

CROPEST ONTARIO

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Soybean Rust Detected Early in Louisiana

**Albert Tenuta, Field Crop Plant Pathologist,
OMAFRA, Ridgeway**

On May 8th, 2007, Asian soybean rust was detected on kudzu plants in New Iberia Parish, Louisiana which is west of New Orleans. Although soybean rust was found in this area last year this is the first confirmed report of soybean rust this year in Louisiana and it marks the earliest the disease has been found in the state within a growing season. The conditions in Louisiana (“western front”) are much different then those on the “eastern front” in Florida where much of the state continues to be under a severe drought.

Could the Louisiana detection have significant implications to Ontario and Canadian soybean producers? A lot will depend on the environmental conditions from this point on. Every year soybean rust is detected earlier in Louisiana and this year it is 53 days earlier then last year. The recent rains and predictions for further showers in the area would most likely led to more soybean rust developing which could impact soybean producing areas in the mid-western United States and Ontario according to Clayton Hollier, Plant Pathologist with Louisiana State University.



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The late spread of soybean rust in 2006 was attributed to rust spores moving from Louisiana up the Mississippi river and into the Ohio River Valley. This followed a prolonged stormy weather that occurred in late September which brought persistent rain showers (favourable weather) into Ontario and the Midwestern United States. Over the course of a few months soybean rust developed over a very large geographical area. The concern for 2007 is if these conditions occur much earlier this year and rust spore (inoculum) production increases this could impact significant soybean acreages in the Northern US and possible Ontario during the crops critical reproductive stages.

Last year soybean rust made it as far north as LaFayette, Indiana (home of Purdue University) which is only 165 miles south of Chicago. Will rust make it farther this year? Time will only tell! What happens in terms of rust buildup (spore production and infection) in the southern US especially Louisiana and Texas over the next two months will be critical for Ontario.

The good news for Ontario and Canadian soybean producers is that the Ontario Soybean Growers, the Ontario Ministry of Agriculture, Food and Rural Affairs, Agriculture Canada and the Ontario Soybean Rust Coalition have been very proactive in preparing growers for the introduction of this destructive soybean disease. For example some of the educational activities have centered on growers and the soybean industry through ID cards, fungicide manuals and you could expect more products such as a “new” soybean rust management card that will be available this summer.

Other efforts have focused on providing effective decision support tools for producers and advisors in order to aid in managing this very destructive disease through the use of sentinel plots, prediction models, and spore trapping systems to name a few.

We will continue to work closely with other stakeholders to help prepare and minimize potential losses to Ontario soybean growers from this new invasive soybean disease. I will continue to have updates in the Crop Pest Ontario newsletter as well as visit the OSG Website at (www.soybean.ca) and the USDA site (www.sbrusa.net) for updates.

Funding for many of the soybean rust projects mentioned above were provided in part through the Canada-Ontario Research and Development (CORD IV) Program administered by the Agricultural Adaptation Council as well as other funding from the AAFC Pest Management Centre, the Ontario Soybean Growers and the Ontario Soybean Rust Coalition.

Soybean Aphids Not as Abundant as Expected

Tracey Baute, Field Crop Entomologist, OMAFRA-Ridgetown

Reports from my US colleagues came in last week that the aphid populations on buckthorn in the US are much lower than expected, given the high number of eggs that were there in the fall. There could be a few reasons for this decline. Research done at the University of

Guelph (Welsman et al. 2007) has found that there can be up to a 70% decline in soybean aphid egg numbers over the winter, even before they hatch, possibly due to predation, exposure to extreme winter temperatures, heavy rain that may knock off eggs not placed along the seam of the buds or degradation of unfertilized eggs. The US researchers conducting the buckthorn survey last week speculate that the cause of the aphid crash this spring was the winter storm that went through the Midwest in April just after the nymphs emerged from the eggs. The nymphs are very vulnerable to cold temperatures and would not have been able to deal with the cold conditions.

Here in Ontario, we had a much lower number of soybean aphid eggs going into the winter compared with the US and compared to our higher fall counts in 2004. I have yet to find aphid colonies at my buckthorn sites, but colonies have been found at a few other locations.

