



2018 Western NY Crop Assessment for Thinning

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- A bloom (now almost past) application of NAA at 10 ppm is/was a good idea this season, especially Gala and HC.
- We recommend an intensive block-by-block scouting to make good thinning decisions, and be aggressive when heavy bloom and good set are evident.
- A reminder that old trees on more vigorous rootstocks thin easier (MM.111, MM.106, M.7), lower rates may be more appropriate in these orchards. Trees on M.9 clones, Bud.9 and G-series rootstocks set more fruit and thin harder. Young trees thin very easy, see the guidance for young trees in the “Thinning Suggestions” described below.
- Our strong recommendation is to start thinning yesterday, and do not wait until 8-10 mm.

Apple Thinning Suggestions for 2018

Options for the Bloom Spray

- **Amid-Thin**- This is a mild thinner that can be used at bloom and petal fall. It should be used at the highest label rate suggested, 8 oz/100 gal TRV dilute.
- **NAA**- During bloom and petal fall it can generally be safely used at a rate of 10 ppm without over thinning
- **Caustic products:** such as ATS (2-2.5%); Lime Sulphur (2%) + Oil (2%), Regalia (1%) + Oil (1%) at 40% and 80% bloom. Some varieties can be more sensitive to others, so know your variety before applying.

Options for the Petal Fall Spray

First, calculate your TRV. You need to know how much product your trees will need.

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- Read our TRV article published in the previous issue of Fruit Notes (Issue 6, “Precision Chemical Thinning in 2018 for Gala & Honeycrisp”).
- **Carbaryl** - it is a mild thinner and it will hardly over-thin (except Cortland). Be sure you have all bees out before spraying Carbaryl.
- **Amid-Thin**- This is a mild thinner that can be used at bloom and petal fall. It should be used at the highest label rate suggested, 8 oz/100 gal TRV dilute. A surfactant could be included in the tank.
- **NAA**- 8-12ppm. When more aggressive thinning is required, NAA is frequently the thinner selected. It is not so aggressive at petal fall as compared with when it is applied at the 7 to 14 mm fruit size stage. Add 1 pt Sevin (TRV dilute) for harder to thin cultivars.
- **Maxcel** at 100ppm (64oz/100gal TRV dilute) + 1 pt Sevin (TRV dilute) is a good option for Gala to get some sizing.

When fruit-set is clear, and if heavy on hard-to-thin varieties such as Gala or on biennial bearing varieties such as Honeycrisp, Macoun and Golden Delicious we are recommending to use 7.5 to 10 ppm NAA plus 1pt Carbaryl /100 gallons TRV dilute at **petal fall**.



Thinning Recommendations for the Petal fall and 8-12 mm spray (when indicated) in 2018:

Varieties where we like Maxcel + Sevin

- **Gala** – Promalin at Pink to Full Bloom of the King flower, 64 oz Maxcel (100ppm BA) /100 gallons TRV dilute + 1pt Sevin/100 gal TRV dilute at Petal and again 8-12mm size. You can also use 7.5ppm NAA + 1pt Sevin/100 gal TRV dilute at petal fall and come back at 8-12mm size with the Maxcel option.
- **Empire** – 48 oz Maxcel (75 ppm BA) /100 gallons TRV dilute + 1pt Sevin/100 gal TRV dilute (petal fall and 8-12mm size).
- **Jonamac** – 48 oz Maxcel (75 ppm BA) /100 gallons TRV dilute + 1pt Sevin/100 gal TRV dilute
- **Macoun** – It has to have a petal fall spray to stimulate return bloom (7.5ppm NAA plus 1 pint Sevin/100 gallons TRV dilute).
- **Fuji** – At bloom use 4 ounces NAA (10ppm) /100 Gallons TRV Dilute, then 48-64 oz Maxcel (75-100 ppm BA) /100 gallons TRV dilute + 1pt Sevin/100 gal TRV dilute (petal fall and 8-10mm)
- **Red Delicious** - 48 oz Maxcel (75 ppm BA) /100 gallons TRV dilute + 1pt Sevin/100 gal TRV dilute. Do not use NAA because of pygmy fruit formation. A dose of 1pt Sevin/100 gal TRV dilute would work if fruit set is low and you want to break clusters. We like the 1-1.5 pint of Promalin from first bloom to full bloom, you get some fruit typiness but furthermore you get some thinning.

