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VCR – Vegetable Crop Report – September 12, 2019

The VCR (vegetable crop report) is a weekly update which includes crop updates, weather and growing degree summaries for various vegetable growing regions across Ontario.



Temperature – Degree day accumulation slowed this week across most of the growing regions as cooler weather arrived. Continue to be vigilant in scouting for pathogens as crops approach harvest as cooler weather combined with heavy dew and precipitation may be conducive for the development of plant pathogens. Chatham and Essex, have held steady with their average degree day accumulation while Kemptville,

Norfolk and Wellington have fallen back below their average degree day accumulations along with the other growing regions.

Rainfall – All growing regions received rainfall in the past week with varying amounts based on location. Essex has already received two thirds of its average rainfall and is well on its way to exceeding its September average. Remaining growing regions have received about half or below their monthly averages. Remember to try and avoid scouting or equipment through fields when they are still wet. This will help to avoid the spread of some plant pathogens, especially in fields which are still a few weeks away from harvest.



Ministry of Agriculture, Food and Rural Affairs

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Crop Updates

Brassica Crops – Diamondback moths and flea beetles continue to be problems in multiple areas. Scout for Alternaria, downy mildew and look for stunted plants. A clubroot pathotype study is underway; if you have Brassicas with clubroot and are interested in determining what pathotype of clubroot is present, E-mail travis.cranmer@ontario.ca for more information.



Fig 1. Clubroot causing stunting in cauliflower.

Celery – Celery harvest continues. For late plantings, continue to scout for bacterial blight, pink rot and celery leaf curl. Avoid scouting when leaves are wet as pathogens can spread easily on clothes and equipment throughout the field.

Garlic – Planting season is underway. Check planting stock for bulb and stem nematode before planting. Even cloves with an intact basal plate and no observable damage may have nematodes present. There will be another full day workshop in Guelph on December 4th that will cover every part of garlic production including clean seed, cultivar selection, seeding density, nutrient testing, scape removal, weed control, crop insurance, harvesting, grading, storing as well as scouting/pest management. To register, call the Agriculture Information Contact Centre at 1 877-424-1300.

Onions – Onion harvest is underway. Downy mildew was confirmed in Ontario transplant onions two weeks ago; but no infections have been seen in the major onion growing regions. The level of Stemphylium leaf blight development seemed to be less than last year and the level of thrips this year was low in most areas. The level of pink root and onion smut seemed to be higher this year but overall yield and quality seems to be good across the province.

Pest	Carrot Rust Fly	Onion Maggot	Carrot Weevil	Aster Leafhopper	Tarnished Plant Bug	Cabbage Maggot	Seedcorn Maggot	European Corn Borer
THRESHOLD	329-395, 1399-1711	210-700, 1025-1515	138-156, 455+	128+	40+	314-398, 847-960, 1446-1604	200-350, 600-750, 1000-1150	See legend below
Essex*	2417	2245	1759	1461	1054	1917	2245	1317
Chatham-Kent*	2205	2035	1562	1269	832	1715	2035	1133
Norfolk**	2118	1954	1492	1207	774	1642	1954	1074
Wellington**	1865	1712	1275	1011	616	1415	1712	889
Simcoe County***	1885	1729	1293	1029	637	1432	1729	907
Durham***	1988	1832	1396	1134	729	1535	1832	1009
Peterborough	1799	1643	1202	933	545	1344	1643	811
Kemptville***	2018	1861	1420	1145	729	1562	1861	1011
Sudbury***	1660	1519	1122	882	518	1248	1519	770

Pest Degree Day Forecasting

*- Bivoltine region for ECB. First Peak Catch: 300-350 DD, Second Peak Catch 1050-1100 DD

**- Overlap region for ECB. First Peak Catch : 300-350 DD Second Peak Catch 650-700 DD, Third Peak Catch 1050-1100 DD

***-Univoltine region for ECB. Peak Catch 650-700 DD

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Use these thresholds as a guide, always confirm insect activity with actual field scouting and trap counts. Select a region below for the latest weather, crop and pest degree day information:

