

## **Recent Developments in the Water Management of Rice Crop in Andhra Pradesh**

**Dr. P Raghavulu**

Dean of Agriculture (Retd.) ANGR Agricultural University, Hyderabad

### **Effect of Tillage and Nitrogen Levels on Growth, Yield and Economics of *rabi* Maize (*Zea Mays* L.)**

**S Praveena A S Rao K Mosha and Y Ashoka rani**

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

#### **ABSTRACT**

A field experiment was conducted at the Agricultural College Farm, Bapatla to study the effect of tillage and nitrogen levels in *rabi* maize. Results indicated that drymatter accumulation and grain yield were high with conventional tillage with herbicides and it was on par with zero tillage with herbicides. Application of 240 kg N ha<sup>-1</sup> produced significantly higher amount of drymatter, plant height and grain yield. The highest gross and net returns

were recorded under conventional tillage with herbicides with 240 kg N per ha and highest BCR (3.46) was recorded from maize grown under zero tillage with herbicides under 240 kg N ha<sup>-1</sup>.

**Key words :** Tillage, Nitrogen and *Rabi* Maize.

### **Effect of Nitrogen Levels and Weed Control Practices on Growth and Yield of Baby Corn**

**B Rama Devi, B Venkateswarlu, K Srinivasulu and P Madhuvani**

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

#### **ABSTRACT**

A field experiment was conducted at the Agricultural College Farm, Bapatla to study the effect of nitrogen levels and weed control practices in baby corn. Application of 180 kg N ha<sup>-1</sup> recorded significantly higher plant height, more number of leaves and drymatter accumulation compared to that of 150 and 120 kg N ha<sup>-1</sup>. Hand weeding twice (W<sub>2</sub>) recorded significantly more plant height, more number of leaves and drymatter accumulation. The number of days taken to 50 percent tasseling, silking and harvest were significantly lowered when the crop was fertilized with 180 kg N ha<sup>-1</sup>. Hand weeding twice (W<sub>2</sub>) recorded significantly less number of days to 50 percent tasseling, silking and harvest. Yield attributing characters like individual cob weight and ear weight were significantly superior with the application of 180 kg N ha<sup>-1</sup> when compared to 150 and 120 kg N ha<sup>-1</sup>, whereas, individual ear length and ear girth of baby corn recorded under 180 kg N ha<sup>-1</sup> were on a par with that of 150 kg N ha<sup>-1</sup>. Among the weed control practices, hand weeding twice (W<sub>2</sub>) recorded significantly more yield attributing characters like individual ear length, ear weight, cob weight, ear weight and ear to cob ratio over the other treatments. Higher cob, ear and husk yields were obtained with the application of 180 kg N ha<sup>-1</sup> but it was on a par with 150 kg N ha<sup>-1</sup> in case of cob yield and fresh fodder yield. Among weed control practices, hand weeding twice (W<sub>2</sub>) recorded significantly higher cob, fresh fodder and dry fodder yield, but it was on a par with application of @1.0 a.i. ha<sup>-1</sup> fb 2,4-D amine @ 0.58 kg a.i. ha<sup>-1</sup> in case of fresh fodder yield.

**Key words :** Nitrogen levels, Cob yield, Baby corn, Weed control practices.

## **Weed Management Studies in Rice-Fallow Groundnut (*Arachis hypogaea* L.) Under Coastal Sandy Soils.**

**G V Satisha Goutam, K Srinivasulu, G Subbaiah, Y Ashoka Rani, A S Rao**  
Department of Agronomy, Agricultural College, Bapatla 522101, Andhra Pradesh

### **ABSTRACT**

A field experiment was conducted during *rabi*, 2012-13 at the Agricultural College Farm, Bapatla to evaluate the weed management practices in rice-fallow groundnut. Among the treatments, pendimethalin @ 1.0 kg a.i. ha<sup>-1</sup> as pre-emergence followed by imazethapyr @ 63 g a.i. ha<sup>-1</sup> at 20 DAS and pendimethalin @ 1.0 kg a.i. ha<sup>-1</sup> pre-emergence followed by handweeding at 40 DAS significantly reduced weed growth and recorded increased plant height, dry weight, yield attributes and yield in these treatments and found to be equally effective as that of handweeding at 20 and 40 DAS. Though yield and gross returns was found to be highest with hand weeding, when net returns and BCR were considered application of pendimethalin followed by imazethapyr is the most profitable treatment.

**Key words :** Imazethapyr, Pendimethalin, Propaquizafop, Rice-fallow groundnut, Weed management.

## **Influence of Sowing Dates and Hybrids on Growth And Yield of *Rabi* Maize in Coastal Andhra Pradesh.**

**Nilesh Patidar, G Subbaiah, Ch Pulla Rao, Y Ashoka Rani**  
Department of Agronomy, Agricultural College, Bapatla 522101, Andhra Pradesh

### **ABSTRACT**

A field experiment was conducted at Agricultural College Farm, Bapatla on sandy clayloam soil during the *rabi* 2012-13, to study the effects of sowing dates (from 15<sup>th</sup> November to 31<sup>st</sup> January at weekly interval) and hybrids (30V92, 900M and Sandhya) on maize growth and yield. Results indicated that higher growth and yield were observed with early date of sowing (15<sup>th</sup> November to 13<sup>th</sup> December), whereas among hybrids, higher grain yield of 5848 kg ha<sup>-1</sup> was recorded with hybrid 30V92 followed by 5818 and 5445 kg ha<sup>-1</sup> with Sandhya and 900M, respectively.

**Key words :** Grain yield, Hybrids, Sowing dates.

# **Effect of Weather Parameters on The Performance of Bt. Cotton Grown Under Different Sowing Windows**

**M Ratnam and S Rajamani**

Integrated Agro Advisory Service, Regional Agricultural Research Station, Lam Farm, Guntur-522 034

## **ABSTRACT**

A field experiment was conducted on clay soils of AMFU, Regional Agricultural Research Station, Lam, Guntur during *kharif* 2010-11 & 2011-12 to assess the influence of weather parameters on the performance of Bt. cotton under Krishna agro-climatic conditions of Andhra Pradesh. Highest rainfall (534.4 mm) has received by the crop sown on 2<sup>nd</sup> FN of July and lowest (69.3 mm) received by crop sown on 1<sup>st</sup> FN of October. The results indicated that the average plant height, no. of monopodia, no. of sympodia, number of bolls/plant, ten boll weight, dry matter accumulation and kapas yield was highest in crop sown on 2<sup>nd</sup> FN of July and was lowest in crop sown on 1<sup>st</sup> FN of October. Positive and significant correlation among yield-yield components and agro meteorological parameters. Mean maximum and minimum temperature and RH<sub>2</sub> had positive correlation on yield and yield parameters except no. of monopodia per plant stage was observed, whereas sunshine hours, GDD and HTU increased with delay in sowings which showed negative correlation.

**Key words :** AMFU, Bt. Cotton, GDD=Growing degree days, HTU, Weather parameters.

# **Nitrogen management through organic manures in sugarcane (Plant)-Sugarcane (ratoon) cropping sequence in southern agro-climatic zone of A P zone of A P**

**N V Sarala K V Nagamadhuri M Hemanth Kumar and M Subbarao**

Agricultural Research Station Perumallapalle- 517505 A.P.

