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**Validation of Nitrogen Recommendations for Popular Rice
(*Oryza sativa* L.) Varieties of Coastal Andhra Pradesh**

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ABSTRACT

A field experiment was conducted during *kharif* 2009 to study the response of rice varieties to over and above recommended dose of nitrogen on yield components and yield. Yield components and yield were significantly influenced by varieties and nitrogen levels. The variety NLR 28523 showed significantly higher growth parameters, yield components and yield over other varieties *viz.*, NLR 33892, BPT 5204 and MTU 1061. Application of 240 kg N ha⁻¹ showed higher growth and yield components and yield.

Key words : Coastal, Rice, Nitrogen Recommendations.

**Effect of Pre- and Post-emergence Herbicides on the Control of
Vicia sativa in Rice-Fallow Blackgram
(*Vigna mungo* L. Hepper)***

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ABSTRACT

A field experiment was conducted during *rabi* 2009-10 at the Agricultural College Farm, Naira of Acharya N. G. Ranga Agricultural University to study the effect of different pre- and post-emergence herbicides on *Vicia sativa* control in rice-fallow blackgram. Density and dry weight of *Vicia sativa* as well as other broad leaf weeds were significantly reduced by hand weeding compared to other treatments and was on par with imazethapyr @ 200 g a.i ha⁻¹ followed by @ 150 g a.i ha⁻¹ and pendimethalin @ 1.0 kg a.i ha⁻¹. All other herbicides except, quizalofop-p-ethyl @ 50 and 75 g a.i ha⁻¹ significantly reduced the density and dry weight of *Vicia sativa* and other broad leaf weeds compared to unweeded check. The maximum weed control efficiency was recorded with hand weeding, which was however, on par with imazethapyr @ 200 g a.i ha⁻¹. Imazethapyr at both the doses showed phytotoxicity on blackgram. At lower dose the crop recovered quickly while, at higher dose no such recovery was noticed. Hand weeding was significantly superior to other treatments in respect of yield. However, on considering economics, pendimethalin @ 1.0 kg a.i ha⁻¹ was found to be a cost effective method.

Key words : Pre- and Post-emergence herbicides, Rice-fallow blackgram, *Vicia sativa*.

On Farm Evaluation of Mechanical Transplanting of Rice (*Oryza sativa* L) Against Traditional Method

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ABSTRACT

An on-farm trail was conducted in Krishna Western Delta of Guntur district in Andhra Pradesh during Kharif, 2009-10 to evaluate the performance of machine in reducing the manual labour for raising of nursery and transplanting of rice and the effect on crop growth and yield. A 50 per cent reduction in labour required for raising of nursery and transplanting was recorded in machine planting against manual planting. A 13 per cent increase in grain yield (7989 Kg/ha) and 22 per cent increase in straw yield (9167 kg/ha) was observed in machine planting than in manual planting, 7059 kg/ha and 7500 kg/ha respectively. The higher grain and straw yield in machine planting was due to increase in no. of hills, no. of effective tillers and total no. of tillers. The cost of cultivation was Rs.1250/ha less in machine planting. Due to increased grain and straw yield and decreased cost of cultivation, a higher cost benefit ratio of 1:2.47 was recorded in machine planting as against 1:2.11 in manual planting.

Key words : Machine planting, Rice.

Maternal Effects and Heterosis Breeding for Fruit Yield Traits in Okra (*L*)

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ABSTRACT

A 7 x 7 full diallele cross was effected in okra. The reciprocal differences were quite obvious. The mean of the direct crosses differed significantly from that of their reciprocal crosses for almost all the traits in many cross combinations. Such differences were also observed at reciprocal effects and heterotic level. Reciprocal difference may be due to the confounded effect of cytoplasm and maternal genotypes. Existence of reciprocal difference due to the presence of over dominance, the best scheme to develop hybrids would be the reciprocal recurrent selection. Standard heterosis upto the tune of 55.96 per cent was recorded by the cross Pusa A4 x Punjab Padmini followed by the cross Punjab Padmini x Varsha Uphar (51.38 per cent) for fruit yield per plant. The cross combinations Pusa A4 x Punjab Padmini, Punjab Padmini x Varsha Uphar and Parbhani Kranti x Punjab Padmini can be utilised for heterosis breeding in okra, which showed high mean, significant sca effects and high economic heterosis for fruit yield and other traits of interest.

