

## FLAX INSECTS

Flax may be infested from the time of emergence to maturity by various insect pests. Fields should be examined regularly and controls applied when infestations reach the economic threshold. The following species are potentially damaging but often occur in too low a number to cause economic loss.

### ARMY CUTWORM

Larvae of the army cutworm, *Euxoa auxiliaris*, damage flax and many other crops by feeding on foliage in the spring, and to a lesser degree, in the fall. It can be an important pest in southwestern North Dakota. Populations of 9 per square yard can cause significant damage.

### ASTER LEAFHOPPER

The aster leafhopper, *Macrostelus quadrilineatus*, can damage flax. This insect feeds by sucking juices from the flax plants. More importantly, aster leafhoppers can carry the Aster Yellows mycoplasma and the crinkle virus, and can infect the plants with these diseases while feeding. The damage from these insects is most serious on late-seeded crops.

### BERTHA ARMYWORM

The bertha armyworm, *Mamestra configurata*, was a regular pest of flax before canola and mustard were grown on the prairies. However, since their widespread introduction, the bertha armyworm rarely causes economic damage to weed-free flax fields. If bertha armyworm-infested canola fields are swathed and green flax fields are nearby, the flax can suffer significant damage from invading larvae. When abundant, bertha armyworms cause serious damage by chewing through the stems below the bolls, causing them to drop to the ground. Young bertha larvae are green but larger larvae are usually velvet-black.

### CUTWORMS

Two subterranean species of cutworms, the redbacked, *Euxoa ochrogaster*, and the pale western, *Agrotis orthogonia*, attack flax.

The adult moths of these species lay eggs on the soil surface in weedy summer fallow fields during late summer. These eggs overwinter and the young larvae feed on flax seedlings in the spring. Cutworms usually remain below ground, cut off the young plants near the soil surface and draw them down where they are eaten. An average population of 10 cutworms per square yard can cause a 10% reduction in the yield of flax, and control should be considered.

### GRASSHOPPERS

Grasshoppers have been the **No. 1 threat to North Dakota flax** in recent years. Young grasshoppers may attack young plants and cause damage. However, more damage is done to the crop before harvest by the older, larger grasshoppers. They can quickly cause large numbers of bolls to drop by chewing through the more succulent portions of the stem below the bolls. Growers need to be aware of grasshopper activity in the vicinity of flax fields well before adult migration begins in July. Because of the limited availability of insecticides in flax, attempts to reduce grasshopper populations in neighboring crops and non-crop areas are advisable.

#### Insecticides registered for controlling insects in flax

INSECTICIDE	DOSAGE IN LB AI/ACRE	PRODUCT PER ACRE	RESTRICTIONS ON USE
carbaryl Sevin	0.5 - 1.5	rate varies by formulation	PHI = 42 days for seed or straw. Do not apply more than a total of 3 lbs of active ingredient per acre per crop.
zeta-cypermethrin Mustang Max EC RUP	0.025	4.0 fl oz	PHI = 7 days. Do not apply more than 0.15 lb ai per acre per season. Do not make applications less than 7 days apart. Apply by ground or air using sufficient water to obtain full coverage of foliage (minimum of 10 GPA by ground and 2 GPA by air).

## WIREWORMS

Wireworms, although often serious pests of cereal grains in the seedling stage, seldom damage flax. Cruiser and Gaucho are labeled as commercial seed treatment for control of wireworm on flax and use decisions must be made at time of seed purchase. Please the seed treatment section in the introduction for more information.

<b>INSECTICIDE</b>	<b>DOSAGE IN LB AI/ACRE</b>	<b>PRODUCT PER ACRE</b>	<b>RESTRICTIONS ON USE</b>
<b>imidacloprid</b> Gaucho 600	refer to recommended label rate		Follow all applicable directions, restrictions and precautions on the EPA registered label.
<b>imidacloprid</b> Dyna-Shield Imidacloprid 5	refer to recommended label rate	12.8 fl oz per cwt of seed	Follow all applicable directions, restrictions and precautions on the EPA registered label.
<b>imidacloprid</b> Senator 600	refer to recommended label rate	25.6 fl oz per cwt of seed	Follow all applicable directions, restrictions and precautions on the EPA registered label.
<b>thiamethoxam</b> Cruiser 5FS	refer to recommended label rate		Follow all applicable directions, restrictions and precautions on the EPA registered label.