## **ABSTRACT**

A field experiment was conducted during 2006-2007, 2007-2008 and 2008-2009 with two plant and two ratoon crops in sandy loam soil at Agricultural Research station Perumallapalle to study the effect of fertilizer nitrogen and organic manures on yield and quality of sugarcane plant and ratoon crops. The experiment was laid out in a split plot design and replicated thrice with three main plots viz., No organic manure (M<sub>1</sub>), 25 t/ha farm yard manure (M<sub>2</sub>), 12 t/ha press mud cake (M<sub>3</sub>) and four sub plots viz., nitrogen levels 200kg N/ha (N<sub>1</sub>) 250kg N/ha (N<sub>2</sub>), 300 kg N/ha(N<sub>3</sub>) and 350 kg N/ha (N<sub>4</sub>). The experimental results revealed that application of 25 t/ha FYM and 12t/ha PMC recorded higher cane yield over no organic manure application but, statistically non significant. Cane yield and yield attributes were significantly influenced by the nitrogen levels. Highest cane yield was obtained with 350 kg N/ha but it was on par with 300 kg N/ha. The interaction between organic manures and nitrogen levels was not significant. In ratoon crop there was significant increase in cane yields with organic manures over no organic manures. Highest ratoon cane yields were obtained with PMC @ 12t/ha + 350 kg N/ha and it was on par with 25 t FYM/ ha + 350 kg N/ha.

**Key words :** Fertilizer nitrogen, Organic manures, Sugarcane.

# Quality Parameters of Hybrid Maize ( *Zea mays L.*) as Influenced by Integrated Nutrient Management Practices

A V Nagavani and P Subbian

Department of Agronomy, S V Agricultural college, Tirupati- 517502

## ABSTRACT

A field experiment was conducted to evaluate the integrated use of organic and inorganic source of nutrients on quality parameters of hybrid maize during *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 and ten treatments three replications. The experiment consisted of four treatments of different organic manures and their combinations *viz.*, 100 per cent RDF through farmyard manure, vermicompost and poultry manure and all the combination at 1/3, 1/3, 1/3 proportion. The four treatments were integrated i.e., 50 per cent RDF through organic manures and 50 per cent RDF through inorganic fertilizers. The remaining two treatments were 100 per cent RDF through inorganic fertilizers and control (without organic and inorganic). The results revealed that significant increase in quality parameters of maize *viz.*, crude protein, starch, reducing sugars, total sugars and amino acid content were recorded with the application of 50 per cent RDF through poultry manure + 50 per cent RDF through inorganic fertilizers. However, higher phenol content in maize grain was recorded with the application of 100 per cent RDF through vermicompost.

**Key words :** Integrated nutrient management, Maize, Quality.

# Growth, Yield Attributes, Yield and Nutrient Uptake of Rice (*Oryza sativa L.*) as Influenced by Organic Manures and Zinc Supplementation at Different Nitrogen Levels

S Prathibha Sree, R Veera Raghavaiah, G Subbaiah, Y Ashoka Rani and V Sreenivasa Rao

Department of Agronomy, Agricultural College, Bapatla – 522101

## ABSTRACT

A field experiment was conducted at the Agricultural College Farm, Bapatla on a sandy clay loam soil during 2010 – 11 and 2011 -12 to study the integrated use of higher levels of nitrogen in conjunction with organic manures and zinc supplementation. The experiment was laid out in a split plot design replicated three times. The study revealed that the highest growth parameters of rice such as plant height, number of tillers m<sup>-2</sup>, drymatter production, yield attributing parameters such as number of productive tillers m<sup>-2</sup>, number of filled grains panicle<sup>-1</sup>, 1000 grain weight, grain yield, straw yield and harvest index of rice and nutrient uptake were realised with M<sub>3</sub> (Greenmanuring *in situ* + ZnSO<sub>4</sub> @ 50 kg ha<sup>-1</sup> as basal) along with the application of 180 kg N ha<sup>-1</sup> during both the years of study. The highest blackgram productivity was also recorded with same treatment during both the years of study.

**Key words :** Blackgram, Growth, Manures, Nitrogen, Rice, Yield attributes, Zinc.

## **Effect of Varying Level of Nitrogen and Intercropping on Growth, Yield Attributing Characters and Yield of Baby Corn (*Zea Mays L.*)**

**Girraj Sharma, B Venkateswarlu, P V N Prasad and P Madhu Vani**  
Department of Agronomy, Agricultural College, Bapatla – 522101

### **ABSTRACT**

A field experiment was conducted at the Agricultural College Farm, Bapatla, to study that effect of varying levels of nitrogen and intercropping on growth, yield attributing characters and yield of baby corn (*Zea mays L.*). The highest plant height (167.3 cm), drymatter accumulation (11599 kg ha<sup>-1</sup>), per day productivity (30.5 g m<sup>-2</sup> day<sup>-1</sup>) ear length & ear girth (13.93 cm & 1.55cm), ear weight with husk (62.5 g), baby corn cob yield (17048 kg ha<sup>-1</sup>) and green fodder yield (58.8 t ha<sup>-1</sup>) were recorded in Baby corn paired rows + Greengram. Application of 125% RDN gave the highest plant height (168.4 cm), drymatter accumulation (12,222 kg ha<sup>-1</sup>), per day productivity (31.5 g m<sup>-2</sup> day<sup>-1</sup>), ear length & ear girth (14.50 cm & 1.57 cm), ear weight with husk (61.6 g), baby corn cob yield (17369 kg ha<sup>-1</sup>) and green fodder yield (59.9 t ha<sup>-1</sup>).

**Key words :** Baby corn, Intercropping, Nitrogen, Growth and Yield.

## **Machine Transplanted Rice as Influenced by Varieties and Age of Seedlings**

**E Kiranmai, P V N Prasad, B Venkateswarlu and V Srinivasa Rao**  
Department of Agronomy, Agricultural College, Bapatla – 522101

### **ABSTRACT**

A field experiment was conducted during *kharij*, 2013 at Agricultural College Farm, Bapatla to find out the response of high yielding rice varieties and age of seedlings with machine transplanting. Four varieties *i.e.*, BPT 5204, BPT 2270, NLR 145 and BPT 3291 and three ages of seedlings viz., 2, 3 and 4 weeks old were tested in split-plot design with three replications. Results revealed that 2 weeks old seedlings recorded higher values of growth parameters, CGR, RGR, yield components and yield, which were on par with 3 weeks old seedlings, whereas lower values were recorded with 4 weeks old seedlings. The cultivar, BPT 2270 recorded higher plant height, tillers m<sup>-2</sup>, drymatter, CGR, RGR and higher yield attributes, whereas higher test weight was recorded with NLR 145. Among the varieties tested, BPT 2270 registered overall increased yield followed by BPT 5204, NLR 145 and BPT 3291 with all the three ages of seedlings.

**Key words :** Age of seedlings, Machine transplanting of rice, Varieties of rice.

# Effect of Nitrogen and Phosphorus on Growth and Yield of Clusterbean (*Cyamopsis tetragonoloba* (L.) Taubert) in Sandy Loam Soils of Andhra Pradesh

**K Priyanka, E Narayana, B Venkateswarulu, G V Lakshmi**  
Department of Agronomy, Agricultural College, Bapatla – 522101

## ABSTRACT

A field experiment was conducted during *kharif* 2013 at Agricultural College, Bapatla to study the effect of nitrogen and phosphorus on growth and yield of clusterbean. The experiment was laid out in Randomized block design with factorial concept, replicated thrice with four nitrogen levels *viz.*, N<sub>1</sub>- *Rhizobium* inoculation alone, N<sub>2</sub>- 20 kg N ha<sup>-1</sup>, N<sub>3</sub>-20 kg N ha<sup>-1</sup> + *Rhizobium*, and N<sub>4</sub>-40 kg N ha<sup>-1</sup> and three phosphorus levels *viz.*, P<sub>1</sub> – 30 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>, P<sub>2</sub> – 60 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>, P<sub>3</sub> – 30 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup> + PSB. The results showed that nitrogen level of N<sub>3</sub>-20 kg N ha<sup>-1</sup> + *Rhizobium* and phosphorus level P<sub>3</sub> – 30 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup> + PSB significantly influenced growth characters, yield attributes, yield and economics of clusterbean.

