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TEMPORARY SUMMER GRAZING INSECT CONTROL

MILLETS, SUDAN GRASS, SORGHUM-SUDAN HYBRIDS

PEST	MATERIAL AND FORMULATION ¹	MOA	AMOUNT PER ACRE	REI/PHI (Hours/Days)	REMARKS AND PRECAUTIONS
Aphids	<i>malathion</i> 8EC	1B	15–20 fl oz	12 H	<p style="text-align: center;">WHEN TO TREAT FOR INSECTS IN FORAGE GRASSES</p> <p>FOLIAGE FEEDING CATERPILLARS (armyworm, beet armyworm, cutworms, fall armyworm, yellowstriped armyworm): Treat for any one or any combination of these insects when they are causing excessive defoliation.</p> <p>APHIDS: Treat for corn leaf aphid if heavy infestations are causing leaves to dry and die over large areas of a field. Treat for greenbug or yellow sugarcane aphid if populations of these aphids are killing 3 or more leaves per plant.</p> <p>BUDWORMS (usually fall armyworm and corn earworm): Treat when more than 50% of the plants are infested with larvae.</p> <p>CHINCH BUG: Treat if bugs become numerous and wilting leaves are noticed.</p> <p>EUROPEAN CORN BORER: If plants are heavily infested (central growing shoots dying or breaking over on a high percentage of the plants), salvage crop by grazing or cutting for fodder.</p> <p>FLEA BEETLES, GRASSHOPPERS: Treat if heavy populations are causing excessive foliage loss.</p> <p>GREEN JUNE BEETLE LARVAE: Treat when populations average 5 grubs/sq yd.</p> <p style="text-align: center;">PESTICIDE USE PRECAUTIONS</p> <p>Apply any of the materials listed in this table with aerial or ground equipment as label directs. Where a range of rates is given for a material, use the low rate on small plants or small larvae and the high rate on larger plants or larger larvae.</p> <p><i>carbaryl</i> (Sevin): 14 day grazing and harvest interval.</p> <p><i>chlorantraniliprole</i>: 1 day harvest interval.</p> <p><i>cypermethrin</i> (Mustang Maxx): 0 day PHI for sorghum, 45 day PHI for millets for forage.</p> <p><i>lambda-cyhalothrin</i> (Warrior II Zeon): 0 day grazing interval, 7 day harvest interval.</p> <p><i>malathion</i>: Apply as needed up to day of grazing or harvest for hay.</p> <p><i>methomyl</i>: 3-day harvest interval. Do not apply more than twice per crop. Do not apply more than 0.9 lb/A/crop. Not labeled on millet or sweet sorghum</p> <p><i>spinosad</i> (Tracer): Not labeled on all millets. Do not apply within 7 days of grain harvest or 14 days of forage harvest.</p> <p><i>flupyradifurone</i> (Sivanto): Millet rate is 7–10 oz/acre. Interval for hay, grazing and forage is 7 days.</p>
	<i>zeta-cypermethrin</i> Mustang Maxx	3A	2.24–4 oz	12 H	
	<i>flupyradifurone</i> Sivanto	4D	4–10 oz	4 H	
Armyworm, Fall Armyworm, Cutworms, Yellowstriped armyworm	<i>carbaryl</i> Sevin, others	1A	See label. Many formulations available.	12 H	
	<i>chlorantraniliprole</i> Coragen 1.67SC Prevalon (0.43) Vantacor	28	3.5–5 fl oz 14–20 fl oz 1.2–2.5 oz	4H	
	<i>lambda-cyhalothrin</i> Warrior II Zeon	3A	1.28–1.92 oz	12 H	
	<i>spinosad</i> Tracer, others	5	1.5–3 oz	4 H	
	<i>zeta-cypermethrin</i> Mustang Maxx	3A	4 oz	12 H	
Chinch bug	<i>beta-cyfluthrin</i> Baythroid XL	3A	See label. Rates vary by forage species	12 H	
	<i>zeta-cypermethrin</i> Mustang Maxx	3A	4 oz	12 H	
Corn earworm	<i>beta-cyfluthrin</i> Baythroid XL	3A	See label. Rates vary by forage species	12 H	
	The materials listed for armyworm give control.				
Flea beetles	<i>carbaryl</i> Sevin as applied for armyworm may give helpful control.				
Grasshoppers	<i>carbaryl</i> Sevin, others	1A	See label. Many formulations available.	12 H	
	<i>malathion</i> 8EC	1B	15–20 fl oz	12 H	
	<i>zeta-cypermethrin</i> Mustang Maxx	3A	2.24–4 oz	12 H	
	<i>beta-cyfluthrin</i> Baythroid XL	3A	See label. Rates vary by forage species	12 H	
Green June beetle larvae	<i>carbaryl</i> Sevin, others	1A	See label. Many formulations available.	12 H	