Varieties where NAA works well

- **McIntosh and AceyMac/Spartan** – True Macs respond well to both Maxcel and NAA. Therefore, 2oz Fruitone L or Pomaxa (5ppm NAA)/100 gal TRV dilute + 1pt Sevin/100 gal TRV dilute will work great. AceyMac thins harder than the true Macs – 7.5ppm NAA + 1pt Sevin.
- **Honeycrisp** – mature Honeycrisps are hard to thin because of the vigor level of the tree - less competition. Use 3oz Fruitone L or Pomaxa (7.5ppm NAA)/100 gal TRV dilute + 1pt Sevin/100 gal TRV dilute. Hopefully you have started with 10ppm NAA at bloom. Come back at PF with 7.5ppm NAA + carbaryl and again (5-7.5ppm) at 8-12mm when needed. It will help flower initiation.
- **Cortland** – It does not like carbaryl and it thins very easy, so use 2oz Fruitone L or Pomaxa (5ppm NAA)/100 gal TRV dilute at 8-12 mm size.
- **Gingergold** – 1oz Fruitone L or Pomaxa (2.5ppm NAA)/100 gal TRV dilute + 1pt Sevin/100 gal TRV dilute at 8-12 mm size
- **NY1 and NY2**– according to our 3rd year trial both varieties are hard to thin varieties and responding well to either BA or NAA (Maxcel is preferable due fruit size): 64 oz Maxcel /100 gallons TRV dilute + 1pt Sevin/100 gal TRV dilute OR 3oz Fruitone L or Pomaxa/100 gal TRV dilute + 1pt Sevin/100 gal TRV dilute (petal fall and 8-10mm). NY2 can be biennial if over-cropped.
- **Golden Delicious** - If you use Provide to control russetting at petal fall, then Golden thins easier and 10ppm of NAA (4oz Fruitone L or Pomaxa /100 gal TRV dilute) + 1pt Sevin/100 gal TRV dilute is ok,

otherwise put 15ppm NAA on. Maxcel works OK on golden, but it is the toughest variety for Maxcel to thin well – 64oz.

- **Rome Beauty** –5ppm NAA (2oz Fruitone L or Pomaxa /100 gal TRV dilute) + 1pt Sevin/100 gal TRV dilute (spur type use 7.5ppm NAA) – 8-12mm.
- **Northern Spy** – it is a biennial, and it needs a bloom or petal fall with 2oz Fruitone L or Pomaxa (5ppm)/100 gal TRV dilute + 1pt Sevin/100 gal TRV dilute.

Thinning Without Carbaryl

- **Use the same rates at petal fall and 10-12mm**
- As a rule of thumb, 7.5ppm NAA can replace 1pt carbaryl in moderate to hard-to-thin varieties. However, this does not apply for varieties such as Fuji and Red Delicious as pygmy fruit may result.
- **HC** – 32oz Maxcel + 3oz Fruitone L/100 gal TRV dilute
- **Gala** – 64oz Maxcel + 3oz Fruitone L /100 gal TRV dilute
- **Empire** – 48oz Maxcel + 3oz Fruitone L/100 gal TRV dilute
- **Macoun** – 3 oz Fruitone L (7.5ppm NAA) + 48oz Maxcel /100 gal TRV dilute
- **Golden Delicious** – 3 oz Fruitone L (7.5ppm NAA) + 48oz Maxcel /100 gal TRV dilute, or a long time program used in NJ for Goldens is at 8-12MM use ½ pint of Ethephon /100

Chemical thinning program for Young Trees:

- For **newly planted trees** where you desire to totally eliminate the crop try a high rate of Maxcel (64 ounces) + Sevin (2pts) + Oil (1pt) /100 gallon TRV dilute when fruit size is 8-10mm. Or, as soon as the bees are out, begin repeated heavy doses of carbaryl (2 pints/100 gallons) tank-mixed with Regulaid (1 pint/100 gallons).
- For **2nd year trees** where we want a small crop use only hand thinning and the Cornell young tree thinning guide to adjust crop load.

- **Idared**: It thins very easily. Use 2.5ppm NAA (1oz Fruitone L or Pomaxa /100 gal TRV dilute) + 1pt Sevin/100 gal TRV dilute at 8-12mm.
- **Jonagold**: use moderate rates 7.5ppm NAA (3oz Fruitone L or Pomaxa /100 gal TRV dilute + 1pt Sevin/100 gal TRV dilute) at 12-14mm - one time.
- **Pink Lady**: it thins very easy. Use 2.5 to 5ppm NAA (1oz to 2oz Fruitone L or Pomaxa /100 gal TRV dilute) + 1pt Sevin/100 gal TRV dilute at 8-12mm.

gal TRV dilute plus 4 ounces of NAA (10PPM NAA) /100 gal TRV dilute

- **Jonagold** – 3oz Fruitone + 32 oz Maxcel/100 gal TRV dilute
- **NY1 and NY2** = 64oz Maxcel + 3oz Fruitone L /100 gal TRV dilute
- **Red Delicious and Fuji** – start with a petal fall spray using 8oz Amid Thin//100 gal TRV dilute. Then two shots of 48-64oz Maxcel alone – one at petal fall and another one right after at 8-10mm for Red Delicious and Fuji.
- It might be good to use 10ppm NAA/100 gal TRV dilute at bloom on Fuji, but we do not have any data to support.
- Amid Thin at 8oz/100 TRV dilute is a good option for bloom and petal fall for all varieties, including Fuji and Red Delicious.