**Key words :** Clusterbean, Growth, Nitrogen, Phosphorus.

# Weed Management in Bt. cotton with Sequential Application of Herbicides

**A S Rao, K Srinivasulu and K Krishna Rao**  
Integrated Weed Management Unit, Regional Agricultural Research Station,  
Lam, Guntur-522 034, Andhra Pradesh, India

## ABSTRACT

A field experiment was carried out for three consecutive years at the research farm of Regional Agricultural Research Station, Lam from *Kharif* 2011 to 2013 with an objective to find out the effective and economic method of weed control in Bt cotton. Results indicated that higher weed control efficiency and more number of bolls per plant and highest seed cotton yield (2495 kg/ha) were obtained with the treatment pendimethalin @ 1.0 kg/ha fb quizalofop ethyl 50g+ pyriithiobac sodium @ 63 g at 20, 40 and 60 DAS. However, the seed cotton yield observed with the pendimethalin @ 1.0 kg/ha fb Inter culture at 20, 40 and 60 DAS (2394 kg/ha), hand weeding at 20 40 and 60 DAS (2207 kg/ha), and mechanical weeding with power weeder at 20, 40 and 60 DAS (2193 kg/ha) were comparable with that of pendimethalin @ 1.0 kg/ha fb quizalofop ethyl 50g + pyriithiobac sodium @ 63 g at 20, 40 and 60 DAS (2495 kg/ha). The pooled data of the three years indicates that, the low cost of the herbicidal treatment made the pendimethalin @ 1.0 kg/ha fb quizalofop ethyl 50g+ pyriithiobac sodium @ 63 g at 20, 40 and 60 DAS was most effective and economical method of controlling weeds of diversified weed flora in cotton as it was indicated in terms of stable and highest seed cotton yield (2495 kg/ha) with higher net returns (Rs 39,245) and benefit cost ratio (2.92).

**Key words :** Bt.cotton, Herbicides, Sequential application.

# Morphological And Molecular Diversity In Relation To Hybrid Performance In Fodder Pearl Millet

**G Naga Raju and B L Bhardwaj**

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

## ABSTRACT

The investigation with five male-sterile lines, eight pollinator lines, 40  $F_1$  crosses, which were generated through Line x Tester matings was conducted to assess the association of genetic diversity of parental lines with mean performance of hybrids, mid parent heterosis, better parent heterosis and sca effects. All the parental lines were screened to detect polymorphism in the form of RAPD markers. Genetic diversity among the parental lines was determined by RAPD markers and morphological characters. The genetic distances so obtained were correlated with  $F_1$  mean performance and heterosis. Positive correlation was obtained between molecular marker diversity and  $F_1$  mean performance, heterosis over better parent but the value of correlation coefficient was found to be non-significant. In contrary, negative correlation was obtained between taxonomic distance and  $F_1$ - mean performance; better parent heterosis. This study clearly indicated that genetic-distance measures based on RAPDs may be useful for the grouping of parents, but not for predicting heterotic combinations in pearl millet.

**Key words :** Fodder pearl millet, Genetic diversity, Hybrids, RAPD.

## Genetic Variability, Heritability and Genetic Advance for Yield and Yield Contributing characters in inter-specific Cotton Hybrids (*G. hirsutum* L. × *G. barbadense* L.)

**Anitha N, Siva Reddy K V, Chenga Reddy V, Rama Kumar PV and Srinivasa Rao V**  
Department of Genetic and Plant Breeding, Agricultural College, Bapatla – 522101

## ABSTRACT

An investigation was carried out to assess the variability, heritability and genetic advance for sixteen characters *viz.*, days to 50% flowering, plant height (cm), number of monopodia plant<sup>-1</sup>, number of sympodia plant<sup>-1</sup>, number of bolls plant<sup>-1</sup>, boll weight (g), seed index (g), lint index (g), ginning out-turn (%), 2.5% span length (mm), micronaire value (10<sup>-6</sup> g/inch), bundle strength (g/tex), uniformity ratio, fibre elongation (%), lint yield plant<sup>-1</sup> (g) and seed cotton yield plant<sup>-1</sup> (g) in 40 hybrids and 13 parents. The results revealed that high PCV and GCV were observed for the characters number of monopodia per plant, lint yield per plant and seed cotton yield per plant. High heritability accompanied with high genetic advance was shown by the characters *viz.*, lint yield per plant and seed cotton yield per plant and micronaire value (10<sup>-6</sup> g/inch) indicating the preponderance of additive gene action which may be exploited through simple selection procedures.

**Key words :** Cotton, Genetic advance, Heritability, Variability.

## **Gene action and combining ability studies in quality protein maize (QPM) (*Zea mays* L.) genotypes \***

**P Shanthi, G Suresh Babu, J Suresh, E Satyanarayana and R Sai Kumar**

Department of Genetics and Plant Breeding Allahabad Agriculture Institute – Deemed University,  
Allahabad - 211007

### **ABSTRACT**

Forty-five QPM single cross hybrids along with 10 parents and two checks *viz.*, DHM-105 and Shaktiman-2 were evaluated for combining ability at two locations (Hyderabad and Allahabad) and in two seasons (*Kharif* 2003 and *Kharif* 2004) for 26 different yield, quality and yield contributing quantitative characters. From this study it is inferred that, both additive and non-additive gene effects were present in the material under study. However, the ratio of additive and non-additive genetic variance revealed that there was preponderance of non-additive gene action in the expression of all the traits under study. Based on *per se* performance and combining ability studies, the parents P<sub>3</sub> and P<sub>1</sub> were adjudged as best parents followed by P<sub>10</sub> for possessing maximum number of favourable genes for grain yield and also yield contributing characters while parents P<sub>4</sub>, P<sub>7</sub> and P<sub>2</sub> recorded highest favourable genes for protein, oil and tryptophan content. The cross combinations P<sub>2</sub> x P<sub>6</sub>, P<sub>4</sub> x P<sub>7</sub> and P<sub>5</sub> x P<sub>10</sub> exhibited highest magnitude of positive significant *sca* effects along with highest *per se* performance for yield, quality and yield contributing characters.

**Key words :** Combining ability, Diallel, Grain yield, Quality parameters, QPM, *Zea mays* L.

## **Variability Studies in Sesame (*Sesamum Indicum* L.)**

**Gayathri G and Dijee Bastian**

Department of Plant Breeding and Genetics, College of Horticulture, Vellanikkara

### **ABSTRACT**

Forty sesame genotypes were evaluated for variability studies with respect to nine quantitative characters. Analysis of variance revealed significant difference among genotypes for all the nine characters studied. High genotypic coefficient of variation (GCV) was recorded for number of capsules per plant, plant height, seed yield per plant and number of branches per plant. High heritability with high genetic advance as per cent of mean was recorded for number of days to flowering, plant height, number of branches per plant, number of capsules per plant and seed yield per plant. This indicates that the characters are governed by additive gene effects and selection for these traits will be effective.

**Key words :** Sesame, heritability, genetic advance, PCV, GCV.



# **Genetic Variability, Heritability and Genetic Advance as per cent of Mean for Pod Yield and its Components in Spanish Bunch Groundnut (*Arachis hypogaea* L.) in Rabi 2012-13**

**G Bhargavi, V Satyanarayana Rao, D Ratna Babu and K L Narasimha Rao**

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

## **ABSTRACT**

An investigation was carried out in 20 Spanish bunch groundnut genotypes to assess the variability, heritability and genetic advance as per cent of mean for nineteen characters viz., days to 50% flowering, SPAD chlorophyll meter reading at 40, 50,60,70 DAS and at maturity, days to maturity, number of mature pods per plant, biological yield per plant (g), pod yield per plant (g), biological yield per hectare (q), pod yield per hectare (q), harvest index, 100 kernel weight (g), shelling percentage, kernel yield per plant (g), kernel yield per hectare (q), oil content (%) and oil yield per hectare (q). The results revealed that high PCV and GCV were observed for harvest index and biological yield per plant (g) respectively. High heritability accompanied with high genetic advance as per cent of mean was recorded for SCMR at 60 DAS, SCMR at maturity, number of mature pods per plant, biological yield per plant (g), pod yield per plant (g), biological yield per hectare (q), pod yield per hectare (q), harvest index, kernel yield per plant (g), kernel yield per hectare (q) 100 kernel weight (g) and oil yield per hectare (q) indicating the preponderance of additive gene action which may be exploited through simple selection procedures.