CAUTION: Check labels carefully. Labeling varies, and not all formulations of these materials can be used on forage grasses.

1. Abbreviations used are: EC—emulsifiable concentrate, SP—soluble powder, S—sprayable powder, WP—wettable powder. Numbers following liquid formulations indicate lb ai/gal; those following solids indicate percent active ingredient.

TEMPORARY SUMMER GRAZING WEED CONTROL

Lisa Baxter, Extension Forage Specialist
Taylor Singleton, Extension Sustainability Specialist

TEMPORARY GRAZING

MILLETS, SUDAN GRASS, SORGHUM-SUDAN HYBRIDS

HERBICIDE	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	
TEMPORARY SUMMER GRAZING CROPS—MILLETS, SORGHUM, SUDAN HYBRIDS, ETC.			
2,4-D various trade names 4 lb/gal	1 pt	0.5	Apply to emerged broadleaf weeds when crop is 8-12" tall. Do not graze lactating dairy animals for 14 days after treatment, or cut for hay for all types of livestock for 30 days after treatment. (Grazing and haying restrictions may vary-refer to product label). Refer to specific herbicide label for use restrictions. A 2,4-D formulation labeled on millet is Formula 40.
2,4-D + <i>dicamba</i> Weedmaster 2.9 lb + 1 lb/gal	1-2 pt	0.36 + 0.125 to 0.72 + 0.25	Apply to emerged broadleaf weeds when crop is 8-12" tall. Do not graze lactating dairy animals within 7 days. There is no restriction between application and grazing for non-lactating animals. Do not cut for hay within 37 days after treatment. Do not graze meat animals in treated areas within 30 days of slaughter. Weedmaster and Outlaw will severely injure or kill clovers or alfalfa.
Outlaw 1.45 + 1.1 lb/gal	1-2 pt	0.18 + 0.14 to 0.36 + 0.27	
FORAGE SORGHUM			
<i>metolachlor</i> Dual Magnum 7.62 lb/gal	1.0-1.33 pt	0.5-1.27	Apply after planting seed treated with Concep or Screen seed protectant. Apply before crop and weeds emerge. See label.
FORAGE SORGHUM AND SORGHUM-SUDAN			
<i>atrazine</i> 80W atrazine 4L atrazine 90DG various trade names	1.5 lb 1.2 qt 1.3 lb	1.2	Apply with 1 gal/A of emulsifiable oil or 1 qt/A of crop oil concentrate after sorghum reaches the 3-leaf growth stage but before it exceeds 12" in height. Controls broadleaf weeds 2-3" tall and newly emerged (1-leaf) annual grasses. DO NOT apply with fluid fertilizers or when sorghum is under stress from cold, wet weather, poor fertility or other factors, or when sorghum is wet and tender from a recent rainfall. DO NOT graze or feed treated forage for 21 days after application.

