

This week....

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Soybean growth stage R-1 (early flower) occurs when one flower is open along the main stem. It will be about 10 days to R-3 (early pod).

Crop Update

Soybeans have responded to the warm weather, ranging in staging from 1st to 4th trifoliolate. The first herbicide applications have been completed and second passes are being considered before canopy closure. Reaching canopy closure in soybeans by early July is a good target to ensure maturity and yield potential is on track. Soybean fields should be kept weed-free up until this stage. Glyphosate is labelled *throughout flowering*, which corresponds to the R-2 growth stage (full flower).

Soybean flowering is triggered by short days and the plant must also have at least 3-4 trifoliolate leaves. Soybean flowering usually begins in early July in Manitoba. Once the first flower is detected anywhere along the main stem, there are about 10 days of flowering before a pod develops on one of the four uppermost nodes. This is the R-3 (early pod) development stage and the *window for glyphosate application is closed*. Note: flowering will continue during pod fill. [Picture guide to soybean staging](#).

Herbicides registered for volunteer RR canola control have *shorter application windows*. A summary of herbicide options and crop staging are [available here](#).

The first **soybean aphids** have been detected in North Dakota—they do not overwinter in Manitoba, but migrate in from the US. Economical levels of soybean aphid have

not been reached in Manitoba in the past two years but regular monitoring is suggested. An excellent video from North Dakota explains [how to scout for aphids](#). Our first occurrence of soybean aphid is typically late July.

Iron Deficiency Chlorosis (IDC) symptoms are present in many fields. Wet soil conditions reduce the availability of iron to the soybean plant, resulting in interveinal yellowing of leaf tissue. This is an annual problem in Manitoba soybean fields, but is mostly temporary with little affect on yield. Now is the time to identify fields exhibiting symptoms and the variety being grown. The best management practice is variety selection. IDC ratings are measured by MAFRD for each variety and are available in MPSG's annual [variety trial data](#).

Field peas are near flowering with fungicide applications being considered. Thick canopies, moist soil and humidity favor the development of disease in field pea. There are two main leaf diseases in field pea: *Mycosphaerella* blight which is caused by a fungi and Bacterial blight which is caused by a bacteria. Pictures and distinguishing features are [defined here](#) as well as data on [fungicide performance](#). Yellow flashing of new growth is being reported and being attributed to impaired root function (affecting water & nutrient uptake) in saline areas where salts have been

Crop Update continued....

washed down with recent rains (Source: E. Kaskiw).

Dry beans are at the 1st to 4th trifoliate stage. Soil crusting and herbicide injury have been reported problems. When spraying, be aware of neighbouring fields and do not confuse edible beans with soybeans. Excess moisture is affecting some bean fields in Manitoba and [crop conditions in the US](#) are mixed.

Warm, humid conditions have led to **rapid growth** in soybean and edible beans. Theory suggests that this can lead to leaves that become cupped, wrinkly and appear to have parallel veins, which mimics group 4 growth regulator herbicide injury. Both have been observed and it is important to distinguish by first identifying if there is a potential source of drift or inadequate tank clean out. An excellent article describing these scenarios is [here](#). If group 4 herbicide injury is the cause, soybeans will generally recover if impacted in the vegetative stages. More damage is caused if injured during reproductive phases.



Rapid growth in edible beans mimicking group 4 herbicide injury. Submitted photo.

Hot temperatures and herbicide spraying

Herbicide applications are safest and most effective when plants are actively growing and not under stress. Temperatures above 30°C can cause stress to plants and increase evaporation of the herbicide. A good rule of thumb is hold off on herbicide applications when temperatures exceed 28-30°C, especially under low humidity to prevent crop injury. Here are tips for specific herbicides used in soybeans.

- **Glyphosate**, a systemic herbicide works best during warm temperatures (15-25°C). Glyphosate is bound quickly within the plant and to soil particles, so movement to target points needs to occur quickly. Cool temperatures slow this movement as do hot, dry

temperatures due to a thicker waxy layer. Dust on leaves can also decrease absorption.

- **Group 6**, contact herbicides such as Basagran work best under warm, sunny conditions. Hot temperatures are good for weed control but increase crop injury.
- **Group 2**, systemic herbicides such as Pursuit and Odyssey work best under warm temperatures. Hot temperatures increase stress to the plant and these herbicides would be an additional stress.

Mid-day spraying has been shown to increase efficacy due to horizontal alignment of leaves allowing good coverage. However, if mid-day temperatures are >30°C, evening applications may be better as long as there is no dew.



Focus on Research

Have you ever thought about growing more than 1 crop in the same field? Canola and peas are one crop combination that have complementary characteristics and have proven to increase overall yield and profit in small plot trials.

Field scale trials are being conducted at Carman comparing canola, peas and 3 treatments of a pea-canola mixture with varying rates of fertilizer—30, 60 and 90 lbs/ ac of actual N. Stay tuned for yield results... and how they are harvested!



Seeing brown spots on soybean leaves?

There are several types of brown spotting that can appear on soybean leaves early in the season, especially on the unifoliolate leaves. It is important to properly identify the cause of the brown spotting in order to avoid unnecessary panic or confusion. Recently, the most common brown spotting is being caused by surfactant burn following glyphosate application. This can be worse when spraying during cloudy days due to a thin leaf cuticle that is more susceptible to damage.

Surfactant burn can vary because formulated products have different types and amounts of surfactant. To distinguish surfactant burn from sunburn or Septoria brown spot, look for a droplet pattern showing where the herbicide landed on the leaf. Surfactant burn will be limited to leaf tissue that was exposed to glyphosate. New growth will be fine and yield should not be impacted (Source: H. Bohner).

Septoria brown spot is the most common leaf disease of soybean in Manitoba. It begins on the lower leaves and spreads upwards throughout the canopy, spreading from infected crop residue and increasing in warm, wet conditions.



Surfactant burn—a few days after Glyphosate application.



Septoria Brown spot—early infection on unifoliolate leaf



Sunburn—brown spotting on leaf edges exposed to sun



Surfactant burn —7 to 10 days after application of Glyphosate + Flexstar



Septoria Brown spot—mid season infection in lower canopy



Bacterial blight— near leaf injury after heavy rain/hail—begins later in season