Entomology, Agricultural College, Bapatla, Andhra Pradesh to study influence of water quality on the efficacy of selected insecticides on larvae of *Spodoptera litura*. The results revealed that highest per cent mean larval mortality (54.7-58.0%) was observed when water with neutral pH (7.03) was used compared to that of pH 5.04 (52.7-56%) and pH 9.01 (50-52%) indicating greater efficacy of the insecticides at optimum pH. The per cent mortality decreased gradually from 58.7 to 52.7% and 56 to 50% with increasing solvent water EC 1.01-3.04 dS m⁻¹ and hardness 150-450 ppm, respectively indicating decrease in insecticidal efficacy on increasing the solvent water EC and hardness. Among the collected water samples when used as solvent in the preparation of the insecticidal spray solutions rain water was proved to be highly efficacious followed by canal, bore-well and sea water.

Key words : Pesticide efficacy, *Spodoptera litura*, Water quality.

Studies on the Evaluation of the Effect of Dust Pollution on Growth and Yield of Blackgram (*Phaseolus mungo* L.)

P Hareesh Babu, K L Narasimha Rao, K Jayalalitha and Lal Ahamed M
Department of Crop Physiology, Agricultural College, Bapatla 522101, Andhra Pradesh

ABSTRACT

Effect of dust (cement, stone crusher, and lime) pollution on black gram (*Phaseolus mungo* L.) was studied by comparing plants of polluted as well as from non-polluted (control). Cement dust accumulation on crop canopy of the plant, mainly affected the growth parameters *i.e.* decrease in plant height, number of branches per plant and number of leaves (@ 150 g m⁻² leads to 18.45, 33.72 and 31.10 per cent decreased when compared to control respectively), number of pods per plant, number of seeds per pod, 100 seed weight, seed yield ha⁻¹, harvest index (57.12, 33.33, 16.48, 76.09 and 68.42 per cent respectively), dry matter (leaves and stem) and total dry matter. Lesser values of CGR and RGR was recorded with cement dust @ 150 g m⁻² during 60-75 DAS (harvesting) *i.e.*, 2.76 and 1.18 folds lower than the control. The yield components and yield of blackgram were significantly decreased with cement dust followed by stone crusher and lime dusts.

Key words : Black gram (*Phaseolus mungo* L.), Cement, Lime dust, Stone crusher.

Genotype X Environment Interaction and Stability Analysis in Cauliflower Genotypes Under Tarai Region of Uttarakhand (*Brassica oleracea* var. *botrytis* L.)

D Kannan, Dharendra Kumar Singh and Suresh Kumar Jain
Department of Vegetable Science, G.B.P.U.A & T, Pantnagar-263 145

ABSTRACT

Sixty genotypes of cauliflower were evaluated in augmented block design (ABD) with three replications under four environments to study the stability behavior of genotypes under the four environmental condition created with different spacing and boron viz., 60 x 50 cm without spacing (E₁), 60 x 50 cm with boron (E₂), 40 x 50 cm without boron (E₃) and 40 x 50 cm with boron (E₄). Pooled analysis of variance exhibited significant mean squares due to genotypes for all the traits. There was enough variability due to environments for all the traits. The genotypes PCF202, PCF203, PCF205, PCF206, PCF207, PCF218, PCF232, PCF233, PCF236, PCF251, PCF252, PCF240, PCF248 and PCF255 were found to be only desirable stable genotypes for Tarai region of Uttarakhand. They can be used as parents in hybridization programme or could be suggested for planting under varying type of environments as specified in the present investigation.

Key words : *Brassica oleracea* var. *botrytis* L, Cauliflower, Environment, Genotypes and Stability

Effect of season on grafting success in different cultivars of sapota (*Manilkara achras* (Mill.) Fosberg) under tropical humid conditions of Andhra Pradesh.

