

# **Strategies in Plant Physiological Research for Meeting Challenges in Agriculture**

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## **Effect of Tillage Methods and Nitrogen Levels on Weed Control and Nitrogen use Efficiency of *rabi* Maize**

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### **ABSTRACT**

A field experiment was conducted at the Agricultural College Farm, Bapatla to study the effect of tillage methods and nitrogen levels on weed control and nitrogen use efficiency in *rabi* maize. Results indicated that weed drymatter was lowest and highest weed control efficiency was obtained with conventional tillage with herbicides. Among nitrogen levels it was highest with 240 kg N ha<sup>-1</sup>. Nitrogen uptake by grain was highest with conventional tillage with herbicides and it was on par with zero tillage with herbicides. Conventional tillage with herbicides has maximum nitrogen uptake by stover. Nitrogen uptake by grain and stover increases with increase of nitrogen level and it was highest with application of 240 kg N ha<sup>-1</sup>. The maximum nitrogen use efficiency was observed in conventional tillage with herbicides (69) was followed by Zero tillage with herbicides (55) at 160 kg N ha<sup>-1</sup>.

**Key words :** Tillage, Nitrogen use efficiency, *Rabi* Maize, Weed control.

## **Studies on Improvement of System Productivity Through Introduction of Pre *Kharif* Crops in Rice (*Oryza sativa* L.) Based Cropping System**

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### **ABSTRACT**

A field investigation was conducted during pre *kharif*, *kharif* and *rabi* 2012-13 on sandy clay loam soils of Agricultural College Farm, Naira to find out the effect of preceding crop on performance of succeeding rice and rice fallow blackgram. The experiment was laid out in randomized block design with four replications and seven treatments. Significant differences were noticed with pre *kharif* crops on yield attributes and yield of rice and yield of rice fallow blackgram. Significantly superior performance of rice was observed for all these parameters with sunhemp (T<sub>2</sub>), while greengram (T<sub>3</sub>) was the next best treatment. The seed yield of rice fallow blackgram was significantly superior with sunhemp (T<sub>2</sub>), while the lowest with fallow (T<sub>1</sub>). Although highest net returns ha<sup>-1</sup> and system productivity was recorded with bhendi-rice-rice fallow blackgram (T<sub>7</sub>), the returns per rupee invested were highest with sunhemp-rice-rice fallow blackgram (T<sub>2</sub>).

**Key words :** Crop residues, *Kharif* rice, Pre *kharif* crops, *Rabi* rice fallow blackgram, System productivity

## Nutrient Management Effects on Yield and Economics of *rabi* Maize (*Zea mays*)

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### ABSTRACT

A field experiment was conducted during 2012-2013 at Agricultural College Farm, Naira to find out the best nutrient management package for *rabi* maize in North Coastal Zone of A.P. The growth parameters, yield attributes and yield of maize were significantly influenced due to different fertility levels tried. Although maximum yield was registered with T<sub>8</sub>: 240-120-180 kg NPK ha<sup>-1</sup>+ soil application of ZnSO<sub>4</sub> @ 50 kg ha<sup>-1</sup>, it was comparable with T<sub>7</sub>: 200-100-150 kg NPK ha<sup>-1</sup>+ soil application of ZnSO<sub>4</sub> @ 50 kg ha<sup>-1</sup>, T<sub>12</sub>: 240-120-180 kg NPK ha<sup>-1</sup>+ foliar spray of ZnSO<sub>4</sub> @ 0.5% and T<sub>11</sub>: 200-100-150 kg NPK ha<sup>-1</sup>+ foliar spray of ZnSO<sub>4</sub> @ 0.5%. Considering higher gross and net returns as well as B:C ratio, application of 200:100:150 kg NPK ha<sup>-1</sup> + soil application of ZnSO<sub>4</sub> @ 50kg ha<sup>-1</sup> (T<sub>7</sub>) could be an effective nutrient package for remunerative maize cultivation in North Coastal Zone of A.P.

**Key words :** Foliar application, *Rabi* maize, Nutrient management, Soil application, Zinc.

## Productivity, Nutrient Uptake and Economics of Pearl Millet [*Pennisetum Glaucum* (L.) R. Br.] as Influenced by Nitrogen, Phosphorus and Biofertilizer Management \*

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### ABSTRACT

A field experiment was conducted at the Agricultural College Farm, Bapatla, to study the effect of N, P and biofertilizer management practices on yield, nutrient uptake and economics of pearl millet. The treatments consisted of T<sub>1</sub> : Control, T<sub>2</sub> : Biofertilizer alone (Azospirillum and PSB), T<sub>3</sub> : 20 kg N + 15 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>, T<sub>4</sub> : 40 kg N + 30 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>, T<sub>5</sub> : 60 kg N + 45 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>, T<sub>6</sub> : T<sub>2</sub> + T<sub>3</sub>, T<sub>7</sub> : T<sub>2</sub> + T<sub>4</sub> and T<sub>8</sub> : T<sub>2</sub> + T<sub>5</sub>. Application of 60 kg N + 45 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup> + biofertilizer recorded the highest grain yield (29.7 q ha<sup>-1</sup>), stover yield (67.5 q ha<sup>-1</sup>) and protein content (10.41%) but it was at par with T<sub>7</sub> and T<sub>5</sub> treatments. Significantly highest N (98.3 kg ha<sup>-1</sup>) and P (25.8 kg ha<sup>-1</sup>) uptake recorded with T<sub>8</sub> treatment. T<sub>8</sub> treatment recorded the highest net returns ( 27357 ha<sup>-1</sup>) but T<sub>7</sub> was more economical with the highest B: C ratio (2.57).

**Key words :** Biofertilizer, Economics, Nitrogen, Nutrient uptake, Pearl millet, Phosphorus, Protein, Yield.

## **Yield and Quality of Oriental Tobacco as influenced by Time of Planting and Method of Curing**

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### **ABSTRACT**

A field experiment was conducted during *rabi*, 2013 in farmer's fields of P.T.M. mandal, Chittoor district, Andhra Pradesh to study the effect of time of planting and method of curing on yield and quality of oriental tobacco. Planting of oriental tobacco during second fortnight of October and cured under 25 percent ventilated polyhouse curing method resulted in higher cured leaf yield and better leaf quality due to favourable weather parameters during crop growth period.

**Key words :** Curing methods, Oriental tobacco, Planting time, Quality, Yield.

## **Influence of Different Weed Management Practices on Weed Suppression in Transplanted Finger Millet (*Eleusine coracana* (L.) Gaertn.)**

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### **ABSTRACT**

A Field experiment conducted during *kharif*, 2013, at S V Agricultural College, Farin, Tirupati revealed that pre-emergence application of oxyflourfen @ 0.1 kg a.i ha<sup>-1</sup> at 3 DAT fb post-emergence application of azimsulfuron @ 20 g a.i ha<sup>-1</sup> applied at 20 DAT or hand weeding at 20 DAT resulted in lesser weed density and weed dry matter production, which in turn favourably influenced the yield and economic returns of transplanted finger millet compared to other weed control treatments. The unweeded check recorded the maximum weed population and weed dry matter and hence, resulted in drastic yield reduction of about 47 per cent in transplanted finger millet.