**Key words :** Genetic advance, Groundnut, Heritability, Variability.

# **Character association and Path analysis of Grain Yield and Yield Components in Maize (*Zea mays* L.)**

**A Rajitha, D Ratna Babu, Lal Ahamed M and V Srinivasa Rao**

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

## **ABSTRACT**

An investigation was carried out to assess the character association and path analysis for nine characters viz., days to 50% tasseling, days to 50% silking, days to maturity, plant height, cob length, kernel rows per cob, 100-seed weight, grain protein content and grain yield per plant in 24 genotypes (fifteen hybrids, their eight parents along with a check). Association studies revealed that, four out of nine characters exhibited highly significant positive correlation with grain yield per plant. However, the traits cob length, 100-seed weight, kernel rows per cob, plant height and days to 50% tasseling were found to possess significant association in desirable direction with grain yield per plant at both genotypic and phenotypic levels. Path analysis studies revealed that cob length, 100-seed weight and kernel rows per cob true relationship by establishing significant positive association and direct effect on grain yield per plant.

**Key words :** Character association, Maize, Path analysis, Yield.

# **Correlation And Path Analysis For Yield And Its Component Traits In Rice (*Oryza Sativa L.*) Under Water Stress Condition**

**B Vijaya Lakshmi, Y Suryanarayana, P V RamaKumar, Y AshokaRani and V Srinivas Rao**  
Department of Genetics and Plant Breeding, Agricultural College, Bapatla- 522101, Andhra Pradesh

## **ABSTRACT**

Simple correlation coefficients are used to find out the degree and direction of relationship between two or more variables are worked out for yield components and physiological characters in 24 F1 hybrids under water stress condition. The highly significant positive correlation were observed between grain yield per plant and panicle length, number of panicles per plant, filled grains per panicle, harvest index and relative water content under water stress. Results of path analysis revealed spikelet fertility (%), filled grains per panicle and relative water content were the major contributors of grain yield by way of their positive and high direct effect. Hence, there is much scope for selecting high yielding genotypes with water stress tolerance, if selection pressure is exerted on above traits.

**Key words :** Correlation, Path analysis, Rice.

# **Correlation and Path analyses in Sesame (*Sesamum indicum L.*)**

**J V Ramana, V Satyanarayana Rao, Lal Ahamed M, Y Asoka Rani and P Anil Kumar**  
Department of Genetics and Plant Breeding, Agricultural College, Bapatla- 522101, Andhra Pradesh

## **ABSTRACT**

The study was undertaken with an objective to study the correlation and path analysis for seed yield and yield traits in sesame during *rabi*, 2010 at Agricultural Research Station, Yelamanchili, Andhra Pradesh. The correlation analysis revealed that the genotypic correlations were, in general, higher than the phenotypic correlations and thus suggested that the observed relationships among the characters were due to genetic factors. The trait, seed yield per plant had highly significant positive association with capsules per plant, seeds per capsule and 1000 seed weight indicating the importance of these traits in improving the seed yield per plant while oil content was negatively associated with seed yield per plant indicating higher the yield lesser will be the oil content. Path analysis revealed that primary branches per plant, capsules per plant, seeds per capsule and 1000-seed weight had true relationship by establishing significant positive association and positive direct effect on seed yield per plant. Considering the nature and magnitude of character association and their direct and indirect effects, it can be inferred that simultaneous improvement of seed yield per plant is possible through manifestation of primary branches per plant, capsules per plant, seeds per capsule and 1000-seed weight.

**Key words :** Correlation, Path analysis, Seed yield and Sesame.

## **Studies on Genetic Divergence in Upland Cotton (*Gossypium hirsutum* L.).**

**K Bayyapu Reddy, V Chenga Reddy, M Lal Ahmed, T C M Naidu and V Srinivasarao**  
Department of Genetics and Plant Breeding, Agricultural College, Bapatla- 522101, Andhra Pradesh

### **ABSTRACT**

Genetic divergence was studied among 63 genotypes of American cotton (*Gossypium hirsutum* L.) using D<sup>2</sup> technique for seventeen characters. The 63 genotypes were grouped into 8 clusters containing 1 to 23 genotypes. The random distribution of genotypes indicated absence of parallelism between geographical diversity and genetic diversity. Cluster VI is the largest with 23 genotypes and Clusters IV, V, VII and VIII were lowest with one genotype each. In D<sup>2</sup> analysis, lint index (24.99) followed by micronaire (21.76), seed index (21.51), days to 50% flowering (16.64) contributed maximum for the divergence. The inter-cluster distance was maximum between clusters V and VIII (329.865), followed by clusters IV and VII (329.019) and was minimum between cluster I and V (27.135). Based on these studies crosses can be made between genotypes of distant clusters to obtain desirable transgressive segregants.

**Key words :** Clusters, D<sup>2</sup> statistic, Genetic divergence, *Gossypium hirsutum*

## **Correlation and Path analysis Studies in Cotton (*Gossypium hirsutum* L.)**

**A B M Sirisha, Lal Ahamed M, P V Rama Kumar, S Ratnakumari and V Srinivasa Rao**  
Department of Genetics and Plant Breeding, Agricultural College, Bapatla- 522101, Andhra Pradesh

### **ABSTRACT**

The study was undertaken with an objective to study the correlation and path analysis studies for seed yield and yield traits in cotton genotypes during *khariif*, 2012-13 at Agricultural College Farm, Bapatla, Andhra Pradesh. Correlation and path coefficient analyses together indicated that plant height, number of sympodia per plant, number of bolls per plant, lint index, bundle strength, fibre elongation and micronaire had significant positive direct effects on seed cotton yield per plant indicating the existence of true relationship between these characters and their exploitation in selection programmes

**Key words :** Cotton, Correlation, Path analysis.

# **Effect of Nitrogen Levels, Bio-Fertilizers and Fym on Content and Uptake of Nutrients by Rice-Fallow Sorghum**

**N Goutami, P Prasuna Rani, P Ravindra Babu and R Lakshmi Pathy**

Department of Soil Science and Agricultural Chemistry, Agricultural College, Bapatla- 522101,  
Andhra Pradesh

## **ABSTRACT**

A field experiment was conducted during 2012 at Agricultural College Farm, Bapatla to study the effect of inorganics, bio-fertilizers and FYM on nutrient content and uptake of nutrients by rice-fallow sorghum. The nitrogen content of sorghum plants at flowering and harvest was markedly influenced by the treatments with highest N recorded in treatment supplied with 150 kg N ha<sup>-1</sup> + FYM + Bio-fertilizers. The effect of treatments on other nutrients in plants was non-significant. The uptake of macro and micronutrients at harvest was markedly influenced by the treatments with maximum values recorded by the treatment that received 150 kg N ha<sup>-1</sup> + FYM + Bio-fertilizers, which was at par with 150 kg N ha<sup>-1</sup> + FYM and 120 kg N ha<sup>-1</sup> + FYM + Bio-fertilizers.

