

# Flax Insect Pest Management



Thursday, May 17,  
2012

NDSU EXTENSION SERVICE

# Flax Insect Pests

- Insects
  - Aster leafhopper
  - Grasshoppers
  - Cutworms
  - Aphids



# Aster Yellows

- Mycoplasma-like organism (MLO)
- Transmitted by Aster or Six-spotted leafhopper



# Aster Yellows - Symptoms



- Leaves in upper half of infected shoots - bright yellow
- Flower parts - leaf-like and greenish yellow, sterile



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# Aster Yellows - Life Cycle

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- Migrates from south and overwinters as eggs on perennial broadleaf weeds or crops (dandelion, plantain, thistle, ragweed, ...)
- Infection depends on:
  - number and % of leafhoppers carrying MLO
  - stage of flax growth
- Control
  - No practical means of controlling
  - Early seeding = reduce incidence
  - No resistant cultivars

# MAJOR CROPLAND GRASSHOPPERS



**TWO-STRIPED**



**PACKARD**



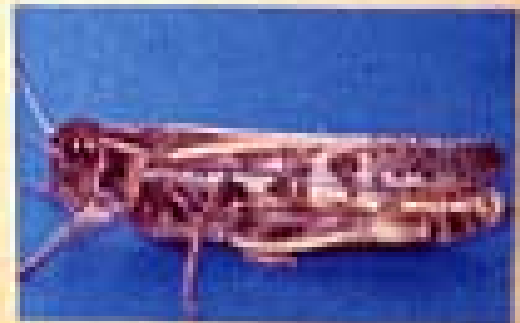
**MIGRATORY**



**DIFFERENTIAL**



**RED-LEGGED**



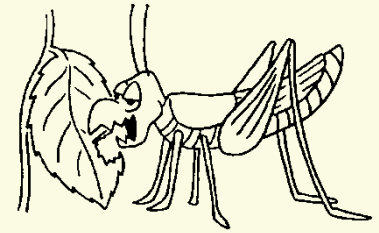
**CLEAR-WINGED**

# Grasshopper Damage

- Seedling/young flax
  - Nymph (immature grasshoppers)
- Mature flax - bolls
  - ADULT grasshoppers chew through succulent portions of the stem below the bolls



# Grasshopper Infestation Ratings



<u>Rating</u>	<u>Nymphs / sq. yd.</u>		<u>Adults / sq. yd.</u>
	<u>margin</u>	<u>field</u>	<u>field</u>
Light	25 - 35	15 - 25	3 - 7
Threatening	50 - 75	30 - 45	8 - 14
Severe	100 - 150	60 - 90	15 - 28
Very Severe	200+	120+	28+

1 sq. yard = 4 pendulum sweeps with 15 inch sweep net



# Insecticide Recommendations

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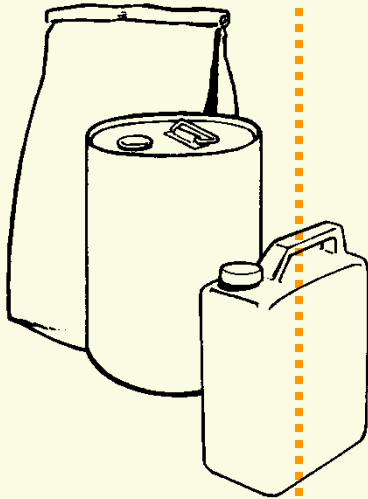
Registered Insecticides - 2000

Grasshoppers

**Flax**

**Sevin**

**Malathion - Organophosphate?**



**1999 Crisis Exemption**

**August 6-20, 1999**

**Warrior 3.84 fl oz/A**

**Future IR-4 Project**

**Decis (deltamethrin)**

**contact/stomach**

**Always Read  
Labels.**

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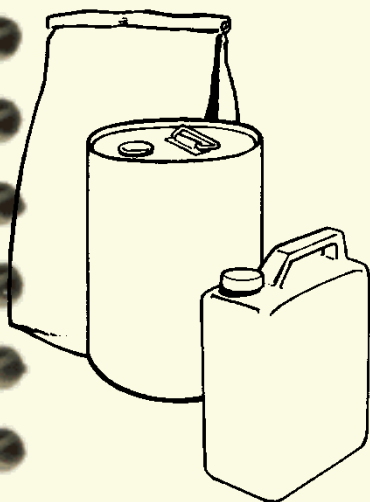
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# Insecticide Recommendations

## Canada

Registered Insecticides - 1999

Grasshoppers



**Always Read  
Labels.**

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## Flax

### Pyrethroids:

**Decis**

**Matador (= Warrior)**

**Low rates = 1 oz/A**

### Organophosphate:

**Fyfanon (= Malathion)**

**Malathion**

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# Grasshopper Insecticide Trial

## Flax 1999 - Minot

<u>Treatment</u>	<u>Ave. Boll per ft<sup>2</sup></u>	<u>Yield Bu/A</u>	<u>% Loss</u>
Control	19.0 a	9.5 a	22 %
Warrior 1.28 oz/A	9.8 b	9.9 a	19 %
Warrior 2.56 oz/A	10.0 b	10.6 a	13 %
Asana 5.94 oz/A	10.5 b	11.0 a	9 %
MP062 1.76 oz/A	11.2 b	11.2 a	7 %
Asana 3.8 oz/A	11.4 b	11.4 a	6 %
Asana 9.6 oz/A	8.1 b	12.1 a	0 %

*Average of 6.8 bolls per ft<sup>2</sup> on ground before spraying  
92% adult grasshoppers, 16 grasshoppers per square yard*

# Grasshopper Insecticide Trial Flax 1999 - COSTS

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<u>Treatment</u>	<u>Cost (\$/A)</u>
Control	\$ 0.00
Warrior 1.28 oz/A	\$ 3.30
Warrior 2.56 oz/A	\$ 6.60
MP062 1.76 oz/A	-----
Asana 3.8 oz/A	\$ 3.42
Asana 5.94 oz/A	\$ 5.35
Asana 9.6 oz/A	\$ 8.64

# Cutworms



- Dingy, Red-backed, pale western, army cutworms
- Lay eggs in weedy summer fallow fields during late summer of previous year
- Eggs hatch and young larvae feed on seedlings

# If that isn't enough

- Crops can be eaten off below ground
- Impossible to control!
- Economic Thesholds
  - 12 cutworms / yd<sup>2</sup> equal a 10% yield loss
  - 25% stand reduction



Source: Flax Council of Canada

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