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Management of Insect Pests in Rangeland and Pasture

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Arthropod pests of rangeland and pasture rarely become a serious economic problem. Many pest problems can be avoided by implementing an Integrated Pest Management (IPM) plan that includes the use of good pasture management practices, proper fertilization, mowing and optimal stocking rates. Pesticide applications should not replace the use of good pasture management practices and should not be applied as "preventative insurance" because it is rarely economically or environmentally justifiable.

The information herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Cooperative Extension Service is implied.

Pesticide recommendations in this publication were correct as of the "Modified Date" but always check the label that came with the purchased insecticide for the most current rates and restrictions

The first name listed is the trade name of a product registered for use in corn for the listed pest. The name in (parentheses) listed below the trade name is the name of the active ingredient. The active ingredient name is provided because in many cases, there are other registered products containing the same active ingredient that may cost less, so producers should compare prices.

The number [in brackets] following a product is its Mode of Action number [MOA]. The more frequently insecticides with the same MOA are used, the more likely resistance will occur. This number provides an easy way to select different modes of action to avoid selecting for pests that are resistant to a certain mode of action.

Refer to the following OSU publications for additional information.

- EPP-7196 Grasshopper Management in Rangeland, Pastures, and Crops.
- NREM-2869 Management Strategies for Rangeland and Introduced Pastures
- NREM-2870 Drought Management Strategies
- NREM-2875 Intensive Early Stocking
- NREM-2882 Weed Control on Rangelands
- NREM-2886 Stocking Rate Determination on Native Rangelands
- PSS – 2583 Choosing, Establishing and Managing Bermudagrass Varieties in Oklahoma
- PSS-2585 Forage Legumes for Oklahoma
- PSS-2591 Bermudagrass Pasture Management
- PSS-2594 Plan Grazing Management Using the Oklahoma Grazing Stick

Pest, Damage and Treatment Threshold	Insecticide Formulation	Rate of Product/acre	Comments
Ants (including fire ants) Ants range in size from 1/16 inches to nearly 1/2 inch in length and from light tan to black in color. These social insects live in a colony with thousands of workers. The two most important pest species for rangeland and pasture are the red imported fire ant and the red harvester ant. Damage: Fire ants can be an irritant to cattle as they feed.	Baits for Grazed Land	Individual mound broadcast	For all baits: Apply as a broadcast or individual mound treatment when ants are active and soil temperatures exceed 60°. If treating individual mounds, estimate the mound density, and do not disturb the mound or apply the bait directly on the mound.
	Amdro Pro [20A] (hydramethylnon)	5 tbs/mound 1.0 to 1.5 lb./acre	0-day wait for grazing, 7-day wait for harvest
	Esteem [7C] (pyriproxifen)	2 to 4 tbs/mound 1.5 to 2 lb/acre	0-day wait for grazing or 1 day for harvest. Repeat every 10 to 12 weeks as needed.

