

Woody Ornamental Tips

Promotion and Prevention of Fruiting

By Lee Taylor and Harold Davidson (Retired)
Department of Horticulture

“Why is it that my trees never bear fruit when my neighbor’s have such beautiful fruits?” or the opposite question, “Why is it my trees set so much fruit when my neighbor’s trees never set any?” are two common questions asked by homeowners who find themselves with a tree that either doesn’t produce any ornamental fruit or produces excess or unwanted fruit.

Before investigating ways to increase or inhibit fruit formation, it is necessary to understand what causes fruiting on plants. To produce fruit, female flower parts must be pollinated by pollen from male flower parts. On most plants, both male and female flower parts occur within the same flower or in different flowers on the same plant. However, many common ornamentals are “dioecious”—that is, male and female flower parts are produced on separate plants, so that each plant is either exclusively male or exclusively female. It is important to know which type of plant you have—male, female, or both in one—when deciding which method to use to regulate fruiting.

Why Plants Fail to Bear Fruit— Causes and Cures

Plants that fail to bear fruit may do so for one of many reasons, or for a combination of these reasons:

The plant is too young. Seedlings of woody species undergo a growth period known as the juvenile stage in which they produce only vegetative growth. The chemical balance within the plant is not right for producing flowers and subsequent fruit. If juvenility is the cause for lack of fruiting, fruiting should take place eventually. The length of the juvenile phase varies with species. It may be up to 15 or 20 years for some species, and it can be prolonged by excessive fertilization that provides high levels of nitrogen.

Weather conditions inhibit pollination or cause flowers or young fruits to drop. Extremely wet or cold weather when pollen is being dispersed will

lead to poor fruitset. Likewise, sudden late frosts will cause flowers and young plants to drop. These two conditions occur infrequently.

Insects or diseases can cause flowers or young fruits to drop. An example is fireblight, a bacterial disease affecting many members of the plant family *Rosaceae*, including crabapple, hawthorn, mountain ash, firethorn and cotoneaster. Chemical sprays are effective for preventing fruit drop if insects or diseases are the cause. Choosing disease-resistant varieties is another solution to the problem.

How to Prevent Excessive Fruiting in Ornamental Plants

If the woody ornamental is already growing in the landscape and you do not wish to remove it, there are basically two ways to prevent fruiting:

Remove the blooms as they begin to fade, either by hand picking or with pruning shears so that fruits will not develop. This procedure is practical only if you have a small planting of low trees. Avoid indiscriminate chopping with hedge shears—this will destroy the natural beauty of the plant. Young fruits can also be removed by hand.

Use chemical sprays to cause fruit drop. Hormonal sprays may be effective in reducing or preventing fruitset on ornamental trees and may be advisable where a large number of trees are producing unwanted fruit. Several chemicals are used for this purpose: Naphthaleneacetic acid (NAA); Naphthaleneacetamide (NAD); maleic hydrazide (MH-30); chlorophenoxy propionic (3-CP); and dinitro-ortho-cresol (dinitro). These materials may be difficult to obtain in small quantities locally but are sometimes carried at larger garden centers or nurseries.

When applying hormonal sprays, be aware of certain problems and limitations associated with their use:

—Spraying results vary with the tree species and the hormone used. Hormones are very specific in their effects. NAA is generally effective on the greatest number of species.

Table 1. Chemicals for Preventing Fruiting in Selected Ornamental Plants. (Fruit Often is Objectionable)

Species	Chemical	Concentration	Time to Spray
Apple*	NAA	10-20 ppm**	5-7 days after petal fall
	NAD	50 ppm	petal fall
Crabapple	NAA	20-40 ppm	petal fall
Catalpa	NAA	50-60 ppm	full bloom
Elm	NAA	40-60 ppm	full bloom
Ginkgo	MH-30 or chloro IPC	500-1,000 ppm	10-12 days after full bloom
Honey Locust	NAA	60-100 ppm	fruit 1-2" long
Maple	NAA	40-60 ppm	full bloom
Mulberry	NAA	50-60 ppm	full bloom

*For more specific information on apples, see Extension bulletin E-154, "Fruit Pesticide Handbook."

