ABSTRACTS
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Combining ability in relation to heterosis for quantitative characters in cotton

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ABSTRACT : Genetic variances were estimated by full sib and half sib analysis in upland cotton in 54 F_1s involving six female lines and nine testers. Variances due to lines were significant for plant height, boll number and boll weight, whereas variance due to testers was significant for all the characters except seed cotton yield. Interaction (Line x testers) variances were significant for plant height, boll weight, ginning outturn, seed index and seed cotton yield. The value of $6^2A/6^2D$ showed predominant role of non-additive gene action in control of the above mentioned traits. Degree of dominance ($6^2D/6^2A$) 0.5 was in range of overdominance for these traits. Testers contributed maximum to variances due to crosses for plant height, boll number and boll weight, wheres lines x testers interaction was high for ginning outturn, seed index and seed cotton yield. *Per se* performance and gca effects of the varieties Suman, SH 2379, Acala Q-6, IC 461 and H 777 were high for yield and its components. Sca effects and heterotic response were highest in the crosses Suman x K 34, Suman x IC 426, LRA 5166 x JK 276 and LRA 5166 x Acala Q-6 for seed cotton yield and other economic traits.

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Heterosis for fibre characters in intra and interspecific hybrids of cotton

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ABSTRACT : Heterosis and inbreeding depression studies for fibre characters and seed cotton yield were carried out in *hirsutum x hirsutum* and *hirsutum x barbadence* hybrids of cotton while positive heterabeltiosis was detected for mean fibre length and bundle strength in *hirsutum x barbadence* hybrids, desirable negative heterobeltiosis was reported in both intra-*hirsutum* as well as *hirsutum x barbadence* hybrids.

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Effect of seed pelleting on germination, vigour and yield on cotton

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ABSTRACT : Field experiments were conducted during North-East monsoon season under rainfed condition with acid delinted cotton seeds Var. MCU 10. Delinted seeds were hardened with 2% Potassium chloride solution and pelleted with the nutrients viz., DAP Mg SO4, Micronutrient mixture, Azospirillum and leaf powders viz., *Pongamia pinnata, Deloni x regia, Vitis negunda, Azadirachta india* and *Acacia nilotica.* The same pelleting treatments were given to non hardened delinted seed hardened with 2%

potasium chloride and pelleted with *P. Pinnata* leaf powder recorded higher values for germination, vigour and yield.

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Efficacy of 2, 4-dichlorophenoxy acetic acid on seed cotton yield and fibre characters

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ABSTRACT : Foliar application of 2, 4-D at 1, 5, 25 and 50 ppm concentrations at full bloom stage, resulted in reduction of seed cotton yield significantly. Fibre characters were also impaired, with significant reduction in mean fibre length and bundle strength whereas, the fibre fineness was found to be increased. Treatment combination with calcium carbonate (1.0 or 1.5%) in addition to 2, 4-D showed significant recovery in seed cotton yield upto 5 ppm 2, 4-D injury level, as compared to treatment combination with no calcium carbonate.

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Response of new cotton varieties to nitrogen and planting geometry in sodic soils

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ABSTRACT : A field experiment was conducted during *kharif*, 1987 and 1988 to study the performance of three cotton genotypes (Var. LRA 5166, Vikram and Sharda) under three planting geometries (45 x 22.5, 45 x 33.75 and 45 x 45 cm) and three levels of nitrogen (40, 80 and 120 kg N ha^{-1}) in sodic Vertisols (ESP 22.5%). Variety LRA 5166 outyielded Vikram and Sharda. Increasing levels of N increased the seed cotton yield significantly being highest at 120 kg ha^{-1}. Plant height, leaves/plant at 50 per cent flowering, bolls/plant, boll size and yield/plant were also highest at 120 kg N ha^{-1} level. The three planting geometries did not record significant differences in seed cotton yield.

