



Pulse Agronomy Network~ Partnership in Industry

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1. Inoculation - Did It Work and How Can I Tell?

(Louis Bossaer, Philom Bios)

When to Check: For peas, lentils and chickpeas you should wait about 3-4 weeks after emergence. This is when nodule formation should become visible. For soybeans and dry beans, add another week or two as they, tend to be slower to nodulate (in the case of soybeans the bacteria is a slower growing bacteria than the pea strain).

How to Check: The plant roots should be dug up and the soil gently shaken off or washed off in a pail to prevent nodules from breaking off. Do not pull out the plants as this often causes the nodules to break off in the soil. Once the roots are shaken or washed clean and the nodules exposed, you should cut the nodule open to see if it is pink to red inside. This means it is actively fixing nitrogen. If it is white to green inside, it isn't working effectively. You'll also want to check if your plants have a lot of nodules and that the nodules are dispersed well throughout the root system. Granular inoculants will tend to have better distribution of nodules compared to peat and liquids; because seed applied bacteria tend to grow in the immediate vicinity of the seed.

What can affect nodule formation?

Cool dry weather can delay formation. Low pH soils can also cause problems, as the bacteria cannot live effectively in soils with pH levels below 6. High nitrogen fields can also delay formation. Low soil P levels can slow formation and N fixation, as P is a major component in N fixation and overall root development. The type of seed treatment used and the method of inoculant application can also cause problems. Some seed treatments can be very harsh on inoculants. Herbicides applied at the wrong node stage can cause the bacteria in the nodules to be less effective or in severe cases die. This is why checking for a nice red color right after spraying isn't advised. Spraying will often decrease fixation for a few days after, but the nodules will usually recover quite well.

2. Foliar Disease Scouting in Pulses:

(Randy Retzlaff- Syngenta)

Chickpeas: Ascochyta Blight.

- High yield losses as high as 80%. Early identification is critical.
- Scout those fields at greatest risk first. Check hollows (moist areas), field edges closest to last year's chickpea residue, or heavier seeded areas first.
- Start scouting in the pre-bloom stage ie. Early June. Look for distinct tan to brown lesions on stems and leaves.
- Spray fungicides as preventative measures and monitor fields closely all summer.

Lentils: Ascochyta blight:

- The fungal strain that affects lentils will not affect peas or chickpeas.
- Yield losses can be as high as 30-50%, but newer varieties have more resistance.
- Scout at early flowering if symptoms on leaves appear. Apply fungicide if necessary

Anthracnose of lentils:

- Can be more devastating than Ascochyta. Prefers warm moist weather, frequent showers and thicker canopy. Plant parts will wilt and die-off.
- Start scouting at the 8-12-node stage for symptoms on leaves and stems (usually one week prior to flowering). Spray fungicide if necessary.

Peas: Mycosphaerella/Ascochyta Blight:

- Losses may be as high as 80% if heavy infection occurs in mid-July
- For every 10% infected stem area yield losses are 5-6%
- If 10-15% of the pod area has lesions, then 5-10% of seed will be infected
- Leaf lesions on bottom third of plant will not greatly affect yield; if it spreads to middle third of plant then a fungicide may be necessary.
- Scout at early flowering for symptoms on leaves and stems.

Dry Beans: Sclerotinia:

- Under irrigation this disease is almost always a problem. Prefers dense canopy and cool (10-20°C) moist conditions.
- Field scouting should occur prior to and during the early blossom stage.
- Look for the presence of apothecia on soil surface, and lesion development on leaves and stems.
- Apply fungicide at flowering if necessary.

www.pulse.ab.ca/ascoch.html

http://paridss.usask.ca/specialcrop/pulse_diseases/index.html

www.saskpulse.com

Announcements

Low Disturbance Direct Seeding Equipment Demonstration Day

Tuesday, June 10, 2003

Olds College Farm

Start Time 1:00 pm

Attached document is also posted at <http://www.reducedtillage.ca/oldsdemoday.pdf>