Harshavardhan A, M Laxminaraya Reddy, Rajasekhar M and Rajyalakshmi R
Horticultural College and Research Institute, Venkataramannagudem
Dr YSR Horticultural University, West Godavari Dist., Andhra Pradesh

ABSTRACT

Two sets of experiments were carried out during 2012-2013 to assess incompatibility of sapota cultivars to softwood grafting, and to find out the best time for softwood grafting, at Horticultural Research Station, Venkataramannagudem. Considerable variation in success of softwood grafting among sapota cultivars was observed. Among ten cultivars studied, Pala showed highest compatibility with Khirnee rootstock to softwood grafting, followed by Cricket Ball and DSH-2. There was a total failure in graft-take in cultivars CO-1, DSH-1 and Gutti. Softwood grafting success was highest in sapota when carried out on 1st July (72%) followed by 15th August (70%), 5th June (62%) and 15th June (56%).

Key words : Cultivars, Incompatibility, Khirnee, Sapota, Season, Softwood Grafting.

Evaluation of Citrus Germplasm in Venkatagiri, Nellore District **P T Srinivas and B Govindarajulu**

Citrus Research Station, Petlur, Venkatagiri, Nellore dist.524132

ABSTRACT

A total of 117 accessions of citrus germplasm collected from various sources in the country are maintained and evaluated for growth, yield, adoptability at Citrus. Research Station Pettur, Venkatagiri dist. Some of the accessions performed very well and some did not perform well. Among the various accessions Pummello Red., Nicholos Grape fruit, Sunki mandarin., Troyer citrange., CRS-21 performed well in this area. The accessions unfavorable to this climate possessed low average mean for various characters in the present study.

Key words : Acidlime, Citrus, Hybrids, Mandarin, Pummello.

Impact of Weather Parameters on Bengalgram Yield in Prakasam District

B Herold Deepak Roy, Shaik Nafeez Umar, V Srinivasa Rao and G Raghunadha Reddy

Department of Statistics and Mathematics, Agricultural College, Bapatla 522 101, Andhra Pradesh

ABSTRACT

This paper attempted to study the yield-weather relationship of chickpea (*Cicer arietinum*) in Prakasam district of AP. The annual yields and month wise weather parameters data for Prakasam district over fifteen years (2000-01 to 2014-15) were used to identify the quantum jumps and the technological changes. The yield-weather relationship was formulated using multiple linear regression.

Analogy of Control charts and Time trend equations suggested existence of quantum jumps. So, the time effect was found to be discrete in nature over time in the Bengal-gram yields creating two sub-periods which indicate technological changes in the study period. Crop yield-weather models revealed that Bengal-gram yields during 2000-01 to 2007-08 were influenced by January rainfall (positively) and during 2008-09 to 2014-15 by December rainfall (negatively) indicating differential weather response of respective technological periods. Thus it was inferred that overall yield-weather relationship may not be appropriate. Hence, individual relationships for the sub-periods prevailing in the yield data were found to be more meaningful.

Key words : Control Chars, Multiple Linear Regression, Quantum Jump, Time Trend.

Development of Whey Enriched Protein Rusk

K Murali Naik , D Daniel Smith and M Sardar Baig

College of Food Science, Bapatla 522 101, Andhra Pradesh

ABSTRACT

The present study was undertaken on whey protein enriched rusk and prepared by the use of ingredients likewhey protein, skim milk powder, refined wheat flour, sugar, baker's yeast, vanaspati, ammonium sulphate, salt, almonds and cardamom with different ratios of skim milk powder and whey protein powder *i.e.* 100:0, 75:25, 50:50, 25:75 and 0:100. The formulations were evaluated for nutritional aspects mainly protein and calcium content and sensory attributes like texture, taste *etc* through 9 point hedonic scale method. The product has been formulated with sole objective to increase dietary protein intake which is ultimately beneficial for muscle building. The formulation of 50:50 has the highest overall acceptability and best in texture and the protein content was highest in this sample was found to be 14.83 per cent.

Key words : Baker's yeast, Protein content, Rusk, Sensory attributes, Whey protein.

