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Growth and Yield of Baby corn (*Zea mays* L.) as influenced by Intercropping with Fodders

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ABSTRACT

A field experiment was carried out at the Agricultural College Farm, Bapatla to study the Baby corn (*Zea mays* L.) performance as Vegetable-cum-fodder in intercropping with fodders during rabi, 2006-07. Among all the treatments, paired row planting of baby corn resulted in significantly higher number of ears plant⁻¹, ear weight and baby corn yield and it was found to be on a par with normal row planting of baby corn. However, introducing cowpea as an intercrop in paired rows of baby corn was beneficial with higher baby corn ear equivalent yield, total drymatter accumulation and total green and dry fodder yields without any reduction in ear yield.

Key words : Baby corn, Fodder corn, Intercropping pattern.

Performance of Cotton Hybrids (*Gossypium hirsutum* L.) under different spacings and Nitrogen levels in Black Cotton Soils of Coastal Andhra Pradesh

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ABSTRACT

A field experiment was conducted during *kharif* 2007 to find out the optimum spacing and nitrogen levels for prereleased cotton hybrid *viz.*, INDAM 178 along with check entry NCS 145. Wider row spacing of 120 x 60 cm recorded significantly more plant height and number of bolls per plant as compared to closer spacing of 90 x 60 cm. Similarly, wider plant spacing with same row spacing of 90 x 90 cm recorded significantly higher plant height and more number of bolls plant⁻¹ than that of closer plant spacing in intra row of 90 x 60 cm. Growth and yield contributing characters significantly improved on increase in nitrogen levels. Of the two hybrids tested, INDAM 178 recorded significantly higher seed cotton yield than NCS 145. Similar trend was observed in economic point of view, where INDAM 178 recorded more net returns of Rs 3,300 ha⁻¹ and BCR of 2.0 as compared to NCS 145.

Key words : Cotton, Nitrogen levels, Spacing.

Genetic Divergence in Rice

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ABSTRACT

Genetic divergence study of 72 genotypes of rice for 10 agronomic and grain quality traits led to their grouping into 9 clusters. Grouping of the genotypes evolved from the same location into different clusters indicated the presence of good amount of genetic diversity. Highest contribution to the genetic diversity was through 100-grain weight followed by Kernel length and grains per panicle. The clusters VII and IX were highly divergent. The other clusters with moderate divergence and having few genotypes were

III and VI. Based on the inter-cluster distance, mean performance and clustering pattern, hybridization between, JGL 1806, JGL 384, JGL 3947, JGL 1881, INRC - 1711, JGL 2984 and JGL 2948 is likely to give recombinants having high yield potential and high grain quality.

Key words : Genetic divergence, Quality, Rice.

Correlation and Path Analysis over Environments in Finger Millet [*Eleusine coracana* (L.) Gaertn]

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ABSTRACT

Correlation and path coefficient analysis were carried out using 18 genotypes of finger millet in 14 environments. Plant height, 1000 seed weight, productive tillers per plant, yield per plot, straw yield per plot, volume of root in mainfield, fingers per ear, volume of shoot in main field and weight of shoot in main field were positively correlated with seed yield over environments. The positive correlation of ear weight per plant, 1000 seed weight, yield per plot, volume of shoot in main field and weight of shoot in main field with seed yield and among themselves for these characters was observed suggesting that these are the major yield contributing traits in finger millet. Path coefficient analysis also showed direct positive contribution of ear weight per plant, 1000 seed weight, yield per plot, straw yield per plot, volume of root in main field, volume of shoot in main field and weight of shoot in main field on seed yield. These traits deserve special emphasis in selection while selecting for improvement in seed yield of finger millet.

Key words : Correlation, Finger Millet, Path Analysis.

