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### Effect of Tillage and Herbicide Use on Weed Management in Maize (*Zea mays*. L)

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#### ABSTRACT

A field experiment was conducted on clay loam soils of the Agricultural College Farm, Bapatla, during rabi, 2009-10 under irrigated conditions. The treatments consisted of two systems of tillage and eight weed control methods. Application of either atrazine @ 1.25 kg a.i ha<sup>-1</sup> or pendimethalin @ 1.5 kg a.i ha<sup>-1</sup> in combination with paraquat @ 0.6 kg a.i ha<sup>-1</sup> at 3 weeks after sowing (WAS) recorded lower weed density (16.67 m<sup>-2</sup>) and drymatter comparable with that of two handweeding and intercultivation with power weeder at 4 WAS. The higher weed control efficiency with lower weed index (21.3%) was noticed with application of atrazine @ 1.25 kg a.i ha<sup>-1</sup> + paraquat @ 0.6 kg a.i ha<sup>-1</sup> application followed by pendimethalin @ 1.5 kg a.i ha<sup>-1</sup> + paraquat @ 0.6 kg a.i ha<sup>-1</sup> and these were on a par with that of weed free check and intercultivation with power weeder. Apart from weed free check and intercultivation with power weeder, pre-emergence application of atrazine @ 1.5 kg a.i ha<sup>-1</sup> or pendimethalin @ 1.5 kg a.i ha<sup>-1</sup> in combination with paraquat recorded significantly taller plants, higher drymatter and higher N, P and K uptake by weeds over the application of atrazine or pendimethalin alone.

**Key words** : Nutrient uptake, Tillage, Weed density, Weed drymatter.

### On Farm Evaluation of Post Emergence Herbicides for Control of *Echinochloa* spp. in Rice Fallow Blackgram (*Vigna radiata* L)

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#### ABSTRACT

An on farm trial was conducted on farmers' fields in Krishna Western Delta of Guntur district in Andhra Pradesh at two locations each during rabi 2003-04 and 2004-05 to evaluate the efficacy of post emergence herbicides to control *Echinochloa* spp in rice fallow black gram. Results indicated that all the post emergence herbicides effectively controlled *Echinochloa* spp. with a WCE ranging from 83 to 90 per cent and also increased the grain yield ranging from 40 to 47 per cent when compared to weedy check. Among the herbicides, post emergence application of cladinofop propargyl 52.5 g/ha recorded the highest seed yield (922kg/ha) but considering economics, fenoxaprop ethyl 56.25 g/ha was found to be the most economical with an ICBR of 3.93.

**Key words** : Echinocloa sp., Rice fallow black gram, Post emergence herbicides.

## **Bio-efficacy of Quizalofop Ethyl on *Echinochloa colona* Control in Rice-Fallow Blackgram**

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### **ABSTRACT**

A field experiment was conducted during rabi season of 2004-05 to study the bio efficacy of quizalofop ethyl at seven rates (30, 40, 50, 60, 70, 80, and 90 g/ha) on *Echinochloa* spp. control in rice-fallow black gram in comparison with fenoxaprop ethyl 56 g/ha, hand weeding at 15 and 30 days after sowing (DAS) and weedy check in a randomized block design with three replications. Results indicated that Post emergence application of quizalofop ethyl at 30 to 90 g/ha applied at 17 DAS significantly reduced *Echinochloa* spp. growth and increased black gram yield ranging from 19 to 45 percent over weedy check without any crop injury. Among the different doses, quizalofop ethyl at 50 g/ha recorded the highest seed yield (1877 kg/ha), net monetary returns (Rs. 35,625/ha) and B:C ratio of 3.15 and was on par with hand weeding at 15 and 30 DAS, which recorded the highest seed yield of 1928 kg/ha among all the treatments. The unchecked weed growth throughout the crop growing period caused 33 percent reduction in seed yield compared to hand weeding at 15 and 30 DAS.

