

Apple/Crabapple - *Malus sp.*

General information: Apples and Crabapples are best grown in a sunny location with good air circulation and have no particular soil preferences, except soil should be well-drained. Root pruned trees transplant most easily. Tree size, flower color, fruit color, and growth and branching habit vary considerably with the cultivar grown but many grow about 20 feet tall and wide. A few Crabapples have good fall color and double-flowered types hold blossoms longer than single-flowered cultivars. Some Crabapples are alternate bearers, blooming heavily only every other year. Crabapples are grown for their showy flowers and attractive, brightly-colored fruit.

Apples and crabapples come in a profusion of varieties, most bearing lovely flowers and attractive, sometimes edible, fruit. They have alternate, toothed leaves, bear flowers in early to mid spring, and set fruit in late summer to early fall.

Malus is a very popular traditional bonsai due to its flowers of seemingly infinite variety and loveliness. Crabapple is much loved for its attractive fruit and small leaves. Apples make excellent, if rarely seen, bonsai, but are only suitable for large sized trees.

Family: *Rosaceae*

Lighting: Full sun or semi-shade; needs protection from full summer sun.

Temperature: Zones 4 through 8A.

Watering: Moderate - do not allow the soil to dry out completely. Requires plenty of water when fruiting, or the apples will shrivel and drop. Do not mist, as this encourages mildew.

Feeding: Resnick says weekly in spring-early fall, using dilute manure tea or general purpose fertilizer. Tomlinson recommends discontinuing feeding from the beginning of flowering until the fruits are set, to discourage leafy growth that will occur at the expense of fruits and flowers. Most texts encourage heavy feeding to provide nutrients for fruit and flower production. Simon and Schuster's and Murata disagree with this practice, preferring to feed sparingly to reduce the rapid growth of the tree. Feeding is recommended at 20-30 day intervals for *M. halliana* and every 15-20 days for *M. pumila*. A good sprinkling of bonemeal in the fall promotes fruiting.

Pruning and wiring: Prune sub-branches by mid-August, if you wish to encourage flower bud formation instead of leaf and stem growth. Tips can be pruned as needed, reducing new shoots to two buds. In general, wiring can be done from spring to autumn, protecting the bark. Simon and Schuster's recommends wiring *M. pumila* from spring to summer only. It is wise to wait a few months to wire crabapples after repotting. Suitable for all sizes, but for shohin, pick varieties with especially small fruit. Does not work well styled as cascade or broom.

Fruiting puts stress on crabapple bonsai. Fruit should be thinned out

considerably, and Owen recommends allowing the bonsai to rest one year in three, removing all the fruit.

Propagation: From seed (requires cold pre-treatment) or air-layering. Crabapples are commonly propagated by grafting, but for bonsai use, care must be taken that a specimen does not exhibit an ugly graft scar. Crabapples can be grown from root cuttings (see "Creating Crabapple Bonsai from Root Cuttings," in "International Bonsai" 1994/issue 1.) Many crabapples also sucker up from the roots, and the suckers may be separated from the roots in the fall or in the following spring from their formation. Brent provides extensive information on cuttings from young crabapple growth, which is quote directly:

Most crabapples are very easy to propagate from cuttings given the right conditions. This depends very much on the cultivar and species. Juvenile plants are pretty much essential for vigorous cuttings. Older plants can be induced to sprout juvenile type growth through hard pruning the previous winter. *Malus coronaria* species and cultivars are quite difficult from cuttings. Other difficult cultivars are 'Royalty', 'Dolgo', and 'Cardinal'. The last two have intermediate sized fruit, about two inches, so it is unfortunate that they don't root easily.

Most of the smaller fruited cultivars seem to root with little difficulty. Cuttings are taken at the semi-hardwood stage from May to August depending on your climate and the weather. Take six inch cuttings with three nodes or more, wounding is beneficial for most, and treat with a medium strength hormone. I use Hormex #8, 0.8% IBA. Reduce the leaf surface by cutting each leaf by one half to two thirds. I find that this works better than removing entire leaves.

