ABSTRACTS
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Heterosis for seed cotton yield and fibre properties in *Deshi* (*Gossypium arboreum* L.) cotton

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ABSTRACT : Sixty four treatments consisting of eight parents and their 56 hybrids including reciprocals were grown in RBD to study the nature and magnitude of heterosis for fourteen yield and yield contributing characters viz., seed cotton yield/plant, lint yield/plant, ginning percentage, 2.5% span length, seed index and lint index in *Gossypium arboreum.* The hybrid combination, LD 327 x LC 30839 and its reciprocal cross, LC 30839 x LD 327 were highly heterotic combinations and recorded significantly high heterotic over mid and superior parents for lint yield, seed cotton yield, lint index and number of bolls per plant.

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Combining ability in *Gossypium hirsutum* L. for fibre quality parameters

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ABSTRACT : The variance due to both GCA and SCA were highly significant except bundle strength for males and G. P. for crosses, indicating the importance of both additive and non-additive gene effects. However, the additional gene effect were predominant for al the traits. For bundle strength LRK-516 as female was found best combiner. Most of the crosses which had positive SCA effect of quality traits, involved are good combiner and are medium of negative combiner. Additive gene action for seed index, lint index, fibre length, uniformity radio and fineness is reported.

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Effect of nitrogen and potassium on insect incidence and fibre quality of cotton (*Gyssypium hirsutum*)

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ABSTRACT : Field experiments conducted during three consecutive crop seasons (1989-91) revealed that Jassid and bollworm incidence increased with the increasing levels of nitrogen, and decreased with increasing levels of K_2O. The mean Jassid population increased by 49.03 per cent and 89.10 per cent at 60 and 120 kg N ha^{-1}, respectively over control (0 kg N ha^{-1}). Jassid population decreased by 19.29, 29.14 and 37.68% over control with the increasing levels of 30, 60 and 90 kg K_2O ha^{-1}. However, with the application of different levels of K_2O, the mean decrease in bollworm incidence was between 25.69-40.27 per cent. Span length (2.5%) increased from 22.23 to 22.86 mm with increased nitrogen levels. Micronaire and maturity coefficient values respectively increased from 4.22 to 4.36 and 0.731 to 0.748 at 30 kg K_2O

ha^{-1} and thereafter remained constant upto 90 kg K_2O ha^{-1}. At 90 kg K_2O ha^{-1} tenacity was observed to increase by 3.0% which improved the cotton fibre strength of cotton.

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A review of remedial measures for alleviating malformation in cotton

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ABSTRACT : During the vegetative phase, specially after the use of systemic insecticides and during the rainy months of July and August, several incidences of malformation in cotton occur every year in different cotton growing areas of Haryana, Punjab and Rajasthan. The above ground plant parts get malformed which result in slight to complete loss of the seed cotton yield. The severity of malformation is directly proportional to the intensity of the contaminant in the insecticide. Depending upon the cause, clipping of the malformed plant parts at the apex followed by foliar spray of either 2.5% urea of $ZnSO_4$ (0.5%+0.25% CaO) has been found to be the best method for alleviating this malady.

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Weed management studies in American cotton (*Gossypium hirsutum* L.)

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ABSTRACT : Field experiments were conducted at Agriculture Research Station, Sri Ganganagar to find out feasibility of chemical weed control used alone or in combination with one interculture for three years, 1993-95. Seed cotton yield, dry matter of weeds, weed control efficiency and other yield attributing characters were significantly influenced by all the weed management practices over unweeded check. On an average pre-planting application of Pendimethalin and Trifluralin @ 1.5 kg/ha followed by one hand hoeing at 35 DAS and farmer's practice were found at par among themselves but all these three treatments were found significantly superior in recording higher over all the treatments in seed cotton yield 29.89, 29.88 and 30.68 q/ha and quite effective in reducing weed dry matter 3.45, 3.20 and 2.65 q/ha and increasing weed control efficiency by 87.23, 87.49 and 89.87%, respectively.

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Biochemical composition of different genotypes of *hirsutum* and *arboreum* cotton

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ABSTRACT : Cellulose, ADF, Lignin, Silica, N, P and K have been estimated in different parts of nine *hirsutum* and seven *arboreum* genotypes during the year 1983-84 and 1984-85. Arboretum genotypes contained more amount of cellulose and ADF as compared to *hirsutum* genotypes. Lignin contents were also high in all parts of *arboreum* cotton. Cellulose, ADF, lignin and silica were found to be significant amongst all *hirsutum* and *arboreum* genotypes for both the years. Cellulose and lignin contents were maximum in stem and *khokhri* respectively in all genotypes of cotton. HD-43 and HD-37 contained maximum cellulose and ADF contents in 1984 and 1985, respectively. *Arboreum* genotypes contained more amount of N, P and K as compared to *hirsutum* genotypes in all plant parts. Significant difference in nitrogen was observed in all *hirsutum* and *arboreum* cotton genotypes. Maximum P and K contents were

recorded in *khokhri* followed by leaves, stem in al the genotypes in both the years and significant differences were observed in P and K content in different genotypes. Maximum removal of nutrient was observed in variety G-27 whereas minimum removal was noticed in variety HD-43 in both the years.

