

-Effect of Fym and Zinc Nutrition on Growth, Yield and Grain Fortification of Different Rice Varieties

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ABSTRACT

A field experiment was conducted at the Agricultural College Farm, Bapatla on a clay loam soil during *kharif* season of 2012 to study the effect of different treatments on improving the zinc content in the grain of different rice varieties. The findings of the experiment revealed that the higher grain yield, straw yield, harvest index and zinc content in rice grain were recorded with the variety, Akshaya (BPT 2231). Significant improvement in productivity and zinc content of rice grain in rice were noticed with soil application of FYM @10 t ha⁻¹ along with zinc through foliar spraying twice at panicle initiation and heading stages.

Key words : Foliar spray, Rice varieties, Soil application, Yield, Zn content.

Constraints in Adoption of Improved Techniques of Kitchen Gardening

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ABSTRACT

Kitchen garden plays an important role for rural families to provide diversified vegetables in their daily diet. Most of the families having kitchen garden of different sizes are interested to improve the practice. But farmers and farm women are facing different constraints while adopting the improved techniques. Therefore present study was undertaken with the objective to study the constraints in adoption of improved techniques of kitchen gardening faced by the villagers. Study was conducted in Palem and Sanki Reddy Palli villages of Kothakota mandal and Mallaipalli and Thatipamula villages of Pebbair mandal of Mahaboobnagar District, Andhra Pradesh. Four villages were selected from these mandals. The number of families with kitchen garden was decided for villages by proportionate sampling method. The families of each village were selected by Simple Random Techniques. In this way 25 families from each village were selected consisting total sample of 100 respondents (one for each family). The data were collected from each respondent through personal interview method with the help of structured schedule. It was observed that input constraint was most important constraint as it was ranked in 1st position. This was followed by technical constraints, socio-cultural constraints and post-harvest constraints which were accorded 2nd, 3rd and 4th ranks in rank order by the respondents.

Key words : Adoption, Constraints, Kitchen gardening.

Performance of Finger millet (*Eleusine coracana .L*) Varieties under Different Crop Establishment Methods for North Coastal Andhra Pradesh

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ABSTRACT

Field experiments were conducted for three consecutive *kharif* seasons of 2009, 2010 and 2011 at Agricultural Research Station, Seethampeta, Andhra Pradesh on sandy clay loam with an objective of identifying best method of crop establishment and promising varieties in Finger millet. Experiment consists of two main plots (M1-direct sowing, M2- transplanting) and twelve Subplots (12 improved cultures viz., VR (W)– 936, CTPL – 10, VR – 948, VR 762, VR – 943, VR – 929, VR – 900, PPR – 2885, PPR – 2886, VR – 952, VR – 958, and PR 1044 as control) laid out in a Split plot design with three replications. Direct sowing reduced the crop duration conspicuously. Higher number of productive tillers with lengthy panicles and more number of fingers, higher grain yield, better harvest index and more profits were recorded in transplanting compared to direct sowing. Among the improved cultures VR – 952 , VR-762 and PPR – 2886 were proved effective irrespective of methods of crop establishment with superior yield attributes leading to with higher grain yield and returns.

Key words : Crop establishment, Finger millet, Improved cultures, Returns, Yield.

Heterosis for Yield and Yield related Characters in Maize (*zea mays l.*)

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ABSTRACT

The heterosis studies were conducted using 10 parents and their 45 hybrids obtained from a half-diallel mating for eleven grain yield and yield components over two locations and two seasons. The results indicated that for most of the characters, the role of non-additive gene action is predominant. Hence, a breeder should exploit the non-additive gene action through exploitation of heterosis. Heterosis for most of the hybrids was accomplished for ear length, ear girth, number of kernel rows per ear, number of kernels per row and 100 kernel weight. Hence, improvement in these characters ensures higher yield. Since the present investigation is carried out at two locations and two seasons for 45 hybrids the best performing hybrids should be tried at multilocatoins and seasons before the commercial exploitation in the farmer's field.

Key words : Heterosis, Locations, Maize, Seasons, Yield.

Genotypic Variation for Late Leaf Spot and *Aspergillus* Colonization in Mini Core Set of Groundnut (*Arachis hypogaea*)

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ABSTRACT

Core collection could greatly increase the utilization of germplasm resources. Groundnut mini core subset was evaluated for resistance against late leaf spot and seed colonization by *Aspergillus flavus*. High level resistance for late leaf spot was observed in sixteen accessions including ICG 12625, ICG 15419, ICG 12697, ICG 12682, ICG 4716, ICG 76, ICG 8760, ICG 2857, ICG 4412, ICG 9905, ICG 12672, ICG 13787, ICG 3027, ICG 532, ICG 6706 and ICG 14475. While the high level of resistance to seed colonization by *A.flavus* was observed in ICG 6027, ICG 3673, MN 1-35, ICG 14985, ICG 8760 and ICG 13787. The accessions namely ICG 8760 and ICG 13787 were found to possess high level of resistance to both late leaf spot and *Aspergillus* colonization and could be utilized in multiple disease resistance breeding programme.

Key words : *Aspergillus* colonization, Groundnut, Late leaf spot, Mini core.

Character Association And Path Coefficient Analyses In Pigeonpea (*Cajanus cajan* (L.) Millsp.)

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ABSTRACT

Forty nine genotypes were studied for character association and path analysis for yield and twelve characters. The correlation study indicated that the number of pods per plant, harvest index, 100 seed weight, shelling percentage, days to 50% flowering and protein content had significant positive association with seed yield and simultaneous improvement of these characters along with seed yield is possible. Path coefficient analysis revealed that number of pods per plant, shelling percentage, harvest index, plant height and protein content had showed positive direct effects together with positive correlation on seed yield per plant.

Key words : Correlation, Path Coefficient Analysis, Pigeonpea.

