

## INVITED ARTICLE

### Biofortification of Rice

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### **Yield and Quality of Popcorn (*Zea mays everta*) as Influenced by Planting Population and Fertility Levels in *Kharif* Season**

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#### ABSTRACT

A field experiment was conducted during *Kharif* season of 2012 on vertisols of Post Graduate Research Farm, College of Agriculture, Kolhapur, to develop certain agro techniques for enhancing the productivity and quality of popcorn in Maharashtra. The experiment was laid out in factorial randomized and replicated thrice. It consisted of three fertilizer levels viz., 75% RDF (90:45:30 Kg NPK ha<sup>-1</sup>), 100% RDF (120:60:40 Kg NPK ha<sup>-1</sup>) and 125% RDF (150:75:50 Kg NPK ha<sup>-1</sup>) and four plant spacing levels viz., 60 x 15 cm<sup>2</sup>, 60 x 20 cm<sup>2</sup>, 75 x 15 cm<sup>2</sup> and 75 x 20 cm<sup>2</sup>. The results indicated that highest grain yield, popping percentage expansion volume, protein content, reducing sugars and total sugars obtained with the application 150:75:50 Kg NPK ha<sup>-1</sup> (125% RDF), while the lowest of all these parameters were recorded with 90:45:30 kg NPK ha<sup>-1</sup> (75% RDF). Among the different plant densities 75 x 20 cm<sup>2</sup> plant spacing recorded higher yield and quality characters over 60 x 15 cm<sup>2</sup>.

Key words: Fertilizer levels, Plant densities, Popcorn.

### **Effect of System of Rice Intensification (SRI) on Quality Seed Production in Rice (*Oryza sativa* L.)**

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#### ABSTRACT

Studies on the effect of system of rice intensification of seven rice varieties on quality and productivity was conducted at Seed Research and Technology Centre, Hyderabad during *Rabi*, 2011-12 in comparison with traditional method of seed production. Significant differences were observed among the management practices for yield and yield components. Fourteen per cent yield improvement was noticed with SRI (60.42 q ha<sup>-1</sup>) over traditional method (53.01 q ha<sup>-1</sup>). Similarly, 64.29 per cent improvement in productive tillers and 12 per cent improvement in spikelet fertility were noticed with SRI method of cultivation. Among the varieties, MTU 1010 had high potential (76.99 q ha<sup>-1</sup>) for seed production under SRI besides higher seedling vigour index (1742). The plants in SRI method had high partitioning of dry matter resulting in high density spikelets per panicle (80.3) and higher spikelet fertility (94%). Seed produced under SRI showed significantly higher seedling vigour index I (1450) compared to traditional method (1359) of planting. SRI method with 10-12 days old seedlings, three weedings with cono weeder at 45, 60 and 75 DAS under saturated conditions of water during the entire crop growth period was found to be effective over the traditional method.

Key words: *Seed yield and Seed quality, SRI.*

## **Effect of Plant Densities and Fertilizer Levels on Growth, Yield Attributing Characters and Yield of Baby Corn**

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### **ABSTRACT**

A field experiment was conducted at the Agricultural Research Station, Garikapadu, to study the effect of plant densities and fertilizer levels on growth, yield attributing characters and yield of baby corn. The highest plant height (177.7 cm), drymatter accumulation (8722.1 kg ha<sup>-1</sup>), days to 50% tasseling (51.1), days to 50% silking (54.0) and green fodder yield (25.9 t ha<sup>-1</sup>) were recorded with the planting density of 3,33,333 plants ha<sup>-1</sup>. The highest number of ears per plant (2.1), ear length (12.3cm), ear weight with husk and without husk (92.5 g & 24.8 g) and ear yield (92.4 q ha<sup>-1</sup>) were recorded with the planting density of 1,11,111 plants ha<sup>-1</sup>. Application of 125% RDF gave the highest plant height (168.1 cm), drymatter accumulation (9308.3 kg ha<sup>-1</sup>), number of ears per plant (1.8), ear length (13.0 cm), ear weight with husk and without husk (95.3 g & 27.2 g), ear yield (105.4 q ha<sup>-1</sup>) and green fodder yield (25.9 t ha<sup>-1</sup>).

Key words: Baby corn, Fertilizer levels, Growth, Plant densities, Yield.

## **Growth and Yield of Maize as Influenced by Different Weed Management Treatments**

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### **ABSTRACT**

A field experiment was conducted at Agricultural College Farm, Bapatla, during *kharif*, 2015 to study the effect of pre-emergence (Atrazine @ 1.0 kg a.i. ha<sup>-1</sup> and pendimethalin @ 1.5 kg a.i. ha<sup>-1</sup>) and post-emergence herbicides (halosulfuron methyl @ 90 g ha<sup>-1</sup>) on growth and yield of maize. The experimental results indicated that the highest plant height (cm), drymatter production (kg ha<sup>-1</sup>) and yield at harvest of maize was with weed free and it was statistically on par with hand weeding at 20 and 40 DAS. Among various herbicides tested, pre-emergence application of atrazine @ 1.0 kg a.i. ha<sup>-1</sup> + post-emergence application of halosulfuron methyl @ 90 g ha<sup>-1</sup> registered the highest plant height (cm), drymatter production (kg ha<sup>-1</sup>) and yield of maize at harvest and this was on par with pre-emergence application of pendimethalin @ 1.5 kg a.i. ha<sup>-1</sup> + post-emergence application of halosulfuron methyl @ 90 g ha<sup>-1</sup> and these two were comparable with hand weeding at 20 and 40 DAS.

Key words: *Maize, Pre and post-emergence herbicides, Yield.*

## **Influence of Legume Intercropping on Yield of Bt Cotton**

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### **ABSTRACT**

A field experiment was undertaken to study the effect of intercropping legumes in *Bt* cotton on clay soil during *Kharif*, 2015. Experiment was laid out in Randomized Block Design with four replications. The legumes included greengram, blackgram, cowpea and soybean grown in 1:2 ratio with *Bt* cotton. Results indicated that intercropping of cotton with blackgram resulted in higher seed cotton equivalent yield which was comparable with cotton + greengram and cotton + cowpea. Legumes as sole crops resulted in higher yields than when intercropped with cotton. Performance of soybean, cowpea and greengram were on par when intercropped with cotton.

Key words: *Blackgram, Cotton, Greengram, Intercropping, Legumes.*

# Effect of Priming on Germination and Seedling Quality Parameters of Chickpea (*Cicer arietinum* L.)

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## ABSTRACT

Chickpea (*Cicer arietinum* L.) is an important *rabi* pulse crop grown in India. An experiment was conducted to know the effect of different priming methods on germination parameters of chickpea. Among the treatments studied seeds soaked in GA<sub>3</sub> solution for 16 hrs enhanced the germination, root length, shoot length, seedling fresh and dry weight, vigour index and field emergence followed by GA<sub>3</sub> with 12 hours priming. Hydropriming for 12 hours and 16 hours duration showed moderate improvement on seed germination parameters. Irrespective of the priming duration, lowest germination and other seedling quality parameters were observed in seeds primed with KCl. Superiority of GA<sub>3</sub> to record highest effect on germination parameters may be due to its stimulation effect in the formation of enzymes which are important in the early phases of germination helping for faster radical protrusion and plumule elongation. The present study indicated that, priming with GA<sub>3</sub> was found to improve the germination and seedling quality parameters in chickpea. Correlation analysis showed that field emergence is highly depended on germination and vigour index.

