This is the Muck Station Report and IPM Information for Monday July 28, 2008.

The warmer day temperatures we had during the weekend will help dry the crop canopy. The relative warmer predicted weather condition for the coming two days will decrease the development of leaf wetness at night and through to the morning. A high daytime temperature also decreases the survivability of many fungal spores. Therefore the risk of leaf disease symptoms either appearing or increasing in your crops is moderate.

A total of 1 mm rain has been accumulated between July 24 and 27.

DOWNCAST has predicted onion downy mildew sporulation infection periods occurred in the last four days. Due to the predicted forecast for this week risk of disease development is moderate to high. If growers are having onions on onions and the field has a history of onion downy mildew, the risk of developing downy mildew will increase.

We have not found downy mildew of onions on station so far. Symptoms are not usually visible until infected areas of leaves sporulate. The best time to see early downy mildew symptoms is early in the morning when the leaves are still wet. Infections usually occur in patches within the field. A violet or greyish growth develops, and the tissue dies quickly, resulting in straw-coloured lesions and eventually plant death. The disease can spread by rain, by machinery or by people in the field when the leaves are wet. Flag hot spots and either remove the whole area or quarantine so that workers do not spread the spores. At this time it is best to spray a systemic fungicide such as Ridomil, Cabrio and Aliette but remember to rotate through the fungicides. If symptoms are present apply either Aliette or Cabrio. Refer page 138 tables 9-59 of the OMAFRA's publication 363 for registered fungicides.

BOTCAST, which is used to predict botrytis on onions, has a cumulative disease severity index of 28. This means that if you have not sprayed yet your lesion count has the potential to be above the threshold of 1 lesion per leaf. In most fields fungicide applications have been made and lesion counts are well below threshold. Daytime temperatures around 30 C effectively kills botrytis spores. Irrigation or rain increases the risk of botrytis blight.

BREMCAST predicted one sporulation infection period of downy mildew of lettuce. This morning we found downy mildew at our research station plots. Considering the high potential of extended leaf wetness periods, the forecasted weather and the canopy size, risk of disease development is high. To control downy mildew, spray alternately between Ridomil Gold and Aliette. The fungicides Ridomil Gold, Zineb, Aliette and the biological control agent Serenade Max are registered. Begin with Ridomil Gold or Aliette since risk is high and they are both systemic fungicides, and then rotate in Zineb.

Purple blotch, caused by *Alternaria* has been found in some onion fields and at our research plots. Infection occurs when warm temperatures (18-30^{o}C) coincide with prolonged dews or leaf wetness. Weaker plants or those affected by other diseases such as blight and downy mildew are at high risk. Lesions are not always purple but are more light tan with brown or reddish-purple margins. There may be a yellow zone around the lesion, which can stretch up and down the leaf but is more often 1 to 5 cm in length.

Onion thrips counts decreased at our research station and are at 0.1 thrips per leaf and at our other research site at Woodchoppers lane 0.09 thrips per leaf. The threshold for pesticide application is 1 thrips per leaf.

Onion maggot counts on station decreased to 0.5 flies per trap per day and at our other research site to 1.3 flies per trap per day.

Continue with foliar applications of manganese sulfate to onions. The rate for manganese sulfate is 1.5 to 2.75 Kg/ha in 300 L of water repeated in 4 to 5 sprays 10 days apart. Use the low rate on small plants, increasing the rate as the season progresses.

Carrot rust fly counts are bellow threshold in most fields. Currently the degree day model for rust fly is at 1358. Second generation rust flies emerge around 1400 degree days, so the count should remain low for at least the coming few days. Today no carrot rust fly found on sticky traps at both sites of our research station.

Carrot leaf blight is continuing to develop. The disease is caused by two different fungi, *Alternaria* and *Cercospora*. *Alternaria* produces irregular brown spots (often surrounded by yellowish hallos), mainly along the edge of the carrot leaves. *Cercospora* causes circular grey to brown lesions on both leaves and petioles. Both fungi overwinter in carrot debris and on volunteer carrots. Spores are dispersed in air and splashing water. When blight appears on 1-2% of the leaf area it is considered above threshold. But a spray is not economically feasible unless 25% of the crop is infected. The spray threshold for carrot leaf blights is 25% of leaves blighted regardless of the causal organism. If leaf blights are above threshold, begin a regular fungicide program with Bravo alternating with Dithane or Manzate. Carrot disease control recommendations are listed on page 97 in publication 363.

In celery and lettuce fields, some damage from Tarnished plant bugs has been seen. To monitor for this pest, check 50 to 100 plants. The spray thresholds are 0.1 and 0.2 TPB per plant for fresh and processing celery and or 6% of the plants showing damage. Tarnished plant bug control recommendations are listed on pages105 and 131 for celery and lettuce respectively in publication 363 of the 2008-2009 edition.

Aster yellow is beginning to show in carrot fields. The number of aster leafhopper which spread the disease is increasing and a few fields around the Holland Marsh have high numbers. We found high aster leaf hopper count at our research site at Wood Choppers lane. To effectively use aster leafhopper counts it is important to know how susceptible the cultivar is to aster yellow infection. When aster leafhopper counts are low it should not be necessary to apply an insecticide regardless of cultivar susceptibility. When the counts are moderate, moderate to highly susceptible cultivars should be sprayed. When the counts are high, even cultivars with low susceptibility should be sprayed. Sevin is registered for carrot. Ripcord, Sevin and Malathion are registered for aster leaf hopper control on celery. To help slow down the rate of resistance, it is a good idea to alternate the use of insecticide from various groups.

A complete list of herbicides for weed control in carrots is listed on page 219-221 in publication 75. A list for onions can also be found on page 230-230 in publication 75.