

INSECTICIDE RECOMMENDATIONS FOR GRAIN SORGHUM (MILO)- 2004 ENT-24

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Producing sorghum (milo) for grain is important in many Kentucky farm management systems. Grain sorghum is subject to infestation by a variety of insect pests. However, following a few good production practices can greatly reduce insect pest infestations. Plant at the proper time (usually as soon as possible after the soil temperature reaches 65° - 70°F. See AGR-18-Grain & Forage Crop Guide for Kentucky). Planting too early may result in infestation by greenbugs and chinch bugs, while late planting will increase problems with sorghum midge, fall armyworm, and sorghum webworm. Do not plant in fields infested with johnsongrass. Do not make sequential plantings- Strive for even bloom in fields. Monitor fields regularly and know the difference between pest and beneficial insects. Check with your County Extension Agent for Agriculture about training in pest identification, damage thresholds and control measures (Integrated Pest Management and Pesticide Applicator Training).

Additional Information

In addition to these recommendations the producer is advised to review **IPM-5, Kentucky IPM Manual for Grain Sorghum**. This publication will provide information about identification, life cycle, scouting techniques, and threshold values for the common pests of soybean. This manual may be found on the IPM web pages at: <http://www.uky.edu/Agriculture/IPM/ipm.htm>.

Additionally, you may find useful information about a specific pest in our ENTFACT series. These fact sheets may be found on the Entomology web pages at: <http://www.uky.edu/Agriculture/Entomology/entfacts.htm> These and other publications and educational materials are also available to the producer through your county extension agent for agriculture

Using Insecticides Properly

This publication is a guide; it is not a substitute for a product label. Before using any pesticide, read the entire label. Note the sections containing directions for use, restrictions, and the warning and precautionary statements. The user takes full responsibility for any deviation from label directions. The user should be thoroughly familiar with the proper safety equipment required (i.e. goggles, protection suits, respirators, etc.) to afford maximum protection. If any person involved in the operation should complain of uneasiness or sickness that might be due to overexposure to the pesticide, they should be examined by a physician. It is a good idea for all persons to know exactly what is being applied. Chemicals listed in bold italics are ***Restricted Use*** pesticides.

Preplant Soil Treatments for Greenbugs

Greenbugs are seldom reported as pests in Kentucky. Preventive treatments are not recommended unless a history of the pest develops. If a problem is anticipated the granular products **Counter**, **Di-Syston**, **Temik**, and **Thimet** are labeled for “at planting” use. All these products are **Restricted Use** and toxic.

Aphids are almost never a problem on Kentucky grown sorghum. Corn leaf aphids are commonly found but do no damage, only greenbugs and yellow sugarcane aphids are of importance. See IPM-5 (listed above) for description and treatment thresholds. Greenbug problems are usually a result of planting too early.

Foliar Treatments for Greenbugs

Insecticide	Rate per Acre	Days to Harvest or Forage
Dimethoate 4 E (dimethoate)	½ to 1 pt.	28 (Grain, feed, graze) Do not apply after heading
Lorsban 4E (chlorpyrifos)	½ to 2 pt.	30 (½ - <1pt.) or 60 (1-2 pt.) grain, forage, fodder, hay, silage
Malathion 57% EL	1-1/2 pt.	7 (Grain) Do not graze or feed

Foliar Treatments for Sorghum Midge

Insecticide	Rate per Acre	Days to Harvest/Forage
Baythroid 2 (cyfluthrin)	1 to 1.3 fl. oz.	14
Dimethoate 4E	1/4 to 1/2 pt.	28 (Grain, feed graze) Do not apply after heading
Fury (zeta-cypermethrin)	1.4 to 4.3 fl. oz.	14(Grain & Stover) 45(Forage)
Lannate SP (methomyl)	1/4 to ½ lb.	14 Grain, grazing or feeding
Lorsban 4E	1/2 pt..	30 grain, forage, fodder, hay, silage
Mustang Max (zeta-cypermethrin)	1.4 to 4.3 fl. oz	14 (Grain & stover) 45 (forage)
Warrior	1.28 to 4.0 fl. oz.	30 (Grain) Do not graze or harvest for feed

Begin scouting for midge as the panicles emerge from the boot. Control will be necessary if populations exceed one per head **during bloom**. Johnsongrass, late planting, continuous cropping and large numbers of rogues contribute to increasing sorghum midge numbers.

Foliar Treatments for Corn Earworm, Sorghum Webworm, Fall Armyworms

Insecticide	Rate per Acre	Days to Harvest/Forage
Baythroid 2	1.3 to 2.8 fl. oz.	14
Dipel ES (Bt)	1 to 4 pts.	0
Fury	1.9 to 4.3 fl. oz.	14(Grain & Stover) 45(Forage)
Lannate SP	1/4 to ½ lb.	14 Grain, grazing or feeding

<i>Lorsban 4E</i>	1 pt.. Webworm 2 pt. (CEW)	30(1pt..) 60(>pt..) grain, forage, fodder, hay, silage
<i>Mustang Max</i>	1.76 to 4.0 fl. oz	14 (Grain & stover) 45 (forage)
Sevin 80 WSP	1-1/4 to 2-1/2 lbs.	21(Grain or fodder) 14 (forage or silage)
Tracer (Naturalyte)	1.5 to 3.0 fl. oz.	7(Grain or fodder) 14(forage or hay)
<i>Warrior</i>	2.56 to 3.84 fl. oz.	30 (Grain) Do not graze or harvest for feed

These insects are primarily head feeders, though some foliage feeding may occur. Treatment is warranted if populations reach 2 small worms per head or if 50% of the plants are infested with fall armyworm feeding in the whorl. Lorsban is not labeled for fall armyworm control.