Key words: *Chickpea, Germination parameters, Priming.*

# Response of Aerobic Rice to Agrometeorological Indices

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## ABSTRACT

A field experiment was conducted during *Rabi* season from September 2013 to February 2014 at Agronomy eastern farm of Pandit Jawaharlal Nehru College of Agriculture and Research Institute (PAJANCOA & RI), Karaikal, Union Territory of Puducherry to investigate the performance of rice varieties at different dates of sowing. The treatments were evaluated in factorial concept of RBD, replicated thrice. The results indicated that among the three rice varieties, TRY 1 produced higher grain yield of 4,337 kg ha<sup>-1</sup> and among the dates of sowing, crop sown on 20<sup>th</sup> September produced higher grain yield of 4,549 kg ha<sup>-1</sup>. The analysis indicated that the derived weather parameters viz., total GDD, HTU, PTU were significantly contributing to the rice grain yield. From the study it was evident that during *Rabi* season, under aerobic condition, the optimum sowing date for Improved White Ponni, TRY 1 and ADT 39 was September 20<sup>th</sup> and the rice varieties TRY 1 and ADT 39 are recommended. For later sowing TRY 1 alone was found the best choice for *Rabi* season under aerobic condition at the coastal deltaic region of Karaikal.

Key words: *Aerobic rice, Agrometeorological indices, Grain yield, Sowing dates.*

# Growing Degree Days and Heat Use Efficiency of Fingermillet Varieties at Different Sowing Dates

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## ABSTRACT

A field experiment was conducted at Agricultural College Farm, Bapatla on sandy loam soil during *kharif* 2015 to study the crop heat unit requirement on growth and yield of fingermillet (*Eleusine coracana* L.) varieties sown at different dates. The highest drymatter (3665kg ha<sup>-1</sup>) at harvest and grain yield (2305 kg ha<sup>-1</sup>) was recorded with (D<sub>2</sub>) 2<sup>nd</sup> fortnight of July sowing. Higher values of Growing Degree Days (GDD) and Heat Use Efficiency (HUE) were also observed with (D<sub>2</sub>) 2<sup>nd</sup> fortnight of July and significant linear relationships were observed for drymatter and grain yield for all the three varieties of fingermillet with GDD and HUE.

Key words: Fingermillet, Growing Degree Days, Heat Use Efficiency.

## Nutrient Uptake by *Vicia Sativa* and Other Weeds in Rice-Fallow Blackgram

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## ABSTRACT

A field experiment was conducted during *rabi*, 2015-16 on sandy clay loam soils of Agricultural College, Naira, to study the effect of aciflourfen+clodinafop-propargyl on nutrient uptake by *Vicia sativa* L. and other weeds in rice-fallow blackgram. The results revealed that at all the intervals of sampling, all the herbicide treatments significantly lowered the dry weight of total weeds except T<sub>3</sub> and T<sub>4</sub> at 30 DAS and harvest which were comparable with weedy check (T<sub>1</sub>) and the lowest nutrient uptake by *Vicia sativa* and other weeds and maximum nutrient uptake by blackgram was recorded with acifluorfen+clodinafop-propargyl @ 0.4 kg a.i ha<sup>-1</sup> (T<sub>10</sub>) at 25 DAS which was on par with its lower doses 0.35 kg (T<sub>9</sub>) and 0.3 kg a.i ha<sup>-1</sup> (T<sub>8</sub>). The seed yield of blackgram also followed the similar trend.

Key words: Nutrient uptake, Rice-fallow blackgram, *Vicia sativa*.

## Nutrient management in yield of Semi-dry Rice (*Oryza sativa* L.) for North Coastal Zone of A.P

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## ABSTRACT

Field experiment was conducted during *kharif*, 2015 on sandy loam soils of Agricultural College Farm, Naira to find out the response of NPK levels and time of application of nitrogen on semi-dry rice. The experiment was laid out in split-plot design with four NPK levels assigned to main plots and four time of application of nitrogen to sub plots, each replicated thrice. Application of 160-90-75 kg NPK ha<sup>-1</sup> with dhaincha as brown manuring (L<sub>4</sub>) resulted in significantly superior performance in terms of growth and yield attributes and yield as well as B:C ratio compared to other levels. Among the different time of application of N treatments, scheduling N in four equal splits at 15, 45, 60 and 75 DAS (S<sub>1</sub>) was found to significantly enhance growth parameters, yield attributes and yield as well as B: C ratio over rest of the treatments. Significantly higher grain (6228 kg ha<sup>-1</sup>) and straw yield and B:C were associated with L<sub>4</sub> at S<sub>1</sub>, while they were found to be significantly lower with L<sub>1</sub> at S<sub>4</sub> except in case of productive tillers and straw yield, which were minimum with L<sub>3</sub> at S<sub>4</sub>.

Key words: *Brown manuring, Dhaincha, Nutrient dynamics and semi-dry rice.*

# **Response of Nandyala Pogaku-1(NBD-119) Bidi Tobacco (*Nicotiana tabacum* L.) to Nitrogen levels and Topping Under Rainfed conditions in Vertisols of Andhra Pradesh**

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## **ABSTRACT**

To study the response of Nandyal Pogaku -1(NBD-119) a newly released bidi tobacco variety to nitrogen levels and topping, an experiment was conducted for two *kharif* seasons (2014 – 15 and 2015 – 16) at Regional Agricultural Research station, Nandyal, Andhra Pradesh with three nitrogen levels i.e. 90 kg/ha, 110 kg /ha and 130 kg /ha and three topping stages i.e. 12 leaf, 15 leaf and 18 leaf stage and two varieties viz Nandyala pogaku-1(NBD-119) and A-119 (local popular variety) in a split-split plot design, replicated thrice. The variety Nandyala pogaku-1(NBD-119) recorded significantly higher cured leaf yield (1816 kg/ha) than A-119 (1588 kg/ha). Application of 130 kg nitrogen /ha recorded significantly higher cured leaf yield (1959 kg/ha). Topping at 18 leaf stage recorded significantly higher cured leaf yield (1991 kg/ha). Leaf quality parameter in terms of spangle score was significantly higher with Nandyala pogaku-1(NBD-119) (3.35) and decreased significantly when topping was performed at 15 and 18 leaf stage. Nicotine percentage and reducing sugars percentages were not influenced by different nitrogen levels as well as topping stages.

Key words: *Cured leaf yield, Nandyala pogaku-1(NBD-119), Nitrogen, Topping*.