Radio Frequency Drying Curves of Paddy Grain

S Srikanth, D D Smith, Sivala Kumar and M Sandhya
College of Agricultural Engineering, Bapatla 522 101, Andhra Pradesh

ABSTRACT

The drying characteristics of a paddy grain (NLR 33 892) were studied using Radio Frequency Dryer (RFD). The drying chamber of the RFD consisted pair of electrodes of size 75 cm X 55 cm and a grain holding cell of 36 L X 25.5 W X 5.5 H, cm³. The cell was filled with grain for three levels of bed thickness (2, 3 and 4 cm) to study the drying and drying rate curves. The weight of the drying grain was recorded at every 1 min interval to calculate the moisture loss. The obtained data was plotted and analyzed for moisture loss and drying rate. It was observed that the drying curve followed the falling rate period for all the bed thickness experiments conducted in Radio Frequency drying. The longest time of drying 9 min was observed in the experiment where the grain bed thickness was 3 cm whereas the shortest time of drying 6 min was observed in the experiment where the grain bed thickness was 4 cm.

Key words: Drying curve, Drying rate, Radio Frequency drying, Paddy.

Impact Assessment of Watershed Works on Socio - Economical Development in Mutukula Watershed, Prakasam District

G Rakesh, I Bhaskara Rao, G Ravi Babu, N Polappa
College of Agricultural Engineering, Bapatla 522 101, Andhra Pradesh

ABSTRACT

Participatory integrated watershed management programme approach demonstrated on Mutukula watershed at Pullalacheruvu Mandal in Prakasam District of Andhra Pradesh State. The sampling frame of study consists of 270 farmers, out of which 83 sample farmers were interviewed. The study focused on population details, live stock details, crops and cropping pattern, change in ground water status, change in land use, cropping intensity and watershed brought under cultivation, change in crops productivity, major sources of household income, and change in migration status, claiming success. Watershed development and management is the only mean to control degradation of land, conserve much water and improve the productivity and production. The study revealed that the gross cropped area and cropping intensity increases in the watersheds. It was further observed that income generated from the agriculture has increased many folds and migration from the watershed has reduced tremendously to zero in all villages. It was concluded that participatory watershed management programmes like IWMP led improvement of the socio-economic status of the stakeholders in the watershed.

Key words: DWMA, Ground water, IWMP, Socio-economic, Questionnaire, Watersheds.

Effect of Inlet Air Temperature on Quality of Spray-Dried Bitter Gourd Powder

D Srinivas, N Vinoda, D Bhaskar rao and R Ganesh Babu
College of Agricultural Engineering, Bapatla 522 10, Andhra Pradesh

ABSTRACT

A study was conducted to select a suitable inlet air temperature in a spray dryer for getting high yield and quality of bittergourd powder. Juice was extracted from bitter gourd and concentrated by adding 10% maltodextrin as carrier agent and fed in to a spray drier at an inlet air temperatures of 130, 140 and 150°C and at feed flow rate of 15 ml/min. The dried bittergourd powders were analyzed for water activity, WSI, WAI, chlorophyll, ascorbic acid and reducing sugars. The yield recovery of bittergourd was highest at 150°C inlet air temperature followed by 140 and 130°C inlet air temperatures. As inlet air temperature increased, the water activity, WAI, ascorbic acid and chlorophyll content decreased and WSI, reducing sugars decreased. The quality of bittergourd was good at lower inlet air temperature compared to 140 and 150°C temperature.

Key words: Bittergourd powder, Inlet air temperature, Maltodextrin, Spray Drying.

Effect of Different Floor materials on the Drying behaviour of Cocoa Beans

K Lavanya, Ch V V Satyanarayana, N Vinoda, B Ashok, M C Naresh
College of Agricultural Engineering, Bapatla 522 10, Andhra Pradesh

