Issue 3 – June 5, 2024

Fruit Crop Report

Seasonal Reports | Weekly Weather Maps | Fruit Crops Production | Vegetable Crops Report

Provincial Overview

Strawberry transplanting is mostly completed into new fields. In established fields, there are reports of some winterkill of strawberry plants in low spots where ice-damming occurred after several melt-freeze cycles during this past mild winter. Established strawberry fields early/mid-season cultivars (i.e. AC Wendy) are in early bloom. With the wet weather leading up to and into the bloom period, strawberry growers will start applying preventative fungicides for control of Grey Mold. Strawberry growers will also start scouting for tarnish plant bug. Saskatoons, haskap (blue honeysuckle) and sour cherries have completed flowering and have started forming green fruit. Raspberries will start flowering later this week.

Commercial Fruit Crops- Timely Topics

Strawberries

Control of Grey Mold (Botrytis) in Strawberries

Figure 1: Grey mold on strawberries.

Grey mold (sci. name *Botrytis* spp.) can be quite common in strawberry fields with favourable wet weather conditions before and during bloom. Customers usually complain of off-flavored fruit if berries infected with grey mold are eaten. This disease affects blossoms and blossom stalks of green or ripe fruit. Infection usually starts in the blossom and may destroy the entire blossom stalk. The blossom infection can enter a dormant period in the calyx or hull, then become reactivated to cause fruit rot.

Symptoms & Environmental Conditions for Infection

The rot is soft and light brown in colour. The fungus may spread to other blossoms and berries through direct contact, or by spores that are brown or splashed. A fine grey powdery growth develops and infects blossoms, fruit stalks, fruit and other plant parts (see figure 1). Fruit rot and grey mold may appear on the picked fruit after one or two days.

Grey mold is favoured by shade or dense foliage in the bed and extended periods of excessive moisture. The likelihood of infection is increased by cool spring and summer temperatures, high humidity and rainfall. Fruit rot can also be favoured by factors that produce soft fruit, such as high application of nitrogen during fruiting.

Control

Typically need to control *botrytis* the year after since the spores overwinter on plant residue (see management table 1). **Critical timing is to control at bloom.** Continue on a 7- to 14-day schedule. Use the higher rate and/or shorter intervals when disease pressure is high (i.e. moist field conditions). General ratings of effectiveness of fungicides on botrytis from OMFRA efficacy ratings are, Very Effective: Pristine, Luna, Fontelis, Miravis Prime, Switch, Button, Scala, Impala, Elevate; Effective: Supra Captan, Captan.

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Table 1: Strawberry Botrytis Grey Mold Management Chart

Trade Name	Fung. Group	Trade Name	Fung. Group
Senator 50SC /Thief 50SC	1 1	Merivon/ Empire WG	7,11
Cantus WDG	7	Kenja 400SC	7
Pristine WG	7,11	Fontelis*	7
Luna Tranquility	7,9	Miravis Prime	7,12
Luna Sensation	7,11	Switch 62.5WG /Button	9,12 9,12
Sercadis	7	Scala SC /Impala	9 9
Intuity	11	Serifel	BM2
Elevate 50WDG*	17	SerenadeOPTI	BM2
Diplomat 5SC	19	Actinovate SP	BM2
Timorex Gold (tea tree oil)	46	Maestro 80WSP	M4
ProBLAD	BM1	Supra Captan 80WSP/Captan 480SC	M4
Double Nickel	BM2	Folpan 80WDG	M4
Regalia Maxx	P5	Botector	NC
OxiDate	NC	Echo NP/ Bravo ZNC	M5

Above table provides general information only. Read pesticide label for usage and rates.

*Highlighted most effective.

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Preventing Seedy-End in Strawberries: Tarnish Plant Bug Scouting and Control

Figure 1: TPB nymph.

Plant bugs are widely distributed in North America and have one of the widest host plant ranges of any insect pest. The Tarnished Plant Bug (TPB) (aka Lygus bug) feeds on most field, forage, fruit, vegetable and ornamental crops and a wide variety of weeds and many other plants. It is the most important insect pest of strawberries and can be the primary cause of seedy-end berries (Figures 2-5).

Biology

The TPB overwinters as an adult. In early spring, they feed on early emerging weeds and crops, including strawberries. Eggs are laid in plant tissues and when they hatch, the nymphs begin feeding. The nymphs are present and develop through May and June and become adults in late June to early July (figure 1). These adults repeat the life cycle and both nymphs and adults are found on host plants through the remainder of the summer until fall, when only adults will be present. In the prairies there are two generations per year with a third generation in longer summers. Adults are 5-7 mm in length and 2.5 mm wide. They vary in colour from black to dull brown to pale green. There is a characteristic triangular marking in the middle of the back. The nymphs are pale green in colour, resembling aphids but are much more active. Older instars reach a length of about 5 mm and are darker green with 5 spots on their back.

