

Magnolias DO grow in Boulder, Colorado

by MARK HAIMES

Most nurseries in the Denver-Boulder metropolitan area don't sell magnolias. The closest most people here have gotten to magnolias is the movie "Steel Magnolias." Nursery owners reply: "They won't grow here." Those nurseries that do carry magnolias carry "whatever our suppliers send us." But magnolias do grow in Boulder. Other than in my backyard, I am aware of two soulanganas, one 'Merrill,' and one *M. acuminata* (surrounded by a blacktop parking lot in town).

Boulder, Colorado is at the foot of the Rocky Mountains in Zone 4B. I thought I lucked out by not having planted my first magnolias before the 1987-88 winter. November 1987 was the coldest in a century. However, the 1988-89 winter (after my first plantings) was worse. It almost gave credence to what the nurserymen said. It also exemplified the observation: "If you don't like the weather in Boulder, wait five minutes." In January 1989 we had 120 mph winds. Actually, winds approaching 100 mph are not unusual for Boulder. We get them most every year. The record is 147 mph. On January 31st, the high temperature was 72°F. Two days later, it got down to -15°. We then had eight consecutive days with subzero weather. For 115 straight hours the mercury didn't get up to 0°F. The low temperature was -24°, with a high of -18° that day! The temperature rebounded to 68° by the

end of the month. Four record high temperatures were set in March (up to 79°). Trees began to break dormancy. Then we had a foot of snow on April 9th. This was followed by six consecutive days above 80° (up to 88°) the latter part of April. Just as trees were blooming and leafing out — BAM! — another foot of snow on May 1st.

The temperature reached 100° in July. Our summers are also noted for very low humidity. Then in September we had a hailstorm followed by the first snow of the season on September 12th. Five days later the temperature was 90° again! The low in December was -20°F. Annual precipitation is about 18 inches (I have a sprinkler system.). The soil is alkaline and clay. The growing season in 1989 was officially 168 days; compared to an average of 156 days. With February's -24° and July's 100°, the annual temperature range was 124°. Such is the weather in Boulder!

The rapid, wide swings in temperature (not to mention the extraordinary winds) play havoc with trees. It is easy to understand how this does more harm to trees in the spring than deep freezes do during the dormancy of winter.

I plan to write a yearly update on observations on hardiness of various magnolias in my backyard in Boulder. As a new magnoliaphile, I have found the published observations of others to be most helpful. I hope, in a small way,

to make some contribution to the evaluation of magnolia hardiness in a climate somewhat different than experienced elsewhere. The following are my very limited cumulative observations to date. Next year's article should be more helpful as I have ten more magnolias on order.

- 'Edith Bogue' — planted in an exposed location fall, 1988. It had 2 1/2 good months to become established before the onslaught. Some mild browning of the leaves was noted in the fall sun. Approximately 3/4 of the leaves were stripped off in the 120 mph winds. The plant didn't survive the winter. Desiccation in the winter is obviously hard to overcome in broadleaved evergreens in this climate. I won't suggest that local nurseries stock *M. grandiflora*, even though 'Edith Bogue' has a reputation for being one of the hardiest.

- 'Leonard Messel' — planted fall, 1988. Had extensive tip damage after the winter. After the warm March weather it provided me my first ever magnolia bloom on April 7th. The bloom was blackened by snow two days later. (See photo) More tip damage resulted. The plant began to recover in the above 80° weather later in April but was then killed by another sudden foot snow on May 1st.

I replanted another 'Leonard Messel' in early summer (1989). The leaves were noted to burn badly in the hot dry summer. This was much more a problem on 'Leonard Messel' than with other magnolias. There was mild-moderate leaf browning with the September snow. Also some flower buds were noted to split horizontally in half or having a wedge-shaped defect develop from the top (point down). I'm

not certain that this was related to the early snow. The same phenomenon was noted with 'Spring Snow' but not with other magnolias.

