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**Effect of Phosphate Rich Organic Manure on Growth, Nutrient Uptake, Quality and Economics in Soybean**  
**[*Glycine max* (L.)Merrill]**

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**ABSTRACT**

A field experiment was conducted on clay loam soils of the Agricultural College Farm, Bapatla, to study the effect of phosphate rich organic manure (PROM) on growth, nutrient uptake, quality and economics of soybean [*Glycine max* (L.)Merrill] during *rabi* 2005-06. Phosphate rich organic manure (PROM) made of double the recommended dose (DRD) of  $P_2O_5$  in 1:4 ratio recorded the maximum drymatter production at maturity and found significantly superior to all other treatments of PROM made of recommended dose (RD) of  $P_2O_5$ . The highest P uptake by both grain and stover was observed by PROM with DRD of  $P_2O_5$  in 1:4 ratio. However, it was comparable to PROM of DRD of  $P_2O_5$  in 1:2 and 1:3 ratios, RD of  $P_2O_5$  in 1:4 ratio and 60 kg  $P_2O_5$  through SSP. The highest protein content was recorded with the application of PROM made of double the recommended dose of  $P_2O_5$  in 1:4 ratio. The increase in available phosphorus status in soil was recorded with the treatment PROM made of DRD of  $P_2O_5$  over the treatments of PROM with RD of phosphorus. The highest benefit cost ratio was obtained with the application of PROM made of RD of  $P_2O_5$  in 1:4 ratio followed by PROM made of DRD of  $P_2O_5$  in 1:4 ratio.

**Key words :** Economics, Growth, Nutrient Uptake,PROM, PR, FYM, Quality, Soybean

**Phenotypic Stability Analysis in Soybean [*Glycine max* (L.) Merrill] Using Eberhart and Russell and AMMI Models**

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**ABSTRACT**

Twelve genotypes of soybean were studied under three environments to assess the stability for thirteen characters using Eberhart and Russell (1966) model. The genotypes showed significant differences for all characters studied except for number of pods per plant, 100 seed weight, protein content and harvest index when tested against both pooled error and pooled deviation. The G x E (linear) was significant for characters like days to 50% flowering, days to maturity and plant height while the non - linear component of interaction was predominant for all characters except for number of branches per plant, pod length, number of seeds per pod, 100 seed weight, protein content and harvest index. The magnitude of non - linear component of interaction was higher than linear component for most of the traits under study. AMMI model explained 100% of total genotype environment interaction component for number of pods per plant, harvest index and seed yield per plant and 99.99% for biological yield per plant. Based on both AMMI and Eberhart and Russell (1966) models, genotypes RKS 18 and JS 93-05 for number of pods per plant, JSS 335 for biological yield per plant and JS95-60 for seed yield per plant were identified as stable genotypes.

**Key words :** AMMI, Soybean, Stability

**Genetic Divergence in Chilli (*Capsicum annum* L.)**

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#### **ABSTRACT**

Fifty seven indigenously developed genotypes selected from the exotic open pollinated hybrids of chilli (*Capsicum annum* L.) were evaluated to study the variability and genetic divergence. Genetic diversity analysis revealed good amount of variation among the genotypes studied. D<sup>2</sup> values ranged between 26.15 to 508.60. Fifty seven genotypes were grouped into eighteen clusters. The cluster I was the largest containing 22 genotypes, followed by cluster X (9), cluster II (8) and cluster VII (4). The remaining clusters (III, IV, V, VI, VIII, IX, XI, XII, XIII, XIV, XV, XVI, XVII and XVIII) are monogenotypic. The first five principal components with eigen value more than one contributed 84.17 per cent of the total variability amongst 57 genotypes evaluated for 15 quantitative and qualitative traits. Through cluster analysis, the fifty seven genotypes were grouped into eight clusters and among all the clusters, cluster VI was the largest with 15 genotypes followed by cluster I with 11 genotypes and cluster III with 8 genotypes.

