# Priliminary Observation on Comparative Efficacies of New Insecticides and Standard Insecticides for Control of Cotton Boll Worms*

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**ABSTRACT**

**New insecticides viz., Quinalphose, Phosalone, Dicrotophos, Padan and Monocrotophose have been tested with standard insecticides for cotton boll worm control. On the basis of infestation in bolls by boll worms, the insecticide Phosalone and Carbaryl in form of dust were superior having least percentage of damage. On the basis of the damage caused by boll worms in locules of affected bolls concerned treatment of Phosalone in form of dust only showed least percentage of infestation but remained at par with Carbaryl, Quinalphose and Endosulfan in form of dust and Dicrotophose, Monocrotophose and Phosalone in form of spray.**

## INTRODUCTION

THE spotted boll worm (*Earias* Sp.) and the American boll worm (*Heliothis armigera* Hb.) are mainly responsible for lowering the seed cotton in this region. The early cotton plantings under irrigated conditions have been found to be infested with spotted boll worm especially in the initial stage of the crop. The top shoots get dry as a result of being bored by spotted boll worm which in later stage starts damaging the buds, flowers and bolls. The damage may confine to one or more locules or even the entire bolls. The present study has been, therefore, taken up to evaluate the comparative efficacies of some new insecticides with standard insecticides in reducing the boll worm damage assessed on the basis of infestation in bolls and locules at the time of harvest of cotton crop.

## METHODS

During the year 1973-74 a field trial with nine insecticides (spray and dust) at different concentrations was conducted at the Cotton Research Station, Surat selecting IAN-579/188 cotton under irrigated conditions being early Indo-American variety and more susceptible to insect pest as compared to *Desi* (*G. herbaceum L.*) cottons. The trial consisted of four new insecticides and five standard insecticides keeping control as untreated plot, each replicated four times in randomised block design. The size of microplot was

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7.3m x 8.5m and spacing between plant to plant and row to row was 0.30 m and 0.91m, respectively. For recording boll worms damage in bolls and locules at the time of each picking of cotton eight plants were selected at random from each microplot. The same selected plants were continued to be observed in subsequent picking by recording the total number of healthy and damaged locules in affected bolls. Thus total 32 plants were selected in each treatment for observations at each time. The percentages of infested bolls and locules worked out are presented in Table 1.

*TABLE—1*

**Infestation in bolls and locules by boll worms.**

| *Treatments* | *Dosag a.i. issued in Kgs. or Lit/ha.* | *Percentage of infested bolls (Mean)* | *Percentage of infested locules (Mean)* |
|---|---|---|---|
| Carbaryl 10% dust | 2-3 Kgs. | 18.6 | 6.22 |
| Quinalphose 2% dust | 0.4—0.6 Kgs. | 22.1 | 6.47 |
| Phosolone 35 Ec | 0.365—0.6 Lit. | 49.0 | 16.1 |
| Phosolone 4% dust | 0.8—1.2 Kgs. | 8.9 | 4.02 |
| Endosulfan 35 Ec | 0.243—0.4 Lit. | 60.9 | 24.97 |
| Endosulfan 4% dust | 0.8—1.2 Kgs. | 37.5 | 13.65 |
| Dicrotophose 24Ec | 0.486—0.8 Lit. | 25.5 | 6.4 |
| Padan 50 WP | 0.486—0.8 Kgs. | 82.7 | 35.2 |
| Monocrotophose 40 Ec | 0.146—0.240 Lit. | 42.4 | 15.4 |
| Control | — | 91.4 | 49.25 |
| S.Em. | | 8.36 | 6.303 |
| C D 5 % | | 17.17 | 12.93 |

Total 13 applications of each insecticides at an interval of 10 days were made during the crop period starting with square formation. The crop required 486-800 literes of spray fluid/hectare-under high volume spraying using hand compressed air sprayers so as to obtain thorough coverage of plants.

## RESULTS AND DISCUSSIONS

On the basis of infestation in bolls by boll worms (Table 1) the insecticides Phosalone 4 per cent dust as well as Carbaryl 10 per cent dust applied at the rate of 20-30 kg/ha. proved to be significantly superior to all other treatments having lowest percentage of damage. However these two treatments were at par with Quinalphose 2 per cent dust and Dicrotophos 24 Ec applied at 20-30 kg/ha and 0.1 per cent concentration, respectively.

All treatments were found to be significantly superior to Padan 50 wp at concentration 0.1 per cent and control.

As far as the damage caused by boll worms in locules of affected bolls concerned (Table 1) the treatment Phosalone 4 per cent dust showed least percentage of infestation in locules. It

was found to be at par with Carbaryl 10 per cent dust, Dicrotophose 0.1 per cent, Quinalphose 2 per cent dust at the rate of 20-30 kg/ha, Endosulfan 4 per cent dust at the rate of 20-30 kg/ha, Monocrotophose 0.03 per cent and Phosalone 0.075 per cent. All these treatments were significantly superior to Endosulfan 0.05 per cent and Padan 0.1 per cent which were significantly superior to control. On the whole all the treatment proved to be significantly superior to control.

In the same way Krishnamoorthy and Deenabandhu (1963) as well as Rangarajan *et al*, (1970) have reported Carbaryl to be effective for cotton boll worm and as such our findings are also at par with them.

In the present finding it can be seen that chronological sequenes of insecticides from view of infestation in bolls as well as infestation in locules remain as Phosalone dust > Carbaryl dust > Quinalphose dust > Dicrotophose Ec > Endosulfan dust > Monocrotophose Ec > Phosalone Ec > Endosulfan Ec > Padan wp.

## REFERENCES

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