**Key words** : Quizalofop ethyl, Rice fallow black gram.

## **Influence of Rice-Zero Tillage Maize System on Productivity and Soil Fertility Status**

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### **ABSTRACT**

Field experiments were conducted on sandy clay loam soils at Agricultural college farm of Acharya N.G. Ranga Agricultural University Rajendranagar, Hyderabad, during *kharif* and *rabi* seasons on the evaluation of package to *kharif* rice and zero till sequential maize on the productivity of newly evolved rice-till sequential zero-till maize in southern telangana zone of Andhra Pradesh. A long duration rice variety, higher recommended dose of nitrogen level of 125 % and granular form of urea recorded higher rice yield. The final nutrient status of the soil revealed that among rice varieties Tellahamsa left the soil with higher N, P and K status when compared to BPT-5204 and Early samba. The performance of *rabi* sequence crops under zero tillage were not influenced by duration of rice varieties of *kharif* season. Their performance on the basis of rice equivalent yield and net returns revealed that the new rice-zero tillage maize irrespective of weedicide treatment was superior over existing rice-pulse sequence. However, the sequential zero-till maize irrespective of the weedicide treatment showed lower fertility status as compared to traditional rice-pulse sequence warranting inclusion of third sequence short season legume or green leaf of manuring or organic manures to restore original status and sustainability of the soil health.

**Key words** : Atrazine, Blackgram, Forms of urea, Greengram, Paraquat and *Rabi* maize,

## Genetic Divergence in Upland Cotton

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### ABSTRACT

Genetic divergence as measured by Mahalanobis  $D^2$  statistic was assessed among 60 genotypes of Upland cotton for eleven characters. The pattern of distribution of genotypes into different clusters was at random. The seed index contributed maximum towards genetic divergence followed by seed cotton yield per plant, plant height, boll weight and number of bolls per plant. The maximum inter-cluster distance was observed between clusters 3 and 6 (1671.909) followed by clusters 2 and 6 (1291.112) and clusters 6 and 8 (1241.931). The genotypes from these clusters can be utilized in cotton improvement programmes.

**Key words :** Cluster analysis, Cotton, Divergences,  $D^2$  Analysis, Principal component analysis.

## Genetic Analysis for Grain Quality Traits in Rice (*Oryza sativa* L.)

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### ABSTRACT

Gene action for grain quality traits in rice were studied in seven parents with early, medium and late duration. Gene action was estimated through Hayman's approach and revealed that both additive and non-additive gene action for traits viz., hulling per cent, head rice recovery, elongation ratio gelatinization temperature, amylose content, protein content. Non-additive gene action (dominant and epistasis) were predominant as compared to additive gene action which is easily transferred through hybridization in crop improvement programme. The positive and negative genes in the parents were distributed unequally for all the traits. Significant values of F for hulling per cent and protein content indicated asymmetrical distribution of dominant and recessive genes in the parents. High heritability in narrow sense was established for head rice recovery, gelatinization temperature, amylose content, iron content and yield per plant. Consequently any selection method adopted could lead to desirable improvement in the above mentioned traits. For varietal improvement Samba mahsuri was the best parent with good cooking quality traits. Vijetha and Indra are the best parents for getting good nutritional quality along with high yields.

**Key words :** Diallel, Gene action, Genetic components, Rice

# Correlation and Path Coefficient Analysis in Upland Cotton (*Gossypium hirsutum* L.)

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## ABSTRACT

The present study was conducted on correlation and path coefficient analysis for yield and yield contributing characters in upland cotton. The results of phenotypic and genotypic correlation analysis revealed that plant height, number of sympodia per plant, number of bolls per plant, boll weight and lint yield per plant were significantly and positively correlated with seed cotton yield per plant in present material. Path analysis indicated that lint yield per plant exhibited high direct positive effect on seed cotton yield per plant signifying the importance of this trait during selection for improvement of seed cotton yield of cotton.

