The Bean Report

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MANITOBA Pulse Soybean GROWERS

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Western Bean Cutworm: Scouting & Management in Dry Beans

Pulse Desiccant Registration & MRL advisory

Field peas nearing R5 on July 30, 2018 near Minnedosa. A this stage, leaves and pods in the lower canopy start to yellow.

Soybeans

Soybeans are generally at R5 (early seed), but range from R4 (full pod) in late seeded fields to R6 (full seed) in dry, southern regions of Manitoba. Minor grasshopper feeding has been found in field edges, but levels have been well below threshold. No soybean aphids have been reported yet in Manitoba. Hot, dry conditions will increase the risk of spider mites, which have emerged on some headlands (see page 2 for more on spider mites). A survey of soybean leaf and root diseases was completed in mid-July across Manitoba when the crop was at R3. Septoria brown spot, bacterial blight, downy mildew and anthracnose (Figure 1) were detected on leaves at low levels. Low frequency of Phytophthora root rot (PRR) was also observed, likely due to dry conditions. Stem symptoms, such as those caused by pathogens in the Diaporthe genus, were also observed, and can easily be confused with PRR (Figure 2). Scouting for soybean cyst nematode should now take place (details on page 2). Potassium and nitrogen deficiencies in soybeans have emerged. Suspect deficiencies should be confirmed with soil and tissue tests through commercial labs to remediate deficient soils for future crops.

Figure 1. Range of leaf symptoms exhibited by anthracnose on soybeans in July 2018

Figure 2. Stem canker lesion (left) differs from PRR lesion (right). PRR girdles the entire stem, from the base of the stem upward

Dry Beans

Dry beans are at the R5 (beginning seed) to R6 (50% seed fill) stage. Severely drought-stressed fields are more advanced, but have aborted seeds/deflated pods and have begun to senesce (Figure 3). As pods continue to elongate and fill, monitor crops for western bean cutworm (WBC) damage. Although WBC has never been detected in Manitoba, it is a relatively new pest in Ontario and is native to the western Great Plains region of North America. Adult moths prefer to lay eggs on tasselling corn, but will move to dry beans after corn passes this stage. Feeding damage begins as tiny shot holes in leaves by young larvae. Older larvae feed on and within the pods. See the University of Guelph and OMAFRA's Fact sheet on WBC identification, damage and life cycle. Assess foliar fungicide efficacy by continuing to monitor white mould and anthracnose levels.

Field Peas

The crop stage for field peas varies considerably across Manitoba. Stages range from R4 (green seeds fill the pod) in the north and west where rainfall has been close to normal to R7 (most pods on the plant are yellow/golden brown) in south, east and central regions, which received less rainfall. The earliest fields were harvested late last week, but most pea acres will be desiccated over the next two weeks. Consult keepingirclean.ca for up-to-date product registrations and market restrictions on desiccant and pre-harvest aids. For more tips on harvest management, see the Pea Report in the last Pulse Beat.

Faba Beans

Pods have elongated and seed is nearly filling the pod cavity. Lower leaves have begun to turn dark brown and senesce.

Figure 3. Pinto beans near Winkler senescing prematurely due to hot, dry conditions.

Two Spotted Spider Mites

Two spotted spider mites (*Tetranychus urticae*) can be a sporadic pest of soybeans and dry beans in Manitoba. They prefer hot, dry weather and appear from July to August, if conditions are favourable. Infestations usually begin at field edges and move inward. Therefore, examine several areas of the field to determine the level of infestation. Spider mites can be found on the undersides of leaves, but white speckling may be seen on upper leaf surfaces (Figure 4).

Scout for spider mites by examining individual plants. Shake plants over a white piece of paper and inspect with a magnifying glass. Spider mites are difficult to count, so there is no available economic threshold. However, defoliation thresholds (similar to those used for grasshoppers) can be used to assess the percentage loss of productive plants. If losses exceed 20% on average, consider control. Spot treatments may be effective for this pest. Organophosphates can be used for spider mite control including Malathion registered in dry beans, and Lagon/Cygon registered in soybeans.

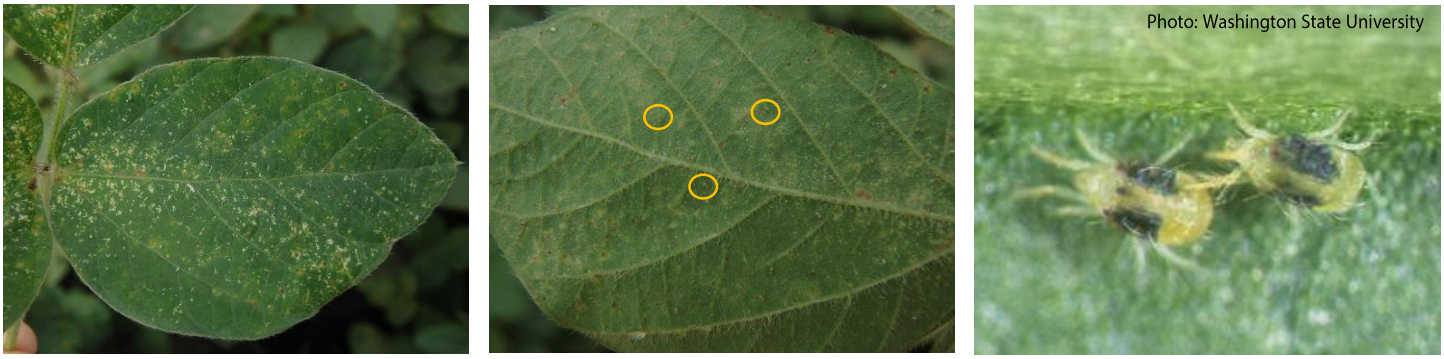


Figure 4. From left to right: upper side of leaf infested with spider mites, underside of infested leaf (mites circled), two spotted spider mites.