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Response of DCH-32 hybrid cotton to different levels of population under rainfed conditions

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ABSTRACT : In a two year field study on sandy loam soils of ARS, Honnaville, Shimoga under rainfed conditions, the *kapas* yields DCH-32 were higher with the increasing level of population. With 1,08,900 plants per hectare maximum yield (3150 kg/ha) was recorded, while minimum *kapas* yield (1190 kg/ha) was recorded with 6,800 plants per hectare. The higher population per hectare increased the plant height, percentage of sympodial branches, internodal length and leaf area index at 90 DAS. But, higher popolation per hectare reduced the bolls per plant, leaf area per plant at 90 DAS and percentage of monopodial branches. The higher *kapas* yield with higher population was due to higher number of bolls per unit area.

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A study on the extent of adoption of improved technology and economics of cotton cultivation of farmer's field

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ABSTRACT : In the present study, deviations between available improved technology and actual level of its adoption are identified, an attempt has been made to find out the constraints in the adoption of recommended technology and to work out cost of cultivation of cotton on different soil types on farmer's field under rainfed as well as protective irrigated condition. The study indicated that adoption of recommended cultivars is 100 per cent. The use of fertilizer dose and its time of application adopted by farmers is improper and is not in commensurate with recommended technology. In general, loss of first flush was observed due to non-adoption of spraying on need based strategy with recommended dose. Lack of awarness is found to be the major constraint in use of inputs. Study suggested that more emphasis should be given on large farm demonstration and there is need to popularize use of balance dose of fertilizer, its timely application and need dased plant protection technology.

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Variability for plant characters and biochemical products in boll rinds of bollworm tolerant Vs. Susceptible Cottons (*g. hirsutum* L.)

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ABSTRACT : Nine bollworm tolerant, 12 bollworm susceptible and 3 susceptible commercial checks of *G. hirsutum* cotton varieties were studied for variability in plant characters and biochemical constituents in boll rinds by growing them without plant protection. Bollworms resistant genotypes exhibited 15.78-20.42 gms/plant seed cotton yield, 6.07 to 8.67 bolls per plant, 0.77-1.61 per cent nitrogen, 0.031-0.081 per cent reducing sugar and 1.80-1.95 per cent tannin content in boll rinds. Values of yield, bolls per plant and tannin were low in susciptible varieties when compared to resistant genotypes whereas nitrogen, protein and reducing sugar content were higher.

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Effect of spacing and fertilizer levels on cotton in conjunction with moisture conservation techniques

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ABSTRACT : A field experiment was conducted to study the response of rainfed cotton to spacing and fertilizer levels in conjuction with soil moisture conservation techniques during 1992-93 to 1994-95 at Regional Research Station, Raichur. Pooled analysis indicated that among moisture conservation techniques, ridges and furrows realised maximum *kapas* yield (1006 kg/ha) followed by flat bed+furrow at every 5 rows (953 kg/ha). Average of three years with respect to spacing revealed no significant variation in *kapas* yield. Among fertilizer levels, 90 : 60 : 60 kg NPK/ha recorded significantly higher *kapas* yield (1079 kg/ha) over other fertilizer levels.

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Heterosis and gene action for biochemical contents in boll rinds of *Gossypium hirsutum* L. x *G. barbadense* L. cotton hybrids

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ABSTRACT : Eighteen interspecific *Gossypium hirsutum* L. x *G. barbadense* L. cotton hybrid were created by using 5 bollworm tolerant and one susceptible *hirsutum* strains as females and one bollworm tolerant and two susceptible *barbadense* strains as males. The hybrids and their parents were grown with only one plant protection spray against sucking pests and one against bollworms. Nitrogen, crude protein, reducing sugars, tannin in boll rinds and seed oil content were estimated at 80th and 12th day. Mean value and heterosis exhibited over mid parent, better parent and commercial check were calculated. New hybrids contained considerably lower amount of nitrogen, crude protein and reducing sugars tannin was nearly twice as high as that of DCH-32. Hybrid JK 276 x B-82-1 produced the highest oil content of 26.32% in seeds (DCH-32, 230%). Majority of the hybrids contained lower food products and higher antibiotic factor in the boll rinds.

