




The Bean Report

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This week....

- Bean crop is in flower
- Fungicide timing for dry beans
- Soybean aphid advisor app
- Considering foliar nutrient applications for yield boost? What you should know before you invest

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In Every Issue....

Crop Conditions

The majority of soybeans in Manitoba are at R-2, where flowers are present on one of the two uppermost nodes on the main stem. We should see pod development (R-3) begin in approximately 10 days.

Soybeans started flowering in early July, however the number of developed trifoliate leaves ranged from 3 to 8. So why the variability in vegetative growth at flowering? Soybean flowering is triggered by day length. When the summer solstice occurred on June 21, days started to get shorter. This triggers soybean plants to initiate flowering, which can begin as early as V-3. The amount of vegetative growth present at flowering will depend on the planting date. The important thing to remember is that vegetative growth continues during flowering.

Final herbicide applications in soybeans are underway although some producers have deemed a second application unnecessary. At this time of year, it is apparent that volunteer canola is a problem in many soybean fields. Low levels of Septoria leaf spot have been observed in some fields.

Dry beans are also in flower with the first pin beans appearing. Current warm and humid conditions are favourable for white mold development and fungicide applications are being considered. Applications should be made at early flower, before canopy closure to ensure coverage of blossoms and lower stems.

Fungicide Timing for Dry Beans

The dry bean crop is at, or entering the bloom stages and it is time to make the decision for a fungicide application for prevention of white mould. A fungicide application can be beneficial in dry beans when favourable conditions exist. Several factors should be considered:

1. Field History—fields with a high frequency of broadleaf crops or those adjacent to winter wheat fields (mostly planted into canola stubble) likely have higher levels of inoculum present.
2. Environment—rainfall prior to or during the bloom period keeps the soil and canopy moist. White mould is caused by *Sclerotinia sclerotiorum*, which survives in the soil as sclerotia and requires moisture to germinate. Spores are released and travel in the air. The spores need a nutritional source (i.e. the flower petal) to initiate infection on the plant. Warm temperatures, not hot, favor development.
3. Plant—plant architecture (upright vs. bushy) and row spacing (wide vs. narrow) can impact disease incidence. In general, bushy plants in narrow rows with a dense canopy can have higher infection.

It is difficult to predict how the weather will be after application, disease incidence and therefore if a fungicide application will be economical. Periodic rainfall and humid conditions over the past few weeks has increased disease risk.

Fungicide applications should be made between R-1 (first blossom visible) and R-2 (appearance of first pods, “pin beans”) before canopy closure to ensure maximum canopy coverage. Fungicides registered for use in dry bean include Acapela, Allegro, Lance and Senator. Consult the [Guide to Crop Protection](#) for more information on these products.

Soybean Aphid Advisor

Soybean aphids **have not** yet been reported in Manitoba but they have been present in North Dakota for a few weeks. In Western Manitoba, however, some look-a-like insects have been seen. Springtails (Collembola) can easily be confused with soybean aphid. Springtails are much smaller, more yellow and move a lot faster than aphids. Aphids generally will not move when disturbed.

An “Aphid Advisor App” has been developed in Ontario and would be a great tool for growers and agronomists: [Check it out!](#) Remember, aphids have not yet been reported in Manitoba and are not a problem every year, but keep scouting!



Top: Aphids Bottom: Springtails
Photo Credit: John Gavloski, MAFRI



Last week's question was "Did you apply Phosphorus (P) with or before your soybeans?" The majority of growers responded by saying they are not putting any P with their soybeans. Of those who did apply P, fall banding or with the seed were the most common methods. Soybeans are a heavy user of phosphorus: MPGA looks forward to the opportunity to fund research that will help us figure out how best to deliver P to soybeans

Foliar Nutrient Applications and other products for Soybeans

Like last year, soybean crops are looking great! Growers may be tempted to apply products that may provide a 'yield boost'. Should you buy in?

An ongoing study in North Dakota has looked at a vast combination of 'special inputs' including micronutrients (Zn, Mn, Cu, B, Fe, Co), fungicides and growth promoters (Source: Greg Endres, NDSU). For 7 consecutive years, no additional yield benefit was achieved from a foliar micronutrient application sprayed at R-1 to R-3. A combination of products (micronutrients + fungicide + growth promoter) also provided no significant yield benefit compared to the untreated control at 8 site-years. Additional expense and labour with no yield benefit will result in reduced economic return on your soybeans.

There may also be the temptation to apply additional nitrogen. The only reason to consider nitrogen application is if nodulation failure has occurred and soybeans are showing signs of nitrogen deficiency (right). In this case you should consider a broadcast application of granular nitrogen. There have been anecdotal reports of yield bumps from extra nitrogen applied to crops not showing symptoms of deficiency in North Dakota/Minnesota on low organic matter soils or in other studies, those with high yield potential (55-70 bu/ac), which is not typical in Manitoba. Overall, the probability of response and economic return is very low and additional nitrogen to nodulated soybean fields is not recommended.



L: Pale green, nitrogen deficient leaf
R: Healthy, dark green soybean leaf
Photo Credit: Horst Bohner, OMAFRA

Table 1. Interpretation of Plant Analysis for Soybeans -- Values apply to the top fully developed leaf (3 leaflets plus stem) at first flowering.

Nutrient	Units	Critical Concentration ¹	Maximum Normal Concentration ²
Nitrogen (N)	%	4.0	6.0
Phosphorus (P)	%	0.35	0.5
Potassium (K)	%	2.0	3.0
Calcium (Ca)	%	-	3.0
Magnesium (Mg)	%	0.10	1.0
Boron (B)	ppm	20	55
Copper (Cu)	ppm	4	30
Manganese (Mn)	ppm	14	100
Molybdenum (Mo)	ppm	0.5	5.0
Zinc (Zn)	ppm	12	80

¹Yield loss due to nutrient deficiency is expected with nutrient concentrations at or below the "critical" concentration.

²Maximum normal concentrations are more than adequate but do not necessarily cause toxicities.

If you are still interested in applying additional nutrients to your soybeans, another option is to take a tissue sample. A tissue sample of the top fully developed trifoliate leaf should be taken at first flower. Interpretation of plant tissue analysis is provided (left). For more information on plant tissue sampling, [click here](#).