**Key words :** Economics, Finger Millet, Herbicides, Sequential application and Yield.

## **Growth, Yield and Quality of Fodder Maize as Influenced by Varied Nitrogen Levels and Crop Geometry**

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### **ABSTRACT**

A field experiment was conducted during *kharif*, 2013 at S V Agricultural College Farm, Tirupati to find out optimum nitrogen level and crop geometry for fodder maize. The outcome revealed that application of the highest level of nitrogen @ 220 kg ha<sup>-1</sup> produced higher LAI, dry matter and green fodder yield as well as the best quality of fodder maize *viz.*, higher crude protein, crude fat and total ash percentage over 180 and 140 kg N ha<sup>-1</sup>. The crop geometry of 30 × 10 cm resulted in significantly higher LAI, dry matter and green fodder yield over 30 × 15, 30 × 20, 45 × 10, 45 × 15 and 45 × 20 cm. The highest crude protein, crude fat and total ash were obtained from the crop geometry of 45 × 20 cm which was significantly higher over all other crop geometries tried.

**Key words :** Dry Matter, Fodder Maize, Green Forage Yield, LAI, Quality Attributes.

## **Growth and Quality of Fodder Sorghum as Influenced by Nitrogen Fertilization and Time of Harvesting**

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### **ABSTRACT**

A field experiment was conducted during *kharif*, 2013 to study the effect of different nitrogen levels and time of harvesting on forage yield and quality of fodder sorghum. The experiment was laid out in randomized block design with factorial concept replicated thrice and the treatments consisted of four nitrogen levels *i.e.*, 75, 100, 125 and 150 kg ha<sup>-1</sup> and four times of harvesting *i.e.*, 45, 60, 75 and 90 days after sowing. The results revealed that the growth parameters of plant height, stem diameter, green forage yield and quality parameters were increased significantly with the increase in nitrogen upto 150 kg ha<sup>-1</sup>. where as the crude fibre was decreased. Delay in harvest beyond 75 days in fodder sorghum reduced the crude protein, crude fat and total ash and increased the crude fibre content.

**Key words :** Fodder Sorghum, Green Forage Yield, Stem diameter, Quality Attributes.

## **Nitrogen Management in Transplanted ragi**

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### **ABSTRACT**

A field experiment conducted during *rabi*, 2013-14 on sandy loam soils of Agricultural college farm, Bapatla on Nitrogen management in transplanted ragi. The experiment was laid out in Randomized Block Design with nine treatments replicated thrice. The results showed that the highest plant height, number of tillers, drymatter production, straw yield and N-uptake were observed with 125% RDN+ ST with Azospirillum @ 5kg ha<sup>-1</sup> + 0.2% Zn spray at flowering stage and yield attributes and yield were observed with 75% RDN+ 25% N through Vermicompost. However, the highest benefit cost ratio (2.5) was 100% RDN and hence was found to be optimum and economical for the production of white seeded transplanted ragi.

**Key words :** *Azospirillum*, FYM, Nitrogen management, Ragi, Vermicompost, Zn-spray.

## **Response of Sunflower to Fertiliser Levels under Different Planting Geometry and Land Configurations**

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### **ABSTRACT**

An experiment was carried out during *kharif*, 2013 at College farm, P.J.T.S.A.U, Hyderabad, to find out appropriate planting geometry, land configuration and optimum nutrient level for rainfed sunflower. The results revealed that planting geometry and land configurations could not exert significant influence on growth, yield attributes and yield of sunflower. Among the fertilizer levels, 125% RDF recorded significantly higher growth parameters, yield attributes, seed (2221 kg ha<sup>-1</sup>), oil yield (902 kg ha<sup>-1</sup>), stalk yield (3889 kg ha<sup>-1</sup>) and harvest index (36%) over 75 % RDF but 125% RDF was comparable with 100% RDF. Highest gross, net returns and B: C ratio were accrued with flat bed and paired row planting along with the application of 125% RDF over rest of the treatments.

**Key words :** Land Configurations, Planting geometry, Sunflower and Yield.

## **Efficacy of Pre-emergence, Post- emergence and Tank Mix Application of Herbicides for Control of Weeds in Pearl millet**

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### **ABSTRACT**

Weed control studies in hybrid pearl millet (NPH-2475 ) were carried out during *kharif* seasons of 2014-15 at Agricultural Research Station, Malnoor (University of Agricultural Sciences, Raichur, Karnataka). Results indicated that tank mix application of atrazine @ 0.32 kg ha<sup>-1</sup> + pendimethalin (0.5 kg ha<sup>-1</sup>) followed by one hand weeding recorded significantly the highest grain yield (2123 kg ha<sup>-1</sup>). The next best treatments were pendimethalin (1.0 kg ha<sup>-1</sup>) followed by one hand weeding (1543 kg ha<sup>-1</sup>) and hand weeding twice (1525 kg ha<sup>-1</sup>). The weed intensity was lower in these treatments. Among the herbicides, atrazine was more efficient in controlling broad leaved weeds while pendimethalin controlled monocot weeds. Hence the combination showed best performance

**Key words :** Grain yield, Pearl millet, Pre-emergence, Tank mix application of herbicides.

## **Weed Management in Rice Under Mechanized System of Rice Intensification**

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### **ABSTRACT**

An investigation was conducted on weed management in rice under mechanized SRI at Agricultural College Farm, Naira during *Kharif*, 2014 with ten weed management practices. Orthosulfamuron @ 100 g *a.i.* ha<sup>-1</sup> as pre-emergence and mix application + Orthosulfamuron @ 100 g *a.i.* ha<sup>-1</sup> as post emergence at 20-25 DAP resulted in the highest growth parameters, number of tillers m<sup>-2</sup> and dry matter production and yield attributes viz., productive tillers m<sup>-2</sup>, filled grains panicle<sup>-1</sup> and yield (5489 kg ha<sup>-1</sup>) as well as net returns (42673 0 ha<sup>-1</sup>) and B:C ratio (1.21). With respect to weed parameters, lowest weed dry matter, weed index and highest weed control efficiency at 50 DAP were registered with T<sub>10</sub> and it was on par with all other integrated weed management practices with all the parameters except with weed dry matter and weed control efficiency. Lowest growth parameters, yield attributes, yield as well as, highest weed dry matter and weed index and lowest weed control efficiency were recorded with Weedy check. The study revealed that weeds in rice can be successfully managed under mechanized SRI in north coastal zone of Andhra Pradesh, with sequential application of Orthosulfamuron@ 100 g *a.i.* ha<sup>-1</sup> as pre and post emergence for higher productivity.