Genetic Divergence Studies in Forage Sorghum (*Sorghum bicolor* L. Moench)

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ABSTRACT

Fifty four lines of forage sorghum were evaluated for genetic diversity using D^2 and principal component analysis for fifteen characters during *kharif*, 2011. The genotypes under study were grouped into eight clusters. The cluster I was the largest with 27 genotypes followed by cluster II (15) and cluster VI (7). Remaining clusters were solitary. The clustering pattern of genotypes indicated that geographical distribution and genetic diversity were not related to each other. The inter cluster distances were higher than the average intra cluster distances indicating wider genetic diversity among the genotypes of different groups. Maximum inter cluster distance was observed between cluster VI and VIII followed by cluster II and VIII, I and VIII and V and VIII showing wide diversity among the groups. Based on the cluster means, the important clusters are cluster VI for stem weight, stem girth, biomass per plant and crude protein, cluster V for days to 50 per cent flowering, leaf length, green fodder yield, green fodder yield per day, dry fodder yield and brix per cent. Crude protein per cent, stem weight, days to 50 per cent flowering, leaf width, plant height, number of leaves per plant and dry fodder yield have contributed more towards divergence among the genotypes.

Key words : D^2 statistics, Forage sorghum, Genetic divergence, Principal component analysis.

Characterization of Sugarcane Accessions for DUS Descriptors

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ABSTRACT

Germplasm is the basic material for selection and improvement through breeding to ensure food security needs of the worlds rapidly rising population. Constant evaluation and characterization of the existent, yet uncharacterized germplasm is useful and it is many times the cornerstone for the development of new and better varieties. A systematic study was conducted to characterize the one hundred and thirty one germplasm accessions using 27 DUS descriptors given by PPV&FRA at Agricultural Research Station, Perumallapalle, Tirupati during 2012-13. The data were collected on parameters pertaining to stem, leaf, leaf sheath, bud and internode. All the varieties varied greatly for different characters. These germplasm accessions are reservoirs for different parameters and they can be exploited in any breeding programmes for production of promising sugarcane varieties.

Key words : Characterization, Germplasm, Sugarcane, DUS descriptors, PPV&FRA.

Studies on Genetic Divergence in Safflower (*Carthamus tinctorius* L.)

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ABSTRACT

A field experiment was conducted with eighty safflower germplasm lines to study the diversity among the germplasm lines, which were grouped into twelve clusters revealing the presence of considerable amount of genetic diversity in the material. Cluster II had the maximum number of (23) genotypes followed by cluster I with 22 genotypes and cluster V with 10 genotypes. The intra cluster distance ranged from 0.00 to 133.29. The highest intra cluster distance was observed for cluster XII (133.29) followed by cluster II (85.50) and cluster I (78.48). The inter cluster D2 values ranged from 43.11 to 1506.01. The maximum inter cluster distance was observed between the clusters IV and XII (1506.01) followed by I and XII (1372) and III and XII clusters (1239.96), which indicated that the genotypes included in these clusters will give high heterotic responses and thus produce better segregants. Among the 12 clusters studied, seed yield contributed the most (95%) towards the divergence of genotypes.

Key words : Genetic divergence, Safflower.

Genetic Variation and Trait Relationships in Wild Crosses of Pigeonpea, *Cajanus cajan*

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ABSTRACT

In a study on forty wild crosses of redgram (*Cajanus cajan* L.) high magnitude of GCV and PCV for number of primary branches per plant, number of pods per plant, 100-seed weight and seed yield per plant were observed indicating large extent of genetic variability for these traits. High heritability was accompanied by high genetic advance for days to maturity, plant height, number of pods per plant and seed yield, whereas, moderate heritability was associated with high GCV and PCV for number of primary branches per plant. Days to maturity, plant height and number of pods per plant and seed yield expressed high genetic advance with high heritability. Days to 50% flowering was associated strongly and positively with days to maturity, plant height, number of secondary branches and number of pods per plant. Plant height, number of pods per plant and 100-seed weight showed positive significant association with seed yield per plant. Plant height manifested maximum direct effect towards seed yield followed by days to maturity and number of secondary branches per plant. Number of pods per plant and 100-seed weight also contributed major share to seed yield per plant indirectly through other traits. Plant height, number of pods per plant and 100- seed weight may be considered important traits for enhancing yield in pigeonpea.

Key words : Correlation, Path analysis, Pigeonpea, Variability, Wild crosses.

Genetic Variability, Heritability and Genetic Advance for Seed Yield and its Components in Finger millet [*Eleusine coracana* (L.) Gaertn]

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ABSTRACT

An investigation was carried out in finger millet to assess the variability, heritability and genetic advance for eleven characters viz., plant height, days to 50% flowering, days to maturity, number of productive tillers per plant, fingers per ear, finger length, ear weight per plant, 1000-seed weight, protein content, calcium content and grain yield per plant in 43 genotypes. The results revealed that high PCV and GCV for protein content. High heritability accompanied with high genetic advance was recorded for calcium content, protein content, 1000-seed weight, finger length, productive tillers per plant, ear weight per plant and grain yield per plant indicating the preponderance of additive gene action which may be exploited through simple selection procedures.

Key words : Genetic advance, Heritability, Finger millet, Variability.

Genetic Variability, Heritability and Genetic Advance for Grain Yield and its Components in Maize (*Zea mays* L.)

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ABSTRACT

An investigation was carried out to assess the variability, heritability and genetic advance for nine characters viz., days to 50% tasseling, days to 50% silking, days to maturity, plant height, cob length, kernel rows per cob, 100-seed weight, protein content and grain yield per plant in 24 genotypes (fifteen hybrids, their eight parents along with a check). The results revealed that high PCV and GCV were observed for the character grain yield per plant. High heritability accompanied with high genetic advance had shown by the characters viz., 100-seed weight, grain yield per plant, cob length and plant height indicating the preponderance of additive gene action which may be exploited through breeding methods involving simple selection like mass selection, ear-to-row method, etc. are to be followed to improve these traits.

Key words : Genetic advance, Heritability, Maize, Variability.