# **Yield and Nutrient Uptake of Fingermillet [*Eleusine coracana* (L.)] as Influenced by Phosphorus Management Practices**

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## **ABSTRACT**

A field experiment on fingermillet conducted during *kharif*, 2015 on sandy soil of Agricultural College Farm, Bapatla. Experiment was laid out in randomized block design with nine treatments (T<sub>1</sub>: RDP @ 30 kg ha<sup>-1</sup>; T<sub>2</sub>: 75% Recommended dose of inorganic phosphorus + FYM @ 3.75 t ha<sup>-1</sup>; T<sub>3</sub>: 75% Recommended dose of inorganic phosphorus + Vermicompost @ 0.75 t ha<sup>-1</sup>; T<sub>4</sub>: 50% recommended dose of inorganic phosphorus + FYM @ 7.5 t ha<sup>-1</sup>; T<sub>5</sub>: 50% Recommended dose of inorganic phosphorus + Vermicompost @ 1.5 t ha<sup>-1</sup>; T<sub>6</sub>: T<sub>1</sub> + PSB @ 5.0 kg ha<sup>-1</sup>; T<sub>7</sub>: T<sub>4</sub> + PSB @ 5.0 kg ha<sup>-1</sup>; T<sub>8</sub>: T<sub>5</sub> + PSB @ 5.0 kg ha<sup>-1</sup>; T<sub>9</sub>: No phosphorus.) and replicated thrice. The results indicated that the highest grain yield (2200 kg ha<sup>-1</sup>), straw yield (4550 kg ha<sup>-1</sup>) and highest nutrient uptake (73.1, 19.1, 39.5, 17.6, 0.91 kg ha<sup>-1</sup> of N, P, K, Ca and Fe.) was record with 50 % recommended dose of phosphorus + FYM @ 7.5 t ha<sup>-1</sup> + PSB @ 5.0 kg ha<sup>-1</sup> followed by 50 % recommended dose of phosphorus + Vermicompost @ 1.5 t ha<sup>-1</sup> + PSB @ 5.0 kg ha<sup>-1</sup> and significantly superior to the rest of the treatments.

Key words: *Fingermillet, FYM, Phosphorus management, PSB, Vermicompost*.

# **Climate Change - Technological options for Rice Crop in Bapatla Coastal Agro-eco System**

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## **ABSTRACT**

Climate change is widely accepted as the single most pressing issue facing society not only in India, but also in Andhra Pradesh. Therefore, there is a need to find out new models of agricultural development to combat the negative impacts of climate change. In addition, proactive steps have to be taken to ensure the economic development of agriculture in the state of A.P. in general and Bapatla region of Guntur District in particular as more than 60% of the population in the district are farmers. With this backdrop, the weather data on rainfall and temperature from 1979 to 2014 were analysed to know the trends in climate change in the Bapatla coastal agro-eco system. The initial trends of changes in climate in the Bapatla agro-ecological region are occurring as per the global ecosystem trends. As a result the yields of rice crop are also changing. Analysis for climate change using the techniques like Murthy's weather health indices and DSSAT - CROPGROW software revealed that there were strong negative effects of elevated temperatures on reproductive processes and yield of rice crop growth in the region. Also, there were no beneficial effects of elevated CO<sub>2</sub> on reproductive processes of rice crop. Added to these effects were negative at higher temperatures for this crop. For further definite results the data has to be subjected to few more important simulations using much refined data and statistical methods, including a new "pluviothermal concept", which is expected to solve climate change and agriculture issues in coastal ecosystems of A.P.

Key words: *Climate change, Technological.*

## **Climate Change- Jowar Yield Prediction model for Bapatla Coastal Agro-Ecosystem**

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## **ABSTRACT**

One component of mainstreaming of adaptation of jowar crop to climate change in Bapatla coastal agro-ecosystem is the development of a weather based adaptation strategy for the crop. Therefore, a vulnerability assessment study and an assessment of the impacts of climate change on jowar was studied. The basic knowledge, methodologies and tools required for the purpose were taken from DSSAT/CROPGROW/EPsim. The yield and production of the jowar crop from 1991 to 2015 for both *Kharif* and *Rabi* were used. A combination of biometrical observations and weather variables of crop grown during *Kharif* 2015 were used to test the validity of the both simulation and regression models. The selected step down regression model developed using rainfall alone has given R-value 0.91. From the simulation studies it was found that the contribution of climate change and variability on the yield of jowar crop is about 45 per cent during the next 50 years in the Bapatla agro-ecosystem. Interestingly, on the basis of a comparison of rainfall alone it was found that jowar crop in Bapatla agro-ecosystem is rather susceptible to excessive rain during the vegetative period (rainfall during the 30 days of vegetative period for both *kharif* and *rabi* from 10<sup>th</sup> day of sowing or 6<sup>th</sup> day after emergence). However, the authors strongly suggest for continued and sustained research for further refined results on the long run, the need for climate change impact studies on agricultural crops using other weather variables.

Key words: *Climate change, Jowar yield.*



## **Association and Path Analysis in American Cotton (*Gossypium hirsutum* L.)**

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### **ABSTRACT**

Fifty five diverse genotypes of American cotton (*Gossypium hirsutum* L.) were evaluated for 17 qualitative and quantitative traits. The correlation study revealed that seed cotton yield was found to be positively and significantly correlated with traits like no. of bolls plant<sup>-1</sup>, boll weight, ginning out turn and lint yield plant<sup>-1</sup> at both phenotypic and genotypic levels. Path coefficient analysis revealed high positive direct effect of number of bolls plant<sup>-1</sup>, boll weight and lint yield plant<sup>-1</sup> on seed cotton yield plant<sup>-1</sup>. The correlation and path analysis therefore clearly indicated that direct selection based on bolls plant<sup>-1</sup> and boll weight may be helpful in developing high seed cotton yield varieties in upland cotton.

Key words: *Character association, Gossypium hirsutum* , *path analysis*

## **Multivariate Analysis in 1% EMS Treated Tomato (*Lycopersicon esculentum* M.) cv. Arka vikas.**

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### **ABSTRACT**

An experiment was conducted to analyze the genetic diversity among 1.00 % EMS mutagen treated seeds of variety Arka vikas for 17 morphological and biochemical characters in tomato at Agricultural College Farm, Bapatla, Andhra Pradesh in 109 M<sub>3</sub> families along with control (untreated). The 109 M<sub>3</sub> families along with control with an optimum stand of 45-50 plants per family (unreplicated), were grouped into 11 clusters based on hierarchical cluster analysis. Among all the clusters, cluster II was the largest with 21 families followed by cluster I (with control Arka vikas) and X each with 14 families, cluster VIII with 11 families, cluster III with 10 families, cluster IX with 9 families, cluster IV and XI each with 8 families, cluster V and VII each with 6 families and cluster VI with 4 families. This random distribution of mutant families indicated that genetic diversity is existed not only from parent but also among themselves due to chromosomal anomalies for the seventeen characters studied. In the principal component analysis the first seven principal components with eigen values more than one contributed 74.53 per cent towards the total variability. It was therefore inferred that the essential features of data set had been represented in the first seven principal components. The first principal component contributed maximum towards variability (15.57 %).