**Key words :** : Integrated weed management, Growth parameters, Mechanized SRI, Orthosulfamuron, Oxadiargyl, Power weeder, Yield.

## **Combining Ability Analysis for Fodder Yield and its Components in Pearl Millet (*Pennisetum glaucum*)**

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### **ABSTRACT**

The study with five male-sterile lines, eight pollinator lines, 40 F<sub>1</sub> crosses, which were generated through Line x Tester matings and one standard check PCB141 was conducted to assess the combining ability of newly developed inbred lines. The data was recorded on 9 morphological characters viz., plant height, number of tillers per plant, leaves per plant, leaf length, leaf breadth, stem thickness, days to 50 per cent flowering, green fodder yield per plant and dry matter yield per plant. Three quality parameters: crude protein, oxalic acid and total ash were also estimated for all the genotypes. Analysis of variance for combining ability for different characters revealed significant differences among the female parents for all the characters except oxalic acid. Male parents also differed significantly for all the characters except oxalic acid and crude protein. Whereas for hybrids mean squares were significant for all the traits except for days to 50 % flowering and plant height. The cross PB 408A X PIB 258 was found to be very good specific combiner for green fodder yield per plant and was the second based on mean performance of hybrid.

**Key words :** Combining ability, Fodder pearl millet.

## **Variability Studies for Yield, Yield Components and Quality Characters in M<sub>4</sub> Progenies of Rice (*Oryza sativa*)**

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### **ABSTRACT**

Variability and heritability parameters were estimated for 18 yield components and quality parameters in 25 treatments of Akshaya mutant population in M<sub>4</sub> generation. Four characters viz., number of fertile grains per panicle, grain yield per plant, ear bearing tillers per plant and water uptake manifested moderate to high estimates for PCV, GCV and genetic advance coupled with high heritability suggesting the role of additive gene effects in their inheritance. Except amylose content, all the remaining characters exhibited low to moderate GCV, PCV, genetic advance and moderate to high heritability indicating the preponderance of both additive and non additive gene action in their expression. All the genetic parameters studied recorded low estimates for amylose content indicating the predominance of non additive gene action. Hence both additive and non additive genetic components could be exploited effectively by practicing reciprocal recurrent selection.

**Key words :** Components, Quality, Variability.

## **Assessment of Variability Parameters under Moisture Stress Condition in Mungbean (*Vigna radiata* (L.) Wilczek)**

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### **ABSTRACT**

Mungbean is an important crop to meet the challenges of food and nutritional security due to its nature of high protein and other micronutrients. To exploit the maximum yield potential of this crop, drought is considered as one of the most important constraint. Hence, an investigation was undertaken to estimate the genetic parameters on various yield, yield contributing traits and physiological parameters with 31 mungbean genotypes under moisture stress induced during pod filling stage for fifteen days. The results indicated that, based on mean performance for yield and its contributing characters, the genotypes VG-6197A, RMG-492 and LGG 450 were found to be good under simulated moisture stress condition. In the present investigation, high heritability coupled with high genetic advance as per cent of mean was recorded for relative injury, number of pods per cluster, seed yield per plant, chlorophyll content, 100-seed weight, number of pods per plant, plant height, number of clusters per plant, number of seeds per pod, harvest index and SLA indicating that these traits may be improved through simple selection methods.

**Key words :** Genetic advance as percent of mean, Heritability, Mungbean, Physiological traits.

## **Selection of Parents through Genetic Diversity Studies for Improvement of Yield and Yield Components in Mungbean (*Vigna radiata* L. Wilczek)**

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### **ABSTRACT**

The present investigation was undertaken to select the parents through genetic divergence studies in thirty one mungbean genotypes for sixteen morpho-physiological traits by using Mahalanobis  $D^2$  statistic. The genotypes were grouped into ten clusters. Cluster one was largest with nineteen genotypes followed by cluster II with four genotypes. The clusters III, IV, V, VI, VII, VIII, IX and X possessed one genotype each. Cluster I had maximum intra-cluster distance while inter-cluster distance was highest between clusters VII and X. Based on mean performance and divergence studies it was concluded that, hybridization between genotypes belonging to different clusters *viz.*, PUSA VISHAL x EC 396117 (cluster VII x cluster X), ASHA x EC 396117 (cluster III x cluster X), LGG 450 x EC 396117 (cluster I x cluster X), KM 122 x EC 396117 (cluster I x cluster X), MGG 347 x EC 396117 (cluster I x cluster X) and MGG 295 x EC 396117 (cluster VI x cluster X) could be suggested for the exploitation of transgressive segregants for both yield as well as yield components. Chlorophyll content contributed relatively maximum towards genetic divergence followed by relative injury, days to 50% flowering, days to maturity and seed yield.

**Key words :**  $D^2$  analysis, Genetic divergence, Morpho-physiological traits, Mungbean.

## **Variability and Genetic Parameters for Kernel Yield and Its Components In Maize (*Zea mays L.*) Inbredlines**

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### **ABSTRACT**

The present study was undertaken to estimate the extent of variability and genetic parameters in twenty eight maize genotypes for 15 yield and yield component characters during *Kharif*, 2013. The magnitude of difference between PCV and GCV was relatively low for almost all the traits, indicating less environmental influence. High estimates of GCV and PCV (>20%) were recorded for kernel yield per plant, number of cobs per plant, number of branches in tassel, 100-kernel weight and harvest index. High estimates of heritability along with high genetic advance as percent of mean were recorded for number of kernel rows per cob, kernel yield per plant, number of branches in tassel, 100-kernel weight, cob length and harvest index indicating additive gene effects in genetic control of these characters. Hence, selection may be effective for these characters.

**Key words** : Genetic advance as percent of mean, Genetic variability, Heritability, Kernel yield.

## **Studies On Gene Action And Combining Ability For Morpho-Physiological Traits In Rice (*Oryza Sativa L.*) Under Water Stress Condition**

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### **ABSTRACT**

Combining ability analysis was carried out involving 24 crosses for grain yield and, its components and some of the physiological characters in *line x tester* design under water stress condition. The magnitudes of specific combining ability variances were higher than the general combining ability variances for all the characters except for days to 50% flowering, grain yield per plant and chlorophyll stability index which indicated predominance of non additive gene action in the inheritance of these traits. Three crosses *viz.*, JGL 3855/Rajendra, MTU 1001/JGL 17004 and BPT 5204/Annada could be isolated as they possessed desirable SCA, hetetosis and *per se* performance for yield and physiological traits.

**Key words** : Gca, Gene action, Rice, Sca.



## **Genetic Variability for Seed Yield and Yield Components in Sesame (*Sesamum indicum* L.)**

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### **ABSTRACT**

The study was undertaken with an objective to study the genetic variability for seed yield and yield traits in sesame during *rabi*, 2010 at Agricultural Research Station, Yellamanchili, Andhra Pradesh. Analysis of variance showed highly significant differences among the thirty six genotypes for all the characters studied indicating that the data generated from the above diverse material will yield reliable genetic information. The genetic variability studies revealed that the material used in present investigation possessed variability which provides scope for selection by breeder. Moderate to low coefficients of variability was observed for most of the traits indicating moderate variability. The estimates of high heritability and moderate genetic advance as per cent of mean were observed for the traits primary branches/plant, 1000 seed weight and seed yield per plant.

