



THE PULSE AGRONOMY NETWORK  
PARTNERSHIP WITH INDUSTRY



## PAN - All Pulse Bulletin #8 – June 21<sup>st</sup>, 2010

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### Nodulation Assessment

Many factors may affect nodule formation and nitrogen fixation, for instance this spring the moist weather resulted in several reports of excellent nodule formation early on in the growing season. However, factors such as low pH soils, high soil nitrogen levels, low soil phosphorus levels, the compatibility of the inoculant and the seed treatment may all reduce the amount of nodulation. After nodule formation, herbicide application may also impact on the nitrogen fixing activity, so nodulation assessments should take place a few days after the herbicide application when the rhizobia have had time to recover.

Given the complexities of the formation of nodules and the factors that impact on nitrogen-fixation, nodulation assessment will help to determine the nitrogen-fixing potential of the crop and identify opportunities for improvements in future years. The nitrogen-fixing potential can be evaluated by assessing plant growth and vigour, the number of nodules on a plant, the color of those nodules and where they are located on the root system. Nodulation assessments should be done during early flowering for the most accurate assessment.

A key point is that the plants need to be dug up rather than pulled out of the ground, as pulling the plants will result in a loss of root matter and also of nodules. After a thorough but gentle washing of the root system; the assessment is based on plant growth and vigour (1-5 rating), nodule color/number (0-5 rating) and nodule position (1-3 rating). For more details and the assessment procedures and codes, please see the technical bulletin at ([http://www.2020seedlabs.ca/tech\\_bulletin.php?id=38](http://www.2020seedlabs.ca/tech_bulletin.php?id=38)) or the attached pdf.



Nodule color is an indicator of the presence of leghemoglobin, which must be present for active nitrogen fixation.



Drainage not only impacts on plant vigor and color, but may also result in fewer nodules on the roots of the plants.

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## Disease Scouting

- **Ascochyta Scorecard**

In a summer where many areas are blessed or plagued with frequent rain, disease concerns become more of a concern. Since fungicides are primarily preventative and provide control for a limited amount of time, one of the key factors in successful control of any disease is application timing. The Alberta Pulse Growers funded research with Ken Lopetinsky to address this question for ascochyta in field peas. The disease prediction checklist is a useful tool that growers can use to help them make the decision to spray or not on a recurring basis.

Some key points when using the scorecard:

- Fields are scouted on a bi-weekly basis
- Crops are assessed for canopy density, leaf wetness at noon, percent of plants showing symptoms, and the 5-day forecast.
- Values are assigned for each factor and when the sum totals 65 and the disease is present, the grower is encouraged to spray.

A scorecard with the risk factors can be found as an attachment to this e-mail. Note this system has only been validated in crops with good plant densities, good weed control, even emergence, and good nodulation. Fields with less yield potential may not respond sufficiently to offset the cost of a fungicide application.

- **Lentils – Flowering and Disease Scouting**

Disease is most likely to develop in areas with a dense canopy, but scouting should take place across the whole field. Scout high-risk fields first, and scout more often if weather favours disease development.

It is recommended that growers start scouting for Ascochyta prior to flowering, at about the eight-to 10-node stage. Lentil seedlings can produce a new node every four to five days under good growing conditions, so it is important to monitor frequently. For new lentil growers, you will notice that just prior to flowering, new leaves will develop a short tendril at the leaf tip.

Flowering will vary depending on the variety, for instance Eston lentil will flower at about the 11th or 12th node stage while Laird lentil will flower at the 13th or 14th node stage. The number of days from seeding to flowering will vary with growing conditions, but based on the Saskatchewan Agriculture and Food publication *Lentil in Saskatchewan*, days from seeding to flowering ranges from 47 – 57 days. CDC Imperial is has been assessed as an early maturing variety, with days to flowering rated at 49 days, which compares to Eston at 48 days to flowering and Laird at 53 days to flowering (More information can be found at: <http://www.agriculture.gov.sk.ca/Default.aspx?DN=ce32b7bd-c7ad-4b9e-a560-22239a2e830d>).