ABSTRACT

Studies were undertaken to establish the most effective floor material for drying of cocoa beans based on the drying time and physical visual evaluation of the quality. Experiments were conducted to determine drying rate, drying time and quality of the dried cocoa beans using different floor materials such as black polyethylene sheet, wooden plank, and concrete floor in open yard sun drying. Average composition of cocoa fruit was found to be shell (72.6%), pulp (20.7%) and beans (6.6%) suggesting that less than 10% of fruit component gets major economic return to the farmer. Average length, diameter, weight of fruit and the bulk density of cocoa bean were found to be 153.58 mm, 89.9 mm, 372.13 g and 0.6047 g/cm³ respectively. Drying time required to reduce moisture content of cocoa beans from 17.1% (w.b) to safe moisture content of 6-10% is found to be 5-6 days on wooden plank, and 4-5 days on black polyethylene and concrete floor respectively. The average drying rates are 0.0778, 0.0971, 0.0974 Kg/Kg-h for wooden plank, concrete floor, and black polyethylene sheet respectively. It is concluded that black polyethylene sheet followed by concrete floor are better floor materials to reduce the drying time, giving good quality produce and also in view of the durability of black polyethylene sheet as floor material.

Key words: Cocoa beans, Drying rate, Floor materials, Open yard sun drying, Physical properties.

An Assessment of Flow Institutional Credit towards Agriculture in India

P S Dhananjaya Swamy B Chinnappa and K B Umesh

Depart of Agril. Economics, UAS, GKVK, Bengaluru, Karnataka (State)-PIN 560065

ABSTRACT

This research is a modest attempt to analyze the performance and inequality in the flow of institutional credit to agricultural in India. The study was based on the secondary data compiled from diverse sources for the period 2001-2013 which was conducted during 2013 which. The data has been analysed using ratios, proportions, compound annual Growth rate and Gini coefficient to meet the objectives set out in the study. The results revealed that, the targeted credit flow to the agriculture has shown an increasing trend over the years, meanwhile the actual flow has also shown an increasing trend during the same period. Thus, it reflects in the more than 100 percent of achievement in the credit flow towards agriculture in India. The regional wise analysis reveals that the share of southern region was the highest with 37 per cent of the total credit flow towards agriculture followed by northern, central and western regions, whereas the share of north-eastern region was lowest with 0.32 per cent during the period of 2003 to 13. The study found that the Gini Coefficient (index) was 0.146 (14.6 %) imparting the inequality in the distribution of credit across the region in India was up to 14.56 per cent during the periods from 2003 to 2013. The results showed that the region with higher agricultural development and state domestic product had the greatest amount of the agricultural credit distribution.

Key words : Commercial Banks, Institutional credit, Co-operative Bank, Disparity, Agriculture, RRBs.

An economic Analysis of Redgram and Redgram based Cropping Systems in Prakasam district of Andhra Pradesh

A Vijaya Preethi, K Uma Devi, D Vishnu Sankar Rao and V Srinivasa Rao

Department of Agricultural Economics, Agricultural College, Bapatla 522 101, Andhra Pradesh

ABSTRACT

The study was conducted on economics of redgram and redgram based cropping systems in Prakasam District of Andhra Pradesh during the year 2014-15. A sample size of 120 farmers were selected using multiple stage random sampling method. The collected data were subjected to tabular analysis to estimate cost concepts and various farm income measures. The results revealed that cost of cultivation was more in redgram sole cropping system than intercropping systems. This is mainly due to increased application of FYM & fertilizers and plant protection chemicals, because of the incidence of more pests and disease in redgram sole cropping system. Gross returns, net returns, return per rupee of expenditure were found to be more in redgram + greengram cropping system with high price of both component crops and less total cost of cultivation.

Key words : Cost, Cropping systems, Income, Price, Redgram.

Constraint Analysis of Small Farmers in Agriculture in Guntur District of Andhra Pradesh

R Saidhar, K Uma Devi, D Vishnu Sankar Rao and V Srinivasa Rao

Department of Agricultural Economics, Agricultural College, Bapatla 522 101, Andhra Pradesh

ABSTRACT

Small scale farmers accounting to an approximate no. of 13.43 lakhs which constitute the vast majority of farmers in Andhra Pradesh are in deep crunch disrupting their livelihoods over a prolonged period of time. A farm study has been conducted in Guntur district of Andhra Pradesh to analyze the socio economic conditions and assess the different categories of identified constraints faced by small farmers like agro – ecological constraints, technical constraints, socio – economic constraints, market related constraints and family related constraints. These constraints were analysed using Garrett's ranking method. Some of the major challenges reported by sample farmers include dependence on monsoon, labour scarcity and high labour charges, high input costs, price fluctuations and education.