<p>Harvester ants sometimes clear large patches of grass as they feed.</p> <p>Threshold: No threshold established.</p>	Extinguish [7a] (s-methoprene)	3 to 5 tbs/mound 1 to 1.5 lb/acre	0-day wait for grazing or harvest. Repeat every 10 to 12 weeks as needed.
	Extinguish Plus [7A] (s-methoprene + hydramethylnon)	2 to 5 tbs/mound 1.5 lb per acre	0-day wait for grazing, 7-day wait for harvest
	Amdro Pro + Extinguish	3-5 tbs/mound 0.75 + 0.75 lb/acre	Mix baits thoroughly, 0-day wait for grazing, 7-day wait for harvest
	Additional Baits for Non-Grazed Land		
	Advion Fire Ant Bait [22A] (Indoxacarb)	4 level tbs/mound 1.5 lb/acre	May be applied to grazed pastures
	Distance [7C]	1 to 4 tbs/mound 1.0 to 1.5 lb/acre	1 day wait for harvest. Repeat after 12 to 16 weeks as needed
<p>Armyworm Caterpillar can reach slightly over 1 inch. Dark green or brown with 5 stripes along body.</p> <p>Damage: Feed on foliage, usually a problem in the spring.</p> <p>Threshold: Get a wire coat hanger, bend it into a hoop, place it on the ground, and count all sizes of fall armyworms in the hoop. Examine plants at several locations along the field margin as well as in the interior. The hoop covers about 2/3 of a square foot, so a threshold in pasture would be an average of two or three ½ inch-long larvae per hoop sample (3 to 4 per square foot)</p>	Bacillus thuringiensis* Biobit XL Javelin WG Xen Tari [11B1, B2]	See product label for specific rates	*All Bacillus thuringiensis products work best when applied to small caterpillars. Caterpillars cease feeding upon ingestion of product, but will take several days to die. 0-day waiting period.
	Baythroid XL [3] (beta cyfluthrin)	1.6 to 1.9 fl oz (0.013 to 0.015 lb ai)	0-day waiting period
	Besiege [3,28] (lambda cyhalothrin + chlorantraniliprole)	6.0 to 10.0 fl oz	0-day waiting period for grazing or harvest, 7-day wait for last cutting of hay.
	Blackhawk [5] (spinosad)	1.1 to 2.2 oz (0.025 to 0.05 lb ai)	0-day wait for grazing, 3-day wait for harvest
	Declare [3] (gamma cyhalothrin)	1.02 to 1.54 fl oz (0.01 to 0.015 lb ai)	0-day wait for grazing, 7-day wait for hay
	Lannate LV [1A] (methomyl)	0.75 to 3 pt (0.225 to 0.9 lb ai)	For Bermuda pasture ONLY. 7-day wait for grazing, 3-days for harvest.
	Malathion 5EC [1B] (malathion)	1.4 pt (0.92 lb ai)	0-day wait for grazing or harvest.
	Mustang MAXX [3] (zeta cypermethrin)	2.8 to 4.0 fl oz/A (0.0175 to 0.025 lb ai)	0-day wait for grazing or harvest
	Sevin 4F, XLR Plus [1A] (carbaryl)	2 to 3 pt (1 to 1.5 lb ai)	For improved pasture only: do not apply more than 2 applications per season and not more than once every 14 days. Sevin label states a 14 day waiting period for grazing or harvest.
	Tombstone [3] (cyfluthrin)	1.6 to 2.8 fl oz/A (0.025 to 0.044 lb ai)	0-day wait for grazing or harvest.
	Vantacor [28] (chlorantraniliprole)	1.2 to 2.5 fl oz (0.045 to 0.098 lb ai)	0-day wait for grazing or harvest.
	Warrior II w Zeon [3] (lambda cyhalothrin)	1.28 to 1.92 fl oz (0.2 to 0.3 lb ai)	0-day waiting period for grazing, 7-days for hay.
<p>Bermudagrass stem maggot Immature stage of an introduced fly. Infests only bermudagrass and stargrass. Mature maggots yellow about 1/8 inch.</p> <p>Damage: Feed on top node of grass stem. Burrow into shoot, killing leaves above feeding zone.</p>	Baythroid XL [3] (beta cyfluthrin)	1.6 to 1.92 fl oz (0.013 to 0.015 lb ai)	0-day waiting period
	Besiege [3,28] (lambda cyhalothrin + chlorantraniliprole)	8.0 to 9.0 fl oz	0-day waiting period for grazing or harvest, 7-day wait for last cutting of hay.
	Declare [3] (gamma cyhalothrin)	1.02 to 1.54 fl oz (0.01 to 0.015 lb ai)	0-day wait for grazing, 7-day wait for hay
	Mustang MAXX [3] (zeta cypermethrin)	2.8 to 4.0 fl oz/A (0.0175 to 0.025 lb ai)	0-day wait for grazing or harvest.

