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Downy Mildew in Cucurbits Update – July 10, 2006

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With the identification of several more downy mildew infected fields in Kent and Elgin Counties, all vine crop growers are encouraged to apply preventative fungicides immediately.

While the actual infections likely occurred at least 7-10 days ago, the symptoms remained hidden until the recent rainfall allowed the disease to progress and sporulation to occur.

Under humid conditions, the upper surface of downy mildew infected leaves develop olive green, brown or yellow lesions ranging from 2-15 mm in size. In cucumbers, the lesions often appear angular and confined by leaf veins; while in other vine crops the lesions may be more circular or irregular in shape.



Upper Leaf Symptoms can range in colour from olive green, to yellow, to reddish brown. Severely infected leaves may take on a mottled appearance (centre). Initial infections are often very small and difficult to distinguish (arrow).

The lower leaf surface will often develop a dense mat of greyish-brown fungal growth directly below the infected areas. Black specks (sporangia) may also be found within the fungal growth. Intermittent rains and heavy dews, followed by high winds promote the spread of these sporangia, causing new infections.

Preventative Fungicide Recommendations:

While it is unusual for Ontario to experience downy mildew infections this early in the season; due to the aggressive nature of this disease, a strong preventive fungicide spray program is required to avoid unnecessary losses over the duration of our growing season.

In pickling cucumbers, apply Cabrio (3-day PHI) at a rate of 336 g/ac. 5 days later apply Bravo 500 (1-day PHI) at a rate of 1.9 L/ac. Observe a 5-7 day spray interval, rotating between the two products as the harvest schedule permits. Should the weather conditions become hot and dry; the spray schedule may be lengthened to 7-10 days.

Mancozeb (Dithane DG, Manzate DF, Penncozeb 80 WP) is registered for the control of downy mildew in all vine crops. However, due to the long pre-harvest interval (14 days) it should only be used in pumpkins, winter squash and late-harvest cucumbers.

It is extremely important that all Cabrio applications be made in rotation with a fungicide from a different chemical family such as Bravo, or mancozeb (Dithane, Manzate, Penncozeb).

For optimum efficacy all fungicides must be applied in high water volumes. Aim for at least 25-30 gal water/acre. Select a nozzle that will produce a fine to very fine droplet size, such as a hollow cone. Flat fan nozzles may be used for fungicide applications, however high pressure levels may be required to achieve the desired droplet size. Air induction nozzles are great for herbicides, but they are **not** suitable for fungicide applications.

While the spread of this disease will be slowed by dry weather and temperatures above 30 C, it is important to be aware of factors that may promote disease development:

- Heavy dews,
- Intermittent showers or thunder storms,
- Cool night-time temperatures,
- Dense, slow-drying crop canopy,
- Overhead irrigation,
- Existing infections in neighbouring fields.

As long as any of the above conditions are present, maintain a 5-7 day spray schedule.



Sporangia on the leaf underside. Infected fields may be identified by placing suspect leaves in a plastic bag. Sporangia will quickly form in this moist environment.