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- [MPSG Soybean Growth Staging Guide](#)
- [Pulse Desiccants & Market Restrictions](#)
- [Manitoba Agriculture Crop Report – Aug 14, 2017](#)



Lady beetle pupae and larvae (left) and soybean aphids feeding on young soybean tissue.

## Soybeans

Hot, dry conditions have caused rapid crop development over the past few weeks. Scattered rainfalls have passed over various parts of the province, but many soybean crops remain thirsty. Soybeans currently range from the R5 to R6 stages across Manitoba. The R6 stage is characterized by green seeds that fill the pod to capacity at one of the four uppermost nodes. By R6, soybeans have reached maximum height and biomass. Soybeans can withstand greater aphid populations by R6 and insecticide is unlikely to result in a positive economic return.

In order to achieve maximum yield, soybeans require 16 to 20 inches (406 to 508 mm) of water for crop use throughout the season. Soil moisture is presently variable across the province, ranging from 38 to 90% of normal rainfall for select locations (Table 1). Regions with greater soil moisture reserves from the previous year (e.g., SW MB) appear to be under less moisture stress. Disease pressure continues to develop in soybean crops. Diseases currently reported in soybeans include, septoria brown spot, bacterial blight, downy mildew, phytophthora root rot and white mould. Spider mites have also been reported in some fields. See page 2 for more information on disease and insect scouting.

## Dry Beans



Pinto beans beginning to stripe at the R7 stage on August 14, 2017.

Dry beans are mainly at the R7 stage of development and edging toward R8. Plants are at the R7 stage when pods have developed over the entire plant and seeds are fully developed in the oldest pods. At the R8 stage of development, leaves are yellow over half of the plant and a few small

pods may be drying down. Dry beans continue development until the R9 stage, which marks maturity.

Stay tuned for the *Dry Bean Growth Staging Guide* available from MPSG later this year!

## Field Peas

Field peas are now reaching maturity in Manitoba. Harvest has begun for On-Farm Network fungicide trials. However, some fields are still being desiccated this week. Early reported pea yields range from 40 to 80 bu/ac.

Table 1. Rainfall and growing degree-days (GDD) from May 1 to August 13, 2017 in Manitoba. Source: Manitoba Crop Weather Report.

Location	Total Rainfall (mm)	% Normal Rainfall	Total GDD	% Normal GDD
Russell	138	60	1073	100
Virden	145	67	1140	97
Melita	152	70	1271	105
Boissevain	175	81	1200	98
Brandon	145	64	1109	100
Dauphin	221	90	1122	102
Gladstone	156	68	1131	95
Portage la Prairie	128	57	1239	100
Treherne	174	75	1172	98
Winkler	151	64	1234	96
Morris	128	53	1210	99
Emerson	99	38	1219	95
Arborg	164	74	1077	100
Beausejour	177	73	1101	94
Steinbach	143	56	1203	102

## Insect & Disease Scouting

### Two-Spotted Spider Mites (*Tetranychus urticae*)

Two-spotted spider mites can be a sporadic pest of soybeans and dry beans in Manitoba. They prefer hot, dry weather and typically appear anytime from July to August, if conditions are favourable. Infestations usually begin at field edges and move inward. These infestations can occur following a pyrethroid insecticide application. Hence, insecticide control of soybean aphids can often trigger an increase in spider mite populations. Spider mites are most often found on the undersides of leaves (Figure 1), but damage can also be seen on upper leaf surfaces.

Scout for spider mites by examining individual plants. Shake plants over a white piece of paper and inspect with a magnifying glass. Organophosphates can be used for spider mite control including Malathion registered in dry beans, and Lagon/Cygon registered in soybeans. However, control is only recommended when the majority of plants across a field are infested.



**Figure 1.** Presence of spider mites on a soybean leaf.



**Figure 2.** White mould symptoms on dry bean pods and stem. Photo: Michael Wunsch, NDSU.



**Figure 3.** Downy mildew symptoms on the upper and lower soybean leaf surfaces.



**Figure 4.** Frog-eye leafspot lesion on a soybean leaf.

### Frog-eye Leaf Spot (*Cercospora sojina*)

Frog-eye leaf spot is a relatively new soybean pest to Manitoba. It was first confirmed in 2016 in the western, central and eastern regions by Dr. Brian Cassone of Brandon University. The presence of this fungal, foliar disease is due to more frequent soybean production. Symptoms are most likely to appear during July or August. Warm, humid conditions promote spore production, infection and disease development. Soybeans remain at low risk of yield loss from frog-eye leaf spot in Manitoba.

