Orchard Outlook

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Winterizing Orchards

Orchard practices are performed following harvest to prepare orchard blocks for winter and get a jumpstart on the next growing season.

Fall herbicide application

A fall application of a pre-emergent herbicide can offer considerable benefits for weed control in 2018 if soil in the tree row is clear of leaf cover during application. The benefits of a fall application include a jump start on weed control and possibly avoiding the need to spray herbicide during the spring rush of orchard tasks.

There are several registered herbicides that can be applied in the fall before the soil freezes and when temperatures are above freezing. Perennia's trial work in 2016/17 evaluated the fall application of pre-emergent herbicides. **The results were shared at the 2017 NSFGA Orchard Tour, noting the following key messages shown in figure 2.**

- On the clay loam soil site, Alion, Sandea, Sinbar and Casoron provided the best pre-emergent weed control. Weed cover using these products was 5-10% when evaluated on July 18th.
- On the sandy loam soil site, Chateau and Sinbar provided the best pre-emergent weed control. Weed cover using these products was 3-6% when evaluated on July 18th.
- There is no benefit to combining Alion with Chateau.

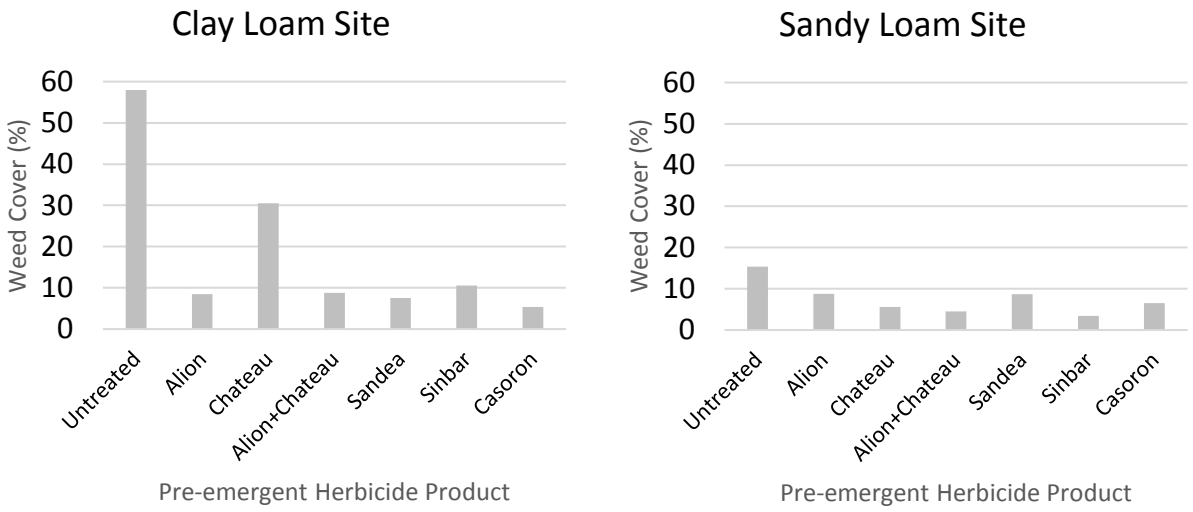

Figure 2. The effect of pre-emergent herbicides on weed cover, evaluated at two trial sites. Treatments were applied on November 7, 2016 at a rate of 375 ml/ha Alion 200 SU, 420 g/ha Chateau 51 WDG, 70 g/ha Sandea 72 WDG, 4500 g/ha Sinbar 80 WDG, and 175000 g/ha Casoron G-4. With the exception of Casoron, all treatments were applied at a water volume of 200 L/ha and with the contact herbicide Ignite 15 SN (glufosinate) 5000 ml/ha.

Notes on Herbicide Products

- Alion (indaziflam) and Sinbar (terbacil) provide long residual control of a broad spectrum of annual grasses and broadleaf weeds. Do not apply Alion or Sinbar to orchards prior to their 4th leaf.
- Chateau (flumioxazin) provides good residual control of many annual weeds when applied in the fall. Do not apply Chateau to green bark or foliage, fine-textured clay soils, orchards in the planting year, or soils with greater than 5% organic matter.
- Casoron (dichlobenil) is a very effective residual herbicide for a wide range of annual grasses, broadleaf weeds and certain perennials. Method of application may be the main drawback since Casoron is a granular herbicide and needs to be applied by hand spreader or tractor-mounted spreader. Casoron should not be applied to coarse sandy soils or to orchards in the planting year.

See the Guide to Weed Management in Orchards for more information.

Fall soil pH adjustments

The pH of orchard soil should be between 5.5 and 6.6 (target 6.0) because nutrient availability is best within this range. Fall is a great time to make soil pH adjustments because it gives time for limestone to neutralize the acidity before the next growing season. Also in the fall, the dust

from limestone applications will not interfere with growth or bloom. When adjusting soil pH, consider the following recommendations.

