

Effect of Spacings on Growth and Yield of Pigeonpea

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ABSTRACT

A field experiment was conducted at S.V. Agricultural College wetland farm, Tirupati, to study the performance of pigeonpea genotypes under varied spacings in Southern Agro-climatic Zone of Andhra Pradesh during *rabi* 2010. The treatments consisted of combination of two factors *viz.*, four varieties (LRG-41, TRG-7, TRG-22 and ICPL-85063) and three spacings (45x15 cm-1,48,148 plants ha⁻¹, 60x15 cm-1,111,11 plants ha⁻¹ and 75x15 cm-88,888 plants ha⁻¹). The variety ICPL-85063 at spacing of 45x15 cm recorded the growth parameters, yield attributes and yield. The present study has revealed that the variety ICPL-85063 spaced at closer spacing of 45x15 (1,48,148 plants ha⁻¹) cm resulted in higher seed yield and economic returns followed by TRG-22 and LRG-41 at same row spacing.

Key words : Pigeonpea, Spacings, Varieties.

Growth Characteristics, Yield Attributes, Grain Yield and Quality of Rice Hybrids as Influenced by Nitrogen Fertilization

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ABSTRACT

A field experiment was conducted during the *kharif*, 2008 to study the effect of nitrogen fertilization on production potential and quality characters of rice genotypes. Among the genotypes tested, the hybrids PA6201, PHB-71 recorded significantly higher LAI and dry matter production values at all the growth stages when compared to variety Rajavadlu. These hybrids also exhibited their superiority in terms of yield attributes and yield. Hybrids PA6201, PHB-71 recorded 19.84%, 15.61% of higher yield respectively, over the variety Rajavadlu. The increased levels of applied nitrogen from 0 to 225 kg N ha⁻¹ significantly improved the growth characteristics and yield attributes of rice genotypes, in turn it resulted in higher grain and straw yield with higher levels of nitrogen. The interaction effect between rice cultivars and nitrogen levels on grain yield found to be significant. Among the rice hybrids tested, PA6201 recorded highest grain yield at 225 kg N ha⁻¹ followed by PHB-71. In case of quality characteristics, significantly more head rice recovery (63.63%) and amylose content (24.43%) were recorded by PA6201 over PHB-71 compared to that of Rajavadlu. Application of N @ 225 kg ha⁻¹ recorded appreciable higher values of quality characteristics such as head rice recovery and amylose content over 150 kg N ha⁻¹, 75 kg N ha⁻¹ and control.

Key words : Hybrid cultivars, Grain quality, Growth and yield attributes, N levels, Yield.

Effect of Organic Manures on Yield, Quality and Nutrient Uptake of Baby Corn Genotypes

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ABSTRACT

A field experiment was conducted during rabi 2008-09 to study the effect of different sources of organic manures on yield, quality and nutrient uptake of baby corn genotypes. The experiment was laid out in a split plot design, replicated thrice and the treatments consisted of three genotypes viz., golden baby (G_1), G-5406 (G_2) and G-5414 (G_3) allotted to main plots and seven manurial sources viz., recommended dose of fertilizer (T_1), farm yard manure (T_2), sheep manure (T_3), poultry manure (T_4), green leaf manure (T_5), Neem cake (T_6) and vermicompost (T_7) assigned to the sub plots. Genotype G-5414 (G_3) showed significantly higher Yield, quality and nutrient uptake, while these were lowest with the genotype Golden baby (G_1). Application of recommended dose of fertilizers (T_1) showed higher yield, quality and nutrient uptake.

Key words: Baby corn, Nutrient uptake, quality, Yield.

Effect of Levels and Time of Nitrogen Application on Yield and Quality of Scented Rice Under Aerobic Culture

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ABSTRACT

The experiment was conducted during *rabi*, 2007 at Dryland block of S.V. Agricultural College, Tirupati, to study the effect of levels and time of nitrogen application on yield and quality of scented rice under aerobic culture. The experiment was laid out in a randomized block design with factorial concept and replicated thrice. The treatments consisted of four levels of nitrogen viz., 100, 125, 150 and 175 kg N ha⁻¹ factorially combined with four split applications viz., $\frac{1}{2}$ basal + $\frac{1}{4}$ at active tillering + $\frac{1}{4}$ at panicle initiation, $\frac{1}{3}$ basal + $\frac{1}{3}$ at active tillering + $\frac{1}{3}$ at panicle initiation, $\frac{1}{4}$ basal + $\frac{1}{4}$ at active tillering + $\frac{1}{4}$ at panicle initiation + $\frac{1}{4}$ at heading and $\frac{1}{4}$ basal + $\frac{1}{4}$ at active tillering + $\frac{1}{4}$ at panicle initiation + $\frac{1}{4}$ at flowering. The results indicated that yield and grain quality parameters of scented rice under aerobic culture recorded significantly highest values with 150 kg ha⁻¹ nitrogen and four equal splits of nitrogen at $\frac{1}{4}$ at basal, $\frac{1}{4}$ at active tillering + $\frac{1}{4}$ at panicle initiation + $\frac{1}{4}$ at heading.

Key words: Aerobic culture, Nitrogen, Scented rice.

Agronomic Management in Rabi Groundnut for Higher and Quality Yield

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ABSTRACT

Field experiment were conducted during two consecutive *rabi* seasons of 2008 and 2009 on sandy clay loam soils of S.V. Agricultural College, Tirupati campus of ANGRAU, to develop certain agro- techniques for enhancing the productivity and quality of export oriented groundnut. The experiment was laid out in a split - spit plot design and replicated thrice. It consisted of three planting patterns viz., 22.5 x 10 cm (P₁), 30.0 cm x 10 cm (P₂) and 37.5 x 10 cm (P₃) as main plots, four nitrogen management practices viz., 100% N through urea (N₁), 100% N through poultry manure (N₂), 50% N through fertilizer + 50% N through poultry manure (N₃) and 25% N through urea + 75% N through poultry manure (N₄) as sub plots and four weed management practices viz., Two hand weeding at 20 and 40 DAS (W₁), Pre-emergence application of pendimethalin @1.0 kg a.i ha⁻¹ + one hand weeding at 40 DAS (W₂), Post emergence application of quizalofop -p-ethyl @ 54 g a.i ha⁻¹ at 20 DAS + hand weeding at 40 DAS (W₃) and Pre-emergence application of pendimethalin @ 1.0 kg a.i ha⁻¹+ post emergence application of quizalofop -p-ethyl @54 g a.i ha⁻¹ at 40 DAS (W₄) as sub-sub plots. The results revealed that sowing groundnut with planting pattern of 22.5 x10 cm and application of 30kg N ha⁻¹ @ 50 per cent each through urea and poultry manure along with hand weeding twice at 20 and 40 DAS is essential for obtaining higher yield with better quality and remunerative monetary returns.

