The Bean Report

Your source for soybean & pulse crop agronomy & research

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Soybeans at V-C : unrolled unifoliate leaves.

This week....

- Welcome!
- Heavy rain and soil crusting
- Cool, wet soils and damping off
- Assessing plant population and seeding performance
- Didn't get into roll before emergence? There's still time

Welcome to the first Bean Report!

This publication is brought to you by the Manitoba Pulse Growers Association to bring you up to date, independent crop production information on soybeans, edible beans and other pulses. The Bean Report will be published every two weeks and is available on our website (www.manitobapulse.ca). There will also be a link to join our email list. Other crop updates will be posted on our website and Twitter. We are still looking for more growers to join our field scouting network. To sign up, contact Kristen Podolsky, MPGA Production Specialist. The Bean report also airs June 18th @ 1:05 p.m. on CFAM 950 Altona, CJRB 1220 Boissevain, AM 1250 Steinbach and @ 1:45 p.m. on CFRY 920 Portage. Tune in!

In Every Issue....

Crop Conditions

Although this spring has been less than ideal for heat-loving soybeans, producers remain positive and seeding intentions continued until untimely rains got in the way. Seeding dates vary from mid-May to early June, right up to crop insurance deadlines. It is anticipated that soybeans may not reach the targeted 1 million acres but should be above last year's 850,000 acres.

Cool temperatures throughout May and June leave us at less than 90 % of normal accumulated crop heat units. Delayed seeding and lack of heat is evident in bean crops which are at emergence to first trifoliate stage. Herbicide applications are underway. For soybeans, post emergent applications with glyphosate are recommended to begin at the first trifoliate leaf.

Heavy rain and soil crusting

Recent heavy rains and isolated hail storms can be cause for alarm. However, damage to crops this early in the season is minimal. Evidence of leaf tearing has been observed in some fields but new leaves will develop. Risk of losses is greater if growing points are damaged or destroyed and stands are significantly reduced.

Soil crusting on the other hand can be more problematic. Heavy rain droplets disperse fine soil particles, which dry and seal over the surface. The picture to the right shows hypocotyl stems that broke trying to bring the cotyledons through the surface. Edible beans tend to be less vigorous than soybeans and can be more susceptible to damage. It is possible to manage soil crusting when the seedlings are still underground with a pass of a rotary hoe or other low disturbance method but this can damage plants that have already emerged. The best thing to do is take a plant count – if emerged plants make up a good stand, leave it.

Cool, wet conditions can favour seedling diseases

Cool, wet conditions can favour seedling diseases such as *Phytophthora* and *Pythium*. Symptoms of seedling diseases have been observed and reported in a few soybean fields. Common symptoms include uneven emergence, brown colouration or softening of the stem, root rot and necrotic lesions (brown, dead tissue) on cotyledons. It is difficult to identify which disease is present without laboratory analysis. Other seedling diseases include *Rhizoctonia* and *Fusarium spp.*

These diseases can also infect and cause seedling death later in the season. There aren't any options for management in season but it's important to identify the symptoms and plan for next year**.** Seed treatments protect against most of these diseases for a few weeks after planting. The delay in bean development as a result of cool temperatures means that plants may still be in the more susceptible seedling stage after the seed treatment is no longer active. Fields exhibiting symptoms tend to be running a tighter rotation. Crop rotation can be used to effectively manage *Phytophthora*. The following table outlines the four major early season diseases of soybean and their preferred environments.

Pathogen	Optimal Environment	Alternate Hosts
Pythium spp.	Cold (10-15°C), wet soil	Wide host range including pulses, cereals, canola, alfalfa
Rhizoctonia solani	Warm (20-27°C), moist to wet soil	Wide host range including pulses, cereals, canola, alfalfa
Fusarium spp.	Warm (20-27°C), dry to moist soil	Wide host range including pulses, cereals, canola, alfalfa
Phytophthora sojae	Warm (20-27°C), wet soil	none

Provided by: Holly Derksen, Field Crop Pathologist, MAFRI

Assessing plant population and seeder performance

With seed cost being one of the greatest inputs, a lot of thought is put into plant populations for beans. We should still be thinking about this after the seed is in the ground. How close did I come to my target plant population? Are you happy with your seeder performance? Knowing your bean stand will help you make decisions this year and improve next year's. Here are some tips to assess plant stand;

For rows 15" or less, count the # of plants in a hula hoop and use this formula:

Average # plants in hoop x [43,560 / [3.14 x (inside diameter of hula hoop / 2)^2 / 144] = total plants/ac

For rows 15" or larger, count the number of plants along a length of row indicated below and x 1000.

For 15" rows, count # plants along 35'

For 30" rows count # plants along 17.5'

Once you have your plant population in plants/ac, compare this to your targeted seeding rate. You can expect it to be at least 10-25% lower depending on germination, seed bed conditions and other factors. Cool, wet soil conditions may have increased seed and/or root rot (did you use a seed treatment?). Heavy rains may have caused soil crusting and poor emergence. Cutworms may have snagged a few.

For these reasons, we may see reduced plant stands. For soybeans, research in Ohio has shown 95-98% relative yield with 127,000-171,000 final plant stand. You should also assess the uniformity of emergence and plant spacing. Beans planted with air seeders can sometimes have less accurate seed placement and depth control. Knowing your bean stand will help you make decisions this year and improve next year's.

For more on how to assess your plant stand: http://msue.anr.msu.edu/news/assessing_soybean_emergence

Timing is important for ground rolling once the crop is up

Ideally, land rolling should be done after seeding and before crop emergence. However, with this year's seeding operations working around rainfall events, this may not have been possible.

Pictured to the left is the hypocotyl arch often referred to as the "hook stage" of bean emergence and this is when you should NOT be rolling beans. This sensitive stage is prone to damage. Instead, wait until the ***first trifoliate*** stage and roll in the warmest part of the day when the plant is less turgid and will bounce back easily.