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Nutrient Uptake and Quality of Groundnut as Influenced by Moisture Conservation Practices and Fertilizer Management

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ABSTRACT

In a field experiment conducted for two conservative rainy seasons at the Instructional Farm, College of Agriculture Junagadh, it was observed that pod and haulm yields, protein content, oil yield and protein yields were significantly higher in ridges and furrow, broad bed and furrow and deep ploughed seed bed methods of moisture conservation over flat bed. Applying 100% recommended dose of fertilizers and 50% RDF + 5 t FYM/ha were superior over control treatment with regard to yield and quality studies. Chemical analysis of plant and soil indicated that content of N, P, K and uptake of the same at harvest were significantly lower in flat beds over other methods tested where as the available N, P, K, Ca and Mg were equally influenced by various moisture conservation treatments. Fertilizer managements treatments significantly differed with one another with respect to pod and haulm yields, oil and protein yields. Applying 100% RDF registered the nutrient contents and uptake at highest values. Available nitrogen and phosphorus was the highest in the treatment receiving 100 RDF after harvest of the crop. The influence of fertilizer treatments were uniform in case of available Ca and Mg after the harvest of groundnut crop.

Key words : Fertilizer Management, Groundnut, In-situ Moisture Conservation

Assessment of Genetic Variability and Relationship of Yield Attributes in Introgressed Lines of American Cotton

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ABSTRACT

Sixty-two introgressed lines of *Gossypium hirsutum* L. along with two checks were evaluated for genetic variability for agronomic and quality characters for two seasons. Significant genotypic differences exist among the genotypes for all the characters. Seed cotton yield per plant, number of bolls per plant and fibre quality index showed moderate to high genotypic coefficient of variation, heritability values and high genetic gain. Correlations between seed cotton yield and each of eleven characters were partitioned into direct and indirect effects. Number of bolls per plant, boll weight and 2.5% span length were the most important characters in exerting maximum direct effect on seed cotton yield and should be given due weightage in yield improvement programmes.

Key words : Genetic Variability, American Cotton

Correlation and Path Analyses for Qualitative and Quantitative Traits in Inter-varietal Crosses of Chilli (*Capsicum annum* L.)

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ABSTRACT

The correlation studies with 42 inter-varietal crosses along with their 13 parents of chilli revealed the importance of plant height, number of branches per plant, plant spread, number of fruits per plant, fruit length, fruit weight, 1000-seed weight, capsaicin, capsanthin and oleoresins in determining the fruit yield per plant. The path coefficient analysis brought out the plant height, primary and secondary branches per plant,

plant spread, number of fruits per plant, fruit weight and oleoresins as major yield components, which could be considered for improvement.

Key words : Correlation, Path Analysis, Chillies

Multivariate Analysis in Rice (*Oryza sativa* L.)

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ABSTRACT

Genetic divergence was assessed among thirty four genotypes of rice for twelve traits using Mahalanobis' D^2 statistic, cluster analysis and principal component analysis. On the basis of these culturing methods six clusters were obtained in both Mahalanobis' D^2 statistic and cluster analysis. In PCA five principal components were identified, out of which first four principal components explained 81.32% of variability in rice. The principal component analysis enabled loading of similar type of variables on a common principal component.

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

Application of Principal Component and Cluster Analyses in Chilli (*Capsicum annum* L.)

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ABSTRACT

Sixty genotypes of chilli were evaluated for 18 different characters to study genetic divergence by using principal component and cluster analyses. Out of 18 principal components (PCS), first seven PCS accounted for 77.42 per cent of total variability thus reducing the dimensionality of the data system. The first PC which explained the maximum variability of 23.65 per cent was significantly correlated with days to 50% flowering, fresh fruit yield per plant, days to 50% fruit ripening, number of fruits per plant and capsanthin content. The hierarchical cluster analysis by Ward's minimum variance method classified the 60 genotypes into 8 clusters based on their PCA scores. Cluster analysis revealed wide genetic distance between cluster V and VII followed by cluster VI and VIII and cluster I and VII. Therefore, during hybridization programme, selection of parents from these clusters will produce superior segregants.

Key words : Chilli, Principal Component Analysis, Cluster Analysis and Ward's Minimum Variance

Multivariate Analysis in Soybean [*Glycine max* (L.) Merrill]

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ABSTRACT

Thirty eight genotypes of soybean were evaluated for genetic diversity using Mahalanobis' D^2 statistics and grouped into nine dusters. Days to maturity contributed maximum towards genetic divergence followed by plant height and oil per cent. Hierarchical cluster analysis resulted into seven clusters containing one to

ten genotypes. The best cluster with regard to seed yield and oil content was cluster I. Principal factor analysis identified five principal components which explained 79.39 per cent variability in soybean.