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

## **Study of Genetic Parameters on Yield, Yield Contributing and Fibre Quality Characters in Cotton (*Gossypium hirsutum* L.).**

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### **ABSTRACT**

Sixty three cotton (*Gossypium hirsutum* L.) genotypes were studied to know the genetic variability, heritability and genetic advance for yield, yield contributing and fibre quality characters. The analysis of variance revealed that the significant variability was present in the experimental material for all the characters. The phenotypic coefficient of variation (PCV) was slightly higher than genotypic coefficient of variation (GCV) for all the characters indicating the influence of the environment. The highest heritability estimates in broad sense was recorded for lint index (97 %) and seed index (96.68 %). High heritability was observed for all the characters except number of monopodia plant<sup>-1</sup>, uniformity ratio and elongation (%). High heritability coupled with high genetic advance as per cent of mean was observed for number of bolls plant<sup>-1</sup>, seed index, lint index, ginning out-turn, micronaire, seed cotton yield plant<sup>-1</sup> and lint yield plant<sup>-1</sup>.

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

# **Genetic Variability for Seed Cotton Yield and Yield Components in Cotton**

*(Gossypium hirsutum L.)*

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## **ABSTRACT**

The study was undertaken with an objective to study the genetic variability for seed yield and yield traits in cotton genotypes during *khariif*, 2013-14 at Regional Agricultural Research Station, Lam Farm, Andhra Pradesh. Analysis of variance showed highly significant differences among the fifty seven genotypes for all the characters studied indicating that the data generated from the above diverse material will yield reliable genetic information. The genetic variability studies revealed that the material used in the present investigation possessed variability which provides scope for selection by breeder. Moderate to low coefficients of variability was observed for most of the traits indicating moderate variability. The estimates of high heritability and moderate genetic advance as per cent of mean were observed for the traits sympodia per plant, bolls per plant, 2.5 % span length and seed cotton yield per plant.

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

# **Influence of Different Sources of Nutrients on Physico-chemical and Physical Properties of Soil in Rice Crop**

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## **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 laidout in a randomized block design in *khariif* 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 soil properties after harvest of rice crop viz., physic – chemical properties and physical properties were relatively improved 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 :** Organic sources, Physico-chemical properties and Physical properties

## **Effect of Long-Term Fertilization on Nutrient Content, Uptake and yield of Cotton**

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### **ABSTRACT**

The experiment was under taken during the year 2013-14 to study the effect of long-term use of manures and fertilizers on nutrient content and uptake in cotton at harvest stage. The results of the investigation indicated that the application of 100% recommended dose of NPK + FYM 10 t ha<sup>-1</sup> recorded significantly higher kapas yield and uptake of nutrients by cotton crop which was followed by 150 per cent recommended dose of NPK. The increase in the kapas yield of cotton, in the treatment of 100% NPK + FYM 10 t ha<sup>-1</sup> was recorded to the extent of 132.3 per cent increased over control. Application of recommended dose of 100% N alone through fertilizers decreased the yield and uptake of nutrients significantly over 100% recommended dose of NPK + FYM 10 t ha<sup>-1</sup>. Maximum content and accumulation of N, P, K, Fe, Mn and Cu in cotton were noticed in the treatment of 100% NPK + FYM 10 t ha<sup>-1</sup>.

**Key words :** FYM, Long-term fertilization, Kapas yield, Nutrient content, Uptake.

## **Long-Term Impact of ICDS on Intellectual Development and Scholastic Achievement of Rural Children**

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### **ABSTRACT**

The present study is not only more comprehensive with regard to the number of variables studied, but it is a follow up of the earlier ICDS exposed and unexposed cohorts into school so that the long-term impact of the programme on intellectual and scholastic achievement can be documented. The study findings show that the ICDS programme has a beneficial long-term impact on intellectual development but limited effect on scholastic achievement of erstwhile Beneficiaries. In view of its long term benefits, it is recommended that the ICDS be expanded further to include all the under-privileged children. Keeping in view the importance of newer and innovative information in stimulating intellectual development and possibly scholastic achievement, it is also recommended that the quality of teaching in rural schools be improved.

**Key words :** ICDS, Intellectual development, Scholastic achievement.

## **Effect of Grain Discolouration on Rice Grain Biochemical Constituents and Seed Germination and Seedling Vigour**

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### **ABSTRACT**

The studies on rice grain discolouration were carried out in the Agricultural College, Bapatla, Guntur district, Andhra Pradesh during 2013-14. Significantly higher concentration of starch, total sugar, reducing and non reducing sugars and lower concentrations of total phenols were observed in healthy grains than in discoloured grains. Changes in biochemical constituents between healthy and discoloured grains were significant except non reducing sugars. Seed germination and seedling vigour decreased significantly with increase in the grade of discolouration and storage period. Seed germination was 88.40 to 92.20% in seeds with 1 – 5% discolouration from the four districts and was found to be lesser; 85.80 to 89.40% in seeds with 6-25% discolouration, 81.60 to 86.20% in seeds with 25-50% discolouration and 79.40 to 80.80% bin seeds with >50% discolouration in the first month of collection of samples. Seed germination decreased as an obvious consequence of increased discolouration with increasing storage period; four months after storage seed germination in seeds with 1-5% discolouration was 84 to 86.60% and in seeds with >50% discolouration it was 64.60 to 69.4 %. Seedling vigour index was found to be in the trend as that of seed germination *i.e.*, an inverse relationship with level of grain discolouration and storage period.

**Key words :** Biochemical constituents, Grain discolouration, Rice seed germination, Seedling vigour.

## **Influence of Biochemical Components of Leaf on Incidence of Whitefly (*Bemisia tabaci* Genn.) in Certain Blackgram Genotypes**

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### **ABSTRACT**

Biochemical parameters, *viz.*, phenols and total sugars in leaves were studied in relation to incidence of whitefly (*Bemisia tabaci*) in fifteen genotypes of blackgram. Highly susceptible genotype, LBG-623 had lowest amount of phenols and highest amount of total sugars, when compared to the entry, VBG-10-008 which recorded the lowest whitefly population. It has recorded the highest amount of phenols and lowest amount of total sugars during both vegetative and reproductive stages. There was a significant negative correlation between whitefly incidence and amount of phenols in both vegetative and reproductive stages whereas, significant positive correlation was observed with whitefly incidence and total sugars in vegetative stage and amount of sugars remained nonsignificant in reproductive stage.