Phenotypic Stability Analysis in Sesamum (*Sesamum indicum* L.) utilizing Regression and AMMI models

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ABSTRACT

Genotype-environment interaction was studied for seed yield in 10 genotypes of sesame during *khari* 2006 and *rabi* 2006-07. Significant genotype and environment interaction was observed for all the characters except harvest index and oil content. Both linear and non-linear components of GXE interaction were found to be significant for all the characters. None of the genotypes exhibited stable performance for all the traits, however, genotypes Nellore Brown Local and Madhavi were stable for both seed yield per plant and seed yield per plot. The analysis of variance exhibited that all the three sources *i.e.*, genotype main effect, environmental additive effect, GXE (non-additive effects) and IPCA 1 have significant effects for days to 50% flowering, 1000-seed weight, seed yield per plot and harvest index. In AMMI 1 biplot, the genotypes BPT Local and Nellore BrownLocal for days to 50% flowering, YLM-11 and EC 358022 for 1000-seed weight, Madhavi and Nellore Brown Local for seed yield per plot and harvest index were stable. In AMMI 2 biplot, genotype Vinayak for days to 50% flowering, EC 358022 and Vinayak for 1000-seed weight, Nellore Brown Local for seed yield per plot and harvest index were nearer to the IPCA origin hence, these genotypes were stable over environments.

Key words : AMMI, Sesamum, Stability.

Principal Component and Cluster analysis in Chickpea (*Cicer arietinum* L.)

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ABSTRACT

Seventy genotypes of chickpea were evaluated to study genetic divergence by using principal component and cluster analysis. These genotypes were grouped into 9 clusters. Principal components with eigen values more than the one contributed 89.34 per cent of the cumulative variance. Higher inter cluster distance was observed between cluster IV and IX followed by cluster IV and VI. In hierarchical cluster analysis the clustering pattern of genotypes was to be independent of their eco-geographical origin.

Key words : Chickpea, Cluster Analysis, Genetic Divergence, Principal Component Analysis.

Cytoplasmic Heterosis of Yield and Yield Components in Rice Hybrids

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ABSTRACT

Thirty- two aF₁ and thirty- two bF₁ rice hybrids were evaluated in two seasons to study the effects of wild abortive and ARC sources of male sterile cytoplasm on cytoplasmic heterosis (%) of grain yield and yield components. Four aF₁ hybrids in kharif season and eleven aF₁ hybrids in rabi season were considered to be promising as they registered >20% yield increase than their fertile counterparts. Of them APMS1A x WGL3962, IR67683A x Vajram and IR62829A x IR46 were the top three hybrids registered consistent cytoplasmic heterosis for grain yield. The results inferred that both wild abortive and ARC cytoplasm were observed to be suitable for practical breeding if judicious selection of appropriate male parent and cytoplasm combination is identified to ensure the required heterotic effect on grain yield. Significant positive cytoplasmic heterosis of yield components viz., fertile spikelets per panicle, 1000- grain weight, panicle length, ear bearing tillers per plant, and harvest index contributed towards positive cytoplasmic heterosis of grain yield of aF₁ hybrids.

Key words : aF₁ and bF₁ hybrids, ARC Cytoplasm, Cytoplasmic heterosis, Wild abortive cytoplasm.

Inter-relationships among Yield Contributing Characters in Sugarcane (*Saccharum spp.*)

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ABSTRACT

Plant height at 240 DAP, length of millable cane, single cane weight, number of millable canes, cane yield and per cent sucrose had significant and positive correlations with sugar yield both at phenotypic level. Associations among plant height with length of millable cane, single cane weight and cane yield, shoot population at 120 DAP with stalk population at 240 DAP and number of millable canes; stalk population at 240 DAP with number of millable canes; length of millable canes with single cane weight and number of millable canes and single cane weight with diameter of cane were positive and significant. Per cent juice sucrose showed non significant correlations with all the yield components. The association of number of millable canes with diameter of cane and cane weight was negative but non significant. Single cane weight and shoot population at 120 DAP had negative direct effect on sugar yield. Cane-yield followed by per cent sucrose, plant height and diameter of cane had higher positive direct effects on sugar yield. Plant height at 240 DAP via length of millable cane, single cane weight and number of millable canes showed higher positive indirect effects on sugar yield. Cane yield followed by per cent sucrose, plant height at 240 DAP, length of millable cane, diameter of cane, single cane weight and number of millable canes are the major contributing component traits of sugar yield in sugarcane.