Key words: Groundnut, Hand weeding, Nitrogen, Planting pattern.

Performance of Andrographis (Kalmegh) in Tree Based Cropping Systems under Dryland Conditions

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ABSTRACT

The field experiment was conducted in the existing plantations at College of Agriculture, Rajendranagar, Hyderabad during *kharif* seasons of 2008 and 2009 in red sandy loam soils. The medicinal crop of andrographis was intercropped in the existing tree crops of amla and terminalia, respectively. The treatments consisted of three cropping systems as main plot treatments and six INM treatments as sub plot treatments. The treatments were laid out in split plot design and replicated thrice. The results revealed that growth parameters of andrographis *i.e.*, plant height, dry matter production and leaf area were found maximum in sole cropping of andrographis followed by intercropping in amla and terminalia. Days to 50% flowering and physiological maturity were delayed by 3-4 days under intercropping situation over sole cropping. Herbage yield (5396 and 5193 kg ha⁻¹ in first and second year) of andrographis was significantly more with INM practice (20 kg N ha⁻¹ through urea + Vermicompost @ 2 t ha⁻¹).

Key words : Agri-horticulture, Andrographis, Intercropping.

Response of Rice Fallow Maize (*Zea mays* L.) to Different Levels of Phosphorus and Its Time of Application under Zero Tillage Conditions

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ABSTRACT

A field experiment was conducted on clay loam soils of Agricultural College Farm, Bapatla during *rabi* seasons of 2009-10 and 2010-11. The treatments consisted of three levels of phosphorus (0, 60 and 120 kg P₂O₅ ha⁻¹) as main plot treatments and three timings of phosphorus application at 10 days before harvesting of rice (T₁); 10 DAS of maize (T₂) and 40 DAS of maize (T₃) allotted to sub-plots. The experiment was laid out in split-plot design and the treatments were replicated thrice. During both the years of study, plant height, dry matter accumulation, chlorophyll (SPAD readings), cob length, number of kernels cob⁻¹, kernel weight cob⁻¹, test weight, kernel yield, stover yield, economic returns and nutrient uptake of maize recorded were higher at higher level of phosphorus than those of the plots without addition of phosphorus fertilizer. However, number of days taken to reach 50 per cent tasseling and silking reduced with increase in level of phosphorus from 0 to 120 kg P₂O₅ ha⁻¹. The maximum kernel yield of 72.8 q ha⁻¹ and 74.9 q ha⁻¹ was recorded during 2009-10 and 2010-11, respectively, with the application of 120 kg P₂O₅ ha⁻¹ than that of without phosphorus fertilizer but it did not reach the level of significance with 60 kg P₂O₅ ha⁻¹ (68.9 and 70.1 q ha⁻¹) during both the years of investigation. Irrespective of level of phosphorus applied to maize, the maize kernel yield increased significantly with application of phosphorus fertilizer at 10 days before harvesting of rice crop (69.8 and 72.4 q ha⁻¹) than that applied at 10 DAS (67.1 and 69.6 q ha⁻¹) or 40 DAS (63.9 and 65.4 q ha⁻¹) during each year of the experimentation. However, significant reduction in kernel yield was observed when the phosphorus fertilizer was applied at 40 DAS (8.5 and 9.6% in first and second years of study) of maize than that applied at earlier stages of crop growth. The net returns, benefit cost ratio (BCR) and nutrient uptake by maize increased with increase in level of phosphorus.

Key words : Chlorophyll (SPAD readings), Nutrient uptake, Zero tillage.

Evaluation of suitable Cropping Sequence at Mid Reach of Mudimanikyam Major of Nagarjuna Sagar Project Left Canal of Nalgonda District, Andhra Pradesh

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ABSTRACT

On farm demonstrations on system of rice intensification during *kharif* and zero tillage maize during *rabi* were studied in the farmers field pertaining to rice at mid reach of mudimanikyam major of Nagarjuna Sagar Project left canal of Nalgonda district of Andhra Pradesh during 2008- 09. In mid reach, farmers are followed System of Rice Intensification (SRI) during *kharif* and zero tillage maize cultivation during *rabi* season. SRI method recorded 13.1% higher grain yield (6560 kg ha⁻¹) and 37.4% saving in water (860 mm) than the traditional system of flood irrigation (5800 kg ha⁻¹ and 1375 mm). During *rabi*, maize grain equivalent yield was 14211 kg ha⁻¹ as compared to rice grain yield (5900 kg ha⁻¹). By practicing SRI rice – zero tillage maize the net returns were Rs 94030 and 2.54 benefit per rupee investment. Where as in rice – rice practice the net returns were Rs 65000 and 1.25 benefit per rupee investment.

Key words : Flood irrigation, Grain equivalent yield, Mid reach, System of rice intensification, Zero tillage maize.

Effect of Different Levels of Nitrogen and Phosphorus on Growth and Yield of *Kharif* Rice (*Oryza sativa* L.)

