ABSTRACTS
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Exploitation of Hybrid vigour in asiatic cotton vis-a-vis problems and prospects

B. S. SANDHU
Punjab Agricultural University, Ludhiana-141 004

ABSTRACT : Asiatic cotton (*Gossypium arboreum* L.) occupies an important places in the cropping system of the Punjab State and contributes greatly towards much needed crop diversification because of early maturity and relative tolerance to environmental stresses. Variety development programme through hybridization and selection has yielded rich dividends in the past. A recently recommended variety LD 327 (Sandhu *et al.,* 1988b), has an average yield level of 30 quintals with a potential of about 45 quintals per hectare. Besides large 4-loculed bolls (2.6g), it gins 41.9 per cent and is relatively tolerant to *Fusarium* wilt. However, to meet the demand for increasing domestic consumption, industrial requirements and export commitments, *desi* cotton will continue to be grown on considerable area. There is need to develop varieties with even higher yield potential and desirable fibre characteristics. But further improvement in yield through recombination breeding appears to be only marginal. This calls for a shift in breeding strategy.

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Stability of Yield and its Components in Cotton

DALVIR SINGH, S. S. NEHRA, AND D. P. SINGH
Haryana Agricultural University, Hisar-125 004

ABSTRACT : Investigation was undertaken to estimate genotype x environment interactions under six environments by giving three doses of nitrogen (40, 80 and 120 kg N/ha) and two spacing (60 x 30 and 90 x 30 cm) for yield, boll number and boll weight in *G. arboreum.* Four of the strains, namely, HD 58, HD 81, HD 70 and HD 71 were highly influenced with varying environments. Strain HD 70 showed responsiveness to nitrogenous fertilizer for seed cotton yield. HD 82 was least affected environmental interactions for yield and its components.

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Heterosis and combining ability analysis in *Gossypium arboreum* L.

K. S. NIRANIA, I. P. SINGH, B. P. SINGH, P. P. JAIN AND O. P. TUTEJA
HAU Cotton Research Station, Sirsa

ABSTRACT : Combining ability effects and extent of herosis were estimated for seed cotton yield, boll number, boll weight and plant height in a linextester crossing programme comprising 32 hybrids produced by crossing 16 lines with 2 testers. The study indicated pre-dominance of non-additive genetic variance for all the characters. Additive type of genetic variances also played an important role. Amongest females, 2167, comilla and BLD-124 were good general combiners and among males both DS-I and DS-6 were poor combiners for seed cotton yield and other characters except the latter for plant height. The cross 2167 x DS-1 showed high specific combining ability effects for yield and boll number. The heterosis for boll number and boll weight ranged from 31.93 to 73.78 per cent and 11.62 to 25.71 per cent

respectively, whereas, it was 73.78 per cent for the seed cotton yield in the cross 2167xDS-1. In general, hybrid progenies obtained from the crosses involving poor combiners and good combiners exhibited maximum heterosis.

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Association of Early vigour and other quantitative traits with seed-cotton yield in *Gosypium* arboreum L.

B. S. SANDHU, M. S. GILL AND N. S. MANGAT
Punjab Agricultural University, Ludhiana

ABSTRACT : Correlation coefficient and path analyses were carried out in *Gossypium arboreum* L. for nine characters, namely seed-cotton yield per plant, boll number per plant, boll weight, ginning outturn, halo length, seed index, lint index, initial plant height (plant height after one month of sowing) and final plant height. The experimental material comprised twenty parents and their fifty-one F_1 hybrids sown in a randomized block design with three replications. The study showed that boll number per plant greatly influenced seed-cotton yield. Lint index was positively correlated with ginning outturn and seed index. Early vigour (initial plant higher) had no influence on seed-cotton yield of final plant height.

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Role of seed vigour in field performance of cotton

B. P. S. LATHER, D. P. DESWAL AND R. C. POONIA
Haryana Agricultural University, Hisar

ABSTRACT : The optimum plant population which in mainly dependent on seed germination is a pre-requisite for getting higher production of seed cotton. Standard germination test generally reflects the emergence and plant producing ability of the seed under optimum conditions for germination, that seldom occurs in the field. This test appears to serve admirably the needs of the seed analyst and seed control officials, and not the seedmen and farmers. Hence, there is need for better and quick method of predicting seedling establishment of cotton seed lots. The necessity of evaluating seed vigour in cotton and its correlation with field establishment had been exphasised (Delouche, 1967; Grade, 1966). The present study was under taken to assess the comparative performance of different seed vigour tests and their correlation with field emergence.

