

BC Cranberry IPM Bulletin








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Project Overview

-  Started in 2017
-  Published 5 out of the last 6 years
-  Informed growers of current insect, disease, & weed pressures
-  Provided pictures for pest identification
-  Recommended tips for effective chemical control

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Please note: The following recommendations are based on field monitoring data from cranberry fields in all regions in British Columbia. Not all recommendations listed in this newsletter are applicable to all fields. Each cranberry field has unique insects and diseases. Field monitoring is strongly recommended before making any pest management decisions.

PLANT DEVELOPMENT

Berry development is well under way. Fruits range in size from pinhead to fully sized and starting to show colour. Unfortunately the less than ideal weather we had during bloom has prolonged bloom which is causing this mixture of progression within the same fields. It is hard to say whether the fruits will catch up to make for a uniform crop.

FIREWORM & SPARGANOTHIS FRUITWORM

Quite a few second generation fireworm sprays have now been applied. Post spray checks are crucial after a spray application. With such variable weather lately some sprays have been ineffective if precipitation occurred after application. Monitor fields for dead larvae (darker in colour sometimes black, and shrunken) and sick larvae (lethargic, slow to move, darker yellow and starting to turn darker). Some chemicals can take up to two weeks for full efficacy so if you are still seeing live fireworm two weeks post spray a second application may be necessary.

Some indicators that a spray has gone wrong are; finding wiggling normal coloured larvae, larvae have greatly increased in size after you sprayed an insect growth regulator insecticide- this should stall larvae progress, berry and upright damage in certain areas (very edge, corners, in-between sprinklers, around one sprinkler) this can tell you that there's a blocked sprinkler, coverage is poor, chemigation pressure is too low.

Large healthy larva



Sick larva



Dead larva



Fireworm Damage



1



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E.S. Cropconsult

GIRDLER

Girdler moth flight was high in the past couple weeks, this was likely peak flight. Girdler moths prefer hot and dry weather so it can be unclear if the peak we saw was indeed the peak, if we do get a stretch of hot weather moth flight could peak up again.

Once peak flight occurs the timing to apply nematodes is 2-3 weeks after, time this application for a cool overcast period to ensure nematodes stay alive. Getting on a rotation with nematodes and sanding is a good plan to keep populations low.



TIPWORM

Now that bloom is close to being over it's a good time to think about tipworm control. If high levels of damage is present on your farm apply an insecticide once bloom is over and pollinators have been removed from the farm. Monitoring larvae under a microscope can help ensure effective timing.

Always consult your marketing agency for information on MRLs and pesticide products for various markets before applying pesticides.

2

CRANBERRY FRUITWORM




When your farm is at significant fruit set and moths are flying an insecticide should be applied to prevent damage to berries. Unlike fireworm, the egg of the cranberry fruitworm is laid on the fruit and then larvae directly burrow into the fruits upon hatching. Since the control is being applied when egg laying is expected a chemical with good sticking ability and ovicidal properties are a good choice for this.

Bloom was prolonged this year and berry size is variable within the same field, it is likely two sprays will be necessary for this pest. If you have a history of this on your farm sprays should be timed 10 days apart. Keep in mind poor weather conditions will affect how long the chemical can stay effective for.



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Integrated Pest Management

-  “Integrated Pest Management is a decision-making process for managing pests in an effective, economical and environmentally sound way.”
-  Fields are monitored weekly for insects, disease & weeds from breaking dormancy until the end of August.
-  A variety of monitoring procedures and tools are used

Fireworm

Fireworm are now active in most fields and regions. Depending on the pest pressure of the farm many fields remain below threshold to spray but its good to keep checking fields to ensure fireworm larvae are within manageable levels to avoid crop loss. With buds starting to open up especially around field edges there are some nice obvious tents present, otherwise keep opening up tight buds because larvae may be present there. See below for examples of tents.

Monitoring & Pest ID- Fireworm can be anywhere from 0.5mm to 8mm in length with a black head. Most larvae found this week are on the smaller side.



When making decisions in regards to spraying for fireworm keep spring weather conditions in mind; check the forecast to ensure no precipitation or frost is in the forecast. Water applied or received after pesticide application will affect the spray efficacy.

Keep the pest and size of larvae in mind when choosing a chemical and timing of the spray. If most larvae are tiny you could pick an insecticide with ovicidal properties (doesn't allow eggs to hatch or kills larvae as they hatch) however if most larvae are larger you might want to pick a contact insecticide or Insect Growth Regulator.