**Key words :** Blackgram, Carbohydrates, Phenols, Whitefly.

## **Effect of Intercrops on the Relative Incidence of Insect Pests of Castor, *Ricinus communis* L.**

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### **ABSTRACT**

The effect of intercrops viz., blackgram, greengram, cowpea, redgram, sorghum and pearl millet with castor was studied at Agricultural Research Station, Darsi to identify the appropriate combination of castor (*Ricinus communis* L.) and intercropping in relation to pest incidence. The diversity created by introducing sorghum or pearl millet as intercrops in castor (1:2 ratio proportions) resulted in reduction of incidence of insect pests, namely semilooper, *Achaea janata* L. (1.42 and 1.27 larvae per plant), leaf hopper, *Empoasca flavescens* Fabricius (7.25 and 7.70 per leaf), Tobacco caterpillar, *Spodoptera litura* (0.27 and 1.35 larvae per plant), Bihar hairy caterpillar, *Spilosoma obliqua* (0.07 and 0.17 larvae per plant) and shoot and capsule borer, *Conogethes punctiferalis* Guenee (8.00 and 12.65 % damage) compared to a castor monocrop (2.57, 15.62, 1.00, 0.07 and 16.03 %, respectively). The buildup of natural enemies, *Microplitis*, coccinellids, and spiders of the major pests of castor was also observed in these intercropping systems and resulted in the reduction of insect pests. Further, these systems were more efficient in terms of castor equivalent yields (1446 and 1331 Kg/ha) and economically (36,150 and 33,275 Rs/ha), and were thus more profitable than a castor monocrop (985 Kg/ha and 24,625 Rs/ha).

**Key words :** Castor, intercrops, Economics, Equivalent yields, Insect pests, Natural enemies.

## **A Study on Incidence of Cigarette Beetle, *Lasioderma serricorne* (Fab.) in Turmeric Rhizomes in Storage Houses at Duggirala, Andhra Pradesh**

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### **ABSTRACT**

A survey was conducted at fortnight interval during July, 2014 to December, 2014 to observe the incidence of cigarette beetle in turmeric storage godowns of M/s Krishna Food Products (processing mill) and at Agricultural Market Committee yard, Duggirala which are important market centres for turmeric trade in Guntur district. As many as 2.83 adults (mean) were emerged from the samples collected from the AMC yard and the mean number increased to the tune of 33.0 after six months of storage. The mean number of adults (2.67) emerged from the samples collected at processing mill after one month of storage further increased to 35.0 after six months of storage. Up on storage of 180 days, these insect populations caused loss in weight to an extent of 15.38 and 16.13 per cent in AMC yard and processing mill, respectively.

**Key words :** Cigarette beetle, Incidence, Turmeric, Storage godowns.

## **Pathogenicity of a Native Isolate of *Nomuraea rileyi* (Farlow) Samson Against Tobacco Caterpillar, *Spodoptera litura* (Fabricius)**

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### **ABSTRACT**

The median lethal concentration ( $LC_{50}$ ) and time ( $LT_{50}$ ) of *Nomuraea rileyi* (Farlow) Samson were determined against the second instar larvae of *Spodoptera litura* (Fab.) by dipping the larvae in fungal spore suspension concentrations varying from  $1 \times 10^4$ ,  $1 \times 10^5$ ,  $1 \times 10^6$ ,  $1 \times 10^7$  and  $1 \times 10^8$  spores  $ml^{-1}$ . The  $LC_{50}$  recorded with *N. rileyi* against the second instar larvae of *S. litura* was evaded as  $5.55 \times 10^4$  spores  $ml^{-1}$  whereas  $LT_{50}$  value was 190.09 hours post infection.

**Key words :**  $LC_{50}$ ,  $LT_{50}$ , Native isolate, *Nomuraea rileyi*, *Spodoptera litura*.

## **Effect of Foliar Spray of Kinetin and Brassinosteroid during Drought Period on Biochemical Parameters of Groundnut (*Arachis hypogaea* L.)**

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### **ABSTRACT**

A field experiment was conducted in Agricultural College Farm, Bapatla, during *rabi* 2012-13 to study the effect of foliar sprays of kinetin and brassinosteroid during drought period on biochemical parameters *viz.*, chlorophyll stability index, leaf proline content and nitrate reductase activity 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. Foliar spray of homobrassinolide @ 1 ppm at 32 and 45 DAS during water stress gave higher values for all the biochemical parameters of groundnut in the study.

**Key words :** Biochemical parameters, Drought period, Groundnut, Spray of kinetin.

# Utilization of Cashew Apple (*Anacardium occidentale* L.) for Preparing Cashew Apple Syrup by Using Different Varieties

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## ABSTRACT

The focus of the present study is the utilization of cashew apple (*Anacardium occidentale* L.) for the preparation of cashew apple syrup by using eight distinct varieties viz., BPP-4, BPP-5, BPP-8, BPP-9, Dhana, Priyanka, VRI-1 and VRI-2. The varieties of cashew apple are studied for their physical parameters of fruit like fruit weight, fruit colour, fruit girth, fruit length, and fruit volume, juice colour and juice recovery percentage. The chemical parameters like TSS ( $^{\circ}$ Brix), total titrable acidity (%), TSS/Acid ratio, ascorbic acid (mg/100 g), reducing sugars (%) and tannins (mg/ml) for juice, clarified juice and syrup were recorded. The physical parameters of juice like colour of product, product recovery from 100 fruits and microbial spoilage, Organoleptic evaluation and storage behaviour of the cashew syrup were also evaluated. Among the varieties studied, significantly highest fruit weight (76.84g), fruit girth (5.79 cm), fruit length (7.53 cm), fruit volume (58.11cm<sup>3</sup>) and juice recovery percentage (79.43%) were recorded in the variety Priyanka followed by BPP-8. Among the varieties, significantly highest quantity of syrup was obtained in variety Priyanka (7.44 Kg) followed by BPP-8 (4.56 kg) from 100 fruits on weight basis. Organoleptic evaluation of syrup, the overall acceptability ranged from 5.41 to 5.79, 5.86 to 6.08 and 6.26 to 6.47 at 0, 30 and 60 days after storage respectively in increasing manner and the highest in Priyanka followed by BPP-5, BPP-8 and the lowest in BPP-4 variety.

**Key words :** Acidity, Cashew, Fruit weight, Reducing sugars, Syrup, TSS.

## Estimation of Crop Water Requirement of TS Channel (Tungabhadra side channel) Command of Krishna Western Delta using CROPWAT Model

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## ABSTRACT

Water requirement estimation is important in cultivation practices of rice. This study was carried out to determine the total water requirement needed for 4165 hectares of paddy and maize crops which are being cultivated in TS Channel of command of Krishna Western Delta (KWD) in Kharif and Rabi seasons respectively. In KWD, water is supplied continuously until about 10 days before harvesting. Water is required to bring the fields to saturation, and to establish a layer of water in the fields to facilitate land preparation. Saturation of water, effective rainfall, and evapotranspiration and seepage percolation were calculated for determination of crop water requirement during the pre-saturation and normal growth periods. The computer simulation model CROPWAT was applied to estimate crop water requirements of rice and maize crops grown in both the seasons. The decennial meteorological data for years 2000 to 2012. The study showed that the total of 274 mm and 374mm of irrigation water for paddy and maize crops during kharif and rabi seasons respectively which clearly show that there is a misutilization of canal water and non-utilization of ground water to the extent recommended hence the area under cultivation is also lower than the actual potential especially during rabi season (3500 ha) as against kharif (4165 ha).