**Key words :** Bio-fertilizers, Nutrient uptake, Nutrient content, Organic manure.

# **Successful Zero Tillage Maize cultivation through Farmers Field School programme – A Case Study**

**M Visalakshi and A Sireesha**

Regional Agricultural Research Station, Anakapalle, Andhra Pradesh

## **ABSTRACT**

Pidiseela is a village in Gajapathinagaram mandal of Vizianagaram district in Andhra Pradesh. The water available in the village tank was insufficient to grow maize crop in total area of rice fallows during rabi season. Under this situation, District Agriculture Advisory and Transfer of Technology Centre (DAATTCentre), Vizianagaram motivated and educated farmers of the village to cultivate maize under zero tillage condition, instead conventional maize cultivation through conducting Farmers Field School (FFS) programme and proved its worthiness. Thirty farmers were selected as participants of FFS and one among them was selected to serve as collaborator in whose field the FFS was conducted. The FFS participants were trained on zero tillage maize cultivation by involving them in FFS sessions conducted at a fortnightly interval from sowing to harvest during crop period. As a result of efforts by DAATTCentre scientists along with extension staff, the collaborator of FFS harvested 80.87 quintals of maize per hectare and secured net income of Rs. 72,044/- per hectare with the B: C ratio 2.88 besides saving 33 percent irrigation. As against the zero tillage maize crop, the comparative economics of conventional maize cultivation during the same period in the village indicated that the net income of Rs.58,432/- and B:C ratio of 2.12 clearly showed that zero tillage maize is economically profitable as compared to conventional maize cultivation. In 2007, 2008 and 2009 around 775 farmers adopted the system and zero tillage maize cultivation now covers an estimated 420 ha out of 9,861 ha maize cultivation.

**Key words :** Case study, FFS, Maize, Zero tillage.

## **Influence of Different Sources of Nutrients on Available Nutrient Status of Soil after Harvest of Rice Crop**

**Mohana Rao Puli, P R K Prasad, P Ravindra Babu, K L Narasimha Rao and G Subbaiah**  
Department of Soil Science and Agricultural Chemistry, Agricultural College, Bapatla- 522101,  
Andhra Pradesh

### **ABSTRACT**

A field experiment was conducted for two consecutive years (2011-2012 and 2012-2013) on fine texture soils of Agricultural college farm, Bapatla. The experiment was laid out in a randomized block design in *kharif* season with four treatments and replicated five times. The treatments consisted of M<sub>1</sub> (RDF - Control), M<sub>2</sub> (10t FYM ha<sup>-1</sup> + RDF), M<sub>3</sub> (1.5t vermicompost ha<sup>-1</sup> + RDF), M<sub>4</sub> (Green manuring + RDF). Data collected on available nutrient (N, P, K, Ca, Mg, Fe, Mn, Cu and Zn) status of soil after harvest of rice crop was significantly increased with the application of 100%NPK in combination with FYM @ 10t ha<sup>-1</sup>. However, it was on par with that of green manuring together with 100% NPK during both the years of the study.

**Key words :** Available nutrients, Organic sources, Rice crop.

## **Impact of Bt Cotton on Soil fertility in Cotton Growing belt of Guntur District, Andhra Pradesh**

**D K D Deekshitha, P Ravindra Babu, P Madhuvani and K Srinivasulu**  
Department of Soil Science and Agricultural Chemistry, Agricultural College, Bapatla- 522101,  
Andhra Pradesh

### **ABSTRACT**

Thirty representative surface soil samples were collected to check from cotton growing belt of Guntur district effect of long term cultivation of Bt cotton on soil properties (12 samples each from *Bt* cotton cultivated areas continuously for 2 to 5 years, 8 to 10 years and 6 samples from areas under non *Bt* cotton). All the 30 soil samples were analysed for physico-chemical properties and available nutrient contents. Results revealed that all the soil samples were slightly alkaline in reaction, low in organic carbon and nitrogen, medium to high in phosphorus, very high in potassium, sufficient in sulphur, manganese, copper but deficient in zinc and iron.

**Key words :** *Bt* cotton, Macronutrients, Soil fertility.

## **Performance of Sweet Corn as Influenced by Organics in a Clay Loam Soil**

**Ch Sujala, P Prasuna Rani, P R K Prasad and A S Rao**  
Department of Soil Science and Agricultural Chemistry, Agricultural College, Bapatla- 522101,  
Andhra Pradesh

### **ABSTRACT**

A field experiment was conducted in a clay loam soil during *kharif*, 2013 to study the effect of supplementing different levels of nitrogen through organics on growth, yield attributes, yield and economics of sweet corn. Highest plant height was recorded in the integrated treatment that received 50% N- PM + 50% N - Fertilizers while, length of cob, grains per cob and test weight were maximum for sole inorganic treatment. Green cob and fodder yields and drymatter (grain and stover) yields were comparable in treatments received entire nitrogen through fertilizers and 50% N -PM + 50 % N- Fertilizers. The benefit cost ratio was highest (1.40) in treatment supplied with sole inorganics.

**Key words :** Integrated nutrient use, FYM, Green cob yield, Poultry manure, Test weight.

# **Spatial Variability of Soils of Bobbili Mandal, Vizianagaram District, Andhra Pradesh**

**Sowjanya P, Prasuna Rani P, Madhu Vani P and Srinivasa Rao V**

Department of Soil Science and Agricultural Chemistry, Agricultural College Bapatla-522101

## **ABSTRACT**

The soils of Bobbili mandal, Vizianagaram district were assessed for spatial variability by collecting surface (0-25 cm) and subsurface (25-50 cm) soil samples from 50 representative locations. Three physiographic units namely uplands, midlands and lowlands were indentified based on elevation. The texture of uplands and midlands varied from sandy clay to sandy loams whereas in lowlands it varied from clay to sandy clay. Bulk density of the soils was lower at surface than subsurface with higher values in coarse textured soils. The water holding capacity followed the reverse trend with higher mean values at subsurface than surface with more values recorded in fine textures than coarse textures in all landforms. The soils were found to be strongly acidic to moderately alkaline, non-saline to critical for germination with low organic carbon. Lowlands recorded higher CEC values compared to uplands and midlands.

**Key words :** CEC, Soil physical properties, Soil reaction, Soil texture, Surface and subsurface soils.

# **Characterization, Classification and Crop Suitability of Black Cotton Soils of Southern Tamil Nadu**

**M Paramasivan and D Jawahar**

Agricultural Research Station, Kovilpatti –628 501, Tamil Nadu

## **ABSTRACT**

The study area is located at 9° 16' of North latitude and 77° 92' of East longitude with an altitude of 90 m above mean sea level (MSL) in Tuticorin district of Tamil Nadu. The surface soil colour ranged from very dark grayish brown (10 YR 3/2) to very dark gray (10 YR 3/1). The soil reaction ranged from moderately alkaline to very strongly alkaline in surface and sub surface soils. Organic carbon content of the surface soils was low, ranging from 0.31 to 0.37 g kg<sup>-1</sup>. Cation exchange capacity (CEC) of the surface soils was high, ranging from 47.7 to 51.5 cmol(p<sup>+</sup>)kg<sup>-1</sup>. These soils were low in available nitrogen and phosphorus and high in available potassium. The DTPA–Cu, Fe and Mn were generally well above the critical limits whereas, DTPA-Zn was deficient in all soils. The soil were classified as Typic Haplusterts. As per land capability classifications, these soils were classified as IIIs and IIIs and require soil conservation measures for suitable crop cultivation. The soils were moderately suitable (S2) for sorghum, cotton, sunflower and coriander. Some soils were marginally suitable for groundnut, coconut, ber and citrus.