Correlation and Path Coefficient Analysis of Grain Yield and Yield Component Traits in Maize (*Zea mays* L.)

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ABSTRACT

An experiment was conducted to study the correlation and path analysis for eleven characters of maize on 45 F₁S, their 18 parents (15 lines and 3 testers) along with two standard checks raised during kharif, 2011. Grain yield was found to be significantly and positively correlated with plant height, ear height, ear girth, number of kernel rows per ear, number of kernels per row, 100-kernel weight at genotypic level while days to 50% tasseling and 50% silking and days to maturity recorded negative and significant association with yield. Path analysis at genotypic level revealed that number of kernels per row had exhibited the maximum positive direct effect followed by ear girth, 100-kernel weight, number of kernel rows per ear, plant height, ear length and ear height.

Key words : Correlation, Grain yield, Path analysis, Maize.

Genetic Variability, Heritability and Genetic Advance in Rice (*Oryza sativa* L.)

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ABSTRACT

Twenty nine genotypes were studied for their genotypic, phenotypic and environmental coefficient of variation during *kharif* 2011. Results indicated significant differences among all the characters studied viz., days to 50 % flowering, plant height, no. of ear bearing tillers per plant, panicle length, testweight and grain yield per plant. Phenotypic coefficient of variation (PCV) was higher than the genotypic coefficient of variation (GCV) and environmental coefficient of variation (ECV) for all the traits but smaller differences between GCV and PCV were recorded for all the characters studied, which indicated less influence of environment on these characters. PCV was highest for plant height (15.73 %) followed by grain yield per plant (15.57 %), no.of ear bearing tillers per plant (13.83 %) and test weight (12.32 %). GCV and PCV were lowest for panicle length and days to 50 % flowering. High heritability coupled with high genetic advance was observed for plant height and days to 50 % flowering, indicating the predominance of additive gene action in controlling these characters, simple selection could be effective for improving these characters.

Key words : Genetic advance, Heritability, Rice, Variability.

Correlation and Path Analysis for Seed Yield and its Components in Sesame (*Sesamum indicum* L.)

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ABSTRACT

Correlation studies involving five lines, three testers and fifteen hybrids obtained by Line x Tester mating design of sesame indicated that number of capsules per plant, number of seeds per capsule, number of primary branches per plant and plant height were significant and positively associated with seed yield per plant. The path analysis revealed that number of capsules per plant had maximum direct effect on seed yield per plant followed by number of seeds per capsule and 1000-seed weight.

Key words : Correlation, Path analysis, Sesame.

Stability Analysis of Yield in Sesame (*Sesamum Indicum* L.)

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ABSTRACT

Thirty genotypes of sesame were raised in three environments (dates of sowing) during late *Rabi*, 2012-13 to study the environment and G x E interaction components. The study revealed significant differences for all the characters, indicating wide differences between environments and differential behavior of genotypes in different environments. The linear and non-linear GxE components were non-significant for all the characters. The genotypes S-0430, NIC-8164 and B-203 were found to be stable for favourable environmental conditions for number of capsules per plant, number of seeds per capsule and oil content, whereas KMR-17 was stable for poor environmental conditions for all the characters under study. The genotypes KMR-17, IS-112-B, IC-607-1-84 and YLM-17 were considered to be stable for seed yield per plant in poor environmental conditions. Hence these genotypes could be used in further breeding programme. IS-112-B and YLM-17 were widely adapted genotypes for seed yield per plant.

Key words : Sesame, Stability.

Evaluation of Early Maturing Sugarcane Clones for Cane yield, its Components and Juice Quality Parameters in Plant and Ratoon Crops

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ABSTRACT

The performance of early maturing clones was assessed for cane yield, its components and juice quality parameters in two plant crops and ratoon crop during the year 2010-11 and 2011-12. The experiments were conducted at Agriculture Research Station, Perumallapalle, Chittoor, Andhra Pradesh. Ten sugarcane clones in early maturity group were tested against three standard checks. Two clones viz., 2006T3 and 2006T36 were observed to be significantly superior for Cane and Commercial Cane Sugar yield and red rot resistant compared to standards Co 94008, Co 85004 and Co 6907 in the first and second plant crops. In the ratoon crop also 2006T3 and 2006T36 clones were found superior for cane and sugar yields against the standards. Juice quality traits viz., sucrose %, Commercial Cane Sugar % and purity % of new clones viz., 2006T3 and 2006T36 were also observed to be superior over the standard checks. Red rot screening for the clones was done by plug method for three different pathotypes that are prevalent in the zone.

Key words : Sugarcane, Cane Yield, Ratoon, Plant crop, Juice Quality, Red Rot.

Variability and Genetic Parameters for Salinity Tolerance, Yield Components and Grain Yield in Rice Genotypes

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ABSTRACT

Fifty genotypes of rice (*Oryza sativa* L.) were evaluated for genetic variability for salinity tolerant traits, yield components and grain yield during *kharif* 2010. The analysis of variance revealed significant differences among the genotypes for all the characters studied. The characters viz., shoot length, shoot dry weight, shoot potassium content, productive tillers hill⁻¹ and grain yield plant⁻¹ had recorded high variability (PCV and GCV), heritability coupled with high genetic advance as per cent mean under saline conditions indicating an ample scope for improvement of these characters for development of salt tolerant rice varieties..

Key words : Genetic parameters, Rice genotypes, Yield.

Performance of Rice-fallow Sorghum as Influenced by Nutrient Management

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ABSTRACT

A field experiment was conducted during 2012 at Agricultural College Farm, Bapatla to study the influence of nutrient management involving inorganics, bio-fertilizers and FYM on growth parameter, yield and quality of rice-fallow sorghum. The plant height was significantly increased with each increment in nitrogen level from 90 to 150 kg N ha⁻¹ alone and in combination with bio-fertilizers at 30 and 60 DAS. While it was significant up to 120 kg N ha⁻¹ in FYM treated plots and in all plots at harvest. The number of days to 50 % flowering and maturity were lowest in no nitrogen treatment and increased with increase in applied nitrogen. Highest length of ear, 1000 grain weight and yield were recorded by the integrated treatment that received 150 kg N ha⁻¹ + FYM + Bio-fertilizers. An increase of 23, 19 and 4 per cent in grain sorghum yield was recorded by the treatments that received maximum inorganic nitrogen (150 kg N ha⁻¹) along with FYM and bio-fertilizers, with FYM and with bio-fertilizers, respectively over only inorganic treatment. The protein content of the grain was significantly influenced by imposed treatments while no such effect was noticed with carbohydrates.