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ABSTRACT

A field experiment was conducted for two consecutive years (2008-2009 and 2009-2010) on sandy clay loam soil of agricultural college farm, Bapatla during *kharif* to study the effect of different levels of nitrogen and phosphorus on rice (cv BPT. 5204). The twelve treatments consisted of four nitrogen levels i.e. 80 kg N ha⁻¹, 120 kg N ha⁻¹, 240 kg N ha⁻¹, green manuring @5 t ha⁻¹ and three phosphorus levels i.e. 0, 30 and 60 kg P₂O₅ ha⁻¹. Application of 240 kg N ha⁻¹ in combination with 60 kg P₂O₅ ha⁻¹ significantly increased the plant height, tiller number, drymatter accumulation, productive tillers, number of filled grains, test weight, grain yield and straw yield of rice over other levels of nitrogen and phosphorus. However, it was on a par with that of application of 240 kg N in combination with 30 kg P₂O₅ ha⁻¹ during both the years of the study.

Key words : Growth, *Kharif* rice, Yield attributes and Yield

Character Association and Path Analysis of Yield components in Rice (*Oryza sativa* L.)

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ABSTRACT

Seventy six rice genotypes were evaluated to find out the association of different characters and their contribution to yield. Character association studies indicated significant positive association of ear bearing tillers plant⁻¹ and filled grains panicle⁻¹ with grain yield plant⁻¹. Hence, selection for these traits would be more effective to bring improvement in grain yield and to evolve high yielding varieties in rice. Results of path coefficient analysis revealed that ear bearing tillers plant⁻¹, filled grains panicle⁻¹, milling percentage, hulling percentage, grain length, L/B ratio, and kernel length after cooking could serve as important criteria for a sound selection programme, since these traits possess a positive direct effect on grain yield plant⁻¹.

Key words : Analysis, Rice, Yield.

Heterosis and Combining Ability Studies by Line x Tester Analysis in Pigeonpea (*Cajanus cajan* (L.) Millsp.)

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ABSTRACT

In a line x tester study significant heterosis over check variety LRG-30 was exhibited by the crosses viz., ICPL-15225 x ICPL-8863, LRG-41 x ICPL-87119 and LRG-41 x PRG-158 for seed yield and its attributing traits i.e., pods per plant, seeds per pod, pod length and 100-seed weight. The total genetic variation was found due to non-additive type of gene action for all characters. GCA effects revealed that among the lines ICPL-15225 and LRG-41, while in testers ICPL-87119 and ICPL-8863 can be considered as good general combiners for most of the traits. The hybrid combinations viz., ICPL-15225 x ICPL-8863, LRG-41 x PRG-158 and ICPL-15225 x ICPL-87119 exhibited significant sca effects coupled with high *per se* performance for yield and yield attributes. These cross combinations can be potentially utilized in future breeding programmes.

Key words : Combining ability, Heterosis, Pigeonpea.

Influence of Stage of Bud for Emasculation and Number of Pollination on Seed Yield and Quality in Tomato Hybrid Seed Production

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ABSTRACT

The present investigation was carried out at Regional Agricultural Research Station, Bijapur, (Karnataka) during 2007-08. The treatments included were selection of two different stages of bud for emasculation (S_1 -less than 50% opened bud stage, S_2 -more than 50% opened bud stage) and number of pollinations (one time pollination (morning), two time pollination (morning + evening) and three time pollination (morning + evening + next day morning). It was observed that more than 50% opened bud stage (full matured) recorded significantly higher fruit, seed yield and quality as compared to other treatments and number of pollinations.

Key words : Anther, Bud stage, Emasculation, Fruit set percentage, Pollination

Studies on Genetic Variability and Character Association in Sweet Sorghum (*Sorghum bicolor* (L.) Moench)

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ABSTRACT

The genotypic and phenotypic coefficients of variation, heritability, genetic advance and the relationship between ethanol yield and its components were estimated in eleven genotypes of sweet sorghum. The genotypes exhibited considerable amount of variability for all the traits. The traits such as plant height, fresh stalk yield and grain yield exhibited high heritability estimates coupled with high genetic advance indicating that heritability of these characters was most likely due to additive gene effects. Correlation studies revealed that selection could be practiced for days to 50 per cent flowering, days to maturity, plant height, brix percent, total soluble solids, total sugar index, total biomass, fresh stalk yield and juice yield. Path coefficient analysis showed that plant height, total sugar index, juice yield and fresh stalk yield were the main contributors for ethanol yield. Hence, it was concluded that ethanol yield could be increased by improving plant height, total sugar index, juice yield and fresh stalk yield.

Key words : Correlation, Genetic advance, Heritability, Path analysis, Sweet sorghum Variability.

Evaluation of Groundnut (*Arachis hypogaea* L.) Genotypes for Multiple Diseases Resistance

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ABSTRACT

The present investigation was carried out to study the reaction to multiple diseases (*Aspergillus* seed colonization, late leaf spot and rust) and their yield potential in 18 groundnut genotypes. Significant variation existed among the genotypes, and between seasons with genotype x season interaction for diseases, yield and yield related parameters. The high heritability with high genetic advance was observed for diseases and test weight. *Aspergillus* seed colonization had highly significant desirable negative association with test weight. Popular cultivars TMV 2, JL 24 and TAG 24 were susceptible to all the three diseases whereas GPBD 4 was resistant to foliar diseases. Germplasm lines viz., ICGV 86699, ICG 8760 and ICG 13787 exhibited moderate to high level of resistance to all the three diseases but possessed undesirable agronomic features indicating a need for improvement through hybridization.

Key words : *Aspergillus*, Colonization, Groundnut, Late leaf spot, Rust, Test weight.

Heritability, Character Association and Path Analysis for Grain Yield and Yield Contributing Characters in Maize

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ABSTRACT

An experiment with parents, F₁'s and Check BH 1576 was conducted in diallel fashion excluding reciprocals during *kharif*, 2007 to study the correlation and path analysis for yield and yield contributing characters in maize. The diallel experiment was conducted to estimate combining ability effects. Along with combining ability effects, heritability, correlation and path analysis were estimated. Results showed that plant height has the highest correlation ($r = 0.66$) followed by number of kernels per row ($r = 0.65$) with kernel yield. Results obtained from path analysis revealed that number of kernels per row exhibited the largest direct effect on kernel yield and more important for selecting maize cultivars with high yield among different traits. 100 kernel weight and number of kernels per row had direct effect on kernel yield. Thus, these two traits may be given importance in selecting genotypes for high kernel yield in maize breeding programmes.