TEMPORARY WINTER GRAZING INSECT CONTROL

David Buntin, Research/Extension Entomologist

RYE, OATS, WHEAT, AND RYEGRASS

TEMPORARY GRAZING

PEST	MATERIAL AND FORMULATION ¹	MOA	AMOUNT OF FORMULATION PER ACRE	LB ACTIVE INGREDIENT PER ACRE	REI/PHI GRAZING (Hours or Days)	REMARKS AND PRECAUTIONS	
Aphids	SEED TREATMENTS						
	<i>clothianidin</i> NipsIt Inside	4A	0.75–1.79 fl oz/100 lb seed	—	12 H/ — Not listed	Treat for aphids if large numbers occur and cause leaves to dry and die over large areas. Bird cherry oat aphids also can infect wheat and oats with barley yellow dwarf disease which may reduce later forage growth.	
	<i>imidacloprid</i> Gaucho 600, Attendant 600, Axxess Gaucho XT Enhance AW	4A	0.8 fl oz/100 lb seed 3.4 fl oz/100 lb seed 4 fl oz/100 lb	0.03 lb/100 lb seed 0.03 lb/100 lb seed 0.05 lb/100 lb seed	12 H/ 45 D		NOTE: Gaucho and Attendant are not labeled for use on ryegrass. Gaucho XT, Cruiser and NipsIt Inside also contain fungicides
	<i>thiamethoxam</i> Cruiser 5FS Ceral Maxx Vibrance plus Cruiser 5FS	4A	0.75–1.33 fl oz/100 lb seed 5 fl oz/100 lb seed 5–10 fl oz/100 lb seed	0.03–0.05 0.04 lb/100 lb seed (total)	12 H/ 45 D		NOTE: Cruiser 5FS is available as a commercial seed treatment. Rate of CruiserMaxx Cereals and Cruiser Maxx Vibrance alone is too low for effective aphid control.
	FOLIAR TREATMENTS						
	<i>beta-cyfluthrin</i> Baythroid XL (1)	3A	1.8–2.4 fl oz	0.014–0.019	12 H/ 3 D	NOTE: Seed treatments listed are not labeled for use on ryegrass.	
	<i>flupyradifurone</i> Sivanto Prime	4D	7.0–14.0 fl oz	0.0912–0.1825	4 H/ 7 D	NOTE: Warrior II Zeon will replace Karate Zeon.	
	<i>gamma cyhalothrin</i> Declare (1.25) Proaxis (0.5)	3A	1.54 fl oz 3.84 oz	0.015 0.015	24 H/ 7 D	NOTE: Transform wheat, triticale, and barley only.	
	<i>lambda cyhalothrin</i> Warrior II Zeon 2.08 Silencer, Lambda, other brands 1	3A	1.92 fl oz 3.84 fl oz	0.03 0.03	24 H/ 7 D		
	<i>malathion</i> Malathion 57EC, 5EC Malathion 8EC	1B	1.5 pt 1 pt	0.94 1	12 H/ 7 D		
<i>sulfoxaflor</i> Transform 50WG	4C	0.75–1.5 oz	0.023–0.046	24 H/ 7 D			
Armyworm True armyworm Fall armyworm, Beet armyworm, Yellowstriped armyworm	<i>alpha-cypermethrin</i> Fastac 0.83EC	3A	3.2–3.8 fl oz	0.020–0.025	24 H/ 14 D		True armyworm usually infests wheat in late winter and spring at the boot/head stage. Treat when larval numbers exceed 4 larvae per square foot before pollen shed and 8 larvae per square foot after pollen shed.
	<i>beta-cyfluthrin</i> Baythroid XL 1	3A	1.8–2.4 fl oz	0.014–0.019	12 H/ 3 D	Fall armyworm, beet armyworm, yellowstriped armyworm and cutworm infestations usually occur in fall on seedling plants. Treat when larval populations of any one or any combination of these insects exceed 3 larvae (½" long or larger)/sq ft. NOTE: Dimilin is only for small larvae, will not kill large larvae.	
	<i>cyfluthrin</i> (wheat only) Tombstone Tombstone Helios 2.0	3A	1.8–2.4 fl oz	0.028–0.038	12 H/ 3 D		
	<i>chlorantraniliprole</i> Coragen 1.67SC Prevathon (0.43) Vantacor	28	3.5–5 fl oz 14–20 fl oz 1.2–2.5 fl oz	0.045–0.065 0.047–0.067 0.047–0.098	4 H/ 14 D		
	<i>diflubenzuron</i> Dimilin 2L	15	2 fl oz	0.5	12 H / 0 D		