Key words : Bio-fertilizers, Inorganics, Quality of grain, Organic manure.

Studies on Blackgram Performance under Varied Cropping Systems

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ABSTRACT

Urdbean/blackgram (*Vigna mungo* (L.) Hepper) is an important pulse crop grown throughout India. In South India particularly in Andhra Pradesh and Tamil Nadu blackgram has been grown for decades, as a rice-fallow crop without any agronomic management. However, having realized the highest net returns, scientists bestowed their attention in improving the conditions for better establishment and higher productivity of blackgram. Crop rotations under which the blackgram crop is grown is said to have significant influence on the soil physico-chemical makeup and fertility status there by influencing the growth and yield of blackgram. In Pamidimukkala mandal blackgram is grown in *rabi* as rice-fallow crop year after year, while in some parts of the area, particularly in high lands with good drainage, this cropping sequence is rotated after every 2-3 years with sugarcane. The blackgram crop under sugarcane rotated cropping sequence is said to perform better than the repeated rice-blackgram sequence. So, it is proposed to study the impact of previous crops *i.e.* rice and sugarcane on the performance of blackgram.

Key words : Cropping systems, Correlation, Urdbean.

Influence of Integrated Nutrient Management on Rootcharacters and Economics of Ashwagandha

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ABSTRACT

The field experiments were conducted during *rabi* 2007-08 and *kharif* 2008 at College farm, ANGRAU on a sandy loam soil to study the effect of different levels of NPK, organic manures, *panchakavya* and bio-fertilizers on root yield and root growth parameters of Ashwagandha. The highest root yield (348 and 333 kg ha⁻¹ during *rabi* 2007-08 and *kharif* 2008, respectively) was recorded with the conjunctive use of 150% NPK along with castor cake @ 2.5 t ha⁻¹ and bio-fertilizers in Ashwagandha. The highest root length and girth were also recorded in the same treatment. The highest benefit cost ratio was recorded with 100% NPK+BF (2.86 and 2.39 during *rabi* 2007-08 and *kharif* 2008, respectively) in both the season.

Key words : Ashwagandha, B:C ratio, Grading of roots, Organic manures, *Panchakavya*, Root parameters.

Management of Alternaria Leaf Spot of Cotton

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ABSTRACT

Six fungicides and three bio-control agents were evaluated for their efficacy on *Alternaria alternata*, the causal agent of cotton leaf spot in both *in vitro* and *in vivo*. Mancozeb 0.3%, hexaconazole 0.2% and propiconazole 0.1% recorded 100% inhibition in poisoned food technique and *Trichoderma viride* (TNAU isolate) caused 78.55% inhibition of *A. alternata* in dual culture. Combined treatment of seed treatment with mancozeb 3 g/kg and foliar spray of propiconazole 0.1% reduced per cent disease index to 21 that accounted for a disease control of 43% with yield of 1831 kg ha⁻¹, an increased yield of 61% and benefit cost ratio of 1.69.

Key words : *Alternaria alternata*, Biocontrol agents, Cotton leaf spot, Fungicides.

Impact of Weather Parameters on the Incidence of Pink Bollworm, *Pectinophora gossypiella* (Saunders) on *Bt* and non-*Bt* Varietal Cottons

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ABSTRACT

Studies on impact of weather parameters on the incidence of pink bollworm, *Pectinophora gossypiella* (Saunders) on *Bt* and non-*Bt* varietal cottons were carried out under Department of Entomology, Agricultural College, Bapatla at Regional Agricultural Research Station, Lam, Guntur during two seasons, *kharif* 2009-10 and *kharif* 2010-11. Pink bollworm larval population and their damage to locules was completely absent on stacked *Bt* cotton hybrids (RCH 2 BG II and Mallika BG II) compared to high larval population (0.50-11.50 larvae/25 green bolls) and locule damage (0.51-18.59% /25 green bolls) in non-*Bt* (L 604) during 49th (Dec. 3-9)- 8th (Feb.19-25) std. weeks with its peak (11.50 larvae and 18.59 per cent) during 8th std. week. The favourable weather parameters that influences the build up of high population of pink bollworm (6th to 8th std. weeks) are in the range of maximum and minimum temperatures 31-33 and 17-19°C, morning and evening relative humidities 82-92 and 42-56 per cent, and the rainfall 0-4 mm. Maximum temperature and evening relative humidity exerted significant positive ($r=0.673^{**}$) and significant negative influence ($r=-600^{*}$) on the pink bollworm incidence in L 604 non-*Bt*, respectively. All the weather variables (*viz.*, maximum and minimum temperatures, morning and evening relative humidities, and rainfall) together contributed to 68.7 per cent variation in pink bollworm larval population significantly ($R^2=0.687^{*}$) in L 604 non-*Bt*. Of the five variables, minimum temperature was found to have significant influence on variation of larval population.

Key words : *Bt* and non-*Bt* varietal cottons, Pink bollworm, Weather parameters.

Study of Thrips Associated with Pulses and Chillies Crop Ecosystems in Khammam District and their Identification

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ABSTRACT

The present study is on thrips associated with pulses and chillies crop ecosystems in Khammam district and their identification. In the present study five species of thrips belonging to four genera of the family Thripidae were identified from different chillies & pulses crop ecosystems in different areas of Khammam district they are i) *Scirtothrips dorsalis* Hood on chillies, redgram, greengram and blackgram ii) *Thrips palmi* Karny on redgram and blackgram. Iii) *Thrips hawaiiensis* (Morgan) on redgram iv) *Frankliniella sulphurea* Schmutz on chillies v) *Megalurothrips usitatus* (Bagnall) on redgram. Among the above, the following two species have been recorded for the first time in Andhra Pradesh.