So what does this all mean? In terms of recommendations for this summer, nothing has changed. Though fewer aphids starting out on buckthorn may reduce the likelihood of very early season infestations in June, it does not guarantee that we won't get infestations in July and August that reach threshold. Unfortunately Ontario is geographically positioned to receive aphids from any location in the Midwest anytime in the season. What determines if they will reach threshold when they arrive are the weather conditions at the time, the stage and condition of the crop and whether the natural enemies are up for the task of eating them all. So far, our natural enemies have done a great job in

keeping initial infestations down, as we have not seen aphids reach thresholds in the month of June when they first migrate from buckthorn.

We will be scouting many fields across Ontario again this year and will report our results on the USDA rust/aphid PIPE website (www.sbrusa.net) as well as the Ontario Soybean Growers website (www.soybean.on.ca). And of course, we will continue to provide updates and management recommendations in future CropPest articles.

Wheat Update as of May 15, 2007

**Jen Mullen, Assistant, and Peter
Johnson, OMAFRA Cereal
Specialist, Stratford**

Almost all fields are beyond herbicide application. Fields in Essex/Lambton are at the flag leaf emerging stage (Zadok's 37); advanced fields are entering boot stage (Zadok's 41). Boot stage is the last opportunity for strobilurin fungicide applications. In Huron/Bruce, advanced fields are at the flag leaf emerging stage while most fields are between first and second node (Zadok's 31/32). Manganese deficiency is showing up on sandy soils and muck fields. Physiological fleck (1-2mm chlorotic lesions) is common in many fields due to UV light injury. New growth does not show continued flecking. There is no significant disease pressure at this time but things could change with cool, wet weather. Corn row syndrome is evident in some fields.

Bird Cherry Oat aphids continue to be found. Aphid populations above threshold (15 aphids/stem) have been found in one isolated case in south Lambton county. Anyone finding aphid populations past threshold and who would be willing to take part in a field trial is encouraged to contact Peter Johnson (519-318-7769). There is virtually no Ontario data on aphid control at this stage of growth.

Concern exists over fields with herbicides applied the weekend of May

12/13, as low night temperatures (below 2C) may increase phytotoxicity in the crop. When temperatures drop too low, metabolism of the herbicide by the crop ceases. Hormone or phenoxy herbicides then interfere with head development, causing malformed heads and sterility. These symptoms do not become evident until after the head emerges. However, as emerged corn does not show frost injury symptoms from these temperatures, it is hoped that the wheat crop will not be affected in this way.

**Weeds as Observed in Essex/Lambton and Huron/Bruce
as of May 15, 2007**

Species	Stage	
	Essex/Lambton	Huron/Bruce
Annual grasses	70% 1-2 leaf, 30% 3-4 leaf	1-2 leaf
Proso millet	3-4 leaf	
Yellow foxtail	3-4 leaf	
Ragweed	4 leaf	2 leaf
Wild buckwheat		1 leaf
Lambsquarters	8 leaf plus	10% 2 leaf 70% 4 leaf 20% 6 leaf
Velvetleaf	1 leaf	
Prostrate knotweed		3-4 leaf
Tufted vetch		Patches 1'-2'
Annual sow thistle		2-3 leaf
Wild mustard		2-3 leaf
Stinkweed	Full flower	Beginning to flower

Slugs Will be Active Soon

**Tracey Baute, Field Crop Entomologist,
OMAFRA-Ridgetown**

Slug activity will be starting shortly and wet weather helps them live happily in your fields. Last fall was also wet and ideal for slugs to lay their eggs and multiply which is what carries over into this spring. Slug eggs typically hatch mid to late May and the juveniles that emerge from these are the ones that can cause the most injury. No till soybeans and canola with heavy residue and wheat underseeded with red clover that has to be ripped up and planted to soybeans instead are most at risk.

Though corn may also be their food of choice, the growing point is rarely fed on and the crop can usually grow out of the injury, as long as slug populations are not extreme and the weather conditions do not continue to favour prolonged slug feeding.