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Bioefficacy of synthetic pyrethroids alone and in combination with dimethoate against cotton jassid

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ABSTRACT : Bioefficacy of synthetic pyrethroids viz., cypermethrin (50 g a. i./ha), fenvalerate (50 g a. i./ha) and decamethrin (12.5 g a. i./ha) and organophosphate, dimethoate, (225 g a. i./ha) was evaluated alone and in combination against cotton jassid, *Amrasca biguttula biguttula* (Ishida) during 1993. The results indicated that one and three day after spray. The mixture of synthetic pyrethroids with dimethoate and dimethoate alone were superior to control. However, all the insecticidal treatments were at par amongst themselves but cypermethrin+dimethoate proved most effective. After 7 days of spray, all the treatments showed non-effectiveness in controlling jassid population. It was also observed that one day after spray there was 74.32 to 78.77 per cent reduction in jassid population. All the treatments persisted for 5 to 7 days and thereafter increasing in jassid population was observed.

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Variations in toxicity of recommended insecticides to American bollworm, *Helicoverpa armigera* (Hubner) (Lepidoptera : Noctuidae)

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ABSTRACT : The third instar larvae of *Helicoverpa armigera* (Hb.) collected from cotton fields of Raichur, Navalgund (high pesticides applied areas) and Dharwad and Kalghatgi (low pesticides applied areas) were exposed to different insecticides at recommended concentrations in the laboratory to record mortality. Alphamethrin, quinolphos, chlorpyriphos and phosalone produced 60-90 per cent mortality of the larvae collected from high pesticide applied areas, whereas cypermethrin, fenvalrate, endosulfan, carbaryl and monocrotophos exhibited 30-60 per cent kill. All the insecticides were effective in bringing out 70 per cent mortality of larvae collected from low pesticide applied areas.

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Field evaluation of profenophos against cotton bollworms

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ABSTRACT : Profenophos was evaluated at dosages of 500, 625 and 750 g a. i./ha alongwith quinalphos (500 g a. i./ha) as standard against bollworms complex on *arboreum* cotton variety LD 327 at two locations during 1993 and 1994 at Punjab Agricultural University, Ludhiana. Profenophos at 625 g a. i./ha proved as effective as the standard in respect of bollworms damage stained seed-cotton. diapausing population of pink bollworm and yield. At higher dose though profenophos was better than quinalphos in respect of bollworms control but was comparable for seed-cotton yield.

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Management of American bollworm, *Helicoverpa armigera* Hb. on rainfed cotton ecosystem

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ABSTRACT : Efficacy of integrated pest management (IPM) technology, in management of *Helicoverpa armigera* as against chemical control was assessed during 1992-95 at Regional Research Station, Aruppukottai, Tamil Nadu. In IPM treatment, various components viz., *Chrysoperla, Trichogramma, Helicoverpa* NPV, Pheromone traps and insecticides were combined whereas in chemical method only insecticides were used. In IPM treatment, damage to the fruiting parts and cost of spraying were reduced. A net return of Rs.890/- ha^{-1} was realised than the chemical method.

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Effect of sowing time on the incidence of *Helicoverpa armigera* (Hubner) on MCU-5 cotton in Andhra Pradesh

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ABSTRACT : A field experiment conducted to study the incidence of *Helicoverpa armigera* (Hubner) in relation to sowing time and the age of the cotton crop at Regional Agricultural Research Station Lam indicated that the crop sown in early June or early July escaped the peak activity of the pest while sowing taken too late in September also escaped the attack because of the migration of the pest. In respect of age of the crop it was observed that crop aged 95 to 100 days was more vulnerable to the attack of *H. armigera* cotton bollworm.

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Population studies of *Helicoverpa armigera* (Hubner) on early and late sown cotton crop in NSP area of Andhra Pradesh

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ABSTRACT : Studies on population fluctuation patterns of *Helicoverpa* (*Heliothis) armigera* (Huber) on early and late sown cotton crop in the Nagarjuna Sagar Project area of Andhra Pradesh revealed that the mortality was high in the early stages of life cycle, under field conditions. The impact of rainfall on population reduction was clearly evident in early sown crop. Further, the trend index and generation survival factors indicated that late sown cotton crop was conducive for *H. armigera* population build up as the resistance by natural mortality factors was the minimum under those conditions.