1. *Frankliniella sulphurea* Schmutz on chillies
2. *Thrips hawaiiensis* (Morgan) on redgram.

Key words : Chillies, *Frankliniella sulphurea*, Thrips, *Thrips hawaiiensis*.

Management of Early Season Sucking Pests Through Stem Application Technique on Cotton

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ABSTRACT

A field study was conducted at Regional Agricultural Research Station, Lam for the management of early season sucking pests through stem application technique on cotton during 2012-13 and the test variety was L-761. Among the different insecticides tested, imidacloprid 1:10 was effective on aphids with higher per cent reduction of population over control at three days after application. Monocrotophos 1:4 was effective in managing leafhoppers population. With reference to thrips and whiteflies maximum reduction was recorded in monocrotophos 1:2 treated plot. Monocrotophos 1:4 with stem application technique recorded highest plant height, more leaf width and leaf length compared to other treatments. Highest yield was recorded in monocrotophos 1:4 and which was on par with acephate 1:4 (14.27 q/ha), monocrotophos 1:3 (13.77 q/ha), imidacloprid 1:10 (12.81 q/ha), monocrotophos 1:2 (12.50 q/ha) and imidacloprid 1:15 (12.10 q/ha).

Key words : Stem application technique, Sucking pests.

Efficacy of Certain Insecticides and Fungicides Alone and in Combination Against *Spodoptera litura* (Fab.) by Topical Application Method

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ABSTRACT

Studies on the efficacy of certain insecticides *viz.*, emamectin benzoate 5 SG @ 0.5 g/l, chlorfenapyr 10 SC @ 1.5 ml/l, indoxacarb 14.5 SC @ 1.0 ml/l, flubendiamide 480 SC @ 0.3 ml/l, spinosad 45 SC @ 0.3 ml/l and certain fungicides *viz.*, carbendazim 50 WP @ 1.0 g/l, chlorothalonil 50 WP @ 2.0 g/l, hexaconazole 10 SC @ 2.0 ml/l alone and in combination against *Spodoptera litura* were conducted under laboratory conditions. Emamectin benzoate, chlorfenapyr alone and in combination with all the three fungicides *viz.*, carbendazim, chlorothalonil and hexaconazole was found to be superior which caused cent mortality of third instar larvae of *S. litura* at 72 HAT by topical application method.

Key words : Insecticides, Fungicides, *S. litura*. Replenished

Influence of Weather Parameters on the Population Dynamics of Insect Pests of Pigeonpea (*Cajanus cajan* (L.) Millsp.)

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ABSTRACT

Field experiment was conducted to study the seasonal occurrence of major insect pests of Pigeonpea at Agricultural Research Station, Darsi during *Kharif* 2012-13. The initial oviposition by *Helicoverpa armigera* was observed from 43rd std. week and reached to a peak by 49th std. week. The initial occurrence of *H. armigera* larvae was noticed during 44th std. week and reached the peak during 52nd std. week. The incidence of *H. armigera* moth population was initiated during 41st std. week and peak moth incidence was observed during 51st std. week. The initial occurrence of *Maruca vitrata* larval population was observed during 45th std. week and the peak incidence was recorded during 51st std. week. The initial occurrence of *Exelastis atomosa* larval population was noticed during 44th std. week and attained its peak population at the end of the crop season by 3rd std. week. The occurrence of leafhopper is bimodal where early incidence starts from 37th std. week reaching its first peak during mid October and second peak during mid November. The correlation between oviposition by *H. armigera* and evening relative humidity ($r = -0.492$) was negative and significant, while minimum temperature showed significant negative influence on the larval ($r = -0.487$) and adult ($r = -0.488$) population of *H. armigera*. The correlation between larval population of *M. vitrata* and morning relative humidity ($r = 0.309$) and evening relative humidity ($r = 0.674$) showed positive influence. Minimum temperature ($r = -0.725$) and morning relative humidity ($r = -0.450$) showed significant negative influence on the larval population of *E. atomosa*. Leafhopper population showed positive correlation with maximum and minimum temperatures, morning and evening relative humidities and rainfall.

Key words : Insect pests, Seasonal Occurrence, Pigeonpea, Weather parameters.

Influence of Plant Densities and Nitrogen Levels on Yield of Transplanted Rice

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ABSTRACT

A field experiment was conducted to study the influence of different plant densities and nitrogen levels on rice performance at Agricultural Research Station, Ghantasala, Krishna District, Andhra Pradesh during the *kharif* seasons of 2009 and 2010. There were three plant densities (spacing); 16 hills/m² (25 x 25 cm), 25 hills/m² (20 x 20 cm) and 33 hills/m² (20 x 15 cm) as main treatments and four nitrogen levels; 80, 120, 160 and 200 kg N ha⁻¹ as sub treatments in split plot design replicated thrice. The results indicated that planting patterns with different plant densities had no significant influence on yield attributing characters and yield. But the application of nitrogen at 120 kg/ha resulted in optimum grain yield of the rice crop.

Key words : Rice, Plant Densities and Nitrogen Levels

Population Dynamics of Thrips, PBNB, PSND in Different Groundnut Ecosystems

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ABSTRACT

A roving survey was conducted during *Kharif*, 2011 and recorded the incidence of thrips, Peanut Bud Necrosis Disease (PBNB) and Peanut Stem Necrosis Disease (PSND) on groundnut in six mandals of Chittoor and Ananthapur districts with five villages in each mandal and five farmer fields per each village were selected. The roving survey was conducted at five different stages of the crop viz., vegetative, flowering, pegging, pod formation and pod developmental stages. In Chittoor and Ananthapur districts which revealed that the thrips damage was high during vegetative stage to peg penetration stage while the PBNB incidence was noticed from flowering stage to pod formation stage. With regard to PSND the disease incidence was more in Ananthapur district compared to Chittoor district particularly during *kharif*, 2011.