If conditions help the crop grow quickly, heavy damage may be avoided, but if weather conditions turn to cool and wet and the crop is slow to grow, the slug feeding may get ahead of the crop. Slug can hollow out the seed causing poor germination and gaps in the stand. On larger plants, slugs feed on the leaves, leaving ragged holes causing a skeletonized appearance on leaves. Feeding damage can resemble that caused by hail and severe defoliation can result (**Figure 1**). If scouting during the day, you might see

a silvery shiny trail left on the soil or leaf surface as a result of their slime.

Slug baits are available for field crops but are very expensive and are only financially feasible for high valued crops. Applying baits just after May 24 will give the best control according to Dr. Ron Hammond, the Slug Guru of North America from Ohio State University.

No insecticides are effective on slugs so cultural control through tillage and residue removal is the best bet for anyone with a history of slugs. Try to remove as much



Figure 1. Slug feeding damage on soybeans. (Photo Credit: Ron Hammond, Ohio State University).

residue as possible on the surface so that the slugs do not have shelter from the sun and heat. Tillage is best at breaking up the residue but for dedicated no tillers, using any device that can help to remove residue directly around seed bed may reduce slug damage to seeds and emerging seedling.

There are always reports of “homemade slug concoctions” that someone

claims to have worked, whether it’s the 28% nitrogen and water solution or liquid potash but experience has shown that these only successfully work 1 in 3-4 cases and requires you to spray 2-3 consecutive nights in hopes of even partial control. If you have the time that’s fine but many are still busy planting and are pulling late enough nights already. If slugs are a continuous issue in your fields, you may need to consider tillage each year and schedule in some time in the fall to monitor for slugs on your farm.

Cutworm a Potential Concern

**Tracey Baute, Field Crop Entomologist,
OMAFRA-Ridgetown**

Now that the corn is starting to pop up out of the ground, it is time to be monitoring for black cutworm damage. Moth trap counts have been high in neighbouring states and wind fronts over the last month could easily carry them into Ontario from the southern states where they overwinter.

Adult moths that fly in are looking for green vegetation to lay her eggs on. Most at risk are fields that had winter annual or perennial weeds like chickweed, volunteer wheat, rye cover crop or any green vegetation left on the soil surface this spring. No till fields with heavy crop residue can also be at risk. As well, early emerging corn fields can be a target now for moths currently flying in. Corn growers along Lake Erie have a history of cutworm issues but other areas could also be impacted.

The young larvae that hatch from the eggs can live off of the weeds until the crop comes up. Unfortunately in this case, by the time they move over to the corn, the larvae are larger and can do more damage to the crop.

Black cutworm larvae are dull grey to black in colour. They do not have any distinct markings though they do have a few small

black pinhole size dots along their sides and they have a lighter underbelly (**Figure 1**). They feed at night and will curl into a C when disturbed. When small, the larvae will feed on the corn foliage but as they mature, the plant may be hollowed out or may be completely cut off above or just below the ground level.



Figure 1. Black cutworm larva. (Photo Credit: Tracey Baute, OMAFRA)



Figure 2. Foliage feeding by young larvae. (Photo Credit: Marlin Rice, Iowa State University)

Scout at least 5 locations for every 25 acres of field. Look for wilting plants, foliage feeding or for plants being cut off at the ground. Dig around damaged plants and search through the soil, as cutworms like to hide under soil clods during the day. Also, make note of the size of the cutworms found. The smaller larvae are the easiest to control and therefore early detection of this insect is critical.

If 5 to 10% of plants show leaf feeding injury, rescue foliar treatments at that time are very effective (**Figure 2**). Once corn reaches the 5-leaf stage and begins to produce roots at the base of the plant, the risk has passed. Several foliar rescue treatments are available (**Table 1**). If the majority of the larvae found are larger than 1 inch (2.5 cm), then it is too late as most of the damage has been done and insecticides will not control the larger sized larvae. Foliar insecticides

will be most effective when sprayed at night, when cutworms are most active. If you have used Poncho insecticide seed treatment, don't assume that you are protected. Poncho only works well on the

younger, smaller black cutworm larvae but does not work as well on more mature larvae that are 1 inch or larger. Cruiser seed treatment is not registered for cutworm control.