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Studies on acceptability trends of cotton varieties by the farmers in district Sirsa (Haryana)

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ABSTRACT : The survey of acceptability trends of cotton varieties by the farmers in Sirsa district was conducted from the year 1991 to 1995 cotton season. Cotton fields of 150 farmers were visited and on the basis of area sown under different cotton varieties during five years, the area of different varieties in Sirsa district was estimated. There was drastic reduction in cotton area under unrecommended and late maturing cotton varieties viz., Jhurar, F 414, LH 580 etc. Contrary to this, area under newly developed HS-6 variety was continuously increased from 0.09 per cent in 1991 to 47.5 per cent in 1995. The other American variety which gain the popularity was F 846. In *desi* cotton varieties the area under RG-8 was increased from 55.5 per cent in 1991 to 93.3 per cent in 1993 while it was 91.8 per cent during 1995. Contrary to this the area under LD 327 was decreased from 42.6 per cent in 1991 to 6.7 per cent in 1995 season. Recently developed *desi* cotton variety HD 107 may gain the popularity in near future.

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Flowering phase and bollworms incidence in two *hirsutum* cotton hybrids, PCHH-31 and LHH-121 in Punjab

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ABSTRACT : The duration of flowering phase and bollworms incidence in two intra *hirsutum* cotton hybrids, PCHH-31 and LHH-121 compared with *hirsutum* variety LH-1134 was studied under normal sown (May 15) and sprayed and late sown (June 15) both under sprayed and unsprayed crop conditions during 1992. The duration of flower formation in PCHH-31 was significantly longer than LHH-121 and LH-1134 being 49.00, 39.56 and 39.81 days, respectively. It was also longer in normal sown crop than late sown crop. The number of flowers/plant was significantly higher in both hybrids than variety being 61.46, 53.43 and 29.26 in case of LHH-121, PCHH-31 and LH-1134, respectively. Similarly the number of green bolls/plant was 57.91, 51.12 and 27.24, respectively. The number of flowers and green bolls/plant was comparatively higher in case of normal sown sprayed crop followed by late sown sprayed and late sown unsprayed crop. The transformation of flowers into green bolls and green bolls into harvestable bolls in all the cotton cultivars varied from 94.4-96.5 and 65.8-71.0 per cent, respectively. The shedding of flowers due to different factors (1.0-1.2%) was equal in all cultivars under different crop conditions. Physiological factors, however, caused higher shedding than spotted bollworms and pink bollworms, while American bollworm caused least shedding of flowers, it being 3.0, 0.8, 1.2 and 0.02 per cent, respectively. The shedding of green bolls due to physiological factors was significantly higher (21.1%) than spotted bollworms (9.0%), pink bollworm (1.5%) and American bollworm (0.27%). The extent of shedding of green bolls due to different factors was significantly higher in case of late sown unsprayed crop than normal and late sown sprayed crop. The maximum flower formation period in case of PCHH-31, LHH-121 and LH-1134 in case of normal sown and sprayed crop lasted from July 24-September 15, August 1-September 15 and August 1-September 30, respectively. The initiation of this period was delayed by 2-5 weeks under late sown under sprayed and unsprayed conditions.

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Evaluation of different insecticides of recent origin against *Helicoverpa armigera* (Hubner) on cotton

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ABSTRACT : Field and laboratory studies carried out at Regional Agricultural Research Station, Lam on the relative efficacy of new synthetic insecticides of recent orign showed that deltaphos, a combination product of deltamethrin and triazophos, was effective in reducing the *Helicoverpa armigera* infestation in fruiting bodies and contributed to maximum yield. The other promising insecticides were sulprofos, pyroclofos and triazophos. Studies conducted on the ovicidal and larvicidal action of different insecticides under laboratory conditions revealed that methomyl exhibited highest ovicidal action followed by deltaphos, cypermethrin and pyraclofos and in case of larvicidal action sulprofos was found to be most toxic to the third instar larvae followed by deltaphos, methomyl pyraclofos and acephate. The impact of various insecticides on the fibre characters showed that length, fineness, strength and maturity were not affected with the use of new synthetic insecticides.

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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 up in August recorded maximum incidence. However, crop sown 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 110 days was more vulnerable to the attack of *H. armigera* cotton bollworm.

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Response of different *Gossypium* species and susceptible plant growth stage to grey mildew (*Ramularia gossypii*)

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ABSTRACT : Dahiya disease caused by *Ramularia gossypii* (Speg.) Cif. can affect *G. arboreum, G. hirsutum, G. herbaceum, G. barbadense* and wild deploid species of cotton showing variable reactions. The disease incidence and intensity was observed at 9th, 10th, 11th and 12th week growth stage with maximum at 9th week stage of crop.

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Relation between damage caused by bollworms and boll rots associated mycoflora in dry bolls of *Hirsutum* and *Arboreum* cotton cultivars after pesticidal protection

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ABSTRACT : Eleven different pesticidal combinations were tested to study the incidence of microorganisms and bollworms of two cotton cultivars i. e. H-777 and G-27 from 1987 through 1989 in the Experimental Area of the Department of Plant Pathology, CCS Haryana Agricultural University, Hisar. For cultivar H-777 treatments namely R.I.+copper oxychloride, R.I.+ carbendazim+streptomycin sulphate effectively reduced the microbial population whereas for bollworms, R.I.+copper oxychloride and for both (microorganisms and bollworms). R.I.+copper oxychloride and R.I.+carbendazim+streptomycin sulphate were found best treatments. Similar type of trend was noticed in G-27, an arboreum cultivar.