

ABSTRACTS

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Natural crossing in cotton (*Gossypium Sp.*) : Its significance in maintaining varietal purity and production of hybrid seed using male sterile lines

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ABSTRACT : The amount of natural crossing which taken place during varietal multiplication, not only losses the homozygosity and identities of breeder's original selections but also gives rise to new biotype. Therefore, natural crossing in considered to be of great practical significance in breeding, seed production and maintainance, natural crossing varying from less than one per cent to eighty one per cent : two to ten per cent is the usual average.

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Pre-harvest forecasting of yield of cotton

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ABSTRACT : A pilot survey on American cotton was undertaken at HAU, Farm-Hisar during 1987-88 and 1988-89. The data on yield and other biometrical characters were collected. The seed cotton yield was observed to be significantly correlated with the yield taken at 1st and second picking, height of the plant, total bolls, number of bolls of first picking, and boll weight. Various multiple regression models were fitted and regression analyssi showed that biometrical characters viz. boll weight and the number of bolls of first picking were the important yield contributing factors. Consequently, a reliable forecast of cotton yield can be made by considering the biometrical characters in conjunction with the yield of first picking. The per cent variation in total yield explained by the biometrical chracters was highest when the data was analyzed on original scale.

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Desi hybrid cotton for rainfed conditions

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ABSTRACT : Inter-specific, *G. herbaceum* x *G. arboreum* and intra arboreum desi hybrids, each eight were tested. Among them six inter-specific hybrids expressed significant positive hybrid vigour for seed cotton yield and number of bolls. Three of them also expressed positive significant heterosis for all weight over commercial check, Jayadhar. Five intra-arboreum hybrids showed positive significant heterosis over MP, BP and CC for seed cotton yield.

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Breeding cotton (*Gossypium arboresum* L.) for resistance of pink bollworm

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ABSTRACT : In a 6x6 diallel of red strains of *G. arboresum*, combining ability and breeding behaviour were studied for bollworm incidence and other characters i. e. rind thickness, pedicel length, biological yield, which are imparting resistance of bollworms, in F₁ and F₂ generations. As indicated, bollworm damage as well as rind thickness, pedicel length were primarily under the control of non-additive type of gene action. Parents NA 361 and NA 1605 proved to be the best combiner in reducing infestation and in increasing rind thickness and pedicel length. Testing of hybrid of NA 23xNA 364 and NA 23xNA 1605 on extensive scale and its inclusion in future programme will have practical value. Rind thickness, pedicel length, biological yield and intensity of red pigmentation individually and jointly play vital role in increasing resistance to bollworms pests.

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Possibilities of exploitation of cotton hybrid under rainfed conditions in madhya pradesh

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ABSTRACT : Among thirty hybrids A-51-9 x BC-761 was considered to be a good hybrid as it exhibited superiority over checks (Hy-4, JKHy-1, and Khandwa-2) for seed cotton yield, number of bolls, boll weight, number of sympods and plant height. However, this hybrid utilized longer period for maturity as compared to Hy-4 and Khandwa-2. Increase in yield was associated with increase in number of bolls, number of sympods and boll weight. The other superior hybrids were G. Cotton-10xF-286 and VikramxG.Cotton-10 which exhibited superiority over checks for yield and its component characters. These two hybrids were found early in maturity to checks.

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Studies on correlation and path coefficient analysis in desi cotton (*G. arboresum* L.)

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ABSTRACT : Studies on correlation coefficient in desi cotton revealed that seed cotton yield was positively and significantly associated with number of sympodia, picked bolls, boll weight and seed cotton yield per plant. The characters viz., ginning percent age and seed index showed positive but non-significant correlation with seed cotton yield per plant. Boll weight and leaf area per plant and halo length were positively and significantly correlated with dry matter accumulation. Path analysis indicated that number of picked bolls/plant (1.054) and boll weight/plant (0.603) had the maximum positive direct effect on seed cotton yield. However, number of sympodia and dry matter per plant showed positive but indirect effect on seed cotton yield.

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Performance of different cotton genotypes as influenced by varying plant and row spacing under rainfed conditions

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ABSTRACT : Field experiment were conducted during kharif for three consecutive years from 1986-87 and 1988-89 to study the performance of different cotton genotypes as influenced by varying plant and row spacing under rainfed conditions. Results revealed that amongst the different genotypes, NHH-44 produced the highest seed cotton yield of 1985 kg/ha and it was significantly higher over other genotypes followed by Rohini. The row spacing of 45 cm produced significantly higher seed cotton yield as compared to 60 cm. The narrow plant spacing of 22.5 cm recorded the highest seed cotton yield of 1553 kg/ha and it was significantly superior over 60 cm, however, it was on par with 15 and 30 cm plant spacing. All the cotton genotypes produced higher seed cotton yield with narrow plant spacing of 15 and 22.5 cm. Similarly narrow plant spacing produced significantly higher seed cotton yield when coupled with 45 cm row spacing.

