

COLE CROP IPM NEWSLETTER: Mid June Update (Instagram Updates from the Field: @ufvvegipm)

Scouting Tips

Checking maturing plants: Some of the earliest planted cole crops are beginning to mature (form heads). As the head forms it is very challenging to get a good look inside. Some tips for making this easier include rolling back wrapper leaves as far as possible on heads of cabbage. You will be able to see if caterpillars are feeding (look for holes or frass – caterpillar poop) or find aphid colonies. Try tapping broccoli or cauliflower heads over a white piece of paper (Fig. 1) – this can be tricky and takes practice. You can, however, dislodge aphids, thrips and some caterpillars with this method. Remember to also keep checking the outer wrapper leaves (both the top and underside of the leaf), as all of the pests will also be present on these leaves as well.

Figure 1. Placing a white piece of paper under maturing kale, broccoli or cauliflower heads, can help determine if aphids are present. Tap the crown of the plant vigorously 10X.



Figure 2. Root maggots found on a single broccoli plant. The plant has been growing, but the amount of maggots + the heat caused the plant to collapse

Pests found in the last 2 weeks

Caterpillars – continue to be present in all fields and will be here now for the remainder of the field season. As discussed in the late May update, not all species are present in all fields; and there can be important differences in management of the different species. Thus, monitoring and proper identification are critical.

Cabbage root maggots – we are seeing some very heavily damaged/infested plants now (Fig. 2). With the warmer weather, root maggot injury on mature

head and stem brassica plants can cause plants to wilt. Conventional growers who have used Pyrinex or Lorsban and are observing heavy losses due to root maggots should contact Susan Smith (604-556-3087 or Susan.L.Smith@gov.bc.ca) so that larvae can be tested for resistance and to discuss resistance management options. Physical control using row cover is an option that may work for some farms. Again, contact Susan Smith to discuss further.

Aphids – aphid populations have been low in both Abbotsford and Delta. Most colonies have consisted of a single winged aphid and fewer than 10 non-winged offspring (Fig. 3). With the increasingly warmer temperatures, we expect that populations will increase in the coming weeks. There are two main aphid species observed on brassica crops in the valley: green peach aphid and cabbage aphid. Both species of aphids start off as small colonies (Fig. 3) that can grow to very large ones with 100's of individuals. While both types of aphids can cause reductions in crop growth, cabbage aphids are more challenging to manage. This is because they tend to form colonies in the head or crown of plants (including cauliflower or broccoli heads), and the colonies tend to be very dense. Cabbage aphid feeding can cause plants to become distorted. Getting thorough coverage with a contact insecticide is also challenging for managing aphids.

Figure 3. Aphid colonies are easy to miss when they are small and consist of only a few individuals. There is a winged aphid at the tip of the pen.



While it might be tempting to go on a calendar spray schedule for aphid management (e.g. once a week starting at a specific date), previous years of monitoring data show that this would not be a good practice. For example, comparing two years of monitoring data from one conventional farm with several fields shows that a) the timing of the first spray varied by a month between 2017 and 2018; and that b) there was never a week when all fields required a spray (Table 1). Thus, monitoring is an important

part of good management for aphids. The recommendation from Ontario is to check 10 plants in 10 random areas of the field. This is more than the 5X5 method (also from ON) discussed last week. However, given that aphids are more difficult to manage it is important to check more thoroughly (i.e. more plants and more areas of the field). **Learn more:**

<http://www.omafra.gov.on.ca/IPM/english/brassicas/insects/aphids.html#advanced>

Table 1. Comparison of cabbage aphid infestation levels at one conventional farm, with multiple fields, over two years. Values indicate the range of cabbage aphid infestation levels among the fields for each monitoring week. ** indicates the first spray recommendation based on the thresholds used by ES Cropconsult Ltd.

Monitoring week	2017	2018
May 18	0-2%	0-2%
May 25	0-4%	0-8%** (1 field out of 5 needing spray)
June 9	0	0-8%
June 16	0-4%	0-6%
June 23	0-4%	0-10%
June 30	0-20%** (1 field out of 11 needing spray)	0-20%
July 7	0%	0-30%
July 14	0-2%	0-33%
July 21	0-10%	0-44%
July 28	0-10%	0-33%
August 4	0-17%	0-17%
August 11	0-40%	0-13%

University of California has varying thresholds for cabbage aphids depending on the type of cole crop. For example, they suggest 1 to 2% infestation levels as a threshold for cabbage, and 40% infestation levels for Brussels sprouts up to several weeks before harvest. However, it is unclear if these thresholds are appropriate for the Fraser Valley. Growers can use these thresholds as a guideline but their own monitoring data can show when populations are starting to increase. **Learn more:**

<http://ipm.ucanr.edu/PMG/r108300811.html>

It is also important to make note of any natural enemies of aphids when monitoring. The main natural enemies that we have observed in brassica foliage in the past month are ladybugs and syrphids. While everyone is familiar with ladybug adults, their larvae may be less familiar (find a picture here:

<http://ipm.ucanr.edu/PMG/H/I-CO-HCON-LV.031.html>). Syrphid larvae may also be less familiar (Fig. 4). The larvae of both species can be found in the foliage, feeding on aphids within the colony.

Tracking their numbers along with aphids is important. Growers may want to choose insecticides that are less harmful to beneficial insects, predator mites and spiders when controlling aphids or other pests.

Figure 4. Aphid natural enemies like this syrphid larvae, can be found during monitoring. Unlike a caterpillar a syrphid larva is tapered at one end (the pen end in this picture).



What to watch for in the coming weeks

Foliar diseases – As the season progresses we begin to see more foliar disease symptoms. It is important to recognize the different disease symptoms as management may vary. Also understanding which pathogens are present in your fields could help with variety selection for late season plantings. Foliar diseases will be the focus on the next newsletter (late June). In the meantime (and as always) growers can **learn more** on their own: <http://www.omafra.gov.on.ca/IPM/english/brassicac/diseases-and-disorders/index.html>

The Cole Crop Newsletter is prepared by Renee Prasad (UFV Agriculture) in consultation with Dru Yates (ES Cropconsult Ltd.), and Susan Smith (BC Agri). The purpose of this newsletter is to educate producers on the current status of cole crop pests in the Fraser Valley. Pest status in individual fields will vary. Funding is from Brassica Levy Research Fund, Processing Vegetable Industry Development Fund and the Fraser Valley Cole Crop Growers Association. References to products are for educational purposes and do not imply endorsement or recommendations for use. Growers should always read and follow label directions. Full labels for products registered in Canada can be accessed via Health Canada: <https://www.canada.ca/en/health-canada/services/consumer-product-safety/pesticides-pest-management/registrants-applicants/tools/pesticide-label-search.html>