

Recommended soil preparation and fertilization of deciduous magnolias, camellias, and rhododendrons in northern California

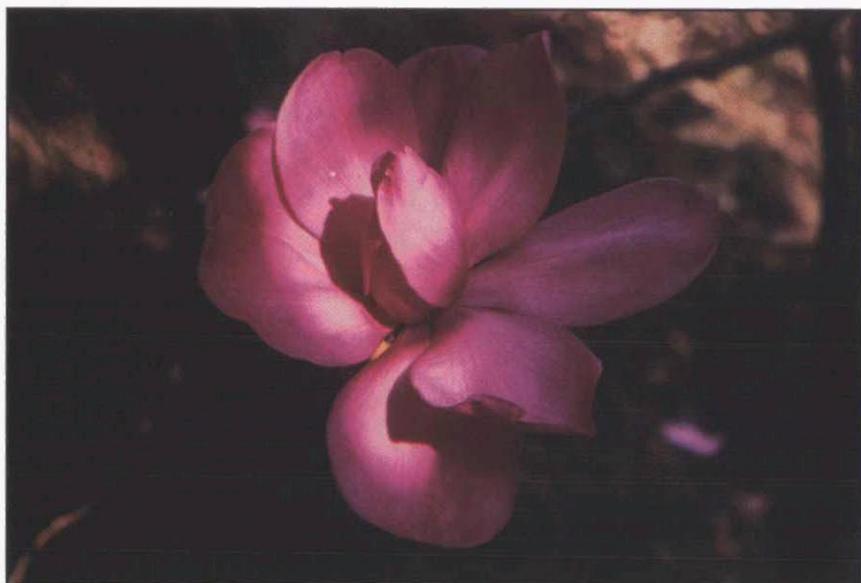
H. W. Oliver

Feeding of magnolias, of course, depends on the composition of the soil in which they are planted and the intensity and timing of climatic changes. In the San Francisco Bay area, our soil is slightly alkaline with a ph of about 8.2, consists primarily of clay and siltstone, and has a porosity of less than 5%.¹ Because magnolias prefer an acidic soil with a ph of 5.5 to 6 and require excellent drainage, our native soil must be amended or replaced to keep our acid plants happy. Fortunately, the climate here is outstanding for most magnolias, being very similar to their native habitats in China, Tibet, and the southeastern United States. Of the camellias, the cultivars of *Camellia reticulata* and many of their hybrids seem to do better in the Bay area than almost any other place in the United States. However, the cultivars of *Camellia japonica*, like 'Pink Perfection,' prefer a hotter summer climate such as Sacramento or some parts of southern California and the southeastern United States.

After experimenting for some years, I have made my 30 varieties of magnolias in Menlo Park most happy by planting them in raised beds filled with the following components:

60% Fir bark (1/4 inch, 1/2 inch and strips)
20% Ground lava rock (1/4 inch)
20% Oak leaf mold

This mixture has a ph of about 4, provides excellent drainage, and the fir bark and leaf mold slowly break down over 3 to 5 years providing some food. However, since these plants prefer a slightly higher ph and need immediate food supplies after transplanting, I have designed the following fertilizer mix which I mix into the above



M campbellii 'Lanarth' (above) at the Strybing Arboretum is a recent introduction into California from Duncan & Davies of New Zealand. Flowers from three *M. sargentiana* var. *robusta* (below) in the author's garden. The light pink form in front and the light lavender form on the right were obtained from Gossler Farms Nursery in Oregon. The blush pink form on the left was grown from seed obtained from the TMS seed counter and is the author's favorite magnolia flower in his garden. Trees range from 15 to 25 feet in height.



- 'Vulcan' and 'Apollo' (*M. 'Lanarth' x M. liliiflora*), reddish purple
- 'Star Wars' (*M. campbellii x M. liliiflora*), large lavender to 9 inches
- 'Yellow Bird' (*M. acuminata x M. x brooklynensis*), pale yellow
- 'Butterflies' (*M. acuminata 'Fertile Myrtle' x M. denudata 'Sawada's Cream'*), real yellow, but smaller flowers
- x veitchii* 'Isca' and 'Peter Veitch' (*M. campbellii x M. denudata*), excellent pinks
- 'Mark Jury' (*M. campbellii 'Lanarth' x M. sargentiana var. robusta*), large deeper pink
- 'Marjory Gossler' (*M. denudata x M. sargentiana var. robusta*), very large pink
- 'Tolanthe' (*M. 'Mark Jury' x M. x soulangiana 'Lennei'*), large pink that blooms very young
- 'Ultimate Yellow' (*M. acuminata x (M. denudata x M. acuminata var. subcordata)*), deep yellow
- 'Mossman Giant' (*M. sargentiana var. robusta x M. campbellii*)
- 'Gold Star' (*M. acuminata var. subcordata 'Miss Honeybee' x M. stellata*), real yellow stellata-like flowers with strong branching habit
- 'Golden Glow' (*M. acuminata* selected in Great Smoky Mountains National Park), deep yellow, medium sized flowers with strong upright growth
- x soulangiana (M. denudata x M. liliiflora)*, many forms

