



### **Bloom and Petal Fall Thinning**

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Flower development has been slow this spring. However, it does appear that the weather will become warmer later this week allowing flower development to proceed much more rapidly. I consider the bloom and petal fall period to be an underutilized thinning opportunity. In general, flowers are much less susceptible to thinners at these times. The bloom and petal fall stages are excellent times to start your chemical thinning. The chances of over-thinning even when high rates of hormone thinners are used is about as great as the odds given Rich Strike to win the Kentucky Derby on Saturday!

#### **Caustic Thinners**

The use of caustic thinners has been unpopular in the Northeast for a variety of reasons. Even with the development of the Pollen Tube Growth Model, the time required, the precise timing and phytotoxicity issues have discouraged its use. (Not to mention the general lack of availability of ATS and/or lime sulfur, the latter specifically prohibiting application during bloom.)

#### **Bloom and Petal Fall with Hormone Thinners**

Bloom is a time when orchardists frequently do not choose to thin. The bloom period has not yet occurred in many orchards so there is uncertainty about how favorable it will be for bees to fly. Also, the potential for frost still exists. However, it should be noted that the sooner you can start the thinning process, the better chance you have of influencing and encouraging return bloom. There are several options available to use at bloom.

With one exception (Carbaryl) the same hormone thinners can be used at either bloom or petal fall. When selecting a thinner(s) it should be emphasized that thinners are not as potent when used at bloom as when they are applied at the traditional 7-14 mm stage. A rough guess is that thinners applied at bloom and petal fall are about 50% less effective at thinning as they are if they were applied at the 7-14 mm stage.

#### **Naphthaleneacetic Acid (NAA)**

Naphthaleneacetic acid (NAA) has been used by growers for over 75 years. There is some comfort in using a compound that has passed the test of time. I routinely have applied NAA at 10 to 12 ppm and I have never over-thinned a tree. This is the concentration range I would suggest. This amount could be applied to a broad spectrum of cultivars. I would be less aggressive on cultivars known to be easy to thin such as Cortland or Cripps Pink.

#### **Naphthaleneacetamide (Amid-Thin W)**

This is a thinner that has garnered increased interest from growers recently. Amid-Thin is a weak thinner than NAA and it rarely if ever does it over thin. It has a reputation of being a reasonably consistent thinner. The label allows application of 8 oz/100 gal. I do not recommend using a rate any lower than 8 oz/100 gal. Further, I recommend the addition of a surfactant such as Regulaid with Amid-Thin to increase thinning activity.

#### **Ethephon**

Ethephon may be used as an early thinner. The recommended rate is 300 ppm or 1 pt/100 gal. Some have applied it at a rate as high as 400 ppm with good results. It may not be as consistent as other thinners.

## **Carbaryl**

Historically, this has been one of the most popular thinners used in New England. Unfortunately, it is very toxic to bees so it can only be used after the bees have been removed from the orchard. It is unusual among thinners since its effectiveness is concentration independent. It is an excellent choice to combine with NAA or Amid- Thin at petal fall to enhance thinning activity.

Last year I applied NAA at bloom and petal fall at 12 ppm with Regulaid and in the petal fall spray I included carbaryl on one set of Gala trees. On a different set of Gala trees I applied Amid-Thin W at 8 oz/100 gallons plus Regulaid at bloom and petal fall and included carbaryl in the petal fall spray. I achieved thinning with both of these treatments but additional thinning was also necessary. It was a good way to get thinning started. The petal fall application was made after the bees were removed from the orchard, but before the fruit had grown to 5 mm.

**From the Drexel 4L Carbaryl label** - “BEE CAUTION: May kill honeybees and other bees in substantial numbers. This product is highly toxic to bees exposed to direct treatment or residues on crops or weeds in bloom. Notifying beekeepers within 1 mile of the treatment area at least 48 hours before product is applied will allow them to take additional steps to protect their bees. Limiting applications to times when bees are least active, e.g., within 2 hours of sunrise or sunset, will minimize risk to bees. Do not apply this product to target crops or weeds in bloom. If weed or cover crop bloom is present, mow orchard floor or between rows prior to applying this product. FOR APPLE THINNING USE: Do not apply during bloom. Remove bee hives from the orchard to be treated before applying this product. Removing bee hives from adjacent orchards will further minimize risks to bees.”

**From the Amid-Thin W label** - “DIRECTIONS FOR THINNING APPLES Tree response to Amid-Thin W applications varies greatly based on variety, tree vigor and architecture, alternate bearing tendencies, pollination, weather conditions before, during and after application and bee activity. Other important factors to consider are last year's fruit set level and current year's nutrient reserve status, which is affected by crop load and foliage vigor during the preceding year. Amount of bloom and other factors that make for good fruit set will vary depending on location. Therefore, the amount of thinning to obtain optimal fruit load can vary from year to year. Contact your local Extension Pomologist for time of application and rates to be used for your specific thinning problems and varietal concerns. Spray Amid-Thin W at a rate of 25 to 50 ppm at full bloom or up to petal fall (Table-1). Limit the use of the higher concentrations given in Table-1 below to difficult-to-thin, and/ or vigorous trees with ample pollination and good initial fruit set. Use the lower concentration on easy-to-thin varieties and/or weaker, less vigorous trees with less energy reserves. One of the outstanding advantages of AmidThin W is that it lowers the risk of over-thinning and therefore can be used as the first step for obtaining optimal fruit load. It is important to reduce the amount of Amid-Thin W appropriately when mixing with other thinners including carbaryl or 6-BA. It is also important that Early Summer varieties are sprayed no later than petal fall since applications two to three weeks later often give insufficient thinning and may result in the development of inferior pygmy fruit. Apply when daytime temperatures are between 65°F to 85°F. Do not spray when daytime temperatures are below 50°F.”

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