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Studies of Production Agronomy of Upland cotton (*Gossypium hirsutum* L.) under protective irrigation

D. G. GIRI, M. V. DHOBLE AND J. T. NANKAR
Marathwada Agricultural University, Parbhani-431 402

ABSTRACT : An investigation was carried out to study the production agronomy of upland cotton (*Gossypium hirsutum* L.) under protective irrigation during 1985-86 and 1986-87 at Cotton Research Scheme, Parbhani. Pooled data revealed that the seed cotton yield was not influenced significantly due to different varieties, sowing dates and spacing. The fertility level 100 : 50 : 50 kg NPK/ha produced significantly higher seed cotton yield over lower level. All the cotton varieties with both the spacing responded significantly to higher fertility level.

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Effect of different irrigation schedules on yield, economics and water use under pure and intercropped stands of cotton in north-west rajasthan

B. L. VERMA AND RAM DEO
RAU Agricultural Research Station, Sri. Ganganagar

ABSTRACT : A field experiment was undertaken during *kharif* seasons of 1985-86, 1986-87 and 1987-88 to study the effect of different irrigation schedules on yield, economics and water use of cotton in pure and intercropped stand at Agriculture Research Station, Sriganganagar. Treatments consisted of combinations of three levels of irrigation of IW/CPE ratio 0.8, 0.6 and 0.4 and four intercrop stands (Pure cotton, cotton+*moong,* cotton+*guar* and cotton+groundnut). The data indicated that maximum yield of cotton was obtained when it was grown alone with irrigation scheduling at IW/CPE ratio of 0.8, whereas, under intercropped stands, the yield of cotton decreased at all the levels of irrigation. The maximum yield reduction was recorded when guar was intercropped with cotton. Maximum monetary return was obtained when cotton was intercropped with moong. The consumptive use of water was higher under intercropped stands as compared to pure crop stand.

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Effect of plant population and crop geometry on the seed cotton yield of american cotton in the canal irrigated area of north-west rajasthan

N. MUKERJI, N. R. BHARI AND B. L. VERMA
Agricultural Research Station, Sri Ganganagar

ABSTRACT : A field experiment was conducted at the Agricultural Research Station, Sri Ganganagar, to study the effect of plant spacing and crop geometry on the yield of American cotton, during two seasons of 1982-83 and 1983-84. It revealed that the seed cotton yields increased with the increase in the plant population per unit area. The seed cotton yield showed a decreasing trend, when the plant to plant and row spacings were increased (Decreasing plant population) beyond 30 and 75 cm, respectively. Further, paired row system of sowing was found beneficial in increasing the seed cotton yields over the commonly followed single system.

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Effect of Soil and Foliar application of Nitrogen on yield of cotton (*Gossypium hirsutum* L.)

D. S. NEHRA, L. K. BISHNOI AND M. S. KAIRON
Haryana Agricultural University, Hisar-125004

ABSTRACT : The result of experiments conducted at Haryana Agricultural University Farm during kharif, 1988 and 1989 revealed that yield attributes and yield of cotton crop increased significantly with the increase in nitrogen levels up to 80 kg N/ha in soil application and upto 60 kg N/ha in soil+foliar application. Further combination of soil+foliar application was superior than soil application of nitrogen and maximum increase in yield and highest nitrogen use efficiency was obtained by the application of 60 kg N/ha applied as 48 kg through soil and 11 kg/ha through foliar application.

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Modifications by fertilizers and amendments in the efficacy of fungitoxicants in controlling *Macrophomina phaselina*

M. S. CHAUHAN AND J. P. S. YADAV
Haryana Agricultural University, Hisar-125004

ABSTRACT : Macrophemina phaseolina (Tassi) Goid has been identified as major root rot inducing pathogen. The pathological analysis of the infected or rotten cotton roots often showed the presence of more then one pathogen. The efficacy of fungi toxicants namely, carbendazim, captafol and quintozene was variously altered in soils amended with different type of amendments viz., fertilizers (NPK), farm yard manure (FYM), Bio-gas slurry (BGS) and saw dust (SD). Disease control potentiality of carbendazim seed treatment was least affected. Saw dust was most active in reducing the efficacy of different fungitoxicants. The decrease of fungitoxicity was relatively more when higher doses of amendments were used.

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Effect of host plants and cotton cultivars on size and antennal length of cotton jassid, *Amrasca Biguttula* (ISHIDA)

S. UPADHYAY
Department of Entomology
KNK College of Agriculture, Mandsaur-458 001

ABSTRACT : Amongst the host plants and cotton varieties studied, Okra variety, Pusa Sawni was observed to be the most suitable host for cotton jassid. The cotton basis of antennal length, the preferences of the pest was okra, brinjal, cotton varieties, H-4, ERB 4492-S, Reba B-50 and Khandwa-2.