

APPLE PIPS

~ little things to grow from ~

2016 SEASON RE-CAP After coming through a mild winter due to the tail end of an extended 'El Niño' season, apple growers in Ontario were faced with a tumultuous spring. An unusually warm March expedited bud break and caused significant risk to warmer areas. Thankfully, most Ontario orchards came through spring unscathed. Pollinators were happy to work in our warm, dry bloom period and set us up for a strong crop. Hot temperatures following bloom made for some tricky thinning conditions. Thinning programs varied greatly through the province, and so did the results. More successful programs were ones based on the 'nibble thinning' strategy that employs multiple applications of various materials throughout the thinning window. Now into June, no rain. July, no rain. August, a few showers. This made for some tough decisions on how to use irrigation wisely and when to re-thin. Apart from varying degrees of quality issues brought on by lack of moisture, the crop was taken off at average to above average yields with excellent flavour!

From our family to yours - congratulations on another great growing season in the books!

Building Blocks to a promising 2017 starts Now!

ZINC

Zinc applications are valuable for correcting deficiencies as well as acting as an "anti-freeze" to aid in winter-hardiness. Yara's Zintrac (40% Zn) is the product of choice for this timing and is generally used @1L/ha.

BORON

Best effects of Boron application comes from foliar sprays made post-harvest and prebloom to improve bud development, flower set, and fruit set. Yara's Bortrac (10.9% B) is the product of choice for these timings. The rate for post-harvest sprays is 2L/ha.

COPPER

Copper is antibacterial and acts as a sterilant. Late fall applications at 20 and 80% leaf drop is a great finish to your disease management plan and has shown to help control the spread of Necteria Canker (indicated by orange spores on dead wood) by protecting newly exposed leaf scars where the canker can inhabit. Copper sprayed at this timing has also shown to speed up and condense natural leaf drop.

NITROGEN

Late season Nitrogen applications can help in two ways. 1) increasing N levels in buds now will help push healthy growth early next spring before 'mass flow' of N into roots commences. 2) Nitrogen applied at higher rates onto leaves before winter can directly kill apple scab and also aid in the decomposition of leaves which decreases survival rate of over-wintering fruiting bodies of apple scab. Better coverage on both sides of leaves is generally obtained when applications are made while leaves are still on trees, however Urea can volatilize quickly (7-10 days), so application should be applied right before the majority of leaves drop (15-30% of leaves dropped).

APPLICATION NOTES

Various tank-mixes of these elements have been used effectively. We promote high quality micro-nutrients from Axter BioScience (Oligosol) and Yara for their proven track record for efficacy and crop safety. Several coppers are available for use at this timing with varying rates. The Nitrogen source you use should be scrutinized. Only Low Biuret Urea (LBU) should be used as a foliar spray. It is uncommon to see the Biuret reading on the bag, so make sure you are using foliar or industrial grade. Although 7-12kg/ha may be enough for nutrition, most studies state that a higher rate of N is necessary for satisfactory sanitation. A **4-5% solution of LBU** has shown good results (40-50Kg/1000L water). If using this high a rate of Urea (46-0-0), make sure to alter your fertilizer applications accordingly.

ORCHARD SANITATION

Mulching of leaf litter will further help you in your battle against apple scab. A study performed at the Horticultural Research and Development Centre, AAFC, Saint-Jean-sur-Richelieu, Quebec concluded that the highest reduction of apple scab inoculum was found in the treatment that had an application of Urea, followed by leaf shredding. **90% + reduction of ascospore** viability the following spring resulted from this treatment.

What we learned in 2016

BROWN MARMORATED STINK BUG

For years we have known about this pesky insect and have been quietly thankful that it hadn't yet reached our orchards. 2016 will mark the first year that Ontario orchardists in various regions had to take up significant arms against BMSB. Damage from BMSB was first observed in more southerly orchards in August (Niagara, Simcoe, etc.). They are quite elusive, difficult to trap, and their damage can be easily confused with other issues such as bitter-pit. An excerpt from an OMAFRA info sheet by Hannah Fraser:

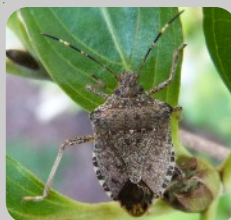
"There are no thresholds established for BMSB. Apply [labelled insecticides] when the pest has been confirmed in the crop and at the first signs of damage. Early symptoms of crop injury may be difficult to diagnose. Damage is typically observed first near crops borders, near wild landscape hosts."

As part of your monitoring regimen for 2017 should be bi-weekly inspection of border areas starting in August to detect the first occurrence of the pest. Although research into BMSB overwintering ability in Ontario weather is ongoing, it is safe to imply that based on their ability to stow away in warm places (buildings etc.) that this pest will continue to be an ongoing issue in all apple growing regions of Ontario.