Symptoms & Damage

Feeding by TPB has two effects. Feeding on flower blossoms and developing fruit causes apical seediness (seedy-end) in strawberries and crumbly berry in raspberries. Feeding also reduces plant vigour by removal of plant nutrients. Most damage occurs after petal fall. Damage caused by cool weather during berry formation, poor pollination and some nutrient deficiencies are commonly mistaken for feeding damage by TPB. Control is typically at bloom.

Monitoring

Early monitoring of fields is important if damage is to be minimized. Growers often sample by tapping the blossom clusters of strawberry plants into shallow white trays. This works fine for the nymphs (the most injurious stage). However, the adults fly quickly when disturbed and are often unseen. Because the adults can fly long distances, an outbreak may occur suddenly. Regular blossom sampling and net sweeping is needed to detect such infestations. Particular attention should be given if a nearby hay field has been cut recently. Alfalfa hay is a preferred host for TBP and once cut, the adults will move out in search of new host plants for feeding and laying eggs.

Scouting Techniques

During the bloom period growers should scout every 2 days or so. Scout 20-50 flower clusters randomly across the field by tapping into a white tray or pan and record the number of nymphs. The larger the strawberry field the more flower clusters should be sampled. Economic threshold to begin chemical controls is 1 nymph in 4 flower clusters.

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Cultural Control Strategies

A University of Massachusetts extension factsheet suggests the following cultural control strategies as well: a) avoid mowing nearby fields during bloom or early green fruit stage; b) control weeds in and around the strawberry field which can act as alternative hosts; and c) avoid planting strawberries near alfalfa which attracts TPB.

Figure 3: Fifth instar tarnish plant bug nymph stage.

Figure 4: Fifth instar tarnish plant bug nymph stage.

Figure 5: Seedy-end strawberry.

Control of TPB and Protection of Pollinators

Since the most effective time to control and prevent damage to the flower is when strawberries are at bloom stage it is important to take all precautions to protect the pollinators that are visiting the plants at this time (table 2). Apply insecticide when honeybees and other pollinators are least active, early in the morning or at dusk.
Remember that these pollinators are required for fruit set to occur and increase berry yields.
One or two sprays at early and mid-bloom are usually quite effective at controlling the first generation of nymphs.

Table 2: Strawberry Tarnish Plant Bug Management Chart

Trade Name	Insecticide Group	Bee Toxicity*	Trade Name	Insecticide Group	Bee Toxicity*
Up-Cyde 2.5EC	3A	Very	Rimon 10EC	15	Moderately
Decis 100EC	3A	Very	Beleaf 50SG	29	Moderately
Poleci 2.5EC	3A	Very	Silencer 120EC	3A	Very
Labamba	3A	Very	Matador 120EC**	3A	Very
Cormoran	4A,15	Very	Aceta 70WP	4A	Moderately
Zivate	3	Very	Assail 70WP	4A	Moderately

* Source PMRA Environmental Assessment Division. Refer to label for insecticide toxicity to bees.
Note: Matador continues to be registered for use on strawberries but will not be sold by the distribution company in western Canada in 2024. **The above table is general information only. Read pesticide label for usage and rates. Current to May 2024.

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References

Province of Manitoba | agriculture - Strawberry Production (gov.mb.ca)

Province of Manitoba | agriculture - Commercial Strawberry Production on the Prairies- Guides and Publications (gov.mb.ca)

Fruit: Strawberry IPM - Tarnished Plant Bug | Center for Agriculture, Food, and the Environment at UMass Amherst

High Tunnel Strawberry Trial Update

Early Season Strawberry Production in a High Tunnel Trial

June-bearing strawberries started last August and over wintered were first harvested May 21 in the high tunnel. Harvesting is done twice a week (see figures 6,7). Day-neutral strawberries and June-bearing strawberries planted in late April/ early May show good vigour and growth.

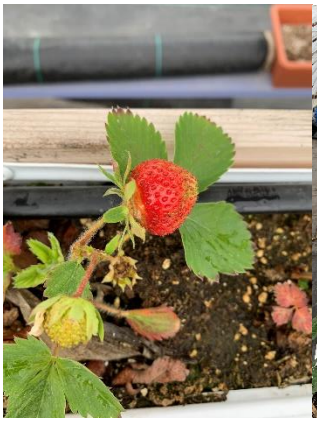

Figure 6: June-bearing ripe berry in the high tunnel.

Figure 7: High tunnel A-frame strawberry planting in rain troughs.

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