Key words : Correlations, Path Analysis, Sugarcane.

Effect of Phorate on Phosphomonoesterase Activity in Red and Black Soils using Cowpea as a Test Crop

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ABSTRACT

A pot culture experiment was conducted in red and black soil to evaluate the effect of insecticides on soil phosphomonoesterase (acid phosphatase and alkaline phosphatase) activity using Cowpea as a test crop. The soil applied insecticide viz., Phorate @ 1.0 and 2.0 kg ha⁻¹ in red soil and Phorate @ 2.0 kg ha⁻¹ and 4.0 kg ha⁻¹ along with untreated control in black soil were used in the study. The results indicated that Phorate applied @ 1.0 kg ha⁻¹ in red soil and 2.0 kg ha⁻¹ in black soil resulted in significant increase in the acid and alkaline phosphatase activity from 0-45 days after sowing. Both the phosphatases exhibited three to four fold increased activity at its peak compared to control. Application of Phorate at higher rates resulted in reduced activity of acid and alkaline phosphatases. The decreased activity might be related to proteolysis of non-stabilized extra-cellular enzymes.

Key words : Cowpea, Phorate, Phosphomonoesterase activity.

Preparation of Leaching Curves for Soils of drainage pilot area, Kalipatnam, West Godavari district of Andhra Pradesh : Laboratory Column Study

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ABSTRACT

In this study water requirement for leaching of soils of Kalipatnam drainage pilot area were estimated in the laboratory column experiment. With application of 30 cm of water about 86% of salts are leached. pH of drained water gradually increased to 9.28 at 30 cm of water application from initial pH of 7.39 indicates the saline sodic nature of the soil. With incremental addition of water, Mg/Ca ratio of drained water reduced from 5.32 to 0.50. Majority of calcium, magnesium and chlorides leached with initial stages of leaching process.

Key words : Laboratory column study, Leaching curves, Saline sodic soil.

Comparison of Crop water requirement with actual water applied in Kalipatnam Extension Channel Command of Godavari Western Delta

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ABSTRACT

The water requirement studies of rice crop in *Kharif* and *Rabi* seasons of Kalipatnam Extension Channel command of Godavari Western delta was done for the years 2005-06 and 2006-07 by a computer simulation model called CRIWAR. The study revealed that farmers are applying 45 to 55% excess quantity of water during *Kharif* seasons and 2 to 8% more than crop water requirement in *Rabi* season. In spite of applying more quantity of water, there is no positive effect on crop yield. This indicates that applying excess water is not advantageous and instead it is the wastage of valuable water resource.

Key words : : Actual water applied, Command area, Crop water requirement.

Comparative efficacy of selected insecticides against Jassids on Brinjal

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ABSTRACT

Novel insecticides like Dimilin, Bactospeine and Repelin were used alone at the recommended concentrations and at half the dose in combination with conventionals like fenpropathrin, mono crotophos and carbaryl against jassids on brinjal. During the crop period three sprays were given and observations recorded at 1, 5, 10 and 14 days after spraying. Among all the 16 treatments tested, conventionals alone brought down the populations drastically at one day after spraying, among which fenpropathrin was the best. Combinations proved effective than conventionals alone from five days after spray and among them diflubenzuron + fenpropathrin, diflubenzuron + monocrotophos, bactospeine + fenpropathrin, bactospeine + monocrotophos were the most effective.

Key words : Combinations, Conventionals, Efficacy, Mean population reduction, Novel insecticides.

Effect of Certain Plant Oils on the Viability and persistent Toxicity of *Bacillus thuringiensis* var, *kurstaki* Kurstak against *Spodoptera litura* (Fab.)