<p>Threshold: Plan for early harvest when infestations reach 10-20 percent of plants showing damage. Harvest and remove bales as soon as possible. Spray with registered insecticide 7 days later.</p>	<p>Warrior II w Zeon [3] (lambda cyhalothrin)</p>	<p>1.28 to 1.92 fl oz (0.2 to 0.3 lb ai)</p>	<p>0-day waiting period for grazing, 7-days for hay.</p>
<p>Fall armyworm Large striped caterpillar that reaches 1.5 inches when mature. Has an inverted "Y" in the front of its head.</p> <p>Damage: Feed on foliage. Typically a problem in the fall, feeding on the emerged heads.</p> <p>Threshold: Get a wire coat hanger, bend it into a hoop, place it on the ground, and count all sizes of fall armyworms in the hoop. Examine plants at several locations along the field margin as well as in the interior. The hoop covers about 2/3 of a square foot, so a threshold in pasture would be an average of two or three ½ inch - long larvae per hoop sample (3 to 4 per square foot)</p>	<p>Bacillus thuringiensis* Biobit XL Javelin WG Xen Tari [11B1, B2]</p>	<p>See product label for specific rates</p>	<p>Use higher rate for heavy infestations or when plant growth is rapid. A contact insecticide may be added for enhanced control of heavy populations. 0-day waiting period for grazing or harvesting.</p>
	<p>Baythroid XL [3] (beta cyfluthrin)</p>	<p>2.6 to 2.9 fl oz (0.02 to 0.022 lb ai)</p>	<p>0-day wait for grazing or harvest.</p>
	<p>Besiege [3,28] (lambda cyhalothrin + chlorantraniliprole)</p>	<p>6.0 to 10.0 fl oz</p>	<p>0-day waiting period for grazing or harvest, 7-day wait for last cutting of hay.</p>
	<p>Blackhawk [5] (spinosad)</p>	<p>1.1 to 2.2 oz (0.025 to 0.05 lb ai)</p>	<p>0-day wait for grazing, 3-day wait for harvest</p>
	<p>Declare [3] (gamma cyhalothrin)</p>	<p>1.02 to 1.54 fl oz 0.01 to 0.015 lb ai</p>	<p>0-day waiting period for grazing, 7-days for hay.</p>
	<p>Lannate SP [1A] (methomyl)</p>	<p>0.25 to 1.0 lb (0.225 to 0.9 lb ai)</p>	<p>For Bermuda pasture ONLY. 7-day wait for grazing, 3-days for harvest.</p>
	<p>Malathion [1B]</p>	<p>1.4 pt/A</p>	<p>0-day wait for grazing or harvest.</p>
	<p>Mustang MAXX [3] (zeta cypermethrin)</p>	<p>2.8 to 4.0 fl oz (0.0175 to 0.025 lb ai)</p>	<p>0-day wait for grazing or harvest.</p>
	<p>Sevin 4F, XLR Plus [1A] (carbaryl)</p>	<p>2 to 3 pt (1 to 1.5 lb ai)</p>	<p>For improved pasture only: do not apply more than 2 applications per season and not more than once every 14 days. Sevin label states a 14 day wait for grazing or harvest.</p>
	<p>Tombstone [3] (cyfluthrin)</p>	<p>2.6 to 2.8 fl oz/A (0.04 to 0.044 lb ai)</p>	<p>0-day waiting period for grazing or harvest</p>
	<p>Vantacor (28) (chlorantraniliprole)</p>	<p>1.2 to 2.5 fl oz (0.047 to 0.098 lb ai)</p>	<p>0-day wait for grazing or harvest.</p>
	<p>Warrior II w Zeon [3] (lambda cyhalothrin)</p>	<p>1.28 to 1.92 fl oz (0.2 to 0.3 lb ai)</p>	<p>0-day wait for grazing, 7-days for hay.</p>
<p>Grasshopper</p> <p>Damage: Feed on foliage. Can damage from spring through fall, but more of a problem in late summer. Small grasshoppers less than ½ inches are more easily controlled and can be spot treated with foliar spray if nesting sites are mapped out in spring.</p> <p>Threshold: Small: 24 to 100 per yard² (less than ½ inches)</p> <p>Large: 8 to 40 per yard² (greater than ½ inches)</p>	<p>Pasture:</p>		
	<p>Baythroid XL [3] (beta cyfluthrin)</p>	<p>2.6 to 2.9 fl oz/A (0.02 to 0.022 lb ai)</p>	<p>0-day wait for grazing or harvest.</p>
	<p>Besiege [3,28] (lambda cyhalothrin + chlorantraniliprole)</p>	<p>6.0 to 10.0 fl oz/A</p>	<p>0-day wait for grazing or harvest, 7-day wait for last cutting of hay.</p>
	<p>Declare [3] (gamma cyhalothrin)</p>	<p>1.02 to 1.54 fl oz 0.01 to 0.015 lb ai</p>	<p>0-day waiting period for grazing, 7-days for hay.</p>
	<p>Dimilin 2L (15)</p>	<p>2 fl oz/A</p>	<p>Apply when majority of grasshoppers are in the 2nd or 3rd instar nymphal stage (less than ½ inches). Do not exceed a total of 2 fl oz per year.</p>
	<p>Malathion 5EC (1B) (malathion)</p>	<p>1.4 pt (0.92 lb ai)</p>	<p>0 day wait for grazing or harvest</p>