Foliar Treatments for Grasshoppers

Insecticide	Rate per Acre	Days to Harvest/Forage
<i>Baythroid 2</i>	2 to 2.8 fl. oz.	14
Dimethoate 4	1 pt.	28 (grain, feed, graze)
Fury	3.4 to 4.3 fl. oz.	14(Grain & Stover) 45(Forage)
Sevin 80 S	5/8 to 1-7/8 lbs.	21(Grain or fodder) 14 (forage or silage)
<i>Lorsban 4E</i>	½ to 1 pt.	30 grain, forage, fodder, hay, silage
Mustang Max	3.2 to 4.0 fl. oz.	14 (Grain & stover) 45 (forage)
<i>Warrior</i>	2.56 to 3.84 fl. oz.	30 (Grain) Do not graze or harvest for feed

Products for Control of Insect Pests in Stored Grain Sorghum

Information in these tables is subject to change at any time. Always check the label of the product to insure that you use it correctly. There are other brand names and formulations of the products listed below. These are only the most common forms. If you wish to use a similar product check the label to insure it is registered for the intended use.

“Clean-out” Fumigant

Applied to boots of elevators, beneath false floors etc.

This is an “empt..y” space fumigation targeted at the space beneath the perforated floor in a metal grain bin. See the **WARNING** below.

Chloropicrin	1-2 qt/ empt..y bin (smaller bins)
	3-4 qt./ empty bin (greater than 50,000 bu.)

Chloropicrin is significantly heavier than air and is therefore preferred for “clean-out” fumigations. However, thought it is still labeled for “clean-out” of empt..y bins, it may not be available due to shipping constraints. Chloropicrin is highly corrosive to most metals. **DO NOT USE CHLOROPICRIN TO TREAT GRAIN!**

Methyl bromide	1 to 3 lbs. per 1000 cubic feet. NOTE: Applied by volume not bushels
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Methyl bromide is significantly heavier than air and is therefore appropriate for fumigation under perforated floors in grain bins. However, it is quite corrosive to many materials. Check the label before using. **DO NOT USE METHYL BROMIDE TO TREAT GRAIN!**

Aluminum phosphide	tablets 20-60 / 1000 cubic feet. NOTE: applied to a volume not bushels.
	pellets 100-300 / 1000 cubic feet

Aluminum phosphide is not significantly heavier than air and is therefore not the preferred product. However, it is labeled for this use and is easily available. Because of its light and penetrating nature very close attention must be paid to sealing the area to be treated.

Bin Surface Applications

Dilute with water to make enough spray to treat 1,000 sq ft of bin surface.
Use only in empt..y bins.

Reldan 4E	½ pt. in 3 gal water
Tempo SC Ultra	0.27 fl. oz.
Storicide	1.69 fl. oz. in 1gal. water

Grain Protectants

Applied directly to stored grain sorghum.

Do not use the same compound for both Bin Surface and Grain protection.

	<u>Amount per 1,000 bushels</u>
Actellic 5E	9.2 - 12.3 fl. oz.
Reldan 4E	10.7 fl. oz.
Reldan 3D	10 lbs.
Storicide	11.2 fl. oz.

Grain Surface "Cap Out" Treatments

Applied directly to the top surface of stored Grain Sorghum for control of Indian Meal Moth.

Do not use the same compound for Bin Surface, Grain protection and Cap Out treatments. Rotate insecticide use.

Actellic 5E	3 fl. oz. / 1,000 sq ft (mixed to 4 inches deep)
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Reldan 3D	7 lbs. / 1,000 sq ft
Dipel DF	1 lbs. / 1,000 ft sq (mixed to 4 inches deep)
Javelin	14 oz / 1,000 sq ft (mixed to 4 inches deep)

Indian meal moth larvae can be controlled by many products containing the active ingredient *Bacillus thuringensis* "B.t.". Dipel and Javelin are just two examples of these products.

Note: Indian meal moth adults may be controlled by hanging DDVP Resin strips (Vapona) in the head space over the grain mass. Use 1 strip for each 1,000 cubic feet of air space over the grain. One treatment will last about 3 months.

Bulk Grain Fumigation

To be applied/1,000 bu stored grain sorghum.

Aluminum phosphide	tablets	25 - 180 / 1,000 bu
	pellets	120 - 900 / 1,000 bu

Note: Economic thresholds are hard to determine for stored grain but these numbers should provide a guide to when fumigation will be profitable. Rice weevil or lesser grain borer 1 insect / qt of grain. Red flour beetle, rusty grain beetle and other bran bugs 5 insects / qt of grain. Successful fumigation includes consideration of many variables, use these fumigant amounts as guide and consult the label of the product you choose.

WARNING: Fumigation is a complicated and dangerous technique. If at all possible hire a commercial fumigator. If a commercial fumigation is not possible consult the label of the product you have chosen to use and follow it to the letter