

EFFECT OF SELFING BAGS AND INSECTICIDES ON
INSECT CONTROL AND SOME PLANT TRAITS
IN SORGHUM

By

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CHAPTER V

SUMMARY AND CONCLUSIONS

This study was designed to investigate the effect of selfing bags and insecticides on insect control and some traits in sorghum.

Eleven treatments including checks were applied to three sorghum varieties. The treatments involved the use of 6 insecticides in different combinations and dosages. The treatments were applied to the bags used to cover the panicles or directly to the panicles. This experiment was conducted at the Perkins Agronomy Research Station of the Oklahoma Agricultural Experiment Station from June to October, 1979. The experimental plots consisted of a 3 x 11 factorial arrangement in a randomized complete block design with three replications. The rows were 25 feet long and had 50 plants, approximately. Ten panicles from each treatment in each replication were selected at random prior to anthesis and covered with selfing bags. Eight variables were evaluated in this research: corn leaf aphid incidence, corn earworm damage score, panicle weight, grain weight per panicle, threshing percentage, weight of 100 kernels, percentage of sterility, and percentage of germination.

Results

1. Significant differences among varieties were found for each of the variables at the 1% level. Significance among treatments

was found for all the variables except percentage of germination. No interactions between treatment and variety were found for any of these variables.

2. Of the six insecticides tested against corn leaf aphid and corn earworm, carbaryl plus pirimicarb (treatments 3 and 4) gave significantly better control of corn leaf aphid than most of the other insecticides. Methomyl (treatment 9) gave best control of corn earworm, but it was not significantly different from the other treatments, except treatment 1 (no bags). Frontier variety showed a corn leaf aphid incidence significantly higher than Redlan and OK 632, whereas OK 632 gave a corn earworm damage significantly lower than the others. Some insects seem to prefer the more compact panicles of Frontier and Redlan.

3. All of the treatments in which insecticides were used, gave a panicle weight and grain weight per panicle relatively similar. Redlan gave a panicle weight and grain weight per panicle significantly lower than OK 632 and Frontier.

4. Treatment 4 gave a threshing percentage significantly higher than all the treatments, except 5, 3, and 1. OK 632 and Redlan varieties gave significantly better threshing percentages than Frontier.

5. Treatments 10 and 2 gave a significantly higher weight of 100 kernels than all other treatments. Methomyl (treatment 9) averaged lower than all the treatments. Frontier variety gave significantly higher weight of 100 kernels than the other varieties.

6. Treatment 11 gave a percentage of sterility significantly

higher than all the treatments except treatments 10, 8, and 9. Carbaryl plus pirimicarb (treatment 3) gave the lowest percentage of sterility, but it was significantly different only from treatments 8, 10, and 11. Frontier variety gave a percentage of sterility significantly higher than the other two varieties.

7. There were no significant differences among treatments for percentage of germination. Redlan and OK 632 varieties gave a significantly higher percentage of germination than Frontier.

8. The check (no bags) gave significantly better results than all or some other treatments in all of the variables except weight of 100 kernels, threshing percentage, and germination.

9. Treatment 2 (untreated bags) gave a significantly lower response than all or some other treatments in all of the variables except weight of 100 kernels, percentage of sterility, and germination.

Conclusions

1. None of the insecticides tested gave 100% control of corn leaf aphid but some gave a control significantly better than untreated bags. Panicles under both treated and untreated bags sustained significantly more damage than the check (no bags).
2. None of the insecticides gave a corn earworm control significantly better than the check (no bags).
3. Most of the treatments with insecticides gave yields of grain per panicle significantly higher than the untreated bags.
4. For other plant traits, treated bags gave results generally

better than the untreated bags.

5. Insecticides applied directly to the panicles gave percentages of sterility significantly higher than most of the other treatments.

6. None of the insecticides tested was harmful to germination.

7. Carbaryl plus pirimicarb gave the best corn leaf aphid control, fair but nonsignificant corn earworm control, good yield and threshing percentage, and low sterility, compared with other treatments in which insecticides were used.

Recommendations:

A. To test the toxicants that gave acceptable responses in the present experiment and other potentially useful materials at several dosages.

B. To test these toxicants mentioned in "A" on several varieties to obtain unbiased results.