**Key words :** Black cotton soil, Classification, Morphology, Physical and chemical properties.

## **Management of *Corynespora* Leaf Spot of Blackgram**

**Sandeep Naik G, M Adinarayana, V Manoj Kumar and T Madhumathi**

Department of Plant Pathology, Agricultural College, Bapatla- 522101, Andhra Pradesh

### **ABSTRACT**

Twelve fungicides were evaluated for their efficacy against *Corynespora* leaf spot of blackgram caused by *Corynespora cassiicola* both *in vitro* and *in vivo*. Hexaconazole 0.2%, hexaconazole + captan 0.15% and propiconazole 0.1% inhibited 92.20, 90.86 and 87.2% of radial growth respectively over control *in vitro*. Hexaconazole 0.2%, hexaconazole + captan 0.15% and mancozeb 0.25% completely inhibited sporulation and spore germination while 0.3% copper oxychloride has recorded 99.48% inhibition on spore germination over control. Among the chemicals evaluated, lowest per cent disease index (PDI) was recorded with 0.25% mancozeb during *kharif* (14.07) and *rabi* (13.33) followed by 0.15% hexaconazole + captan which has recorded 16.30 during *kharif* and 14.81 during *rabi*. Highest yield of 10.95 and 10.49 q ha<sup>-1</sup> with B: C ratio of 2.11 and 2.06 were obtained in 0.15% hexaconazole + captan combination treatment during *kharif* and *rabi* 2012-13, respectively.

**Key words :** Blackgram , *Corynespora* leaf spot, Fungicides.

## **Response of Maize to Different Plant Densities and Nitrogen Levels under Zero Tillage**

**Y Radha Krishna, S V S Gopala Swamy and M V Ramana**

Agricultural Research Station, Ghantasala, Krishna Dt. – 521 133, Andhra Pradesh, India.

### **ABSTRACT**

A field experiment was conducted during two consecutive *rabi* seasons of 2009 and 2010 under rice fallows at Agricultural Research Station, Ghantasala, Krishna District, Andhra Pradesh to study the response of maize to different plant densities and nitrogen levels under no till condition. The trial comprised of three spacings *viz*: 60 x 25 cm (66666 plants /ha), 50 x 25 cm (80000 plants /ha) and 50 x 20 cm (100000 plants /ha) as main treatments and four nitrogen levels; 120, 180, 240 and 300 kg N /ha as sub treatments. The study revealed that the different plant densities tried did not influence maize grain and stover yields. While, the increase of nitrogen levels increased the grain and stover yields significantly and application of 240 kg N /ha was the optimum for obtaining higher yields of maize under zero tillage in rice fallows.

**Key words :** Plant density ,Nitrogen levels, Zero tillage maize.

## **Efficacy of Diatomaceous Earth in Combination with Cestain Entomopathogenic Fungi against *Sitotroga cerealella* (Olivier) and *Rhyzopertha Dominica* (Fab.) in Paddy During Storage**

**M Muthukumar, D V Sai Ram kumar, T Madhumathi and Lal Ahamed M**  
Department of Entomology, Agricultural College, Bapatla- 522101, Andhra Pradesh, India.

### **ABSTRACT**

The talc formulations of two entomopathogenic fungi viz., *Beauveria bassiana* and *Metarhizium anisopliae* containing  $1 \times 10^9$  CFU  $g^{-1}$  ( $5 \text{ g. kg}^{-1}$ ) were used alone and in combination with two different concentrations ( $750 \text{ mg. kg}^{-1}$  and  $1000 \text{ mg. kg}^{-1}$ ) of Diatomaceous earth (DE) against *S. cerealella* and *R. dominica* on paddy (BPT-5204) during storage. Among the grain treatments, 100 % adult mortality rate of *R. dominica* was recorded in paddy, treated with higher concentration of DE i.e.  $1000 \text{ mg. kg}^{-1}$  in combination with *B. bassiana* and *M. anisopliae* after 14 days of exposure. Significantly less *R. dominica* and *S. cerealella*  $F_1$  individuals were recorded in paddy treated with the higher concentration of Diatomaceous earth in combination with *B. bassiana* (9.33 and 37.33 numbers respectively) and *M. anisopliae* (11.33 and 41.67 numbers respectively).

**Key words** : *Beauveria bassiana*, Diatomaceous earth, *Metarhizium anisopliae*, *Rhyzopertha dominica*, *Sitotroga cerealella*.

## **Effect of Foliar Spray of Kinetin and Brassinosteroid During Drought Period on Yield and Yield Components of Groundnut (*Arachis hypogaea* L.)**

**Punna Viswan, K L Narasimha Rao, Y Ashoka Rani and Lal Ahamed**  
Department of Crop Physiology, Agricultural College, Bapatla- 522101, Andhra Pradesh

### **ABSTRACT**

A field experiment was conducted in Agricultural College Farm, Bapatla, during *rabi* 2012-13 to study the effect of foliar spray of kinetin and brassinosteroid during drought period on yield and yield components (test weight, shelling percentage and harvest index) of groundnut. The treatments comprised of foliar sprays of kinetin @ 5 ppm and 10 ppm and homobrassinolide (HBL) @ 0.5 ppm, 1 ppm and 2 ppm at 32 DAS and at 32 and 45 DAS, water stress and irrigation without foliar spray as control in RBD with three replications. The treatment plots were exposed to water stress by withholding irrigation at 30 DAS, continuing for 20 days and relieving at 50 DAS. The present study revealed that homobrassinolide @ 1 ppm at 32 and 45 DAS ( $T_{10}$ ) increased harvest index over water stress ( $T_1$ ) by 43.3 per cent, over irrigation without foliar spray ( $T_{12}$ ) by 30.3 per cent and over other treatments by 2.4 to 26.5 per cent. Irrigation ( $T_{12}$ ) increased harvest index over water stress ( $T_1$ ) by 10 per cent.

**Key words** : Components, Ground nut, Yield



## **Effect of Phosphorus and Growth Regulators on Growth and Yield of Fenugreek (*Trigonella Foenum Graecum* L.)**

**G C Gangaram, S S Vijaya Padma and A C Polaiah**

Department of Horticulture, Y S R Horticultural University, Rajendra Nagar, Hyderabad

### **ABSTRACT**

A field experiment was conducted during *rabi* season 2010-11 to study the effect of phosphorus and growth regulators on growth and yield of fenugreek in alfisols. Three levels of phosphorus (20, 40 and 60 kg/ha), three growth regulators (NAA @ 20 ppm, GA<sub>3</sub> @ 50 ppm and Ethrel @ 75 ppm), and the combination of P doses and growth regulators were evaluated. Levels of phosphorus, and plant growth regulators had significant effect on all growth and yield characters recorded. Among the treatments evaluated, maximum plant height (56.6 cm), fresh weight (2693.7 g/m<sup>2</sup>) and dry weight of the plant (727.3 g/m<sup>2</sup>) were recorded with the application of 60 kg/ha P<sub>2</sub>O<sub>5</sub> along with spraying of 50 ppm GA<sub>3</sub> at 25 DAS. Yield attributes like pod per plant (28.5), number of seeds per pod (15.6), test weight (14.6 g), seed yield (1670 kg/ha), straw yield (4823kg/ha) and biological yield (6312kg/ha) were maximum with the basal application of phosphorus 60 kg/ha followed by spraying of 20 ppm NAA. Application of 60 kg/ha phosphorus along with application of NAA 20 ppm at 25 DAS was found to be highly beneficial in alfisols.

**Key words :** Fenugreek, Growth regulator, Phosphorus.

## **Effect of Growth Regulators/chemicals on Growth and Yield Parameters of Garland Chrysanthemum (*Chrysanthemum coronarium* L.)**

**A V D Dorajeerao, M Sattiraju and A N Mokashi**

Department of Horticulture, Y S R Horticultural University, Venkataramannagudem, Andhra Pradesh

### **ABSTRACT**

There was an increase in the flower yield per plant by the foliar application of growth regulating chemicals, *viz.* GA, CCC, SA and paclobutrazol, when compared to control. There was no addition in the yield of garland chrysanthemum by increasing the concentration of GA beyond 100 ppm. Foliar spray of cycocel at 3000 ppm recorded a higher number of flowers per plant, when compared to other concentrations. SA spray at 100 ppm resulted in significant increase in flower when compared to other concentrations. Paclobutrazol at 40 ppm recorded a higher number of flowers per plant compared to other higher concentrations of 60 and 80 ppm.