**Key words** : Chilli, Cluster Analysis, D<sup>2</sup> analysis, Genetic Divergence, Principal Component Analysis

## **Genetic Divergence in Sesame (*Sesamum indicum* L.)**

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#### **ABSTRACT**

Sixty genotypes of sesame were evaluated for 10 quantitative characters to study genetic divergence by using Mahalanobis' D<sup>2</sup> statistic, cluster analysis and principal component analysis. Based on these clustering methods, 7 and 8 clusters were formed in D<sup>2</sup> statistic and cluster analysis, respectively. 1000- seed weight contributed maximum towards diversity in D<sup>2</sup> analysis. PCA identified 4 components with eigen value more than one which contributed 90.55 per cent of cumulative variance. Highest inter-cluster distance was observed between VI and VII followed by cluster IV and VI in D<sup>2</sup> statistic. Where as cluster IV and VI followed by IV and V showed maximum inter-cluster distance in hierarchical cluster analysis. For varietal improvement strains from these clusters were important on the basis of their genetic distance and highest cluster means. No relationship between geographic origin and genetic diversity was observed among all the divergence methods.

**Key words** : Cluster Analysis, Genetic Diversity, Principal Component Analysis, Sesame

## **Genetic Variability and Association Analyses for Yield and its Components in Chickpea (*Cicer arietinum* L.)**

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#### **ABSTRACT**

The present investigation was carried out to study the extent of genetic variability and associations of yield and yield components of *desi* chickpea. Wider genetic variability with high heritability and high genetic advance as per cent of mean was observed for 100-seed weight, biological yield and seed yield per plant indicating additive gene action. Seed yield was significantly and positively correlated with plant height, number of primary branches, number of secondary branches, number of pods per plant, 100-seed weight, harvest index and biological yield per plant. Path coefficient analysis indicated that number of pods per plant, biological yield and 100-seed weight had high positive direct effect on seed yield. Direct selection through these traits for improvement of seed yield shall be highly effective.

**Key words** : Chickpea, Correlation Coefficient, Path Analysis, Variability

## **Genetic Variability, Character Association and Path Coefficient Analyses in Soybean [*Glycine max* (L.) Merrill.]**

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### **ABSTRACT**

Forty-five genotypes of soybean [*Glycine max* (L.) Merrill.] of diverse origin were studied for their genetic variability, character association and path analyses. The difference between the genotypes were highly significant for 13 characters. Seed yield per plant, number of pods per plant, branches per plant and harvest index showed high genotypic coefficient of variation. Correlation studies indicated that seed yield per plant showed significant positive correlation with biological yield per plant, number of pods per plant, harvest index, seeds per pod, pod length, plant height, branches per plant and 100 seed weight. Path analysis revealed that biological yield per plant, pods per plant and harvest index will have positive direct influence on seed yield per plant.

**Key words** : Soybean, Variability, Path Analysis

## **Identification of Characters for Yield Improvement Through Multiple Regression Analysis in Sesame (*Sesamum indicum* L.)**

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### **ABSTRACT**

The present investigation was carried out to understand the interrelationship and degree of dependence of seed yield on its components and elucidate their relative importance. The experiment was conducted by using a full diallel set of diverse genotypes of sesame and observations were recorded for seed yield and seven component characters. The analysis of variance revealed significant mean squares for all the characters studied. The correlation coefficient for seed yield with plant height, number of branches/plant and number of capsules/plant were highly significant and positive while, with number of seeds/capsule and 1000 seed weight, these were negative. In path analysis, maximum direct effect on seed yield was exerted through number of capsules/plant. It was evident that most of the associations of seed yield with its component characters were indirectly influenced through the number of capsules/plant. The multiple correlation coefficient between seed yield and all seven characters in equation was very high ( $R=0.9754$ ). The step-wise regression analysis revealed that the number of capsules/plant was the most important character having  $r=0.9687$  and could explain 93.84% of the total variation of seed yield. The relative importance of the characters for seed yield/plant could be in the order of number of capsules/plant > capsule length > number of branches/plant > plant height > number of seeds/capsule > 1000 seed weight > days to first flower.