- For **3rd year trees** use Sevin alone + follow-up hand-thinning.
- For **4th year trees** use 1/2 of our suggested full rate of NAA + Sevin or Maxcel + Sevin.
- For **5th year trees** use 75% of a full rate of NAA + Sevin or Maxcel + Sevin.
- For **6th year trees** use a full rate of NAA + Sevin or Maxcel + Sevin.

Cautions

- We suggest that Captan **not** be added to or near thinning sprays.

“Fruit Growing Business as Usual” for Maximum Tree Growth

Mario Miranda Sazo

More than 70-75% of trees marked for spring planting have been planted in Western NY. We began a very late growing season with green tip dates along the shoreline around April 19-20 for Idared, April 21-22 for Delicious, and April 23-25 for Gala and Honeycrisp. At one Orleans orchard site, the weather and soil conditions were optimal for tree planting as early as April 13. A more significant amount of new plantings began to be established the week of April 30. In just two WNY fruit farms, there were more than 250 thousand trees planted with GPS in less than nine long days in both sides of the city. At one of these two massive plantings (in Wayne County) the new orchard was established with a four-row planter and it almost covered 93 acres. Every year more and more orchards have been established with the use of GPS-guided apple planting in our region. By adopting this technology growers have (1) planted the trees more quickly - @ 20,000-30,000 trees/day in one long day on a good site with at least 25-28 people, and (2) planted the new orchard in the optimum time frame. The GPS-guided planter has made it easier to accurately space the rows and plant the trees the right distance apart for one-, two-, or four-row planters.

On Mother’s Day weekend, some Honeycrisp growers sprayed the first Apogee sprays at pink for bitter pit control. First bloom sprays for mature Gala blocks were started on May 16 and until the middle of this week. Overall, the apple crop bloomed very strongly across the region and we saw excellent return bloom in several Honeycrisp blocks (if not the majority of them!). If you were not ready for a bloom thinning program in the last few days, then you should be focusing on applying a petal fall spray this Memorial Day weekend or

soon thereafter. Back in early April, who would have thought that we would be in “*Fruit Growing Business as Usual*” by the end of this week?

Good planning, sufficient early tree training, a timely execution of spring and summer orchard tasks, strategic/targeted use of PGRs, and attention to details are critical to develop a well textured, fruitful, and efficient canopy. For a 2-2.5x10-11.5ft planting spacing, this fruitful canopy is full of short, well distributed, and planar fruiting units of ~12 inches long. For a 3x12 ft planting spacing, this fruitful canopy is composed of well-distributed and longer fruiting units of not more than 16 inches long. If well managed, one, two, and three-year old trees should feather and grow quite extensively the first years. A good nitrogen management plan combined with plenty of water (trickle), or ideally via fertigation (see Table 1), should encourage safe and vigorous tree growth. Moreover, the combination of high amounts of rainfall and warm weather can promote the mineralization of soil organic matter in a typical WNY orchard soil with high organic matter, releasing an additional 12-15lbs N/acre per every 1% organic matter. In some cases, skilled growers can safely and successfully grow , or “push”, a weak cultivar like NY1 on G.935 or Honeycrisp (all strains) on almost any dwarfing rootstock quite vigorously the first years. In these situations of optimal growth, the use of a directed spray of apogee (from 24 inches to 48 inches) has proven to be beneficial in the second or third year. By controlling the growth at the bottom, the weak tree can redirect the tree energy to the top and fill space more quickly. Depending on the growth achieved the first year, this strategy has helped reach the top of the wire by the end of the second or third year. Growers can also benefit by utilizing the same strategy on top-worked

trees trained to multileader trees that are growing vigorously the second year (especially on several Fuji or Honeycrisp situations).

