ABSTRACTS
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J. Cotton Res. Dev. **3** (1) 1-6 (January 1989)

Heterosis for oil content in upland cotton (*Gossypium hirsutum* L.)

R. G. DANI[1] AND SUMAR BALA SINGH[2]
Division of Crop Improvement
Central Institute for Cotton Research, Nagpur-440 001

ABSTRACT : Heterosis and inbreeding depression for oil content was studied in 17 intra-*hirsutum* hybrids. Heterosis for oil content ranged between 2.46 and 18.46%, while the heterosis for seed cotton yield was between 7.67 and 86.15% over mid-parent averages. Useful heterosis over standard cv. SRT 1 ranged betwen 2.27 and 52.34% in terms of seed oil index. Oil content in most crosses was marginally higher than that in hybrid H 4, with relatively lower values of oil index. Sizeable amount of inbreeding depression was noticeable among the segregating generations for oil content, oil index and yield.

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Heterosis for seed oil content in upland cotton

PHUNDAN SINGH[1] AND S. S. NARAYANAN[2]
Division of Crop Improvement
Central Institute for Cotton Research, Nagpur, Maharashtra-440 001

ABSTRACT : In 81 hybrids of upland cotton (*Gossypium hirsutum* Linn) involving 25 parents, the positive heterosis over mid parent was observed in 30 crosses (0.24-27.6%), over better parent in 15 crosses (0.78-21%) and over the commercial cultivar in 39 crosses (0.47-27.1%). The best cross was EC 142762 x SRT 1 with seed oil content of 27.2. All the heterotic combinations showed inbreeding depression in F_2 indicating preponderance of non-additive gene effects for the expression of seed oil content.

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Response of cotton to zinc application in Punjab

RAJINDER SINGH, A. S. BRAR, M. S. BRAR* AND T. H. SINGH
Cotton Research Laboratory
Punjab Agricultural University, Ludhiana

ABSTRACT : A field experiment to study the effect of zinc application on seed-cotton yield was conducted at Cotton Research Station, Abohar during 1981-85. The treatments consisted of a control 5 and 10 kg Zn/ha either drilled or broadcast before sowing, spray of 0.5% $ZnSO_4.4H_2O$ and spray of 0.5% chelated zinc. The results showed that zinc application significantly increased yield over control. The soil application was better than the foliar spray. Application of Zn at the rate of 10 kg Zn/ha was superior to 5 kg Zn/ha application. The increase in mean seed cotton yield over 5 kg Zn was 13 and 21 kg seed cotton/kg Zn applied as drilling and broadcating, respectively.

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J. Cotton Res. Dev. **3** (1) 27-31 (January 1989)

Effect of nitrogen, intra-row spacings and varieties on the incidence of cotton bollworms under unsprayed conditions

N. S. BUTTER[1], J. S. KULAR[2], A. S. BRAR[3] AND T. H. SINGH[4]
Cotton Research Laboratory
Punjab Agricultural University, Ludhiana

ABSTRACT : Field experiments to evaluate the effect of nitrogen, intra-row spacings and varieties on the incidence of cotton bollworms under unsprayed conditions were conducted at two locations in Punjab. The results revealed that nitrogen application significantly increased the incidence of cotton bollworms on boll as well as locule basis. The closer spacing of 75 x 15 cm recorded higher incidence of cotton bollworms on locule basis than the wider spacing of 75 x 30 cm. The varieties LH 886 and F 505, however, showed similar incidence of bollworms.

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Judicious use of synthetic pyrethroids in the control of cotton bollworms

J. P. SINGH[1], B. P. S. LATHER[2] AND B. R. MOR[3]
Department of Plant Breeding
Haryana Agricultural University, Hisar-125 004

ABSTRACT : Two applications (second and fourth) of synthetic pyrethroids with three application (first, third and fifth) of conventional insecticides resulted in significantly low incidence of cotton bollworms and higher seed cotton yield in studied conducted on HSCP-1 variety of *Gossypium hirsutum* L. With respect to seed cotton yield, it was statistically at par with spray schedules consisting of three or four application of synthetic pyrethroids.

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Influence of shoot thickness and hairiness on *Earias vittella* (Fab.) incidence in cotton and okra

RAM SINGH*
Division of Entomology
I.A.R.I., New Delhi-110 012

ABSTRACT : Shoot and pith diameters of top portion of central shoots in cotton genotypes were significantly and positive correlated with shoot and fruit borer damage. In okra genotypes, such correlation could not be found. In addition to this, hairy shoot tips of both crops invited more number of eggs by shoot and fruit borer females which resulted in higher shoot and fruit borer incidence in hairy genotypes of both crops.

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J. Cotton Res. Dev. **3** (1) 41-45 (January 1989)

Path analysis in upland cotton (*G. Hirsutum* L.)