**Key words :** Garland chrysanthemum, Gibberellic acid, Paclobutrazol and Salicylic acid.

## **Effect Of Invigoration Treatments On Biochemical Changes On Stored China Aster Seed (*Callistephus chinensis* L. Nees)**

**Vimala B, M Pratap and A Siva Sankar**

Department of Horticulture, Dr.Y.S.R. Horticultural University, Venkataramannagudem-534 101, Andhra Pradesh, India.

### **ABSTRACT**

The invigoration experiment was conducted on different aged seeds of china aster (*Callistephus chinensis* L. Nees) with water, PEG, KNO<sub>3</sub> and stored for a period of six months. During the storage, some biochemical changes i.e, electrical conductivity, dehydrogenase activity and lipid peroxidase activity will occur due to these reactions the quality of the seed decreased. Among the treatments KNO<sub>3</sub> invigorated seed performed better over other treatments on six months old seed stored for six months. EC & Lipid peroxidase activity increased with ageing, where as there was a decline in trend was observed in dehydrogenase activity.

**Key words :** China aster, EC, Dehydrogenase activity, Invigoration, Lipid peroxidase activity.

## **Management of Sweet Potato Weevil Through Sweet Potato (*Ipomoea Batatas* (L.) Lam.) + Marigold (*Tagetes Patula*, *T Erecta*) Intercropping**

**B Sreenivasulu, Jitendra Singh and G K Shrivastava**

Department of Horticulture, IGKV, Raipur 492 012

### **ABSTRACT**

An investigation was carried out during rabi 2011-12 to study the management of Sweet potato weevil through intercropping of marigold in sweet potato (*Ipomoea batatas* (L.) Lam) at Horticultural Research cum Instructional Farm, Department of Horticulture, Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.). The experiment was laid out in randomized block design (RBD) with three replications and eleven treatment combinations. On the basis at findings, it may be inferred, that Sweet potato + Marigold African type 1:1 row ratio (T4) was significantly superior to others in the higher production of highest marketable tuber yield (14.88 t ha<sup>-1</sup>) and lowest % of weevil damaged tubers (24.09%). while in sole crop Sweet potato (T1) 12.09 t ha<sup>-1</sup> of marketable tuber yield and 45.96 % of weevil damaged tubers was recorded.

**Key words :** Marketable tuber yield, Sweet potato weevil, Weevil damaged tuber yield.

## **Performance and Evaluation of Bullock drawn Groundnut Planter in Farmers Fields of Anantapuram District of Andhra Pradesh**

**C Radha Kumari, M John Sudheer and K Madhusudhana Reddy**

DAATT Centre, ANGR Agril. University, Market Yard Premices, Anantapuram – 515 001

### **ABSTRACT**

On-farm demonstrations were conducted in 15 villages of Anantapuram district with an area of 6.0hecters during kharif season over a period of 3 years from 2011-12 to 2013-14. Two types of sowing machinery i.e, developed bullock drawn groundnut planter and bullock drawn local seed drill were used for sowing of groundnut. Demonstrations revealed that the recommended seed rate of 100 Kg ha<sup>-1</sup> was dropped by the bullock drawn groundnut planter due to well designed metering mechanism, while it was not possible in local seed drill because of manual dropping of seed. Higher plant height, yield attributes and 8.6 per cent more yield of groundnut was recorded with bullock drawn groundnut planter compared to bullock drawn local seed drill. Pod yield 755.4 Kg ha<sup>-1</sup> was obtained with bullock drawn groundnut planter it was 695.8 Kg ha<sup>-1</sup> with bullock drawn local seed drill.

**Key words :** Automatic bullock drawn groundnut planter, Groundnut.

## **Energy Utilization Pattern in Maize Production under Dryland Systems**

**D Anil Kumar, B Sanjeeva Reddy, Aum Sarma, B John Wesely and K V S Rami Reddy**

College of Agricultural Engineering, ANGRAU, Bapatla – 522 101 Andhra Pradesh

### **ABSTRACT**

The study examined the energy use pattern in maize crop production under dryland systems. The study revealed that fertilizer was found to be the dominant source of energy contributing 6841 to 10415 MJ ha<sup>-1</sup> which accounted for 47.8 to 61.3% of the total energy utilized in maize production in both clusters. The total energy utilized for maize production by medium farmers 16973 and 16455 MJ ha<sup>-1</sup> in MC1 and MC2, respectively was higher than that of large and small farmers. The operation wise energy use pattern in maize production showed that among all the operations, land preparation consumed highest amount of energy across all category of farmers. The output-input energy ratio was highest in large farmers 5.12 and 4.53 for MC1 and MC2, respectively. Small farmers observed as lowest in machinery energy ratio (MER) and mechanization index (MI) values were found at value of 0.19 and 0.22, respectively for MC1 and 0.17 and 0.23, respectively for MC2. The lowest total cost of energy was observed in medium farmers Rs. 2.10 and 2.06 per MJ in MC1 and MC2 respectively.

**Key words :** Garland chrysanthemum, Gibberellic acid, Paclobutrazol and Salicylic acid.

## **Physical Properties of Two Banana Cultivars Grown in Andhra Pradesh**

**D Surekha, L Edukondalu, DD Smith and K N Raja Kumar**

College of Agricultural Engineering, ANGRAU, Bapatla – 522 101, Andhra Pradesh

### **ABSTRACT**

Physical properties of banana are necessary to design handling, packaging equipments and for safe transportation. Some physical properties of commercially grown banana cultivars namely Dwarf Cavendish and *Chakkerkeli* were investigated. The physical axial dimensions of fingers, volume, peel to pulp weight, coefficient of friction on different surfaces such as galvanized steel, plastic and wood were measured for the above two cultivars. The calculated attributes were geometric mean diameter, sphericity, surface area, true density and bulk density. The mean length of the banana cultivars Dwarf Cavendish and *Chakkerkeli* were 12.72 and 13.91 cm; mean width values were 3.348 and 3.581 cm; and mean thickness values were 3.376 and 3.38 cm, respectively. The mean values of individual fruit weight and volume of the two cultivars were 69.9 g and 70.5cc; 71.9 g and 73.3 cc. The peel and pulp weight for *Chakkerkeli* were found to be higher than Dwarf Cavendish. The geometric mean diameter of Dwarf Cavendish and *Chakkerkeli* were 4.43 and 4.65 cm. The sphericity values for the two varieties of Dwarf Cavendish and *Chakkerkeli* were 0.348 and 0.33 respectively. The true density and bulk density of Dwarf Cavendish were 0.99 and 0.53 g/cc and the values for *Chakkerkerli* were 0.98 and 0.49 g/cc respectively. The coefficient of static friction for Dwarf Cavendish on galvanized steel, plastic and wooden surface were 0.28, 0.32 and 0.34 respectively; for *Chakkerkeli* the values on galvanized steel, plastic and wooden surface were found to be 0.32, 0.35 and 0.40 respectively.

**Key words :** Bulk density, *Chakkerkeli*, Coefficient of friction, Dwarf Cavendish, Physical properties.

## **Economics of Mechanized Paddy Farms in Rayalaseema Region of Andhra Pradesh**

**P Sharmila, B Pratapa Reddy, T V Neelakanta Sastry and G Mohan Naidu**

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

### **ABSTRACT**

A study on economics of mechanized paddy farms in Chittoor district of Andhra Pradesh was conducted during 2012-13. The study covered four villages of two mandals and data on costs- returns aspects of both traditional and mechanized paddy production were collected from 80 farmers. The total cost of cultivation per hectare for traditional and mechanized was Rs.78,605.55 and 80,544.73 respectively. The proportion of working costs accounted for 68.12 per cent and 66.79 per cent on traditional and mechanized paddy farms. The average yield obtained were 58.12 and 66.56 in traditional and mechanized paddy farms. The net returns per rupee of investment were estimated to be Rs. 0.35 and Rs 0.47.