Key Words: Heterosis, Maternal effects, Okra, Sca.

Genetic Variability Studies in Upland Cotton

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ABSTRACT

Genetic variability was assessed among 60 genotypes of upland cotton for eleven traits i.e. Plant height (cm) number of monopodia per plant, number of sympodia per plant, number of bolls per plant, boll weight (g), seed index (g), lint index (g), ginning out turn (%), 2/5% span length (mm.), Uniformity wise are presented. The estimates of mean, range, phenotypic coefficient of variation (PCV), genotypic coefficient of variation (GCV), heritability ($h^2_{(b)}$) and genetic advance as per cent of mean (GAM) were calculated and are presented.

Key words : Cotton, Correlation, Genetic variability.

Assessment of Rice Genotypes for Drought Tolerance Using SSR Markers

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ABSTRACT

Phenotypic response of the 24 rice genotypes to drought tolerance and recovery ability was evaluated at flowering stage under field conditions. The results indicated that for drought tolerance, the genotypes were classified into five groups from score 1 to score 9 and for recovery ability, none of the genotypes scored 1 and 9. The genotypes were classified into 3 groups score 3, 5 and 7. A total of 70 alleles were detected by 24 polymorphic markers with an average of 2.92. Polymorphic information content (PIC) value varied from 0.980 to 0.990 with an average of 0.985. An efficient separation of 25 rice genotypes based on SSR data into two groups was achieved by using unweighted pair group method with arithmetic means (UPGMA) clustering procedure based on genetic similarity expressed by the Jaccard similarity coefficient (JSC). Genotypes that are derivatives of genetically similar type clustered more together. The present study provided an overview of the genetic diversity of the 24 rice cultivars for drought tolerance. Since the SSR markers are neutral and co dominant, they are powerful tools to assess the genetic variability of the cultivars under study. The information about genetic diversity of these cultivars will be very useful for proper selection of parents in rice breeding programs especially for gene mapping and eventually for the application of marker assisted selection (MAS).

Key words : Drought, PIC, Polymorphism, Rice, SSR Markers

Characterization of Cotton Genotypes

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ABSTRACT

The problem normally in germplasm collection is uncharacterization for common germplasm descriptors. A systematic study was conducted to characterize the forty cotton germplasm lines collected from different parts of the country using IBPGR descriptors at Agricultural College, Bapatla, India. The data was collected on days to 50% flowering, stem, leaf, flower, boll, and quality parameters. Variability was observed for twenty two parameters out of twenty nine descriptors studied in the forty genotypes. The descriptors are helpful in breeding for multiple disease resistant cultivars and improving the fibre quality characteristics.

Key words : Characterization, Cotton, Descriptors, IBPGR.

Combining Ability Estimates for Yield and Fibre Quality Traits in Line X Tester Crosses of Cotton

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ABSTRACT

Combining ability analysis using line x tester design was conducted during *kharif* 2009-10 on 54 hybrids produced by crossing 9 lines and 6 testers. The perusal of results on estimates of *gca* effects RCR 2 among lines while, RCRC 4 and RCRC 5 among testers were detected as good general combiners. It was found that all the characters studied were controlled predominantly by non-additive gene action. Out of 54 crosses, seven crosses exhibited significant positive *sca* effects and among them RCR 5 X RCRC 5, RCR 2 X RCRC 4 and RCR 136 X RCRC 5 were found to be better based on their *per se* performance and positive *sca* effects for seed cotton yield per plant.