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ABSTRACT

The field persistent toxicity of *Bacillus thuringiensis* var, *kurstaki* Kurstak (B t K; Delfin WG, Serotype-3a, 3b, SA 11) in combination with plant oils such as cottonseed oil (*Gossypium hirsutum* L.) neem oil (*Azadiracgata india* A. Juss.), sesamum oil (*Sesamum indicum* L.), citronella oil (*Cymbopogan winterianus* Stapf.) and karanj oil (*Pongamia glabra* Vent.) against third instar larvae of *Spodoptera litura* (Fab.) revealed at one, three and five days after treatment that B.t.k 0.2% + neem oil 5% recorded significantly the highest larval mortality (65.0 to 77.5%), whereas at seven and nine days after treatment, significantly the highest larval mortality was observed in B.t.k 0.2% + cottonseed oil 5% (40.0 and 13.3%, respectively). The combinations of B.t.k with plant oils tested for viability revealed that B.t.k. 0.2% + cottonseed oil 5% recorded the highest number of viable spores at three, five, seven and nine days after application that ranged from 16.3×10^4 to 35.3×10^4 , when compared to B.t.k. combinations with neem oil 5%, citronella oil 5%, karanj oil 5% and sesamum oil 5% (7.3 to 30.0×10^4).

Key words : *Bacillus thuringiensis*, Persistent Toxicity, Plant Oils, Viability.

Studies on the Efficacy of Certain New Insecticides on the Major Insect Pests and their Effect on Natural Predators in Pigeon Pea Ecosystem*

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ABSTRACT

Indoxacarb 0.0145% and thiodicarb 0.075% were highly effective against all the pod borers of pigeonpea. The chemicals spinosad 0.0225% and novaluron 0.01% though not effective by one day after treatment showed their efficacy by the fifth day and performed better. Profenofos registered a moderate efficacy against all the pests of pigeonpea while endosulfan recorded a moderate efficacy on *M. vitrata* and

M. obtusa but failed in checking the population of *H. armigera*. HaNPV being specific registered a moderate efficacy against *H. armigera* but showed no effect on *M. vitrata* and *M. obtusa*. Azadirachtin and *B. t* were the less effective chemicals for all the pests under study. Regarding the toxicity of treatments against natural enemies, treatments HaNPV, B.t, azadirachtin, novaluron proved to be safe to coccinellids and spiders by recording less than 20 per cent reduction over untreated control. Spinosad and endosulfan were found relatively safe to natural enemies. Indoxacarb and thiodicarb were moderately toxic while profenofos was toxic to the coccinellids and spiders in pigeonpea ecosystem.

Key words : *H. armigera*, Pigeon Pea, *M. obtusa*, *M. vitrata*.

Proline and Total Protein Status as an Indication of Salinity Tolerance in Rice

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ABSTRACT

To elucidate the effects of salinity stress in rice, three different salinity tolerant varieties Jaya, Dandi, CSR-27 and one sensitive variety GR-3, were selected. Fifteen day old seedlings of these cultivars were exposed to 0, 100,150 and 200 mM of NaCl for 24, 48 and 72hr. Study on biochemical parameters revealed that Protein content was increased up to 150 mM, there after it decreased, proline content continuously increased with salinity levels in all the varieties. From this investigation, it can be concluded that tolerant varieties showed high values of proline and protein contents under salt stress conditions than sensitive variety. From this research we proved that GR-3 is sensitive to salt stress as well as remaining three cultivars jaya, Dandi and CSR-27 are tolerant.

Key words : Proline, Protein, Rice, Salinity.

Differential Sensitivity of *Colletotrichum capsici* (Syd.) Butler & Bisby isolates to mancozeb

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ABSTRACT

Twenty-one isolates (Cc_1 to Cc_{21}) of *Colletotrichum capsici* (Syd.) Butler & Bisby collected from three different locations each in seven major chilli growing districts of Andhra Pradesh were characterized for their sensitivity to the mancozeb. The isolates obtained from various localities differed significantly in their sensitivities towards this fungicide. The mycelial growth of Cc_9 was inhibited by 72.08 per cent at 1 mg / ml while that of Cc_6 and Cc_{17} was inhibited least (4.05 % and 6.52 %) at this concentration. At 10mg / ml of mancozeb, Cc_9 was inhibited more (87.08) whereas the isolates Cc_6 and Cc_{17} gave least inhibition (12.61 and 12.23 respectively) of mycelial growth. Complete growth inhibition of Cc_9 of isolate was observed at 25mg / ml concentration at which the isolates Cc_6 and Cc_{17} gave only 31.08 and 30.16 per cent growth inhibition respectively. At 50 and 100 mg / ml concentrations minimum growth inhibition was noticed in the isolate Cc_{20} (30.83 and 32.91 respectively). The rate at which the mycelial growth inhibition occurs across the concentrations was less in Cc_4 and Cc_5 isolates. Except the isolates Cc_{17} , Cc_{20} and Cc_{21} all the other isolates showed 100 per cent growth inhibition at 500mg / ml while Cc_{17} was inhibited to an extent of 55.91 per cent even at 1000mg / ml of mancozeb concentration.

