

Sorghum

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Seedcorn Maggot, Wireworms, White Grubs, and Flea Beetles (up to first true leaf)

Table 4.38 - Planter Box Seed Treatment

Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest	Remarks
imidacloprid (25%) (Latitude Seed Treatment)	—	5.0 oz/100 lbs seed	Do not graze or feed livestock for 45 days after planting	Mix thoroughly in planter box prior to planting. Avoid breathing dust and contact with skin and eyes.

Greenbug Aphid

Sampling/Decision Making

A minimum of 40 randomly selected plants per field should be examined each week. Aphids are seldom evenly distributed across a field, so examine plants from all parts of the field. Avoid examining only field borders. Examine a greater number of plants in fields larger than 80 acres or if making a control decision is difficult.

Consider these factors when making a control decision: the estimates for aphids per plant, leaf damage, percentage parasitized aphids (mummies), and appropriate number of greenbug predators per plant.

Table 4.39 - Greenbug Aphid Control

Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest	Remarks
malathion (Malathion 5EC = 57%EC)	0.94 lb	1.5 pt	7 harvest, 0 forage	
dimethoate (Dimethoate 4E)	0.25-0.5 lb	0.5-1 pt	28	Do not feed or graze within 28 days of last application. Make no more than 3 applications/ season. Do not apply after heading. Ground application: use 25 to 40 gal water/A. Aerial application: use ≥1 gal water/A.
chlorpyrifos (Lorsban 4E)	0.25-1 lb	0.5-2 pt	30	RESTRICTED USE. Do not apply to sweet sorghum. To minimize chemical injury, do not apply Lorsban 4E to drought stressed grain sorghum within 3 days following irrigation or rain except where the product is applied in irrigation water.

Table 4.40 - Greenbug, English Grain Aphid, Bird Cherry-Oat Aphid Control

Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest	Remarks
<i>Seed Treatment</i>				
thiamethoxam (Cruiser 5FS)	–	5.1 oz/100lbs seed	–	Product is usually applied by manufacturer to seed upon request of grower at the time seed is ordered. Avoid breathing dust and contact with skin and eyes. Provides early season protection of seedlings against injury by chinch bugs, corn leaf aphids, fire ants, greenbug, seedcorn maggot, wire-worms, and yellow sugarcane aphid.
zeta-cypermethrin (Mustang Max)	0.02-0.025 lb	3.2-4.0 oz	–	RESTRICTED USE. Minimum 10 days between applications. Do not apply > 0.125 lb active ingredient/A/ season.

Table 4.41 - Treatment Thresholds for Greenbug Aphids

Plant size	When to treat
Emergence to about 6 in	Visible damage (plants beginning to yellow) with colonies of greenbugs on plants.
Larger plant to boot	Aphid colonies causing red spotting or yellowing of leaves. Before any entire leaves are killed.
Boot to heading	Before the death of one functional leaf.
Heading to hard-dough	When aphid numbers cause death of two normal-sized leaves.

If more than 20% of the greenbugs appear brown and swollen from being parasitized, and lady bird beetles, lacewing larvae, and syrphid fly larvae are active, then treatment generally is not necessary

Fall Armyworm (in Whorls)

Table 4.42 - Fall Armyworm (in Whorls) Control

Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest	Remarks
beta-cyfluthrin (Baythroid XL 1EC)	0.010-0.022 lb	1.3-2.8	14	RESTRICTED USE. Effective against first and second instars only. Maximum number of applications per season is 6. Minimum application volume (water) is 10 GPA by ground and 2 GPA by air.
methomyl (Lannate LV 2.4)	0.225-0.45 lb	0.75-1.5 pt	14	RESTRICTED USE. Fall armyworm can be difficult to control. Use ground application or application from helicopter only with high volume. Direct spray into whorls. Treat at 80% infestation (one worm/plant) or 40% infestation (multiple worms/plant). Treat when caterpillars are small.
(Lannate 90SP)	0.225-0.45 lb	0.25-0.5 lb	14	
lambda-cyhalothrin (Karate [2.08EC]) (Warrior II [2.08EC])	0.02-0.03 lb	1.28-1.92 oz	30	RESTRICTED USE. For control of first and second instars only. Apply as required by scouting, usually at intervals of 5 or more days. Apply by ground or air using sufficient water for full coverage. Aerial application: use ≥ 2 gal water/A. Do not apply >0.32 pt/A per season. In soft dough stage, do not apply >0.08 pt/A per season

Corn Earworm and Fall Armyworm

Sampling/Decision Making

Pre-headed sorghum: ragged shothole damage may be evident and at times 40-60% of plant will have dramatic heavy leaf damage, but worm control in the whorl stage is rarely justified. Late-whorl heading: begin to sample heads soon after flowering and continue until the soft dough stage is reached. Sample minimum of 200 plants at 20 sites within a small field of 10 acres or less. Treat only when larvae damage the head or the developing growing point and worms average 2 or more per head. Open-headed hybrids are damaged less than the compact or closed-headed types.

Sorghum Webworm Sampling

Decision Making

Make frequent head inspections when sorghum is beginning to flower and continue at 5-day intervals until hard dough. To examine heads for sorghum webworm, beat heads on a piece of paper or white handkerchief. Small larvae (less than 1/8th-in long) commonly overlooked during head inspections will be detected with this method.

Application of an approved insecticide is suggested when five or more small larvae are found per head.