Keep the leaves moist with automatic mist or with a poly tent or put them in an area that stays cool and moist. The greatest danger is drying out. Some will root in a few weeks, but it is more likely the majority will root over the winter. You can tell when they are rooted when they throw a vigorous new shoot. You may have to remove the rooted cuttings from the flat as they root or they roots will completely colonize the flat or pot and restrict the root growth of the laggards.

Repotting: In early spring after flowering, or in early autumn. Repot every 1-2 years; *M. halliana* may require yearly repotting. Crabapples need root space, so a deep pot should be used. Likes well-drained, slightly alkaline soil.

Pests and diseases: Pests: Aphids infest branch tips and suck plant juices, and are quite common. They can deform newly emerging foliage and secrete honey dew creating a sticky mess beneath the tree, but will not kill the tree.

Fall webworm makes nests on the branches and feeds on foliage inside the nest. Small nests can be pruned out or sprayed with *Bacillus thuringiensis*. Controlling severe infestations may require other chemicals.

Scales of various types are controlled with horticultural oil.

Borers can be a problem on stressed trees.

Mites are too small to see easily so they can cause much foliage discoloration before being detected. Mites can be controlled to a degree with horticultural oil, but other chemicals are often required by the time mites are detected. The mite infestation can also be severe by the time foliage chlorosis or bronzing is evident.

Eastern tent caterpillar builds tents or nests in trees in early summer or late spring. Feeding occurs on foliage outside the nest. Defoliation can be extensive if infestation is severe, and repeated defoliations for several years can weaken trees. Small nests can be removed by pruning them from the tree. Spray with *Bacillus thuringiensis* or other approved chemical. Do not burn nests while they are still in the tree.

Diseases: Many selections are fairly susceptible to disease. Select from the disease-resistant ones.

Scab infection takes place early in the season and dark olive green spots appear on the leaves. In late summer the infected leaves fall off when they turn yellow. Infected fruits have black, slightly raised spots. Use resistant varieties to help avoid this severe problem.

Fire blight susceptible trees have blighted branch tips, particularly when the tree is growing rapidly. Leaves on infected branch tips turn brown or black, droop, and hang on the branches. The leaves look scorched as by a fire. The trunk and main branches become infected when the bacteria are washed down the branches. Cankers form and are separated from adjacent healthy bark by a crack. The infected bark may be shredded. Use resistant cultivars when available since severe infections on susceptible trees can kill the tree.

Powdery mildew coats leaves with white fungal growth resembling powder.

Cedar apple rust causes brown to rusty-orange spots on the leaves. Badly spotted leaves fall prematurely, and defoliation can be heavy. Redcedars (*Juniperus virginiana*) are the alternate host. Crabapples are subject to several canker diseases. Prune out infected branches, avoid unnecessary wounding, and keep trees healthy.

Some species suitable for bonsai:

- *Malus x atrosanguinea*: carmine crabapple
- *Malus baccata*: Siberian crabapple - Hardy to zone 2, bears white flowers and bright red fruit.
- *Malus baccata mandshurica* (also called *M. cerasifera*): Manchurian crabapple, Siberian crabapple - Like the species, bears white flowers and is hardy to zone 2. It has red or yellow cherry-sized fruit, and needs full sun more than most crabs.
- *Malus coronaria*: prairie crabapple, sweet crabapple - With red-brown fissured bark and yellow fruit, *M. coronaria* grows wild from NY west to Illinois and south to Georgia.
- *Malus 'Dorothea'*: yellow crabapple
- *Malus floribunda*: Japanese crabapple, showy crabapple, Japanese flowering crabapple, purple chokeberry - a magnificent garden tree with flowers of white or pink, the flowering crabapple is used profusely in landscaping on the east coast of the US and in California. Hardy to zone 5. Its 1/3 inch red fruit makes it a good small bonsai.