I. P. SINGH*
Department of Plant Breeding
Haryana Agricultural University, Hisar-125 004

ABSTRACT : Ten geographically diverse parents, their 46 F_1's and 45 F_2's were grown in randomized block design using three replications. Data were recorded on 14 characters. Path-coefficient analysis in the three population confirmed the association of the number of bolls with yield in all the three generations. The other characters which showed the direct effect on yield were ginning outturn, seed index and lint index. Characters related to growth, maturity and fibre quality showed little direct effect on yield. A comparison of path-analysis revealed that the casual scheme in a system of path relationships would vary in accordance with the genetic constitution of the population and traits considered as in parental, F_1's and F_2's population.

J. Cotton Res. Dev. **3** (1) 46-48 (January 1989)

Estimation of losses due to myrothecium leaf spot of cotton

N. K. TAJEJA[1], SHEO RAJ[2] AND P. K. SETH[3]
Central Institute for Cotton Research
Post Bag No. 125, GPO, Nagpur - 440 001

ABSTRACT : Estimation of losses due to the varying intensities of the disease on seed cotton yield of *Gossypium hirsutum* L. variety H 777 was studied for two years (1985-86 and 1986-87). It was found that significant negative correlation existing between per cent disease index and yield. An average loss in yield upto 15 per cent was observed with a PDI of about 37,00.

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Chemical Control of Whitefly (*Bemisia tabaci*) on cotton

R. S. VERMA, S. B. DAS, S. S. SHAW, K. C. MANDLOI AND A. K. BADAYA
JNKVV Regional Research Station
College of Agricultural, Khandwa-450 001

ABSTRACT : The population of whitefly reduced to the extent of 98.76% when the plot was treated with neem oil + teepol in the ratio of 5 : 1. The quinalphos treated plot also reduced the population to the extent of 96.79% with no significant difference with former one. The treatment amitraz and hostathion @ 1 kg a.i./ha each, were also found effective with 96.52 and 96.47% reduction of population, respectively.

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Value of leaf characteristics in selection for drought tolerance in upland cotton (*Gossypium hirsutum* L.)

A. M. DHOPTE[1], M. A. TAYYAB[2], S. L. JAMDAR[3] AND M. B. WADODKAR[4]
Cotton Research Unit
Punjabrao Krishi Vidyapeeth, Akola-444 104

ABSTRACT : Thirteen near-isogenic lines of American cotton (SRT-1) differing in leaf types were evaluated. Three years yield data (1984-87) revealed better performance of isoline having yellowish green colour, glossy surface, thick, broad lobed and dense hairs (BLDH) leaf characteristic with above average leaf area (21.0 dm^2) than norm 1 leaf with dark green colour and thin, broad lobed with average hairs (BLH), non-glossy surface and average leaf area (16.0 dm^2). Stomatal frequency (SF) of BLDH was lower by 9.3% with 10.8% reduced stomatal index but specific leaf area (SLA) was 4, 1 fold higher than normal line with canopy light interception similar in both. Dry matter production of isoline with BLDH remained always considerably higher with lower transpiration rate from flowering through bolling than normal leaf type. There were marginal differences in diurnal transpiration pattern among them. Remarkable increase in NAR was evident in BLDH at boll setting. Leaf type of BLDH character performed better in water stress during vegetative and post-flowering. Red pigmented leaves did not have advantage over BLH type. Canopy light reflectance was positively associated with bolls/plant (r=0.77) and seed cotton yield (r=0.72). There was negative association of leaf chlorophyll content with yield (r=0.54) but light interception had positive association of leaf chlorophyll content with yield (r=0.64). Thus, a leaf type type of BLDH character can perform better under limited soil moisture conditions and needs priority while selecteing ideotypes for drought tolerance.

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Field evaluation of some cotton genotypes for resistance to bollworms

M. G. BHAT AND A. P. JAYASWAL
Central Institute for Cotton Research
Post Bag No. 125, GPO, Nagpur-440 001

ABSTRACT : Cotton genotypes were evaluated for their resistance to *Earias* spp. (spotted bollworms) and *Heliothis armigera* (American bollworm) for two years (1985 and 1986). The results indicated that the genotype having frego bract (407-14-4 x R-2-8-73x) recorded least damage on squares, green bolls and loculi of open bolls while genotypes with high pubescence (6M x Pilose 2-75) had the highest damage on all three fruiting bodies. Bollworm damage in genotypes having high tannin, high gossypol, glabrous or okra leaf or race stock genotype (AET-5) was at par wtih SRT-1, the local cotton variety. Genotype with glabrous character was found to have the highest seed cotton yield in both the years followed by the genotype with frego bract character.

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Management of fungal foliar diseases of cotton with fungitoxicants

M. S. CHAUHAN AND J. P. S. YADAV
Department of Plant Breeding
Haryana Agricultural University, Hisar-125 004

ABSTRACT : In the field studies among eight fungitoxicants with different doses, two sprays of Topsin-M (500 g/ha) followed by Carbendazim (250 g/ha) were found economically suitable for the control of three fungal foliar diseases viz., alternaria leaf spot, Helminthosporium leaf spot and Myrothecium leaf spot with a net incremental cost benefit ratio of 1:2.75 and 1:15.27, respectively.