Flowers are self-pollinated so they do not require insects for pollination or seed formation. The flowers are borne on short flower stalks at the base of the upper leaves in clusters of 2 to 3 flowers per flower stalk. The first few flower clusters on the main stem often shrivel without seed formation (flower abortion). This is especially likely to occur when there are good growing conditions with good moisture and high nitrogen fertility which will favor vegetative growth over seed production.

Lentil plants have an indeterminate growth habit, so they will continue to flower until there is some form of stress, such as lack of moisture, nutrient deficiency, or high temperature. There will be one to three pods per node. Pods are less than 2.5 cm (one inch) in length and contain one or two seeds. Most of the seed is produced on branches that form on the middle and lower nodes of the main stem.

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## **Upcoming Tour Dates**

### **June 23**

APG Zone 3 Pea Ascochyta workshop will be held in Westlock starting at 9 am. Learn how to scout for disease in peas, and how to manage them. 9:00 am to noon beginning at the Westlock Community Hall.

Complimentary Breakfast starts at 9:00 am. BUS leaves the hall to the fields at 10:00 am

Topics will include an overview of Ascochyta blight, products available –company reps, discussion of Disease Prediction Score card, including a Q&A and growers success stories using score card, field Scouting –using disease score card and field disease summary comments. Sponsored by: Alberta Pulse Growers (Zone 3), BASF, Syngenta, UFA@Westlock, Viterra@Westlock, Neerlandia CO-OP, Flatlander Agri Services

### **June 28, 2010**

St. Albert Crop Walk - 8:30 am to 12:00 noon at the new University of Alberta farm - Directions to plots; The plots are south of Highway 2 and Highway 37 overpass intersect. Travel 3.2 km (2

miles) south in Highway 2 South , turn East on Township Road 554, continue 0.8 km(0.5 mile) and there will be an approach on North hand side of the road.

Topics will include:

- Genotypic mixtures for improved competitive ability of field pea and Late and sequential herbicide applications in herbicide resistant canola systems - Dr. Chris Willenborg, Alberta Agriculture and Rural Development/University of Alberta, Edmonton
- Trialing genetic materials into broad agro-climatic zones - Christy Hoy/Boris Henriquez/Mark Olson, Alberta Agriculture and Rural Development, Edmonton
- Optimum economic and maximum rates of seed placed and banded ESN/Soft Wheat and CPS Wheat Agronomy in Five Soil-Climate In Alberta Zones/Triticale project - Dr. Ross McKenzie, Alberta Agriculture and Rural Development, Lethbridge
- Quantifying pulse crop N credits to northern prairie cropping systems - Drs. Jane King & Shirley Ross, Christina Williams, University of Alberta, Edmonton
- Canola biodiesel trials - Dr. Linda Hall, University of Alberta, Edmonton

To register call Sturgeon Valley Fertilizers (phone 780 -458-6015). For more information on the crop walk call Christy Hoy (780-422-3825) or Boris Henriquez (780-422-0736).

### **June 29, 2010**

Vegreville/Willingdon Crop Walk - 8:30 am to 12:00 noon Stop 1. Directions to Vegreville plots; traveling on Highway 16 East past Vegreville, turn south off Highway 16 East onto Holden Road. Travel 4.8 km(2.9 miles) until the intersection Range Road 152 Township Road 530. Turn west 1.6 km (1 mile). Plots on right hand side of the road. Stop 2. Directions to Willingdon plots; travelling Highway 45 West past Willingdon, go 4.0 km (2.5 miles) west, turn south onto Range Road 154, go 3.2 km (2 miles) and turn West onto Township Road 562, plots are on north side of road.

To register call Brenda McLellan at the Ag Info Centre (310-Farm). For more information on the crop walk call Christy Hoy(780-422-3825) or Boris Henriquez (780-422-0736).

