

# Pollination of Fruit Trees

## Durango Nursery & Supply Official Guide

### What is Pollination?

For fruit to develop on fruit trees, *pollination* must occur at blossom time.

Pollination is the transfer of pollen from the male part of the flower (anther) to the female part of the flower (stigma). Some types of fruit trees may be pollinated with their own pollen and are considered *self-fruitful* or *self-pollinating*. Others require pollen from a different variety of the same type of tree and are considered *self-unfruitful*. The transfer of pollen from one variety to a different variety of the same type of tree is called *cross-pollination*. Cross-pollination is possible only when varieties bloom at approximately the same time. Length of bloom is usually 7 to 15 days. **Early bloomers should be planted with early or midseason bloomers and late bloomers with late and midseason bloomers.**

Cross-pollination is **essential** for apples, pears, most sweet cherries, and most Japanese plums. Cross-pollination is **not essential** for apricots, European plums/prunes, tart cherries, peaches and nectarines, but does **improve the number of fruits** that form on these types of trees.

Pollen is primarily transferred by honeybees. The ideal distance between cross-pollinating trees is **within 50 feet**; trees placed **more than 100 feet away** may result in poor pollination. Bees work best when temperatures are above 65°F. Cool weather, rain or winds may prevent bees from leaving their hives. Most pesticides are toxic to bees and should not be used during bloom time.

#### 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:** two varieties that, when cross-pollinated, will not set fruit.

**Compatible:** varieties that fertilize each other.

## Malus – Apples and Crabapples

Apples are generally not self-fertile and require cross-pollination with another variety for optimal fruit set and size. For successful pollination to occur, bloom periods must overlap. Apples are generally categorized as having early, mid or late season bloom periods. To assure adequate pollination, select at least 2 or 3 varieties that bloom within the same time. **Early bloomers should be planted with early or midseason bloomers; late bloomers with late and midseason blooming cultivars.** One cultivar commonly used for pollination of many apple trees is ‘Golden Delicious’, which is considered a mid-season blooming cultivar. Triploid apple cultivars, such as ‘Jonagold’ and ‘Gravenstein,’ are self-sterile and cannot supply viable pollen, making them unsuitable as pollinizers.

Flowering crabapples are becoming a popular pollination method with commercial growers because they are easily cared for and bloom times are generally longer than other apple species. In an orchard planting, all trees should be within 100 feet of the pollinator tree. Wind does not carry pollen from one apple tree to another. Consequently, bees are indispensable in an orchard. Use one good hive per acre.

The chart below lists the blooming time of apples and crabapples we sell at our nursery. Please note, not all varieties may be currently available.

Malus - Apples and Crabapples					
Early Blooming	Zone	Midseason Blooming	Zone	Late Blooming	Zone
*Dolgo Crabapple	4	Centennial Crabapple	3	*Fuji	5
*Empire	4	*Cortland	4	*Granny Smith	5
Gravenstein (self-sterile)	3	Donald Wyman Crabapple	4	Haralred	3
Hazen	4	Frostbite	3	Indian Magic Crabapple	4
Liberty	5	*Gala	4	Klehm's Crabapple	4
Lodi	4	*Golden/Yellow Delicious	5	Prairifire Crabapple	4
Norland	3	Honeycrisp	4	Royal Raindrops Crabapple	4
Showtime Crabapple	4	Honeygold	4	Wealthy	4
Spring Snow Crabapple	4	Jonagold (self-sterile)	5		
State Fair	3	Louisa Crabapple	4		
*Yellow Transparent	3	Marilee Crabapple	4		
Zestar!	4	Radiant Crabapple	3		
		Red Delicious	5		
		*Red Jonathan	5		
		*Red McIntosh	5		
		*Royal Gala	5		
		Sweet Sixteen	3		
		Winecrisp	4		

\*Semi-Self Fertile; May produce fruit on their own, but cross-pollination with another variety will result in a greater fruit set.

## Prunus – Apricot

Most apricots are self-fertile. In colder regions, it is usually best to plant a second variety for cross-pollination to promote the heaviest fruit set possible. Apricots generally flower very early in the spring, posing a frost risk to flowers and young fruit. To delay spring flowering, apply a thick layer of mulch after the ground freezes in the fall, plant in a protected area, and protect blooms from early frost by covering with row cover or providing a source of heat underneath the tree.

**Clingstone** – a fruit in which the flesh adheres to the pit or stone

**Freestone** – a fruit in which the flesh does not adhere to the pit or stone

<b>Prunus - Apricot</b>				
<b>Variety</b>	<b>Cling or Freestone</b>	<b>Zone</b>	<b>Blooming Season</b>	<b>Suggested Pollinator</b>
Brookcot	Semi-Freestone	3	Mid	Self-fertile
Chinese	Clingstone	4	Mid	Self-fertile
Harcot	Freestone	5	Late	Self-fertile
Moongold	Freestone	4	Mid	Moorpark, Sungold
Moorpark/Wenatchee	Freestone	5	Mid	Self-fertile
Pioneer Chinese	Freestone	4	Late	Self-fertile
Scout	Freestone	3	Mid	Self-fertile
Sungold	Freestone	4	Mid	Moorpark, Moongold
Westcot	Freestone	3	Mid	Self-fertile

## Prunus – Peach

Normally, peaches are self-fertile. Fruit production may be heavier when planted with a second variety. Beehives placed near the trees during blossom time will aid pollination.

