

The Andhra Agricultural Journal

Volume 57 (2) 2010

Yield and Quality of Rice Fallow Groundnut as Influenced by Sulphur Fertilization to Rice

M Martin Luther, S Narsa Reddy and R Veeraghavaiah

Department of Agronomy, Agricultural College, Bapatla 522101, Andhra Pradesh

ABSTRACT

A field experiment to study the residual effect of different sources and levels of sulphur on succeeding *rabi* groundnut crop preceding rice was conducted during 1995-1996 and 1996-1997 on sandy loam soil at Agricultural College Farm, Bapatla. The treatments consisted of five sources of sulphur *viz.*, ammonium sulphate, single super phosphate, ammonium phosphate sulphate, gypsum and elemental sulphur at four levels *viz.*, 0, 20, 30 and 40 Kg S ha⁻¹, which were applied to preceding *kharif* rice crop. All the five sources of sulphur showed equal effect on groundnut pod yield. Pod number, volume weight, shelling percentage, 100 kernel weight, oil content and finally pod yield were increased with sulphur application from 20 Kg S ha⁻¹ level. Application of 40 Kg S ha⁻¹ in rice groundnut sequence resulted in maximum oil content and pod yield.

Key words : Groundnut, Rice-fallow, Sulphur

Groundnut Based Cropping System for Rainfed Situation in Alfisols of Southern Agroclimatic Zone of Andhra Pradesh

B Ravindranatha Reddy, A Muneendra Babu, P Sudhakara Reddy and K R K Reddy

Department of Agronomy, Regional Agricultural Research Station, Tirupati 517 502, Andhra Pradesh

ABSTRACT

Field experiments were conducted for consecutive *kharif* seasons of 1999 and 2000 in dry lands farm of Regional Agricultural Research Station, Tirupati of Acharya N. G. Ranga Agricultural University to study the production potential of double cropping and suitability of cultivars of sequence crops under rainfed situation. During 1999, groundnut+redgram 7:1 intercropping system resulted significantly the highest groundnut pod equivalents (2101 kg ha⁻¹). Groundnut-greengram sequence resulted significantly lowest groundnut pod equivalents (1181 kg ha⁻¹) compared to the rest of the treatments. Next best groundnut based sequence crops were three red gram varieties (LRG 30, ICPL 87119 and Durga) and blackgram (PBG-32). During the year 2000 also groundnut+redgram 7:1 intercropping system resulted significantly highest groundnut pod equivalents (3841 kg ha⁻¹) followed by groundnut-fieldbean sequence cropping. Groundnut – greengram sequence resulted significantly lowest groundnut pod equivalents (2269 kg ha⁻¹).

Key words : Alfisols, Cropping System, Groundnut

Effect of Micronutrients on Productivity of Safflower (*Carthamus tinctorius* L.) Under Rainfed Conditions

V S Kubsad, M M Nekar and U K Hulihalli

Fodder Research Unit, MARS, University of Agricultural Sciences, Dharwad 580 005, Karnataka

ABSTRACT

A field experiment was conducted under rainfed conditions in vertisols to study the effect of micronutrients (Fe and Zn) on the productivity of safflower during *rabi* 2004-05 and 2005-06 at Agriculture Research Station, Annigeri, Karnataka. The experiment was laid out in randomized block design with three replications and eleven treatment combinations (Three levels of ZnSO₄ @ 10, 20, 30 and 40 kg ha⁻¹ along

with RDF, three levels of FeSo₄ @ 10, 20 and 30 kg ha⁻¹ along with RDF three levels of elemental sulphur @ 1.7, 3.4 and 5.1 kg ha⁻¹ along with RDF, RDF+FYM @ 5t ha⁻¹ and RDF alone 40-40-20 kg NPK ha⁻¹). Safflower responded significantly to the iron and zinc nutrients. The safflower seed yield was significantly higher (2478 kg ha⁻¹) with application of ZnSO₄ @ 20 kg ha⁻¹ along with RDF which was 7.1 and 19.2 % higher over RDF+FYM and RDF alone, respectively. The same treatment recorded significantly higher oil yield (709 kg ha⁻¹), gross returns (Rs.32,222 ha⁻¹), net returns (Rs. 25,340 ha⁻¹) and B:C ratio (4.68). The maximum additional yield (297 kg ha⁻¹) was obtained with same treatment compared to RDF+ 3.4 kg ha⁻¹ elemental sulphur.