**Key words** : Analysis, Correlation, Multiple, Regression, Sesame

## **Variability, Character Association and Path Coefficient Analyses in Italian Millet [*Setaria italica* (L.) Beauv]**

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### **ABSTRACT**

Investigations on extent of character association and path coefficient analysis were conducted in Italian millet. Calcium content, carotene, grain yield per plant, ear weight and straw weight, showed wider variability in the genotypes studied during both seasons. Grain yield per plant had significant positive association with plant height, flag leaf area, ear length, ear weight and straw weight during *Kharif* and with days to maturity, ear weight, straw weight, 1000 grain weight and calcium content in *Rabi*. Path coefficient analysis revealed that flag leaf area, ear weight and straw weight during *Kharif* and productive tillers per plant, days to maturity, ear length, ear weight, straw weight, 1000 grain weight and calcium content in *Rabi* had positive direct effect on seed yield per plant.

**Key words** : Correlation, Italian Millet, Path Coefficient Analysis, Variability

## **Correlation and Path Analyses on Yield and Drought Tolerant Attributes Under Drought Stress in Rice (*Oryza sativa* L.)**

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### **ABSTRACT**

Correlation and path coefficient analyses were undertaken on 15 yield attributing and drought tolerant traits utilizing 37 genotypes in rice. Filled grains/ panicle, grains/panicle, relative water content and chlorophyll content index expressed highly positive correlation with grain yield. Selection based on chlorophyll content index and relative water content will bring about simultaneous improvement of all other drought tolerant traits. Path analysis revealed that chlorophyll content index, relative water content and grains/ panicle were major yield contributing traits to be given selection pressure for improving yield in drought stress situation.

**Key words** : Correlation, Drought, Path Analysis, Rice

## **Evaluation of Chemical and Botanical Insecticides Against Brinjal Epilachna Beetle**

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### **ABSTRACT**

Novel insecticides like diflubenzuron, bactospeine and a need formulation repel in were tested at the recommended concentrations and in combinations with the conventional insecticides like fenprothrin, monocrotophos and carbaryl at half the recommended doses against spotted leaf beetle of brinjal. Spraying was coincided with the moderate infestation of the beetle. Data were recorded one day prior to spraying and also at 1,5,10 and 14 days after spraying. Fenprothrin was found to be the best among all the treatments with 88.7 per cent reduction at one day after spraying. Combinations of diflubenzuron and bactospeine with fenprothrin were more effective with 90.4 and 88.7 per cent reduction at 5 days after spraying and with 95.7 and 92.2 per cent reduction over control at 10 days after spraying.

**Key words** : Brinjal, Conventional, Insecticides, Ladybird Beetle, Novel Methods of Pest Control

## **Evaluation of Certain Grain Protectants Against Drug Store Beetle (*Stegobium paniceum* L.) in Stored Coriander**

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### ABSTRACT

Laboratory studies on the efficacy of certain plant product powders as grain protectants against drug store beetle *Stegobium paniceum* L. in stored coriander were conducted at Regional Agricultural Research Station, Lam Farm, Guntur during 2006-08 crop seasons. Among the treatments tested sweet flag @ 5g/kg and parad @ 1 tablet recorded high initial % mortality, low cumulative beetle population and zero per cent seed damage upto two months.

**Key words** : Drug Store Beetle, Grain Protectants, Plant Product Powders, *Stegobium paniceum*, Stored Coriander

## Taxonomic Studies on the Lepidopteran Caterpillars Associated with Vegetables in Guntur District

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### ABSTRACT

Different Lepidopteran larvae were collected from various places from Guntur district on vegetables. The larvae were brought to the laboratory reared, preserved and identified. The larvae viz., *Spodoptera litura* (Fabricius), *Earias vittella* (Fabricius), *Plusia peponis* Fabricius, *Leucinodes orbonalis* Guenee, *Palpita indica* (Saunders), *Isocentris opheltesalis* Walker, *Sphenarches caffer* (Zeller), *Eupterote mollifera* Walker and *Plutella xylostella* (Linnaeus) were identified and described based on the morphological characters and chaetotaxy of thoracic and abdominal segments especially 3<sup>rd</sup> abdominal segment and arrangement of crochets on the ventral prolegs. For easy identification of these larvae a taxonomic key was prepared with the help of line diagrams of thoracic and abdominal segments.