Key words : Association, Heritability, Path Analysis, Yield Attributes

Effect of Various Population Schemes on Mean, Variance, and Coefficient of Variation of Yield and Yield Attributes in Sunflower (*Helianthus Annus L.*)

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ABSTRACT

The present investigation was carried out at Regional Agricultural Research Station, Nandyal, Andhra Pradesh to study the effectiveness of various population improvement schemes in improving yield and yield attributes. The Morden open pollinated population was chosen for imposing population schemes like mass selection, half sib, full sib selection and selfed progeny selection schemes. The base population allotted for various selection schemes revealed that the attributes plant height, head diameter, 100-seed weight, oil per cent, oil yield and seed yield / plant exhibited wider variability in the form of mean, range, variance and coefficient of variation. Increase in head diameter, oil per cent and seed yield / plant were found in MS₂ *kharif* and *rabi* seasons over that of MS₀ population. Whereas in BS₂ population, in different seasons, the mean values of all the yield attributes were lower than BS₀ and BS₁ populations except 100-seed weight and oil percent in summer season. The HS₂ and FS₂ population showed increased mean values in oil yield and seed yield/plant over the base population. However, HS₂ population further showed an improvement in the mean values in the attributes like head diameter, 100-seed weight and oil percent. However, in S₂ bulk population, oil yield and seed yield / plant were mostly affected characters when compared to S₀ and S₁ populations. The variance and co-efficient of variation were reduced as the generations advanced in all the populations of mass selection, bulk sib selection, half sib, full sib selection and selfed progeny selection schemes.

Key words : Coefficient, Sunflower, Yield.

Study of Genetic Variability and Characterization of Sunflower (*Helianthus annuus* L.) Germplasm Accessions

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ABSTRACT

Germplasm accessions (64) of sunflower were evaluated for yield and yield components to study the extent of variation for different quantitative traits. The germplasm accessions were also characterized on the basis of qualitative traits. Highest phenotypic and genotypic coefficient variation were recorded for seed yield/ plant (47.78% and 47.27%) followed by number of filled seeds/head, total number of seeds/head, unfilled seeds/head, 100-seed weight, head diameter,. Low phenotypic coefficient variation and genotypic coefficient variation were recorded in days to maturity, days to 50 % flowering, and plant height. Qualitative traits also showed wide variability among the accessions.

Key words : Germplasm, Sunflower.

Character Association and Path Analysis for Seed Yield in Sunflower (*Helianthus Annuus* L.)

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ABSTRACT

Character association and path coefficient studies were carried out on 64 genotypes of sunflower, during the season *Rabi*-2009 and the genetic material comprised of EC-601609 to EC-601702 and two checks *viz.*, DRSF-108, 113. Seed yield was positively correlated with number of filled seeds/head, total number of seeds/head, head diameter and seed filling per cent. The results of the study revealed that selection based on number of filled seeds/head, total number of seeds/head, head diameter and seed filling per cent would increase seed yield. Path analysis indicated that total number of filled seeds/head had the highest positive direct effect followed by 100-seed weight on seed yield.

Key words : Path analysis, Sunflower, Yield.

Identification of Diverse Genotypes of Fieldpea (*Pisum sativum* cv. *arvense*)

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ABSTRACT

Thirty genotypes of fieldpea were evaluated for ten qualitative characters to assess genetic variability and diversity. The genotypic and phenotypic coefficients of variation were higher for number of pods per plant, biological yield per plant, seed yield per plant and minimum for days to maturity. Heritability was higher for biological yield per plant, seed yield per plant, plant height, and number of pods per plant and lower for number of seeds per pod. The expected genetic advance as percent mean was recorded high for pods per plant followed biological yield per plant, moderate for plant height and 100 seed weight and observed low for number of seeds per pod. The genotypes studied were grouped into six clusters. Among six clusters, cluster II emerged as the largest with 11 genotypes followed by cluster III and IV with 7 genotypes each, cluster I with 3 genotypes and clusters V and VI were monogenotypic. The maximum inter-cluster distance (D^2) was observed between clusters I and V followed by clusters I and VI, indicating wide divergence between these clusters. Therefore divergent genotypes may be selected from these clusters with better mean performance for different characters to be used as parents in hybridization programme. . Percent contribution to genetic diversity was found maximum for biological yield per plant and plant height. Hence due consideration should be given to these characters during selection.

Key words : Divergence, Fieldpea, Genetic advance, Heritability.

Effect of Integrated Use of Organic and Inorganic Sources of Nutrients and Biofertilizers on Nitrogen and Phosphorus Fractions of Soil in Maize – Onion Cropping System

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ABSTRACT

A field experiment was conducted in *kharif*, (maize) and *rabi*, (onion) during 2009-10 to study the effect of integrated use of organic and inorganic sources of nutrients and biofertilizers on soil nitrogen and phosphorus fractions in maize-onion cropping system in Alfisols of Hyderabad. The results revealed that application of 75% RDF along with 25% N or P substituted through vermicompost or poultry manure with addition of *Azotobacter* or phosphorus solubilising bacteria recorded increased nitrogen and phosphorus fractions, whereas in *rabi* fertilized onion recorded maximum nitrogen and phosphorus fractions, when compared to unfertilized one. Within fertilized and unfertilized onion INM treatments showed highest nitrogen and phosphorus fractions as compared to other treatments

Key words : Maize, Nitrogen, Onion and Phosphorus fractions.