Key words : Safflower, Micronutrients, Productivity, Oil yield, Vertisols

Yield and Nutrient Uptake of Rice (*Oryza sativa* L.) as Influenced by Interventions in Nutrient Management under the System of Rice Intensification

K Venkata Viswanath, R Veeraraghavaiah, Ch Pullarao and G V Lakshmi
Department of Agronomy, Agricultural College, Bapatla 522 101, Andhra Pradesh

ABSTRACT

Field experiment conducted at the Agricultural College Farm, Bapatla on sandy clay soils showed significant variations in grain yield, straw yield and harvest index with the interventions in nutrient management for rice under the System of Rice Intensification. Better grain yield, straw yield and harvest index were recorded with the application of 125% Recommended Dose of Fertilizer (RDF) for Conventional Rice (CR) along with 10 t or 5 t FYM ha⁻¹. Uptake of nutrients (NPK) measured at all the sampling intervals significantly affected by interventions in nutrient management and followed the trend shown by dry matter accumulation and yield. At all the stages, higher uptake was recorded by the application of 125% RDF for CR along with 10 t FYM ha⁻¹, which was closely followed by that of the same level of RDF with 5 t FYM ha⁻¹.

Key words : Grain Yield, Nutrient Management, Nutrients Uptake, Rice, System of Rice Intensification

Response of Groundnut (*Arachis hypogaea* L.) Varieties to Land Configuration Techniques under Rainfed Conditions of North Coastal Andhra Pradesh

A V Ramana, G J Naidu and M Bharatha Lakshmi
Department of Agronomy, Agricultural College, Naira 532 185, Andhra Pradesh

ABSTRACT

Field experiments were conducted for two consecutive *kharif* seasons of 2007 and 2008 at Agricultural College Farm, Naira of Acharya N.G. Ranga Agricultural University to study the response of groundnut (*Arachis hypogaea* L.) varieties to land configuration techniques under rainfed conditions. Land configuration treatments did not significantly influence the plant height. Shortest plants were produced by TPT-25, which were, however, on a par with TAG-24 at 30 DAS and with K-1341 at 60 DAS and at harvest. Significantly superior values for all the yield attributes were recorded with ridges and furrows and corrugations and furrows. Although higher values for 100-pod weight and 100-kernal weight were recorded with K-1341, significantly superior values for pod number plant⁻¹ in TAG-24 offset the gains recorded with K-1341. Sowing of TAG-24 either on ridges and furrows or on corrugations and furrows resulted in significantly higher pod yield while it was lowest with JL-24 sown either on flat beds or broad bed and furrow or corrugations and furrows.

Key words : Genotypes, Groundnut, Land Configurations, Rainfed

Response of Summer Sesamum to Irrigation Scheduling and Nitrogen Levels under Drip Irrigation

M Malla Reddy, B Padmaja and D Raja Ram Reddy
Regional Agricultural Research Station, Warangal 506 007, Andhra Pradesh

ABSTRACT

A field experiment was conducted during summer season 2007 and 2008 on clay soil under drip irrigation at Regional Agricultural Research Station, Warangal to know the effect of irrigation scheduling and nitrogen levels on growth and yield of summer sesamum. The results of the study revealed that significantly higher yield attributes and yield of sesamum are obtained when the crop is irrigated at 75% PE during summer season under drip irrigation and optimum response was observed with 60 kg N ha⁻¹ through fertigation.