Key words : Cotton, Line x tester Analysis, General and Specific Combining Ability

Phenotypic Stability Analysis in Italian Millet Utilizing Regression and AMMI Models for Root Characters

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ABSTRACT

Twenty Italian millet genotypes were evaluated for root characters over 16 environments (8 sowing dates with 2 fertility levels). The analysis of variance of Eberhart and Russell indicated that G × E interaction was significant for 2 characters under study and that genotypes differed significantly. Among the AMMI components first four IPCA axes were explained most of the portion of G × E interaction than other IPCA axes. The ANOVA (Eberhart and Russell, 1966) indicated non-significant G × E (linear) interaction for VRM, when tested against pooled deviation. As per AMMI analysis, the IPCA₁ significantly contributed to WRM and VRM while IPCA₂ contributed significantly to G × E interaction for WRM and VRM. This brings out clearly the advantage of AMMI ANOVA in bringing out G × E interaction through IPCA₁ which gets combined with error in the other two ANOVA and points out the utility of AMMI models in studying the significant G × E interaction and identifying stable genotypes for characters which so undetected in the earlier analysis. According to AMMI analyses, the genotypes GS 467, GS 486 and GS 489 (for weight of the root at main field); GS 445, GS 450 and GS 465 (for volume of the root at main field) are more stable as IPCA score was near zero *i.e.*, interaction with environments was less. According to Eberhart and Russell the genotypes, GS 444, GS 479 and GS 487 (for weight of the root at main field); GS 486 and GS 487 (for volume of the root at main field); showed desirable performance.

Key words : AMMI, Italian millet, Stability

Studies on The Influence of Integrated Nutrient Management on Growth and Nutrient Uptake by *Tectona Grandis*.

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ABSTRACT

The present study involves use of biofertilizer (*AM*, *PSB*, *Azotobacter*) and chemical fertilizer (NPK) alone and in factorial combination to see the effect on growth, biomass and nutrient uptake by *Tectona grandis*. In all the combinations growth, nutrient content was found significantly higher in comparison to un-inoculated seedlings but shown variation with treatments. AM + *Azotobacter* combination was found to be most effective (3.91 times higher the biomass) than other (effective between 28.18- 302.28 %). *Azotobacter* alone was found least effective (28.18%) in *T. grandis*. P, Cu, Mn, and Zn uptake was found effective while uptake of N, K, Fe, and Mg was found ineffective.

Key words : *Arb Mycorrhiza*, *Azotobacter*, Nutrient content and biomass, *PSB*, *Tectona grandis*.

Efficacy of Different Insecticide Schedules Against Brinjal Shoot and Fruit Borer, *Leucinodes orbonalis* Guenee

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ABSTRACT

The field experiment was undertaken at Central Research Station, OUAT, Bhubaneswar during Rabi, 2002-03. Six newer insecticide schedules along with one check were evaluated against *Leucinodes orbonalis* Guenee in Brinjal. All the insecticides were significantly superior over untreated Check. Among the treatments T₃ (carbaryl + cartap hydrochloride + endosulfan + diflubenzuron + multineem + chloripyriphos) schedule was most effective in reducing shoot and fruit infestation of brinjal. Highest fruit yield (196.61 q/ha) was obtained from T₃ schedule and minimum yield (117.62 q/ha) was obtained from untreated check.

Key words : Insecticide Schedules, *Leucinodes orbonalis*

Effect of *Bacillus thuringiensis* var. *kurstaki* Kurstak with Botanicals on the Development of *Spodoptera litura* Fab.

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ABSTRACT

Botanicals, neem seed kernel extract (*Azadirachta indica* A. Juss); sweet-flag rhizome extract (*Acorus calamus* L.); pungam seed extract (*Pongamia glabra* Vent.) and annona seed extract (*Annona squamosa* L.) were evaluated for their effect on the bioefficacy of *Bacillus thuringiensis* var. *kurstaki* Kurstak (*B.t.k.*; Dipel 8L) against *Spodoptera litura* Fab. The botanicals, when used at 2.5% concentration in combination with *B.t.k.* 0.1% against *S. litura*, resulted in higher larval mortality (76.67 to 93.33%), feeding inhibition (64.69 to 90.53%) and pupal weight reduction (22.42 to 36.36%), lower larval weight gain (135.11 to 174.77 mg), pupation (6.67 to 23.33%), normal pupae (3.33 to 10.37) and normal adult emergence (0.00 to 07.78%), and prolonged larval (9.7 to 10.3 days) and pupal (11.3 to 12.0 days) periods compared to their corresponding individual effects of *B.t.k.* 0.2% and botanicals 5.0%.