- Malus 'Golden Hornet': Golden Hornet crabapple - bears a generous crop of fruits which stay on the tree after leaf fall.
- Malus halliana: Hall's crabapple, Suishi-kaido - pinkish-white or bright rose flowers and purple fruits. It is hardy to zone 6 and grows to 16 feet. The fruit is edible and only 1/3 inch, making this a good choice for small bonsai.
- Malus himekokoh - this Japanese native is reputed to have delicious fruit.
- Malus x 'Hime Ringo': Nagasaki crabapple - double light pink flowers, 1/2 inch or smaller fruit. "Hime" means delicate or feminine, and many different cvs. of crabapple are sold under this name. Iris Cohen believes, in fact, that the name is sometimes used interchangeably with M. halliana.
- Malus hupehensis: tea crabapple - Hardy in zones 4-7, it has pink flowers which fade to white. Its yellow tinged red fruit is only about 1/3 inch, making it ideal for shohin. It grows to 27 feet.
- Malus 'Lizet' - Purple buds opening to red-pink flowers, purple- red fruit.
- Malus 'Louisa' - Weeps profusely - a large bonsai may not even need the branches to be wired down.
- Malus 'Mary Potter': Mary crabapple - Excellent bonsai potential due to its twiggy branch ramification, and profuse number of pink flowers.
- Malus x micromalus: Kaido crabapple, dwarf crabapple - Hardy to zone 5, this crabapple has deep pink flowers and especially tiny yellow fruit.
- Malus 'Oekonomiera': pink crabapple
- Malus 'Profusion': purple crabapple - deep red fruit, wine-red flowers, purple leaves.
- Malus pumila: crabapple - hardy to zone 4. It has five-petalled flowers of pink or white, and the fruit varies in color: red, green or yellow.
- Malus x purpurea: Lemoine crabapple, purple crab - a French hybrid with purple color in all parts - leaves, flowers, fruit. Does well in cold areas.
- Malus 'Rredient': red crabapple
- Malus 'Red Jade': weeping crabapple, Red Jade crabapple - a weeping form with white flowers. Hardy in zones 5-7, it has 1/2 inch red, egg-shaped flowers and grows to 12 feet.
- Malus 'Royalty' - Flowers, fruit and leaves are intensely purple. I have one of these, and it is lovely.
- Malus sargentii: Sargent's crabapple, dwarf crabapple White flowers and 1/2 inch red fruit, it is hardy to zone 2. Brent says that this is the crabapple with the smallest leaves.
- Malus sargentii 'Tina' - a superior cv. with lovely dark pink buds.
- Malus scheideckeri - This tree bears tasty fruits which are two inch replicas of tiny red delicious apples.
- Malus 'Snowdrift': Snowdrift crabapple - small deep pink buds opening to pure white flowers, many persistent orange-red fruits.
- Malus 'Sugar Tyme' - pinkish white flowers, and profuse quantities of small, intensely red fruit.
- Malus sylvestris: common crabapple - toothed leaves, sometimes bears thorns in the wild. It has yellow-green fruit with traces of red.
- Malus toringo (also called Malus sieboldii): Toringo crabapple, Zumi - Red, pale orange or yellowish brown-fruit, and bright pink flowers which fade to white. This crabapple is hardy to zone 2. It is a relatively tall crabapple, growing from 23-33 feet in the wild.
- Malus toringoides - Green lobed foliage, creamy white flowers, red and yellow fruit.
- Malus transitoria: cut-leaf crabapple - White flowers and red fruit. One

of the most delicate crabapples.

- Malus 'Weeping Candied Apple' - reddish leaves, red fruit, red new growth, purple-pink flowers. Its weeping characteristic will not be self-evident in bonsai.
- Malus 'White Angel': white crabapple - Bright red fruit, white flowers. Grows to 20 feet, and is hardy in zones 4-7.
- Malus zumi 'Calocarpa': red crabapple, redbud crabapple - This variety gets its name from its bright red buds which go on to produce red flowers. It grows to 25 feet, has red fruit, and is hardy in zones 4-7.

Bibliography:

Jahn (ed.) "The Simon and Schuster Guide to Bonsai"

Murata's "Four Seasons of Bonsai"

Owen's "Bonsai Identifier"

Resnick's "Bonsai"

Samson's "Creative Art of Bonsai"

Tomlinson's "Complete Book of Bonsai"

USDA Fact Sheet ST-402

Compiled by Sabrina Caine

Edited by Thomas L. Zane