1979

Using Foliar and Planting-time Insecticides to Control Chinch Bugs in Grain Sorghum (1979)

Gerald Wilde

Terry Mize

Follow this and additional works at: https://newprairiepress.org/kaesrr

Recommended Citation

Wilde, Gerald and Mize, Terry (1979) "Using Foliar and Planting-time Insecticides to Control Chinch Bugs in Grain Sorghum (1979)," Kansas Agricultural Experiment Station Research Reports: Vol. 0: Iss. 12. https://doi.org/10.4148/2378-5977.7375

This report is brought to you for free and open access by New Prairie Press. It has been accepted for inclusion in Kansas Agricultural Experiment Station Research Reports by an authorized administrator of New Prairie Press. Copyright 1979 Kansas State University Agricultural Experiment Station and Cooperative Extension Service. Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned. K-State Research and Extension is an equal opportunity provider and employer.
Using Foliar and Planting-time Insecticides to Control Chinch Bugs in Grain Sorghum (1979)

Keywords
Keeping up with research; 42 (Mar. 1979); Insecticides; Chinch bugs; Grain sorghum; Foliar; Planting-time

Creative Commons License
This work is licensed under a Creative Commons Attribution 4.0 License.

This research report is available in Kansas Agricultural Experiment Station Research Reports:
https://newprairiepress.org/kaesrr/vol0/iss12/138
Using Foliar and Planting-time Insecticides to Control Chinch Bugs in Grain Sorghum

Gerald Wilde and Terry Mize

Chinch bug infestations have been more widespread and intense in eastern Kansas in recent years than since the outbreaks of the 1930's and 50's. Field insecticide tests in 1977 indicated that correctly applying foliar insecticides significantly reduces chinch bug numbers, and greenhouse tests suggested that some granular treatments at planting time will control chinch bugs on seeding sorghum, so tests were continued in 1978.

In the first test, planted June 5, a granular application at planting time was evaluated 8 and 21 days later (Table 1). The most effective treatment on day 8 (June 13) was an in-furrow treatment of carbofuran. No band treatments gave good control. At 21 days (June 26) carbofuran in-furrow or a band gave some control, but left some chinch bugs surviving on all plants.

In the second test, planted June 29, planting-time applications were evaluated 14 days later (Table 2). In-furrow treatments of carbofuran and bands of carbofuran or phorate significantly reduced chinch bug numbers. A 1.2-inch rain 11 days after planting probably accounted for the effectiveness of the band treatments in the second test.

1. Mention of a compound and results do not constitute a recommendation by the Kansas Agricultural Experiment Station or the Kansas Cooperative Extension Service.
Table 1.—Chinch bug control on sorghum 8 and 21 days after planting with indicated planting-time treatments. Manhattan, KS, 1978.

| Treatment                  | Formulation | lbs. AI/Acre | Placement | Avg. live chinch bugs per cage plant<sup>a</sup> |
|----------------------------|-------------|--------------|-----------|-----------------------------------------------|
| Untreated control          |             |              |           |                                               |
| Disulfoton (Disyston)      | 15G         | 1.0          | band      | 6.6 ab 20.5 abc                               |
| Carbofuran (Furadan)       | 10G         | 0.5          | band      | 7.1 a 13.0 cd                                |
| Phorate (Thimet)           | 15G         | 1.0          | band      | 9.6 cd                                       |
| Carbofuran (Furadan)       | 10G         | 1.0          | band      | 6.3 abc 24.5 a                               |
| Carbofuran (Furadan)       | 10G         | 0.75         | furrow    | 5.1 bc 5.3 ef                                |
| Carbofuran (Furadan)       | 10G         | 0.25         | furrow    | 4.7 c 13.5 cd                                |
| Carbofuran (Furadan)       | 10G         | 0.5          | furrow    | 1.3 d 18.3 abc                               |
| Carbofuran (Furadan)       | 10G         | 0.75         | furrow    | 0.7 d 5.3 ef                                 |
| Carbofuran (Furadan)       | 10G         | 1.0          | furrow    | 0.3 d 4.6 ef                                 |

<sup>a</sup> Ten adult chinch bugs caged per plant on 8 plants.
<sup>b</sup> Forty chinch bug nymphs caged per plant on 6 plants.
<sup>c</sup> Means with the same letter in the vertical column do not differ significantly (0.05).