Key words : Combinations, *Bacillus thuringiensis* var. *kurstaki*, *Azadirachta indica*, *Acorus calamus*, *Pongamia glabra*, *Annona squamosa*, *Spodoptera litura*.

Studies on Growth Analysis and Seed Yield in Blackgram Cultivars

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ABSTRACT

A field experiment was conducted during Rabi 2007-08 to study the growth analysis and seed yield of Blackgram cultivars, revealed that among the blackgram cultivars LBG735 recorded maximum CGR, NAR, LAI, LAD and lowest SLA compared to other cultivars. LBG735 recorded highest number of pods per plant, number of seeds per pod, test weight, harvest index and seed yield (1650kg) and WBG26 recorded lowest values of above parameters.

Key words : Black gram, Growth analysis, LAD, LAI, NAR

A Study on Rainfall Pattern through Multivariate Approach

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ABSTRACT

An effort is made to study the rainfall pattern by using the Multivariate approach. This approach is based on the cluster analysis, this analysis would provide pattern of rainfall at different levels. The rainfall recorded in different periods of the season is generally inter-related, the approaches available for estimation of rainfall involve fitting of suitable statistical distribution on the period wise rainfall recorded over a period of time. However, in this approach the estimation is carried out independently corresponding to each period ignoring the possible inter relation between the rainfall of the other period. Hence, a multivariate approach is proposed which consider the inter-relation between the rainfall recorded in the different periods of the season. This approach was applied to study the rainfall pattern of the three mandals i.e, Sathupally, Vemsoor and Aswaraopet of Khammam district. The rainfall analysis was based on 20 years of monthly rainfall data from 1990 to 2009. The application of this approach identified rainfall pattern in the mandals.

Key words : Rainfall, Multivariate

Water Budget Studies of College and Hostel Buildings of CAE Campus, Bapatla

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ABSTRACT

Water is essential for all forms of growth and development of human, animal and plants to sustaining basic need. The fresh water is just 0.26% of global water. The rainwater is pure and can be stored and used for required purpose. An attempt has been made to estimate the pure rainwater that can be harnessed from College of Agricultural Engineering (CAE), Bapatla. The total rooftop surface area of college building and boy's hostel building were measured to be 1061.9 m^2 and 608.74 m^2 respectively. The average annual rainfall of Bapatla for 10 years (i.e.1999-2008) is 998.33 mm. The average rainfall of CAE Campus at 50% probability is 806.05 mm and highest average weekly rainfall is 52.49 mm. In the College building, the total water that can be harvested, total water demand, total water supply and estate supply were 727562.10, 3503500.00, 3535562.10 and 2808000.00 litres per year respectively and a total of Rs. 25464.7 per year could be saved from the harvested water. In the boy's hostel, the total water harvested, total water demand, total water supply and estate supply were 417075.04, 2695680.00, 3112755.04 and 2839200.00 litres per year respectively and a total of Rs. 14597.63 per year could be saved.

Key Words: Probability, Rooftop surface area, Weekly rainfall, Water budget.

Marketing Efficiency of Vegetable Trade by Organized vis-a-vis Unorganized Retail Markets in Guntur town, A P

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ABSTRACT

The marketing costs were more in supply chain II (municipal market) followed by supply chain III (Hawker & petty vegetable shops). The marketing margins were more in supply chain III (Hawker & petty vegetable shops). In Supply chain I (Rythu bazaar) the marketing costs very low and marketing margins were not existed because of non involvement of market intermediaries. The producer's share in the consumer's rupee was more in supply chain I (Rythu bazaar) and less in supply chain II(municipal market) and the lowest in supply chain III (Hawker and petty vegetable retailers).It was found that the marketing efficiency was highest in Rythu bazaar because of the absence of middlemen and cost incurred by the farmer was low, followed by the supply chain IV involving organized retail outlet. The marketing efficiency was lowest in supply chain III involving hawker because of the high marketing margins of middlemen and high percentage of consumer rupee was pocketed by the market intermediaries.