Key words: *Ethyl methane sulfonate, Genetic divergence, Hierarchical cluster analysis and Principal component*

## **Genetic Variability Studies in Italian Millet (*Setaria italica* (L.) Beauv) Varieties under Rainfed conditions in Scarce Rainfall Zone of Andhra Pradesh**

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### **ABSTRACT**

Six varieties of Italian Millet (*Setaria italica* (L.) Beauv) were evaluated at Agricultural Research Station, ANGRAU, Ananthapuram, Andhra Pradesh during *Kharif* 2014 and *Kharif* 2015. The present study was conducted to assess the magnitude of genetic variability, heritability in broadsense and genetic advance as per cent of mean. Complete randomized block design with three replications was used at each season. In general phenotypic coefficients of variation (PCV) estimates were higher than genotypic coefficients of variation (GCV) estimates for all the eight characters studied displaying the influence of environment effect on the studied characters. The combined results for heritability and genetic advance as per cent of mean showed that the high estimates were scored for panicle weight followed by panicle length indicating that these characters were under the control of additive genetic effects. In a combined study over the two years the variety SIA 3085 is identified with highest grain yield (891 kg/ha) with earliness (55days to flowering and 85 days to maturity) followed by the variety Narasimharaya for grain yield (717 kg/ha) but it scored highest straw yields (2150 kg/ha) with late maturity (97 days to maturity).

Key words: *GCV, Heritability and Genetic advance, Italian Millet Varieties, PCV, Variability.*

## **Genetic Variability, Heritability and Genetic Advance Estimates in Maize (*Zea mays* L.)**

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### **ABSTRACT**

Knowledge on the genetic components of variances and of yield and its yield traits will improve the efficiency of breeding programmes through the use of appropriate selection procedures. Forty inbreds of maize were evaluated in a randomized block design with two replications at Agricultural College, Bapatla for seed yield and yield components. The analysis of variance indicated the presence of sufficient variability for all the traits. Low PCV and GCV were observed for all the traits considered under study. High heritability was observed for days to 50% tasseling, days to 50% silking, number of nodes per plant, plant height, cob height, cob length and 100 seed weight. High heritability with high genetic advance was observed for plant height, cob height, cob length and 100 seed weight which indicated that most likely the heritability was due to the influence of additive genes and selection may be effective for such traits.

Key words: *GCV, Genetic advance, Heritability, Maize, PCV.*



## **Assessment of Genetic Variability for Yield and Quality Characters in Rice (*Oryza sativa* L.)**

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### **ABSTRACT**

The present investigation was carried out to study the genetic parameters for yield, yield attributing and quality characters in fifty rice genotypes. Analysis of variance revealed significant differences for all the traits under study. The characters viz., filled grains per panicle, test weight, kernel length after cooking, alkali spreading value and gel consistency exhibited high genotypic coefficient of variation (GCV) and phenotypic coefficient of variation (PCV) along with high heritability coupled with high genetic advance indicating their amenability towards simple selection and it could be effective for improving these characters.

Key words: *Rice, GCV, Genetic advance, Heritability, PCV.*

## **Study of Variability, Heritability and Genetic Advance for Morphological and Physiological Traits in Rice (*Oryza sativa* L.)**

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### **ABSTRACT**

The experiment was conducted with an objective to estimate the variability, heritability and genetic advance of 31 rice genotypes (twenty hybrids, nine parents and two checks) for 17 morphological and physiological traits. The results revealed that high heritability coupled with high genetic advance was observed for number of effective tillers per plant, number of filled grains per panicle, number of ill filled grains per panicle, 1000 grain weight, LAD at 60-80 DAT, root dry weight, shoot dry weight, root shoot ratio and grain yield per plant suggesting the role of additive gene effect while the traits viz., days to 50 per cent flowering, days to maturity, plant height, panicle length, SCMR at 80 DAT and harvest index are governed by both additive and non additive gene effect. Low estimates for both heritability and genetic advance were shown by SLA at 80 DAT and SLW at 80 DAT indicating the role of non additive gene action.

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

## **Genetic Variability in Upland Cotton (*Gossypium hirsutum* L.)**

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### **ABSTRACT**

The analysis of variance revealed significant differences for all the 15 characters studied indicating presence of sufficient variability among the 53 genotypes. The genetic parameters revealed that moderate to high variability was observed for number of monopodia per plant, seed index, number of bolls per plant, boll weight, seed cotton yield per plant and lint yield per plant. High heritability and high genetic advance as percent of mean was observed for number of monopodia per plant, boll weight, seed index, lint yield per plant and seed cotton yield per plant. Hence selection for these traits would be quite effective to improve the seed cotton yield in upland cotton.

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

## **Variability and Heritability studies in Groundnut (*Arachis hypogaea* L.)**

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### **ABSTRACT**

The experiment was conducted with an objective to know the variability, heritability and genetic advance of fifty Groundnut genotypes for fifteen quantitative characters. Analysis of variance revealed significant amount of variability for all the characters studied. Moderate to high variability and high heritability coupled with high genetic advance as per cent of mean was observed for number of primary branches per plant, number of secondary branches per plant, number of mature pods per plant, pod yield per plant, kernel yield per plant, 100 kernel weight, total dry matter per plant and harvest index, indicating the predominance of additive gene action and hence, direct phenotypic selection may be useful with respect to these traits. High heritability coupled with low genetic advance as per cent of mean was observed for the characters, oil content and protein content indicating that these characters were more influenced by environment and governed by non-additive gene action which may be exploited through breeding methods involving hybridization programme.

Key words: Genetic advance, Groundnut (*Arachis hypogaea* L.), Heritability, Variability.

## **Variability and Heritability Studies in Sugarcane (*Saccharum officinarum* L.)**

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### **ABSTRACT**

An experiment was conducted at Sugarcane Research Station, Vuyyuru, Andhra Pradesh during 2015-16 season, with an objective to study the variability, heritability and genetic advance of eleven sugarcane genotypes (eight clones and three standards) for fourteen characters. The genotypic coefficients of variation for all the characters studied were lesser than the phenotypic coefficients of variation indicating the masking effect of the environment. Estimates of phenotypic and genotypic coefficients of variation were found to be moderate for single cane weight at harvest, per cent fibre at 10<sup>th</sup> month, CCS yield and cane yield indicating the presence of moderate variability for these traits in the genotypes studied. High heritability values coupled with high genetic advance as per cent of mean recorded for single cane weight at harvest, CCS yield and cane yield and high heritability and moderate genetic advance as per cent of mean values recorded for per cent juice sucrose at 10<sup>th</sup> month, per cent CCS at 10<sup>th</sup> month and per cent fibre at 10<sup>th</sup> month indicate the predominance of additive gene action in the inheritance of these characters. Non-additive gene action was found to be predominant for shoot population at 120 DAP, stalk population at 240 DAP, length of millable cane at harvest, diameter of millable cane at harvest, per cent brix at 10<sup>th</sup> month and per cent purity at 10<sup>th</sup> month. Predominance of both additive and non-additive gene actions were observed in the inheritance of number of germinants at 35 DAP and number of millable canes at harvest.