**Key words :** Cotton, Correlation, Path analysis, Seed cotton yield

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

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## ABSTRACT

Twenty Italian millet genotypes were evaluated for several characters over 16 environments (8 sowing dates with 2 fertility levels). The analysis of variance of Eberhart and Russell indicated that  $G \times E$  interaction was significant for all 5 characters under study and that genotypes differed significantly. AMMI is a useful tool for interpreting genotype  $\times$  environment interaction in multi environment trials. Among the AMMI component first four IPCA axis were explained most of the portion of  $G \times E$  interaction than other IPCA axis for the five characters under study. The ANOVA indicated non-significant  $G \times E$  interaction for 1000 grain weight and ANOVA of (Eberhart and Russell, 1966) indicated non-significant  $G \times E$  (linear) interaction for productive tillers per plant, ear length, 1000 grain weight, when tested against pooled deviation. As per AMMI analysis the IPCA<sub>1</sub> significantly contributed to productive tillers per plant, ear length, ear weight, 1000 grain weight and grain yield per plant while IPCA<sub>2</sub> contributed significantly to  $G \times E$  interaction for productive tillers per plant, ear length, ear weight and 1000 grain weight. This brings out clearly the advantage of AMMI ANOVA in bringing out  $G \times E$  interaction through IPCA<sub>1</sub>, which gets combined with error in the other two ANOVA and points out the utility of AMMI models in studying the significant  $G \times E$  interaction and identifying stable genotypes for characters which so undetected in the other analysis. According to AMMI analyses the genotypes GS 463 and GS 480 (for productive tillers plant<sup>-1</sup>); GS 477, GS 486 and SRL (for ear length); GS 467, GS 477, GS 479 and NSR (for ear weight); GS 440, GS 444 and NSR (for 1000 grain weight); most of the genotypes (for grain yield plant<sup>-1</sup>) were more stable as the IPCA score was near zero indicating less interaction with environments. According to Eberhart and Russell the genotypes GS 480 and GS 489 (for productive tillers plant<sup>-1</sup>); GS 487 and GS 444 (for ear length); GS 440 and GS 477 (for ear weight); SRL (1000 grain weight); GS 450 and GS 467 (for grain yield plant<sup>-1</sup>) showed stage performance.

**Key words :** AMMI, Foxtail millet, Stability.

# **Studies on Different Provenances on Sunflower (Morden) Seed Quality**

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## **ABSTRACT**

The seed production location is one of the important factor that influences the seed quality. Sunflower (Morden) seeds collected from twenty two locations comprising of four Agro climatic Zones (Nine districts) of Karnataka were tested for seed germination, electrical conductivity, seed size, seed test weight, seed density and seed oil content. Seed collected from Northern Transition Zone (Dharawad and Haveri) showed superior performance for the quality parameters over other locations. Where as, seed collected from Northern Dry Zone (Bellary, Bijapur, Belgaum and Raichur) showed poor performance.

**Key words :** Seed quality, Sunflower

# **Effect of Different Organic Manures on Nutrient Uptake of Rice Grown in Saline Soils with Sub-Surface Drainage System**

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## **ABSTRACT**

A field experiment was carried out during *kharif*, 2005 to study the effect of different organic manures (FYM, Poultry manure, Pressmud, Green manure (dhaincha) and Green leaf manure (*Calotropis* sp.) on nutrient uptake of rice grown in saline soil with sub-surface drainage system using rice (var: BPT 1768) as test crop. The experiment was laid out in randomized block design (RBD) with four replications. The results revealed that the highest concentration and uptake of major nutrients viz. N, P and K were recorded with the application of FYM followed by green leaf manure, green manure, pressmud and poultry manure while the highest concentration and uptake of micronutrients viz. Zn, Fe, Mn and Cu were recorded with the application of FYM followed by green leaf manure, green manure, pressmud, poultry manure and control.

**Key words :** Nutrient uptake, Organic manures, Rice, Saline soils.

# Influence of Temperature and Humidity on the Incidence of Certain Pests of Cauliflower

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## ABSTRACT

A field experiment was conducted to study the seasonal incidence of tobacco caterpillar, *Spodoptera litura* (Fab.), diamondback moth, *Plutella xylostella* (Linn.) and aphid *Brevicoryne brassicae* (Linn.) on cauliflower at Agricultural College Farm, Bapatla during *rabi*, 2008-09. The incidence was recorded at weekly intervals from a total of forty plants from four different locations in the field. The peak incidence of *S. litura* (21.0 larvae/10 plants) on cauliflower was noticed during the last week of December, 2008, while in case of *P. xylostella* (17.2 larvae/10 plants) it was during the first week of January, 2009 and *B. brassicae* (18.3 aphids/10 plants) was during the first week of January, 2009. The relationship between the populations of *S. litura* larvae and the aphids, and the morning relative humidity was negative but significant. Where as the relationship between the *P. xylostella* larval population and, the morning relative humidity and maximum temperature was significantly positive and negative, respectively.

