The Bean Report

Your source for soybean & pulse crop agronomy & research

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Soybeans at R-6.5—halfway through the seed filling stage. Pods on upper four nodes have seeds that fill the pod cavity

Dry beans at R-8—leaves yellowing over half the plant with very few new pods.

August 26, 2013

This week....

- Wilting soybeans?
- Potassium deficiency in soybean
- Keep scouting for grasshoppers!
- Dry bean desiccation reminder
- Worst weed in dry beans?

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In Every Issue.... Crop Conditions

The recent heat wave has pushed **soybeans** in Central Manitoba through the seed filling stage to R-6. In Western Manitoba, some soybean fields are still in the full pod (R-4) to early seed (R-5).

Estimated time to maturity if soybeans are at R-6.5 on August 26th is 20 days. Soybeans will be in the seed filling stage for just over 2 weeks before reaching early maturity (R-7). At early maturity, one pod on the main stem changes color from green to brown. This stage will last about 9 days during which dry matter begins to peak in seeds. Once we reach R-7, soybeans will be relatively safe from a killing frost. Soybean maturity may be hastened with the hot, dry weather. Slight yellowing of lower pods is evident in some early fields/varieties.

White mould, downey mildew and bacterial blight continue to be found in soybeans. Aphids are present at very low levels in some fields, continue to monitor through R-6 but not likely to be a problem this year.

Dry beans have also advanced well in the heat and may be within 2 weeks of harvest. Dry bean staging is at R-8 (early maturity). White mould, halo blight and common bacterial blight are common in dry bean fields. The majority of fields received at least 1 fungicide application, while some had 2 or 3.

Late Season Grasshoppers

Grasshoppers continue to be present in fields across the province. Levels may increase in soybeans as short season crops mature and get harvested. Grasshoppers will preferentially feed on leaves but pod damage is evident on field edges (pictured left).

Pod damage that penetrates the pod wall into the seeds is characteristic of grasshoppers compared to other pod feeders which only chew on the outer shell.

Thresholds for late season grasshopper damage is as follows:

35% leaf defoliation from full pod to maturity

10% of pods show damage and grasshoppers still present

Matador/Silencer is the only insecticide registered for use in soybean for grasshopper control.

Soybeans and Potassium (K)

Q: Is your soil coarse textured?

Q: High frequency or soybeans, corn or alfalfa in rotation?

Q: Are you noticing yellowing on leaf margins of soybean leaves?

If you answered yes to any of those questions, you may be at risk for potassium deficiency and now is the time to scout for it!

Potassium deficiencies are showing up in soybean fields, mainly on coarse textured soils that are inherently low in potassium, but also on clay loam soils with high frequency of soybeans in rotation.

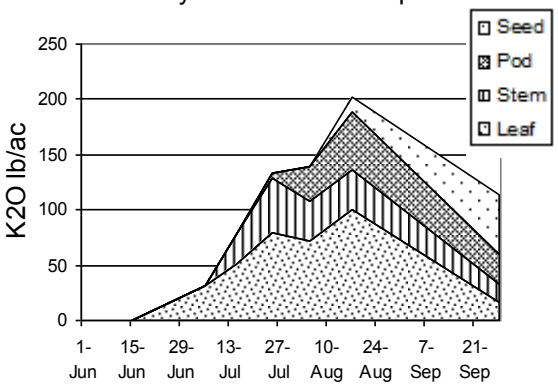
Symptoms are striking: appearing as yellowing on leaf margins, followed by necrosis in severe cases. Potassium is mobile within the plant, as it is in the soil, so symptoms appear on older leaves first and move upward.

Soybeans accumulate a large amount of K_20 in dry matter during the growing season (202 lbs/ac at R-6 as shown to right).

Check your soil test

The critical level for soil K is 200 lbs/ac (100 ppm) for soybeans. If you observe symptoms this year, it's a good idea to soil test this fall and plan ahead for next year's soybeans.

Soybean Potassium Uptake



Source: John Heard (2005), MAFRI

Wilting Soybeans?

There may be a few reasons for wilting of soybeans in the recent heat:

1. **White mould**—Sclerotinia is starting to show up at low levels for the most part although high levels are being found in dense canopies. The conditions for white mould development were ideal this summer so late season infection should not be a surprise. Most fection is showing up on the lower stem (originating from a leaf node) and causing wilting and leaf death. Pods that are not fully developed above the infection will likely not completely fill. Mould can also infect the branches and pods directly increasing yield loss, which can be substantial.

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2. **Heat stress**—hot, windy days increase the rate of transpiration from the plant and this rate can exceed water uptake. At this point, leaves may roll and appear wilted but will recover overnight.
3. **Root diseases**—Rhizoctonia and Fusarium spp. can also cause wilting, yellowing and deterioration of older plants. This often occurs when plants are stressed by hot and dry conditions. When pulled from the soil, roots may be discoloured or rotted.

Waterhemp (pictured above, is related to redroot pigweed). Source: OMAFRA Website.

What is the Worst Weed in your Edible Beans?

(Click to answer) Monitoring weed populations from year to year is important to prevent management problems. The worst weeds reported in North Dakota edible bean fields have been dandelion (2009), lambsquarters (2010), common ragweed (2011) and waterhemp (2012). Glyphosate resistant ragweed, waterhemp and kochia has been increasing in North Dakota for the past six years (Rich Zollinger, NDSU).

WEED ID	Leaves	Seed head
Redroot Pigweed	Egg-shaped	Stout, prickly
Waterhemp	Narrower	Smooth, slender

A Reminder about Dry Bean Pre-Harvest Weed Control and Desiccation Timing

"Growers that are considering using pre-harvest glyphosate to control weeds should consider the following: Countries that Canada exports to have maximum residue levels for products such as glyphosate. *If you spray too early the residue level could be higher than what is allowed so proper staging is important.* **The stems should be green to brown in colour and pods are mature (yellow to brown) and 80-90% leaf drop (original leaves).** Producers should also check with the companies they sell their beans to verify any restrictions that they may have when using glyphosate." [or other products]

- An excerpt from the Manitoba Crop Report (Dennis Lange, MAFRI):