ABSTRACTS
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J. Cotton Res. Dev. **4** (2) 147-150 (July, 1990)

Inheritance of bacterial blight resistance in upland cotton (*Gossypium hirsutum* L.)

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ABSTRACT : Bacterial blight is a serios disease of upland cotton in Punjab. The inheritance of this disease was studied using resistant and susceptible genotypes, their F_1, F_2 and F_3 generations. The experimental material was evaluated at experimental fields of the Department of Plant Breeding, PAU, Ludhiana. The complete dominance of resistance to bacterial blight in cotton was observed. The two dominant genes were involved in the inheritance of this disease. The simple breeding procedures like pedigree method can be followed to isolate progenies resistant to this disease.

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Gene action, heritability and genotype x environment interactions in cotton (A review)

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ABSTRACT : An attempt has been made to review the literature on gene action, heritability and genotype interactions involved for the control of different yield and yield contribution traits in cultivated cotton.

From the review of literature it appers that the nature of gene action for important yield and yield contribution characters is under the control of both additive as well as dominance gene action. From the gene action it appears that reciprocal recurrent selection breeding procedure will be usefull in cotton breeding. Biparental cross technique and diallel selective mating system will be of great values for accumilation of additive gene effects in incorporating gene from various sources.

Further the knowledge heritability and genotype x environment interactions will be also useful to plan the breeding programme and to breed a variety having all desired attributes and stable wide range of environments.

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Breeding for desirable leaf and bract characters in upland cotton (*Gossypium hirsutum* L.)

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ABSTRACT : Studies on variability, correlation and path coefficient analysis for leaf and bracts characters and yield components were conducted on 64 upland genotypes during rainy season of 1988 at Indian Agricultural Research Institute, New Delhi. On the basis of these studies, high yielding strains viz., 19-13, with smaller and thicker leaves and bracts, bigger and larger number of bolls were selected. It was

possible due to breakage of undesirable correlation. Such genotypes may perform better even under rainfed conditions.

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Biometrical analysis of quantitative variability in diploid cottons- A review

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ABSTRACT : Genetic analysis of quantitative variability in diploid cottors had been reviewed. The analysis of first and second degree statisics following different biometrical approaches indicated that all types of gene effects were important for majority of the traits. Additive component, in general, was of greater significance than non-additive component and epistasis was an important component in inheritance. The genotype-environment interaction suggested that increase in number of environments may be more effective in reducing the variance of a variety mean than increase in the number of replications and 14 test environments may be sufficient for varietal evaluation. High positive association of seed-cotton yield with boll number and boll weight was also established by path coefficient analysis and selection index. D^2 analysis suggested that geographic diversity cannot be used as an index of genetic diversity.

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Triple test cross analysis for some metric traits in upland cotton (*Gossypium hirsutum* L.)

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ABSTRACT : A set of triple test crosses (TTCs) (Comprising of 35 progeny families) of upland cotton (*Gossypium hirsutum* L.) was evaluated under rainfed conditions in randomized block experiment for seven metric traits viz., earliness, plant height, number of monopods, number of sympods, number of bolls, boll size and seed cotton yield. Epistasis was found to be an integral part of genetic variation in cotton and the (i) component of epistasis was more important than (J+L) component in the expression of characters. The additive gene effects were predominant for traits other than seed cotton yield per plant and earliness wherein dominance gene effects were more important. Breeding strategy in the light of these results has been discussed.

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Production of cotton varieties as influenced by different soil types

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ABSTRACT : Field experiment was conducted during *kharif,* 1985-86 and 1986-87 to study the productivity of cotton varieties as influenced by different soil types. Amongst the different soil types, growing cotton on heavy soils had recorded the highest and significantly superior seed cotton yield (1560 kg/ha) over medium and shallow soils. Amongst the varieties, Eknath produced the highest seed cotton

yield (948 kg/ha) and it was significantly superior over Purnima and SRT-1. However, it was at par with Rohini. All the cotton varieties produced higher seed cotton yield on heavy soils followed by medium soils. All the varieties produced low yield on shallow soils.