Adult BMSB. Photo credit to OMAFRA.

<http://www.omafra.gov.on.ca/english/crops/insects/bmsb-update.htm>

BMSB injury to mustu apple, found in Niagara Region.



FIREBLIGHT

Fireblight wreaked havoc across the North East last year. Many growers who have never had fireblight before are now faced with managing the most destructive disease to pome fruit. There is a strong likelihood that this bacteria remains in orchards and will be quite active. **Fireblight is manageable** when incorporating a full program.

Some factors that increase susceptibility of a tree to infection include high nitrogen fertility, young actively growing trees, and most critically, susceptible cultivar. Bloom time generally poses the greatest risk as flowers provide a pathway directly into the tree. Conditions favourable to development include: open flowers, temperatures greater than 18.3°C, wetting event that moves the bacteria from the pistils to nectarines (rain, dew, spray), and the presence of the fireblight bacterium.

To limit the severity of widespread damage in 2017 we recommend the following in your program:

1. Cut out any current fireblight cankers and either flail chop or burn.
2. Check tree lines for other hosts including: Mountain ash, Quince, Firethorn, Hawthorn, raspberry and the unattended apple or pear orchard.
3. Following your scouting and assessment, determine a spray program and pre-order your spray to have on hand. Fireblight products will be in high demand in 2017. GET YOURS!
4. Spray a labelled copper product at Green Tip to help reduce surface bacterium in the orchard from missed cankers (less russetting can be expected from new formulations).
5. Download a copy of Maryblight or Cougarblight.
http://county.wsu.edu/chelan-douglas/agriculture/treefruit/Pages/Cougar_Blight_2010.aspx
<http://www.caf.wvu.edu/kearneysville/Maryblyt/index.html>
6. Regular sprays during bloom can be the cause of a trauma event. Heavy amounts of wind and water caused by sprayer can spread bacteria. It doesn't take much. Consider having fireblight control in accordance with these other, standard spray applications.
7. Plan to make applications of Streptomycin and/or Kasumin through bloom if program alerts you to. Make sure you save a Strep spray for the unlikely trauma event.
8. Consider the use of Apogee to decrease the susceptibility of shoot blight. Start these applications early (king bloom/petal fall) and continue with low-moderate doses for at least 3 applications, 2 weeks apart.
9. Prune out any fireblight strikes and remove from orchard if feasible; if not, leave till dry and flail chop. If possible, do not work in blocks with active fireblight bacterium present until trees have dried from morning dew.
10. In the event of a hail storm or high wind event, plan to have your Strep spray on within 24hrs. The sooner the better!

MITICIDE EXPERIENCES

Over the past few years, miticide performance has been slipping. The reason behind this is highly debatable and tough to nail down. Resistance, efficacy, weather, species spectrum and life cycle, coverage, and so many other variables affect mites and targeted sprays more adversely.

The 2016 season proved to be as difficult as any other. An extremely dry and hot stretch ranging from May all the way through to July allowed mites to develop and build without much help from mother nature. Populations seemed to explode in a matter of days, catching many off guard, and once mite numbers established themselves, keeping up was a difficult task.

There are many pieces to the puzzle of solving mites:

- Choosing the miticide to rotate to from previous years, is task number one.
- Application spectrum for mite sprays ranges greatly in terms of timings. From Dormant oil applications to early/late season sprays.
- Performance also varies significantly, with miticide residual, rates and knockdown ability being different amongst products.
- Addition of adjuvants, such as PureSpray Green, allow certain miticides to penetrate leaf hair surface as well as adding the benefit of mite suffocation, increasing the overall performance. Mix at 1% v.v. with a 14 day spacing around Maestro/Captan sprays. (Follow labelled recommendations when tank mixing).
- Keep a close eye on water volumes and coverage in combination with spray nozzles and speed, as variables to help with the cause. Double check sprayer calibration in conjunction to mite sprays. Miticides should be applied every row! This is no time to cut corners.

BITTERPIT IN A DRY YEAR Pat Johnson, Nutrition Specialist

Analysis results showed some consistent trends from orchards this season. Starting with early tissue two weeks after bloom and then later golf ball sized fruitlets at an average of 40 grams high Nitrogen and Potassium levels were common. Average Nitrogen levels for individual growers and/or grower groups with analysis data history of up to 20 years were the highest ever recorded. As a consequence N:Ca ratios were high on the fruitlet analysis, even though Calcium levels were not in a deficient range. Many of these samples were Honeycrisp. Boron levels were also low in many cases due to drought. Oddly enough, Potassium levels were high despite the fact that under drought conditions, Boron and Potassium are the first minerals with reduced availability and uptake. Low Boron negatively effects translocation of calcium from leaf tissue to fruit. Based on these averages growers were advised to maintain a good foliar Calcium program, add Boron to one of these applications, apply the last calcium the week prior to harvest and to eliminate another calcium nitrate soil application which has become a common practice with Honeycrisp - though risky without analysis data to monitor the need or amount to apply.