Key words : Soybean, D² Analysis, Cluster Analysis, Principal Factor Analysis

Combining Ability for Yield and Yield Component Traits in Cotton (*Gossypium hirsutum* L.)

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ABSTRACT

In 8x8 diallel analysis combining ability and nature of gene action were studied for 19 characters viz., days to 50% flowering, plant height, number of monopodia per plant, number of sympodia per plant, number of bolls per plant, boll weight, 100 seed cotton weight, number of seeds per boll, ginning out turn, seed index, lint index, 2.5% span length, micronaire value, bundle strength, uniformity ratio, fibre quality index, count strength product, lint yield per plant and seed cotton yield per plant. The parents HYP5-152, MCU-5 were the best general combiners for majority of the characters followed by CWROK-165, L.761. The crosses L-761 x NDLH-1678, L-761 x NDLH-1678 and MCU-5 x NA-1325 exhibited high sca effects for majority of the characters including seed cotton yield per plant. Non-additive gene effects were important for these traits.

Key words : *Gossypium hirsutum* L., Combining Ability, Gene Effects

Character Association, Path Analysis and Selection Indices in Roselle (*Hibiscus sabdariffa* L.)

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ABSTRACT

Correlation and path analyses of fifty genotypes of roselle indicated that basal stem diameter, bark thickness, fibre length and fibre yield/ plant were significantly and positively associated with fibre yield / plot. Discriminant function identified combination of seven characters viz., plant height, number of internodes, basal stem diameter, bark thickness, fibre length, fibre yield / plant and fibre yield / plot for highest genetic advance and relative efficiency, suggesting that these are the important traits for constructing selection indices in roselle.

Key words : Correlation, Path Analysis, Selection Indices, Roselle

Multivariate Analysis in Greengram [*Vigna radiata* (L.)Wilczek]

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ABSTRACT

Forty genotypes of greengram were evaluated for genetic diversity using Mahalanobis' D² statistics and were grouped into six clusters. The number of primary branches per plant contributed maximum towards genetic divergence followed by protein content and days to 50% flowering. Hierarchical cluster

analysis grouped the genotypes into seven clusters. The best clusters with regard to seed yield and protein content were cluster IV and VI. Principal factor analysis identified three principal components which explained 79.19% variability in greengram.

Key words : Greengram, D² Analysis, Cluster Analysis and Principal Component Analysis

Genetic Divergence in Frenchbean (*Phaseolus vulgaris* L.)

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ABSTRACT

Genetic divergence was assessed among 33 genotypes of Frenchbean (*Phaseolus vulgaris* L.) for 14 characters using Mahalanobis' D² statistic, cluster analysis and principal component analysis. Based on these clustering methods 8 and 6 clusters were formed for D² statistics and cluster analysis, respectively. Days to 50% flowering contributed maximum towards diversity in D² analysis and principal component analysis identified 5 principal components with eigen value more than one which contributed 77.66 per cent of cumulative variance. Highest inter-cluster distance was observed between cluster VI and VII followed by cluster V and VII in D² statistic. Whereas cluster II and cluster V followed by cluster IV and cluster VI in hierarchical cluster analysis. The clustering pattern of the genotype was to be independent of their eco-geographical origin. On the basis of these clustering methods, crosses may be effective between the genotypes of the clusters, where the inter-cluster distance was high and will yield new desirable recombinants in Frenchbean.

Key words : Frenchbean, Genetic Diversity, Cluster Analysis, Principal Component Analysis

General Selection Indices in Finger Millet [*Eleusine coracana* (L.) Gaertn.]

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ABSTRACT

General selection indices study in thirty VMCE and fifty AICSMIP genotypes revealed that the discriminant functions including ear weight per plant, yield per plant and 1000 seed weight should be given prime importance while making selection. In the other five groups namely, VMCE *kharif* group and AICSMIP *kharif* group, VMCE *kharif* group and AICSMIP *rabi* group, VMCE *rabi* group and AICSMIP *kharif* group, VMCE *rabi* group and AICSMIP *rabi* group, AICSMIP *kharif* group and AICSMIP *rabi* group the discriminant function obtained indicated that each of these groups differ widely in their character behaviour as evidenced from negative values for the characters. Therefore, selection criterion should be specified for each of these groups separately.

Key words : Finger Millet, General Selection Indices

Selection Indices in Sesamum (*Sesamum indicum* L.)

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ABSTRACT

Selection indices studies in 17 genotypes of sesamum using discriminant function technique revealed that the functions including number of seeds per capsule as one of the components recorded high expected genetic advance and relative efficiency. The index in which all the seven characters were included showed

maximum genetic advance and relative efficiency suggesting that simultaneous selection for all these characters would be better over straight selection for seed yield.

Key words : Selection Indices, Genetic Advance and Sesamum.