Key words : Consumptive Use, Crop Coefficient, Drip Irrigation, Fertigation, IW/CPE Ratio, Nitrogen, Potential Evaporation, Sesamum

**Correlation and Path Coefficient Analyses in Sugarcane
(*Saccharum officinarum* L.)**

M Sireesha, K Prasada Rao, C Panduranga Rao and V Srinivasa Rao
Department of Genetics and Plant Breeding, Agricultural College, Bapatla 522 101,
Andhra Pradesh

ABSTRACT

Investigation on extent of character association and path coefficient analyses were conducted in sugarcane. Correlation studies revealed that cane yield was significantly and positively correlated with length of millable cane, diameter of cane, single cane weight, number of internodes cane⁻¹ and number of millable canes at both phenotypic and genotypic levels. Path coefficient analysis revealed that stalk population at 270 DAP, length of millable cane, diameter of cane, single cane weight, number of internodes cane⁻¹, number of millable canes and per cent juice sucrose had high positive direct effect on cane yield plot⁻¹. Hence, emphasis should be given on length of millable cane, diameter of cane, single cane weight, number of internodes cane⁻¹ and number of millable canes, while making selection for improvement of cane yield in sugarcane.

key words : Correlation, Path Coefficient Analysis, Sugarcane

**Combining Ability for Yield and BPH Resistance in Rice
(*Oryza sativa* L.)**

Dijee Bastian, Gayathri G, Vidhu Francis Palathingal and K Arya
Department of Plant Breeding and Genetics, College of Horticulture, Vellanikkara 680 654, Kerala

ABSTRACT

Studies on combining ability for yield and BPH resistance in rice among three lines (ASD 7, CO 46 and IR 64) and eight testers (MDU 5, TKM 9, ASD 16, ASD 20, CO 37, ADT 36, ADT 43 and IR 50) revealed preponderance of SCA variance for all characters except days to flowering. The gca effects of parents were scored and the scores summed up to judge the combining ability of parents. Based on the scores line CO46 was adjudged the best combiner, ASD 7 as medium combiner and IR 64 as low combiner. Hybrids CO46 x IR 50, CO 46 x ASD 16, CO 46 x ASD 20, ASD 7 x IR 50, ASD 7 x ASD 20, ASD 7 x TKM 9, IR 64 x CO 37, IR 64 x ADT 36 and IR 64 x ADT 36 had high SCA effects.

key words : Gene Action, GCA, SCA Effects, Variance

**Combining Ability for Yield, Components and Quality Traits in
Hybrid Rice (*Oryza sativa* L.)**

G Kumar babu, P V Satyanarayana , C Panduranga Rao and V Srinivasa Rao
Department of Genetics and Plant Breeding, Agricultural College, Bapatla 522101,
Andhra Pradesh

ABSTRACT

Ninty six hybrids generated from crossing four CMS lines and twenty four testers were studied along with parents for combining ability for yield, yield components and quality characters. Predominance of non-additive gene action was recorded for days to 50% flowering, plant height, number of panicles, panicle length, number of fertile spikelets, 100-grain weight, grain yield plant⁻¹, grain length, grain length/breadth ratio, While additive type of gene action was predominant for the spikelet fertility percent and harvest index. Among the parents PMS3A, MTU1064 and MTU II 61-28-1-1 were found to be good general combiners for yield and yield components. The line IR58025A and tester MTU II 161-28-1-1 was found to be good general combiners for grain quality characters. Crosses PMS10A X MTU II 161-28-1-1 and PMS10A X MTU II 193-23-1 were identified as most promising crosses for yield based on sca effects, per se performance and with more than 55% standard heterosis.

Key words : Cytoplasmic Male Sterility, General Combining Ability, Heterosis, Rice, Specific Combining Ability

Multivariate Analyses of Genetic Diversity in Upland Cotton (*Gossypium hirsutum* L.)

