

## IPM in cotton under dry farming condition

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### ABSTRACT

The experiments were conducted to demonstrate the TNAU IPM technologies in cotton under dry farming condition to farmers at Regional Research Station, Arupukottai during 2003-04 and 2004-05. The adoption of IPM reduces the pest damage as well as increase the natural enemy population and seed cotton yield in cotton. It also reduces the environmental pollution due to the less conception of pesticides. The cost benefit ratio was high (1.23) in IPM adopted plot, as compared to normal block, which registered the lowest cost benefit ratio (0.40).

**Key words :** IPM, Cotton, Jassids, Bollworm, Cost-benefit

### INTRODUCTION

Rampant misuse of insecticides in cotton production system has resulted in the virtually complete elimination of bioagents populations. It must be emphasized that reduced pesticide use has demonstrated the restoration of bioagents with yields being initially low but once natural enemy populations are restored, higher yields are obtained (Asanov *et al.*, 2001). Bio-intensive module of IPM laid emphasis on the release of bio-agents with good management practices which are prevalent or that can be adopted in particular. The whole concept of IPM relies on encouraging the build up natural enemies of pests in the cotton ecosystem. As part of the All India Coordinated Improvement Project (AICCIP), an intensive networking system between ICAR, national institutes and state agricultural universities biointensive modules of IPM have been tested. As a result, a "best – bet" IPM technique has been developed on a larger area (Surulivelu *et al.*, 1998).

### MATERIALS AND METHODS

Two season field trials were conducted in one acre plot during 2003-04 and 2004-05 with SVPR 2 cotton variety to demonstrate the IPM in cotton under dry farming condition to farmers at Regional Research Station, Tamil Nadu Agricultural University, Arupukottai. TNAU cotton IPM module comprising the following components have been adopted for demonstration and compared with the farmer's practice.

1. Resistant variety (SVPR 2)
2. Intercropping with cowpea / sunflower / blackgram / greengram / bhendi.
3. Trap / border cropping with castor and maize / sorghum
4. Application of 250 kg of neem cake.
5. Soil test based fertilizer recommendation along with split doses of Nitrogen.
6. Mechanical collection and destruction of damaged plant parts and life stages of the insect.
7. Bird perching
8. Release of *Trichogramma chilonis* @ 5 cc / release / week (based on moth activity)
9. Release of *Chrysoperla carnea* @ 1 lakh grubs / release based on moth activity
10. Need based application of Neem oil 3 %
11. Need based spray of HaNPV @ 500 LE / ha and SINPV @ 250 LE / ha.
12. Installation of pheromone trap @ 12 / ha ; Yellow sticky trap @ 50/ha.
13. Need based use of recommended insecticides.

### RESULTS AND DISCUSSION

The observation on the incidence of leafhopper revealed that the IPM plot recorded average of 1.4 per plant, whereas in the Non-IPM block the incidence was 2.2 per plant. The incidence of

Table 1 : Pest Population and Cost Benefit ratio in Integrated Pest Management demonstration

| Particulars   | IPM block (ha) | Non IPM block (ha) |
|---|----------------|--------------------|
| Cost of cultivation including summer ploughing, seeds, fertilizers, sowing, weeding and harvest | Rs. 4100       | Rs. 2813           |
| Number of insecticidal sprays   | Nil            | Three              |
| Application of pesticides   | Rs. 240        | Rs. 2150           |
| Pheromone traps, Bird perches, yellow pan trap  | Rs. 275        | -                  |
| Total Cost of cultivation   | Rs. 4615       | Rs. 4963           |
| Income from cotton  | Rs. 2900       | Rs. 2000           |
| Income from intercrops  | Rs. 2778       | -                  |
| Revenue   | Rs. 5678       | Rs. 2000           |
| Net Profit  | Rs. 1063       | (-) Rs. 2963       |
| Jassid population / plant   | 2.5 – 4.8      | 4.5 – 112.6        |
| Aphid population / leaf   | 2.1 – 4.6      | 3.2 – 6.8          |
| Predator population / plant   | 1.8            | 1.1                |
| Bollworm incidence (%)  | 11 - 14        | 25 – 29            |
| Stem weevil incidence (%)   | 15.56          | 25.00              |
| Yield (Kg/ha)   | 145            | 100                |
| Cost benefit ratio  | 1:1.23         | 1:0.40             |

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