

### What are onion thrips?

Onion thrips (*Thrips tabaci* Lindeman) is the most important insect pest of onions in the Great Lakes region. Adults and nymphs use their single sword-like mandible to rupture plant cells on the outer surface of leaves and other plant parts, and then suck out the contents by pressing their mouthparts onto the damaged surface. At first, damaged leaves turn silvery, but with continued severe damage, the leaves completely dry out, hampering photosynthesis and ultimately reducing plant growth and yield. Thrips are also vectors of *Iris yellow spot virus*, which causes a disease that can further reduce yield.

Onion thrips have overlapping generations and the different life stages are difficult to distinguish with the naked eye. This makes it difficult to impose a threshold for insecticide application that requires differentiating different life stages.

### How can onion thrips be controlled?

Currently, the most important tool for commercial onion growers is the judicious use of insecticides. Insecticides should be used as part of an integrated pest management strategy, keeping in mind the following points: (1) before making an application determine the average number of thrips on your onions, and (2) check the weather forecast, since hot, dry spells will likely help the numbers of thrips rise quickly in the near future, but cool, wet weather will keep numbers low.

### How should I go about choosing products for onion thrips control?

Before choosing a product for onion thrips control, the following points should be considered: (1) there are relatively few products registered on onion, so (2) maximum application rates are quickly exceeded if the same product is applied multiple times in a season, (3) multiple products have to be used in rotation. Its important to use different products within a season, because the more often a product is used, the higher the chances are of onion thrips becoming resistant to it. So we need to find out which rotations and combinations are the most effective in suppression thrips and do not exceed maximum application thresholds.

### How should I use insecticides in sequence?

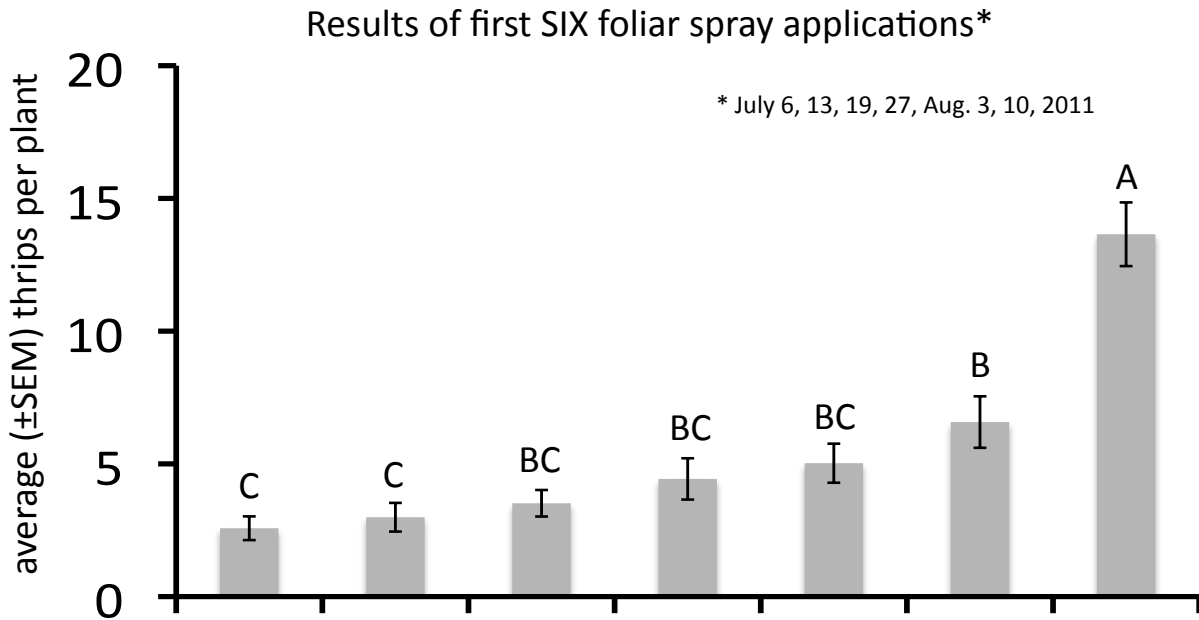
It is best to use one product consecutively two times, rather than spacing them further apart during the season. The rationale for this has to do with how insecticide resistance evolves in the onion thrips. Insecticides are lethal to most, but not all individuals, and those that survive are able to pass on this ability to their offspring. The more resistant survivors are left in a field, the more insecticide-insensitivity will be a problem for growers (i.e. the product won't kill the insects). An onion thrips generation spans about 2-3 weeks under typical growing conditions. If one product is used consecutively, say one week apart, this will limit the number of generations that will be selected (maybe only one or at most two generations will be selected). In contrast, if a product is applied twice during the season and the spacing is 3 to 5 weeks apart, at least two and perhaps as many as four generations could be selected. The Section 18 labels for *Movento* and *Agri-Mek* both specify no more than 2 applications can be made to the onion crop and the applications should be made consecutively. This was specified primarily for resistance management purposes using the rationale described above.



**What are the 2011 insecticide trial results thus far?**

The graph below displays the results of the first six weeks of foliar insecticide applications to manage thrips on onions. Insecticides were applied at weekly intervals, and the same insecticide was applied twice in a row (i.e.: the same insecticide is applied in two consecutive weeks). This year's insecticide trial includes 11 different treatment combinations. Each treatment consists of different insecticide rotations designed for an 8-week period, so our results shown below are partial for the season.

RESULTS: All insecticide treatments reduced thrips numbers significantly compared to the untreated control. Among the treatment combinations the 'Movento→Lannate→Radiant' and the 'Tolfenpyrad+Lannate→Radiant→Agri-Mek' performed the best thus far.



<b>Week 1-2</b>	Movento	Tolfenpyrad +Lannate	Vydate	Movento	Radiant	Vydate	Control
<b>Week 3-4</b>	Lannate	Radiant	Agri-Mek	Lannate	Tofenpyrad +Lannate	Assail	-
<b>Week 5-6</b>	Radiant	Agri-Mek	Radiant	Agri-Mek	Agri-Mek	Lannate	-

Different letters above bars indicate statistically significant differences.