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

## **Genetic Parameters for Yield and Yield Components in Rice (*Oryza Sativa* L.) Genotypes**

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### **ABSTRACT**

The present investigation was under taken to study the extent of variability and genetic parameters of 10 yield and quality parameters in a set of 32 high yielding diverse rice genotypes. Phenotypic and genotypic coefficients of variations were high for filled grains per panicle and grain yield/plant. High heritability estimates were recorded for all the characters studied except for panicle length. Filled grains/panicle and plant height exhibited high genetic advance as percent of mean while the remaining traits recorded low values. High GCV, PCV, heritability coupled with high genetic advance was manifested by filled grains per panicle indicating the role of additive gene action in the inheritance of this trait and simple selection is advocated for improvement.

Key words: *Genetic advance, Heritability, phenotypic and genotypic coefficients of variation .*

## **Genetic Variability Studies for Yield Attributes in Rice (*Oryza sativa* L.) Genotypes under Late Sown Conditions**

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### **ABSTRACT**

A field experiment was conducted by using forty rice genotypes to study genetic variability, heritability and genetic advance (GA) for yield and yield associated traits in rice under late sown conditions. The experiment has revealed significant differences among the genotypes for the yield and its components. The phenotypic coefficient of variation (PCV) was higher than genotypic coefficient of variation (GCV) for all ten traits indicating that they all interacted with the environment to some extent. High estimates of PCV and GCV obtained for number of grains per panicle while high PCV and moderate GCV recorded for test weight and grain yield per plant. High heritability was obtained for days to 50% flowering followed by kernel length, plant height, number of grains per panicle, panicle length and days to maturity which indicates high heritable portion of variation. High genetic advance were obtained for number of grains per panicle, grain yield per plant, number of productive tillers per plant and test weight. The estimates of PCV, GCV, heritability and genetic advance as percent of mean were high for number of grains per panicle indicate the existence of high degree of variability and additive gene action in the inheritance of this trait and improvement of these characters is possible through simple selection.

Key words: *Late sown condition, Rice, Variability.*

## **Genetic Diversity Studies in Selected Mungbean (*Vigna radiata* (L.) Wilczek) Cultivars under Summer Condition**

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### **ABSTRACT**

Genetic divergence among thirty one mungbean genotypes grown under summer conditions was estimated using Mahalanobi's  $D^2$  statistic and total of eight clusters were obtained. Cluster I was the largest with twenty four genotypes. Except cluster I, all other clusters *viz.*, cluster II, cluster III, cluster IV, cluster V, cluster VI, cluster VII and cluster VIII had one genotype each. Cluster V recorded the highest mean for seed yield per plant followed by harvest index and relative injury percentage. The highest inter cluster distance was observed between cluster III and VII (1768.20). 100 seed weight contributed maximum towards diversity. Therefore, it was concluded that more emphasis should be given on these clusters for selecting genotypes as parents for crossing which may produce new recombinants with desired traits.

Key words: *Diversity, D<sup>2</sup> Analysis, Mungbean, Physiological Traits.*

## **Long-term Effects of Fertilizers and Manure on Physical Properties of a Vertisol**

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### **ABSTRACT**

Field experiment was conducted during 2013-14 at Regional Agricultural Research Station, Lam, Guntur, Andhra Pradesh. The continuous addition of balanced fertilization did not show any deteriorating effect on physical properties of the soil rather it significantly increased the water holding capacity, porosity, volume expansion and reduced bulk density of the soil in the long-run. Significant improvement in the physical properties of the soil was observed under the combined application of organics and inorganics. The unmanured control resulted poor physical properties.

Key words: *Fertilizers, Long-term effect, Manure, Physical properties.*

# **Influence of Organic Acids on Growth and Yield of Groundnut (*Arachis hypogaea* L.) Grown in Calcareous Soils**

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## **ABSTRACT**

A potculture experiment was conducted in Agricultural college, Bapatla, Andhra Pradesh to study the 'Influence of organic acids on growth and yield of groundnut (*Arachis hypogaea* L.) grown in calcareous soils' during *kharif* season of 2015-16. The experimental soil was calcareous (collected from Vertisol profile), alkaline in reaction, low in organic carbon, available nitrogen, medium in available phosphorus and high in available potassium. All the micronutrients except iron were sufficient in the soil with values above their critical limits. The treatments comprised of control (T<sub>1</sub>); FeSO<sub>4</sub>.7H<sub>2</sub>O @ 0.25% (T<sub>2</sub>); citric acid @ 0.25% (T<sub>3</sub>); acetic acid @ 0.25% (T<sub>4</sub>); oxalic acid @ 0.125% (T<sub>5</sub>); ascorbic acid @ 0.25% (T<sub>6</sub>) and hydroxyl amine hydrochloride (T<sub>7</sub>) were replicated thrice in completely randomized design (CRD) with three replications. Foliar application of organic acids were applied to the respective pots at peak flowering, peg penetration and pod formation stage of the crop growth. The results recorded that foliar application of FeSO<sub>4</sub>.7H<sub>2</sub>O @ 0.25% followed by acetic acid @ 0.25% and citric acid @ 0.25% was significantly increased the growth (plant height, dry matter production), yield attributes, yield and biochemical (chlorophyll 'a' and 'b') parameters when compare to control.

Key words: Calcareous soils, Growth, Organic acids, Yield attributes.

# **Response of Improved Production Technologies (IPT) on Productivity and Economics of Green Gram (*Vigna radiata* L. Wilczek) in Nichabanadhi Sub Basin of Tamil Nadu**

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## **ABSTRACT**

One hundred and seventeen (117) on-farm demonstrations on improved production technology (IPT) for green gram were carried out in eighty (80) hectares of farmer's fields in Sankarankovil, Vasudevanallur and Kuruvikulam blocks of Tirunelveli district of Tamil Nadu from 2010-11 to 2012-13 under Tamil Nadu – Irrigated Agriculture Modernization and Water Bodies Restoration and Management (TN-IAMWARM) project. Two methods *viz.*, improved production technology (IPT) and conventional method (CM) were compared. The results revealed that the adoption of improved production technology (IPT) favorably influenced yield attributes and yield of green gram. The maximum seed yield (1,087 kg ha<sup>-1</sup>) obtained from IPT which was higher than conventional method (748 kg ha<sup>-1</sup>). The best net income ( 27,317) and benefit : cost ratio (2.69) were also associated with IPT than conventional method of green gram cultivation. The additional income of 12,295 ha<sup>-1</sup> was obtained from IPT over conventional method of green gram cultivation.

