

Summary of annual progress report of the IPM Cotton project of the Sir Ratan Tata Trust and the Navajbai Ratan Tata Trust

Introduction

Cotton has been the lifeline of the economy of the cotton belt in the Malwa region of Punjab. But the emergence of American bollworm in the final quarter of last century became a serious threat to the cultivation of this 'white gold'. Even a heavy overuse of pesticides failed to control the pest, which led to drastic reduction in the area, production and productivity of cotton in the state. It was only the rational use of pesticides under the holistic IPM approach of cotton cultivation which showed hope for the revival of cotton cultivation. The Sir Ratan Tata Trust took the lead to popularise this approach which then was carried forward in collaboration with the State Department of Agriculture to cover the entire cotton growing area under IPM technology.

The process

Reviving Green Revolution Cell (Sir Ratan Tata Trust, Mumbai), in partnership with Punjab Agricultural University, Ludhiana, and Department of Agriculture, Punjab, implemented the project "Further upscaling the dissemination of Cotton IPM technology across the cotton belt in Punjab" during 2010, which aims to improve the economic status of farmers by reducing expenditure on inputs, increasing yield and profit. The project was implemented in 300 villages across 9 cotton-growing districts of southwestern Punjab. The 'scout model' was adopted, in which a youth from the village was selected to work on implementation of the action plan of the project in their own village. All 300 scouts were trained in the Cotton IPM programme for four days at Punjab Agricultural University, Ludhiana, from March 5 to 27, 2010. Thereafter, three one-day trainings were given to scouts in July, August and September at the district headquarters of the respective Chief Agriculture Officers. Village information centres having charts, pamphlets and folders giving information on Cotton IPM were established in each village. The project was guided and supervised by consultants, field officers and officers of the Department of Agriculture.

The data on cotton hybrids, sowing time, fertiliser use, pest number and chemical sprays was collected at regular intervals for measuring the impact of cotton IPM technology. A total of 49,425 marginal, small, semi-medium, medium and big families were covered, of which 65.4 per cent belonged to the general category,

34.6 per cent to scheduled castes and backward castes. The total area under the project was 2.85 lakh acres, showing an increase of 5.7 per cent over 2009. Out of the total area, 1.9 per cent was resown as a result of mortality of seedlings due to prevalence of high temperature and the formation of a crust after sowing. Recommended and promising Bt cotton hybrids were sown on 63 per cent of the area and unapproved cotton hybrids on 28.37 per cent of the area. In the adopted villages, 74.9 per cent sowing of cotton was completed from mid-April to mid-May. The seed application rate varied from 600 to 900 grams / acre with an overall average of 782.6 grams / acre. The dosage of fertiliser applied on one acre varied from farmer to farmer. The farmers used on average 120.5kg DAP, 21.5kg potash and 8.7kg zinc per acre. At the time of sowing 52.1 per cent farmers gave soil application of potash, 66.3 per cent DAP and 52.9 per cent zinc at recommended dose. 84.4 per cent farmers applied potassium nitrate (13:00:45), out of whom 41.4 per cent of farmers gave three sprays, 26.1 four sprays and 28.5 percent two sprays. The weeds were managed by hoeing, and with spray of weedicides. About 60 per cent farmers preferred to control weeds with weedicides.

Results

Insect pests were managed mainly with insecticides. The usage of insecticides depended upon the number of insect pests and the extent of damage recorded during surveillance conducted at weekly intervals. Farmers were advised and trained to take decisions on the spraying of insecticides by considering threshold values. Based on these guidelines, IPM farmers on an average gave 4.52 sprays / acre in comparison to 5.76 sprays / acre given by non-IPM farmers, indicating 21.5 per cent reduction in the number of sprays. The average cost of sprays incurred on one acre by IPM farmers was Rs993.30 as compared to Rs1,311.80 by non-IPM farmers showing a 25 per-cent reduction in the cost of spray. An increase of 15.2 per cent in seed cotton yield / acre (8.71 quintal / acre in IPM and 7.62 quintal in non-IPM) was achieved by IPM farmers. IPM farmers earned Rs29,883 per acre and non-IPM Rs24,674 per acre, showing an increase of 21.1 per cent.

Learnings

The cost of sowing, fertilisers, sprays, weed management, and picking of cotton varied from farmer to farmer in different districts. Out of the total cost of inputs, 28.2 per cent was incurred on field preparation and seed, 28.6 per cent on cotton picking, 17.2 per cent on fertilisers, 10.5 per cent on insecticides and 15.5 per cent on weed management. The various components of correct spray technology (selection of the right pesticide, use of pesticide in the right dose at the right time using hollow cone nozzle) were adopted by 65 per cent of the farmers. As some promising Bt cotton hybrids, not approved by PAU, have found acceptability among

a large number of farmers, the issue would be taken up with PAU for their evaluation and recommendation.