



Recommendations for Fruit Drop Control in WNY in 2018...

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The 2018 growing season started late but fruit maturity has largely caught up with a “normal” year. Nevertheless, we expect harvest to be 2-3 days later than last year. We have not had excessive heat or drought in August and the forecast indicates no temperatures above 90°F in the future. These conditions indicate that we will have normal drop and that it can be controlled with normal rates of preharvest drop control products.

There are 3 materials, which are registered for control of preharvest drop in apples. NAA, Retain and Harvista. NAA provides modest drop control but has the negative effect of stimulating ethylene production and fruit ripening. Retain is a plant growth regulator which reduces ethylene production and reduces preharvest drop. It also reduces fruit cracking and fruit greasiness but it delays the development of fruit red color about 1 week. Its performance is improved when combined with NAA since the two products work synergistically to reduce fruit drop while the Retain suppresses the production of ethylene by NAA. Harvista is a drop control chemical, which inhibits the action of ethylene in the fruit and reduces fruit drop. Each chemical has a different mode of action and thus different timing of application for optimal performance.

Since **NAA** stimulates ripening and often gives limited drop control when applied alone, we do not recommend the use of NAA alone. If growers use NAA on drop prone varieties like McIntosh they should apply when the first sound fruit drops and apply a high rate (20ppm) and then pick the fruit within 10-14 days of application. If harvest is delayed the fruit will begin to drop very rapidly about 2 weeks after application. This fruit should not be stored for a long time but marketed before Christmas.

Retain is a much more effective drop control product than NAA and should be applied 2-4 weeks before anticipated normal harvest. We suggest applying Retain at 3 weeks before harvest in normal years such as 2018 and at 4 weeks before harvest in hot years. Our suggested timing for **McIntosh** in WNY in 2018 (a normal year) is Aug 24 (based on the expected Mac harvest beginning on Sept. 14 which is one week before the estimated CA cutoff date of Sept. 21 published by Craig Kahlke in the LOFT newsletter Aug. 2, 2018). The Retain label now allows 2 pouches per acre and this will give the best drop control but will delay color development by 7-10 days. In a normal year without excessive heat like 2018, a 1 pouch rate of Retain will also work and has a less negative effect on fruit color but the control of fruit drop will wear off sooner (often before the end of September). An even better approach is to combine Retain (1 pouch) and NAA (10ppm) which gives excellent long-term drop control with the least negative effect on fruit color. This combination can be applied in a single spray on Aug. 24 or split into 2 sprays of ½ pouch/acre of Retain on Aug 24 and the second ½ pouch/acre on Sept. 7. With each include 10ppm NAA. It is critical to include an organosilicone surfactant with Retain especially when combined with NAA. The organosilicone surfactant improves the uptake of Retain better than other surfactants thus ensuring that sufficient Retain is absorbed by the leaf to suppress the stimulatory effect of NAA on ethylene production.



With **Gala** we recommend the application of only ½ pouch/acre of Retain for older less well-colored strains and 1 pouch/acre of the newer high coloring strains. Apply 3 weeks before expected first harvest. In 2018 we estimate Gala harvest will begin on Sept 5 thus the suggested date to apply Retain is August 22. Retain will permit Gala fruit to remain on the tree an additional 14-21 days resulting in improved fruit size, good color development and less stem end cracking. Retain delays maturity but results in a more even maturity on the tree. Multiple picks on Gala can be reduced to 2 or even 1 picking in some cases. By delaying harvest date, fruit size will increase by 1% each day harvest is delayed. Retain also reduces fruit stem end cracking and greasiness that are problems as Gala fruits mature in the second and third picks.

Honeycrisp is a low ethylene producing variety that has very uneven ripening but can have significant pre-harvest drop in some years. We recommend a very low rate of 1/3 pouch per acre of Retain applied 3 weeks before expected harvest in blocks which have had a drop problem in the past. In 2018 our suggested application date is August 24.

For late September and October varieties the negative effect of Retain on fruit color development is much less than in early September varieties, thus we suggest the use of the full pouch/acre of Retain to provide a consistent reduction of fruit drop and greasiness. For late September and October varieties which are harvested under cooler conditions, application timing should be 3 weeks before normal harvest date (10-15 of September). Treating **Empire, Delicious and Jonagold** provides some flexibility in harvest date since those three varieties need to be harvested at about the same time. **Cortland and Jonagold** both suffer from greasiness problems as the fruit mature and Retain applied 3 weeks before normal harvest can be a very effective control strategy. **Idared and Rome** both suffer from internal flesh pigmentation (bleeding), which can result in rejection of the fruit at the processing plant. Our research indicates this problem can be controlled effectively with ½ pouch/acre of Retain applied in mid September.

Two final reminders about the use of Retain: (1) Remember that the earlier Retain is applied the greater the negative effect it has on fruit color and the sooner it wears off, but waiting too long will result in some ethylene production and some fruit drop before Retain suppresses ethylene production. It takes about 7 days after application before Retain effectively controls ethylene production thus it is important to apply Retain 7 days before ethylene production starts. You can follow the progression of fruit maturity from the LOFT maturity reports to see when ethylene production starts and judge if you applied Retain on time; and (2) Remember to use an organosilicone surfactant such as Silwet (12 oz/100 gallon) with Retain.

Harvista is also a very effective drop control product which can be applied later than Retain (about 1 week before anticipated harvest but before significant drop occurs). It has a much more rapid action in the plant and can prevent fruit drop even when applied close to harvest. It has a long-lasting effect and will keep fruit on the tree more than 4+ weeks which is longer than Retain. Harvista is difficult to apply and must be applied by the manufacturer (Agro Fresh) to ensure an effective application process. If it is applied with or near Captan it can increase the uptake of Captan, which causes phytotoxicity to the fruit. We recommend that growers who plan to spray Harvista, discontinue the use of Captan beginning 2 weeks before an application of Harvista and switch to other fungicides if needed near harvest.