Key words : Groundnut, Population dynamics, Thrips.

Effect of Foliar Spray of kinetin and Homobrassinolide on Root and Leaf Development and Yield of Chickpea (*Cicer arietinum* L.) under Water Stress

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ABSTRACT

Two field experiments were conducted at Agricultural College Farm, Bapatla during rabi 2008-09 and 2009-10 to study the effect of kinetin and brassinosteroids on root and leaf development in chickpea (*Cicer arietinum* L) under water stress conditions in split plot design with nine treatments, replicated four times. Stressed plants from vegetative stage with no spray recorded the maximum root length, volume and dry weight; followed by the plants of homobrassinolide spray. No stress recorded more leaf area (28.5%) than water stressed plants. The plants undergone kinetin spray @ 5ppm performed well with higher leaf area (6.5%) than that of no spray; and it was on par with that of homobrassinolide spray @ 1ppm. The unstressed plants with kinetin spray attained the maximum leaf area and it was on par with that of homobrassinolide spray. It was noticed delayed senescence by homobrassinolide spray besides kinetin; which resulted in higher leaf area. Homobrassinolide spray @ 1ppm recorded higher values of SCMR followed by kinetin spray @ 5ppm. Unstressed plants with homobrassinolide spray recorded maximum seed yield (2451.3 kg/ha) and the plants stressed from vegetative stage recorded the minimum due to severe detrimental effects of water stress. Among sprays, homobrassinolide @ 1 ppm resulted in more seed yield (20.9%) than no spray and it was on par with kinetin spray @ 5 ppm.

Key words : Chickpea, Seed yield, Soil moisture content, Root and leaf characters, Brassinosteroid (BR), Kinetin.

Effect of Nutrition on Vase life of Garland Chrysanthemum (*Chrysanthemum coronarium* L.)

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ABSTRACT

Vase life of cut flowers was significantly influenced by the nitrogen and phosphorus levels. Among the individual effects, the highest vase life was recorded by the application of nitrogen at 150 kg ha⁻¹ (6.8 and 10.8 days), phosphorus at 100 kg ha⁻¹ (6.5 and 10.3 days) and during *kharif* and *rabi* seasons. The interaction between nitrogen and phosphorus was also found to be significant on vase life of flowers. It was also found to be at maximum with nitrogen at 150 kg ha⁻¹ + phosphorus at 100 kg ha⁻¹ closely followed by 150 kg ha⁻¹ dose of both nutrients. The flower quality in terms of size, weight was also found to be at maximum with nitrogen at 150 kg ha⁻¹ + phosphorus at 100 kg ha⁻¹ closely followed by 150 kg ha⁻¹ dose of both nutrients.

Key words : Garland chrysanthemum, Nutrition and Vase life.

Studies on the Effect of Integrated Nutrient Management Practices on Growth and Leaf yield of Palak (*Beta vulgaris* var. *bengalensis* Hort.)

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ABSTRACT

The results revealed that application of 100% recommended dose of fertiliser through inorganic (80:40:50 kg of NPK ha⁻¹) recorded higher values for plant height, number of leaves, leaf area, fresh weight, dry weight and fresh leaf yield per hectare and it was on par with 75% RDF through inorganic fertilizers + 25% recommended dose of nitrogen through poultry manure of organic source and 75% RDF through inorganic fertilizers + 25% RD of nitrogen through vermicompost in the palak.

Key words : INM, Leaf yield, Palak growth.

Genetic Divergence in Oriental Pickling Melon (*Cucumis melo* L. var. *conomon*) Genotypes

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ABSTRACT

Genetic divergence was assessed among 46 genotypes of oriental pickling melon for 18 characters using Mahalanobis' D² statistics and the genotypes were grouped into seven clusters. Seed cavity length contributed maximum towards divergence followed by 100 seed weight and number of fruits per vine. Highest inter cluster distances was observed between cluster III and VI followed by cluster III and VII. Highest cluster mean values for most of the traits were observed with the genotypes in cluster II.

Key words : Oriental pickling melon, D² analysis, Genetic divergence.

Response of Sesame to Foliar Application of N, P and K

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ABSTRACT

A field experiment was conducted during 2010 and 2012 at Agricultural Research Station, Yelamanchili, to determine the response of sesame to foliar application of N, P and K. Among the foliar treatments spraying with Multi-K(13:0:45) yielded significantly higher (522 Kg/ha). However recommended dose of fertilizer recorded higher yield than all the other treatments. During kharif the BC ratio was higher (2.65) with recommended dose of fertilizers as the gross returns and net returns were higher. Both the foliar treatments Urea and MOP recorded with BC ratio of 1.53 as the cost of treatments was low. However multi-k and polyfeed (19:19:19) recorded low BC ratio as the cost of treatments was high. During rabi the BC ratio was 2.87 higher with recommended dose of fertilizers as the gross returns and net returns were higher. Both the foliar treatments urea and MOP recorded with BC ratio of 2.56 and 2.77 as the cost of treatments was low. However multi-k and polyfeed recorded low BC ratio as the cost of treatments was high.

Key words : Foliar, Response of sesame.

Effect of Different Combinations of Preservative Solutions on Water Relations During the Vase Life of Cut Gerbera (*Gerbera jamesonii* Bolus ex. Hook.)

