

# **Pastures & Rangeland: Insect Pests & Insecticides**

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**Part I: Common Insect Pests  
of Pastures and Rangeland**

**Part II: Insecticides for  
Pastures and Rangeland**

# Common Insects Submitted from Pasture & Rangeland

- Army cutworm, *Euxoa auxiliaris*
- Armyworm, *Pseudaletia unipuncta*
- Black grass bugs, *Labops* & *Irbisia*
- Cereal leaf beetle, *Oulema melanopus*
- Grasshoppers, *Melanoplus* & *Camnula*
- Mormon cricket, *Anabrus simplex*

# Army Cutworm, *Euxoa auxiliaris*

- Feeds on a wide variety of crops including small grains, grasses, corn, alfalfa
- Prefers broadleaf weeds e.g. mustards
- Overwinters as partially grown larva
- Larvae emerge in spring; active March to mid-May



Immature form of army cutworm

# **Army Cutworm**

- **Moths emerge in May-June, lay eggs in fall**
- **Early larvae begin feeding, then hibernate**
- **One generation per year**
- **Threshold in wheat: 4 or more per sq. ft.; 2 or more per sq. ft. if stressed**
- **Hides in the daytime; check around plants and under debris**

**Armyworm, *Pseudaletia unipuncta***



# **Armyworm**

- **Hosts include corn, small grains, alfalfa, clover, sorghum, sugar beets, other grasses**
- **Overwinter in larval or pupal stage**
- **Mild winter with cool spring favors survival**
- **Appear suddenly in spring, feed at night**
- **Feed 3-4 weeks, then pupate in soil**
- **Up to 3 generations per year**

# **Armyworm**

- **Larvae submitted April to October, most often in late August**
- **Shallow cultivation helps control**
- **Threshold for control in grass hay: 4-5 larvae per square foot**
- **Smaller larvae are easier to control**

# Black Grass Bug, genus *Labops*



# **Black Grass Bug**

- **Mostly a problem in grasses, sometimes in grain**
- **Wheatgrasses among preferred hosts**
- **Overwinter as eggs in grass stems**
- **Nymphs hatch at snow melt/grass growth**
- **Development requires 4 to 5 weeks**
- **Adults mate, lay eggs, and die within about 4 weeks of maturation**

# **Black Grass Bug -Treatments**

- **Early identification (April or May) and treatment required (before egg-laying)**
- **Properly timed treatment can give control for years; slow-moving pest**
- **No actual threshold value found**
- **Damage measurement: 120 per square yard caused 18% losses in grasses**
- **Cultural: heavy grazing late fall/early spring, mowing & hay removal, burning**

# Cereal Leaf Beetle Adult and Damage



Cereal leaf beetle (length: 3/16 inch, .48 cm.)

# Cereal Leaf Beetle Egg



# Cereal Leaf Beetle Larva



# Cereal Leaf Beetle Larva and Damage



# **Cereal Leaf Beetle**

- **Commonly feeds on small grains, wild oats, timothy, ryegrasses, & fescues**
- **Overwinters as an adult in plant debris or other hiding places**
- **Adults active in late April to early May**
- **Peak larval populations in mid-June**
- **Complete development in 4 to 6 weeks**
- **One generation per year**

# **Cereal Leaf Beetle Thresholds - Small Grains**

- **Three larvae or eggs per plant up to the boot stage**
- **One larva per flag leaf after the boot stage**
- **Pastures and forage grasses can tolerate a higher threshold than crops grown for grain**

# Grasshoppers



# Grasshoppers

- **Four species cause majority of damage**
- **Eggs laid in soil in summer & fall**
- **Overwinter as eggs, hatch in spring**
- **Development takes 4 to 6 weeks**
- **Most species have one generation per year**
- **Smaller nymphs are easier to control; nymphs cannot fly**

# **Grasshopper Thresholds - Small Grains**

- **>20 per square yard threshold in field margins, >10 per square yard in field interior => definitely treat**
- **10-20 per square yard threshold in field margins, 5-10 per square yard in field interior => probably beneficial to treat**
- **barrier treatment (field margins) often sufficient for nymph control**
- **higher thresholds for pastures & forage**

# Mormon Cricket, *Anabrus simplex*



# Mormon Crickets on Roadway



# **Mormon Cricket**

- **Prefers forbs but can feed on over 400 species of plants, including grasses**
- **Overwinters as eggs laid during summer in soil or in harvester ant mounds**
- **Eggs hatch in spring when soil temperature exceeds 40° F.**
- **Development requires 60 to 90 days**
- **One generation per year**

