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Malus - Apple and Crabapple

All crabapple varieties can pollinate apples. Apples are generally not self-fertile. Two varieties should be used in each apple planting to serve as a source of pollen for the other variety. 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 mid-season bloomers and late bloomers with late and midseason bloomers. 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.

Blooming Season for Apples

Early Blooming	Zone	Midseason Blooming	Zone	Late Blooming	Zone
Beacon	3-6	Connell Red	4-7	Fuji	5-7
Goodland	3-6	Cortland	4-7	Golden Delicious	5-8
Gravenstein	6-8	Empire	4-7	Granny Smith	5-8
Hazen	3-6	Fireside	3-7	Haralred	3-6
Lodi	4-8	Freedom	4-7	Haralson	2-3
Mantet	3-7	Gala	5-7	Keepsake	4
Norland	2-3	Honeycrisp	4-7	Red Delicious	5
Red Dutchess	3-6	Honeygold	4-7	Red Regent	4-7
State Fair	3-6	Jonathan	4-8		
Wealthy	3-7	Liberty	4-8		
Yellow Transparent	2-3	Macoun	4-7		
		McIntosh	4-7		
		Northern Lights	2-3		
		Northwest Greening	4-7		
		Red Baron	3-4		
		Red Prairie Spy	4-7		
		Sweet Sixteen	3-7		
		Wolf River	4-7		

Crabapples are excellent pollinators for apple varieties which bloom at approximately the same time.

(insert how to recognize fire blight; under what conditions it flourishes)

Fire blight is a bacterial disease (*Erwinia amylovora*) that affects certain species in the rose family. It is especially destructive to apple, pear, quince and crabapple.

Disease Cycle - The bacteria overwinter in blighted branches at the edge of cankers (areas of bark killed by bacteria). Conditions favorable for fire blight infection in the spring include open blossoms or succulent new growth, temperatures above 65° F (18° C), plus rainfall or a relative humidity above 60 percent. Outbreaks of the infection may appear throughout the year on growing shoots following rain accompanied by wind and prolonged high humidity.

Diagnosis - Symptoms of blossom blight are first seen about the time of petal fall. Infected blossoms appear water-soaked and wilt rapidly before turning dark brown. During the growing season new terminal growth suddenly wilts and turns brown and curl over when dry, causing a 'shepherd's crook' appearance. Dead leaves remain attached to branches, giving the tree a fire-scorched appearance, thus the name 'fire blight'. Infected fruits exude bacterial ooze. They eventually dry and remain attached to the branch. Cankers occur on small or large limbs, trunks, and even roots, usually starting around the base of a blighted blossom spur or shoot. Rains help spread the bacteria,

and insects (bees, ants, flies, aphids and beetles), attracted by the sugar in the bacterium ooze, inadvertently become contaminated carriers to opening blossoms.

All crabapples should be inspected within 2 weeks after petal fall to ascertain any fire blight incursion. Remove all infected areas immediately and burn them. Sterilize pruning shear before using them again on healthy plants. One part liquid bleach to nine parts water is an effective disinfectant for tools. Since the bacterium is especially aggressive toward new, succulent growth, avoid late-summer fertilizing of trees. Also avoid sources of organically bound nitrogen, such as barnyard manure, since they can also cause epidemic infections in warm, wet springs. Another precaution is to avoid planting crabapples in heavy, poorly drained soils.

Disease Management - There is no cure for this disease, so prevention is the best solution. **Using resistant varieties is the most effective prevention method.** Different varieties of pear, apple and crabapple have different degrees of susceptibility. No variety is immune when conditions are favorable and the pathogen is abundant. To prevent stress that may predispose the tree to other disease-causing agents, select varieties adapted to the growing area.

Crabapple varieties and their relative degrees of susceptibility to fire blight.

Variety	Tree Shape: Mature Size	Flower Color/ Timing	Zone	Degree of Susceptibility	Edible Fruit Uses
Adams	Rounded; 20' x 20'	Pink/	4	Resistant	
Brandywine	rounded; 15'-20' tall and wide	double pink-rose/ late	4	Moderate	
Centennial	24' wide	Bright red over yellow/ mid-	2-3	Resistant	1.9" elongated; canning jelly, cooking, fresh
Centurion®	columnar/ upright; 20' x 15'	rose-red/ early	4	Resistant	
Chestnut		Early to Mid-	3-6	Resistant	2" reddish-yellow fruit; fresh, cooking, jam; nut-like flavor
Coralburst®	compact rounded; 12' x 15'	semi-double pink- rose/mid	3	Resistant (slow grower)	
David	compact rounded; 12' x 12'	pink balloon white/early	4	Resistant	
Indian Magic	upright spreading; 15' x 15'	deep pink/ early	4	Moderate	
Indian Summer	rounded; 18' x 18'	rose-red/ early	4	Resistant	
Louisa	Umbrella shaped/ weeping; 12' x 12'	pink/early	4	Resistant	
Molten Lava®	Broadly weeping; 12' x 15'	white/early	4	Resistant	
Prairiefire	spreading-rounded; 20' x 20'	red balloon purple-red/mid	4	Resistant	
Profusion	upright-spreading; 20' x 20'	deep pink/ early	4	Resistant	
Radiant	rounded; 20' x 15'	red balloon deep pink/early	3	Resistant	
Red Barron	columnar; 18' x 8'	reddish pink/ early	4	Resistant	
Robinson	upright-spreading; 25' x 25'	deep pink/ early	4	Resistant	
Sargent	spreading-shrubby; 8' x 12'	white/early	4	Resistant	fruit attractive to birds
Sargent Tina	dwarf-rounded; 5' x 6'	white/early	4	Resistant	fruit attractive to birds
Sentinel	upright; vase-shaped; 20' x 12'	red balloon, white/early	4	Resistant	
Spring Snow	rounded; 20' x 20'	white/early	4	Moderate	Fruitless
Thunderchild	rounded; 15' x 15'	rose-pink/early	3	Resistant	
Whitney		Early	3-9	Resistant	1-1/2" fruit; late July-Aug; fresh canning, preserves, pickling