Table 2.—Chinch bug control on sorghum 14 days after planting with indicated planting-time treatments. Manhattan, KS, 1978.

| Treatment                  | Formulation | lbs. AI/Acre | Placement | Avg. live chinch bugs per cage plant<sup>a</sup> |
|----------------------------|-------------|--------------|-----------|-----------------------------------------------|
| Untreated control          |             |              |           |                                               |
| Disulfoton (Disyston)      | 15G         | 1.0          | band      | 10.8 b                                       |
| Phorate (Thimet)           | 15G         | 1.0          | band      | 8.8 b                                        |
| Carbofuran (Furadan)       | 10G         | 0.25         | furrow    | 5.0 c                                        |
| Carbofuran (Furadan)       | 10G         | 0.5          | furrow    | 4.3 cd                                       |
| Carbofuran (Furadan)       | 10G         | 1.0          | furrow    | 2.1 cd                                       |
| Carbofuran (Furadan)       | 10G         | 0.75         | furrow    | 1.5 de                                       |
| Carbofuran (Furadan)       | 10G         | 0.75         | band      | 1.3 de                                       |
| Carbofuran (Furadan)       | 10G         | 0.5          | band      | 0.0 e                                        |
| Carbofuran (Furadan)       | 10G         | 1.0          | band      | 0.0 e                                        |

<sup>a</sup> Twenty adult chinch bugs caged per plant on 6 plants. Means with the same letter do not differ significantly (0.05).

Of the granular tests, the carbofuran in-furrow treatment is registered for use on sorghum for chinch bug control. Both carbofuran and phorate band treatments are registered for use on sorghum for greenbug control, but not for chinch bugs. Disulfoton, registered as a band treatment for greenbug control, does not affect chinch bugs. Phorate should not be applied in-furrow at planting time because of its phytotoxicity.

Foliar applications of carbaryl, carbofuran, and endrin were tested on seedling sorghums, though endrin is not registered for sorghum crops. The other two are registered for chinch bug control. We included it as a chlorinated hydrocarbon to which control with newer insecticides can be compared. The foliar sprays were applied with a one-nozzle hand sprayer delivering 16 gal. of water per acre. Results of two tests at Abilene (Table 3) and one test at Manhattan (Table 4) indicate that all those insecticides significantly reduced chinch bug num-

Table 3.—Chinch bug control on seedling sorghum with foliar applications of indicated treatments. Abilene, KS. 1978.

| Treatment                  | AI/Acre lbs. | Formulation | Avg. chinch bugs/plant<sup>a</sup> |
|----------------------------|--------------|-------------|-----------------------------------|
| Carbofuran (Furadan)       | 0.5          | 4F          | 3.2 a 0.0 a                        |
| Carbaryl (Sevin)           | 2.00         | 80WP        | 1.0 a 2.3 a                        |
| Untreated control          |              |             | 87.0 b 9.7 b                       |

<sup>a</sup> Average number of chinch bugs on 10 plants. Means with the same letter do not differ significantly (0.05).
Table 4.—Chinch bug control on seedling sorghum with indicated foliar applications. Manhattan, KS. 1978.

| Treatment          | lbs. A/acre | Formulation | Avg. chinch bugs per 20 ft. of row¹ |
|--------------------|-------------|-------------|-----------------------------------|
| arbaryl (Sevin)    | 2.0         | 80WP        | 11.1 a                            |
| Carbofuran (Furadan) | 0.5       | 4F          | 15.1 a                            |
| Endrin             | 0.25        | 1.6E        | 28.0 a                            |
| Untreated control  |             |             | 96.2 b                            |

1. Means with the same letter do not differ significantly (0.05).
2. Not registered for use on sorghum.

But their residual poison does not extend more than 3 days, so chinch bugs migrating into a sorghum field could make repeated applications necessary.

The most important point in controlling chinch bugs with foliar sprays is to use drop nozzles or other methods to direct sprays to the base of plants where bugs congregate and to use as much water as possible, preferably at least 16 to 20 gallons per acre.

Most important in applying carbofuran at planting time is application in the seed furrow, which is more effective than the band treatments because it does not require a rain for treatment to control chinch bugs.