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Pollination of tree fruits

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Definitions

Pollination: the transfer of pollen from the anthers to the stigma of a flower.

Self-pollination: when the transfer of pollen occurs within the same variety.

Cross-pollination: when the transfer of pollen occurs between two varieties.

Self-unfruitful: very little fruit will set unless the blossoms are fertilized with pollen of another variety.

Self-fruitful: varieties that set fruit with their own pollen.

Cross-unfruitful: varieties that will not set fruit even when cross-pollinated.

Compatible: varieties that fertilize each other.

Parthenocarpic: fruit that is set and grown without fertilization (no seeds present).

row may be grafted to a pollinizing variety. In backyard situations, you may want to graft a pollinizing variety on one of the scaffold limbs. Bouquets also may be used by placing branches of open fresh blossoms of a pollinating variety in buckets of water and hanging them in the trees.

The honey bee is the most important carrier of pollen. In mature orchards, there should be a

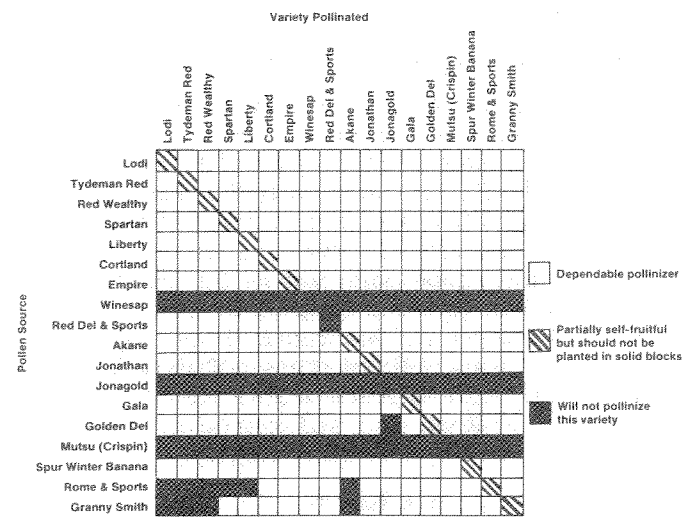


Figure 1: Pollination of apples.

Most fruit trees need cross-pollination for good fruit set. Therefore, before the trees are purchased, carefully evaluate the pollination requirement of the given fruit crop.

Many new plantings, especially apple orchards, have a tendency toward planting a solid block of one variety to make more efficient use of land, labor and cultural practices (thinning, pruning, chemical sprays, harvesting). For pollination, pole-type pollinators are placed every 60 to 120 feet in every row with adjacent rows offset. These pollinizer trees, trained as a pole-type or slender spindle, take up little or no productive space in the orchard but give maximum fruit set potential. For backyard trees, a pollen source should be no more than 100 feet away.

In established orchards without adequate pollinizers, the top of every third tree in every third

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minimum of one hive per acre (two hives per acre in pear orchards). Pollen transfer is seldom done by wind. Backyard plantings probably would have a sufficient number of wild bees to do the job.

Some orchard cover crops, such as dandelion blooms, are very attractive to bees. Removal of the blooms by mowing or herbicide sprays will increase pollination for apples. Bees are not active in cool, wet or windy weather. An increase in the number of bee colonies may be needed in poor pollination weather.

Apple

All varieties of apple trees require some cross pollination for fruit set. Even though some varieties are listed as self-fruitful, they will set fruit heavier and more regularly if they are cross-pollinated.

For solid block plantings, spur-type Winter Banana, spur-type Golden Delicious, or flowering crab apples such as Manchurian and Snodrift may be used for pollinizers.

Place honey bees in apple orchards when the first blossoms open.

Peach, Nectarine and Apricot

The common varieties of nectarines and most peaches grown in Colorado are self-fruitful. Self-fruitful varieties of peaches are J.H. Hale, Earlihale, Hal-Berta, Candoka and Mikado (June Elberta). Most other varieties of peaches will pollinate these self-unfruitful varieties. However, Elberta is not a good pollinizer for J.H.Hale.

Self-fruitful varieties of apricots are Tilton, Wenatchee, Royal and Moorpark. These will set commercial crops without cross-pollination.

Self-unfruitful varieties of apricots are Riland, Perfection and Rival. Any self-unfruitful varieties can be pollinated by any other variety.

Sour and Sweet Cherry

All sour cherries are self-fruitful. These include Montmorency, North Star, Montmore, Meteor, English Morello, Early Richmond, Hansen Bush Cherry and Nanking.

All sweet cherry varieties except Stella are self-unfruitful and must be cross-pollinated. There are several varieties that are cross-unfruitful: for example, Bing, Lambert and Royal Ann (Napoleon) will not pollinate each other. Move bees into sweet cherry orchards on the first day of bloom.

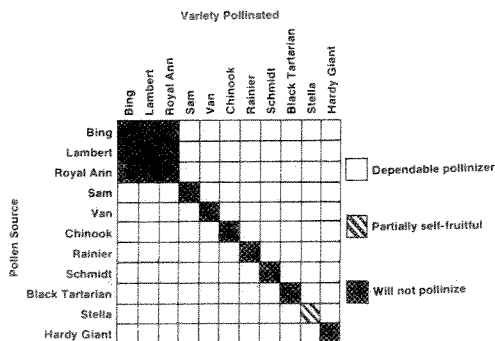


Figure 2: Pollination of sweet cherries.

Pear

Anjou and Bartlett are partially self-fruitful but should be cross-pollinated to produce heavy and regular crops. Bartlett, Comice and Hardy may set large crops of parthenocarpic fruit.

Another consideration is the fire blight susceptibility of the particular pear cultivar (see Service in Action sheet 2.907, *Fire blight*), since the pollen source is useless if stunted or killed.

Pear blossoms have a short season and the small amount of nectar produced is not attractive to bees. Twice as many bees should be available to pears as with other fruits. Move bees into the pear orchard when the trees are in one-third bloom.

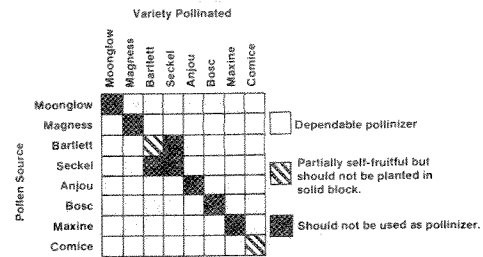


Figure 3: Pollination of pears.

Plum

Japanese plums: Two of the most popular varieties, Burbank and Abundance, are self-unfruitful but will pollinize each other. European varieties should not be depended upon to pollinize Japanese varieties because of bloom date differences.

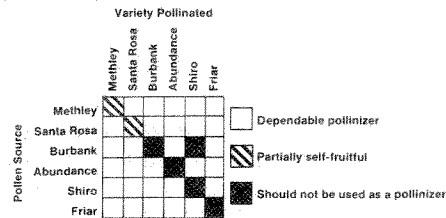


Figure 4: Pollination of Japanese plums.

European Plums: Stanley and Damson are self-fruitful and will pollinize other European varieties. All other European plums require pollen from another European variety.

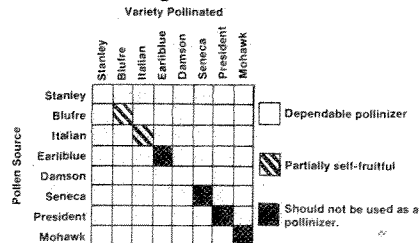


Figure 5: Pollination of European plums.