Prunus - Apricot

Most apricots are self-fertile. In colder regions, it is usually best to plant a second variety for pollination to promote the heaviest fruit set possible. Apricots flower very early in the spring, posing a frost risk to flowers and young fruit.

Clingstone - a (Prunus) fruit in which the flesh adheres to the pit or stone.

Freestone - a (Prunus) fruit in which the flesh does not adhere to the stone or pit.

Variety	Cling or Freestone	Zone	Suggested Pollinator	Cling or Freestone	Zone
Moongold	Freestone	4-8	Sungold	Freestone	4-8
Moorpark	Freestone	5-9	Self-fertile (plant 2)		
Scout	Freestone	3-8	Self-fertile		

Prunus - Cherry

Most cherries are self-fertile, however, the fruit production will be heavier when planted with a second variety.

Variety	Blooming Season	Zone	Suggested Pollinator	Blooming Season	Zone
Bing	Early	5-8	Black Tartarian, Montmorency Stella		5-7 4-8 5-8
Black Tartarian (sweet)	Early	5-7			
Evans Bali (sour)	Mid	3-8	Self-fertile		
Mesabi (sour)	Mid-May	4-8	Self-fertile		
Meteor	Early May	4-8	Self-fertile		
Montmorency	Late	4-8	Self-fertile		
North Star	Early May	4-8	Self-fertile		
Stella	Early	5-8	Self-fertile		

Prunus - Peach

Normally, peaches are self-fertile. Bee hives placed near the trees during blossom time will aid pollination.

Clingstone - a (Prunus) fruit in which the flesh adheres to the pit or stone.

Freestone - a (Prunus) fruit in which the flesh does not adhere to the stone or pit.

Variety	Blooming Season	Zone	Cling Or Freestone	Suggested Pollinator
Bailey Hardy	Early	5-8	Semi-freestone	Self-fertile
Elberta	Late	5-9	Freestone	Excellent pollinator
Redhaven	Mid-	5-8	Freestone	Self-fertile
Reliance	Mid-	5-8	Freestone	Self-fertile

Pyrus - Pear

Most pears require a pollinator. More than one variety should be planted within 40-50 feet of each other in order 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.

Variety	Blooming Season	Zone	Resistant to Fire Blight	Suggested Pollinator	Use as a Pollinator?
Bartlett	Early	5-8		Any suitable	Not suitable for Seckel or other varieties
Bosc	Early	5-8		Any suitable	
Clapp's Favorite	Early	5-8		Any suitable	
Gourmet	Early May	4-8		Any suitable	Not suitable
Luscious	Early May	4-8		Parker or Patten	Not suitable
Parker	Early May	4-8		Patten	
Patten	Early May	4-8		Any suitable	
Seckel	May	2-8	Moderate	Self-fertile, benefits from cross-pollination	Not suitable for Bartlett
Summercrisp	Early May	4-8	Yes	Any suitable	
Ure	May	3-7	Yes	Any suitable	

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. Use 'Toka' or native *Prunus americana* as a pollinator for Japanese x Americana plums. Use 'Compass' as a pollinator for cherry plums. European plums are generally self-fertile.

Variety	Blooming Season	Zone	Plum Classification	Suggested Pollinator Variety	Cling or Freestone
Alderman	Mid	4-8	Japanese x Americana	Toka or Compass	Clingstone
Compass	Early	3-8	Cherry	Cherry plum	Clingstone
Green Gage	Mid-	5	European	Self-fertile	Freestone
La Crescent	Mid-	4-8	Japanese x Americana	Toka	Freestone
Mount Royal	Mid-	4-8	European	European varieties	Freestone
Pembina	Mid-	3-8	Japanese x Americana	Toka	Clingstone
Pipestone	Mid-	3	Japanese x Americana	Toka	Clingstone
Red Diamond	Early	3	Dwarf Cherry	Compass	Freestone
Santa Rosa	Mid-	5-9	Japanese	Partially self-fertile; improves with Japanese variety	Clingstone
Sapalta	Early	3-8	Cherry	Compass	Nearly Freestone
Stanley Prune	Late	4-8	European	Self-fertile; yields more with another variety	Semi-freestone
Superior	Mid-	4-8	Japanese x Americana	Toka or native <i>Prunus americana</i>	Clingstone
Toka	Mid-	3-8	Japanese x Americana	Excellent Pollinator	Clingstone
Underwood	Early	4-8	Japanese x Americana	Toka or native <i>Prunus americana</i>	Clingstone
Waneta	Mid-	3-8	Japanese x Americana	Toka or native <i>Prunus americana</i>	Clingstone

Source: Colorado State University Cooperative Extension, www.ext.colostate.edu
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