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Disease Scouting in Pulse Crops

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Early identification of disease lesions is critical as it allows time for a decision regarding fungicide application to be made before the disease gets a foothold in the crop. Remember that tiny microscopic organisms cause disease. By the time large-scale symptoms can be seen during a quick drive-by, it is likely too late to take action as the damage is already done.

The pulse diseases to scout for in 2006 include: ascochyta blight of chickpea (of course!), ascochyta blight and anthracnose of lentil, and mycosphaerella (ascochyta) blight of field pea. Based on last year's disease situation, we know there was disease inoculum present on over-wintering pulse stubble, and likely also present in seed used for planting.

There is no exact science when it comes to forecasting diseases since risk can change daily along with the weather. As the 2006 growing season continues, farmers need to keep their ears on the weather forecast and their eyes on their crop.

It is not realistic to scout all pulse crops for disease, so it is essential to develop efficient scouting skills. Scouting for disease depends on the type of pulse crop, weather conditions, and disease risk for your region (Table 1). ☼

Table 1. Summary of disease scouting practices for pulse crops

	Chickpea	Lentil	Field Pea
When to begin scouting?	Begin scouting at the seedling stage and scout every 3 to 7 days depending on disease risk.	Begin scouting at the vegetative stage (8 to 10 node stage) and scout every 7 days.	Begin scouting at the early bloom stage and scout every 7 to 10 days.

<table>
<tr><td>How to scout?</td><td colspan="3"><u>Scout first in those fields or areas that are at greatest risk, including:</u>
• Fields planted with infected seed;
• Fields that had the same pulse crop in the previous two years
• Field margins adjacent to last year's infected pulse stubble;
• Areas where the plants have been stressed or have a dense plant canopy;
• Fields planted to the most disease-susceptible cultivars.

<u>If time allows, scout additional parts of field:</u>
• In a field < 100 acres, check a minimum of 5 sites. In a field > 100 acres, check a minimum of 10 sites.
• Walk an "M" pattern throughout the crop to cover a large area.
• Early symptoms are usually first noticed in the lower canopy; look closely at the lower leaves and stems (a magnifying glass will help).
• Use flags to mark specific areas in the field for regular monitoring to watch for disease spread to new tissues and/or to determine the effectiveness of previous fungicide applications.</td></tr>
<tr><td rowspan="2">What to look for?

(1) Use field guides with photos,
(2) acquire assistance of qualified agronomists, and/or
(3) send a sample to the provincial Crop Protection Lab (306-787-8130)</td><td colspan="2">Ascochyta blight: In both lentil and chickpea, symptoms begin as small light brown to dark brown spots, often the size of a pinhead. Spots are first visible at the bottom of the plant. Under humid conditions, these spots expand quickly into lesions, which are often surrounded by a darker brown border. Small dark pycnidia, which are the fruiting bodies that produce spores, may be observed in the centre of the lesion. Severe infection leads to browning of leaves and stem breakage. Disease development in chickpea is very rapid under wet conditions and yield loss can be high.</td><td>Ascochyta (Mycosphaerella) blight: In pea, early symptoms show up as numerous black flecks on leaves and stems in the lower canopy. Without rain, these flecks will not expand and will not adversely affect yield. But if moist conditions and heavy plant canopies prevail, lesions on leaves and lower stems could expand and lead to yellowing of leaves, lodging of plants and yield loss.</td></tr>
<tr><td>Not applicable in chickpea</td><td>Anthracnose in lentil: Usually shows up during the 10-12 node stage (about one week before flowering). Early symptoms are very similar to ascochyta. Anthracnose lesions are more commonly observed on the stems and do not develop pycnidia, but another type of spore structure that is black and irregular in shape.</td><td>Not applicable in field pea</td></tr>
<tr><td></td><td>Chickpea</td><td>Lentil</td><td>Field Pea</td></tr>
<tr><td>What factors favour disease risk?</td><td colspan="3">Rainfall: Increase scouting frequency if moist conditions continue. Foliar diseases thrive and spread during warm weather with frequent rain showers.

Crop susceptibility: Those crops rated as having 'poor' or 'very poor' resistance to a disease should be monitored carefully. Overall, pea crops are more tolerant to the ascochyta blights than are lentil and chickpea.</td></tr>
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Fungicide application timing * Always refer to the product label for specific information on diseases controlled, rates and application timing.	In chickpea, yields may be reduced by almost half if ascochyta control does not begin at the vegetative stage. Begin fungicide application at the onset of disease, i.e. when ascochyta blight symptoms are first observed while diligently scouting. The goal is to apply the 1st fungicide prior to the 1st major rain event after emergence, or by 6 weeks after planting. Repeat fungicide application every 7 to 14 days if disease risk continues. Fungicide application should be made prior to rainfall events to be most effective.	The optimal time for control of anthracnose and ascochyta is from the 10-12 node stage to the mid-flowering stage. Usually, one well-timed application of fungicide is sufficient for controlling lentil diseases. In lentil, fungicide application is not cost-effective if the crop remains almost disease free until after flowering. An application at early pod set may protect seed quality but will not affect yield.	The optimal time for ascochyta control in field pea is at early flower. There is rarely an economic return from applying a foliar fungicide to control ascochyta in field pea. The 2004 season was an exception as some fields in northern farming regions suffered yield loss due to ascochyta.

Where do I find more information on ascochyta blight management in chickpea?

Ascochyta Blight in Chickpea—Guidelines for Fungicide Application, is a SAF factsheet available on the website at: http://www.agr.gov.sk.ca/ (under Crops > Integrated Pest Management > Diseases); OR, order the **CD-ROM version** by calling 787-5297.