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greenbugs on sorghum



**Cooperative Extension Service
South Dakota State University, Brookings
U.S. Department of Agriculture**

greenbug control on sorghum

By

B. H. Kantack, entomologist, Cooperative Extension Service;
P. A. Jones, entomologist, Agricultural Experiment Station; and
W. L. Berndt, Extension pesticide specialist, South Dakota State
University

Introduction

During the 1968 growing season sorghum growers in South Dakota encountered a new insect pest on sorghum. Infestations of this pest were widespread from Texas to South Dakota. This insect, commonly called the greenbug, is an aphid or plant louse.

Entomologists have known for years that greenbugs could feed on sorghum but this insect had never caused economic damage on sorghum until the 1968 outbreak. Other host plants include all small grains as well as many cultivated and wild grasses.

Description and Life Cycle

The greenbug is pale-green in color with adults attaining a length of approximately 1/16 inch. A dark green stripe is visible down the back of the adult greenbug. They may be either winged or wingless. The winged forms differ somewhat in appearance, being slightly larger with filmy wings about 1/4 inch in expanse. The head is brownish-yellow and there are blackish lobes on the back of the thorax of the winged forms.

The greenbug is not known to overwinter in South Dakota and apparently all infestations arise from winged females which blow in each year. Each female greenbug gives birth to living young which are all females. These females start giving birth to living young in 7 to 18 days after birth depending on temperature and continue reproducing for up to 30 days. Each female may give birth to upwards of 80 young. The reproductive potential of greenbugs is so great that their numbers appear to triple over infested fields in a very short period.

Greenbugs should not be confused with corn leaf aphids which are always found in the whorls and upper parts of the sorghum plants. The corn leaf aphid is greenish-blue in color and appears much darker than the greenbug. NOTE: The cornicles (two projections on back) on the corn leaf aphids are longer than those found on the greenbug. Normally the corn leaf aphid does not cause sufficient damage in South Dakota sorghum fields to warrant control measures.



Greenbugs (top) should not be confused with corn leaf aphids (bottom). Normally the corn leaf aphid does not cause enough damage in South Dakota sorghum fields to warrant control measures. The cornicles (two projections at rear) on corn leaf aphids are longer than those on greenbugs. The corn leaf aphid appears much darker than the greenbug. A dark green stripe is visible down the back of the adult greenbug (note also photo on cover). Greenbug adults are about 1/16th inch long.

Nature and Extent of Greenbug Injury

Greenbugs, with their piercing mouthparts, suck juices from the sorghum plants. During the feeding process toxins are injected into the leaves. On sorghum leaves these toxins cause reddish spots around the puncture left by the greenbugs feeding on the undersides of the leaves. These reddish areas increase in size as the greenbug colonies expand. As the damage increases, the infested leaves begin to die, turning brown from the outer edges towards the center. Young seedlings can be killed quickly by greenbugs and often the plants are dead before the grower realizes a problem exists in the field. Where young seedlings are infested, greenbugs can often be found in the whorls as well as the undersides of the leaves.



These two sorghum plants illustrate the advantages of using proper control methods against greenbugs. Discolored leaves and a heavy infestation of greenbugs can be noted on the plant at left which was not treated. The healthy, uninfested plant on the right shows the effect of using a systemic insecticide at planting time.

Economic thresholds depend on plant size and growing conditions. Suggested guidelines before control measures should be applied are shown in Table 1.

Table 1.

Plant Size	When to Treat
Emergence to 6 inches	Visible damage with colonies of aphids on most plants and 10 to 20 greenbugs per plant, 10 on smaller plants.
Six inches to pre-boot	When aphids are present on plants and evidence indicates that entire leaves will be killed.
Pre-boot and larger	When numbers are sufficient to kill the lower two to four leaves.

Economic damage can vary from complete loss of a field where seedlings are infested to severe yield reduction in fields where larger plants are attacked. Plants growing under moisture stress are more susceptible to greenbug injury than plants growing in adequate soil moisture. Under low-moisture stress benefits from insecticide treatment for greenbugs are greatly increased.

Planting-Time Treatments

Research in South Dakota has shown that systemic insecticide granules are very effective in controlling greenbug infestations. **Di-Syston**, a systemic insecticide, can be applied at planting time at 1 lb actual/A (6.5 lbs. of 15 G/A) and will give season long control of greenbug on sorghum. The only systemic insecticide recommended is Di-Syston, and it should be applied in a band above the seed and incorporated a half inch into the soil. Do not allow the granules to come in contact with the seed as injury might occur. Normally, the packer wheels do a sufficient job of incorporation. Granules can be dispensed either through a granular attachment on planters or

through a grass seeder attachment where grain drills are used for planting operations.

Although a few aphids persist on treated plants, economic populations do not build up. The advantage of these planting time treatments is the elimination of the necessity for foliar sprays. Liquid systemic insecticides used as planting time treatments have not given greenbug control through the season.

Foliar Sprays

Where infestations develop in fields not treated at planting time, foliar sprays may be necessary to bring about greenbug control. As shown in Table 2 several insecticides are registered and recommended for use.

Table 2. Insecticides recommended for foliar application for greenbug control on sorghum.

Insecticides	A.I./Acre	Intervals and Precautions
Cygon	4 oz.	Do not feed or graze for 28 days. Do not apply more than 3 times per season.
*Di-Syston	8 oz.	Do not apply within 7 days for grain or 28 days for forage or fodder. Do not apply more than twice per season. Post treated fields to prevent entry for 3 days.
*Ethyl Parathion	8 oz.	Do not apply within 12 days of harvest. Post treated fields to prevent entry for 3 days. Do not spray methyl parathion or mixtures of methyl and ethyl parathion on sorghum as plant injury may occur.

*Di-Syston and Parathion are recommended for commercial aerial applicators only.

Ground Application

Selection of the insecticide is very important as highly toxic materials should not be sprayed with ground equipment. Thus Cygon is the only material listed that is recommended for use with ground sprayers. Ground sprayers should be calibrated to deliver 4 to 10 gallons of water per acre. Most farm weed sprayers are satisfactory for applying insecticide sprays. When small seedling sorghum plants are being sprayed, one nozzle over the row is sufficient for coverage. Where larger sorghum plants are being treated, one nozzle should be directly over the whorl and a drop nozzle directed to each side of the plants. These drop nozzles should be directed upward at a sufficient angle to obtain coverage of the undersides of the leaves.

Aerial Application

Where insecticide treatments are applied by air, any of the treatments recommended in Table 2 may be used. It is suggested that 1 or 2 gallons of water per acre be used as necessary for good coverage. When temperatures prevail below 60 degrees F. the use of ethyl parathion is not recommended. Cygon and Di-Syston will effectively control greenbug at the lower temperatures encountered.

Precautions

Insecticides are poisonous; handle and store them with care. Be sure to read the label and follow the directions. Keep children and pets out of the area where chemicals are stored, mixed, or used.

Do not contaminate feed, feed containers, or water troughs. Carefully clean all contaminated planting equipment. Destroy all emptied containers so they cannot be used for any purpose.

No endorsements of specific products or equipment named is intended, nor is criticism implied of those not mentioned.



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