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ABSTRACT

An experiment was carried out to study the effect of different combinations of chemicals, on post harvest life of gerbera. The flowers held in 8-HQS 200 ppm + AgNO₃ 20 ppm + sucrose 5 % vase solution recorded highest values in water uptake (9.86 g/f), transpirational loss of water (9.95 g/f) and fresh weight change (% of initial weight) (91.66) whereas the flowers held in distilled water (control) were observed with lowest values in water uptake (5.86 g/f), transpirational loss of water (6.78 g/f) and fresh weight (82.88). The water balance in cut gerbera treated with AgNO₃ 20 ppm + sucrose 5 % in vase solution was maximum (4.18g/f) and it was minimum (2.90 g/f) in flowers held in distilled water (control). With better water relations and maximum fresh weight, the treatment 8-HQS 200 ppm + AgNO₃ 20 ppm + sucrose 5 % recorded longest vase life of cut gerbera (12.22 days). The flowers held in distilled water (control) recorded the lowest vase life (4.78 days).

Key words : Fresh weight change, Transpirational loss of water, Water balance, Water uptake Vase life.

Prepackaging of Fresh-cut Cauliflower Curds

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ABSTRACT

Cauliflower curd pieces were subjected to pre-treatments viz., non-blanching treatment (T_1), hot water blanching (T_2) and vapour blanching (T_3) and packed in polyethylene 200 gauge (P) and polypropylene 100 gauge (PP) with 0% and 1% perforation and stored in ambient condition. In general it was observed that non-blanching treatment was superior to vapour blanching and vapour blanching was superior to hot water blanching in retaining the post-harvest quality of the curd. Polypropylene package exhibited better result compared to polyethylene in controlling the physiological loss of weight (PLW), blackening, textural degradation rate and sensory quality. PLW, textural degradation was least with non-perforated packages. The treatment combination T_1V_0PP (non-blanching X 0% perforation X polypropylene 100 gauge) was best because of lowest PLW, texture degradation and better sensory quality throughout the period of storage of the curd i.e., upto 5th day of storage. Other interaction treatments like T_1V_1PP (non-blanching X 1% perforation X polypropylene 100 gauge), T_3V_0PP (vapour blanching X 0% perforation X polypropylene 100 gauge) were also effective in retaining the quality of curd during storage.

Key words : Cauliflower, Fresh-cut, Prepackaging, Blanching.

The Growth of Farm Mechanization in India after Independence and the Status of Andhra Pradesh

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ABSTRACT

The study of growth of Farm Mechanization in India after Independence and the status of Andhra Pradesh was studied in College of Agricultural Engineering, Bapatla, during the year 2011-12. Mechanization has been well received in India as one of the important elements of modernization of agriculture. Mechanization refers to interjection of improved tools, implements and machine between farm workers and materials handled by them. Irrigation pump sets, power threshers, tractors, power tillers and matching implements including for 65 Million draft animals have become popular. Seed and seed-cum fertilizer drills, planters, mechanical rice transplanters, vertical conveyor reapers, and combines soon followed. In Andhra Pradesh Karimnagar district has a highest number of power tillers (1835) and lowest was Guntur district (65). Karimnagar district has highest number of wheeled tractors (9061) and lowest was observed in Vishakhapatnam (467). Guntur district has highest number of crawler tractors (1795). Telangana Region has highest number of tractors (5250) compared to Andhra Region (5019) and Rayalaseema Region (1895). And also large number of power tillers is available in Andhra Region (1522) compared to Rayalaseema (110) and Telangana Regions (574). Combine harvesters are more in Andhra Region (75). Warangal district has highest number of wooden ploughs and Hyderabad has lowest number of wooden ploughs since it was an urban area. Chittoor district has highest number of soil stirring and turning ploughs and lowest number in Hyderabad.

Key words : Mechanization, matching implements, seed-cum fertilizer drill, planter etc.

Physical Properties of Three Maize Varieties

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ABSTRACT

Physical properties of kernels, grains, and seeds are necessary for the design of equipment to handle, transport, process and store the crop. An experiment was conducted at College of Agricultural Engineering, Bapatla during 2012-13 to evaluate the physical properties of maize kernels (DHM 117, DHMM 115, and PIONEER B12) as function of moisture content (12 to 20 % w.b.) The maize kernel length, width, thickness, geometric mean diameter, surface area, sphericity and kernel volume increased linearly with increase in moisture content. But the bulk density decreased with increase in its moisture content from 12 to 20 % wb, while true density porosity and thousand grains mass increased with increasing moisture content.

Key words : Maize, Moisture Content, Physical Properties.

Impact of Climate Change on Krishna Western Delta Using Swat Hydrological Model

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ABSTRACT

Quantitative analysis of expected changes in water availability and crop yields under changing climate scenarios has been carried-out in Krishna Western Delta. The area located geographically between 16.45^o-15.56^o N latitude and 79.85^o- 80.83^o E longitude and has a command area of 5275.21 km². The Soil and Water Assessment Tool (SWAT) model is applied for the resources in the study area and calibrated. The water balance studies in KWD indicated that 59.43 % of total water resources goes as water yield, 38.13 % as evapotranspiration, 2.3 % as change in aquifer storage and 0.14 % as soil moisture storage change. In the model study, the hydrological responses to variations of temperature (0^o C, +1^o C and +2^o C), and precipitation (0%, -10 %, and -20 %) have been considered based on Intergovernmental Panel on Climate Change (IPCC) projections. It is observed that the water availability in the system reduces in all changing climate scenarios. Both water yield and soil moisture storage decreases by 19 % in decrease of 20 % rainfall and increase of 2^o C temperature scenario. Average agriculture productivity in the study area decreases from 723 to 637 t ha⁻¹ in different climate scenarios. From the simulation results, rice will be the most affected crop in the changing climate conditions. Rice crop yield decreases by 39 % followed by grams 19 %, sunflower 10 %, maize 7 % and cotton 4 %.

Key words : Climate change impact, Krishna Western Delta, SWAT (Soil and Water assessment Tool).

A Study on Status of Government Relief Packages to Deceased Farm Families in Prakasam District of A P

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ABSTRACT

The present study was conducted to highlight the impact of relief packages given by the government to the deceased farm families. For this a net-worth statement of the sample farmers was calculated to know the financial eligibility and tabular analysis was done to get the exact level of implementation of relief fund and its impact on uplifting the existing situation.

Key words : Deceased farm families, Relief packages and Upliftment.