- The results of a soil test will give a lime requirement based on your soil type and pH.
- Apply calcitic limestome unless magnesium is needed from dolomitic limestone. The nearest source of calcitic only-lime for most NS growers is the Antigonish County quarry.
- A surface application of no more than 3 tonnes/ha of limestone in any one year is recommended because higher volumes could be washed away and are ineffective.
- If the lime is being worked into soil then you can follow the recommended rate on your soil report. Incorporating lime into soil will show benefits sooner than surface application.

Soils in the valley are naturally acidic, and nitrogen fertilizers will slowly acidify soils over time. As soils acidify, nutrients such as calcium, potassium and phosphorus are less available for uptake by fruit trees. Other nutrients such as manganese and aluminum become more available and uptake by fruit trees can become excessive.

More information is available in the Orchard Fertility Guide.

Reducing the risk of apple scab in 2018

Figure 1. A buildup of old apple scab infections lingering on the orchard floor is the main source of ascospores that cause primary infections in the following season.

The apple scab disease is caused by a fungus that overwinters in infected apple leaves and fruit on the orchard floor. These infected tissues are sites for inoculum to develop, and by early spring the ascospores are ready to infect developing apple tree tissues. The good news is that growers can reduce the scab spore inoculum for the 2018 growing season by accelerating the decay of infected tissues in the fall.

Consider the following strategies in your apple scab management program.

- **Shredding all fallen apple leaves.** Flail chopping all plant matter on the orchard floor in November can reduce the number of scab spores by as much as 85%. Fallen leaves under the tree canopy must be blown into the alleyway to be shredded.

- **Shredding only leaves in the alleyways.** Flail chopping in only the alleyway can reduce scab spores by as much as 50%.
- **Shredding leaves in April.** Flail chopping in April (3-4 weeks before bud break) will invert about 50% of the leaves, preventing the discharge of spores into the air. Although, this practice could be difficult if the weather is wet and unpredictable.
- **Applying urea.** Spraying urea onto all leaves on the ground can reduce spores by about 66%. The recommended rate is 50 kg/ha in 1000 L/ha of water. Urea should be dissolved in warm water before putting it in the tank. It could be applied with an orchard sprayer with only the lower nozzles turned on, however a boom-type field sprayer is recommended for best results. The 50 kg/ha rate will supply approximately 23 kg/ha of nitrogen to the ground, so nitrogen application next spring should be adjusted accordingly.
- **Mix n' Match.** Combining shredding and urea applications can produce the best results.

The main benefit of accelerating the decay of infected tissues is reducing the quantity of ascospores that are released in spring, which lowers the risk of primary scab infections. A lower risk of primary infections should help to prevent secondary infections. Do not reduce the number of fungicide applications because scab pressure is still high in orchards.

Winter rodent control

Rodents feed on tree bark in the fall and winter when other food supplies are scarce. Early and prolonged snow cover increases the chance of damage from mice and vole feeding on trees in orchards. Orchard trees on dwarfing rootstocks are susceptible to damage throughout the life of the planting because the trunk is small and the bark is palatable. Damage from mice has resulted in tree decline in some orchards. Consider the following approaches that can reduce mouse damage over the winter.

- Mow ground cover to expose mice to predators.
- Clean up drop apples from the tree row and alleyways to remove attractive food sources.
- Be aware that using straw mulch can harbour mice.
- If rodent activity is observed (mouse tunnels, droppings and chewed apples), consider the use of rodenticide in bait stations or by broadcasting. Bait stations reduce the risk of poisoning other species and the control is longer-lasting.
- You may wish to place bait stations on the perimeter of the orchard where there is a risk of mice moving into the orchard from bordering fields, fence lines or ditches. Pay particular attention to orchard blocks that neighbour corn and soybean fields.
- Install tree guards, if feasible, on young trees. Remove after snow melt in spring to avoid fungal problems at the base of the trunks.

Consult the Orchard Rodent Control Guide for further information.

Upcoming Events

Date	Event	Location
November 2, 2017 /register by October 31	**Think Export Information Session** https://www.novascotiabusiness.com/events/think-export-information-session-kentville	Kentville
December 5-7, 2017	***Great Lakes Fruit, Vegetable and Farm Market Expo** www.glexpo.com	Grand Rapids, Michigan
January 24, 2018	**NSFGA Annual Convention** http://www.nsfga.com/	Old Orchard Inn, Greenwich
January 30-February 1, 2018	**Mid-Atlantic Fruit and Vegetable Convention** http://www.mafvc.org/	Hershey, PA
February 26, 2018 /waiting list	**International Fruit Tree Association** http://www.iftatravel.com/conference	Napier, New Zealand
February 21-22, 2018	**Ontario Fruit & Vegetable Convention** http://www.ofvc.ca/	Niagara Falls, Ontario

*I will attend the Great Lakes Expo from December 5th to 7th. Send me an email so we can connect!

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Michelle has a M.Sc. from the University of Guelph through her research with chemical thinning apple fruitlets. She likes developing solutions to real problems, which is why Michelle has experience as an extension assistant, content writer and has won awards for community involvement and leadership.