Identification Of Nutrient Deficiencies In Maize Based On Conventional Critical Nutrient Concentration (Cnc)

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ABSTRACT

A crop leaf nutrient survey was carried out in Karimnagar, Nizamabad and Warangal districts of Andhra Pradesh to identify the nutrient deficiencies if any in maize based on conventional Critical Nutrient Concentration (CNC). Index leaves (ear leaves opposite to cob at silking or tasseling stage) were collected at random from the 150 selected fields covering 50 locations in each district in 10 mandals covering 3-5 locations in each mandal for the analysis of nutrients. 15-20 index leaves at random were collected in each field and composite sample was prepared and analyzed for N, P, K, Zn, Cu, Fe and Mn following standard procedures. The deficient nutrients were identified (N, P, K, Zn, Cu, Fe and Mn) based on the Critical Nutrient Concentration (CNC). The extent of nutrient deficiencies were changed depending up on the critical level adopted.

Key words : Critical Nutrient Concentration (CNC), Index leaves and silking or tasseling stage

Effect of Nitrogen and Phosphorus Levels on Herbage and Oil Yield of Palmarosa (*Cymbopogon martinii*)

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ABSTRACT

A field experiment was carried out during 2007-08 at Nagarjun Medicinal and Aromatic Plants Garden, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola. There were four levels of nitrogen viz., 0 kg (N_0), 40 kg (N_1), 60 kg (N_2), 80 kg (N_3) and three levels of phosphorus 0 kg (P_0), 20 kg (P_1), 40 kg (P_2) ha^{-1} , tried in factorial randomized block design with three replications. The experimental findings revealed that maximum plant height and number of tillers were recorded by the application of 80 kg N ha^{-1} and 40 kg P_2O_5 ha^{-1} . Similarly maximum fresh herbage and oil yield were noticed with the application of 80 kg N ha^{-1} and 40 kg P_2O_5 ha^{-1} .

Key words : Palmarosa, Oil yield.

Effect of NPK and Humic Acid Formulations on Growth, Yield and Quality Characters of Bhendi (*Abelmoschus esculentus* (L.) Moench)

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ABSTRACT

To find out the effect of NPK and humic acid formulations on the growth, yield and quality characters of bhendi, a field experiment was conducted at Perampattu village, near chidambaram during January- April 2010. The texture of the soil was sandy loam with pH-7.54 and EC-0.96 dSm⁻¹. The available nitrogen was low whereas available P and K were medium, respectively. The treatments consisted of different levels of NPK viz., control, 50%, 100% and 150% as factor-A and different sources of humic acid formulations viz., Control (water spray), Foliar spray of lignite humic acid @ 0.2%, Foliar spray of formula 15+ @ 0.2% and Foliar spray of humic plus @ 0.2% as factor-B. The experiment was laid out in a factorial randomized block design (FRBD) with three replications using bhendi var. SPBH-7 as test crop. The results revealed that the combined application of 100% NPK along with foliar spray of humic plus @ 0.2% significantly increased the growth, yield and quality characters of bhendi. The increased fruit and stover yield recorded was 17.58 and 11.72 t ha⁻¹ as compared to 7.39 and 6.51 t ha⁻¹ of fruit and stover yield in control.

Key words : Humic acid formulations, Bhendi, Growth, NPK, Quality, Yield.

Climate Change and their impact on rice production in Guntur district, Andhra Pradesh using ORYZA 2000 model

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ABSTRACT

The study attempts to estimate the potential impact of climate change on rice production in Guntur district using ORYZA 2000 model. The simulation has been performed under potential production situation for variety BPT 5204. The results also showed that the increase in CO₂ concentration under future climate is conducive to raise the rice yield, but it still cannot compensate the negative effect of climate warming. The cultivar showed different reaction to temperature raise and CO₂ fertilization during model simulation, indicating that the difference of yield variation is affected not only by climatic factors, but also by the genetic characteristics of rice variety.

Key words : Climate change, Impact on rice production, ORYZA 2000 model.

Delineation of Nutrient Status in Maize Growing Soils of Chittoor District in Andhra Pradesh

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ABSTRACT

A survey was undertaken to delineate the nutrient status in maize growing soils in Chittoor district of Andhra Pradesh. The analysis of the soils revealed that the texture of the soils varied from sandy clay loam to clay, neutral to moderately alkaline in reaction, non-saline, low to medium in organic carbon, low to medium in available nitrogen and available P and high in available K. The available Ca and Mg were found to be sufficient in all the soils. However, 40, 63 and 76 per cent samples in Alfisols, Inceptisols and Vertisols, respectively were deficient in available S. Available Fe, Mn and Cu were found to be above their respective critical limits while 13.33 per cent soil samples in Inceptisols were deficient in Zn. Further, 23.3, 13.3 and 3.3 per cent of samples in Alfisols, Inceptisols and Vertisols, respectively were deficit in available boron.

Key words : Maize grown soils, Macronutrients, Micronutrients, Soil orders.

Effect of Different Amendments on Properties of Soils Irrigated with High RSC water

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ABSTRACT

A Pot culture experiment was conducted during *rabi* 2009-10 at fields of Saline Water Scheme, Bapatla using gypsum, pyrite, FYM, pressmud cake and aluminium sulphate to reduce ill effects of RSC waters on physico-chemical properties of the soil. Results indicated a reduction in soil pH, E_{Ce}, ESP and increase in available N, P₂O₅ and K₂O with soil application of different amendments. Gypsum was found superior to pyrites, FYM, pressmudcake and aluminium sulphate in minimizing the adverse effect of sodic waters on soil properties.

Key words : Aluminium sulphate, FYM, Gypsum, High RSC water, Pressmud cake, Pyrite.

Soil Fertility Evaluation of Naira Village, Srikakulam District, Andhra Pradesh

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ABSTRACT

Representative soil samples (red and black) were collected from different farmer fields in Naira village, Srikakulam district and assessed for their nutrient status. Majority of soils were light on texture. The soils ranged from acidic to neutral in reaction and normal in conductivity. Soil available nitrogen status was found to be low in all the samples. Soil available phosphorus (P_2O_5) varied from low to high. Soil potassium (K_2O) content was high in majority of samples. Available calcium and magnesium content in soils was above the critical level. Available sulphur was found to be sufficient. The soils were in micronutrient except for some ones.

Key words : Available nutrients, Micronutrients, Soil Properties.