Costs and Net Returns of Tobacco Production in Prakasam District of Andhra Pradesh

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ABSTRACT

This study was conducted to estimate cost and net revenue from tobacco in Prakasam District during 2003-04. The study was conducted in two mandals and six villages were purposively selected from Prakasam district of Andhra Pradesh. A total of 42 respondents were randomly selected from the six villages. we were interviewed through a well-designed questionnaire. The objectives of the study were to estimate the cost and net returns of production of tobacco crop. The net return from tobacco crop was Rs. 39111.29. Besides tobacco leaf, by-product of tobacco production was also a major contributor to the net return from tobacco crop. The revenue function revealed that price of the produce significantly contributes towards higher revenue for the farmers.

Key words : Costs, Net returns, Tobacco production.

A Pilot Clinical Study on Impact of Pranayama And Amla – an Approach Towards Control of Diabetes Mellitus

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ABSTRACT

Diabetes is a colossal worldwide health problem causing serious health complications. India has dubious distinction as the Diabetes capital of the world, there is a rise in the incidence of type 2 diabetes with the increase in age, physical inactivity and sedentary lifestyle. Hence, the present study was undertaken for 3 months to assess the impact of pranayama and amla in type 2 diabetes. We selected 30 type 2 diabetic patients in the age group of 40+ years from local areas of Guntur city. They were divided into experimental and control groups with 15 patients in each group. The data were collected on anthropometry and biochemical parameters to see the effect of pranayama and amla. The experimental group were taught pranayama by yoga expert and practiced for one hour every day in the morning and at the same time after performing pranayama they were supplemented with one medium size amla (35gm). The subjects have been done the biochemical parameters and anthropometric measurements were recorded before and after completion of study. The results showed significant decrease in metabolic parameters of the experimental group. However, there were no significant changes in the control group. Difference pertaining to anthropometric measurements was also noticed in experimental group compared to the control group.

Key words : Amla, Diabetes, Metabolic parameters, Pranayama.

Opinions of Teachers of Agricultural College, Bapatla towards Model Class Room

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ABSTRACT

Agricultural College, Bapatla was purposively selected out of the six Agricultural College in ANGRAU to know the opinions of teachers towards the Model Class Room. The study was conducted by adopting the Ex - post - facto research design. The respondents for the study include all teachers (56) on rolls as on the date of study in the selected campus. The findings of the study revealed that majority of the respondent Teachers had neutral opinion towards model class room.

Key words : Teachers, Model class room.

A Scale to Measure the Attitude of Farmers Towards Farming

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ABSTRACT

A scale was developed to measure the attitude of farmers towards farming based on Likert's method of summated rating. A tentative list of seventy three (73) statements each expressing the attitude of farmers towards farming was collected and edited in the light of the informal criteria suggested by Thurstone and Chave, Likert and Edward. These statements were framed such that they expressed the positive or negative attitude. The respondents were asked to indicate their degree of agreement or disagreement with each statement on a three point continuum ranging from most relevant to not relevant. The score of each individual item on the scale was calculated by summing up the weights of the individual items. Based on the total scores obtained, the respondents were arranged in descending order. The top 25 per cent of the respondents with their total scores were considered as the high group and the bottom 25 per cent as the low group, so that these two groups provide criterion groups in terms of evaluating the individual statements as suggested by Edwards (1957). In order to find out the discriminating index for each item, 't' value was calculated using the formula and procedure given by Edwards. The scale so developed finally consists of twenty five (25) statements (thirteen positive and twelve negative).

Key words : Attitude, Farming, Reliability, Validity.

A Scale to Measure the Extent of Entrepreneurial Skills Acquired by the Students of Agricultural Experiential Learning Programme (AELP)

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ABSTRACT

A scale was developed to measure the extent to which entrepreneurial skills acquired by the students of AELP based on Likert's method of summated rating. A tentative list of 84 statements each expressing the extent of entrepreneurial skills to be acquired from AELP was collected and edited in the light of the informational criteria suggested by Thurstone, Chave, Likert and Edward. These statements were framed such that they expressed the degree to which the entrepreneurial skills can be acquired by the students. The respondents were asked to indicate the degree to which the entrepreneurial skills relevant to the AELP students on a three point continuum ranging from highly relevant to not relevant. The score of each individual item on the scale was calculated by summing up the weights of the individual items. On the basis of the total score, the respondents were arranged in descending order. The top 25 per cent of the respondents with their total scores were considered as the high group and the bottom 25 per cent as the low group, so that these groups provide criterion groups to evaluate individual items. In order to find out the discriminating index for each item, 't' value was calculated using the formula and procedure given by Edwards. The scale so developed finally consisted of 57 statements.

Key words : Continuum, Entrepreneurial skills, Reliability, Validity.

Effect of Master Trainer Training Programme on Chickpea Farmers' Knowledge and Adoption levels

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ABSTRACT

The study was conducted in Prakasam District of Andhra Pradesh during 2012. The investigation included 50 chickpea farmers trained under master trainers training programmes from three villages. The knowledge and adoption levels of the trainees were assessed before and after conducting training programmes. The study revealed that majority of the respondents (62.00%) had high knowledge in post knowledge training, whereas only 10.00 per cent of them had high knowledge in pre training knowledge test. More than fifty (52.00%) of the farmers were in high adoption group in post training compared to 6.00 per cent in pre training test. The major constraints expressed by chickpea farmers were non- availability of quality seed of improved cultivar (84.00%), high seed price (76.00%), high pest infestation (68.00%), High disease infestation (62.00%), low market price (56.00%), susceptibility to storage pests (52.00%) and high cost of cultivation (46.00%)

Key words : Adoption, Chickpea, Knowledge, Master trainers training.

Studies on Genetic Variability, Heritability and Genetic Advance based on metric and physiological traits in Pigeonpea [*Cajanus cajan* (L.) Millsp.].

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Key words : Coefficients of Variation, Genetic Advance, Heritability, Pigeonpea, Variability.