**Key words :** *Brevicoryne brassicae*, Cauliflowe, *Plutella xylostella*, *Spodoptera litura*.

# Evaluation of different Insecticides and their Spray Schedules Against Spotted Pod Borer, *Maruca vitrata* on Blackgram

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## ABSTRACT

A field experiment was conducted to evaluate the different insecticides and their spray schedules against spotted pod borer, *Maruca vitrata* (Geyer) (Pyralidae: Lepidoptera) on blackgram at Agricultural College Farm, Bapatla during *rabi* 2007-08. Among the chemical schedules ( $F_1$ ), the profenofos schedule ( $C_3$ ) recorded the lowest mean number of *M. vitrata* larvae (1.24) and damaged flowers/pods (1.61) per five plants and found effective. Among the spray interval schedules ( $F_2$ ), the four days interval spray schedule ( $D_1$ ) was found effective and has recorded the lowest number of *M. vitrata* larvae per five plants (0.80) and mean number of damaged flowers/pods per five plants (0.93). The interaction between the profenofos schedule and four days interval spray schedule *i.e.*  $C_3D_1$  was found effective and has recorded the lowest mean number of *M. vitrata* larvae (0.73) and damaged flowers /pods (0.67) per five plants. The grain yield was highest (1.73 t/ha) in the profenofos schedule and in four days interval spray schedule (1.75 t/ha) as well as in the interaction between profenofos and four days interval spray schedule ( $C_3D_1$ , Profenofos-Chlorpyrifos+Dichlorvos- Novaluron +Dichlorvos at 4 days interval) *i.e.* 2.0 t/ha. However, the BC ratio of profenofos at ten days interval schedule (1: 3.25) was found to be cost effective with profitable returns.

**Key words :** Blackgram, Insecticides and Spotted pod borer.

## Seasonal Incidence of Thrips and its Natural Enemies on Chilli (*Capsicum annum* L.) in Andhra Pradesh

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### ABSTRACT

The peak incidence of thrips was recorded during 1<sup>st</sup> standard week *i.e.*, (1<sup>st</sup> week of January) in both the seasons. Among the abiotic and biotic factors, maximum temperature, spiders and ladybird beetles were significant and positively correlated with thrips population while rainfall and evening relative humidity were negatively correlated with thrips population. The peak incidence of spiders was recorded during 51<sup>st</sup> standard week *i.e.*, (3<sup>rd</sup> week of December) and the peak incidence of ladybird beetles was recorded during first fortnight of December in both the seasons. Regression analysis shown that every increase in number of thrips population there was a corresponding increase of population of spiders and ladybird beetles.

**Key words** : Abiotic factors, Biotic, Chillies, Thrips and Seasonal incidence

## Dry Matter Production and Grain Yield in Rice Under SRI Cultivation

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### ABSTRACT

Two field experiments were conducted during *kharif* seasons of 2007 and 2008 at Wetland farm of S.V.Agricultural college Tirupathi to study the dry matter production and grain yield in rice under SRI cultivation .The results revealed that significant differences were observed among the cultivars and age of seedlings with regard to leaf ,stem ,root ,grain and , of total dry matter production at all stages of plant growth .Maximum leaf ,stem ,root ,grain and total dry matter and grain yield was produced by SRI-8 days followed by SRI-12 days and least was recorded in conventional method of 21 days .Among the cultivars tested ,BPT 5204 recorded higher dry matter production (133 g/plant ) and grain yield (7.75 t/ha) followed by DRRH 2 (119.2 g/plant and 7.3 t/ha) ,NLR145(107 g/plant and 6.96 t/ha) and BPT 3291(96.2 g/plant and 6.72 t/ha).The interaction between cultivars and age of seedlings was significant .