Key words: *Conventional method, Economics, Green gram, IPT, Seed yield, Yield attributes.*

## **Influence of Soil Salinity on Growth, Yield Attributes and Yield of Sorghum**

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### **ABSTRACT**

A pot culture experiment was conducted to study the performance of sorghum cultivars in saline soils during *rabi* 2015-2016 at Department of Soil Science and Agricultural Chemistry, Agricultural College, Bapatla. Soils of different salinity (1.5, 5, 8 and 12 dS m<sup>-1</sup> of ECe) collected from Uppugunduru region were tested using three cultivars (Hytech, Laxmi and Mahalaxmi) in completely randomized design with factorial concept replicating thrice. The salinity levels, cultivars and their interaction significantly influenced the percent germination, plant height, number of days to flowering and maturity, drymatter at flowering, yield attributes and yield (grain and stover). Considerable reduction in germination per cent, plant height, yield attributes and yield was observed at the maximum EC tested (12 dS m<sup>-1</sup>). The flowering and maturity were delayed at maximum salinity in all the cultivars compared to the lowest salinity of 1.5 dS m<sup>-1</sup>. The maximum grain (21.93 g pot<sup>-1</sup>) and stover (48.23 g pot<sup>-1</sup>) yield was observed in treatment combination 1.5 dS m<sup>-1</sup> x Hytech.

Key words: *Drymatter producton, Percent germination, Plant height.*

## **Cloning of Defense Related Gene ARID/ BRIGHT Against Fusarium Wilt in Chickpea**

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### **ABSTRACT**

The regulation of gene expression in response to internal and environmental cues occurs at many levels in the plant and animal cell. Myriad transcription factors, particularly those which function *in trans*, control the efficiency with which the transcription apparatus is assembled and the rate at which transcripts are produced from a genetic locus. Transcription factors (TFs) are conventionally defined by their ability to bind specific DNA sequences and regulate transcription. The ARID (AT-rich interaction domain) is a billion year old DNA-binding domain that has been identified in all sequenced higher eukaryotic genomes. The ARID consensus sequence spans about 100 amino acid residues, and structural studies identify the major groove contact site as a modified helix-turn-helix motif. In green plants 187 ARID genes are identified out of which 13 are present in Arabidopsis and 21 in Rice, one each in Lotus and Medicago etc. ARID containing genes are also present in vitis, ricinus, glycine, maize, sorghum, populus and barley. In the present study, the transcript profiling during *Fusarium* wilt in chickpea led to the identification of an ARID transcription factor. The gene was found to be differentially expressed and it was of great interest to clone the gene and study its role in immune response. Here we present the expression study of the *CaAB* transcription factor in response to *Fusarium*. We also demonstrate its tissue specific expression, copy number and subcellular localization.

Key words: *ARID/BRIGHT, Fusarium wilt and Chickpea*



## **Eco-friendly Approaches for the Management of Sheath Rot (*Sarocladium oryzae*, (Sawada)) in Rice**

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### **ABSTRACT**

Fungicide/antibiotic resistance is an increasing problem leading to increased incidence of certain diseases like sheath rot in rice which has assumed as a major disease in all rice growing areas of world. Present investigation revealed that out of eighteen rice genotypes, Masuri was found resistant to *Sarocladium oryzae* while NTP-98B and NTP-98A were found moderately resistant. Jaya, TN-1, GR-6, GR-4, IR-66, IR-50, IR-28, IR-20 and CR-138-928 were highly susceptible to sheath rot. Seed bacterization and seed treatment with fungal biocides inhibited the growth of the *S. oryzae*. Among bacterial biocides *Pseudomonas fluorescens* and fungal biocides *Trichoderma viride* under *in vitro* and *Bacillus subtilis*, *P. fluorescens* and *T. viride* under *in vivo* conditions were found most effective in controlling *S. oryzae* the causal agent of sheath rot disease of rice.

Key words: Disease incidence, Genotypes, *Pseudomonas fluorescens*, *Trichoderma viride*, Rice.

## **Physical Tolerance of Groundnut Pods of certain Genotypes to *Caryedon serratus* (Olivier)**

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### **ABSTRACT**

An experiment was conducted to assess the relative preference of groundnut bruchid and physical basis of tolerance in nineteen genotypes of groundnut. The results showed that the number of eggs laid by *C. serratus* ranged from 20.33 to 47.33 eggs/100 g of different genotypes of groundnut and the lowest number of eggs was laid in Narayani (20.33) and per cent adult emergence was ranged between 67.08 and 88.70, the highest per cent adult emergence was recorded in Dharani (88.70). The less susceptible genotypes, Narayani, K 9 and ICGV 87846 had smaller pod size (length×width), thicker pod shell and possessed prominent to moderate reticulation. Thus, the physical characters of pods of groundnut genotypes influenced their susceptibility/tolerance reaction to the bruchid.

Key words: *Groundnut bruchid*, *Screening for tolerance*.

## **Field Screening of Different Paddy Advanced Cultures against Brown Planthopper, *Nilaparvata lugens* (Stal.)**

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### **ABSTRACT**

Twenty eight advanced rice cultures were tested for resistance against the brown planthopper, *Nilaparvata lugens* under field conditions at Agricultural College Farm, Bapatla during *kharif* 2015. The resistance for cultures was assessed based on the 0-9 damage score as per Standard Evaluation System. Among the various cultures screened, four cultures were *viz.*, BPT 2789, BPT 2703, BPT 2787 and BPT 2688 found to be resistant and recorded a damage score of '3'. The remaining 24 cultures were found to be moderately resistant with a damage score of '5'.

Key words: *Field screening*, *paddy*, *planthopper*.

# Effect of Boron, Brassinosteroids and Salicylic Acid on Growth, Dry Matter Production and Yield in Chick Pea

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## ABSTRACT

The present investigation entitled “Physiological effects of Boron, Brassinosteroid and Salicylic acid on growth, dry matter production and yield of chickpea (*Cicer arietinum* L.)” was undertaken at the Agricultural College Farm, Bapatla during *rabi* 2013-14. The experiment was laid out in randomized block design with eight treatments *viz.*, Brassinosteroid @ 1ppm at 25DAS (T<sub>1</sub>), Salicylic acid @ 20ppm at 35DAS (T<sub>2</sub>), Borax @ 0.25% at 45DAS (T<sub>3</sub>), Brassinosteroid @ 1ppm at 25DAS + Salicylic acid @ 20ppm at 35DAS (T<sub>4</sub>), Brassinosteroid @ 1ppm at 25DAS + Borax @ 0.25% at 45DAS (T<sub>5</sub>), Salicylic acid @ 20ppm at 35DAS + Borax @ 0.25% at 45DAS (T<sub>6</sub>), Brassinosteroid @ 1ppm at 25DAS + Salicylic acid @ 20ppm at 35DAS + Borax @ 0.25% at 45DAS (T<sub>7</sub>) and Control (T<sub>8</sub>) in three replications. Application of Brassinosteroid at 25DAS, Salicylic acid at 35DAS and Borax at 45DAS (T<sub>7</sub>) exhibited higher performance by increasing plant height by 13.9 per cent. Brassinosteroid at 25DAS, Salicylic acid at 35DAS and Borax at 45DAS (T<sub>7</sub>), produced high amount of total dry matter, which was 27.14 per cent higher than the control and 9.0 to 27.14 per cent higher than remaining treatments. The same treatment resulted in an increase of 23.29 per cent in pod yield ha<sup>-1</sup> and 23.12 per cent in harvest index compared to control.