**Clingstone** – a fruit in which the flesh adheres to the pit or stone

**Freestone** – a fruit in which the flesh does not adhere to the pit or stone

<b>Prunus - Peach</b>				
<b>Variety</b>	<b>Cling or Freestone</b>	<b>Zone</b>	<b>Blooming Season</b>	<b>Suggested Pollinator</b>
Bailey Hardy	Semi-Freestone	5	Early	Self-fertile
Contender	Freestone	4	Mid	Self-fertile
Cresthaven	Freestone	5	Late	Self-fertile
Elberta	Freestone	5	Late	Self-fertile; Excellent Pollinator
Eldorado	Freestone	5	Mid	Self-fertile
Pix Zee	Freestone	5	Early	Self-fertile
Polly White	Freestone	5	Late	Self-fertile
Redhaven	Semi-Freestone	5	Mid	Self-fertile
Reliance	Freestone	4	Mid	Self-fertile

## Prunus – Cherry

Sour (pie) cherries are hardy and self-fruitful; however, the fruit production will be heavier when planted with a second variety. Most sweet cherries need a pollinator, however a few varieties such as Lapins and Stella are self-fruitful and serve as ‘universal’ pollen sources for other self-unfruitful sweet cherry varieties.

<b>Prunus – Sour Cherry</b>				
<b>Variety</b>	<b>Sour or Sweet</b>	<b>Zone</b>	<b>Blooming Season</b>	<b>Suggested Pollinator</b>
Evans Bali	Sour	3	Mid	Self-fertile
Mesabi	Sour	4	Mid	Self-fertile
Meteor	Sour	4	Early	Self-fertile
Montmorency	Sour	4	Late	Self-fertile
North Star	Sour	4	Mid	Self-fertile

<b>Prunus - Sweet Cherry</b>				
<b>Variety</b>	<b>Sour or Sweet</b>	<b>Zone</b>	<b>Blooming Season</b>	<b>Suggested Pollinator</b>
Bing	Sweet	5	Mid	Black Tartarian, Lapins
Black Tartarian	Sweet	5	Early	Bing, Rainier
Lapins	Sweet	5	Early	Self-fertile
Rainier	Sweet	5	Mid	Stella, Bing, Black Tartarian
Stella	Sweet	5	Mid	Self-fertile

## Prunus – Plum

Most plum varieties are a cross between Japanese and American plums. Planting two different plum varieties that flower simultaneously **will not** insure proper cross pollination, since European and Japanese varieties do not pollinate each other despite overlapping bloom time. Use ‘Toka’ or native *Prunus americana* as a pollinator for *Japanese x Americana* plums. European plums are generally self-fertile.

<b>Prunus - Plum</b>					
<b>Variety</b>	<b>Cling or Freestone</b>	<b>Zone</b>	<b>Blooming Season</b>	<b>Classification</b>	<b>Suggested Pollinator</b>
Compass	Clingstone	3	Early	Cherry	Self-fertile; Saplta
Green Gage	Freestone	5	Mid	European	Self-fertile; Mount Royal
Mount Royal	Freestone	4	Mid	European	Self-fertile; Stanley Prune
Pipestone	Clingstone	3	Mid	Japanese x Americana	Toka, <i>Prunus americana</i>
Santa Rosa	Clingstone	5	Mid	Japanese	Partially self-fertile
Saplta	Nearly Freestone	3	Early	Cherry	Self-fertile; Compass
Stanley Prune	Semi-freestone	5	Mid	European	Self-fertile; Mount Royal
Superior	Clingstone	4	Mid	Japanese x Americana	Toka, <i>Prunus americana</i>
Toka	Clingstone	3	Mid	Japanese x Americana	Self-fertile; Superior
Waneta	Clingstone	3	Mid	Japanese x Americana	Toka, <i>Prunus americana</i>

## Pyrus - Pear

Most pears require a pollinator. More than one variety should be planted within 40-50 feet of each other to cross-pollinate. Almost any pear will pollinate any other pear, provided both bloom at the same time. Bees are not partial to pear blossoms. The nectar is low in sugar content and the trees normally blossom early in the season when it is too cool or wet for bees to fly.

<b>Pyrus - Pear</b>			
<b>Variety</b>	<b>Zone</b>	<b>Blooming Season</b>	<b>Suggested Pollinator</b>
Bartlett	5	Mid	Semi self-fertile; Tawara Asian
Early Gold	3	Mid	Ure
Golden Spice	3	Mid	Ure
Luscious	4	Mid	Parker, Patten
Parker	4	Mid	Patten
Patten	4	Early	Parker
Summercrisp	4	Mid	Parker, Patten
Tawara Asian	4	Mid	Semi self-fertile; Bartlett
Ure	3	Mid	Early Gold