Table 1. Recommended foliar insecticides for black cutworm control in corn.
(Source: OMAFRA Publication 812, Field Crop Protection Guide 2007-2008)

Active Ingredient	Trade Name	Rate per ha (per ac)	Comments (Days to harvest, label precautions, etc.)
permethrin	Pounce EC	175–390 mL (70–156 mL)	Seedling stage only. Apply under warm, moist conditions in evening or night when cutworms are most active. Do not disturb soil for 5 days after application.
cypermethrin	Ripcord 400 EC	175 mL (70 mL)	Seedling stage only. Apply under warm, moist conditions in evening or night when cutworms are most active. Do not disturb soil for 5 days after application. 21 days to harvest.
chlorpyrifos	Lorsban 4E	1.2–2.4 L (480–960 mL)	Seedling stage only. 70 days to harvest.
	Pyrinex 480 EC		
cyhalothrin-lambda	Matador 120 EC	83 mL (34 mL)	Seedling stage only. Ground or aerial application. Apply under warm, moist conditions in evening or night when cutworms are most active. Do not disturb soil for 5 days after application. 3 applications/season, 2 may be by air. 14 days to harvest.

Frost Injury in Wheat?

Albert Tenuta, Field Crop Plant Pathologist, OMAFRA, Ridgeway

There have been limited reports of frost injury in wheat this week from the Ridgeway/Highgate (East Chatham-Kent) and the Rodney (West Elgin) area. The damage as expected could be found on light soils (sand to sandy-loam) and often in the low areas of the field. Leaves injured by spring frost appear

water-soaked at first, then dark green. These injured leaves dry out and quickly turn brown or injury similar to "sun scald" in corn. With the forecast for cold night-time temperatures and the potential for frost again on Monday May 22nd the potential exists for injury especially in advanced fields entering the flag leaf emerged to boot stage. (**Table 1**).

An interesting note - prior to 2004, significant spring frost injury in winter wheat had not been seen in the southwest for over 20 years but it has now occurred 3 out of the past 4 years (2004, 2006 and 2007).

Table 1. Temperatures that cause freeze injury to wheat at spring growth stages and symptoms and yield effect of spring freeze injury.

Growth stage	Approximate injurious temperature (two hours)	Primary symptoms	Yield effect
Tillering	12 F (-11 C)	Leaf chlorosis; burning of leaf tips; silage odor; blue cast to fields	Slight to moderate
Jointing	24 F (-4 C)	Death of growing point; leaf yellowing or burning; lesions, splitting, or bending of lower stem; odor	Moderate to severe
Boot	28 F (-2 C)	Floret sterility; spike trapped in boot; damage to lower stem; leaf discoloration; odor	Moderate to severe
Heading	30 F (-1 C)	Floret sterility; white awns or white spikes; damage to lower stem; leaf discoloration	Severe
Flowering	30 F (-1 C)	Floret sterility; white awns or white spikes; damage to lower stem; leaf discoloration	Severe
Milk	28 F (-2 C)	White awns or white spikes; damage to lower stems; leaf discoloration; shrunken, roughened, or discolored kernels	Moderate to severe
Dough	28 F (-2 C)	Shriveled, discolored kernels; poor germination	Slight to moderate

Specialist's Corner

Wind Idiots

**Helmut Spieser, Agricultural Engineer,
OMAFRA, Ridgetown**

Sprayers operating in windy conditions are getting noticed. It's becoming too common this spring when people complain to me every time they see spraying going on at the same time as soil is being blown by the wind.

A couple of farmers have asked for maximum wind speeds for different nozzle designs. This information just doesn't exist. Even if it did and you were operating below that maximum wind speed, if you caused spray to drift you could be charged. Get out of your tractor or sprayer cab and measure the wind speed

every time you spray. If my van carrying two canoes is buffeted by a crosswind as I'm heading north on Highway 79 and you are spraying beside the highway – "you need to use better judgment and don't be an idiot".

Five reasons to buy and use a wind meter.

- provides a precise measure of wind speed
- provides a digital readout
- shows conditions fall within label recommendations
- costs less than an hour of a good lawyer's time
- shows due diligence on your part

If you don't have a windmeter, maybe the neighbour could measure it for you and call you on your cell, right after he has spoken with his insurance company.