P Srinivasulu, J S V Samba Murthy, P V Rama Kumar and V Srinivasa Rao
Department of Genetics and Plant Breeding, Agricultural College, Bapatla 522101,
Andhra Pradesh

ABSTRACT

Genetic divergence analysis was carried out with sixty genotypes of upland cotton based on sixteen characters using Mahalanobis' D² statistic, cluster analysis and principal component analysis. Eight and 8 clusters were obtained by D² statistic and cluster analysis, respectively. PCA identified six principal components which explained 83.89% variability in upland cotton. The PCA enabled loading of similar type of variables on a common principal component. Divergence studies indicated that geographical diversity is always not necessarily associated with the genetic diversity. Multivariate analyses revealed maximum divergence among L-788, L-389, IH-65, TCH-1710, GBHV-156, PH-348 and CSH-3129 signifying their role in exploitation of heterosis.

Key words : Cotton, D² Analysis, Cluster Analysis, Principal Component Analysis

Multivariate Analyses of Genetic Diversity in Pigeonpea [*Cajanus cajan* (L.) Millsp.]

U Vasantha Rao, B Govinda Rao, C Panduranga Rao and V Srinivasa Rao
Department of Genetics and Plant Breeding, Agricultural College, Bapatla 522101,
Andhra Pradesh

ABSTRACT

Eighty three genotypes of pigeonpea representing the broad spectrum of variation were assessed for genetic divergence for eleven characters using Mahalanobis' D² statistic, cluster analysis and principal component analysis. The protein content contributed maximum towards genetic divergence followed by days to 50% flowering and pods plant⁻¹. On the basis of clustering methods, 8 and 10 clusters were obtained for D² statistic and cluster analysis, respectively. The best clusters with regard to seed yield and protein content were cluster V and IV. Principal component analysis identified four principal components which explained 93.42% variability. Genotypes Pusa 2008-2, AL 1692 and SKNP 0505 (based on PC 1 axis) were divergent.

Key words : Cluster analysis, D² analysis, Pigeonpea, Principal Component Analysis

Multivariate Analyses in Castor (*Ricinus communis* L.)

**K Udaya Bhanu, V Satyanarayana Rao, M Lal Ahamed and
P V Satyanarayana**

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

ABSTRACT

Genetic divergence study was carried out with fifty two genotypes of castor based on twenty eight characters using Mahalanobis' D^2 statistic, cluster analysis and principal component analysis. On the basis of these methods 9 and 8 clusters were obtained for D^2 statistic and cluster analysis, respectively. Stem length to tertiary raceme followed by stem length to primary raceme and stem length to secondary raceme contributed maximum towards diversity in D^2 analysis and in first principal component. PCA identified 7 components with eigen values more than one, contributed 90.83 per cent variance. Divergence studies indicated that geographical diversity is always not necessarily associated with the genetic diversity. Multivariate analyses revealed maximum divergence among PPL 174, PPL 175 and PPL 177 signifying their role in exploitation of heterosis.

Key words : Castor, Cluster Analysis, D^2 Analysis, Principal Component Analysis

Character Association and Path Coefficient Analyses for Yield and Component Traits in Upland Cotton (*Gossypium hirsutum* L.)

**K Venkateswarlu, V Chenga Reddy, J S V Samba Murthy, V Srinivasa Rao,
C Panduranga Rao, K V SivaReddy and J Sateesh Babu**

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

ABSTRACT

Correlation and path coefficient analyses were carried out with 50 genotypes of cotton obtained from different cotton research centres across the country for yield and yield component traits. The character association studies revealed that seed cotton yield plant⁻¹ had positive significant correlation with plant height, number of sympodia plant⁻¹, number of bolls plant⁻¹, boll weight, micronaire, oil content and lint yield plant⁻¹. Path coefficient analysis revealed that lint yield per plant exerted strong direct positive effect on seed cotton yield plant⁻¹.

Key words : Character Association, Path Analysis, Upland Cotton

Character Association and Path Coefficient Analyses for Yield and Component Traits in Castor (*Ricinus communis* L.)