# **Insecticides for Pastures & Rangeland**

- **Limited number of insecticides labeled for these sites**
- **15 active ingredients (of over 200 total insecticide a.i.'s registered in Utah)**
- **About 24 brands or product lines**
- **About 48 Utah-registered products**
- **Additional target pests included here: ants and mosquitoes (larvae & adults)**

# AZADIRACHTIN

## (Azatin)

- **Type:** botanical - derived from neem oil
- **Action:** feeding depressant & insect growth regulator; behavioral effects
- **Sites:** pastures & rangeland
- **Pests:** aphids, armyworms, cutworms, grasshoppers, Mormon cricket

*Bacillus sphaericus*  
(Larvae Halt II, Vectolex)

- **Type:** biological agent - bacteria
- **Action:** mid-gut disrupter
- **Sites:** pastures & various aquatic sites
- **Pests:** mosquito larvae

*Bacillus thuringiensis* var.  
*kurstaki*  
(Foray)

- **Type:** biological agent - bacteria
- **Action:** mid-gut disrupter
- **Sites:** pastures & rangeland
- **Pests:** armyworms & other caterpillars
- **most effective against smaller larvae**

# *Beauveria bassiana* (Naturalis)

- **Type:** biological agent - fungus
- **Action:** fungal hyphae penetrate the cuticle (exoskeleton of the insect)
- **Sites:** pastures only
- **Pests:** ants, armyworms, cutworms, grasshoppers

# *Beauveria bassiana* GHA (Botanigard)

- **Type:** biological agent - fungus
- **Action:** fungal hyphae penetrate the cuticle (exoskeleton of the insect)
- **Sites:** pastures & rangeland
- **Pests:** cereal leaf beetle, grasshoppers, Mormon crickets

# CARBARYL (Sevin)

- **Type:** carbamate
- **Action:** neurotoxin
- **Sites:** pastures & rangeland
- **Pests:** armyworm, black grass bug, cereal leaf beetle, cutworms, grasshoppers, Mormon cricket, western yellowstriped armyworm
- **14 days to grazing; bee hazard**

# DIFLUBENZURON

## (Dimlin)

- **Type:** insect growth regulator - chitin synthesis inhibitor
- **Action:** inhibits formation of exoskeleton after molting
- **Sites:** pastures & rangeland
- **Pests:** armyworms, grasshoppers, Mormon cricket
- most effective on smaller nymphs
- **Restricted-Use-Pesticide**

# FENOXYCARB

## (Award, Logic)

- **Type:** insect growth regulator - juvenile hormone mimic
- **Action:** prevents molting into adult or pupal stage
- **Sites:** ant hills & rangeland
- **Pests:** fire ants, bigheaded ants

# HYDRAMETHYLNON

## (Amdro, Siege)

- **Type:** aminohydrazone
- **Action:** affects respiratory chain  
(utilization of oxygen by cells)
- **Sites:** pastures & rangeland grasses
- **Pests:** harvester ants, fire ants,  
bigheaded ant

# **MALATHION**

## **(Fyfanon)**

- **Type:** organophosphate
- **Action:** neurotoxin
- **Sites:** pastures & rangeland grasses
- **Pests:** armyworms, cereal leaf beetle, grasshoppers, Mormon cricket, mosquito adults, western yellowstriped armyworm

# METHOPRENE

## (Altosid, Pre-Strike \*)

- **Type:** insect growth regulator - juvenile hormone mimic
- **Action:** prevents molting into adult or pupal stage
- **Sites:** pastures, rangeland, various aquatic sites; \* irrigated pastures only plus aquatic sites
- **Pests:** mosquito larvae

# NALED

## (Dibrom, Trumpet)

- **Type:** organophosphate
- **Action:** neurotoxin
- **Sites:** pastures only
- **Pests:** armyworms & other caterpillars, mosquito adults

# *Nosema locustae* (Nolo Bait)

- **Type:** biological agent - protozoan
- **Action:** mid-gut disrupter(?), replicates in digestive tract
- **Sites:** agricultural crops & rangeland grasses
- **Pests:** grasshoppers & Mormon cricket

# PYRETHRINS

(Pyrenone, Pyroicide \*, Pyronyl)

- **Type:** botanical - derived from pyrethrum flowers
- **Action:** neurotoxin
- **Sites:** pastures & rangeland grasses;  
\* pasture grasses only
- **Pests:** armyworms, cereal leaf beetle, cutworms, grasshoppers, mosquito adults

# **SPINOSAD**

## **(Conserve, Justice)**

- **Type:** bacterial fermentation product
- **Action:** neurotoxin (similar to effect of nicotine)
- **Sites:** ant hills & rangeland
- **Pests:** fire ants