For young trees, you should be guiding the new growth toward filling the tree’s space this season. This should be done now by tree training, leader selection, and later, by targeted summer pruning. The quicker you fill the tree’s space on a trellis, the more sunlight its canopy can capture and use the energy of this sunlight to produce fruit the

following years. The tree’s “skeleton” should be formed the first three years. Growers should not over crop their trees the second year, unless large, well-feathered trees were planted for 3x12ft plantings. De-fruit trees in the first year and do not over crop the trees in the second and third years. Over cropping situations can severely set the trees back, especially when you are establishing a weak cultivar like Honeycrisp or NY1. Grow the tree then crop it!

Table 1. Nutrition and irrigation¹ are key to grow a weak tree as hard as you can and as fast as you can this 2018 season (see calculations for fertigation² below).

Nitrogen for NY1 and Honeycrisp	Year 1 and 2	Provide high nitrogen supply: ¼ lb. Ca nitrate per tree after the soil settles carefully applied in a doughnut shaped band around each tree. At about 3-4 weeks after the first fertilization, trees should receive a second small dose of N (same rate and method as described before). 60-120 lb. N/Acre to promote tree growth
	Year 3	When the trees start to produce fruit and have grown enough, N should be lowered to improve fruit color: 30-80 lb. N/Acre Ideally, by the end of the 3 rd year trees should get to the top wire
	Year 4, 5, and beyond	N supply should be strictly controlled (to avoid bitter bit in susceptible cultivars as Honeycrisp): • 20-50 lb. N/Acre to improve yield and fruit quality

¹Please use a large portable tank and a hose to water NY1 or Honeycrisp trees if you cannot irrigate via trickle.

²The best tree growth response can be achieved by injecting liquid nitrogen fertilizer (fertigation) with each irrigation (100ppm = 0.4g N per gallon of irrigation water). These applications encourage maximum and safe leader growth. To calculate from 100 ppm to gr of nitrogen per gallon of irrigation water: 1 ppm nitrogen is 1 milligram nitrogen per liter of water. One gallon is 3.785 liters. So, to make one gallon of 100 ppm nitrogen, you need: 100mg/liter X 3.785 liters = 378.5 mg, which is about 0.4 grams of nitrogen.

New Online Pesticide Applicator Recertification Course Available

The Pesticide Management Education Program (PMEP) at Cornell University has a new addition to their line-up of on-line recertification courses: *Wild Bees, Farms, and Pesticides* discusses the importance of pollination, the characteristics of wild bees and types of wild bee species, the threats posed to wild bees by fungicide and insecticide exposure, how pesticides interact with other

stressors, and ways to mitigate harm to bees. This course was developed by Katherine Urban-Mead, PhD student, and Bryan Danforth, professor, both with Cornell’s Department of Entomology.

Wild Bees, Farms, and Pesticides is available for \$22.50 through PMEP’s [Distance Learning Center](#). The course is approved in New York State for 0.75

recertification credits in categories 1a, 3a, 3b, 9, 10, 21, 22, 23, and 25.

The Distance Learning Center is a partnership between PMP and the New York State Integrated Pest Management Program and hosts more than

30 on-line recertification courses on topics ranging from basic pesticide safety to application equipment to pest management. See the full listing for 2018 at:

<http://pmpcourses.cce.cornell.edu/catalog?page=ny-credits>

Calling All “Young Growers” – Tour Slated for August 2-4 in PA

Craig Kahlke

The 3rd annual Young Fruit Farmer Study Tour will be held in the Adams County region of Pennsylvania this August. The LOF team, along with Matt Wells and Chelsea Van Acker (New York Apple Sales) are in the process of organizing a great tour with PA growers, extension, and the [Young Grower Alliance](#) (YGA). The study tour is focused on helping next generation growers develop the knowledge and skills needed to take their family farms into the future. While there are no strict requirements to join, we are focusing on growers on family farms under 35, in middle management positions and motivation to take over their farms or start farms of their own in the future. New growers are also welcome. There is a mix of technical info (orchard tours (mainly apples and stone fruit), farm markets, etc. with plenty of time for networking (meals and travel). Stay tuned for

more info. If you are not on the email list-serve (updates on the tour and any local events) and would like to be, please contact Craig at cjk37@cornell.edu or 585-735-5448 for questions. Tentative schedule: Depart Geneva (NYSAES) by bus 6 AM, Thursday, August 2. Arrive in Adams County, PA for lunch with YGA and PA tour organizers. Thursday PM- tour local orchards, markets, etc. Group dinner and overnight in hotel. Friday – more tours and visit with scientists at the Penn State Fruit Research & Extension Center at Biglerville. Friday evening – group dinner, overnight in hotel, depart for Geneva by 8 AM on Saturday, August 4. Sponsor dollars will help subsidize the tour for attendees, keeping expenses very reasonable. A cost estimate will be available by late July.