Essex County(https://onvegetables.com/2019/09/12/vcr-18/#essex) Chatham-Kent County(https://onvegetables.com/2019/09/12/vcr-18/#chatham-kent) Norfolk County(https://onvegetables.com/2019/09/12/vcr-18/#morfolk) Wellington County(https://onvegetables.com/2019/09/12/vcr-18/#wellington) Simcoe County(https://onvegetables.com/2019/09/12/vcr-18/#simcoe) Durham County(https://onvegetables.com/2019/09/12/vcr-18/#durham) Peterborough(https://onvegetables.com/2019/09/12/vcr-18/#peterborough) Kemptville(https://onvegetables.com/2019/09/12/vcr-18/#kemptville) Sudbury(https://onvegetables.com/2019/09/12/vcr-18/#sudbury) Essex County



Essex Total Precipitation per Month



Chatham-Kent County



Chatham-Kent Total Precipitation per Month



Norfolk County





Norfolk Total Precipitation per Month



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Wellington County



Simcoe County



Wellington County Total Precipitation per Month 140 120 Precipitation (mm) 100 80 60 40 20 0 March AUBUSI POUL 10th Way June Septen ■2019 ■10 year average

> Simcoe County Total Precipitation per Month



Durham County



Durham Total Precipitation per Month



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Peterborough



Kemptville



Peterborough Total Precipitation per Month 140 120 100 Precipitation (mm) 80 60 40 20 0 Wardh AUBUSI Poli Nat 10th June Septemi ■2019 ■10 year average





Sudbury



Sudbury Total Precipitation per Month



A scattered start for Leek Moth in 2019 Update on leek moth survey Originally published in the September edition of The Grower

Leek moth (*Acrolepiopsis assectella*) is a destructive pest of *Allium* species including onions, shallots and chives, but prefers leeks and garlic. All parts of the plant including the leaves, stems, flower stalks, scapes, and bulbs are targeted. Feeding injury in leeks and green onions renders the crop unmarketable while in garlic the moth destroys leaves, bores into the scape and cloves and also creates an entry point for fungi or bacteria.

Leek moth was first detected in Canada near Ottawa in 1993 and has since spread west through Ontario, east towards the maritimes (Québec, New Brunswick, Prince Edward Island), and south into the United States (New York and Vermont). During the 2018 season leek moth was captured throughout Southwestern Ontario and was identified as far west as Lambton and Chatham-Kent counties. So far, leek moth has not been detected in Essex, Elgin, Niagara or Bruce counties.

Managing leek moth once it is established has shown to be difficult. In areas with high infestations, floating row covers are often the most effective pest management strategy. Row covers are generally hard to implement over large acreages and must be applied prior to adult activity in each generation in order to be effective.

The efficacy of insecticide applications is difficult to assess. Leek moth larvae are often found near the plant's meristem or in the stem or scape which makes it difficult to make contact with an insecticide. As the larvae grows older, it ventures out onto the leaf which makes it more vulnerable to the insecticide application. Not all female leek moths lay their eggs the same day, or in the same week, which makes it even more difficult to time an insecticide application. Population peaks vary based on many factors and this year we found fields that were relatively close to each other had different peaks in the leek moth captures.

The best way to determine the level of leek moth pressure in your field is to monitor using a pheromone trap lined with a removable sticky card (Figure 1). Traps and lures can be purchased from Cooper Mill Ltd (ipm@coopermill.com) and Distributions Solida (info@solida.ca). Order Delta 1 traps with removable liners and mount the trap in the field at the end of April as adult moths emerge from overwintering spots when **night** temperatures reach 9.5°C. Place at least two traps per field, near the field perimeters, as this is where the highest leek moth numbers are usually observed. Each trap requires at least 14 sticky cards for the season and if the pheromone lure is changed every three weeks, you would require approximately five lures per trap. Extra traps are always a good idea, as traps are sometimes lost or damaged.



Figure 1. Adult leek moth on sticky card accented by the tip of a paperclip.

A scattered start for Leek Moth in 2019...con't

This year over 10 conventional and organic garlic and leek fields were monitored in Southern Ontario (Figure 2). There was no clear peak flight of male moths early in the season as there has been in previous years. Many regions in Southwestern Ontario experienced a cool, wet spring which likely influenced the first flight of overwintering adults.