M Srinivasa Rao, V Satyanarayana Rao, M Lal Ahamed and M V Ramana
Department of Genetics and Plant Breeding, Agricultural College, Bapatla 522101,
Andhra Pradesh

ABSTRACT

Correlation and path coefficient analyses were carried out with fifty four genotypes of castor for yield and component traits. The character association studies revealed that total length of primary raceme, effective length of primary raceme, total length of secondary raceme, effective length of secondary raceme, tertiary branches plant⁻¹, nodes to tertiary raceme, stem length to tertiary raceme, effective length of tertiary raceme, 100 seed weight of primary raceme, 100 seed weight of secondary raceme, 100 seed weight of tertiary raceme, oil content, harvest index, seed yield plant⁻¹ at 120 days and seed yield plant⁻¹ upto 150 days showed significant positive association with seed yield plant⁻¹ upto 180 days at both genotypic and phenotypic levels. Path coefficient analysis revealed that harvest index, seed yield plant⁻¹ upto 150 days,

tertiary branches plant⁻¹ and 100 seed weight of primary raceme exerted highest direct effect on seed yield plant⁻¹ upto 180 days.

Key words : Castor, Character Association, Path analysis

Comparative Studies of Sewage Sludge, Urban Compost and FYM on Yield and Quality of Tomato (*Lycopersicon esculentum* Mill.) Fruit

P Kavitha , A Ravi Chandra Reddy and K Jeevan Rao

Department of Soil Science and Agricultural Chemistry, College of Agriculture ,
Acharya N.G. Ranga Agricultural University, Rajendranagar, Hyderabad 500 030,
Andhra Pradesh

ABSTRACT

Effect of sewage sludge, urban compost and FYM @ 0, 20 and 40 t ha⁻¹ on yield and quality of fruit (ascorbic acid, total soluble solids, protein content and heavy metal content viz., Zn, Cu, Ni, Cr, Pb and Cd) in tomato during kharif season of 2003 under green house condition was studied. Results showed that the addition of sewage sludge and urban compost @ 40 t ha⁻¹ did not show any detrimental effect on the yield and quality parameters viz., TSS, ascorbic acid and protein content, although it increased the heavy metal content in tomato fruit. However, the concentrations of heavy metals were below the safe limits. Increasing levels of fertilizers from zero fertilizer application to 100 per cent recommended dose of fertilizers (RDF) as well as manure (0 to 40 t ha⁻¹) addition significantly increased the yield and quality parameters. Among the manures, the sewage sludge was superior in increasing the yield and quality parameters. Combined application of manures and fertilizers increased the yield and quality parameters. Among all the combinations, the highest yield and quality parameters were obtained with sewage sludge @40 t ha⁻¹ along with 100 per cent RDF, closely followed by sewage sludge @40 t ha⁻¹ along with 75 per cent RDF.

Key words : FYM, Sewage Sludge, Tomato, Urban Compost, Yield and Quality of Fruit.

Socio-personal Characteristics of Televiewing Rural Women

Uma S Hiremath and A S Balasubramanya

Department of Mass Communication and Journalism, Karnataka University, Dharwad 580 003,
Karnataka

ABSTRACT

The research study was conducted to know the socio-personal characteristics of televiewing rural women in Belgaum, Dharwad, Gadag and Haveri districts of northern part of Karnataka state. Findings revealed that majority of the respondents belonged to middle age group, illiterate, married, medium and nuclear families, working as agricultural labour and low income group. Cent per cent of the respondents owned Television with cable connection. More than half of the respondents were members for self help groups followed by anganwadi. Nearly fifty per cent of the respondents have contacted nearest urban places once in a fortnight.

Key words : Mass-media, Rural Women, Socio-personal Characteristics, Television Viewing

Attitude of Tribal Farmers on Indigenous Technical Knowledge and their Blending with Modern Technologies

Lakshmana Kella, P Venkata Ramaiah and P Punna Rao

Department of Agricultural Extension, Agricultural College, Naira 532 185, Srikakulam,
Andhra Pradesh

ABSTRACT

A study on farmer's attitude on Indigenous Technical Knowledge and their blending with modern technologies was conducted with 180 tribal farmers randomly selected from the five districts of high altitude and tribal area zone of Andhra Pradesh. The attitude scale was constructed with 24 statements. The results showed that 65.56% had favourable attitude followed by neutral attitude (17.78%), unfavourable attitude (7.78%), highly favourable attitude (5.55%) and highly unfavourable attitude (3.33%) towards Indigenous Technical Knowledge and their blending with modern technologies. These findings indicated that the tribal farmers are very much aware about the existence of Indigenous Technical Knowledge and their blended technologies and also convenced on their effectiveness as alternative to modern technologies.