Sparganothis Larva
Note the translucent head capsule



Blackheaded Fireworm Larva



Fireworm tent
One upright, using the leaves from the tip, neat



Sparganothis tent
Messy, contains multiple uprights

Blackheaded Fireworm Vs Sparganothis Fruitworm ID

Post Spray Checks

- 🌱 Monitoring after spray application
- 🌱 3- 7 days post application
- 🌱 Check for sick vs dead vs live larvae



Pheromone Trapping

- ❧ Pheromone traps are an effective tool in monitoring cranberries
- ❧ Traps are placed early in the season
- ❧ Checked and scraped weekly
- ❧ Change pheromones & glue inserts to avoid errors and inconsistencies in data
- ❧ Predict larval hatch by monitoring moth flight



Moth Identification

Fireworm Moth



Sparganothis
Fruitworm



Cranberry Fruitworm







Fireworm & Sparg



Girdler



Visual Monitoring

-  Take several samples around field edges as well as inner samples
-  Check tips of uprights for larvae (fireworm, sparg, tipworm)
-  Check for berry damage
-  Scan for disease symptoms on uprights, vines, & berries

Types of insect berry damage

Identifying what pest caused damage is important to plan for future insecticide sprays. Damaged berries can all look very similar but there are some slight differentiating features to the damage each pest causes.

Fireworm

Fireworm damaged berries can change shape as time progresses. In the early stages, fruit will be slightly shrivelled and progresses to completely shrivelled or rotten. Check the surrounding areas in the field for dead brown skeletonized leaves that fall apart to the touch (burnout), moths flying in the area, and old empty tents.



Sparganothis fruitworm

Sparganothis damaged fruits tend to keep their shape and firmness. This is due to the sparganothis mostly feeding on the seeds and leaving the rest of the fruit intact. Some surrounding fruits in the area will have small chewing marks on the exterior of the berry. There won't be any vine damage like you would see with fireworm.



Cranberry fruitworm

Fruitworm damaged berries will be completely hollowed out and filled with frass. There will be a large clear exit hole on the side of the fruit and potentially other damaged fruits attached. Cranberry fruitworm will not damage the surrounding uprights. Check inside berries for the presence of green fruitworm larvae.





Blackheaded Fireworm

Cranberry Fruitworm



**Sparganothis
Fruitworm**

Cranberry Tipworm



Diseases of Concern

Twig blight open spores



Rosebloom Infestation







Cottonball Infection







Fruit Rot



Pesticide Application

-  Always read and follow the label
-  Some chemicals are less rain fast than others
-  Keep spring conditions as well as potential frost events in mind before applications
-  Rotate chemical modes of action to reduce the chance of resistance

Pollinator Safety

-  When pollinators are on the farm and foraging in the fields take care when making chemical applications (insecticides & fungicides)
-  Try to apply products at night or early morning before pollinators are active
-  Covering hives can be helpful if spraying products toxic to bees
-  Some products leave a smell after application that will deter pollinators from coming in the field.

Growing Degree Days



Helpful at predicting insect hatches

Growing Degree Days Based on YVR				
	2023	2022	2021	31 year average
January 31 st	165.7	130.5	164.5	129.19
February 15 th	249.6	203.1	206.3	201.1

So far we are ahead of the 31 year average so it may be an early season as far as plant development & insect hatches if this trend continues.

This is good to keep in mind as well when applying pre-emergent herbicides like Casoron, the plant injury point may occur earlier than it would in a late year such as last year.

Recommendations

Recommendations

- Monitor for fireworm. If fireworm are found in more than 50% of samples taken throughout the field, apply a registered insecticide. Keep spring conditions in mind when choosing an insecticide.
- In fields with a history of cottonball, apply a fungicide when most of the field is in bud break stage. If infection levels are high, a second application can be done 10- 14 days later.
- If there is history of upright dieback in a field apply a preventative fungicide at bud elongation to prevent further damage.
- Monitor for new rodent damage. Set up trap stations in areas around the fields where rodents would frequent such as burn piles, other plants, and around buildings and shops.
- Monitor weed emergence. Alter herbicide practices for next year based on this year's weed presence.
- Keep frost protection detectors in fields and adjust to the changing weather accordingly. One frost event can be economically devastating to your crop. Frost can and will still occur in May and even June.
- Monitor for rose bloom. Spray fungicide when it begins to sporulate. If it is localized, you can spot treat using a backpack sprayer.

Early season recommendations from the May 9, 2022 Bulletin

Questions?

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