More than the usual number of preharvest fruit samples were received in the two week period prior to harvest. Nitrogen levels were still higher than yearly averages, calcium levels were generally in the adequate to high range, the resulting N:Ca ratios were either good between 4 to 7 or high 8 to 13. Potassium levels had come down from high in the fruitlet sample to adequate or low and some Boron levels were low. K + Mg/Ca calculations were not extremely high. Phosphorous levels were deficient.

Fruit with high N:CA levels are susceptible to bitter pit and both the high Nitrogen and low Boron are contributing factors. Fruit with low Calcium are susceptible to bitter pit, fruit rot, lower harvest pressure and generally have a poorer storage life. Fruit low in Boron are susceptible to bitter pit and can develop internal flesh spots, are corky and splitting can occur. Fruit low in Phosphorous can have lower harvest pressure, bruise easily, susceptible to Low Temperature Breakdown and when stored long term, have a greater drop in pressure at packing time than fruit with higher Phosphorous and Preharvest drop is increased. Fruit with K + Mg/Ca > 25 are prone to bitter pit.

Many of the above symptoms were observed in pome fruit this season. It probably raises more questions than answers when we see these extreme weather conditions. Was the high Nitrogen and Potassium a result of the 2015 growing season when soil moisture and temperature conditions were ideal for mineralization and uptake and trees stored these minerals in a more luxuriant manner? Has calcium nitrate become too liberal in application? **Soil, leaf and fruitlet analysis are a sure way of monitoring your orchards to know what you are dealing with and make corrective adjustments.**

ORCHARD VOLE AND MOUSE CONTROL

When you think of protecting your apple crop, you use all available tools to ensure minimal loss. Trapping, scouting, proper pest ID, product selection, timing and product rotation. This shouldn't be any different for rodent control!

- ID your pest - if you have pine voles you may need to provide a sheltered area then treat the underground runways instead of applying above ground for orchard voles. Many orchards have both, so both techniques are required.
- Pay attention to historic high population areas - this will give you an idea of population and re-application timing.
- Keep grass rows tightly mowed and well maintained; exposed mice are less likely to stick around.
- Fall herbicide applications under trees also help to make for a less-than ideal habitat for rodents.
- Pay particular attention to High Density plantings! Once rodents find that beautiful row of recently planted, tightly spaced trees - they may never want to leave! It's like an all-you-can-eat smorgous board for mice!

Growers have reported success from a multi-pronged approach to rodent control. The program suggests an initial application of a quick knock-down product such as "Bartlett Waxed Mousebait" to lower the population, followed a few weeks later by an application of the anti-coagulant "Ground Force" to provide sustained control into the winter. This will also help reduce bait shyness and potential development of resistance.

Another consideration to make is a mid-winter bait top up if high populations are confirmed. Dr. Robert Crassweller, PSU suggests that an application made in early spring, before breeding season can be effective as well.

CHATEAU

FALL HERBICIDE PROGRAM



Fall is a good time to apply herbicides for control of perennial, biennial and winter annual weeds, but especially persistent weeds and late-germinating weeds that usually escape or tolerate pre-emergence herbicides. Fall herbicides should be applied after frost has killed most annual weeds, new growth has ended for the year and before soil freezes. November is normally a good time to apply. Fall rains help to move the herbicides into the soil and "activate" them. Cool soil temperatures reduce herbicide dissipation and degradation of the active ingredients.

Pre-emergent program success often depends on the state of the row at application. If there is too much leaf litter or too many weeds present, the product will be unable to create the barrier necessary to inhibit weed emergence. The use of a brush rake or burn-down herbicide prior to application will help provide more uniform coverage.

NMB UPDATES

Corey Bartlett will be taking over for Sean Bartlett as NMB's Sales Representative for Eastern Ontario. Corey grew up working on the family farm where he helped grow wine grapes in the Niagara Region. He went on to complete a degree in Business and has spent the last several years working at the customer service desk at head office, while also training with current sales reps. He is excited to have an opportunity to work with the growers and dealers in the East and looks forward to developing strong ties to the area.

After 7 years as Bartlett's Sales Representative in Eastern Ontario, Sean will be moving back to the Niagara Region to work out of head office. Sean has taken on the role of Business Unit Manager of Provide Agro, NMB's sister company which takes care of field equipment and packhouse lines. Sean is excited about the new opportunities and also grateful to the growers in the East for their continued support and the lasting friendships created.

Always read and follow Label guidelines and recommendations from local experts.

N. M. Bartlett Inc. is the most trusted name in the business because **we care**. We strive to help you grow a higher quality crop that will return you more money! Give your local rep a call to develop a solid strategy for the 2017 season.

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