**Key words** : Lepidopteran Caterpillars, Taxonomy, Vegetables

## Screening of *Gossypium hirsutum* L. Genotypes Against Insect Pests Under Unprotected Conditions

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### ABSTRACT

Forty genotypes of *Gossypium hirsutum* L. were evaluated for their reaction to pest complex of cotton under unprotected conditions in randomised block design at Regional Agricultural Research Station, Lam during 2006-07. The entries NH 615 (0.6 no./3 leaves), CNDTS 52 (2.1 no./ 3leaves), CA 100 (2.3 no./3 leaves), GSHV 152 (2.4no./3 leaves) and BS 144 (2.5 no./ 3 leaves) recorded lowest population with jassid grade I and found promising against jassids. The per cent open boll damage due to *Heliothes armigera* varied between 2.65 to 39.76 among the genotypes with non-significant difference. The entry H 1300 showed inherent resistance to pink bollworm by recording lowest larval incidence of 12 larvae/ 20 bolls and 40% green boll damage.

**Key words** : Bollworms, Genotypes, *Gossypium hirsutum*, Sucking pests

## Effect of Preservation of Mulberry Leaf on the Development of Bacterial Flacherie and on Larval and Cocoon Parameters of Silkworm (*Bombyx mori* L.)

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### ABSTRACT

Highest larval mortality (59.86%) was recorded when the bacterial flacherie infected larvae were reared with leaves without preservation and lowest mortality (49.71%) was recorded when the flacherie infected larvae were reared with leaves preserved for 24 h. Maximum larval (1.22g), cocoon (1.02g) and shell weights (0.14g) were recorded when infected larvae reared with leaves without preservation and minimum larval (0.89g), cocoon (0.84g) and shell weights (0.07g) were recorded when the larvae were reared with 24 h preserved leaves. Highest shell ratio of 14.20 per cent was recorded when infected larvae were reared with fresh leaves. Lowest shell ratio of 8.3 per cent was recorded when the infected larvae were reared with 24 h preserved leaves.

**Key words :** *Bacillus thuringiensis var. kurstaki*, Bacterial Flacherie, *Bombyx mori*, Sericulture, Silkworm

## **Seasonal Incidence and Management of Leaf Miner, *Aproaerema modicella* (Dev.) on Post-rainy Groundnut**

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### **ABSTRACT**

Incidence of *Aproaerema modicella* (Deventer) in terms of larval population was recorded during the first week of February 2006, which showed non-significant relationship with maximum temperature, relative humidity, wind speed, spiders and coccinellid predatory beetles, but significant relationship with minimum temperature. The results of chemical control trial indicated that emamectin benzoate 0.0025% was the most effective treatment followed by indoxacarb 0.0145% and indoxacarb 0.00725% + novaluron 0.005% in reducing the larval population of *A. modicella*.

**Key words :** *Aproaerema modicella*, Groundnut, Leafminer, Management, Seasonal Incidence

## **Physiological Assessment of Sweet Sorghum [*Sorghum bicolor* (L.) Moench] Cultivars in Coastal Andhra**

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### **ABSTRACT**

A filed experiment was carried out at the Agricultural College Farm, Bapatla during *Maghi* season of 2004-05. Physiological growth parameters such as LAI, CGR, RGR, NAR and dry matter production were higher with the cultivars SSV84, SSV74, NTJ<sub>2</sub> and S-35. The cultivars like ICSR 37, Seredo and SSV74 recorded less number of days to 50% growing and maturity than that taken by the other cultivars.