Key words : Chilli, *Colletotrichum capsici*, die-back, Fruit rot, Fungicide sensitivity.

Protein Profiling of *Escherichia coli* in response to Carbon source variation

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ABSTRACT

The response of *E.coli* to carbon source variation is well understood and it is commonly used as model biological system when validating an analytical method. We have characterized the proteins isolated from *E.coli* grown in glucose, lactose and acetate by using two dimensional polyacrylamide gel electrophoresis (2D-PAGE). The quantitative results obtained from our study (unpublished data) were comparable to other existing protein profiling and transcriptional profiling approaches.

Key words : Carbon metabolism, *E.coli*, Protein profiles.

**Evaluation of seedling and clonal progenies of Tamarind
(*Tamarindus indica*)**

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ABSTRACT

In tamarind wide variation in yield and other characters is observed in different genotypes and naturally existing trees. Therefore to know the extent of variability in tamarind of both clonal and seedling progenies, were evaluated during 2002 and 2003 at Kittur Rani Channamma College of Horticulture at Arabhavi of University of Agricultural Sciences, Dharwad. Among the twenty clonal and sixteen seedling progenies significant variation existed for growth of tree, crown size, tree height, tree girth with orthotropic and plageotropic nature of growth habit. Clonal progenies expressed significant variability for pod characters such as pod length, width thickness, pod weight, pulp weight, etc., where as, there was not much variability in pod characters of seedling progenies. Among sixteen genotypes only six and 12 out of 20 clonal genotypes flowered and fruited at 6th year of planting. The pulp characters in clonal progenies found to be higher than that of seedling progenies in the content of tartaric and ascorbic acids. Clonal progenies were higher than seedling progenies in better qualities of pods. The genotype NTI-19 resulted in higher pod yield and pulp yield in both seedling and clonal progenies.

Key words : Clonal Progenies, Seedling Progenies, Tamarind.

**Effect of Organic and Bio-Nutrition on the Root Yield of Coleus
(*Coleus forskohlii* Briq)**

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ABSTRACT

Field experiment was conducted during rabi season of 2005-06 at Agricultural College Farm, Bapatla to study the effect of organic and bio-nutrition on the root yield of coleus (*Coleus forskohlii* Briq). Results of the investigation revealed that maximum growth, development, root yield and nutrient uptake were increased significantly by the combined use of organic manures and bio fertilizers i.e. FYM 2.6 tonnes ha⁻¹ vermicompost 0.4 tonnes ha⁻¹ + azospirillum 2.2 kg ha⁻¹.

Key words : Bio-Nutrition, Coleus, Organic.

Influence of Micro Nutrients on Fruit quality of Ber

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ABSTRACT

An experiment was carried out to study the effect of certain micronutrients on fruit quality of Ber cv. Umran at village Manda Bhinda near Jaipur district (Rajasthan) during the year 2005-06. The experiment was laid out in a randomized block design with ten treatment combinations involving three levels of FeSO₄, Fe-EDTA and borax (FeSO₄ and FeEDTA 20, 30 and 40g plant⁻¹, respectively and borax 10, 20 and 30 g plant⁻¹) except control. The higher level of FeEDTA (40 g plant⁻¹) increased the fruit parameters i.e. length of fruit (4.88 cm), width of fruit (3.98 cm), fruit weight (32.74 g), pulp weight (30.77 g), stone weight (1.97 g) and pulp to stone ratio (15.61). It also produced favourable effect on fruit quality in terms of TSS (18.20%), ascorbic acid (102.08 mg 100g⁻¹) and non-reducing sugars (3.84%), whereas in terms of reducing sugars (7.02) the higher level of borax (30 g plant⁻¹) and in acidity (0.220%) FeEDTA 30 g plant⁻¹ gave significantly better results compared to rest of the treatments.