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Response of cotton genotypes to protective irrigation and fertilization

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ABSTRACT : Field experiment was conducted during kharif for the three consecutive years from 1986-87 to 1988-89 to study the performance of different cotton genotypes influenced by irrigation and fertilization. Results revealed that Eknath (PA-32) produced the highest seed cotton yield (2815 kg/ha) and it was significantly higher over other genotypes followed by Rohini (2551 kg/ha). Application of 100 : 50 : 50 kg NPK/ha produced significantly more seed cotton yield than 50 : 25 : 25 kg NPK/ha fertilizer dose. Irrigation scheduled at 125 mm CPE found beneficial in increasing seed cotton yield. Application of 100 : 50 : 50 kg NPK/ha and irrigation at 125 mm CPE recorded higher water use efficiency. All the cotton genotypes responded to higher fertilizer dose under adequate moisture conditions.

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Bioefficacy of herbicides for weed control in american cotton (*Gossypium hirsutum* L.)

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ABSTRACT : Field trials were conducted for two years (1986 and 1987) at the Cotton Research Area of the Punjab Agricultural University, Ludhiana (Punjab), India to identify a potential herbicide which applied sole or in combination could provide an effective control of annual weeds in this crop. An effective control (73.7%) of annual weeds was obtained with the pre-emergence application of pendimethalin (1.5 kg/ha), followed by post-emergence directed spray of paraquat (0.2 kg/ha) in mid-August. Tank-mixture of diuron 1.0 kg/ha+pendimethalin 1.5 kg/ha also gave 63.7 per cent reduction in the dry matter accumulation of weeds as against 56.4 per cent by diuron alone at 1.5 kg/ha. The highest seed-cotton yield was obtained with the tank-mixture of diuron at 1.0 kg/ha and pendimethalin at 1.5 kg/ha.

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Influence of seed treatment on boll rot of green bolls and locules of cotton

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ABSTRACT : Boll rot complex of cotton is a serious problem and a threat to cotton cultivation wherever cotton is grown. Six fungitoxicants viz., Carbendazim, Thiophanate-M, Captafol, Captan, Streptocycline and MEMC were used as seed treatment on two recommended cultivars, H777 and G27, using delinted and Undelinted seeds. G27 had less boll rot and locule infection as compared to H777 in both delinted and undelinted seeds. Delinted seeds had low infection both on boll as well as locule basis in both the cultivars. Carbendazim and thiophanate-M were very effective while MEMC was least effective.

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Studies on histopathological changes due to meloidogyne incognita and rhizoctonia solani in cotton (*Gossypium hirsutum* L.)

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ABSTRACT : Histopathological changes due to meloidogyne incognita and rhizoctonia solani in cotton roots (Var. H777) revealed that nematode feeding site in nematode alone, nematode and fungus simultaneously and nematode prior to fungus was similar. The giant cells were formed in settle and feeding involved many surrounding cells to cause multinucleate conditions and dense cytoplasm. Neverthese, when fungus was inoculation prior to nematode, the nematode penetration was restricted upto cortex. Fungus was found to penetrate the collar region also.

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Study on biology and seasonal incidence of whitefly, *Bemisia tabaci* (Genn.)

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ABSTRACT : The studies carried out at Nagpur revealed that female had a fecundity of 87-192 eggs. The eggs were laid singly on the under surface of leaf. There were four nymphal instars before reaching adult stage. Throughout the nymphal stage, MS-17 pair of marginal bristles was retained. The females survived longer than males. The study on season incidence of the pest revealed that desi cotton varieties had a lesser attack as compared to upland varieties. Densely hairy varieties were more attacked than smooth leaved ones.

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Impact of bollworms management with different insecticides on target and non-target insects some plant character and fibre quality of upland cotton variety F 286

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ABSTRACT : The impact of bollworms management with 14 insecticides, 10 conventional and 4 synthetic pyrethroids, was observed on target and non-target insects, some plant characters and fibre quality of upland cotton variety F 286. Synthetic pyrethroids were found to be more effective for bollworms management than conventional insecticides. Among the latter triazophos, monocrotophos, quinalphos and carbaryl were more effective whereas DDT, endosulfan and phosalone were less effective for bollworms management. The uniformity ratio was more in all treated plots during second pick as compared to control.

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Response of different genotypes of cotton to fenvalerate alone and alternation with conventional insecticidal sprays in controlling the cotton bollworms and in management of whitefly population under irrigated condition

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ABSTRACT : Field experiments were conducted in kharif 1985, 86 and 87 to find out a suitable spray schedule for NHH-44, PH-36 and H-4 in controlling the bollworms and whiteflies under irrigated condition. The results revealed that five sprays, fenvalerate (0.1%) alternated by monocrotophos (0.06%) (3+2) starting from 60 days of crop stage at 15 days interval were found to be most effective and beneficial in controlling the bollworms incidence, reducing the population of whitefly, in obtaining maximum yield and cost-benefit ratios in all varieties/hybrids of cotton.