Chemical Composition and Molar Ratios of Some Coastal Soils of Guntur District, Andhra Pradesh

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ABSTRACT

Soil samples collected from eight profiles representing the sandy and inland black soils in Pedapuluguvaripalem village, Guntur district, A.P. were studied for their chemical composition. The silica content varied from 63.09 to 90.54 per cent and sesquioxide content ranged from 5.35 to 30.41 per cent in different profiles. High silica content was observed in coarse textured soils than in fine textured soils. The alumina and iron oxide contents of the profiles varied from 2.93 to 23.55 per cent and 1.72 to 9.88 per cent, respectively. The calcium oxide content was found to be relatively higher than other oxides varying from 1.06 to 2.97 per cent. The molar ratios and concentrations exhibited the dominance of silica over sesquioxides in all the soils.

Key words : Silica and sesquioxide contents, Silica- sesquioxide molar ratios, Soil composition.

Effect of FYM and magnesium on yield and quality of *Bt* cotton

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ABSTRACT

A field experiment was conducted during *kharif*, 2011 at Agricultural College Farm, Bapatla to study the effect of FYM and magnesium on yield and quality of *Bt* cotton. Results indicated that significantly higher number of bolls per plant, seed cotton yield, stalk yield and biological yield were found with FYM @ 10 t ha⁻¹ + soil application of MgSO₄ @ 50 kg ha⁻¹ followed by sole application of FYM @ 10 t ha⁻¹ and FYM @ 10 t ha⁻¹ + foliar application of MgSO₄ @ 1 per cent at 50 and 70 DAS as compared to control. Among all the combination FYM 5 or 10 t ha⁻¹ with and without magnesium showed superiority as compared to application of inorganics alone. All the quality parameters viz., fibre length, fibre strength, fibre fineness, uniformity ratio and elongation per cent were not influenced markedly by application of FYM and magnesium alone or in combination.

Key words : Organic manure, Secondary nutrients, Seed cotton.

Variability in Isolates of Rice Brown Spot Pathogen, *Bipolaris oryzae* in Andhra Pradesh

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ABSTRACT

Bipolaris oryzae isolates obtained from six geographically distant rice growing locations of Andhra Pradesh differed marginally in colour and type of colony growth in culture. All the isolates exhibited a cottony growth and appeared whitish initially and turned dark brown with age on Czapek dox agar, potato dextrose agar and rice leaf extract agar. Isolates significantly differed in initiation and intensity of sporulation as also in spore dimensions. Longer and wider spores were generally observed when the isolates were cultured on potato dextrose agar and rice leaf extract agar than on Czapek dox agar. Isolates exhibited varied pathogenic ability on rice genotypes with both culture filtrate and spore suspension inoculations in terms of incubation period and spot size.

Key words : Brown spot, *Bipolaris oryzae*, Rice, Variability.

Field evaluation of native *Bacillus thuringiensis* strains (solid and liquid formulation) against *Spodoptera litura* (Fabricius) in Groundnut

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ABSTRACT

Twenty eight effective *B.t.* strains (4, 12, 15, 21, 25, 32, 44, 49, 58, 61, 67, 77, 83, 91,106,111,136,139,153,179, 206, 281, 317, 341, 375, 405, 416 and 422) based on preliminary bioassay tested against *S. litura* were prepared as solid and liquid formulations and sprayed in groundnut against *S. litura*, in all the *B.t.* strains larval population of *S. litura* per meter row and per cent leaf damage per five randomly selected plants in Groundnut was less in solid formulation compared to liquid formulation. Groundnut pod yield (kg/ha) was more in solid formulation compared to liquid formulation. Among 28 *B.t.* strains, 375 shown minimum larval population of *S. litura* and leaf damage. Maximum pod yield of Groundnut was also highest in plots treated with *B.t.* strain 375.

Key words : *Bacillus thuringiensis*, *Spodoptera litura*, groundnut, solid and liquid formulation

Influence of certain Newer Insecticides and their Combination Products against some Major Natural Enemies of Rice Ecosystem

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ABSTRACT

A field experiment was conducted to evaluate the influence of some newer insecticides and their combination products on major natural enemies in rice ecosystem at Agriculture College Farm, Bapatla during *Kharif*, 2009-10. Among the newer insecticides like flubendiamide 480 SC (0.072%), fipronil 5 SC (0.0063%), ethiprole 10 SC (0.0075%), imidacloprid 17.8 SL (0.0067%), spinosad 48 SC (0.012%), betacyfluthrin 25 EC (0.03%) and their combination products *viz.*, flubendiamide 36% + fipronil 30% 66 WG (0.0065%), imidacloprid 40% + ethiprole 40% 80WG (0.02%), imidacloprid+ betacyfluthrin 100 EC (0.006%), betacyfluthrin + chlorpyriphos 262.5 EC (0.08%) and Chlorpyriphos 20 EC (0.05%) as a standard check, when tested for their influence on some major natural enemies of rice like spiders and mired bugs as predators of BPH, GLH and Leaf folder. The results revealed that fipronil and flubendiamide were found to be the safest of all with least reduction of spider population i.e. 23.88% and 23.97% respectively. Flubendiamide+ fipronil (29.11%) and spinosad (32.01%) were found to be relatively safer to spiders and both were on par. Next in the increasing order of toxicity to spiders were betacyfluthrin (66.52%), Betacyfluthrin+ Chlorpyriphos (67.60%) and chlorpyriphos (68.09%). Betacyfluthrin (56.50%) and chlorpyriphos (58.01%) were at par and extremely toxic to spiders among all the treatments. The overall influence on mirid bugs revealed that fipronil recorded 18.27 per cent reduction of mirid population over untreated control and found to be the safest of all the treatments. Betacyfluthrin+ Chlorpyriphos and chlorpyriphos were at par and found to be extremely toxic treatments to mirid bugs with 54.15 and 57.73 per cent population reduction over untreated control.

Key words : Betacyfluthrin + chlorpyriphos, BPH, Ethiprole, Flubendiamide, GLH, Imidacloprid, Leaf folder, Rice.