**Key words** : Grain yield, Harvest index, System of rice intensification (SRI), Total dry matter production.

# **Studies on Growth Analysis and Yield of Redgram Varieties in *Rabi***

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## **ABSTRACT**

A field experiment was conducted during *rabi* 2009-2010 to study the growth analysis and yield of red gram varieties in *rabi*. The results revealed that among early maturing varieties tested, Piler local recorded highest LAI (0.859), LAD (13.34 cm<sup>2</sup> day<sup>-1</sup>), RGR (0.043g g<sup>-1</sup>day<sup>-1</sup>), NAR (1.33 mg dm<sup>-2</sup> day<sup>-1</sup>), SLA (138 Cm<sup>2</sup>g<sup>-1</sup>), SCMR (51.9) and yield (1672 kg / ha) compared to other varieties at 90 DAS. Among late duration varieties, LRG 41 recorded highest leaf area index (0.938), leaf area duration (13.82 cm<sup>2</sup> day<sup>-1</sup>), NAR (1.08 mg dm<sup>-2</sup> day<sup>-1</sup>). SCMR (55.6) and seed yield (1862 kg/ha) compared to other varieties.

**Key words** : Growth analysis, Harvest index, Leaf area index, Net assimilation rate, Seed yield, SCMR. .

# **Metal Road Ring for Tractor Cage Wheels to Prevent Road Damage**

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## **ABSTRACT**

Puddling with cage wheels is more common in India for easy and quick puddling with tractors by replacing the normal wheels with cage wheels. For attending puddling operations, the tractor cage wheel has to be brought to the field. Repeated cage wheel movements on the village roads in general and tar roads in particular, make small to large depth of indents. The average depth of indent is varying from 5mm to 18mm on earthen road, 6mm to 17mm on gravel road and 0.5mm to 6mm on bitumen road. With increase in load on tractor, the depth may further deepen and finally makes the roads unusable. In Andhra Pradesh, every year 13,000km are damaged by tractor cage wheels. The cost of restoration of damage caused by tractor cage wheels in the state is about Rs. 30 core every year on R & B. To avoid this unnecessary expenditure, a stable metal road ring that can be fixed on the surface of the cage wheel easily, which costs less and more useful is fabricated at College of Agricultural Engineering, Bapatla and was tested on different roads and at different speeds. The metal road ring developed is found to reduce the depth of indent on the order of 77% to 88% in various road conditions.

**Key words** : Cage wheels, Depth of indent, Metal road ring.



## **Studies on Preservation of Tender Coconut water**

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### **ABSTRACT**

Experiments were conducted during 2006 for preserving the tender coconut water by adding chemical preservatives to increase shelf life. The samples were analyzed for their pH, sugar and microbial count after 2, 5, 10, 15, 20 and 30 days of storage. The preserved samples were analyzed organoleptically for their color, flavor, taste and overall acceptability. The pH of the sample treated with 1000 ppm potassium metabisulphite was found to increase from 4.300 to 6.575 during 20 days of storage period and there was a falling trend at the end of 30 days of storage period. In all the cases, the pH was more than the initial conditions. It was nearer to neutral pH during 15 to 20 days of storage and variation of it was between 6 and 7. It was observed from the results that the sugar content gradually decreased with increase in storage period. It was observed that the microbial count of samples gradually increased with increase in storage period. It was found that microbial count of the control sample increased from  $11 \times 10^4$  to  $131 \times 10^4$  for a storage period of 30 days whereas it increased from  $10 \times 10^4$  to  $71 \times 10^4$  for the sample treated with 1000 ppm potassium metabisulphite. The coconut water treated with 1000 ppm potassium metabisulphite yielded an acceptable product to preserve up to 15 days with a score grade of like moderately.

**Key words :** Coconut water, Microbial count, pH, Preservatives, Sensory evaluation, Sugars.

## **Probability Analysis of Rainfall at Raichur**

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### **ABSTRACT**

A detailed statistical analysis of one day maximum, weekly maximum, monthly maximum, seasonal and annual rainfall for Raichur was carried out using 34 years (1977-2010) daily rainfall data collected from Agro meteorological observatory of UAS, Raichur. The 34 years average rainfall of the area is found to be 690.36 mm. For forecasting the one day maximum rainfall Pearson type III distribution and maximum weekly rainfall Normal distribution functions were best fitted. Log-Pearson type III probability distribution was best fitted for maximum monthly and seasonal rainfall and also normally fitted to annual rainfall.

