

From Jim Wargo, Valent USA
ReTain Recommendations - Apples

ReTain label limits and best practices:

- Up to 2 pouches per acre (see suggested programs below)
- Single or split applications
- Timing of first application no greater than 28 days before harvest; other apps as close as 7 days before harvest.
- Use Organosilicone surfactant at 0.05 - 0.1% v/v (6.5 – 13 fl oz / 100 gallons)
- Recommended water volume: 100 GPA or 2X
- Apply under slow drying conditions and cool fruit temperatures (early AM, late PM)
- 7 day PHI

General Effects of ReTain:

- Ethylene production reduced
- Starch to sugar conversion slowed
- Fruit softening slowed
- Fruit drop reduced/delayed
- Watercore reduced/delayed
- Cracking reduced/delayed
- Internal bleeding reduced/delayed
- Greasiness reduced/delayed
- Delays background color shift (e.g., Gala)
- Delays red color development in some varieties

Practical Impacts:

- Harvest management:
 - Promotes orderly harvest of large acreage of single varieties by treating portions of the crop with different rates/timings of ReTain, delaying maturity and subsequent harvest of those blocks, allowing growers to harvest fruit of optimum quality over longer periods
 - In PYO situations: extend the availability of popular varieties over more weekends
- Labor management:
 - More efficient use of smaller crews to harvest fruit at optimum quality
 - ReTain can help eliminate the “crunch periods” for more orderly harvest.
- Maintenance of fruit quality (firmness, watercore, greasiness, etc.)
- Protection of yield through drop control
- Increased fruit size due to harvest delay (□ increased yield)
- Improved fruit color due to harvest delay (□ improved packout)
- Preconditions fruit to optimize response to postharvest 1-MCP (SmartFresh, FYSIUM) by keeping ethylene levels in check, resulting in more uniform response across all fruit

Gala:

- Typical program for harvest management, drop control, cracking reduction
 - One half to 1 pouch per acre at 21 days before harvest; higher rates result in longer delays in maturity and color development
 - Organosilicone surfactant at 0.05% v/v (6.5 fl oz / 100 gal)
- Multiple picks starting “on time”, but with extended harvest period of later picks
 - 1 pouch at 7 to 14 days before harvest
 - Monitor fruit maturity closely
- Program to minimize color delay on color sensitive strains e.g. Royal or Tenroy strains
 - One half to 1 pouch per acre 7 - 10 days before first harvest
 - PoMaxa/Fruitone (4 oz/A) may be included for additional drop control

Honeycrisp:

- Typical program for harvest management, drop control
 - One half to 1 pouch per acre at 21 days before harvest; higher rates result in longer delays in maturity and color development e.g. up to 2 - 3 weeks
 - Organosilicone surfactant at 0.05 – 0.1% v/v (6.5 - 13 fl oz / 100 gal)
- Program for extended harvest window
 - Split application of half to 1 pouch at 21 days before harvest plus half to 1 pouch at 7 days before normal harvest
 - Higher rates will result in longer delays in maturity (up to 4 weeks)
 - PoMaxa/Fruitone (4 oz/A) may be included in the second ReTain application for additional drop control
- Program to minimize color delay on color sensitive strains
 - One half to 1 pouch per acre 7 – 10 days before first harvest
 - PoMaxa/Fruitone (4 oz/A) may be included for additional drop control

McIntosh: including Mac types such as Macoun and Aceymac

- Typical program for harvest management, drop control
 - One pouch per acre at 14 - 21 days before harvest;
 - Organosilicone surfactant at 0.1% v/v (13.5 fl oz / 100 gal)
- Program to minimize color delay on color sensitive strains e.g. Rogers Mac
 - One half pouch 2 weeks prior to harvest (short term delay and drop control)
 - For longer drop control and harvest management use one half pouch 3 – 4 weeks prior to harvest followed by one half pouch 1 – 2 weeks prior to harvest
 - PoMaxa/Fruitone (4 oz/A) may be included in the second ReTain application for additional drop control
- Program for extended harvest window
 - Split application of 1 pouch applied 21 days before harvest plus 1 pouch applied 7 days before normal harvest
 - PoMaxa/Fruitone (4 oz/A) may be included in the second ReTain application for additional drop control

Red Delicious:

- Typical program for harvest management, drop control, reduction in watercore
 - 1 pouch at 21 - 28 days before harvest
 - Organosilicone at 0.05 to 0.1%; use lower rate under hot conditions (>85F)
- Enhanced drop control programs:
 - 1 pouch applied 14 days before harvest combined with NAA (10 ppm) plus organosilicone surfactant
 - Split application: 1 pouch at 21-28 days before harvest plus half to 1 pouch at 7-14 days before harvest.
 - PoMaxa/Fruitone (4 oz/A) may be included in the second ReTain application for additional drop control

Empire:

- Typical program for harvest management, firmness retention and aiding storage quality
 - 1 pouch at 14 - 28 days before harvest, 21 days before harvest is ideal
 - Organosilicone at 0.05 to 0.1%;

ReTain Recommendations – Peaches

General Effects

- Inhibits/decreases ethylene production
- Can delay maturity and extend the harvest window
- Maintains higher fruit firmness
- Increased fruit size by delaying harvest
- Reduces fruit drop

Practical Benefits

- Reduced number of picks due to effect on fruit firmness

- Season extension – delay harvest to fill gaps in the marketing window or extend the sales season of late season varieties
- Flexibility - keep fruit on the tree longer rather than pick and place in cold storage
- Larger fruit - maintaining firmness allows fruit to hang on the tree longer and gain size
- Firmer fruit will store better and are less likely to get over ripe

Application guidelines:

- ReTain – one pouch per acre
- Include ProGibb LV Plus for enhanced performance
- Tank mix both products in the same application
- Application rate: 333 g/A ReTain (one pouch)
20 fl oz/A ProGibb LV Plus
- Spray volume: 100 gal/A
- Organosilicone surfactants **MUST** be used
- Application: 10 -14 days before start of normal harvest (first pick)
- PHI: 7 days
- In order to maximize uptake, apply during slow drying conditions (late evening or early morning)

ReTain Recommendations – Pears

The two most common pear varieties that *ReTain* is used on are Bartlett and Bosc (Pacific Northwest), but good results have been obtained on Red Clapps, Starkrimson, and Comice.

General Effects:

- Delayed maturity – on average about 7 days
- Reduced pre-harvest fruit drop
- Increased fruit size
- Better fruit firmness
- Enhanced storage potential

Application guidelines:

- Application rate is 1 pouch per acre
- Best timing on Bartlett, Clapps, Starkrimson, and Comice is about 7 – 10 days before normal harvest of untreated fruit.
- If stop-drop on Bartlett is the primary goal, then an earlier timing works better – more like 14 - 20 days before normal harvest.
- For Bosc, the best timing is 14 – 16 days before normal harvest.
- Apply in a sufficient volume of water to ensure thorough coverage without run-off. In most cases, a spray volume of 100 GPA is fine; however if trees are very large and/or have a lot of dense watersprout / sucker growth in the tree centers, you may get a better response by increasing application volume to 150 or 200 GPA.
- Buffer spray tank pH to neutral to slightly acidic.
- Do not apply to trees under stress.
- Apply in slow drying conditions.
- Apply when fruit surface and internal temperatures are at their lowest point e.g. early morning and evening applications
- Always use a surfactant with *ReTain*. An organosilicone surfactant or Lightweight summer oil at ½% v/v may be used.
- Unusually cool weather in the 30 days prior to harvest can advance pear maturity and require an earlier application timing.