

ABSTRACTS

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Population genetics of eophyll direction in cotton

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ABSTRACT : The first cotyledonary leaves i.e. "eophyll" emerging after germination in cotton seedling have been found to exhibit a definite trend of direction irrespective of the direction of sowing of the seed. The direction of eophylls in the seedling was of three types viz., N-S, E-W and intermediate i. e. NW-SE. The population of seedling exhibiting 1 : 2 : 1 EW Int. N-S. Intermediates and East-West, and North-Sought, types of direction of eophyll was always in the ratio of 1 : 2 : 1. This behaviour was explained on the basis of Hardy-Weinberg Law. This indicated that the cotton populations since ages appeared to be panmictic and have attained equilibrium with regard to this trait and the frequencies of the gene (Symbolised E and e having incomplete dominance) controlling this character are equal i.e. 0.5 each.

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Physiological analysis of earliness in rainfed cotton (*Gossypium hirsutum L.*)

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ABSTRACT : Phenotypic correlation and path coefficient analysis in 24 genotypes of cotton (*Gossypium hirsutum L.*) have indicated positive association of stomatal conductance (CS), transpiration rate (TRANS) and photosynthetic rate (PH) at the boll developmental stage with the expression of earliness; while a negative association was evident between leaf area ratio (LAR), relative growth rate (RGR) and leaf area (LA) with earliness. However, in view of the reported positive association of RGR, LAR and LA with seed cotton yield it may not be advisable to breed for lowered expression of those parameters. It is, therefore, desirable to bring about improvement in CS, TRANS and pH for inducing earliness in rainfed cotton cultivation. In view of the high positive association amongst the three parameters viz., CS, TRANS and PH improvement in any one of the parameters is likely to improve the remaining two parameters simultaneously.

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Leaf analysis as a guide to the nutritional status of cotton grown in punjab

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ABSTRACT : Leaf Samples of cotton (*Gossypium hirsutum*) grown on cultivar's fields were collected at two stages of growth from five selected villages of Ferozepur, Faridkot and Bhatinda districts of Punjab and were analysed for P, K, Ca, Mg, Zn, Cu, Fe, Mn and B on emission spectrophotometer. Corresponding soil samples were analysed for pH, electrical conductivity, organic carbon, available P and K only.

Phosphorus, copper, zinc and boron were found deficient in cotton leaves. Low concentrations of these nutrients in plants was attributed to the light texture, low organic carbon, high pH and additions of insufficient amounts of chemical fertilizers and organic manures to the soil. Deficiencies of the nutrients in soil were intrinsic and not induced. Nutrient sufficiency ranges for the evaluation of plant analysis data in the Punjab have been proposed.

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Seasonal occurrence and carry over of cotton whitefly, *bemisiatabaci* G. in nagarjuna sagar project area of andhra pradesh

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ABSTRACT : More egg laying of whitefly, *Bemisia tabaci* G. was recorded on the cotton crop sown after August (10.6 to 24.7/cm²) compared to earlier sowing (1.5 to 6.3/cm²). Several potential crop hosts like soybean, sesamum, groundnut, green gram, black gram, brinjal, tomato etc. were enabling the pest to carry over and multiplication before it finally settles on highly succulent cotton. Several weed hosts like *Amaranthus viridis*, *Solanum*, *Abutilon indicum* etc., and stubble sprouts of cotton were also responsible for carry over of the pest through the hot months of March to May under NSP area of Andhra Pradesh.