Identification and Grouping of Groundnut (*Arachis hypogaea* L.) Genotypes through Chemical tests

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ABSTRACT

In order to maintain genetic purity, varietal characterization is essential to carry out scientific seed production and certification, to enforce proper quality control and to promote the seed trade in the present scenario. With the prospect of introduction of a Plant Variety Protection Act in our country, the need to verify the identify of a variety and to establish its Distinctness, Uniformity and Stability (DUS) has become even more critical for the process of variety registration and seed certification. In the present study thirty genotypes of groundnut were subjected to chemical tests using KOH, NaOH, GA₃ and 2, 4-D. Though no individual chemical test was able to distinguish all the genotypes, different chemical tests in conjunction were useful in identification and grouping of varieties. For NaOH and KOH test the seeds were soaked in 2% NaOH solution and 5% KOH solution for 1 hour and then the solution were decanted. Based on the colour of the solution, the genotypes were grouped as dark brown and light brown. The germination paper towels soaked in 25ppm GA₃ and 5ppm 2, 4-D were used to test the seedling response of these genotypes. Based on the response to GA₃ the genotypes were grouped as high, medium and low and based on their sensitivity to 2,4-D the genotypes were grouped as highly, moderately and least sensitive.

Key words : Characterization, Chemical tests, Groups, Groundnut.

Effect of Cladding Materials on Greenhouse Microclimate and Biometric Growth of Gerbera (*Gerbera Jamesonii* L.) in Subhumid Subtropics

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ABSTRACT

The use of new cladding films as greenhouse covering is spreading out in protected cultivation. The selection of suitable cladding has tremendous influence on crop production capability. Although, their effects on vegetable production received much attention, few studies focus on floricultural crops. In the present study, the efficacy of two cladding materials (UV stabilized and Diffused) of greenhouse on the microclimate and biometric growth of Gerbera was investigated during winter and summer seasons of the year 2009. The effect of greenhouse cladding on the microclimate and crop growth was considerable. Diffused film maintained 3°C and 1.5°C less temperatures during winter and summer respectively against commonly used UV stabilized film. The reduction of incoming solar energy in the UV stabilized and diffused films were 60 and 50% in winter and 80 and 70% in summer with internal shading and fogging. The biometric performance of gerbera was superior in the diffused film to the UV stabilized film in terms of plant height, leaf area index and flower yield. Although, reduction of greenhouse temperatures in the diffused film is less in summer (1.5°C), but its effect was prominent in getting sustained flower yield (7 flowers/m²) during summer as compared to the UV stabilized film (4 flowers/m²). The statistical analysis on Gerbera growth inferred that Yanara was superior both in terms of leaf area index (3.42) and flower yield (8 flowers/m²) as compared to others and thus evolved as most suitable techno-economic cultivar in subhumid subtropics.

Key words : Biometric growth, Cladding material, Diffused film, Floriculture, Gerbera, Microclimate.

Some Studies of Time and Temperature on Aged Rice

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ABSTRACT

Study was conducted for optimizing time and temperature for ageing of two varieties of rice namely BPT 5204 and BPT 2270. In artificial ageing, the rice samples were incubated at 90°, 100°, 110° and 120 °C temperature and at different time periods 1, 3, 5, 7 & 9h and stored for 6 months at room temperature. In natural ageing, the rice samples were packed in cloth bags and stored for 6 months at room temperature. For every 30 days interval, the physical characteristics such as elongation and swelling index of both varieties were determined. In rice variety of BPT 5204, the highest elongation was observed to be 2.11mm in natural ageing after six month storage time and same elongation was obtained at 110 °C for 3h in artificial ageing after second month storage time. In BPT 2270, the highest elongation was observed to be 2.47mm in natural ageing after six month storage time and same elongation was obtained at 100 °C for 3h in artificial ageing after one month storage time. By considering elongation, it is concluded that the optimum time and temperature for artificial ageing of rice is 110 °C for 3h and 100 °C for 3h in BPT 5204 and BPT 2270 respectively. It also concluded that swelling index slightly increased with increase in time and temperature combination.

Key words : Accelerated ageing, Elongation, Swelling index

Resource Use Efficiency of Supermarket Supply Vegetable Farmers vs Traditional Market Supply Farmers of Rangareddy and Medak districts of Andhra Pradesh-A Comparison

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ABSTRACT

The present study examines the resource use efficiency in tomato, brinjal and bhendi production by supermarket and traditional market supplying farmers in Rangareddy and Medak districts of Andhra Pradesh. The data for the study were collected from 234 farmers who were supplying vegetables to supermarket and 234 farmers who were supplying to traditional markets. Cobb-Douglas production function was used to estimate the production function of the vegetables farmers and their efficiency in resource use separately for the two groups of farmers. The results revealed that the traditional market supplying farmers display inefficient use of available resources and the results indicated that the farmers would increase farm productivity by the use of adequate capital-intensive input levels in order to maximize their efficiency. However, in order to achieve the use of capital intensive inputs, farmers should be encouraged to form groups/associations and linking with supermarket channel will enhance appropriate adjustment for optimum allocation of resources to maximize their revenue.

Key words : Comparison, Resource, Vegetable farmers

Perception of Tenant Farmers on Delivery Mechanism of Institutional Credit through Loan Eligibility Cards in Andhra Pradesh- A Case Study

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ABSTRACT

The findings of the study indicated that majority of the farmers perceive that owners of land are willingness to provide oral lease than the written lease (3.3 %). A slightly more than half of the tenant farmers have responded positively (56.7%) on timely issuing of LEC cards. The majority of the tenant farmers responded negatively (96.7 %) regarding credit disbursement of financial institutions on par with scale of finance. All the tenant farmers have positively responded on coverage under National Agriculture Insurance Scheme. A large group of tenant farmers (91.7%) have positively responded to level of finance fixed irrespective of leased land. Majority of tenant farmers (95%) expressed that financial institutions willingness to provide finance to Joint Liability Group than individual LEC holders to fulfill their security norms. Only a small group (38.3 %) of tenant farmers perceived that they have access to timely credit.