Evaluation of Sugarcane Genotypes Against Key Pests

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ABSTRACT

With a view to evaluate promising genotypes of sugarcane with resistance to key pests of sugarcane namely early shoot borer, internode borer and scale insect, experiments were conducted at Regional Agricultural Research Station, Anakapalle during 2001-2003. The genotype 99 A 173 was found promising by recording significantly less incidence of the early shoot borer (4.00%), less intensity of internode borer (2.06%) and scale insect (2.23%). The genotype 90A 272 was also found promising as it registered less intensity of scale insect and weight of scale encrustation. Among the entries tested, genotype 99 A 173 registered significantly high sucrose (18.84%) and higher cane yield of 122.08 t/ha.

Key words : Sugarcane, Sugarcane Early Shoot Borer, Internode Borer, Scale Insect.

Quantitative Changes in Biochemical Spectrum of *Epilachna vigintioctopunctata* (Fab.) (Coccinellidae : Coleoptera) *Helicoverpa armigera* (Hub.) and *Spodoptera litura* (Fab.) (Noctuidae : Lepidoptera) due to *Calotropis gigantea* R. Br. Plant Parts Treatment

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ABSTRACT

The changes in the biochemical constituents of *Epilachna vigintioctopunctata* (Fab.) grub, *Helicoverpa armigera* (Hub.) and *Spodoptera litura* (Fab.) larvae due to feeding on host leaves treated with *Calotropis gigantea* R. Br. plant parts petroleum ether extract were studied under laboratory condition. The results revealed that the leaf and flower petroleum ether extract of *C. gigantea* significantly reduced the biochemical content (protein, lipid, sugar and chitin) in test insects, compared to control.

Key words : *Epilachna*, *Helicoverpa*, *Spodoptera*, *Calotropis*

Occurrence of Pest Complex on Cauliflower

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ABSTRACT

A field experiment was conducted to study the occurrence and severity of the pest complex on cauliflower at the Agricultural College Farm, Bapatla during *rabi*, 2003-04. The population count of the pest complex on cauliflower was recorded at weekly interval from a total of 50 plants from five different locations. The months of December and January were favourable for the multiplication of *Spodoptera litura* (Fab.), *Plutella xylostella* (Linn.) and *Lipaphis erysimi* (Kalt.). The peak incidence of *P. xylostella* and *L. erysimi* was recorded during the second week of January while that of *S. litura* during the third week of January.

Key words : Lipaphis erysimi, Plutella xylostella, Spodoptera litura, Cauliflower

Influence of Holding Solution, Dry Refrigeration and Packing Material on Quality and Longevity of Chrysanthemum Flowers

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ABSTRACT

Experiments were conducted to standardize the holding solution, refrigerated dry storage and packing material to improve the vase life of cut flowers of chrysanthemum variety "Basanti". The crop was grown during *kharif* 2003 and 2004. The stem with flowers were kept in different holding solutions. Sucrose 2% + Dichlorophene 25 ppm or sucrose 2% + citric acid 25 ppm + Ag NO₃ 25 ppm significantly improved the vase life compared to their preservation in water. The refrigerated dry storage impaired the vase life and reduced the flower diameter with increase in the period of storage. Polythene sleeves were the best packing material. They increased the vase life and flower diameter consistently during the two years. Packing in cellophane or polypropylene sleeves also increased the vase life of the flowers but they did not improve the flower diameter.

Key words : Chrysanthemum, Holding Solution, Refrigerated Dry Storage, Packing Material, Vase Life, Flower Diameter

Effect of Seed Size on Seed Quality in Sunflower

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ABSTRACT

A laboratory experiment was conducted to study the effect of seed size on seed quality in sunflower. The results revealed that bold seed recorded higher germination percentage, root length, shoot length, seedling vigor index, seedling dry matter, oil content and lesser values of imbibition rate and electrical conductivity compared to medium, ungraded and small seed. The cultivars were found to be non-significant for the above parameters.

Key words : Sunflower, Seed Size, Seed Quality, Seedling Vigor Index

Historical Perspective and Theoretical Orientation of Micro- Watershed Management – A Review

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ABSTRACT

The thrust of Indian Agriculture in the post-green revolution period was enhancing agricultural productivity through sustainable practices. In order to achieve this, the Government of India introduced so many national level schemes on watershed development during last seven five year plans. Some of which are RVP, DPAP, DDP, NAWDPRA etc.

Key words : Micro-Watershed Management

Adoption of IPM Practices of Dry Paddy Growers of Maharashtra

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ABSTRACT

Adoption of Integrated Pest Management practices in present study refers to the degree of adoption of package of practices such as cultural and agronomical management, mechanical, biological, chemical and precaution first aid while pesticides usage, helps in maintaining the population density of pest below economic injury level. Majority of respondents (68%) belongs to the medium adoption category.