Key words : Constraints, Labour scarcity, Price fluctuations, Small farmers.

Effect of Supplemental Irrigation on Growth and Yield of Chickpea

G Ramesh and Dr B Mukunda Rao

DAATTC, Ongole, Andhra Pradesh

ABSTRACT

An on farm trial was conducted at N.Agraharam and Vajjireddypalem of Prakasam district during Rabi 2007-2008 to 2009-2010 on Bengalgram crop. The test treatments for improved production technology were sprinkler irrigation at 30DAS and 50DAS in contrast to farmers practice (rain fed). The supplemental irrigation with sprinkler at 30DAS and 50DAS recorded the higher yield (2575kg/ha) by 14.44 per cent as compared to farmers practice (2150 kg/ha). Improved technology increased yields at both villages compared to farmers practice. The sprinkler irrigation also enabled the farmers to accrue Rs.6115 ha. additional net income. The B: C ratio was 1:2.67 and 1:2.45 at N.Agraharam and Vajjireddypalem respectively, with improved practice compared to 1:2.58 and 1:2.26 with farmers practice.

Key words : Bengal gram, Supplementary irrigation, Yield.

Knowledge and Adoption Level of Recommended Production Technologies by Bengalgram Growers in Prakasam District of Andhra Pradesh

B Mukunda Rao, G Ramesh and R Praveen Babu

Department of Agricultural Extension, Agricultural college Bapatla 522101, Andhra Pradesh

ABSTRACT

The study was conducted during 2012-2013 in Prakasam District of Andhra Pradesh. The investigation included 120 Bengalgram farmers. An ex- post facto research design was used for the study. Majority of the Bengalgram farmers had medium level of knowledge and high level of adoption with respect to recommended cultivation practices. A large majority of Bengalgram farmers were fully adopting recommended spacing and control measures against borer infestation and a major portion of the farmers had correct knowledge regarding the land preparation (87.5%), recommended varieties (95.8%). The recommended seed rate, fertilizer dose and plant population are not adopted by the Bengalgram farmers.

Key words : Bengal gram growers, knowledge, adoption, content analysis

Role of Rural Women in Household Decision Making

Kulkarni Madhumati Vithalrao

Assitant Professor, Extension Education, Agricultural Technology Information Center ,
VNMKV, Parbhani.

ABSTRACT

Women are at the centre, so far as the household decisions are concerned. The present study, which was conducted from Ardhapur Taluka of Nanded District in 2013-14, basically focuses on the role of rural women in household decision making. The universe of the study was five villages of Ardhapur Taluka from which 30 families were selected randomly as sample size. In any human society the development of women determines the development of the society. The basic objective of the study was to understand the degree of involvement of women in household decision making, in addition to their contribution in agricultural decisions. The results of the study are discussed in detail in the main text.

Key words : Decision, Role, Women.

Constraints Faced by Agripreneurs in Managing agro based Enterprises and Suggestions to Overcome

K Sindhu, T Gopi Krishna, P Rambabu and G Raghunadha Reddy

Department of Extension Education, Agricultural College, Bapatla 522 101

ABSTRACT

“Agriculture is the back bone of India where the agro based industry is considered as an extended arm of agriculture”. A shift from agriculture to agribusiness is an essential pathway to revitalize Indian agriculture. An agripreneur may be defined as entrepreneur who undertakes a variety of activities in agriculture and its allied sectors. The most important constraints faced by agripreneurs in managing agro based enterprises were: Personal Constraints - inadequate risk taking ability, low level of self confidence, Technical constraints - inadequate training on agri – enterprises, inadequate consultancy and counseling services, Economic and Marketing Constraints - poor marketing facilities, stiff competition with other entrepreneurs, Financial Constraints - inadequate working capital, inadequate guidance and financial assistance, high rate of interest, Institutional constraints - poor access to formal credit facilities, poor infrastructural facilities and the suggestions offered by agripreneurs for development of agripreneurship include provision of good marketing facilities and simplifying procedure for obtaining loan.

Key words : Agripreneurs, Constraints, Suggestions.