Key words : Ber, Borax, FeEDTA, FeSO₄, Micronutrients

Fertilizer use pattern and efficiency on different size groups of paddy farms in Guntur district of Andhra Pradesh

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ABSTRACT

The nitrogen usage was significantly more than the economic optimum i.e., over-use on all farms of both *kharif* and *rabi* except for small farms where it is under-use. The phosphorus use on all farms of both *kharif* and *rabi* was significantly more than the economic optimum and it was negative for large farms. It was under-use in case of small farms. On all farms of both *kharif* and *rabi*, the usage of potassium was in excess except for small farms of *kharif* where it was under-used. It was negative on large farms of *kharif*. The component pesticides on all the farms in *kharif* and *rabi* was being excessively used except for large farms of *kharif* where its usage was less than optimum. The usage of the component human labour on all farms of both *kharif* and *rabi* was excess and it was negative for large farms of *kharif*. The component irrigation on all the farms of both *kharif* and *rabi* was excessively used. But the average farms of *rabi* was an exception and it was used less than the economic level.

Key words : Fertilizer use pattern, Paddy farms

Evaluation of Economic and Yield Sustainability in 'SRI' cultivation of Rice in Andhra Pradesh

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ABSTRACT

A Study has been undertaken in Andhra Pradesh to assess the yield and economic sustainability of 'SRI' method Vis-a-vis the conventional method of cultivation of paddy based on the secondary data extracted from the edited publication viz. Farmers experiences in SRI cultivation, of Acharya N.G. Ranga Agricultural University and WWF – ICRISAT project, Hyderabad. The methodology developed by Kiresur *et al.*, (1995) was adopted to calculate the Sustainability indices for yield and net returns of 'SRI' technology in Rice. Sustainability indices of the 'SRI' technology against conventional method varied from 63% to 154% in case of yield and 47% to 227 % in case of net returns. Inverse relationship was observed between the variation in the SI's of different crop growing situations and the overall sustainability of the technology. 'SRI' technology for Rice cultivation was fairly sustainable both in terms of net returns and yield across the agro-ecological and crop growing situations of Andhra Pradesh. However, location specific improvement of

package of practices and educating the farmers about the package of practices will ensure sustainable yields and net returns needed at macro and micro levels respectively.

Key words : Economic Sustainability, SRI cultivation, Yield Sustainability.

Profile Characteristics of Farmers Participated in Watershed Project

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ABSTRACT

The study was conducted in Tumkur district of Karnataka at watershed project. Majority of participated farmers were studied up to primary school (49.17%) and found medium in all independent variables like decision making (59.17%), empowerment (67.50%), change proneness (65%), communication behaviour (62.05%), value orientation (57.50%) and self reliance (70.83%).

Key words : Change proneness, Education, Profile Characteristics..

Research Note

Genotype and Potassium fertilizer interaction in Rabi Sorghum

C Sudha Rani, C Sudhakar, A K Patibanda and S Ravi Kumar

Variability and Genetic Parameters for Yield and Yield Components in Rice (*Oryza sativa*)

Subhash C Yadav , Manish K Pandey and B G Suresh

Evaluation of Certain new Insecticides Against Mealybug (*Maconellicoccus hirsutus* Green) on Mesta

P Seeta Ramu, A K Raju and V Raja Bapa Rao

Screening of turmeric cultivars against leaf spot and leaf blotch diseases

G Bindu Madhavi, S L Bhattiprolu and V Bali Reddy

Browsing Internet by the Students of Agricultural College, Bapatla - A Case Study

P B Pradeep Kumar, G Sivanarayana, Ch Ramesh Babu and R Srinivasulu

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