**Key words :** Crop Growth Rate (CGR), Dry matter production, Leaf Area Index (LAI), Net Assimilation Rate (NAR), Days to 50% Flowering, Relative Growth Rate (RGR)

## **Influence of Biofertilizers (*A-Mycorrhiza* and *Rhizobium*) and Inorganic Fertilizers (NPK) on Growth and Development of *Dalbergia sissoo***

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### **ABSTRACT**

A factorial randomized design experiment was conducted to assess the interaction between various doses of NPK X *Rhizobium*, NPK X AM, AM X *Rhizobium* in *Dalbergia sissoo* at SFRI, Jabalpur. The maximum interaction (in terms of total biomass) was observed between *Rhizobium*<sub>3</sub> (R<sub>3</sub>-20 g culture/pl of

10<sup>7</sup> population per gm) with NPK<sub>3</sub> (250 kg N, 30 kg P2O<sub>5</sub> and 150 kg K/ha). Similarly, the response of mycorrhiza was maximum with NPK<sub>1</sub> (500 kg N, 75 kg P2O<sub>5</sub> and 350 kg K/ha) with AM<sub>3</sub> (V<sub>3</sub>-200 chlamydospores with 5 gm AM infected roots). There was maximum response between *Rhizobium*<sub>3</sub> and AM<sub>2</sub> in producing total biomass. The three way interaction produced excellent results in growth enhancement and biomass production in *D. sissoo*. The light doses of NPK, AM and *Rhizobium* (NPK<sub>3</sub> AM<sub>3</sub> and *Rhizobium*<sub>3</sub>) rendered maximum growth and maximum biomass in comparison to other treatments.

**Key words :** A-Mycorrhiza, Biofertilizers, Growth, *Dalbergia sissoo* and *Rhizobium*,

## **Effect of Spacing and Fertilizers on Yield Attributing Characters in Kakrol (*Momordica dioica* Roxb.)**

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### **ABSTRACT**

The studies on the effect of spacing and fertilizer levels on kakrol revealed that between two spacings, wider spacing at 2 x 1 m produced male / female flowers at higher nodes (12.65) and significantly higher vine length (3.42 m), fruit weight (17.83 g), number of seeds per fruit (21.22), fruit size (3.30 cm), greater number of fruits per vine (55.54) and yield per plant (1.01 kg/plant) over narrow spacing at 1 x 1 m. Among the fertilizer levels, NPK at 240 : 160 : 75 kg/ha recorded significantly higher vine length (4.22 m), lower number of nodes at which first female or male flower appeared (10.31), lesser number of days taken for flowering (60.22 days), greater number of fruits per plant (65.79), greater number of seeds per fruit (23.07), higher fruit weight (19.29g), higher fruit yield per plant (1.28 kg/plant) when compared to rest of the fertilizer levels. The interaction between spacing x fertilizer levels revealed that 240 N : 160 P : 75 K kg/ha + 2 x 1 m spacing recorded significantly higher vine length (4.69 m), weight of fruit (20.22), greater number of fruits per plant (77.50) and yield per plant (1.57 kg/plant) over 240 N : 160 P : 75 K kg/ha + 1 x 1 m.

**Key words :** Fertilizers, Kakrol, N P K

## **Performance Evaluation and Cost Benefit Analysis of Barn Drying of Chillies**

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### **ABSTRACT**

Large scale drying experiments using chillies in unutilized tobacco barns indicated that the average drying rate is 0.0633 kg/kg.hr. The thermal efficiency of the barn drying system was found to be 8.45%. The cost of barn drying varied from Rs.2.88 to 3.69 per kg of dry chilli depending upon whether the pod is, thin pericarp type variety or thick pericarp type hybrid. Farmers have to incur an additional cost ranging from Rs.2.11 to 2.76 per kg dry chilli in barn drying in comparison to farmer's method which costs only Rs.0.77 to 0.93 per kg dry chilli. However, the additional cost of barn drying can be compensated by additional income due to reduced percentage of discolored pods and by the premium price offered to the quality, particularly for export. Conversion of unutilized barns to produce quality dried chilli has a benefit-cost ratio of 1.57 and 1.76 for thin pericarp type varieties and thick pericarp type hybrids, respectively in comparison to farmer's practice which has a benefit-cost ratio of 1.28 and 1.51 for thin pericarp type varieties and thick pericarp type hybrids, respectively.