There are also a number of Todd Gresham hybrids that were developed in Santa Cruz at the City Arboretum that are very exciting. I am currently testing a few cultivars in Menlo Park. ☞

¹Oliver and others, 1990, USGS Open-File Rept. 90-74.

²Oliver Mix is currently available at Romeo Packing Co., Princeton, CA (wholesale) and Lyngso Garden Materials, Redwood City, CA (retail).

³McClintock, E., and Baron, N., 1989, Magnolias and their relatives in Strybing Arboretum and Botanical Gardens, San Francisco. Strybing Arboretum Society, Golden Gate Park, Ninth Avenue at Lincoln Way, San Francisco, CA 94122, 31 pp.

organic mix at the rate of 30 pounds per cubic yard:

Oliver Mix²
4# tankage (10-0-0)
7# Osmocote (18-6-12)
10# dolomite
1# potassium sulfate
6# superphosphate (0-25-0)
2# iron sulfate
1# fritted trace elements
31# mix

The overall ratio of mix is 7-5-5, i. e. 7% nitrogen, 5% phosphate, and 5% potash. It also contains a soluble source of iron (FeSO_4), calcium and magnesium (dolomite), and many trace elements. The dolomite also serves to raise the ph of the mix from 4 to 5 1/2, depending on the breakdown of the leaf mold.

After planting in the ground or containers—preferably about November 1 in the San Francisco Bay area—I follow the following fertilization program:

February 1: Superphosphate (0-25-0)
April 1: Osmocote (18-6-12)
November 1: 2-10-10

I use two handfuls per foot of plant—e. g. 10 handfuls for a 5 foot tall magnolia—and spread it primarily around the drip line of the plant where most of the feeder roots are. If the whole bed contains just magnolias and other acid loving plants such as rhododendrons or camellias, I'll just cover the whole area with the timely fertilizer.

Most commercial growers I've talked to do pretty much the same thing except they keep spreading the Osmocote every two weeks between April 1 and July 1. That schedule does produce more growth on the plant, but often forces new growth through the existing bloom buds that are setting in April and May on camellias and May and June on most deciduous magnolias and rhododendrons.

Best magnolia species and hybrids for California

Evergreen:

M. grandiflora—native to southeastern United States

M. delavayi—native to China

Deciduous North American species:

M. acuminata

M. acuminata var. *subcordata*

M. tripetala

M. macrophylla

Deciduous Asian species:

Nepal and SE China

M. denudata

M. campbellii cultivars 'Alba,' 'Strybing White,' 'Eric Walther,'
'Late Pink,' 'Lanarth,' and var. *mollicomata*

M. dawsoniana cultivars 'Chyverton Red' and 'Clarke'

M. sargentiana var. *robusta*

M. sprengeri var. *diva* 'Diva'

China and Japan

M. stellata

M. cylindrica

M. kobus

M. salicifolia

M. liliiflora

M. obovata

My favorites are clones of *M. campbellii* because of their very large flowers (10 to 12 inches) and their formal shape with beautiful bud centers. Among my favorite varieties are 'Strybing White,' 'Late Pink,' and 'Lanarth.' I'm also testing *M. campbellii* 'Hendrick's Park,' Roger Gossler's favorite, and 'Darjeeling.' These trees are cold tolerant to only 10–15°F and are not happy over 90°F. They are all from Tibet where they grow at about 12,000 ft. elevation at a latitude of about 19°N, a climate curiously similar to coastal California except the annual rainfall is much greater in Tibet. Therefore, we have to water these trees from May through October to keep them happy.

M. denudata, *M. sargentiana* var. *robusta*, and *M. macrophylla* are also becoming very popular in the San Francisco Bay area. For more detailed information on magnolias in San Francisco, see McClintock and Baron.³

Hybrids:

'Elizabeth' (*M. acuminata* × *M. denudata*), pale yellow