PEST	MATERIAL AND FORMULATION ¹	MOA	AMOUNT OF FORMULATION PER ACRE	LB ACTIVE INGREDIENT PER ACRE	REI/PHI GRAZING (Hours or Days)	REMARKS AND PRECAUTIONS
Armyworm True armyworm Fall armyworm, Beet armyworm, Yellowstriped armyworm (continued)	<i>gamma cyhalothrin</i> Declare (1.25) Proaxis (0.5)	3A	1.28–1.54 fl oz 3.2–3.84 fl oz	0.0125–0.015 0.0125–0.015	24 H/ 7 D	
	<i>lambda cyhalothrin</i> Warrior II Zeon 2.08 Silencer, Lambda, other brands	3A	1.6–1.92 fl oz 3.2–3.84 fl oz	0.025–0.03 0.025–0.03	24 H/ 7 D	
	<i>methomyl</i> Annihilate LV	1A	0.75–1.5 pt	0.225–0.45	48 H/ 7 D	
	<i>spinosad</i> Blackhawk (36%)	5	1.7–3.4 oz	0.038–0.075	4 H/ 3 D	
	<i>spinetoram</i> Radiant 1SC	5	3–5 fl oz	0.0234–0.0469	4 H/ 3 D	
	<i>zeta-cypermethrin</i> Mustang Maxx, Respect 0.8EC	3A	3.2 fl oz	0.02	12 H/ 14 D	
Grasshoppers	<i>beta-cyfluthrin</i> Baythroid XL 1EC	3A	1.8–2.4 fl oz	0.014–0.019	12 H/ 3 D	Treat when grasshoppers are causing excessive defoliation.
	<i>gamma cyhalothrin</i> Declare (1.25)	3A	0.77–1.54 fl oz	0.0075–0.015	24 H/ 7 D	
	<i>lambda cyhalothrin</i> Warrior II Zeon 2.08 Silencer, Lambda, other brands	3A	1.28–1.92 fl oz 2.56–3.84 fl oz	0.02–0.03 0.02–0.03	24 H/ 7 D	
	<i>malathion</i> Malathion 57EC, 5EC Malathion 8EC	1B	1.5 pt 1–1.25 pt	0.94 1.0–1.25	12 H/ 7 D	
	<i>zeta-cypermethrin</i> Mustang Maxx, Respect 0.8EC	3A	3.2 fl oz	0.02	12 H/ 14 D	
Lesser cornstalk borer						No feasible chemical control available. Seed treatments applied for aphid control may provide useful suppression.
Winter grain mite	<i>gamma cyhalothrin</i> Declare (1.25) Proaxis (0.5)	3A	1.54 fl oz 3.84 fl oz	0.015 0.015	24 H/ 7 D	Treat when mites are present and plants are stunted and discolored. Infestations are usually associated with application of cattle manure or chicken litter.
	<i>lambda cyhalothrin</i> Warrior II Zeon 2.08 Silencer, Lambda, other brands	3A	1.92 fl oz 3.84 fl oz	0.03 0.03	24 H/ 7 D	

¹PHI: Harvest intervals listed are for grazing. See product label for hay and grain PHI.

