

MB Sunflower Crop Report

Friday August 2, 2013

Crop

Due to cool, wet conditions over the past week and a half, sunflower development has been delayed. Early planted fields are at the R-5 stage, at which point the sunflower is beginning to flower.

As the crop approaches the staging for an insecticide or/and fungicide application a reminder to ensure that insects are meeting threshold levels and warrant spraying. In addition, the NSAC requests that producers follow the "**bee-friendly**" steps when applying insecticide. See attached.

Insects

Insect scouting and control measures for seed head insects is between R-5.1 and R-5.5, remember to use the economic thresholds for deciding on control measures. Bud moth frass has been seen on axils of sunflower plants, lygus bug, banded sunflower moth and sunflower seed maggot have also been seen in fields.

Banded Sunflower Moths Larvae feeding has been detected in sunflower seeds. Damage is still possible in fields that have already been sprayed with an insecticide as the larvae may have been protected within the head. Each larvae can feed on approximately 5 to 7 seeds through development. The economic threshold is 1 adult per 100 sunflower heads during the day.

Lygus bug continue to be present and found in sunflower fields around Manitoba. It is important to continue monitoring sunflower fields as canola or hay is swathed in neighboring fields. Sunflowers are susceptible to damage until the seed shells are sufficiently hard to prevent penetration by the insect. Damage is more of a concern in confection sunflowers and oilseed sunflower seed marketed for the baking industry.

Disease

In general, disease incidence in sunflowers remains low with incidence of downy mildew and basal stock rot found in some fields.

Sclerotinia development still seems to be slow. Continue to monitor for sclerotinia as moisture arrives throughout the province.

With fungicides available for the treatment of head rot control, prevention is key. Fungicide timing for Head Rot Control is R-5.1 with a second application timing 10 to 14 days after the first application if conditions warrant.

Limiting Factor



Figure 1. R-5.1 is the crop stage at which 10% of the sunflower head has flowered, not 10% of the field.



Figure 2. Early instar Banded sunflower moth larvae are cream colored with a dark head capsule and feed on sunflower kernels.



Figure 3. Sclerotinia Basal Rot lesion.



Figure 4. Sclerotinia Wilt. Can occur at any time between emergence and maturity.

July 2013

Maximizing Profits in Confection Sunflowers: Managing Seed Feeding Insects While Preserving Pollinators

By: Dr. John Gavloski, Entomologist, Manitoba Agriculture, Food and Rural Initiatives.

Growers of confection sunflowers are sometimes faced with tough decisions when it comes to controlling those insects that feed on sunflower seeds. In the Canadian prairies, the biggest concerns are lygus bugs, banded sunflower moth, and red sunflower seed weevil. If levels of any of these insects are high enough that damage to seeds exceeds tolerance levels, then seed quality may be downgraded. Complicating the problem is the fact that insecticide timing is not the same for all of these insects, which increases the need for vigilant scouting during the flowering period.

Insecticide applications that are not needed are not only an unnecessary expense to growers, but can cause additional harm by potentially decreasing yield through reduced pollination if these insecticides are not timed and applied carefully. Of course, for beekeepers that may have hives nearby, the losses can even be greater.

It is important for sunflower growers to recognize that even with modern varieties, pollinators do increase yield. This has been demonstrated in several different studies. Yield has been found to increase as much as 48.8%, and oil percentage to increase as much as 6.4%. So a big challenge for sunflower growers is how to effectively manage the insects that feed on the seeds, should they reach levels of economic importance, while minimizing the yield losses due to reduced pollination. The following four steps will help ensure the most economical return for sunflower growers, and minimize harm for beekeepers.

1) Assess whether insecticides are really necessary, and what insects are of greatest concern.

This is where crop scouting is necessary. If you are not sure of the insects you are looking for, consult the “Sunflower Production Guide” (available through NSAC or MAFRI). If one of the potential pest insects is at levels that could cause economic damage, the most appropriate insecticide may depend on what is the insect of greatest concern.