**Key words :** CROPWAT, Paddy Field, Water Requirement.

## **Effect of Different Implements for Improving the Productivity and Quality of Sugarcane Ratoons (*Sacharum Officinarum* L.)\***

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### **ABSTRACT**

Ratooning is a practice of growing a crop from the stubbles of previous crop. It saves the cost of preparatory tillage and planting material. It gets the benefit of residual manure and moisture and also it matures earlier than the plant crop and gives more or less same yield as that of plant cane. The objective of this study was to investigate biometric observations of growth parameters, yield attributes and yield. Accordingly, the effect of different implements on soil parameters and root growth was also recorded. Significantly highest and at par tiller number at 75 and 120 DAP, plant heights, millable canes, single cane weight, cane yield, sugar yield and cane girth (96.750ha<sup>-1</sup>, 162.91, 333.60, 102.280, 1.39, 148.46, 19.80 ) were recorded in T<sub>6</sub> and T<sub>5</sub> (83.15, 152.07, 319.04, 99.643, 1.36, 136.82, 18.54, 2.88) treatments. While, significantly lowest and at par crop parameters were noted with T<sub>1</sub> and T<sub>2</sub> treatments. Higher root mass of 205.69 – 211.36 g was recorded in T<sub>4</sub>, T<sub>5</sub> and T<sub>6</sub> treatments which involve the use of stubble shaver, disc off barrower and a ratoon manager. On the other side, the conventional treatments in which shaving was done manually has registered a root mass of 171.65 – 188.97 g. Maximum decrease of 1.38 gm cm<sup>-3</sup> in bulk density was observed in T<sub>6</sub> while the minimum was observed in T<sub>1</sub>. On the other hand, the pore space was maximum (38.85%) in T<sub>6</sub> and minimum in T<sub>1</sub> (31.62%), the results indicated that the use of modern implements for ratoon sugarcane crop improves the growth and yield of ratoon.

**Key words :** Implements for improving, Ratoons, Sugarcane.

## **Comparison of Sugarcane Yields under Various Drainage Systems at Kapileswarapuram, East Godavari District**

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### **ABSTRACT**

Drainage system plays a vital role to combat waterlogging in agricultural lands. Conventional drainage measures require huge capital investment and require lot of integrity among farmers in terms of maintenance too, it is felt that the mole plough drainage technology could be popularized in the waterlogged sugarcane fields, could be easily adapted by the farmers without disturbing the natural recourses with proper ecological, economical disturbance. Further the mole plough could be easily fabricated by among village artisans. Major agricultural fields of some of the coastal districts namely Guntur, Prakasam, Krishna, East Godavari and West Godavari of Andhra Pradesh (A.P) suffer with waterlogging and salinity problems. Under the close supervision and guidance of the subject matter experts of Acharya N G Ranga Agricultural University, a network of drainage systems, namely open, mole and subsurface drainage systems were installed in farmers' fields of Kapileswarapuram, East Godavari with the support of M/s Sarvaraya sugars private Limited, Chelluru, East Godavari District to benefit the farming community in terms of recommending better drainage system and better crop variety in their waterlogged fields. Two varieties of sugarcane CO7805 and 2000V46 were planted in study area within these two varieties 2000V46 variety gave high yield compare to other variety. Among all drainage systems mole drainage system gave high yield 63.23 t/ha followed by open drainage system. The yields under SSD were found not satisfactory because of less pumping hours by the field staff in accordance with the adjoin paddy growers.

**Key words :** Mole drainage, Subsurface drainage and Open drainage.



# **A Comparative Study of Thermally Treated and Untreated Sugarcane Juice**

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## **ABSTRACT**

Sugarcane juice is commonly used as a delicious drink in both urban and rural areas. Sugarcane juice is spoiled quickly due to the presence of simple sugars. Preservation of sugarcane juice was examined to reduce the spoilage and to increase the shelf life using thermal treatment. A study was carried out to preserve sugarcane juice by thermal treatment and compare with the untreated juice. The result revealed that good quality sugarcane juice of variety CO380 with satisfactory storage stability at refrigeration could be prepared by heat treatment at 80°C for 5 min. Physico – chemical analysis revealed that the TSS, colour and pH value of sugarcane juice decreased during storage. The TSS of thermally treated juice ranged from 22 to 19.9 % during its storage. The pH was recorded as 4.65 for thermally treated juice. Thermally treated juice showed lower reduction in total sugars from 20.3 to 18 % during storage period. The reducing sugars increased during storage. The turbidity of thermally treated juice was very less it ranged from 70.2 to 50.7 % during its storage. The thermally treated juice gave good results when compared to untreated sugarcane juice.

**Key words :** Sugarcane juice, Thermally treated, Preservation, Simple sugars, Total sugars, Reducing sugars and Turbidity.

# **Effect of Modified Atmosphere Packaging on Physico-Chemical Characteristics of Orange Segments**

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## **ABSTRACT**

Fresh and sorted orange fruits were sanitized, dried, peeled and segmented. The segments (150 g) were packed under 5% O<sub>2</sub> + 10% CO<sub>2</sub> + 85% N<sub>2</sub> gas composition in different packaging materials like Low Density Poly Ethylene (LDPE, 60 µm), Polypropylene (PP, 32 µm) and Poly Vinyl Chloride (PVC, 20 µm) and stored at 5°C. The physico-chemical characteristics were monitored at an interval of 4 days for a storage period of 20 days. The results showed that oxygen concentration gradually decreased but the carbon dioxide concentration gradually increased and reached a steady state concentration in all treatments during the storage. The TSS, titratable acidity, ascorbic acid and color (L\* and a\*/b\* value) of orange segments packed in LDPE covers decreased during storage period of 20 days. Less change was observed in physiological loss in weight (PLW) of samples stored in LDPE covers. The increase in firmness and pH was less in samples stored in LDPE covers during storage period. Study revealed that the quality orange segments was good when packed in LDPE covers and stored at 5°C with a shelf life of 20 days where as the shelf life of control samples was only 4 days.

**Key words :** Modified atmosphere packaging, Orange segments, Packaging materials, Physico-chemical characteristics, Storage.