### **June 30, 2010**

Advanced Seeding Technology Demo – 9am to 3pm at the Agtech Research Farm in Lethbridge. Tour will include a side by side comparison of wheat, pea and canola crops as well as a live demo of each manufacturer's equipment. For more information contact Mike Bevans at the Ag Technology Centre in Lethbridge at: 403-329-1212

### **July 6, 7 or 8 (Pick one day)**

SARA Diagnostic Field School - Lethbridge

Featured topics: Energy Use in Tillage Systems (comparing pulses and canola), Inter-row Seeding, Bio-mass Production, Winter Pulses, Agronomy, Pests, Variety Demonstrations and more.

To register, contact Elizabeth (403) 345-6550 or [sara-research@platinum.ca](mailto:sara-research@platinum.ca).

### **July 14 & 15, 2010**

Integrated Crop Management Field School – Olds College

What's the diagnosis? - Perfect your skills in crop management and diagnostics with this field-based workshop. Come one or both days to join specialists from Olds College and industry to discuss the current issues you are facing. Contact Nancy at 1-800-661-6537 ext. 4677.

### **July 15, 2010**

SARDA (Smoky Applied Research and Demonstration Association) Open House 10 am – 3 pm. 7 km south of Donnelly corner, 1.5 km east and 1 km south. There will be a free BBQ, and various trials will be showcased. No registration is required.

### **July 21, 2010**

Battle River Research Group - Stettler tour at 9:30 am with the Castor tour at 1:30 pm. Contact the BRRG at 1-866-828-6774 for more details.

### **July 22nd, 2010**

AAFC Lacombe Field Day

### **July 27 and 28, 2010**

Seed & Soil Expo – Didsbury

This year's Expo has expanded to encompass over 130 acres, with seven half-acre pulse plots featuring green and yellow peas, as well as soybean, lentil and fababean plots, the new Cruiser Maxx Pulses® seed treatment, a new foliar treatment for mitigating yellowing from herbicide and a live swathing demonstration. For more information, or to register for the event, please call Pat at 403-888-2050 or inquire with your local Crop Production Services retail location.

### **July 27, 2010**

Smoky Applied Research and Demonstration Association – MD of Greenview Tour

COST: \$20 Tour, Lunch and Refreshment Included

For more information and to pre-register for the tour, please call the SARDA office in Falher at 780-837-2900.

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To register call Sturgeon Valley Fertilizers (phone 780 -458-6015). For more information on the crop walk call Christy Hoy (780-422-3825) or Boris Henriquez (780-422-0736).

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### **July 28, 2010**

The Gateway Research Organization (GRO) summer tour is scheduled for July 28, 2010, approx. 7:30am-3:30pm. For more information contact Andrea Fox-Robinson at (780) 349-4546.

### **July 28, 2010**

North Peace Applied Research Association Annual Field Tour - Manning

For more information or to pre-register call Nora Paulovich or Jana Ungarian at 780-836-3354.

**July 29, 2010**

Mackenzie Applied Research Association Annual Field Day will take place at the MARA Experimental Farm at Fort Vermilion. For more information please call Nasar Iqbal at 780-927-3776.

**July 29, 2010**

Join CTF Alberta for a tour of controlled traffic farming equipment and fields near Morrin. 1:00 pm to 6:00 pm. For more details and to register go to the CTF Alberta events page at [http://canola.ab.ca/ctf\\_events.aspx](http://canola.ab.ca/ctf_events.aspx).

**July 29, 2010**

PARDA (Peace Agriculture Research and Demonstration Association) Annual Tour will take place in Fairview at the research farm. There will be a BBQ lunch and an auction sale later in the afternoon. Times TBA. For more information or to pre-register call Michelle Holden at (780)835-5015.

**August 4, 2010**

Battle River Research Group - Viking tour at 9:30 am. Contact the BRRG at 1-866-828-6774 for more details.

**August 5, 2010**

Battle River Research Group – Killam tour at 9:30 am. Contact the BRRG at 1-866-828-6774 for more details.

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**Previous PAN Bulletins**

View Previous PAN Bulletins at:

<http://www.pulse.ab.ca/ForProducers/Publications/PulseAgronomyNetwork/tabid/125/Default.aspx>

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