	Mustang MAXX [3] (zeta cypermethrin)	2.8 to 4.0 fl oz/A (0.0175 to 0.025 lb ai)	0-day wait for grazing or harvest
	Sevin 4F, XLR Plus [1A] (carbaryl)	2 to 3 pt (1 to 1.5 lb ai)	For improved pasture: do not apply more than 2 applications per season and not more than once every 14 days. Sevin label states a 14 day waiting period for grazing or harvest in pastures.
	Tombstone [3] (cyfluthrin)	2.6 to 2.8 fl oz/A (0.025 to 0.044 lb ai)	0-day wait for grazing or harvest
	Vantacor (28) (chlorantraniliprole)	0.7 to 1.7 fl oz (0.026-0.065 lb ai)	0-day wait for grazing or harvest
	Warrior II w Zeon [3] (lambda cyhalothrin)	1.28 to 1.92 fl oz (0.2 to 0.3 lb ai)	0-day waiting period for grazing, 7-days for hay
Range:			
	Baythroid XL [3] (beta cyfluthrin)	2.6 to 2.9 fl oz/A (0.02 to 0.022 lb ai/A)	0-day wait for grazing or harvest.
	Besiege [3,28] (lambda cyhalothrin + chlorantraniliprole)	6.0 to 10.0 fl oz/A	0-day wait for grazing or harvest, 7-day wait for last cutting of hay.
	Declare [3] (gamma cyhalothrin)	1.02 to 1.54 fl oz 0.01 to 0.015 lb ai	0-day waiting period for grazing, 7-days for hay.
	Dimilin 2L (15)	0.5 to 2 fl oz/A	Applications of Dimilin may be applied as a Reduced Area & Agent Treatment (RAAT) strip spray. See label for specific directions. Apply when majority of grasshoppers are in the 2nd or 3rd instar nymphal stage (less than ½ inches) Do not exceed 1 fl oz/acre/year. If second application is needed, wait 2 to 3 weeks from 1st application.
	Malathion 5 EC (1B) (malathion)	1.4 pt (0.92 lb ai)	0-day wait for grazing or harvest
	Sevin SL [1A]	2 to 4 pt/A (1 to 2 lb ai)	0-day wait for grazing. Do not make more than one application of Sevin per year, and do not exceed 1.0 lb ai/acre per year.
	Mustang MAXX [3] (zeta cypermethrin)	2.8 to 4.0 fl oz/A (0.0175 to 0.025 lb ai)	0-day wait for grazing or harvest
	Sevin XLR Plus [1A]	1 to 3 pt/A (0.5 to 1.5 lb ai)	For Sevin XLR, registered for Reduced Area and Agent Treatment; aerial application is allowed only the USDA APHIS and State Grasshopper Programs only.
	Tombstone [3] (cyfluthrin)	2.6 to 2.8 fl oz/A (0.04 to 0.044 lb ai)	0-day waiting period for grazing or harvest
	Vantacor (28) (chlorantraniliprole)	0.7 to 1.7 fl oz (0.026-0.065 lb ai)	0-day waiting period for grazing or harvest
	Warrior II w Zeon [3] (lambda cyhalothrin)	1.28 to 1.92 fl oz (0.2 to 0.3 lb ai)	0-day waiting period for grazing, 7-days for hay
Housefly, Stable Fly	Dibrom 8 [1B] Naled	0.8 to 1.6 fl oz/A	24 hour waiting period for lactating cattle

Pre-Harvest Intervals and Grazing Restrictions

Amdro	7-day waiting period for harvest
Baythroid	0-day waiting period for grazing or harvest.
Besiege	0-day waiting period for grazing or harvest, 7-day wait for last cutting of hay
Blackhawk	0-day waiting period for grazing, 3-days for hay or fodder
Declare	0-day waiting period for grazing, 7-days for hay
Dimilin	0-day waiting period for grazing or harvest
Esteem	0-day waiting period for grazing, 1 day for harvest
Extinguish	0-day waiting period for grazing, 7-days for hay or fodder
Lannate	For bermudagrass ONLY. 7-day waiting period for grazing, 3 day waiting period for harvest
Malathion	0-day waiting period for grazing or harvest.
Mustang MAXX	0-day waiting period for grazing or harvest.
Sevin	14-day waiting period for grazing or harvest
Vantacor	0-day waiting period for grazing or harvest
Warrior	0-day waiting period for grazing, 7-days for hay

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