Key words : High Altitude, Indigenous Technical Knowledge, Modern Techonologies, Tribal Area Zone, Tribal Farmers, Tribal People

Relationship Between Personal Variables and Emotional Intelligence Levels of Married Couples

S Prasanthi and M Sarada Devi

College of Home Science, Saifabad, Hyderabad 500 004, Andhra Pradesh

ABSTRACT

The present study was under taken to find out the relationship between emotional intelligence levels and personal variables. The total sample comprised 240 couples of Chittoor district of Andhra Pradesh. The results revealed that personal variables- age, type of marriage, marital age and age of children were negatively correlated with emotional intelligence levels whereas education, occupation, income, age at marriage, religion and caste were positively correlated with emotional intelligence levels of the respondents

Key words : Emotional Intelligence, Marriage, Personal Variables

Forecasting Prices of Paddy in Nalgonda District of Andhra Pradesh

V Rajendra Prasad, M Govardhan and D Raja Ram Reddy

AICRP on Cropping Systems Research, Acharya N.G.Ranga Agricultural University, Rajendranagar, Hyderabad 500 030, Andhra Pradesh

ABSTRACT

An attempt was made to forecast the congenial time for marketing paddy in Nalgonda district of Andhra Pradesh. Secondary data of monthwise weekend prices of rice from important market yards for the past five years *i.e.*, 2003 to 2007 of Nalgonda district was collected. Average of the data from all the important market yards was worked out to calculate the average monthwise weekend whole sale price of the district. Weekend average price and their standard deviation (S.D) were calculated and arranged in descending order from highest average price, lowest S.D to lowest average price, highest S.D. The congenial time for marketing of Kharif paddy in Nalgonda district would be 3rd week of December followed by 1st week of January to realize remunerative prices by the farming community. The congenial time for marketing of *Rabi* paddy would be first week followed by 2nd week of June. For farmers who can store and market the *Kharif* and *Rabi* produce together the congenial time would be 1st followed by 2nd week of June. This sort of commoditywise and area wise forecasting could also be useful for managers of public and private sectors engaged in farm business for marketing purposes.

Key words : Paddy, Price Forecasting

Research Note

Genetic Variability, Correlation and Path Analyses for Yield and Fibre Characters in Cotton (*Gossypium hirsutum* L.).

S Rajamani Ch Mallikarjuna Rao R Krishna Naik

**Standard Heterosis for Seed Cotton Yield and Component Traits
in Upland Cotton (*Gossypium hirsutum* L.)**

Mahantesh, M Lal Ahamed, C Panduranga Rao and J S V Samba Murthy

**Variability and Character Association Analyses in Safflower
(*Carthamus tinctorius* L.)**

D Shivani , Ch Sreelakshmi , C V Sameer Kumar and M Suresh

**Screening Pigeonpea Genotypes against Gram Pod Borer
(*Helicoverpa armigera*) in Warangal, Andhra Pradesh**

S Malathi, K V Radhakrishna and M Malla Reddy

**Field Evaluation of Elite Pigeonpea Genotypes Against Pod
Borer (*Helicoverpa armigera*)**

Ch Sreelakshmi, C V Sameer Kumar, D Shivani and M Suresh

Constraints in Adoption of IPM Practices by the Paddy Farmers

M S Rao , M Satyanarayana and Ch Pragathi Kumari

**If you need Complete Article, Please contact the
Secretary / Editor or send a request to
andhraagriculturalunion@yahoo.co.in**