TEMPORARY WINTER GRAZING WEED CONTROL

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SUPPRESSION OF BERMUDAGRASS OR BAHIAGRASS SODS			
<i>glyphosate</i> Roundup PowerMax Roundup Original Max Roundup Weather Max 5.5lb/gal	4-11 fl oz 0.17-0.47		Refer to label. Apply in mid-late winter months to bermudagrass pastures and hayfields for the control of little barley, cheat, and to suppress annual Italian ryegrass. Apply before new growth appears in the spring. Bermudagrass that is not dormant at the time of application may show a slight (2-4 week) delay in green-up. See label for grazing and hay restrictions.
Gramoxone 2.0 Gramoxone 3.0 others	1-2 pt	0.25-0.5	Apply in early fall to sod not more than 3" tall, just prior to or at the time of seeding clovers or winter grasses. Add surfactant according to label directions.
HERBICIDE	BROADCAST RATE/ACRE		REMARKS AND PRECAUTIONS
	AMOUNT OF FORMULATION	POUNDS ACTIVE INGREDIENT	
2,4-D various trade names 4 lb/gal	1 pt-1 qt	0.5-1	Apply in December, January or February to control swinecress, blessed thistle, wild garlic, curly dock and similar winter weeds after small grain tillering but before jointing. Grazing restrictions may vary among the different 2,4-D products. Several 2,4-D labels restrict grazing for dairy animals or meat animals being finished for slaughter for 14 days after treatment. For Banvel, restrict grazing for lactating dairy animals for 7 days after treatment and remove meat animals from treated areas 30 days prior to slaughter. For Banvel, there is no waiting period between treatment and grazing for non-lactating animals. Refer to specific herbicide label for additional use information.
<i>dicamba</i> Banvel 4 lb/gal	0.5 pt	0.25	
2,4-D + <i>dicamba</i> Weedmaster 2.9 lb + 1 lb/gal	1 pt to 2 pt	0.36 + 0.125 to 0.72 + 0.25	Apply to emerged broadleaf weeds when crop has 2-4 tillers. Do not graze lactating dairy animals within 7 days. There is no restriction between application and grazing for non-lactating animals. Do not cut for hay within 37 days after treatment. Do not graze meat animals in treated areas within 30 days of slaughter. Weedmaster and Outlaw will severely injure or kill clovers or alfalfa.
Outlaw 1.45 + 1.1 lb/gal	1 pt to 2 pt	0.18 + 0.14 to 0.36 + 0.27	
<i>thifensulfuron-methyl</i> + <i>tribenuron-methyl</i> Harmony Extra SG with TotalSol 50 SG	0.45-0.9 oz	0.0094 to 0.0188 + 0.0047 to 0.0094	Apply after two-leaf stage of wheat, barley, triticale and oats but prior to flag leaf being visible. Harmony Extra SG is not recommended for use on ryegrass or rye. Most winter annuals can be controlled with 0.45-0.6 oz/A; however, 0.75-0.9 oz/A is recommended for controlling wild garlic or small wild radish. Add 1 qt of non-ionic surfactant per 100 gal of spray solution. For best results, apply when weeds are in the 2-4 leaf stage, temperatures are above 50° F, and not drought stressed. Wild garlic should be less than 12" tall and should have 2-4" of new growth. Liquid nitrogen may be used as the carrier. When using nitrogen as the carrier, reduce surfactant rate to 0.5-1 pt/100 gal of solution (wheat burn may still be noted). May also tank mix Harmony Extra SG with 0.25-0.375 lb ai/A of 2,4-D or MCPA for improved control of wild radish. Do not use surfactant if Harmony Extra SG and 2,4-D or MCPA are applied in nitrogen. Do not graze within 7 days of application. This grazing restriction applies to all types of livestock. Allow at least 30 days between application and feeding of hay from treated areas to livestock.
SUPPRESSION OF BERMUDAGRASS OR BAHIAGRASS SODS			
Gramoxone 2.0 Gramoxone 3.0 others	1-2 pt	0.25-0.5	Apply in early fall to sod not more than 3" tall, just prior to or at the time of seeding clovers or winter grasses. Add surfactant according to label directions.