**Key words :** one day, weekly, monthly, seasonal, annual rainfall and D-Index

# **Effect of Modified Atmosphere on Quality and Shelf Life of Tomatoes**

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## **ABSTRACT**

Study was conducted for increasing the quality and shelf life of tomatoes under modified atmosphere packaging. The tomatoes were packed under modified atmosphere packaging with concentrations of 3% O<sub>2</sub>, 9% CO<sub>2</sub> and 88% N<sub>2</sub> in LDPE, PP and PVC packaging materials. Packed tomatoes were stored at 15°C (90-95% RH), 20°C (85-90% RH) and room temperatures. For every three days, the CO<sub>2</sub> and O<sub>2</sub> concentration changes in tomatoes kept in different packing materials and their physical, chemical and sensory characteristics were determined. The change in weight loss, shrinkage, ascorbic acid, lycopene content, TSS and P<sup>H</sup> were less in tomatoes packed under LDPE covers stored at 15°C temperature and given the shelf life of 45 days where as the shelf life of 36 days, 27 days was observed when the packed tomatoes stored at 20°C and at room temperature.

**Key words :** Ascorbic acid, LDPE, Lycopene content, Modified Atmospheric Packaging, PP, PVC, Tomatoes, Weight loss.

# **Marketing Efficiency and Marketing Constraints of Rice Fallow Maize in Guntur District of Andhra Pradesh**

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## **ABSTRACT**

Maize has the highest average national grain productivity followed by sorghum and bajra. In view of increased area and grain output, the present research paper is intended to analyse its marketing efficiency and marketing constraints. The net price received by the farmer is highest with Rs 800 per q/ha, the marketing costs and margins are lowest, the producers share in consumers rupee is 90.91 per cent and the marketing efficiency was highest with 10, in case of channel -1 i.e producer - marketed - consumer than other channels studied. Lack of remunerative price, lack of storage, lack of regulated markets and lack of procurement were identified as major constraints.

**Key words :** Maize, Marketing constraints, Marketing efficiency.

# **Profile Characteristics of Sugarcane Growers in Mandya District of Karnataka**

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## **ABSTRACT**

The study was conducted with a Ex-post facto research design in Mandya district of Karnataka over a randomly drawn sample of 120 sugarcane growers and the results revealed that majority of the respondents are middle aged (<35 years), high school educated (33.33%), agriculture as their sole occupation (49.17%), operating small size of land holding (52.50%) with medium category of social participation (53.33%), extension participation (65.83%) and mass media participation (65.00%), majority are having low level of credit orientation (45.83%) and medium level of scientific orientation (70.83%) and management orientation (78.33%).

**Key words :** Profile Characteristics, Sugarcane.

## **Purpose of Internet Services and Format Utilization - An Appraisal**

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### **ABSTRACT**

A study was conducted in Agricultural college, Bapatla of Acharya N.G.Ranga Agricultural University to explore the extent of utilization of Internet formats by the students. The purposes of utilizing the services were for sending and receiving of mails, portals, preparation of assignments and seminars, entertainment, professional development and downloading of programs. Internet formats used were document/text format, power point, audio files, video files, files in compressed format and files in photo document format.

**Key words :** Formats, Internet, Purposes.

## **Item Analysis of Marketing Management Behaviour of Self Help Group Leaders**

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### **ABSTRACT**

Marketing plays a crucial role for better performance of the enterprise. Marketing management behaviour holds good to think and plan effectively with good quality of finished product, holds good consumer favour products that offer the most quality features, deals with needs and wants of target markets and delivering desired satisfactions most effectively (Musser *et al.*, 1996). The present was conducted in East Godavari district of Andhra Pradesh. Findings showed that majority of the self help group leaders were under high category of grading the products. It could also be observed that majority of self help group leaders possess moderately favorable attitude in marketing their products.

**Key words :** Marketing management behaviour, Self help group leaders.

## **Effect of Different Levels of N and P on Nutrient Content and Uptake of Sesame**

**K Naganjali , V Radhakrishna Murthy and Shaik Mohammad**

## **Screening of Some Pigeonpea (*Cajanus cajan* (L.) Millsp.) Genotypes against Important Insect Pests**

**S Malathi and P J M Rao**

## **Factors Influencing Feedback Effectiveness of Farmers as Perceived by Extension Personnel**

**O Sarada**

## **Indigenous Animal Husbandry Practices In East Godavari District Of Andhra Pradesh**

**G Sivanarayana, M Leela Vani and K V Santhi Sri**