Key Words: Marketing Efficiency, Organized and Unorganized Retail Markets

Resource Use Efficiency of Rice Fallow Maize in Guntur District of Andhra Pradesh

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ABSTRACT

Maize is the cereal having highest productivity with 27.8 q/ha followed by rice and wheat. In many parts of Andhra Pradesh, Maize is being grown extensively as a rice fallow crop replacing blackgram, sunhemp etc. The resource use efficiency of the crop was studied using Cobb - Douglas production function. The study reveals that the large & medium farms are more efficient in resource use with increasing returns to scale when compared with small farms. The study found that human labour, fertilizers and plant protection chemicals were used excessively than recommended levels.

Key Words: Rice fallow Maize, Resource Use efficiency.

Extent of Adoption of Improved Production Technology by Banana Farmers

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ABSTRACT

Banana is one of the major fruit crops in India. The study was taken up in Kollur, Kollipara and Bhattiprolu mandals of Guntur district based on maximum area of Banana cultivation. A total of 120 Banana growers were selected based on proportionate random sampling method. Majority of Banana growers found under medium level of adoption category. Independent variables Education, Land holding, Socio-politico participation, Extension agency contact, Mass media exposure, Risk orientation, Economic orientation and scientific orientation showed significant relationship with extent of adoption and also it revealed that all 11 independent variables explained to the extent of 58.40 per cent of variation with extent of knowledge.

Key Words: Banana Farmers, Technology

Extent of Adoption of Integrated Pest Management Practices by Paddy Growers

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ABSTRACT

The study was conducted in West Godavari District of Andhra Pradesh during the year 2008-09 to know the adoption of Integrated Pest Management (IPM) practices by paddy farmers. Data was collected from a randomly selected 80 paddy farmers of Matsyapuri, Andaluru (Veeravasaram mandal), Adavikolanu (Nidamaru mandal) and Mogallu (Palakoderu mandal) adopted villages of Krishi Vigyan Kendra, Undi by personal interview method using structured interview schedule. Item analysis of practices revealed that more than half of the paddy farmers (57.50%) had medium adoption level of recommended IPM practices. Whereas remaining paddy farmers had almost equal level of low (22.50%) and high (20.00%) adoption.

Key Words: Adoption, Item analysis, IPM, Paddy

Indigenous Knowledge of Weather Prediction

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ABSTRACT

The results of the study explained that the correctness of the predictions of rainfall (rainy days) in Panchangam in respective months of the years varied from 6.6 to 100.00 per cent. The findings also indicated that year wise percentage of correct predictions of fourteen years (1979-93) varied from 38.7 to 96.9. The highest correct predictions were made in the year 1989-90 followed by 1990-91. The lowest correct predictions were made in the year 1992-93. Further, the results indicated that overall mean percentage of correct prediction of rainfall (days) in fourteen years i.e., from 1979-93 is 71.42.

Key Words: Indigenous Knowledge, Weather Prediction.

Influence of Fertilizer Management Practices on Growth, Yield and Quality of Export Oriented Groundnut [*Arachis hypogaea* (L.)].

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Variability, Heritability and Genetic Advance for Floral, Morphological and Agronomic Traits of Cytosterile Lines in Rice

V Bush, P V Satyanarayana, V Satyanarayana Rao and Lal Ahamed M

Genetic Divergence Studies in Blackgram

D Kodanda Rami Reddy O Venkateswarlu

Variability, Heritability and Genetic Advance for Yield and Grain Quality Characters in Rice

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Profile Characteristics Of Un-Reached Farmers

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