Key words : IPM, Adoption, Dry Paddy

Strategic Models for Privatisation of Extension Services in Grape Enterprises

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ABSTRACT

The strategic models were built from the study undertaken at Bijapur district of Karnataka by following ex-post facto research design along with case analyses of KGGGA and SS Crop care situated at Bijapur. Typical working modal for privatization of extension service for grape PHTs was developed which called for the integrated operation of private as well as public extension systems for raising the productivity in grape cultivation.

Key words : Privatisation of Extension Service, Grape Enterprises, Strategic Model

Sources of Information Utilized by the Women Farmers of Warangal District in Andhra Pradesh

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ABSTRACT

A study was conducted in Warangal district of Andhra Pradesh to identify the sources of information utilized by the women farmers. Majority of the respondents were using neighbours and friends as first source of information followed by personal experience, husband, annadata, television. Majority of the respondents reported to involve in harvesting, weeding, chilli picking, transplanting and cotton picking operations. Further, majority of rural women also expressed the constraints in agriculture viz., electricity problem, high cost of pesticides, non-availability of quality seed material, adulterated pesticides, low market price and lack of finance.

Key words : Sources of Information, Women Farmers

Adoption Gaps of Technology – A Study on Rice in Krishna Western Delta of Andhra Pradesh

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ABSTRACT

A study was conducted in the Pathareddy Palem drainage pilot area of Andhra Pradesh Water Management Project, Bapatla of Andhra Pradesh, to identify the adoption gaps of rice production technology. The results revealed that the mean percentage of adoption was highest for use of recommended seed rate, weed management. The study also finds that majority of farmers are not adopting recommended spacing, green manuring, integrated nutrient and pest management practices.

Key words : Adoption, Drainage Pilot Area, Extension Gap

Economics of Production, Marketing and Storage of Maize in Karminagar District of Andhra Pradesh

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ABSTRACT

This investigation was taken up to study the cost of production of maize on different size group farms, to examine the marketable surplus, marketing channels, marketing costs, marketing margins as well as percentage of share of producer in consumer price.

The study was mainly focused on the traditional maize growing areas of Karimnagar district under well irrigation system. A sample of 180 farmers comprising 60 each from 3 size groups of 0 to 2 hectares, 2 to 4 hectares and 4 and above were selected from 6 villages of 3 mandals under different farming systems and different soils were selected for the study by multi-stage random sampling method.

In maize marketing 3 dominant marketing channels were identified in this area.

Channel I : Producer Consumer

Channel II : Producer Village middlemen Commission agent Wholesaler Poultry consumer

Channel III: Producer Wholesaler Poultry consumer.

The marketing costs were highest in Channel II while the producer's share in consumer rupee was highest in Channel I. In the study of cost and returns of maize production, it came to light that net returns were lowest on large farms while the cost of production per quintal was lowest (Rs.272.4) on small farms in comparison to medium (Rs.289.31) and large farms (Rs.305.60). While the marketable surplus was maximum on large farms (91.1%) and minimum on medium farms (55.5%) and on small farms it is being (62%) of the produce. This reveals the consumption pattern and food habits of farmers of Northern Telangana region.

Among the different storage systems, the storage costs per quintal was highest in case of gunny bags followed by godowns being Rs.35.00 and Rs.35.50, respectively. The lowest storage costs were recorded in case of storage bins which was Rs.18.94 only. The most popular system of storage being used in this area was by using gunny bags (38%).

Key words : Maize, Price Spread, Marketable Surplus, Storage

Price Spread of Walnut by Different Farm Size Groups in Budgam District of Jammu and Kashmir

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ABSTRACT

A study was conducted in Beerwah block of Budgam district of Jammu and Kashmir. As medium farmers are getting more income per Walnut tree, whereas per hectare net income was observed more on small farm size group. While per quintal cost of production was more on large farm size group respectively. The present study was undertaken during the year 2001-02.

Key words : Walnut, Net Income, Price Spread, Farm Size Group

Research Notes

Estimation of Genetic Variability in F₂ Population of Sunflower

(*Helianthus annuus* L.)

Lokanadhan P and Gopalan A

Genetic Variability in Sesame (*Sesamum indicum* L.)

Gangadhara Rao S V S

Nature of Gene Action for Quantitative Traits in Biparental Progenies of the Cross DCBI 799 X Gowri in Sesame

T Anuradha and G L K Reddy

Evaluation of Onion Cultivars for Late *Rabi* Season Under Krishna - Godavari Zone of Andhra Pradesh

N Hariprasada Rao

Studies on Breaking Seed Dormancy of *Vicia sativa*

Jayalalitha K and Rao R S N

Morphological Parameters and Total Biomass of Groundnut as Influenced by Teak Based Agro-forestry System

M Venkata Rao, S J Patil and M B Chetti

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