

True Armyworm: information for B.C. growers

True Armyworm (*Mythimna unipuncta*, formerly *Pseudaletia unipuncta*) is a North American insect in the family Noctuidae which is introduced annually, in April, to southern Canada on wind currents from the southern USA and Mexico. Southern areas of Manitoba and Ontario do experience outbreaks of this pest periodically. True armyworm is not known to overwinter in Canada.

Hosts: grass crops, including cereals, forage, and corn are the primary hosts, but true armyworm larvae will feed on broad leaved plants as well, including peas and canola, and other crops or vegetables when populations are high.

Damage: Larvae feed on leaves of grass and less frequently on developing seed heads. Feeding occurs mostly at night, or during cool mornings. Once the area is defoliated the growing larvae move in groups to other grass stands to continue defoliation. Damage in a field can be spotty and variable, and quickly result in devastation if the population of larvae is high. The first generation (larval feeding in June and July) is the worst, and the second generation in August is expected to be less destructive.

Biology: Adult moths 'blow in' to BC in April, in unpredictable numbers, and then begin laying eggs in grass. Eggs are laid densely, and then larvae feed in close proximity to each other; distribution of eggs and consequently larvae is highly clumped or aggregated. Larvae have 6 instars, with the last two instars resulting in the most feeding damage. The larval stage lasts about 1.5 months, depending on temperature, and they grow to about 35 mm before pupating. The larvae burrow into the soil just below the surface to pupate, within an earthen cocoon, and remain there for 1-2 weeks. The adult moth emerges from the pupae and a second generation of eggs and larvae occur in late summer (August). Adults are brown delta-shaped heavy-bodied moths (3 cm long) that may be seen flying around outdoor lights at night. During the day they hide at the base of plants or other dark protected places.



Image credit: H. Shobe



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True armyworm larvae and fecal pellets on soil surface

Larvae feeding on grass hay

Monitoring for True Armyworms: Adult moths can be watched for around lights at night, but also by using pheromone baited bucket-type traps ('uni-traps') from April-May and in late July and August. Trapping for adults is useful to show when the moths are present and if numbers could be high enough to be of concern. Additionally, trapping moths is useful for predicting when and where larvae will occur. Set traps in areas of concern, such as beside a field that had heavy larvae infestation earlier in the summer or in previous years.



Full grown larva



Close up of netted pattern and 'V' on head of larva



Armyworm pupa in soil

Field scouting for larvae should be in mid to late June by checking at least 5 areas of a field. During the day, larvae will be down low on the plant or in the thatch. Scout after sunset or early in the morning and larvae will be up on the plants, where they will be easier to count. Larvae can be dislodged by shaking plants over a drop-sheet or panel and then counted. Get an average number per square foot (30x30 cm) over the 5 sampling sites for an estimate of the field density. Be aware that egg-laying moths prefer to lay eggs in lush grass stands, which may be at high risk of re-infestation and should be monitored for larvae.



Image From: *Manitoba Factsheet*

True armyworm moth at rest



Image from: *C. Wiley, Ohio State University*

Uni-trap set up in corn field for catching armyworm moths

Management: Because true armyworm outbreaks are unpredictable and loss can occur quickly, insecticides can be considered for incorporation into a management plan. There are a few products registered for use in Canada for control of armyworms in forage, cereals, and corn (Table 1.). In addition, modifying harvest plans may be necessary to limit losses. Consider cutting, baling, or grazing earlier, as well as irrigation and fertilization to encourage regrowth will help limit losses in hay fields. Cereal crops or corn will face yield reductions if they are defoliated early, but will not be as impacted if feeding occurs later in plant development.

The working threshold for insecticide treatment in forage grass/hay is 5 larvae per 30x30 cm. The threshold is lower for annual cereals: 2-4 larvae per 30x30 cm. For the application to be most worthwhile, apply before most of the larvae reach 25 mm in length.

Larvae will take refuge under swaths or bales and can inadvertently get picked up in or on bales. If possible, don't move bales to different farms immediately; we suggest storage on cement pads or in sheds for a week or so prior to transport to allow larvae to disperse or die, and limit movement to new farms.

There are naturally occurring biological control agents that feed on or kill true armyworm larvae, including parasitic wasps and flies, ground beetles and rove beetles, and fungal, bacterial, and viral diseases. As well, several bird species will feast on the larvae. These agents do not prevent an outbreak but can curtail damage to a limited extent. While some biocontrol agents can be purchased for release, this is not a practical approach to limit outbreaks and damage to commercial or economically significant hay crops.

For Home Gardeners:

True armyworms can be found readily on lawns and other turf or grassy areas. They can move in vegetable gardens. Some homeowners have had success trapping larvae by use of blankets as refuges and then collecting and killing larvae in buckets of soapy or salty water. Moths can be killed with light bug-zappers during their flight in the evenings and night. Domestic insecticides for larvae are available, including Malathion, Sevin (carbaryl), and Btk (*Bacillus thuringiensis kurstaki*). The best time to apply is to small larvae (less than 2 cm).

More information:

- Manitoba Ministry of Agriculture: <http://www.gov.mb.ca/agriculture/crops/insects/print,true-armyworm.html>
- Ontario Ministry of Agriculture, Field Crop News: <http://fieldcropnews.com/tag/true-armyworm/>
- University of Florida: http://entnemdept.ufl.edu/creatures/field/true_armyworm.htm

Insecticides registered for control of armyworm in forage, grass, corn, July 20, 2017

Labels searched on PMRA Label Search site: <http://pr-rp.hc-sc.gc.ca/lr-re/index-eng.php>

PCP #	Product name	Active ingredient	Crops	Pre-harvest or grazing interval	# applications per year
28982	Coragen	Chlorantraniliprole Group 28	Corn (field, sweet), Grass forage, fodder, and hay group, non-grass animal feed group, oilseeds and cereals	Forage grasses: 0 days PHI Forage corn: 14 day PHI	Up to 4 apps, 7 days apart, Use high rate
5821	Malathion	Malathion, Group 1	Cereals, grasses, legumes, alfalfa, clover for hay	7 days	1 app
27876	Sevin	Carbaryl, Group 1A	Forage, pasture, cereals	1 day	Up to 2 apps, 8 days apart
24984, 26837	Matador, Warrior	Lambda-cyhalothrin, Group 3	cereals, corn	Corn for silage: 14 days Cereals: 28 days Sweet corn: 1 day	Up to 3 apps, 4-7 days apart
28778	Delegate	Spinatoram, group 5	Cereals, field/forage corn	Cereals: 21 day PHI, Forage corn: 7 day PHI	Up to 3 apps, 5 days apart

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