



Factsheet #6: Apple Pollination and Fruit Thinning
updated June 2020

Context

Getting to a crop of fruit requires fruit buds to survive winter and emerging flowers to squeak through frosty springs. All of that is for naught if no pollination occurs! Sometimes conditions dictate the need for hand-pollination, though in most cases we can rely on healthy native insect populations. Once fruit has set, it's time to thin. Thinning encourages larger fruit and allows the tree to direct resources into growth and the development of next year's fruit buds (formed mid-summer).

Pollination

Each flower on an apple tree has both anthers that produce pollen and an ovary that, when pollinated, becomes an apple. However, most apples require pollen from a different variety to set fruit. Enter bees and other insects: they carry pollen from the blooms on one tree to that of another while taking their share of sweet nectar and a certain amount of the pollen itself. We do a small amount of hand pollination for cases where blooms are isolated by distance (fifty feet is the recommended maximum distance between trees intended to cross-pollinate each other) or time. While we aim to sell trees in pairs that overlap in bloom time, we are seeing that microclimates even within a yard can shift bloom windows enough to be problematic. This is especially true for young trees with few blooms. Mature trees will have more flowers and a longer time between first and last blooms. In those early years, helping pollination along by obtaining a couple of blooms from a tree elsewhere (crabapples work well and bloom prolifically) is a good idea.

To hand-pollinate, use a small paintbrush to collect pollen from one bloom and move it to another (yellow dust will be visible on the brush). In practice, this looks like dabbing the brush into half a dozen flowers on one tree then doing the same on the next, and repeat. There is no harm in moving pollen around within a tree, it just won't yield much fruit. Knowing you won't want all the fruit on any one cluster to set anyways, focus on making sure one to three blooms on each cluster get well pollinated. If you don't have a paintbrush handy, strip the petals off of your pollen flower and dust the pollen directly on the stigma (the top of the pointy green bit in the middle of the flower) of the blooms you wish to pollinate. Hand-pollinating is a good tool when the weather is preventing insects from flying or if your trees are blooming before there are many about.

Thinning

While thinning can be done earlier (of fruit buds or blossoms), the vagaries of our spring season make us inclined to wait for fruit to set. Also, many trees self-thin to some extent (some more than others) during the 'June drop'. The flip side is that the longer you wait, the less impact thinning will have on the size of remaining fruit; aim to complete the task by the end of June. We usually make a couple of passes on each tree throughout the month. The goal for thinning is to arrive at an average of one fruit per 4" of branch; if the tree is thin in some spots, leave more fruit in others. Fruit that 'takes' or 'sets' will start to swell and remain green or in some cases dark red. Fruit that is being aborted will show yellowing stems and fruit before falling off. To thin, snap off or cut developing fruits from their stems.



When deciding what fruit to leave and what to thin, consider the following:

- on branches with closely-spaced clusters, remove all fruit from every other cluster to leave those points for fruiting next year
- select well-shaped fruit with longer stems and thin out those with blemishes, lesions or russeting – small defects will grow along with the fruit
- prioritize fruit in well-lit sites over those in shade
- choose fruit on strong branches or close to the trunk over those out on the ends of limbs
- apple crabs can support three or four fruit per cluster, medium sized apples should be limited to one or two and large to a single fruit



For heavy crops, remove all fruit from every other cluster – these will be likely spots for next year's fruit buds to form.



For medium-sized apples, thin to one or two fruit per cluster; note yellow stem on fruit that is being aborted.



Take-aways

- ✓ Apple blooms need to be fertilized by pollen from a different cultivar to produce fruit
- ✓ Hand-pollinate if your blooms are isolated in time or space, or insects aren't flying
- ✓ Thinning improves this year's crop quality and allows the tree to put resources into next year's fruit and this year's growth
- ✓ Thin to one fruit per 4" of stem/branch on average for medium-size apples