

Surviving the Arctic Express

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January 1994 was the third coldest month in recorded weather history in Green Bay, Wisconsin, and certainly the coldest I have ever experienced. A record low of -28°F was recorded. One day the high temperature was -16°F, the coldest maximum ever recorded. For a whole week the temperature was at 0°F or below.

I expected there would be little left of the hundreds of magnolias in my garden. Much to my surprise the only two magnolias I lost were *M. sprengeri* 'Diva' and *M. 'Iolanthe'*.

What determines magnolia hardiness? I don't have all the answers, but let me share some observations with you. First of all, for those of you who have faith in hardiness rating zones, Green Bay is on the line separating USDA Zone 4 and Zone 5. Since my property has very good wind protection and frost drainage I would consider myself in Zone 5. The summer of 1993 had a very good growing season with an average of one inch of rainfall per week. Many of the magnolias put on up to two feet of lush new growth. The fall was warm into early December and then the weather got gradually colder until the second week in January when the "bottom fell out." This gradual drop in temperature from early December until January was instrumental in hardening off the magnolias.

Factors effecting magnolia hardiness:

1. A gradual hardening off period in the fall and early winter. A temperature of 0°F in early November, when the plants are not fully adjusted to the cold, will be more harmful than -25°F in the heart of winter. That is why I have little faith in hardiness ratings that are only concerned with the minimum winter temperatures.
2. Extremes of temperatures in a short duration of time are very harmful to magnolias. Here in the Great Lakes area

we rarely see winter temperatures in the 50's and 60's followed by below zero temperatures a day later.

3. Relative humidity during extreme cold also appears to be a factor that effects magnolia hardiness. Most of our cold fronts pass over the open waters of Lake Superior and Lake Michigan which increases the humidity in the arid, cold Canadian air.
4. Protecting magnolias from drying winter winds is also very important. A wind break of evergreens is very helpful in increasing magnolia hardiness.
5. Winter shade is not only helpful to rhododendrons. Magnolias planted in the winter shade of my tall white pine trees are much hardier than those planted in areas that receive winter sun.
6. Most magnolias receive their greatest damage in early spring. Magnolias of oriental origin will begin growth after the first few warm days of early spring. A sudden cold spell will severely damage wood that has sap flowing. The native American magnolias are more cautious in responding to the first few warm days of spring. Because of this reason hybrids of *Magnolia acuminata* are proving to be very hardy.

The magnolias in my garden and a brief comment on their hardiness are as follows:

Magnolia acuminata—No winter damage. Bloomed normally.

Magnolia cordata 'Miss Honeybee'—No winter damage. Would have bloomed normally if the squirrels had not eaten most of the flower buds.

Magnolia acuminata x *M. sargentiana* 'Robusta'—Some tip kill but no major wood damage.

Magnolia acuminata x *M. campbellii*—This tree, which is planted in winter shade, showed no damage and put on vigorous growth the following summer.

Magnolia 'Barbara Nell'—This hybrid of *M. acuminata* and *M. sprengeri* 'Diva' is a sibling of *M. 'Flamingo'*. No damage.

Magnolia 'Big Dude'—Extensive wood and flower bud damage.

Magnolia 'Butterflies'—Slight tip kill but no major wood damage. Put on two feet of new growth the following summer.

Magnolia cylindrica—About 50% of the flower buds were damaged.

Magnolia 'Daybreak'—This hybrid of *M.* 'Woodsman' and *M.* 'Tina Durio' showed no damage and bloomed normally. The glowing pink flowers caught the eye of everyone entering the garden.

Magnolia 'Elizabeth'—No damage. Bloomed normally.

Magnolia 'Emma Cook'—All the flower buds were damaged.
No major wood damage.

Magnolia 'Flamingo'—No damage.

Magnolia 'Galaxy'—No damage. This clone appears to be hardier than *M.* 'Spectrum.'

Magnolia 'Goldfinch'—No damage. This is one of the best and hardiest of the yellow flowering magnolias.

Magnolia 'Iolanthe'—Dead.

Magnolia 'Ivory Chalice'—No wood damage.

Kosar-DeVos hybrids

'Ann'—40% flower bud damage.

'Betty'—No damage.

'Jane'—Bloomed normally.

'Pinkie'—Probably the least hardy of the group. Extensive wood damage.

'Ricki'—Extensive wood and flower bud damage.

'Susan'—No damage. Bloomed normally.

Magnolia liliiflora—All the clones showed extensive wood and flower bud damage.

Magnolia 'Legacy'—This *M. sprengeri* 'Diva' hybrid planted in winter shade had no damage.

Magnolia x loebneri

'Ballerina'—30% of the flower buds were damaged. No wood damage.

'Leonard Messel'—This tree never gets hurt and never fails to bloom. A magnolia that should be in every garden.

'Merrill'—80% flower bud damage. No wood damage.

'Donna'—30% flower bud damage. No wood damage.

'White Rose'—This excellent plant showed no damage.

Magnolia 'Picture'—The flower buds are damaged almost every year.

Magnolia 'Pink Surprise'—This hybrid of *M.* 'Spectrum' and *M. acuminata* x *M.* 'Picture' has tiny flower buds which have never been hurt.

Magnolia salicifolia (so called)

'Else Frye'—No damage.

'Jermyns'—All the flower buds were destroyed. Some tip kill.

'W. B. Clarke'—No damage.

Magnolia sieboldii—No damage.

Magnolia x soulangiana—The flower buds of all the soulangianas in the area were destroyed. There was no major wood damage and all put on vigorous growth the following year.

Magnolia 'Spectrum'—The top half of one tree was damaged. A tree adjacent to the house had no damage.

Magnolia sprengeri 'Diva'—Dead.

Magnolia stellata

'Dawn'—All the pink forms are more tender than the white forms.

'Norman Gould'—The huge flower buds on this plant always get hurt.

'Rosea'—10% flower bud damage.

'Waterlily'—No damage.

Magnolia 'Sundance'—No damage.

Magnolia virginiana—There was extensive tip kill on all the plants.

Magnolia virginiana x *M. x wieseneri*—No damage.

Magnolia 'Woodsman'—No damage.

Magnolia 'Yellowbird'—No damage.

Magnolia 'Yellow Lantern'—30% flower bud damage. ✱

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