Key words : Agriculture credit, Financial institutions, Loan Eligibility Cards, Tenant farmer.

Constraints of Dairy Entrepreneurs in Chittoor District of Andhra Pradesh

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ABSTRACT

The constraint analysis of milk producers revealed that feed and fodder shortage, unremunerative price for milk were the most severe problems faced by all the three categories of farmers viz., small, medium and large. Small and medium farmers also reported that high cost and non-availability of concentrate mixture was equally a frustrating problem. Regarding other problems, the selected farmers had different perception.

Key words : Cross bred cows, Constraints, Dairy entrepreneur.

Stimulational, Situational Maladies and Remedies for Strategic Coconut Development as Perceived by Farmers

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ABSTRACT

The study was conducted with a diagnostic design in East Godavari district over a proportionately drawn sample of 120 coconut farmers and revealed that lack of motivation is acting as barrier in carrying new technology, not receiving timely control measures of Eriophid mite were the attention gained maladies. Developing more professionalism among the coconut farmers and officials and preparing the agricultural staff in advance to prevent time lag were the remedies. The Chi-square test of maladies and remedies were significant at 0.01 level of probability. To enlighten the characters of good coconut varieties and providing timely information were the high ranked strategies in the cultivation of coconut crop.

Key words : Coconut, Malady, Remedy, Stimulational- Situational dimensions, Strategic development.

Extent of Adoption of farmers about improved mango cultivation

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ABSTRACT

The research study was conducted by personal interview with 80 farmers in Pardi and Ahwa Talukas of Valsad and Dang districts of Gujarat state. It has been found that out of selected improved mango cultivation practices the extent of adoption of flowering regulation measures was 50.00 per cent. About 41.56 per cent farmers were adopting fertilizer applications, followed by plant protection measures (21.87 %) and selection and grading in mango (15.00 %). The practices like mango hybrid and fruit drop control were moderately adopted by the farmers to the extent of 11.56 per cent and 13.75 per cent respectively.

Key words : Cultivation, Extent of Adoption

Problems faced by the Input dealers in their Communication Behaviour

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ABSTRACT

The study revealed that majority (75.00%) of the input dealers stated that 'Lack of sufficient knowledge about farm inputs' was the major problem followed by other problems like 'Lack of computer knowledge to diagnose the crop diseases' (66.67%), 'less exposure to mass media.' (63.33%), 'Less encouragement from agricultural officers' (58.33). Majority of the input dealers (73.33%) suggested that 'Training programmes should be conducted regarding new farm inputs and diagnosis of the diseases' followed by 'More number of training programmes should be conducted to impart computer knowledge' (70.00%), 'Agricultural officers and scientists should maintain continuous contact with the input dealers' (68.33%), 'Conducting frequent meetings and group discussions among input dealers and also with farmers' (46.67%), 'Input dealers should be given sufficient information material about new farm information for updating their knowledge' (45.00%). The suggested strategy includes providing training programmes about farm input and computer knowledge, low cost audio and video cassettes, CDs and DVDs, using interaction multi-media modules, information kiosks and ICT tools like mobiles and touch screen information centres for effective communication behaviour of input dealers

Key words : Communication behaviour, Input dealers, Problems, Strategy, Suggestions.

Extent of Knowledge of Bengalgram Farmers in Prakasham District of Andhra Pradesh

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ABSTRACT

Bengalgram is the most important pulse crop in India. The study was conducted in five mandals in Prakasam district. Three villages from each of the selected mandals were selected by following simple random sampling procedure, thus making a total of 15 villages. Eight bengalgram farmers were taken from each village, thus making a sample of 120 bengalgram farmers. Majority of the bengalgram farmers had medium level of knowledge followed by high (35.00%) and low (23.33%) level of knowledge. The correlation analysis revealed that education, farming experience, socio-politico participation, extension contact, mass media exposure, innovativeness, scientific orientation, risk orientation and economic orientation were significant at 0.01 level of probability. Further regression analysis revealed that all the selected 11 independent variables put together, explained about 70.14 per cent variation in knowledge of respondents.

Key words : Bengalgram farmers, Knowledge.

Use of Internet by Teachers of Agricultural College Bapatla

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ABSTRACT

Majority of the respondents used internet services such as search engine, e-mail, world-wide-web, online database and chatting. From the study, it was found that majority of the respondents utilised internet formats in the form of document/text formats, PDF file, power point, video files and audio files. The strategy for improvement of internet uses in the agricultural college by supply system with internet facility to all staff members, one technical person must be appointed for system management and made complete campus Wi-Fi.

Key words : Internet, Electronic-mail, World Wide Web.

Genetic Variability and Path Coefficient Analysis in Yield and Grain Quality Characters of Long Duration Rice Genotypes

Tushara M, Satyanarayana Rao V, Lal Ahamed M, Krishna Veni B and Narasimha Rao K L
Key words : Direct and Indirect effects, Rice, Variability.

Studies on Genetic Variability in Rice (*Oryza sativa* L.)

G Shobha Rani, K. Radhika, V Ravindra Babu, V Padma and G Usharani
Key words : Genetic advance, Genetic variability, Heritability, Rice.

**Evaluation of some food grains for mass production of
Nomuraea rileyi, an entomopathogenic fungus**

D Babi Neeraja and K Manjula

Key words : Maize, *N.rileyi*, Ragi, Rice, Sporulation, Sorghum, Wheat.

**Survey on The Natural Occurrence of Entomopathogenic
Fungi on Lepidopteran Pests in Chittoor District of
Andhra Pradesh**

E Hemasree, K Manjula and T Muralikrishna

Key words : *Beauveria bassiana*, Entomopathogenic fungi, *Nomuraea rileyi*,
Spodoptera litura.

**Studies on Efficacy of Certain Eco-friendly Pesticides and
Botanicals on Pest Complex of Betelvine
(*Piper betel* L.)**

Suman Babu P and Karunakara Babu M

Key words : Betelvine, Botanicals, Pesticides.