Mycosphaerella Blight in Field Pea

By Penny Pearse, Provincial Plant Disease Specialist, SAF

Reports are coming in about early lesion development on leaves and stems of field pea. The lesions consist of purple or brown flecks, and if severe, the spots have coalesced and are causing blighting of lower leaves (Figure 1). For the most part, the fungus *Mycosphaerella (Ascochyta) pinodes* is the culprit. In some cases, the lesions may be more rounded, with visible pycnidia (small, black fruiting bodies) and are likely caused by the less aggressive *Ascochyta pisi*.

Figure 1. Early ascochyta (mycosphaerella) blight development in field pea.

Some of the foot rot observed at the stem base and just below the soil line may be a result of planting infected seed. We know some seed lots planted had high levels of ascochyta infection (>10 per cent). Losses due to infected seed would have been increased by low temperatures and wet conditions during seedling establishment.

Figure 2. Severe ascochyta foot rot on field pea.

Farmers are becoming alarmed because they typically don't see such obvious leaf flecking before flowering or lesions on the stems (Figure 2). Some of the panic has been amplified by chemical reps recommending a fungicide be applied even before flowering. Farmers are advised to consider the disease risk in their field and determine the economics of fungicide application before they take action.

In most years, mycosphaerella blight on field pea is common and does not result in yield loss. The majority of research has shown that if blight lesions are only present on the lower one-third of the crop canopy, the yield loss is not sufficient to warrant control. Furthermore, pea varieties rated as having "fair" resistance have more tolerance to disease, meaning that even if lesions are present, the plants have an increased ability to remain standing and not exhibit yield loss (see Varieties of Grain Crops).

But we aren't experiencing a typical season … so what can we expect? There is abundant disease inoculum present from last season, on both the seed and infected residue, and frequent rainfall has created a lush pea canopy and initiated early infection … so this just might be the year to apply fungicide in your field pea.

When to consider applying a fungicide?

- ☐ If more than 50 per cent of the leaf area in the bottom 1/3 of the canopy has lesions at early flower; AND,
- ☐ The pea variety is rated as having 'poor' resistance; AND,
- ☐ The crop canopy is dense and wet, with rain in the forecast; AND,
- ☐ You expect to see a yield increase that will pay for the fungicide application.

If you checked at least three of these boxes, it is likely that your disease risk is high enough to spray.

What about the economics of applying a fungicide?

Several research trials conducted in Western Canada over the past decade have found that there is no economic return from fungicides in field pea under low to moderate blight pressure. Often, symptoms will be present early on, but drier conditions in July and August prevent disease spread. However, 2004 was an exception, because continuous wet, cool conditions caused severe blight pressure. Research plots seeded to a susceptible yellow pea variety near Melfort exhibited as much as 28 per cent yield loss compared to the fungicide treated plots (*pers. comm.* R. Kutcher, Agriculture & Agri-Food Canada, Melfort). Most farmers would not have experienced such high yield loss, especially with the more tolerant varieties, but still some reported at least 5-10 per cent loss. What do you think you lost due to ascochyta blight last year?

Here are some equations to help you determine the economics for your situation in 2005:

Expected yield (bu/acre)	X	Expected yield increase (5-10%?)	X	Expected selling price ($/bu)
= Expected gross return ($/acre)				

Expected gross return ($/acre)	—	Fungicide and application costs ($/acre)
= Expected net return ($/acre)		

As an example, consider an expected yield of 50 bu/acre, a yellow pea price of $3.65/bu and a potential yield loss due to disease of 5 per cent. This would amount to $18.25/acre potential loss if the crop wasn't treated … so this would just cover the cost of a Headline application. Try your own numbers in the equations.

When is the ideal timing to spray fungicide?

The ideal timing is to apply at early flowering. It is important to spray before the canopy closes in as it will be most effective if the product is able to get down to the lower stems and leaves. If foot rot is present, fungicides will NOT help it, nor will they be able to repair tissue that has already been damaged. On the other hand, do not spray too early (prior to flowering) as the situation can change quickly, such as drying conditions that decrease disease risk. Or if you spray now and disease pressure continues, one application may not be enough.

What products are registered? There are three products registered for control of mycosphaerella blight in pea: Bravo 500, Headline EC and Quadris. The timing for each product is the same (at early flower) with the option to spray again 10-14 days later if disease pressure continues. There is not likely much difference in effectiveness of the products, as long as they are applied before the disease is too severe and the spray gets down into the lower canopy and stems. However, if there are already stem lesions, you may want to consider using the more expensive, systemic products (Quadris or Headline). Use a minimum water volume of 9 gal/acre (40 L/acre), and preferably double your water volume for Bravo. ☼