Greenbug Control on Sorghum

Cooperative Extension South Dakota State University

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greenbugs on sorghum

Cooperative Extension Service
South Dakota State University, Brookings
U.S. Department of Agriculture
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 green bug, 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 green bug 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 green bug. They may be either winged or wingless. The winged forms differ somewhat in appearance, being slightly larger with filmy wings about ¼ inch in expanse. The head is brownish-yellow and there are blackish lobes on the back of the thorax of the winged forms.

The green bug is not known to overwinter in South Dakota and apparently all infestations arise from winged females which blow in each year. Each female green bug 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 green bug. 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.

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.

Economic thresholds depend on plant size and growing conditions. Established infestations of greenbugs will damage sorghum until it reaches the dough stage. It is recommended that where economic infestations are present, sprays be applied. These guidelines apply both to non-resistant grain sorghum, resistant varieties and so-called resistant varieties.

Suggested guidelines, before control measures should be applied, are shown in Table 1.

<table>
<thead>
<tr>
<th>Plant Size</th>
<th>When To Treat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 6 inches</td>
<td>Greenbugs present; visible yellowing</td>
</tr>
<tr>
<td>tall</td>
<td></td>
</tr>
<tr>
<td>6-11 inches tall</td>
<td>When greenbugs average 50 per plant</td>
</tr>
<tr>
<td>12 inches to preboot</td>
<td>When greenbugs average 100</td>
</tr>
<tr>
<td>Preboot to dough stage</td>
<td>When one leaf has been killed by greenbugs, and less than 20 percent</td>
</tr>
<tr>
<td></td>
<td>of the aphids are parasitized</td>
</tr>
<tr>
<td>Dough Stage</td>
<td>Do not spray</td>
</tr>
</tbody>
</table>

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.

**Resistant Greenbug Strain Discovered in 1974**

During the 1974 growing season resistance to Di-Syston was discovered in South Dakota. Greenbug problems developed on sorghum fields where Di-Syston was used as a planting time treatment. This resistant greenbug was designated as biotype D.

In view of the presence of this resistant greenbug strain the recommendation of Di-Syston at planting
time on sorghum has been withdrawn in South Da-
kota.

Di-Syston liquid sprays will be recommended on
the condition that monitoring studies on the green-
bug indicate that resistant greenbugs are not present
in the fields.

If the biotype D strain of greenbugs prevail in
South Dakota on grain sorghum in 1975, the Di-
Syston spray recommendation will be immediately
withdrawn.

Foliar Sprays

Where infestations develop in fields, foliar sprays
may be necessary to bring about greenbug control.
As shown in Table 2 several insecticides are registered
and recommended for use.

<table>
<thead>
<tr>
<th>Insecticides</th>
<th>A.I./Acre</th>
<th>Intervals and Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethoate (Cygon)</td>
<td>4 oz.</td>
<td>Do not feed or graze for 28 days. Do not apply more than 3 times per season.</td>
</tr>
<tr>
<td>Metasystox-R</td>
<td>8 oz.</td>
<td>Do not harvest for 45 days.</td>
</tr>
</tbody>
</table>
| *†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 liquid sprays 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 and Metasystox-R
are the only materials listed that are 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 satisfac-
tory for applying insecticide sprays. When small
seedling sorghum plants are being sprayed, one noz-
ble 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 noz-
bles 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 wa-
ter 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.
South Dakota Poison Control Centers
(Treatment and Information)

Sioux Falls:
Poison Control Center
McKennan Hospital
800 East 21st Street
Sioux Falls, South Dakota 57101
Phone: 605-336-3894, G. F. Touhy, M.D.

St. Luke's Hospital
305 S. State Street
Aberdeen, SD 57401
Phone 605-225-5110

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