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Dormant Sprays for Disease and Insect Control

As I begin to work on this issue of the Orchard Outlook, it hardly feels like spring or that bud break could be less than a month away. Although there is no snow on the ground in many areas, temperatures are still at the winter level. A few days of above average temperatures however, could move bud development along quite rapidly and therefore as much as I hate to say it; growers should begin to think about this year's disease and insect program. Sprays that need to go on before bud break are as follows:

- 1) **Peach leaf curl** if left untreated, can cause severe early defoliation and crop loss of peaches. The disease overwinters as blastospores in protected crevices in the bark and around the buds. Primary infections are the most damaging and occur during the early spring from bud swell (when bud scales loosen) until the first young leaves are fully emerged from the bud. Infected leaves are severely deformed and often display a variety of colors ranging from light green and yellow to shades of red and purple. The leaves become wrinkled, puckered and curled. Infected fruit may drop early and go unnoticed while others may become crooked at the stem end like a small yellow squash, and some may develop reddish to purple wart-like deformities on the fruit surface. Control of this disease can be obtained by one well-timed spray, either in the fall after 90 per cent of leaf fall, or in the spring before bud swell. For commercial orchard plantings **Bravo** or **Ferbam** are recommended. Bravo has proven to be quite effective for peach leaf curl when applied at the correct time. The recommended rate of Bravo 500 is 7.0 litres per hectare while that of Ferbam is 6.75 kg per hectare.
- 2) **Plum pockets**, not to be confused with the virus plum pox, is a fungal disease that infects plums. In Nova Scotia, it is more commonly observed on the Japanese-type plums. Infected fruit buds will produce abnormally large misshapen, bladder-like fruit with thick, spongy flesh. The center of infected fruit is hollow due to the failure of the young seed to develop. The best way to describe the fruit is that it looks like a large pea pod. Infections occur in April as the buds swell and bud scales separate. Like peach leaf curl, a spring fungicide application prior to bud swell will control this disease. For commercial plum plantings the fungicide **Thiram 75 WP** applied at a rate of 6.73 kg per hectare should control this disease. If only a couple of

trees need to be treated **lime sulphur** may be a more economical solution than having to buy a bag of Thiram.

- 3) **Fire blight** and its control can involve the application of a **copper spray** during the dormant bud stage or at the green tip stage. The opinions on the effectiveness of dormant copper sprays are varied, however most growing regions that have fire blight still recommend copper sprays as a step in the control of this disease. Copper sprays for fire blight control should be applied prior to tight cluster to reduce the risk of fruit russetting. Copper can be applied as a bordeaux spray, 1 kg of Basicop Fungicide or Copper 53W which are 53% copper sulphate per 1000 L of water plus 6 kg of hydrated lime. When making a bordeaux mixture add the copper sulphate to the spray tank and agitate to dissolve. Premix the hydrated lime in a pale of water and pour this mixture through a .3 mm mesh screen and allow 15 minutes of mixing before spraying (read the product label for additional information on mixing). The other option is to use a fixed copper product such as **UAP's Copper Spray Fungicide** at a rate of 4 kg per hectare at green tip. Apply a sufficient volume of water (minimum 1000L/ha) so that all the wood on the tree is covered with copper. Applying a dormant oil spray with the copper spray will improve the coverage and effectiveness of this product. A copper spray at bud break to tight cluster would also serve as a scab control spray.
- 4) **Female pear psylla** begin to lay eggs prior to bud breaks on warm (10°C +) sunny days in April with egg laying continuing into May. One of the steps in the control of this pest is the application of **Superior Oil 70 sec** at a rate of 65 L/ha prior to bud break which will discourage egg laying. Depending upon insect pressure this oil application may provide season long control. Spring temperatures will dictate when egg laying begins and in some years it has occurred prior to mid April. In general, growers should time oil application to cover the peak egg laying period and in orchards which do not have high psylla population. Missing the few eggs that are laid in early to mid April should not have a major impact on the control of this pest. In orchards where psylla populations were high, missing the early egg laying activity will increase the need to make additional psylla treatments during the growing season. Oil is washed off the trees by rain so early season oil application at the recommended rate may not provide a sufficient coating to discourage egg laying into mid May. Growers who do an early April oil application should consider the a second oil treatment at half rate just prior to bud break.

Scion Wood for Grafting

Just a reminder to those producers that plan to graft over apple trees to another cultivar will need to collect healthy scion wood prior to bud swell. It would be wise to collect scions from an orchard that did **not** have fire blight last year. Collect one year old terminal shoot growth that is at least pencil size in diameter. Grafting will not take place until pink to bloom therefore; the scions will need to be stored in a cool place to prevent bud development. Make sure that there is no fruit in the same storage space as the ethylene gas given off by the fruit will prevent bud break on the scions. The scion should be stored under moist conditions to prevent dehydration of the scion wood. Placing scions in moist saw dust but not dripping wet is one means of accomplishing this.

Gala and Nitrogen Supply

In the Fall 2007 issue of the *New York Fruit Quarterly* there is an article entitled "How Does Nitrogen Supply Affect 'Gala' fruit size?" by Lailing Cheng, Guohai, Alan Lakso and Martin Goffinet which should be of interest to Nova Scotians. I am going to touch on only a few key points of this study but the full article can be accessed via the internet at <http://www.nyshs.org/fq.php>. Those growers who are presently growing Gala in Nova Scotia will have noted that this cultivar tends to produce small apples which is the result of several factors - genetic, tendency to set heavy crop loads, difficult to thin when tree vigor is low, reduced leaf to fruit ratios resulting from heavy crop load and reduced shoot growth. It is well known that nitrogen has an impact on vegetative growth and subsequent fruit size. A three year study was conducted to determine the optimal rate of nitrogen fertilization to improve Gala fruit size. They found that good size Gala in New York (180g fruit) corresponded to a leaf N level of 2.0 to 2.2% and a leaf area to fruit ratio of 550 cm²/fruit. They found that increasing nitrogen when crop was at a medium level lead to an increase in fruit size but did not have a significant effect when the crop load was heavy. It is interesting to note that the authors believe that the optimal crop load for producing good size Gala is 6.5 to 8.0 cm² TCA. This falls in line with Doug Nichols findings with Honeycrisp; a crop load of 6.0 cm²TCA appears to be optimal for good size and color. Thus growers that have Gala should be maintaining foliar nitrogen levels between 2.0 and 2.2 per cent, which should provide a dark green leaf color. If the foliage color is light green (below 2.0 per cent) increasing the rate of nitrogen will have an impact on fruit size but when the foliage is dark green crop load management has more of an impact on fruit size. This needs to go in combination with a good pruning program to reduce spur load and stimulate shoot growth to increase the leaf to fruit ratio.

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