Scout for frog-eye leaf spot from July to September. Its symptoms include small irregular to circular lesions with dark reddish-brown margins and a white-grey centre (Figure 4). Crop rotation is the main method of disease prevention.

### White Mould (*Sclerotinia sclerotiorum*)

White mould is a fungal stem and root disease that can cause significant yield loss in soybeans and pulses, including dry beans, field peas, faba beans, lentils and chickpeas. Early in the disease cycle, fungal growth is stimulated by rain, cool temperatures, high humidity and moist soil during flowering and early pod development. Tiny, mushroom-like structures called apothecia grow from the fungal sclerotia bodies in the soil. Spores produced by apothecia then infect the senescing flowers, which fall into the canopy infecting the stem.

Scout for white mould from late July to September. Look for lodged areas of the field or inspect dead or dying plants. This disease appears as fluffy, white growth on soybean stems and pods low in the canopy (Figure 2). Cut the stem open to inspect for black sclerotia bodies contained within. Fungicides can offer protection against white mould if applied at R1 (first flower), prior to petal drop. Prevention is key if the risk of white mould is high. Fungicides typically offer better white mould control in dry beans than soybeans due to larger flowers. Soybean flowers are very small and it is difficult to get good coverage.

### Downy Mildew (*Peronospora manshurica*)

Downy mildew is a fungal, foliar disease of soybeans that generally occurs at low levels and seldom causes significant yield loss. It can appear in Manitoba anytime from late June until early September. Incidence of this disease has increased over the past few years in Manitoba. Overall, there is a lack of data indicating what level of downy mildew infection will cause yield loss.

Scout for downy mildew by examining upper and lower leaf surfaces. It is characterized by yellow lesions on the upper leaf surface. Opposite to these lesions are grey tufts of mycelial growth on the undersides of leaves (Figure 3). This disease first occurs on new growth at the top of the canopy and progresses downward. Older lesions appear brown with yellow-green lesions. The main methods of downy mildew management include crop rotation and burial of infested crop residue.



## Soybean Cyst Nematode Awareness

Soybean cyst nematode (SCN) is an economically important pest that can cause significant yield loss. It is a microscopic roundworm that typically falls under the disease category of crop pests. It has not yet been confirmed in Manitoba, but cases have been confirmed near the border in both North Dakota and Minnesota. Surveys for SCN are currently being conducted in Manitoba by Dr. Mario Tenuta of the University of Manitoba. High risk areas are the Red River Valley and land near the U.S. border. Farmers in these high risk areas are advised to scout their soybean and dry bean fields throughout August. It is suspected that SCN is already present in Manitoba, but we have not found it yet.

### Signs & Symptoms

There are no above-ground symptoms specific to SCN. In fact, plants can still appear healthy with low levels of infection. More severe symptoms appear as unhealthy or stressed plants including symptoms such as stunting or chlorosis. Below-ground symptoms are more distinctive due to the presence of lemon-shaped cysts on the roots. Note: Cysts are much smaller than root nodules (Figure 5).

### SCN Movement

Anything that causes soil movement can cause the spread of SCN. The most notable causes of movement include field equipment and flood water. Soil movement can also occur through clothing and footwear.

### Scouting

It is recommended to scout high risk areas of the field including entrances, low spots and generally poor-yielding areas. Examine plants by digging up roots with a shovel and gently removing the soil (i.e., soak roots in a pail of water). If SCN is suspected, [contact MPSG](#). More information on soybean cyst nematode is available through [North Dakota State University](#) and the [University of Minnesota Extension](#).



**Figure 5.** Tiny lemon-shaped cysts located next to a soybean root nodule. Photo: Sam Markell, NDSU.

### Have you seen these symptoms?

This soybean discoloration that appears bronze/red from afar is a severe infestation of spider mites. These symptoms were found only in small, isolated patches near field edges in Manitoba.



## The Quest to Maximize Yield & Profit in Manitoba!

The Ultimate Soybean Challenge plots suffered from an aphid infestation at Portage la Prairie during early August. The decision was made to apply insecticide last week to minimize the effect of aphid damage on plots, maintaining any treatment differences. The shed skins, or "castings," are still visible on soybean plants, but the aphid population has been effectively controlled. On August 16<sup>th</sup>, soybeans of Teams A, B and C were at the R5 stage, approaching R6 (see below).



**Team A - Best management practices**



**Team B – Input program**



**Team C– Novel approaches**



Visit the [Ultimate Soybean Challenge](#) web page to learn more about the teams and their strategies.