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SPECIAL FRUIT THINNING ISSUE

[Section: HORTICULTURE]

WESTERN NY CROP SITUATION AS OF MAY 15, 2012

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[Box Text: DAMAGE CONTROL]

This week we visited numerous orchards in the Lake Ontario fruit region on the east and west sides of Rochester and evaluated the extensive damage to the Western NY apple, pear, cherry and peach crops. The several frost events damaged the majority of the blocks and many have little fruit left. We estimate that 90% of the acreage won't need to be chemically thinned this year. However, some blocks still have a crop and they should be thinned cautiously after cutting fruit to assess frost damage. In many cases, waiting to hand thin may be the best strategy. This is the year to look carefully at

the top and bottom portion of your trees to properly assess the crop (check seed numbers and seed growth). Be careful if you see empty cavities! When cutting fruit, observe whether the seeds are alive by noting if they totally fill the seed carpel cavity. Empty cavities without seeds will produce abnormal fruit and these fruitlets will be thinned easier.

Varietal differences

The most-damaged cultivars were Red Delicious, Crispin, Empire, Gingergold, Jonagold, Fuji, and Cameo. The least-damaged crops were seen on Gala, Rome, Golden Delicious, Honeycrisp, and SweeTango. A medium level of damage was observed on Mac strains, Acey Mac, Cortland, Idared, and Zestar.

Some varieties including Gala, Honeycrisp, Rome, Golden Delicious and SweeTango, have a significant amount of late bloom on one-year wood. This seems to be age-dependent and was observed mostly in 2nd, 3rd, and 4th-year blocks of these cultivars (less bloom on one-year wood is expected in older trees). This phenomenon is more apparent this year because of the cool temperatures during bloom, which have given us a long protracted bloom period. Thus, the bloom on one-year wood was delayed until it seems like a second

flush of bloom on trees. In normal years, the chemical thinners we apply cause the majority of these flowers on one-year wood to fall off; however, this year without the application of thinners to most blocks, we expect many of these flowers to set fruits this year. The varieties that have this late bloom could end up with a reasonable crop, even where most of the flowers on spurs were killed by the frost.

Thinning window:

Where chemical thinning is warranted (3–4 fruits alive per cluster), thinners should be applied when fruits are 12–13 mm in diameter. The average fruit size on Monday and Tuesday of this week was around 6–7 mm. A few fruits measured more than 9 mm. Since fruit growth is approximately 0.5 mm/day (lake sites) to 0.75mm/day (inland sites), we estimate that fruits will come into the "thinning window" of 10–15 mm diameter for inland sites starting this Friday, May 18, until the middle of the next week. The thinning window for lake sites will start next Tuesday, May 22, until the end of Memorial Day weekend. During these windows, find a good weather period of 3–5 days to apply thinners. We will be publishing charts of the carbohydrate status of several locations starting on Friday. If the carbohydrate balance is mildly negative,

then normal rates are suggested, but if the deficit is severely negative, use reduced rates.

Variety recommendations:

It is likely that thinners will only be needed on the best sites on a half-dozen varieties that survived the frost best. In general, we recommend about 3/4 of the normal rate of chemical this year, since many fruits have damaged seeds and will thin easier. If there is a good set, then we suggest:

Gala – Maxcel at 75 ppm (48 oz/100 gallons or 96 oz/acre) plus one pint of Sevin per 100 gallons, just to the top part of the trees.

McIntosh – NAA at 2.5 ppm (1 oz/100 gallons or 2 oz/acre) plus one pint of Sevin per 100 gallons, just to the top part of the tree.

Rome – NAA at 5 ppm (2 oz/100 gallons or 4 oz/acre) plus one pint of Sevin per 100 gallons, just to the top part of the tree.

Honeycrisp – NAA at 7.5 ppm (3 oz/100 gallons or 6 oz/acre) plus one pint of Sevin per 100 gallons with 2/3 of the spray applied to the top part of the tree and 1/3

of the spray to lower part of the tree. This spray is critical with Honeycrisp if the block had a snowball bloom (on-year) and there was good fruit set.

Idared – NAA at 2.5 ppm (1 oz/100 gallons or 2 oz/acre) plus one pint of Sevin per 100 gallons, just to the top part of the tree.

Strategy for increasing fruit size:

In most cases where trees have a light crop, fruit size will be large. However, with small-fruited varieties like Gala where much of the crop may come from flowers on one-year wood (late bloom), or where the only remaining flowers are the smallest lateral flowers in a cluster, we recommend the use of Maxcel (without Sevin) to stimulate fruit size, with a maximum rate of 50 ppm (32 oz/100 gallons or 64 oz/acre). Good growth results have been seen until fruits reach 20 mm fruit size.