Key words: *Brassinosteroids (BR), Growth, Salicylic acid, Boron, Total Dry matter, Yield.*

# Evaluation of Tamarind Clones for Growth, Yield and Quality Parameters

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## ABSTRACT

Forty one different tamarind clones were evaluated at the Citrus Research Station, Petlur, during the year 2010 to 2013. The data pertaining to yield components and quality parameters were recorded and analysed. The study revealed that wide variation for fruit yield, pulp weight, shell weight, fiber weight, seed weight, titratable acidity and total soluble solids. The study indicated that clones like PKM-1, Urigam, PTS-4 and PTS-30 are very important with respect to excellent pulp recovery and higher acidity content and with reference to fruit yield per tree PTS-18, PTS-24 and PTS-6 are promising.

Key words: *Clones for growth, tamarind, Yield.*

# **Estimation of Irrigation Potential Utilization for Kanupur Canal System Using Remote Sensing and GIS**

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## **ABSTRACT**

Irrigated agriculture is increasing in India with the high investments in irrigation projects high irrigation potential created. The present study is focussed on investigation on assessment of irrigation potential utilization from public domain satellite datasets to estimate seasonal crop areas for Kanupur Canal System of Nellore District. Spatial, temporal monitoring of the projects during the 2014-15 year for all seasons namely *kharif*, *rabi* and summer is necessary to monitor the irrigation potential utilization and take the necessary steps for interventions for improvement. Satellite data availability in public domain has provided scope for cost-effective solution for acquiring the temporal satellite data at monthly interval over several irrigation commands. Cost free Landsat 8 OLI sensor which has spatial resolution of 30 m data is found to be very much suitable for the study at regional level as 16 days interval data is available from USGS (United States Geological Service) Earth archives in near real time. The satellite derived crop areas for Kanupur Canal System are *kharif* crop constitutes 65%, *rabi* crop constitutes 50% and summer/annual crops are about 6% of the ayacut designed and irrigation intensity is 121%. Total releases are about 5.467 TMC and irrigation potential utilised was 30913 ha and hence the water productivity is 5654 ha per TMC and delta is 0.49 m.

Key words: *GIS, Irrigation, Public domain, Remote sensing, Satellite* .

# **Fabrication and Evaluation of Low Cost sub Irrigated Self- Composting Container**

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## **ABSTRACT**

Availability of natural resources are declining with increasing population and Urbanization. Whereas urbanization has been an instrument of economic, social and political progress, it has led to serious socio-economic problems. Other major problems of urbanization are land and water. Due limitation of land and water even for kitchen gardening, in urban areas the people use to grow in small pots or containers popularly known as container gardening. A low cost container from recycled materials with multi objectives like tower gardening, sub irrigation and self-composting techniques to provide the optimum controlled environment for growing a wide range of agricultural product has been fabricated and evaluated at College of Agricultural Engineering, Bapatla. For evaluation of fabricated bucket container for sub irrigation three available soils namely sandy, sandy clay and silty loam soils were selected. The capillary rise in container is highest in the sandy soil in the first one hour and comparatively less capillary rise is in sandy clay soil but total height of capillary rise is highest in the sandy clay. On the other hand, in coarse textured soil (sand), the upward movement of the water is quick but covered less distance than other two soils with the same head. A lowest average moisture variation of 4.63 % was observed compared to the sandy clay (14.02 %) and sandy soil (17.25 %). On comparison with the field, the water saving is more than 50 %. The water that applied to the field can be utilized for growing double crop in the container. The same in case of area utilised. The idea of planting on the sides of the container, decrease the land requirement drastically.

Key words: *Composting container, Evaluation, Fabrication*.

## Membrane Processing of 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 by membrane processing. A study was carried out to preserve sugarcane juice by membrane processing and compared with the untreated juice. The results revealed that good quality sugarcane juice of variety CO380 with satisfactory storage stability at refrigeration could be prepared by microfiltration and pasteurization of sugarcane juice with addition of flocculant. The permeate flux of microfiltered and pasteurized sugarcane juice with addition of flocculant decreased from 9.14 to 6.53 L/h m<sup>2</sup>. The TSS and pH value of sugarcane juice decreased during storage. The highest pH of 4.65 was recorded for microfiltered and pasteurized juice with addition of flocculant (PAC) on 20<sup>th</sup> day of storage. The total sugars generally decreased during storage of sugarcane juice in the study. Microfiltered and pasteurized juice with addition of PAC showed reduction of TSS from 17.5 to 14.1%. The reducing sugars increased during storage. The increase of reducing sugars for microfiltered and pasteurized juice was from 1.42 to 2.00%. The turbidity of the sugarcane juice increased during storage as indicated by decrease in the transmittance values. Turbidity was observed to be low from 78.4 to 60 % for microfiltered and pasteurized juice with addition of PAC. The colour values generally decreased in all the treatments. In microbial analysis, Yeast, Mould and total plate count were observed to be less in microfiltered and pasteurised with and without addition of PAC treatments. It can be concluded that membrane processing of sugarcane juice is one of the alternate methods in combination with thermal processing for producing quality juice.

Key words: *Membrane processing, Microfiltration, Poly Aluminium Chloride, Permeate flux, Ultrafiltration*

## Effect of Maltodextrin concentrations on Physico-Chemical Characteristics of Pineapple powder under Different Drying Conditions

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### ABSTRACT

A number of pineapple powder specimens were produced using a spray dryer under various drying conditions. Fresh pineapple juices were added with maltodextrin (MD) at 10, 15 and 20% before exposing to the drying temperatures at 130, 140 and 150°C with the feed rate 20 ml/min. The spray-dried pineapple powders were analyzed for moisture content, solubility, TSS, colour and sensory evaluation. The yield of spray drying pineapple powder was highest (10.77%) at higher maltodextrin concentration of 20%, inlet air temperature of 130°C. When inlet temperature and the percentage of maltodextrin increased, the moisture content and solubility decreased. The pH and TSS of spray dried powder samples increases with increase in inlet drying temperatures at different maltodextrin concentrations. In the colour appearance the pineapple powder is more lightness, redness and yellowish compare to fresh fruit juice. The pineapple juice added with maltodextrin concentration at 15% and dried at 150°C achieved the highest overall liking score.

Key words: *Instant pineapple juice, Maltodextrin, Pineapple, Pineapple powder, Spray drying.*

## **Constraints in adoption of price forecasts and suggestions for its improvement: A study in chilli farming**

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### **ABSTRACT**

The present study was conducted in Guntur district of Andhra Pradesh, India, to study the constraints faced by chilli farmers in adopting price forecasts and various suggestions given by them to improve the forecasts. Fluctuation in chilli prices and less reliability of the forecasted price were major constraints faced by adopters of price forecasts. Lack of awareness was the major constraint in case of non-adopters of price forecasts. Important suggestions as given by farmers were forecasted price consistent with market temperature and consideration of storage problem and market rush during the recommended month of sale.