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Effect of paraquat application on plant character and seed cotton yield of different varieties of american cotton*

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ABSTRACT : The effect of various doses of paraquat was studied on drying and shedding of leaves, boll weight, number of bolls, opening of bolls and seed cotton yield at HAU, Hisar. Finding of experiment indicates that all the doses (1, 1.25, 1.50 and 1.75 Kg a. i. ha^{-1}) of paraquat application had significantly increased drying and shedding of cotton leaves while application of 1 Kg a. i. ha^{-1} paraquat increased boll weight per plant. The number of bolls remained uneffected irrespective of doses of paraquat and varieties. Paraquat application significantly improved boll opening and seed cotton yield only in first picking while no effect was found in second picking. Variety Bikaneri produced maximum total seed cotton yield followed by H 655 C and H-14 while these differed in their response to various doses of paraquat application.

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Response of upland cotton to nitrogen application in relation to preceding crops. 1. yield and economics of crops

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ABSTRACT : A field experiment was carried out at HAU Cotton Research Station, Sirsa for three consecutive years of 1980 to 1983 to study the effect of six preceding crops and four levels of N applied to cotton. Increased seed-cotton yields were recorded when grown after legumes such as lentil (17.3%), fenugreek (9.4%), Chickpea (7.0%) and/or after fallow (8.1%) as compared to cereals (wheat and oats). Cotton succeeding wheat or oats responded favourably over the whole range applied, whereas, after legumes, it was only up to 80 kg N/ha. Growing cotton after fenugreek proved most profitable crop sequence giving Rs. 1470/ha/year more net income than chickpea and about Rs. 1470/ha/year more net income than chickpea and about Rs. 980 than wheat, oats and lentil preceding cotton.

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Effect of rate and methods of nitrogen application on *hirsutum* cotton genotypes

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ABSTRACT : The results of two years studies conducted at Haryana Agricultural University, Hisar during *kharif,* 1986 and 1987 indicate that under favourable conditions genotypes H 83-5 out yielded variety H 777 but under water stress conditions of 1987 variety H 777 gave maximum yield. In wet year of 1986 crop responded upto 120 kg N/ha without any effect of time of application. During dry year of 1987, crop responded upto 60 kg N/ha and late split application of 1/2 N at square and 1/2 at flowering was observed better then early application.

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Response of cotton genotypes (*Gossypium hirsutum* L.) to nitrogen and planting dates

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ABSTRACT : Field experiments conducted during *kharif* season of 1985 and 1986 at the JNKVV Regional Agricultural Research Station, Morena revealed that plant height, bolls/plant and seed cotton yields were more and boll-rottening were less in mid May sowing as compared to Mid June sowing. Genotypes responded up to 120 kg N/ha in 1986, giving a net-return upto Rs. 5485/ha. Amongst the genotypes, Bikaneri Nerma, F 414 and R S 634 were at par statistically (14.14 to 14.59 q/ha seed-cotton yield, and Rs. 4270 to 4440/ha net-return). R S 634 yield the maximum (22.47 q/ha) under mid May planting alongwith 120 kg N/ha, the net-return being Rs. 7033/ha.

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One race-horizontal resistance model

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ABSTRACT : One race horizontal resistance model is suggested by using-multi-resistance gene-attacker-genotype (race) of *Xanthomonas campestris* pv. *malvacearum.* The model is helpful for screening the varieties of horizontal resistance of cotton lines to bacterial blight pathogen. Pressure of variable genotype of the pathogen during screening process and confusing grades, determining resistance of a line, due to interraces-interaction in plants is avoided by using this model.

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Effect of common insecticides of pests and ancillary characters of cotton

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ABSTRACT : None of the insecticides commonly applied on cotton were found effective to whitefly, *Bemisia tabaci* Genn. Some of the ancillary characters like bell weight, boll number, leaf area, harvest index, maturity etc., were influenced by the insecticidal treatments. Nutritional status in terms of N, P, K levels in leaf and fibre characters in respect of length, strength and fineness were also affected by insecticidal aplication. Other characters like seed germination and oil per cent were also disturbed due to some insecticides.