Strategy for removing the fruit on frost damaged trees:

In some cases where the crop damage was extensive, growers may want to remove the few remaining fruits to avoid having to spray the orchards against fruit-feeding insects or fruit diseases. In this case the use of

Maxcel at 100 ppm (64 oz/100 gallons or 128 oz/acre) + 2 pints of Sevin/100 gallons + one quart of oil/100 gallons has worked well in the past. Alternatively, the use of 2 pts Ethrel/100 gallons + 1 qt of oil/100 gallons has also worked well. Please make sure this is okay with your insurance agent (adjuster).

Managing biennial bearing:

With many cultivars, the loss of the crop this year will result in intense flowering next year. However, where vigor is high (semi-dwarfing or vigorous rootstocks with vigorous cultivars) the excessive vigor may result in low flower bud initiation this year for next year's crop. In this case, it is important to control vigor using one or more of the strategies listed below and to use summer return bloom-enhancing sprays. In normal years, we recommend the use of 4 sprays of 5 ppm NAA starting in late June to stimulate improved flowering on biennial bearing varieties. This year where the crop was lost and vigor is high, we suggest the use of NAA (5 ppm) and Ethrel (1/2 pint/100 gallons) combined in the same tank to induce good flowering. Apply 4 sprays at 10-day intervals beginning in mid-June. Apply only NAA without the Ethrel if you have a relatively good crop.

Vigor control:

Where crop load is light or non-existent, there are three important management strategies to consider:

(1) Reduce or eliminate the application of nitrogen.

Growers who have either not applied nitrogen yet or have split their nitrogen application in two parts can reduce or eliminate further nitrogen this year. We suggest waiting another 2 weeks until a final assessment of crop load can be made, and if there is a reasonable crop in a block, then apply nitrogen at that time. Otherwise, forgo any more nitrogen this season (the soil will generate enough through the breakdown of organic matter).

(2) Applications of Apogee can help reduce excessive tree growth when crop load is light. The first application of Apogee should be made at late bloom when shoots are 1–3 inches long. They are now 5" long, but this week (weather permitting) is still a reasonable timing to apply Apogee to reduce terminal shoot growth (all tree ages). The first Apogee spray (9 ounces/100 gallons or 18 oz/acre) should be applied this week. A delayed application will surely negate the benefits of tree growth control. A second application of Apogee (6 ounces/100 gallons or 12 oz/acre) should be made 3 weeks later, and if crop load is light, a third application will be needed 4 weeks later in late June (6

ounces/100 gallons or 12 oz/acre). Some growers prefer to split the seasonal Apogee applications into 5–6 smaller doses (4 ounces/100 gallons) and apply Apogee every 2 weeks through mid-July.

(3) Root pruning at bloom to 10 days after petal fall can be very effective in controlling excessive shoot growth. There are two types of root pruners in use: the vertical knife-shank type or the large coulter wheel type. We recommend the use of a coulter wheel over the knife-shank type since it doesn't cut as deep and minimizes the damage to larger and deeper structural roots of more mature or older apple trees.

Don't forget to prune peaches and adjust tree

height: The loss of the crop on most peach orchards affords the opportunity to restructure the tree and bring the height down and the fruit back in close to the leaders. This is the time to do the re-structuring pruning. 1) Head each scaffold arm down to approximately 9–10 feet above the ground by cutting to a side shoot. 2) Stub large lateral limbs back close to the trunk to a live bud to produce new shoots closer to the leaders. Reducing the height of the tree and removing large lateral limbs in the top of the tree will

allow better light into the bottom of the tree and more fruit lower in the tree next year.

Summary

1) Wait to determine the need for any chemical thinning until next week for inland sites and until late next week for lake sites.

2) Carefully assess the crop load in the top and bottom of the tree. If there is only 1 fruit per cluster, then don't thin. If you are depending on the fruit from late bloom on 1-year wood, then don't thin.

3) Wait until fruits are 12–15 mm before thinning.

4) Do not use full rates of chemical thinners

5) Spray only the top half of trees

Thoughts for the future

This year in WNY, site played a critical role in surviving the frost. Frost damage was more severe in low-lying areas where cold air settled, and in areas where wind and air movement were blocked by obstructions such as trees, hills, fences, and/or buildings. Locating and orienting tree rows to facilitate airflow can reduce the settling of cold air. For many years we have mentioned that the Western NY fruit region is one of the safest and most reliable places in the world for fruit production without the need for wind machines. However, with

the general warming of the climate, we are now questioning whether the frost protection effect of Lake Ontario will be good enough in the future. If early springs and frost events become more common, we should start planning for effective placement of frost protection systems such as wind machines or paying for the use of helicopters during frost events. This year in the Hudson valley, helicopters were very effective. Helicopters were able to reach higher (than a wind machine), they made height adjustments, and found warmer air, which was pushed down and circulated, through the orchard floor. It was a successful but expensive frost protection method. This year we learned that (1) site selection for future plantings is very important; (2) most of the wind machines already installed worked; (3) helicopters worked better than wind machines; and (4) frost protection methods may become a necessity in WNY.

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