2) If needed, apply insecticides in the evening!! This is probably the biggest step a producer or applicator can take to minimizing damage to pollinators. Honey bees, and many other pollinators, will forage for nectar and pollen during the hotter periods of the day, and return to the hive at night. If the insecticide is applied when the bees are not in the field, pollinator kill can be significantly reduced. The bees will return to the field the next day, but the effect on the bees will be less depending on the insecticide (see table 1 below). Early morning applications may also avoid direct contact with bees, but as a general rule evening applications are less hazardous than early morning application. However, if because of drift concerns or for other reasons evening applications are not possible, early morning applications are certainly better than applications during the hotter parts of the day when bees are foraging.

3) Select insecticides that provide effective control of the targeted pests while minimizing impact on bees. For the 3 primary insect that feed on the seeds of sunflower seeds in Manitoba there are 4 active ingredients registered (see table 1).

Table 1. Hazard ratings for honey bees for insecticides used to control seed feeding insects in sunflowers.

Insecticide	Registered for	Hazard Rating for Honey Bees	Residual Hazard (days) ^a
Matador	Lygus bugs	1	>1
Ripcord / Up-Cyde	Sunflower seed weevil	1	<1 - >3
Lorsban / Pyrinex/ Nufos / Citadel	Sunflower seed weevil	1	2 – 6
Coragen	Banded sunflower moth	3	-

Hazard Rating 1 = Very poisonous to bees; do not apply to crops or weeds in bloom unless bees are kept off for the period that residue on the crop is a hazard. 3 = Not very poisonous to bees; may be applied with minimum hazard to bees.

^a**Residual hazard** represents the average time in days that residues poisonous to bees will remain on foliage (may vary with formulation and weather).

A more detailed table of “Field Hazard of Insecticides to Bees” can be found on page 439 of the Manitoba “Guide to Field Crop Protection 2013”

If Lygus bugs are of greatest concern: Matador would be the most appropriate choice, and is the only insecticide registered for Lygus bugs in sunflowers. If you apply Matador in the evening, when bees are not foraging on the crop, you will minimize harm to pollinators, and help preserve the benefits provided by pollinators.

If banded sunflower moths are the greatest concern: Coragen may be the most appropriate choice. Coragen is not very poisonous to bees, and may be applied with minimal hazard to bees.

If sunflower seed weevils are the greatest concern: registered insecticides include cypermethrin (Ripcord or Up-Cyde), or chlorpyrifos (Lorsban, Pyrinex, Nufos, Citadel). Applying cypermethrin in the evening, when bees are not foraging on the crop, will minimize harm to pollinators, and help preserve the benefits provided by pollinators. The chlorpyrifos label states “do not use on flowering crops or weeds”. Although registered for sunflower seed weevils, it is illegal to use chlorpyrifos on flowering crops. Fortunately, sunflower seed weevils have not been an economical concern on sunflowers in Manitoba in many years.

Table 2. Label restrictions regarding pollinators for insecticides used to control seed feeding insects in sunflowers.

Insecticide	Label restrictions regarding pollinators
Matador	Do not apply this product to flowering crops or weeds if bees are visiting the treatment area. Spray deposits should be dry before bees commence foraging in treated crop.
Ripcord / Up-Cyde	Avoid spraying when bees are foraging. Spray deposit should be dry before bees commence foraging in treated crop.
Lorsban / Pyrinex/ Nufos / Citadel	Do not apply while sunflowers are flowering
Coragen	None

4) Communicate with beekeepers. Sunflower growers and beekeepers are actually doing each other a valuable service. Sunflowers provide a late season source of nectar and pollen for the bees. And in return the bees, through their pollination, can significantly increase yields and seed value. So there should be mutual appreciation on both sides for the valuable services that enhance the value of each operation, and an understanding of why communication can be so important.

Beekeepers understand that protecting the value of a crop may require insecticide application and they appreciate knowing when their bees may be at risk. If you know there are hives being kept near your sunflower field, contacting the beekeeper to let them know that an insecticide application is necessary, the insecticide that is being used, and steps that are already being taken to reduce bee kills, provides them with valuable information to help them decide if they should take additional measures to minimize damage to bees. Some may cover or move hives if necessary. But regardless, this communication is good.

So to sum up, good cooperation between sunflower growers and beekeepers, and wise choices in insect management practices, can both maximize yield and economic return for sunflower growers, and minimize harm to bee colonies.