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Persistence of vamidothion residues on/in cotton leaves and seeds*

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ABSTRACT : Persistence of vamidothion at 300, 400 and 500 g. a./ha applied as one and two foliar sprays on cotton was determined by colorimetric method. Average recoveries of vamidothion from leaves and seeds were 77.54 and 79.64 per cent. Initial deposits on cotton leaves for the three doses were 21.45, 32.74 and 33.55 ppm, respectively. The degradation rate was fast upto five days but slowed down afterwards. Within five days of application of residues lowered down to 6.2, 7.34 and 7.64 ppm with per cent loss of 71.1, 77.69 and 78.5 for the three respective doses. Initial deposits and persistence were dose dependent. On foliage the residue reached below the prescribed tolerance limit of 0.6 ppm within 28 days of treatment at the lower two doses. At 500 g a.i./ha it was slightly higher being 0.7 ppm. Following second spray the cumulative initial deposits of 20.16, 26.52 and 34.16 ppm for the three doses, reached the level of 1.14, 1.69 and 1.91 ppm, respectively in 14 days. Translocation of vamidothion into cotton seeds was meagre and was found below the detectable level after 100 days of the first and 85 days of the second spray. In seeds the residues were 0.16, 0.33 and 0.40 ppm for the respective three doses after 53 days of second spray. As such there is no harm if cotton seeds or oil cake are fed to animals or if vegetable **ghee** prepared from such cotton seeds is consumed by human beings.

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Aerial dissemination of *Cercospora gossypina* (Ckt.) Atk. pathogenic to cotton

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ABSTRACT : Aerial dissemination of the conidia of *Cercospora gossypina* was studied for a period of two crop seasons viz., 1984-85 and 1985-86, using a power operated 7-day recording Burkard spore trap. The airborne conidia began to appear in the air from October onwards, coinciding with the disease appearance in the air from October onward, coinciding with the disease appearance in the field, and showed a minor peak in November and major peak in January. The airborne conidia were observed mainly during day time with peak between noon and 16.00 h. A temperature range of 19-21°C (max.) and relative humidity range of 54-71% appears to be favourable for the condial dispersal. Rainfall has favourable but delayed effect on airborne conidial concentrations.

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ABSTRACT : Aerial dissemination of the conidia of *Cercospora gossypina* was studied for a period of two crop seasons viz.,

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Bionomics of *Oxyopes pandae* - A Predatory spider of cotton pests

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ABSTRACT : The bionomics of *Oxyopes pandae*, which occurs in abundance in cotton fields and is a voracious feeder on pests of cotton, has been studied. The female requires five or seven moults and males seven moults to reach maturity. Temperature too affects the mortality, the number of days required for each mould and total number of days required to reach maturity. The female makes maximum of four cocoons having 4-130 eggs during its life span.

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Dynamics of cotton production in Haryana

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ABSTRACT : The study aims at examining the past trends in area, production and productivity of cotton during 1996-67 to 1985-86 in the state and identifying the factors responsible for it. The source of data was the Statistical Abstracts of Haryana of the period under study. Analysis of the data revealed that there has been a significant growth in area, production and productivity of American cotton in the state and it has replaced **desi** cotton during the study period to a large extent. Total increase in production of cotton in Haryana is mainly attributed to increase in area. Area and production under cotton have grown

at the fastest rate in Bhiwani, whereas the productivity has grown fastest in Jind as compared to other districts. Contribution of price is highest in changing the value of cotton production.

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Integrated weed management in cotton

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ABSTRACT : Fluchloralin (1.0 kg) pendimethalin (1.5 kg) and oxadiazon (1.0 kg) were studied in a two year field experiment to determine their effectiveness when applied alone and in combination with one mechanical weeding. Mechanical weeding was more useful in the herbicide treated plots than without herbicide treated plots. Post-emergence application of these herbicides on mechanically weeded plots was not effective in controlling weeds. Pendimethalin applied pre-emergence followed by one weeding at 40 DAS was most effective in controlling weeds and gave significantly higher yield than weedy check.

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Effect of repeated backcrossing on yield and fibre traits in upland cotton

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ABSTRACT : The present investigation was undertaken to evaluate the relative advantage of making selection from straight F₂ generation in comparison with the population derived at different levels of backcrossing. The results showed that the selection for seed cotton yield, boll number, ginning outturn and lint index were better in first backcross generation (BC₁) due to their highest mean, range, mean of five top families and mean squares. The selection for boll weight and seed index was better in second backcross generation (BC₂), while the selection for plant height and halo-length was better in F₂ generation. The genetic basis for this differential response to selection shall be discussed.