Figure 2. Leek moth counts from multiple traps in garlic and leek fields in various Ontario counties in 2019. No clear peak flight of male moths early in the season as there has been in previous years.

Insecticide applications are best when targeted at the second generation of leek moth larvae which was between the first week of June to around mid July this year. If the number of overwintering moths trapped was low and minimal damage by first generation larvae was seen in the field, a single insecticide application 10 days after the peak of the second flight would be most effective. If the damage to the crop was moderate to severe the previous year, and/or the trap counts of overwintering moths were high and damage by first generation larvae was observed in the field, two insecticide applications may be necessary. Two applications will target the most larvae if they are applied 3 days after the date of peak moth capture and the second treatment 14 days later. Currently, Matador 120EC, Bioprotec CAF, Delegate WG and Entrust are registered for leek moth management in garlic in Canada. These insecticides are most effective when they make contact with the larvae.



Figure 3. Leek moth counts at a field site in Renfrew county. With no conventional insecticides applied, the level of captured leek moths doubled in 2019 (purple) compared to 2018 (pink) at a site in Renfrew county.

A scattered start for Leek Moth in 2019...con't

In 2019 several of the same fields from the previous year were monitored and differences in the adult moth populations were recorded. With no conventional insecticides applied, the level of captured leek moths doubled in 2019 compared to 2018 at a site in Renfrew county (Figure 3). However, exclusion nets at this field site have shown to be quite effective at eliminating insect damage. At a field site in Huron county, two insecticide applications were applied after the second peak in June 2018 corresponding to peak moth counts using sticky cards (Figure 4). Traps counts at this location suggest that the level of leek moths present are much lower here than they were in 2018.



Figure 4. Leek moth counts at a field site in Huron county in 2018 (light green) and 2019 (dark green). Two insecticide applications were applied after the second peak in June 2018 corresponding to peak moth counts using sticky cards. Research suggests that timing insecticide applications directly after peak insect captures have the best chance at reducing leek moth populations.

Work is being conducted to evaluate a parasitic wasp as a biocontrol for leek moth. Releases of *Diadromus pulchellus* in Ontario have been conducted by researchers at Agriculture and Agri-Food Canada (AAFC, Dr. Peter Mason's lab) over the last decade. Early research shows that *D. pulchellus* overwinters in Ontario and its impact in reducing leek moth populations in a commercial setting is currently being evaluated.

Always observe a 3 year or more crop rotation and avoid planting near infested areas from the previous season if possible. Collect and destroy any scapes or stems that show any sign of leek moth damage including the pupae (Figure 4). After the crop is harvested, check for small, 2mm-wide holes in the sheath of the garlic bulb and cloves and cull any that you find. Burying plant debris after harvest will also reduce pupae and larvae populations.

If you are a grower of garlic, onions, brassicas, potatoes, carrots, tomatoes, peppers, sweet corn or cucurbits, you might be interested in an IPM Scouting Workshop in Kemptville October 29th and 30th. Register by calling the Agricultural Information Contact Centre (AICC) at 1-877-424-1300. The garlic portion will focus on production as well as pest management while most of the remaining information will focus mainly on pest identification and management. Agenda with times for the different crops will be released shortly. E-mail travis.cranmer@ontario.ca if you have any questions.

We are also hosting a Garlic Production and Pest Management Workshop this winter in Guelph. Topics include purchasing clean seed, row spacing and crop density, cultivar selection, crop insurance options, choosing the right equipment, crop rotation, processing, leek moth management, garlic viruses as well as information on bulb and stem nematode and other garlic diseases. If you or anyone else you know would like to attend the garlic workshop this December, please register by calling the AICC at 1-877-424-1300.

Garlic Workshop - Production and Pest Management of Ontario Garlic

- December 4th, 2019 from 9:00 AM 4:30 PM
- 1 Stone Rd. West, Guelph, conference rooms 2 & 3
- Booklet provided; lunch on your own; pay parking available for \$12/day