Soybean Cyst Nematode

Soybean cyst nematode (SCN) is a microscopic roundworm that parasitizes soybean and dry bean roots. Not all nematodes are harmful to crops, but SCN is an economically important pest in most soybean-growing regions. Once above-ground symptoms are noticed, up to 30% yield loss can already be expected. Early detection and timely management is key to avoiding significant yield loss.

Scouting

It is recommended to scout for SCN from late July through September, prior to any tillage operations. Assess field entrances, low spots, shelter belts, high pH areas and generally low-yielding areas. There are no distinct, above-ground symptoms specific to SCN. Plants can still appear healthy with low levels of infection. However, severe, above-ground symptoms may appear as stunting or chlorosis (Figure 5). Below-ground symptoms are more unique due to the presence of white, lemon-shaped cysts on the roots (Figure 6). These cysts are much smaller than root nodules and may require the use of a magnifying lens. When scouting, it is recommended to carefully dig out the entire root system and soak in water to remove the soil without breaking off any cysts. If you suspect SCN in your field, contact MPSG Production Specialists, Cassandra or Laryssa to submit samples through Dr. Mario Tenuta's lab.

Figure 5. Soybean cyst nematode damage in a field.

Figure 6. White, lemon-shaped cysts on a soybean root.

Are my fields at risk?

Survey efforts to identify SCN in Manitoba are ongoing, but continued vigilance is recommended. Once SCN arrives, it cannot be completely eradicated and spreads rapidly. The highest risk areas of Manitoba are those along the Canada-United States border and those that share waterways with our neighbours to the south. Anything that causes soil movement can contribute to the spread of SCN. This includes field equipment, flood water, birds, footwear and clothing. SCN requires a host plant to reproduce. Therefore, rotation to non-host crops and prevention of soil movement can help prevent the arrival of SCN. Another management option is to grow SCN-resistant varieties.

Impact on Plants

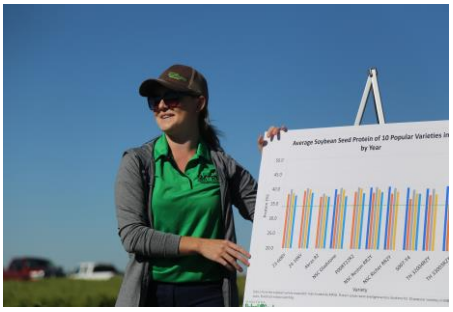
SCN impacts growth and yield by removing plant nutrients, disrupting nutrient and water uptake and impeding root growth. Infection of SCN can also lower the number of root nodules and therefore inhibit nitrogen fixation. Seed yield reduction typically results from fewer pods, rather than fewer seeds and reduced seed size. SCN-infected plants may be more susceptible to the development of root rot and seedling diseases, due to openings in the root created by cysts.

For more information on SCN, see resources from North Dakota State University, University of Minnesota Extension and the North Central Soybean Research Program.

July Field Day Review

MPSG teamed up with Manitoba Diversification Centres to bring our flagship field day to Melita and Arborg on July 17 and 19. WADO (left) and PESAI hosted over 50 farmers and industry professionals each day, providing insights on local applied research activities.

SMART
SOYBEAN MANAGEMENT & RESEARCH TRANSFER



Both sites featured three soybean-specific stations. Cassandra Tkachuk, Yvonne Lawley, Navneet Brar and Nate Ort discussed Soybean Seed Quality highlighting on-going research to understand the environment, genetic and management effects on protein. With dry seeding conditions challenging most soybean farmers this spring, Kristen MacMillan's Re-Thinking Seeding Depth station provided timely results of her research validating current soybean seeding depth recommendations. Laryssa Stevenson and Megan Bourns shared research results from past and on-going MPSG-funded small plot and On-Farm Network projects at the Feeding Soybeans – SMART Use of N, P, K Fertilizers and Inoculant stop.

In addition, Scott Chalmers toured WADO's intercropping and relay-cropping trials, featuring pea-canola, soybean-flax, hemp-legume and corn-hairy vetch. At PESAI, additional tour stops featured new tile drainage project designed for wheat-canola-soybean rotations and high-yielding spring wheat management trials testing nitrogen fertilizer, foliar fungicides and plant growth regulators.

CROPS-A-PALOOZA

The inaugural Crops-A-Palooza event was held at the CMCDC research farm on July 25 in Portage la Prairie. Seven collaborating commodity groups, 12 sponsors, 50 industry experts and 16 stations created a one-stop-shop for roughly 400 farmers and industry professionals looking for a unique learning and networking opportunity.

Pulse and soybean-themed stations included: Soybean Detective: Digging up answers to poor plant stands, Battling Sclerotinia and The Power of Nitrogen! The relaxed event allowed for one-on-one discussions about growing season issues with Manitoba Agriculture Extension Specialists, University of Manitoba Researchers and MPSG Production Specialists.

Save the Date!

MPSG Pulse Tour

August 22, 2018 | Morden Research & Development Centre | 10:00am

Highlighting advancements in the AAFC dry bean and pea breeding and trait development programs