**Key words :** Cost of cultivation, Mechanized paddy farms, Returns, Traditional paddy farms.

## **Impact and Determinants of Credit Under Kcc Scheme in Guntur District of Andhra Pradesh**

**K J V Kumari Sirisha, G Raghunadha reddy , DVS Rao and V Srinivasa Rao**  
College of Agricultural Economics, Agricultural College, Bapatla – 522 101, Andhra Pradesh

### **ABSTRACT**

The objective of this research article is to analyze the impact and to find the determinants of credit under Kisan Credit Card (KCC) scheme in Guntur district of Andhra Pradesh. 80 farmers were selected as KCC holders and another 80 farmers taken as non-KCC holders. The KCC holders got benefits like meeting credit requirements for crop cultivation for the whole year, availability of credit whenever the credit is needed, reduction in cost of credit for availing the bank loan etc. The independent variables cost of cultivation (0.531) as a whole influenced significantly to the credit requirement under KCC compared to other variables, i.e. loan for farming sector (0.429) and consumption loan (0.021).

**Key words :** Credit, Cost of cultivation, Determinant, KCC.

## **Impact of Mechanization on Employment of Agricultural Labour in Rice Operations in East Godavari District of Andhra Pradesh**

**T Gowtami Krishna, G Raghunadha Reddy, D V S Rao and V Srinivasa Rao**  
College of Agricultural Economics, Agricultural College, Bapatla 522 101, Andhra Pradesh

### **ABSTRACT**

The present study is intended to analyse the impact of mechanization on employment of agricultural labour in rice operations in East Godavari district of Andhra Pradesh. The total sample was categorized into two groups viz., category I (mechanized farms) and category II (partially mechanized farms). Results of regression analysis revealed that tractor used time, cost of cultivation, animal used time and dummy variable were statistically significant indicating that they were important variables in determining the labour used time. The fit of the model was judged by  $R^2$  and the selected variables contributed 68 per cent variation in labour used time.

**Key words :** Animal used time, Labour used time, Mechanization, Tractor used time.

## **Impact of Weather Based Crop Insurance Scheme on Insured and Uninsured Chilli Cultivators in Guntur District of Andhra Pradesh.**

**K P Sravana Varalakshmi, G Raghunadha reddy , D V S Rao and V Srinivasa Rao**  
College of Agricultural Economics, Agricultural College, Bapatla – 522 101, Andhra Pradesh

### **ABSTRACT**

The input-output coefficients were generated with personal surveys from 60 insured and 60 uninsured chilli farmers from six villages of three mandals in Guntur district, during 2013-14. The Cobb-Douglass production function was found to be better fit in the present study. The farm size, value of assets and holding of insurance policy were found significant. The sum of elasticities of production were observed to be 2.001, 1.238 and 1.488 for insured, uninsured and overall group indicating increasing returns to scale respectively. The sign of the coefficient obtained in this analysis is positive, thereby showing that the insured farmers were more efficient in the bundle of resource use than the uninsured farmers.

**Key words :** Dummy variable, Insured, Resource Use Efficiency, Returns to scale, Uninsured farmers.

## **SWOT Analysis of Bt Cotton cultivation in Andhra Pradesh**

**B Mukunda Rao, M Suryamani and V Narasimha Rao**

Department of Agricultural Extension Education, Agricultural College, Bapatla 522 101

### **ABSTRACT**

SWOT as an acronym which represents strengths, weaknesses, opportunities and threats of an organization, programme and project. SWOT analysis was applied to unearth the strengths, weaknesses, opportunities and threats of Bt cotton cultivation as perceived by the 180 respondents selected from Guntur, Adilabad and Kurnool districts of Andhra Pradesh. Higher yields, higher net income and reduction in total number of pesticide sprays were the major strengths of Bt cotton. Weaknesses include higher incidence of sucking pests, Bt cotton potential is low under rain fed condition and escalating labour cost. Opportunities in Bt cotton cultivation were Bt cotton cultivation facilitates for strengthening public and private partnership in agriculture, scope for the Bt cotton farmers to repay long pending debts and facilitates to improve the efficiency of insecticides due to dual protection of Bt and insecticides. Frequent droughts, International policies and market fluctuations and environmentalists protects against Bt cotton were the threats as perceived by the respondents.

**Key words :** Bt cotton, SWOT, RBQ.

## **Profile Characteristics of Paddy Farmers in East Godavari district**

**R Praveen Babu, G Sivanarayana T Gopikrishna and G Raghunadha Reddy**

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

### **ABSTRACT**

A study on profile characteristics revealed that majority of paddy farmers were middle aged, college education, with semi-medium land holdings, medium farming experience, annual income, extension contact, social participation, innovativeness, risk orientation, mass media exposure, cosmopolitaness, cropping intensity, market orientation and medium economic orientation.

**Key words :** College education , Landholding, Profile characteristics, Social participation.

## **Adoption Dynamics of Improved Sugarcane Cultivation in Chittoor District of Andhra Pradesh**

**G K Siddeswari, T Lakshmi and S V Prasad**

Department of Agricultural Extension, S.V.Agricultural College, Tirupati 517502, Andhra Pradesh

### **ABSTRACT**

Adoption of the improved technology is the ultimate aim of the social scientists for enhancing the production and income of the farming system. This study was conducted in Chittoor district of Andhra Pradesh in 2014 with the sample size of 120 respondents. The ex-post facto research design was used for the study. The findings revealed that around 56.67 per cent of the respondents were medium category adopters of ISCP (Improved sugarcane cultivation practices). The study revealed that majority of the sugarcane growers had poor adoption level about soil testing, seed treatment, bio-fertilizer application, intercropping and mechanization in sugarcane. Thus, the study suggests for immediate attention of the extension functionaries for convincing the sugarcane growers which would result in the higher adoption and increase their income.

**Key words :** Adoption; Improved technology; Sugarcane growers.

# **Participation of Rural women in Agricultural activities and Extension programmes in Prakasam District of Andhra Pradesh**

**O Sarada and G V Suneel kumar**  
Krishi Vigyan Kendra, Darsi 523 247 Andhra Pradesh

## **ABSTRACT**

Rural Indian women are extensively involved in Agriculture. Although women play a central role in the rural economy through their contribution to the agriculture production process, their equitable participation in extension programmes remains minimal. This paper highlights the participation of women in various agricultural activities, extension programmes and constraints for their lower extension participation. The present investigation was conducted in Prakasam district of Andhra Pradesh during 2013. A simple random sampling technique was employed. One hundred and twenty rural women were personally interviewed using structured schedule. Great majority of rural women were involved in weeding (100.00%), harvesting and threshing (95.00%), sowing/transplanting (88.33%), storing (78.33%) and processing (73.33%) activities. Where as great majority of them never participated in farmer-scientist interaction meetings (91.67%), field days (90.80%), group discussions (87.50%), rythu sadassus (86.67%), demonstrations (80.03%) and polam badi programmes (79.17%). The constraints expressed for their lower participation in extension programmes were transportation difficulties (92.50%), lack of information (88.33%), lack of time (81.67%) and lack of female extension staff (67.50%).

**Key words :** Agricultural activities, Extension programmes, Participation, Rural women.

## **Variability for Yield and Component Traits in Elite Parental Lines of Rice (Oryza sativa L.)**

**Harikrishnan P J, Satyanarayana P V, Ravi Kumar B N V S R, Lal Ahamed M and Srinivasa Rao V**

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

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

## **Relative Performance of Sugarcane Clones Under Moisture Stress Conditions.**

**T Sujatha, B Asha Jyothi and K Jhansi**

Department of Crop Physiology, Sugarcane Research Station , Vuyyuru 521165 Andhra Pradesh

**Key words :** DAP (Days after Planting), Moisture stress, SOD (Super Oxide dismutase),

SPAD/SCMR values Sugarcane clones.