Table 4.43 - Corn Earworm, Fall Armyworm, and Sorghum Webworm (in Seed Heads)

Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest	Remarks
beta-cyfluthrin (Baythroid XL 1EC)	0.010-0.022 lb	1.3-2.8	14	RESTRICTED USE. For fall armyworm, product is only effective against first and second instars. Maximum number of applications per season is 6. Minimum application volume (water) is 10 GPA by ground and 2 GPA by air.
carbaryl (Sevin XLR Plus)	1-2 lb	2-4 pt	21 grain, 0 forage	Direct spray into forming heads for optimum insect control.
(Sevin 4F)	1-2 lb	2-4 pt	21 grain, 0 forage	
(Sevin 80S)	1-2 lb	1.25-2.5 lb	21 grain, 0 forage	
lambda-cyhalothrin (Karate [2.08EC]) (Warrior II [2.08EC])	0.02-0.03 lb	1.28-1.92 oz	30	RESTRICTED USE. Apply as required by scouting, usually at intervals of 5 or more days. Apply by ground or air, using sufficient water for full coverage. Aerial application: use ≥ 2 gal water/A Do not apply >0.32 pt/A per season. In soft dough stage, do not apply >0.08 pt/A per season.
methomyl (Lannate LV 2.4)	0.225-0.45 lb	0.75-1.5 pt	14	RESTRICTED USE. Methomyl is product of choice for fall armyworm control. Apply at 50% bloom and 3 to 5 days later if needed. Use higher rates for serious infestations and for aerial applications. Threshold is 1 medium-to-large earworm or armyworm/head or 3 webworms/ head.
(Lannate 90SP)	0.225-0.45 lb	0.25-0.5 lb	14	
zeta-cypermethrin (Mustang Max)	0.011-0.025 lb	1.76-4.0 oz	–	RESTRICTED USE. Minimum 10 days between applications. Do not apply > 0.125 lb active ingredient/A/ season.

Sorghum Midge Sampling

Decision Making

To determine the presence of sorghum midge, fields should be inspected during midmorning until shortly after noon when midges are most active. Each day a new midge population appears; inspect fields daily. Midge adults can be detected crawling on or flying about flowering grain heads. Use of a clear plastic bag as a trapping device quickly slipped over sorghum heads is helpful in detecting and counting midge adults. Windy weather conditions make midges more difficult to locate and sample accurately.

To determine the need for chemical control, an assessment of crop development, yield potential and midge density is required. Daily evaluation of these factors is encouraged during flowering.

Midge resistant sorghum hybrids are available commercially and, within limits, provide an additional management tool. At similar infestation levels of ovipositing midge females, resistant hybrids generally suffer one-third the damage that susceptible sorghum hybrids suffer. The antibiosis resistance increases the economic threshold level to five adults per head during flowering compared with one midge per head for susceptible hybrids. When adult midge densities exceed five per panicle during flowering in resistant hybrids, insecticide applications at 5-day intervals are required.

Table 4.44 - Sorghum Midge Control

Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest	Remarks
beta-cyfluthrin (Baythroid XL 1EC)	0.008-0.01 lb	1.0-1.3	14	RESTRICTED USE. Maximum number of applications per season is 6. Minimum application volume (water) is 10 GPA by ground and 2 GPA by air.
carbaryl (Sevin XLR Plus)	0.75-1 lb	1.5-2 pt	21 grain, 0 forage	Direct spray into forming heads for optimum insect control. Treat for sorghum midge when 25-30 percent of heads have emerged from boot and are in bloom. Repeat application in 3-5 days if adults are still active.
(Sevin 4F)	0.75-1 lb	1.5-2 pt	21 grain, 0 forage	
(Sevin 80S)	1.5 lb	1.875 lb	21 grain, 0 forage	
lambda-cyhalothrin (Karate [2.08EC]) (Warrior II [2.08EC])	0.015-0.02 lb	0.96-1.28 oz	30	RESTRICTED USE. Apply as required by scouting, usually at intervals of 5 or more days. Apply by ground or air, using sufficient water for full coverage. Aerial Application: Use ≥ 2 gal water/A. Do not apply >0.32 pt/A/season. In soft dough stage, do not apply >0.08 pt/A per season.
chlorpyrifos (Lorsban 4E)	0.25 lb	0.5 pt	30	RESTRICTED USE. Apply when 30 to 50% of the seed heads are in bloom, repeat at 3-day intervals if needed. Do not apply to sweet sorghum. To minimize chemical injury, do not apply Lorsban 4E to drought stressed grain sorghum within 3 days following irrigation or rain except where the product is applied in irrigation water.
dimethoate (Dimethoate 4E)	0.125-0.25 lb	0.25-0.5 pt	28	Do not feed or graze within 28 days of last application. Make no more than 3 applications/season. Do not apply after heading. Ground application: use 25 to 40 gal water/A. Aerial application: use ≥ 1 gal water/A.

Table 4.44 - Sorghum Midge Control (cont.)

Insecticide (Formulation)	Amount active ingredient per acre	Amount product per acre	Time limits: days before harvest	Remarks
methomyl (Lannate LV 2.4) (Lannate 90SP)	0.225-0.45 lb 0.225-0.45 lb	0.75-1.5 pt 0.25-0.5 lb	14 14	RESTRICTED USE. Apply at 50% bloom and 3 to 5 days later if needed.
zeta-cypermethrin (Mustang Max)	0.008-0.025 lb	1.28-4.0 oz	–	RESTRICTED USE. Minimum 10 days between applications. Do not apply > 0.125 lb active ingredient/A/ season.