20 Minute Ag Manager Webinars

Mark Wiltberger (CCE-LOF) & Liz Higgins (CCE-ENYCHP)

Liz Higgins, Ag Business Management Specialist for the Eastern NY Commercial Horticultural Program (Hudson Valley and Lake Champlain regions), is holding a series of short, informal, lunchtime webinars on a range of Farm Management topics.

Even though Liz is based in Eastern NY, the topics of the webinar are applicable to fruit growing businesses of the Lake Ontario region and directed to managers. The webinars are free and available to anyone.

I encourage you to check out those topics that look interesting to you. The only thing it will cost you

are the web-browsing minutes you were going to do while eating your lunch!

The webinars are free and run from 12:00 until about 12:30. If you have a topic that you would like to see covered in a future webinar, contact Liz Higgins at emh56@cornell.edu.

To register, go to <https://tinyurl.com/y9gfbmx>. Registering once gives you access to the full series.

Shorter, recorded versions of the 20 Min Ag Manager Webinars will be available on YouTube at <https://www.youtube.com/channel/UC984XhtG543n9sCdSE2q9pg> later this summer.

Mark Your Calendars

Meeting title	2018 CCE LOF PGR Orchard Tour
Date	Friday June 29
Time	8:30am-4pm
Location	Touring 2-3 farms in Orleans (TBA) And/or, touring plots at the Geneva Research Station (TBA)
Cost	Free
Brief description of meeting	There will be a tour of commercial orchards and/or research plots to understand how plant growth regulators affect vegetative, reproductive, and fruit growth of apple with invited speakers Duane Greene and Poliana Francescatto.
Registration/Contact for information	More details will be provided via LOF Newsletter and Fruit Facts in the coming weeks. In the meantime, please contact Mario Miranda Sazo, cell 315-719-1318, mrm67@cornell.edu

Meeting Title	LOF Summer Tour
Dates	Thursday, July 12
Time	All Day
Location	Wayne County
Cost	Free, Thanks to our Sponsors
Brief description of meeting	Annual tour featuring cutting edge farms
Registration/ Contact for information	TBA, Stay tuned to our website and newsletter

Meeting Title	LOF Young Growers Tour
Dates	August 2-4
Time	Depart (via bus) WNY Thursday morning, travel home Saturday AM
Location	Adams County Region, Pennsylvania
Cost	TBA, subsidized by sponsors
Brief description of meeting	See more details this newsletter Annual tour to other commercial tree fruit production regions for future farm owners and leaders
Registration/ Contact for information	TBA, Stay tuned to our website and newsletter. For more info or to be put on the Young Growers email list, contact Craig at cjk37@cornell.edu , 585-735-5448

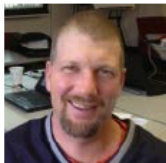
Meeting Title	Western NY Hard Cider Tour
Dates	Monday, August 6
Time	All Day
Location	3 Farms in Niagara and Orleans Counties, ending (optional) with a tasting at Müllers Cider House, Rochester.
Cost	Orchard Tours and Lunch Free with Pre-registration
Brief description of meeting	Come visit the orchards of the first NY growers of European and American Hard Cider varieties.
Registration/ Contact for information	TBA, Stay tuned to our website and newsletter. For more info or to be put on the Cornell Hard Cider list, contact Craig at cjk37@cornell.edu , 585-735-5448

Cornell Cooperative Extension
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Fruit Notes

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

Fruit Specialists



Craig Kahlke | 585-735-5448 | cjk37@cornell.edu
Team Leader, Fruit Quality Management

Areas of Interest: Fruit Quality and factors that affect fruit quality before, during, and after storage,



Mario Miranda Sazo | 315-719-1318 | mrm67@cornell.edu
Cultural Practices

Crops: Blueberries, Raspberries / Blackberries, Strawberries, Apples, Apricots, Asian Pears, Cherries, Currants, Gooseberries, Nectarines, Peaches, Pears, Plums



Tessa Grasswitz | 585-261-0125 | tg359@cornell.edu
Integrated Pest Management (IPM)

Areas of Interest: IPM of tree fruit and berry pests, biological control, pollinators, and impact of climate change.
Crops: Blueberries, Raspberries / Blackberries, Strawberries, Apples, Apricots, Asian Pears, Cherries, Currants, Gooseberries, Nectarines, Peaches, Pears, Plum



Mark Wiltberger | 315-272-8530 | mw883@cornell.edu
Business Management

Crops: Apples, Cherries, Nectarines, Peaches, Pears, Plums

For more information about our program visit us at lof.cce.cornell.edu