




The Bean Report

Your source for soybean & pulse crop agronomy & research

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This week....

- Pod development and cool temperatures
- Soybean insect update: defoliators and aphids
- Crop damage, re-growth and fungicides
- Soybean School West

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In Every Issue....

Crop Conditions

Soybeans are in the full flower to pod development stage, R-2 to R-4. At R-3, pods are 1/4" long at one of the 4 uppermost nodes. At R-4, pods are 3/4" long at one of the 4 uppermost nodes. As we progress, growing conditions between R-4 and R-6 are critical for yield potential. This is a period of rapid and steady dry matter accumulation, and young seeds and pods are prone to abortion (Shaun Casteel 2011). Soybeans are not advancing as well as we would hope with the recent cool weather and we have not caught up on accumulated heat units that we lost with the late spring. Currently we are between 88 (Carman, Morden, Melita, Ste Rose) and 94% (Dauphin, Morris) of normal accumulated heat units.

What is the effect of cool night time temperatures on soybeans? Soybeans are a warm season crop. Temperatures < 10°C can have adverse effects on soybean flowering and may result in poorly developed pods. After flowering, the minimum temperature for soybean seed ripening is 8-9°C (Holmberg 1973). More importantly, however may be the increase in days to physiological maturity and threat of frost.

Crop damage has occurred in some fields as a result of thunderstorms that have swept across the province over the past two weeks. Leaf defoliation is a problem in fields East of Winnipeg and in some cases has reached economic levels. Grasshoppers and green cloverworm are the main defoliators. Very low levels of soybean aphids have been reported in fields in Central Manitoba.

Fungicide spraying has taken place in dry bean fields for prevention of white mould. Growers are happy with their decision to spray given the quality of the crop and persistent rainfall.








Soybean Defoliators

Multiple insects may be contributing to leaf defoliation in soybeans. Grasshoppers seem to present in areas all over the province while green cloverworm and corn earworm (not yet confirmed) have been identified in fields East of Winnipeg. Taking the time to properly estimate defoliation throughout the field and making *repeated* field visits is important before making the decision to spray an insecticide. Spraying wipes out all insects, including beneficial insects which are often doing a good job regulating pest populations. *The threshold for leaf defoliation depends on the stage and should be assessed for the whole plant, not just the top leaves (which some caterpillars preferentially feed on).*

Leaf defoliation thresholds Pre-Bloom (Vegetative): 40%
 During Bloom and Pod Fill (R-1 to R-4): 20%
 Full pod to maturity (R-4 to R-8): 35%

These thresholds are based on leaf defoliation: some defoliators, such as corn earworm, may also feed on pods. Monitor pest populations and feeding activity throughout the coming weeks.

Another way to scout for these defoliating caterpillars is to place a white cloth between rows and shake the plants vigorously, letting the caterpillars drop onto the cloth: this is a good strategy for row crop soybeans. An infestation of 4 to 8 larvae per foot of row is the general threshold for this method.

	Soybean Looper	2 prolegs.
	Green Cloverworm	3 prolegs, moves rapidly when disturbed.
	Corn earworm	4 prolegs, curls into a 'C' when disturbed.
	Velvetbean caterpillar	4 prolegs, moves rapidly when disturbed.
	Yellow striped Armyworm	4 prolegs, yellow stripes.

Source: University of Arkansas



For a printable guide to estimating defoliation in soybean leaves, [click here](#).



Soybean School West, a partnership between Manitoba Pulse Growers Association and RealAgriculture.com was launched in Winter 2013 to bring you production-related videos on a broad range of topics. Since then, 8 videos have been produced. Our most recent video is: **Why are my soybeans yellow?** Watch this and the full set of videos [here](#).



Another reason you may be seeing yellow in soybeans... is **Volunteer Canola**.

Q: [Are you concerned about yield loss associated with volunteer canola in your soybeans?](#) (click to answer)



Crop Damage, Re-growth, Fungicides?

Heavy rain, wind, hail (and frost!) have all recently caused crop damage in some fields across the province. There are a few things to consider after a crop is damaged:

1. Re-growth: Soybean plants have multiple growing points. Even if the main growing point has been cut off, re-growth from [axillary buds](#) (occurring at the nodes: where branch extends from main stem) will take place within 3 days. Yield loss increases with the number of nodes that have been cut off and the maturity of the re-growth will be the largest concern given the date.
2. Disease and fungicides: Leaf tearing is less detrimental to yield than stand reduction. With crop damage comes increased interest in applying a fungicide. An extensive review of fungicide trials from Ontario, Minnesota, North Dakota, New York and Iowa shows limited potential to achieve economic benefit from spraying a fungicide on soybeans, with or without hail damage.



On average 6/8 nodes were destroyed in this soybean field in W. Manitoba. Re-growth began 3 days later. Significant yield loss is expected.

- Across all studies **the probability of a yield response varied from 0 to 30 % to 60%**. When a yield response occurred (on average 1/3 of time) it did not necessarily result in an economic advantage. This is especially important to consider in Manitoba where we are looking at typical yields between 25 and 40 bu/ac. All of these studies are conducted in regions with yield expectations >50 bu/ac, making an economic return more viable.
- In the Minnesota study, incidence of Septoria leaf spot was reduced with application of fungicide but this did not increase yield (Potter et al. 2006). Septoria is common in soybeans, on the lower leaves, and rarely affects yield.
- Other precautions include the risk of delayed maturity and the development of fungicide resistance with over use. For information on foliar diseases in soybean and MAFRI's response to fungicides on soybeans, [click here](#).