## **Effect of Drip Irrigation with Saline Water on Yield and Water Use Efficiency of Okra (*Abelmoschus Esculentus* L. Moench)**

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### **ABSTRACT**

A field experiment was conducted during summer season of 2015 at College of Agricultural Engineering, Bapatla on sandy soil to evaluate the effect of drip irrigation with saline water on yield and water use efficiency of Okra. The experiment was laid out in split plot design with three replications. The four salinity levels viz, M1 (freshwater with 0.42 dSm<sup>-1</sup>), M2 (2 dSm<sup>-1</sup>), M3 (4 dSm<sup>-1</sup>) and M4 (6 dSm<sup>-1</sup>) were considered as main treatments and three irrigation levels viz, S1 (100% CWR) i.e. irrigation at 100 percent of crop water requirement, S2 (80% CWR) and S3 (60 % CWR) were considered as sub treatments. The crop water requirement (ET<sub>c</sub>) for the Okra crop during summer season was estimated as 460.4 mm. The results shown that freshwater M1S1 (0.42 dSm<sup>-1</sup> of salinity at 100 % CWR) recorded higher yield (6.35 t ha<sup>-1</sup>). The 100 percent CWR recorded significantly higher yields in all salinity levels of irrigation. Increased salinity levels caused yield reduction by 7.4 %, 42.0 % and 62.0 % in the treatment irrigated with salinity levels of 2 dSm<sup>-1</sup>, 4 dSm<sup>-1</sup> and 6 dSm<sup>-1</sup> respectively as compared to the yield obtained by irrigation water salinity of 0.42 dSm<sup>-1</sup>. The treatment M1S3 (0.42 dSm<sup>-1</sup> of salinity at 60 % CWR) recorded significantly higher WUE as 0.20 t/ha.cm.

**Key words :** Drip irrigation, Saline water irrigation, Okra crop, Water Use Efficiency.

## **Borrowing Behaviour and Resource Use Efficiency of Farmers in Guntur district of Andhra Pradesh\***

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### **ABSTRACT**

The borrowing behaviour and resource use efficiency of sample farmers were generated from the data collected from 120 farmers (land owned farmers, semi- tenant farmers and tenant farmers) from six villages of three mandals in Guntur district of Andhra Pradesh. Discriminant function analysis revealed that institutional loan amount (52.67 %) was the major discriminator followed by operational costs (38.56%), net returns (3.16 %), wage income, (2.46 %), family expenditure (2.38 %) and non- institutional loan amount (0.77 %) for land owned farmers Vs. semi-tenant farmers, while the institutional loan amount (81.38 %) was the major discriminator followed by operational costs (22.48 %) and non-institutional loan amount (0.39 %) for land owned farmers Vs. tenant farmers. For semi-tenant farmers Vs. tenant farmers Operational costs (54.71%) followed by institutional loan amount (49.08 %), non- institutional loan amount (3.18 %) and family expenditure (0.55%). Land and labour cost showed significant influence on gross returns of land owners. The regression co-efficient of labour cost was positive and significant at 1 per cent level of significance for land owned farmers. Labour cost, borrowed capital and owned capital showed positive and significant influence on gross returns of semi- tenant farmers. Land, borrowed capital and owned capital showed positive and significant influence on gross returns of tenant farmers.

**Key words :** Borrowing behaviour, Efficiency of farmer, Resource.

## **Development of Knowledge Test to Measure the Knowledge Level of Cashew Growers in Srikakulam District of Andhra Pradesh**

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### **ABSTRACT**

Eighty five items of knowledge on production recommendations of cashew were selected from a large number of item pool collected based on standard criteria and in consultation with members of advisory committee, subject matter specialists of KVK, DAATTC, Scientists of Cashew Research Station and Horticulture Department, Andhra Pradesh. Finally 28 items were selected after following the statistical procedures for the construction of knowledge test.

**Key words :** Knowledge test, Cashew growers, Difficulty index, Discrimination index, Point biserial correlation.

## **Improvement in Livelihood Status of Tribal Farmers Through Crop Intensification in Rainfed Farming System of Kanker District (Chhattisgarh)**

**Birbal Sahu, G P Pali, Rama Mohan Savu and Atul Dange**

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### **ABSTRACT**

North Bastar Kanker is tribal dominated area with poor resource availability in sense of agricultural enterprises adoption & productivity. The Rice is an important food crop of Kanker district mainly grown as direct broadcast seeding under dry conditions. About 61% of the total rice area in the district is sown by this method. After onset of monsoon, farmers broadcast paddy seeds and plough by desi plough or tractor drawn cultivator. *Bueshening* (blind hoeing or biasi) is widely practiced in the district which covers about 80% of the rice area. Thus, there is need to replace the biasi system by line sowing. This method of sowing with early maturing rice variety helps in establishment of succeeding rabi crop which gave additional return to farmers in turn improves his socio-economic condition and livelihood status. To overcome the problem, KVK, Kanker (C.G.) has started dry line sowing of paddy by seed cum fertilizer drill with post-emergence application of herbicide and establishment of succeeding chickpea crop in residual moisture. Line sowing of rice variety MTU-1010 followed by chickpea variety Vaibhav was compared with farmer's practice of broadcasting rice with biasi system. Results across sites from 2009-10 to 2010-11 showed that the direct seeding in line + application of post-emergence herbicide gave the most consistent yield ranging from 30.30 to 34.75 q/ha than the farmers practice. In addition to the rice yield, the improved practice gave a chickpea yield ranging from 2.00 to 2.50 q/ha. In terms of cropping system performance, the rice equivalent yield ranged from 36.66 to 40.47 q/ha. The improved practice rewarded additional net return of Rs.10287/ha over farmers practice. Benefit: Cost ratio was 2.81 and 3.42 under farmer and improved practice, respectively.

**Key words :** Broadcasting, Intensification, Line sowing, Livelihood, Rainfed.

## **Impact of Paddy Drum Seeder FLDs on Farmers Knowledge and Adoption Levels**

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### **ABSTRACT**

Rice is a staple food for millions of people in the world, particularly in developing countries like India. The demand for rice is growing with ever increasing population. Of late, farmers involved in paddy cultivation are facing several problems viz., uncertainty in availability of canal water, paucity of labour availability coupled with hike in labour wages leads to rice cropping becomes lack luster and less profitable. By considering the above prevailing problems KVK, Darsi popularized paddy drum seeder technology through Front Line Demonstrations (FLDs) in adopted villages of Prakasam District of Andhra Pradesh from 2011 -13. An attempt was made to assess the impact of paddy drum seeder FLDs organized with respect to farmers knowledge and adoption levels. Constraints and perception of the farmers in adopting the technology were analysed for further refinement of the technology. Ninety paddy farmers who adopted the technology were purposively selected for the study purpose. Majority of the paddy farmers had correct knowledge on main field preparation(90.00%), suitable soils and mechanical weeding (86.67%), season (83.33%), variety (80.00%), seed rate (78.89%), seed soaking (77.78%) and water management (76.67%). Regarding adoption levels majority of them were fully adopting variety (91.11%), season (78.89%), seed soaking (71.11%), suitable soils (68.89%) and mechanical weeding (67.78%). Constraints expressed by the majority of the paddy farmers in adopting the technology were perfect leveling of the field (87.78%), weed management (82.22%), non-availability of weeders (75.55%), germination used to be effected by heavy rains (73.33%) and water management (62.22%). Majority of the FLD beneficiaries perceived that 7-10 days time is saved in drum seeder paddy (86.67%), Perfect leveling of the field is very difficult (85.56%), suitable to smaller areas (84.44%), low cost of cultivation (78.89%) and low incidence of pest and disease (68.89%) in paddy drum seeder technology.