**10,000 parts per million (ppm) = 1% solution.

—Correct concentration is essential. Too low a concentration can cause an even heavier fruitset than normal. Too high a concentration can burn the foliage and growing shoots of the plants.

—The time of application and weather conditions may alter the effect of the hormone. If applied just before a rain, the hormone may not be effective. If applied too late or too early, with respect to fruit development, the results could again be negative.

Because of the unreliable results that often occur, commercial applicators may be reluctant to use hormonal sprays or to guarantee results if they do use them.

Always follow package instructions carefully when applying hormone sprays, and consult your county Extension agent if you are unsure of the proper use of a chemical.

The insecticide Sevin may also be useful for thinning if applied to apples beginning at petal fall. Results have not been consistent, however, and Sevin is extremely toxic to bees. (For more information, see Extension bulletin E-154, "Fruit Pesticide Handbook.")

Avoiding Plants that Produce Objectionable Fruits

When choosing a new plant for your home, you can do a couple of things to ensure that no fruit will be produced:

Ask for a male plant if the plant is dioecious (having separate sexes on separate plants). With trees such as ginkgo, only male trees are usually sold in nurseries because of the objectionable odor of the fruits (produced on female trees) after they fall off the tree and rot on the ground.

Select a variety guaranteed to be fruitless. Some honey locust varieties are fruitless, as are several ash varieties, such as Marshall Seedless. Plants with double flowers are often fruitless, e.g., double-flowered horse chestnut.

Dioecious Woody Plants

The following table lists some woody plants that are dioecious in at least some species. With genera such as *Ilex* and *Myrica*, where fruit is desirable, be sure to obtain both a male and a female plant.

Table 2. A Partial List of Dioecious Woody Plants

Scientific Name	Common Name
<i>Acer</i>	Maples, many species
<i>Actinidia</i>	Actinidia
<i>Ailanthus</i>	Tree of Heaven
* <i>Celastrus</i>	Bittersweet
<i>Cercidiphyllum</i>	Katsura Tree
<i>Chionanthus</i>	Fringe Tree
<i>Comptonia</i>	Sweet Fern
<i>Cotinus</i>	Smoke Tree
<i>Diospyros</i>	Persimmon
<i>Fraxinus</i>	Ash
<i>Ginkgo</i>	Ginkgo
<i>Gymnocladus</i> (usually)	Kentucky Coffee Tree
<i>Hippophae</i>	Sea Buckthorn
* <i>Ilex</i>	Holly; many varieties
<i>Juniperus</i>	Juniper
<i>Lindera</i>	Spice Bush
<i>Maclura</i>	Osage Orange
<i>Morus</i>	Mulberry
* <i>Myrica</i>	Bayberry
<i>Phellodendron</i>	Cork Tree
<i>Populus</i>	Poplars
* <i>Rhus</i>	Sumac
<i>Salix</i>	Willow
<i>Taxus</i>	Yew
<i>Vitis</i>	Grape
<i>Zanthoxylum</i>	Prickly Ash

*Fruit is desirable.



MSU is an Affirmative Action/Equal Opportunity Institution. Cooperative Extension Service programs are open to all without regard to race, color, national origin, sex, or handicap.

Issued in furtherance of Cooperative Extension work in agriculture and home economics, acts of May 8, and June 30, 1914, in cooperation with the U.S. Department of Agriculture. W.J. Moline, Director, Cooperative Extension Service, Michigan State University, E. Lansing, MI 48824.

This information is for educational purposes only. Reference to commercial products or trade names does not imply endorsement by the Cooperative Extension Service or bias against those not mentioned. This bulletin becomes public property upon publication and may be reprinted verbatim as a separate or within another publication with credit to MSU. Reprinting cannot be used to endorse or advertise a commercial product or company.

Reprinted 2:85-5M-KMF-SP, Price 15 cents. Single copy free to Michigan residents.