Key words: Chilli farming, Constraints, Price forecasts, Suggestions.

## **Constraint Analysis of Small Farmers in Vegetable Production In Guntur District**

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### **ABSTRACT**

A study was conducted in Guntur district to identify the constraints faced by small farmers in vegetable production. The data was analysed by using Garrett's ranking technique. The major constraints faced by the small farmers were less farm holding, more disease and pest attack, high wages of labour, credit problems, inadequate inputs, middle men, low price during harvest *etc.*

Key words: *Constraints, Garrett's ranking technique, Small farmers, Vegetable production.*

## **Determinants to Accept Compensation by Affected Households in New Capital Region of Andhra Pradesh**

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### **ABSTRACT**

India requires land in terms of both area and quality for the ongoing developmental projects. Land acquisition is a prerequisite to economic development and it appears logical that Governments need to acquire always more land to support an adaptive urban development process (Chiaravalli, 2012). The need for land acquisition arises for developmental projects because it is the first step towards completion of any major project. Land acquisition is fundamentally coercive. When a state notifies farmers that it seeks to acquire their land, “the potential use of violence backs this intent.” If the farmers refuse to vacate their land, the threat of coercion becomes actual violence (Levien, 2015). This paper highlights factors influencing affected households to accept compensation offered by state government to new capital region development of A.P. and constraints faced by affected households due to land pooling. Binary logistic regression was used to assess determinants of households to accept compensation in which variables like pressure, present value of future compensation, fair compensation policy, and percent of family members in labour showed significant influence on willingness to accept compensation. Important constraints were analyzed by Garrets’ ranking technique and found that no further occupation, increased consumption expenditure, search for other income sources inadequate and delayed compensation as main constraints faced by affected households. Most of the affected households suggested that there should be an increase in compensation package especially money compensation, provision of other alternative occupation and speedy implementation of the package.

*Key words: Acquisition, Compensation, Constraints, Suggestions, Willingness.*

## **Adaptation to Climate Change: A Case Study of Farmers in The Krishna River Basin of Andhra Pradesh**

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### **ABSTRACT**

This study employed the binary logit model to analyze the adaptation to climate change, which initially assesses a farmer’s perception that climate is changing, followed by an examination of the response to this perception in the form of adaptation. The analysis of factors affecting adaptation to climate change indicates that farm size, farming experience, access to credit and access to extension services are significant and positively effecting the adaptations of the farmers towards climate change.

*Key words: Adaptation, Climate Change, Nagarjuna Sagar Right Canal.*



## **Livelihood Systems of Tribal Farmers in Andhra Pradesh**

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### **ABSTRACT**

A study was conducted to examine the livelihood systems of tribal farmers in three districts of Andhra Pradesh i.e. Visakhapatnam, Chittoor and Khammam. Most of the households earn a living by maintaining a diversified livelihood pattern i.e., farming, forest based activities, Livestock and wage employment. Majority (77.50%) of the tribal farmers were involved in Agriculture + Livestock + wage work + Non Timber Forest Products (NTFP) followed by Agriculture + wage work (11.67%), Agriculture + Livestock + wage work (8.33%) and Agriculture alone (2.50%). 62.09 per cent of the tribal farmers in the study area are having medium level of livelihood followed by high (20.83%) and low (17.08%) level of livelihood.. Tribes in the study area uses the forests as sources of firewood, housing materials, medical herbs, grazing their cattle, etc. A well structured and pre tested interview schedule was used to collect data. The statistics employed for data analysis were simple frequency and percentage. A strategy in this study was conceived as a plan of action in order to empower the tribal farmers and sensitize the development agencies for greater contribution for improving livelihood.

Key words: *Livelihood systems, NTFPs, Tribal farmers.*

## **Factors Influencing the Productivity of the Participant and Non Participant Farmers of Rice FFSs**

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### **ABSTRACT**

The present investigation was carried out in Nellore district of Andhra Pradesh state during 2014-15 to study the productivity and factors influencing the productivity of the participant and non participant farmers of rice FFS. A total of 150 respondents were selected for the study out of which 75 farmers were participant farmers of rice FFS and the other 75 were non participants. The results of the study revealed that 52.00 per cent of the participant farmers were having medium level of productivity, followed by equal (24.00%) percent of the farmers having low and high productivity levels. In case of non participant farmers 44.00 per cent were having medium level of productivity, followed by low (42.70%) and high (13.30%) levels. The profile characteristics viz., education, social participation, mass media exposure, extension contact, innovativeness, scientific orientation, achievement motivation and management orientation were found to be positively significant with the productivity of participant and non participants. Further, all the selected 12 independent variables put together explained about 77.60 per cent variation in the productivity of the participant farmers of rice FFSs and whereas in case of non participant farmers it was found 60.90 per cent.

Key words: *Integrated Crop Management, Farmer Field School, Productivity.*

# **Knowledge Level of Farmers about Agricultural Extension Programmes in Krishna District of Andhra Pradesh**

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## **ABSTRACT**

The present study was conducted in Krishna district of Andhra Pradesh in order to find out the knowledge level of farmers about Agricultural Extension Programmes. Based on the programmes that were implemented in the study area, the programmes which had more number of the beneficiaries were selected viz., Farm Mechanization, National Food Security Mission (pulses) and Soil Testing Programme. Total 120 farmers were selected randomly as the beneficiaries for the study. The Ex-post-facto research design was used for the present investigation. It was found that majority (70.00%) of the beneficiaries had medium level of knowledge followed by high (20.00%) and low (10.00%) level of knowledge about the Agricultural Extension Programmes. The profile of the beneficiaries like age, farming experience, extension contact, social participation, socio-economic status, mass media exposure, training received and scientific orientation had positive and significant relationship with the knowledge of the beneficiaries on Agricultural Extension Programmes. Where as education, risk orientation and innovativeness were found to be positive and non-significant relationship and farm size was negative and non-significantly related with the knowledge of the beneficiaries.

Key words: *Agricultural Extension Programmes, Farm Mechanization, Knowledge, National Food Security Mission (pulses), Soil Testing Programme.*

# **Communication Training Needs of Extension Personnel In West Godavari District of Andhra Pradesh**

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## **ABSTRACT**

This study assessed the communication training needs among Agricultural Extension personnel in west Godavari district of Andhra Pradesh. A total of sixty eight extension personnel in the district were sampled. The primary data were collected using a structured interview schedule by conducting personal interview. The data was collected and analyzed in the form of Training Need Index (TNI) and accordingly ranks were allotted. The result of the finding reveals that Majority (48.52 per cent) of extension personnel require training to medium extent, followed by 33.82 per cent in high category and only 17.64 per cent in low category of training needs. The highest training need index (TNI) observed were in the areas of training in presentation skill (73.42%), Training in Communication methods (62.17%), Training in ICT (59.46%) followed by training in Interpersonal communication (54.83%), Preparation of communication literature(50.79%), Communication strategies( 50.17%), Use of visual aids (47.17%) and Mobilization of farmers (44.17%).

Key words: *Communication training need, Training Need Index, Extension personnel.*