**Key words :** Impact, Drum seeder, FLD, Paddy

## **Constraint Analysis of Drum Seeder Technology in Paddy Cultivation in North Coastal Zone of Andhra Pradesh**

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### **ABSTRACT**

The major component of agriculture in Andhra Pradesh particularly North Coastal Zone is paddy cultivation (63 per cent of total cultivated area). Transplanting is the most common and conventional method of crop establishment under low land and rain fed situations which is high labour intensive and expensive. Direct sowing of paddy with sprouted seed in puddle fields by using an eight row drum seeder at 20cm row spacing is an alternate method of paddy cultivation which reduce the cost of cultivation, drudgery and proven to be good method under late sown conditions. Hence an effort was made with an objective to study adoption level of drum seeder technology in north coastal zone of Andhra Pradesh and to know the constraints in adoption of the drum seeder technology. Ex-post facto research design was used with a sample size of 100 paddy cultivated farmers who were adopting drum seeder technology. 58.00 per cent of the farmers were had a medium level of adoption of drum seeder technology in paddy cultivation followed by high(28%) and low(14%) even though its recent inception. It might be due to the attributes of drum seeder technology relative advantage in terms of low cost, labour saving, easy operation, less seed rate, no nursery management and time saving and easy to carry besides compatibility, observability, trial ability and predictability. The correlation analysis revealed that extension contact, achievement motivation, innovativeness, information seeking behavior, education, irrigation facility and risk taking ability were significantly related to the adoption of drum seeder technology at 5% level of probability. The constraint analysis revealed that sudden occurrence of the rain(100%), low lying situation(97%), high weed infestation(91%), bird damage at the time of sowing(80%), maintenance of spacing plant to plant(80%), irrigation management at early stages(74%) dropping of more seeds at a point(71%). It is the dire necessity of wide spread of the drum seeder technology through implementation of Front Line Demonstrations and trainings to the farmers by extension wing of Agricultural University and Department of Agriculture in Andhra Pradesh to cope with the vulnerability in cost of cultivation including scarcity of labour which provide sustainable livelihood to the small and marginal farmers.

**Key words :** Analysis, Drum seeder, Paddy cultivation.

## **Association of Profile of the farmers of Adopted village with the Direct and Indirect Changes in Guntur District**

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### **ABSTRACT**

The present study was formulated during the year 2015 in Guntur district of Andhra Pradesh, with a sample of 60 respondents from adopted village were selected by proportionate random sampling method. Results revealed that out of selected fourteen independent variables, twelve variables had showed positive and significant relationship with direct and indirect changes of adopted village. While observing regression values, it was acknowledged that the variables viz., age, farming experience, extension contact and market orientation were found to be positively significant at 0.01 level of probability. Whereas, occupation, training received and mass media exposure were found to be positively significant at 0.05 level of probability. Whereas, in case of indirect changes independent variables such as training received and extension contact were found to be positively significant at 0.01 level of probability and independent variables like mass media exposure and achievement motivation found to be positively significant at 0.05 level of probability.

**Key words :** Association, Direct changes, Profile, Adopted Village, Village Adoption Programme.

## **Profile of the MGNREGS Beneficiaries- A Study in Srikakulam District of Andhra Pradesh**

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### **ABSTRACT**

A study was conducted in Srikakulam district of Andhra Pradesh on beneficiaries of MGNREGS by purposively selecting a total of twelve villages from three mandals based on the criteria of maximum employment generation in Srikakulam district. From each of the above listed 12 villages 10 beneficiaries of MGNREGS were randomly selected from each village thus making a total of 120. Majority of the beneficiaries were middle aged, illiterate with medium family size, most of them were female with high annual income, high asset possession, high socio- politico participation followed by medium sources of information, high risk orientation, medium level of aspiration, medium economic motivation and medium achievement motivation.

**Key words :** Beneficiaries, MGNREGS, Profile characteristics.

## **Study on Health Problems of the Farm Women**

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### **ABSTRACT**

The study was carried out from two agro – climatic zones of Maharashtra. Nanded district was selected from Central Maharashtra Plateau zone and Nagpur district was selected from Central Vidarbha zone. This research consist sample of six hundred farm women 200 each from urban, rural and tribal areas. The respondents were interviewed personally. In the study, health problems of the farmwomen were studied. The results showed that the average height of the farmwomen was 149.46 cm while average weight noted was 51.20 kg. It was also observed that an average body mass index of the women was 22.88. As far as health problems of the farmwomen were concerned, it was noticed that the women faced relatively less digestive and respiratory disorders. But, they were suffering mainly from body pains like joint pain, back ache, pain in legs, pain in waist etc. Majority of them were not suffering from any chronic disease. It was observed that menstrual cycle of majority of them was regular, most of them were contacting private doctor at local level during disorders of the health. Traditional chulla was the main means on which food was prepared. Majority of the farmwomen were found to be following new cooking methods for food preparation. Tap water was the main drinking water source for majority of the families and majority of the respondents were non-vegetarian.

**Key words :** Farmwomen, Health problems.

## **Farmers attitude towards Bt cotton cultivation in Andhra Pradesh**

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### **ABSTRACT**

A study was conducted to know the farmers attitude towards the environmental, economic and social issues related to Bt cotton cultivation. One hundred and eighty respondents were selected from Guntur, Adilabad and Kurnool Districts of Andhra Pradesh for the study. The results revealed that majority of the farmers had favorable attitude towards Bt cotton cultivation. There was no significant difference among the small, medium and big farmers regarding attitude towards Bt cotton cultivation. Majority of the farmers possessed favourable attitude with the performance of Bt cotton crop in terms of yield and net income as more than 50 per cent less insecticides are used in Bt cotton cultivation.

**Key words :** Attitude, Bt cotton, Content analysis.

## **Npk Rate Effects on Growth and Yield of Sweet Corn.**

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**Key words :** NPK rates, yield attributes, yield, sweet corn.

## **Effect of Sowing dates on Growth and Seed Yield of Chickpea in Nandyal zone**

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**Key words :** Chickpea, Date of sowing ,Varieties, Yield , Yield attributes.

## **Improving Livelihoods of Women in Tribal Communities Through Backyard Poultry**

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**Key words :** Livelihoods, Tribal Communities.

## **A Note on Flower Development in Garland Chrysanthemum (*Chrysanthemum coronarium* L.)**

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**Key words :** Chrysanthemum, Flower, Garland.