**Key words :** Barns, Benefit Cost Ratio, Chillies, Drying, Performance Evaluation

## **Prioritization of Subwatersheds Based on Geomorphological Characteristics of Ag2 Watershed in Krishna River Subcatchment in Karnataka**

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#### **ABSTRACT**

Quantitative analysis of morphological parameters of 11 subwatersheds of Ag2 watershed was carried out, which are important from hydrological studies point of view. The priority fixation of subwatersheds in Ag2 watershed is needed because it is difficult to implement soil conservation measures in entire subwatersheds at the same time for the shortage of time and manpower. The priority fixation was done using seven morphological parameters viz. form factor, drainage texture, time of concentration, bifurcation ratio, relief ratio, average slope and drainage density of subwatersheds separately. The value of different factors was ranked in descending order. Priority was given based on the rank number (lowest to highest). Finally an overall priority index was preferred which was an average of rating values of all individual parameters so that effect of any particular parameter showing diversion to other normal values, may be diluted. The number of subwatersheds under very high priority, high priority and lower priority were found 4, 6 and 1, respectively.

**Key words :** Geomorphological Characteristics, Priority, Subwatershed

### **Use and Productivity of Water in Head Region of a Canal Irrigation System – An Economic Approach**

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#### **ABSTRACT**

The study aimed at the optimal water use at farm level in Narasapur canal irrigation system in West Godavari district of Andhra Pradesh, revealed that the irrigation intensity and cropping intensity were more in the large sized farms. The per cent of area under wet crops was more if canal constituted as main source of irrigation. In the case of tube well irrigated farms, the per cent of area under irrigated dry crops also increased. Irrigation intensity and cropping intensity were more in farms which were adjacent to the water resources. The number of installation of tube wells increased with increase in the distance of the farms from the outset of the supply channel.

**Key words :** Canal Irrigation, Productivity of Water

### **Sources of Information Used by Farmers to Get Agricultural Information**

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#### **ABSTRACT**

The study was conducted in Nanded district of Marathwada region in Maharashtra state. In the age of computer and multimedia, it was felt necessary to study the sources of information used by farmers to get agricultural information. Study revealed that neighbors, friends, relatives, progressive framers, gramsevaks, block development officers and extension agents acted as important sources of information to the respondents. In a nutshell, it can be said that personal contact method was found a best source of information. In the age of computer, still farmers were not found using internet as source of information.

**Key words :** Contact ,Farmer,Information,Source

### **Relation Between Socioeconomic Status and Nutritional Status**

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#### **ABSTRACT**

A study, to assess the relation between socioeconomic status and nutritional status of Gramasiri families in Guntur district was carried out in eight villages (4 Gramasiri and 4 Non-gramasiri). A sample of 240 families (30 from each of Gramasiri as well as Non-gramasiri villages) was selected for the study. Anthropometric measurements of the children were measured to determine nutritional status. Family size, income levels, land possessions, housing conditions etc., were recorded to know the socioeconomic status of the families. There was positive relation between socioeconomic status and nutritional status.

**Key words** : Gramasiri, Nutritional Status, Socioeconomic Status

### **Research Note**

#### **Oil and Oil Yield of Initial Varietal Trial (IVT) of Sesame Under Different Agroclimatic Zones of India**

Jyoti Nema, Sushama Nema and Seema Paroha

#### **Integrated Management of Pod Borer, *Helicoverpa armigera* on Pigeonpea [*Cajanus cajan* (L.) Millsp]**

S Malathi, K V Radhakrishna, M Malla Reddy and L Jalapathi Rao

#### **Effect of Temperature on Sporulation of *Nomuraea rileyi***

C Lalitha , K Manjula and S Srinivasan

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