- Two *sprengeri* 'Diva' — both planted early summer, 1988. They grew well except that the leaves were susceptible to withering in the hot summer (as opposed to the leaf scorch browning of 'Leonard Messel' leaves). They had extensive wood damage to approximately 1/2 the height of the plants (despite mulching and winter watering). The April 9th snow caused the young emerging leaves to die. Dormant buds allowed new leaves to begin to emerge in the warm weather to follow, only to be killed by the May 1st snow. More tip damage resulted. 'Diva' still didn't want to give up and die. More leafing occurred from dormant buds. These shriveled in the hot weather and died (despite adequate watering). The plants finally died after this last assault.

- 'Spring Snow' — planted fall, 1988. There was no evidence of tip damage after the winter. Then prior to leafing out the "lawn aerator man" severely damaged the plant and it was removed.

'Spring Snow' was replanted mid-April (after the 4/9 snow). The May 1st snow caused only minimal leaf damage (and no wood damage). Leaves seemed to tolerate the hot, dry summer without problem. The September snow caused minimal-mild leaf damage. About this time a few flower buds were noted to have the splitting mentioned above. It stopped its annual growth after 'Picture,' but before 'Ann' and 'Royal Star.' Some mild tip damage is noticeable already part way into the 1989-90 winter.

- 'Galaxy' — planted spring, 1989. Aerator man damage — removed.

'Galaxy' replanted mid-April (1989). The May 1st snow caused all but one leaf to blacken and dehisce. This was surprising since 'Galaxy' is said to be hardy into Zone 4. There was extensive wood damage to 1/2 - 2/3 of the plant. It made a slow but successful recovery of leaves. The leaves tolerated the summer with only slight browning of the edges. The September snow caused all the leaves to blacken, while other magnolia leaves were much less damaged.

- Two 'Royal Star' — both planted summer, 1988. The plants were approximately ten feet apart with the same exposure. One did well and only had minor tip damage after the winter. It was totally unharmed in the April and May snows. It tripled in size in the summer. There was no sun damage to the leaves. There was only minimal leaf damage with the September snow (even less than with 'Spring Snow'). No Flower buds were set. Growth of leaves was late into the fall, like 'Ann.' The second 'Royal Star' had more extensive wood damage after the winter. It was slower to leaf (and more sparsely leafed) and not as good leaf color. It had poor recovery in the summer and was removed.

- 'Ann' — planted at the end of May, 1989. It had been shipped and in a box for 4-5 days and had already leafed out when it arrived (at my request to send it this late). Despite it being shipped and planted this late it did very well indeed. It was not set back at all. It doubled in size during the summer. The leaves were unaffected by the summer. It had only mild browning of a minority of leaves after the September snow. It continued growth late into the fall like 'Royal Star.' It did not exhibit any

flower bud splitting.

- 'Picture' — planted same time as 'Ann.' Once again no problems noticed after shipping this late after leaves began to grow. It doubled in size during the summer. No sun damage noted. It had mild-moderate browning of the leaves with the September snow. It noticeably stopped its growth much earlier than 'Ann' and 'Royal Star.' No flower bud splitting noted.

There are numerous factors that need to be considered when choosing a magnolia for planting in this type of climate. "Cold hardiness" is a complex issue and is only part of the equation of survivability.

Cold hardiness of wood — This is an entirely different consideration from cold hardiness of bloom (see below). Planting in a sheltered spot or close to a warm house is helpful, trying to avoid a frost pocket. *Cylindrica* is an example of an exception to the rule that most trees from more northern native habitats are more cold hardy than ones from more southern locations.

Lateness of bloom --- This is clearly beneficial, though with May snows even this is not foolproof if one grows precocious magnolias. For example, choosing 'Susan,' 'Jane,' or 'Pinkie' of the Kosar-Devos group might be a better selection than 'Ann,' 'Betty,' or 'Judy' which bloom earlier. Also, earlier bloomers such as *M. stellata* and the loebneri group should be planted close to the north side of a house to delay blooming as much as possible.

Cold hardiness of bloom --- The lateness of bloom does not necessarily imply cold tolerance of bloom or cold tolerance of wood even within the same species. For example, the late blooming *M. x soulangiana* 'Brozzonii' might be



Magnolia 'Leonard Messel' — First bloom in one foot of snow, April 9, 1989.

a better choice than the early blooming 'Burgundy.' However, 'Brozzonii' was noted by David Leach to suffer moderate injury in his listing of comparative wood cold injury, while Sir Peter Smithers tells us of 'Burgundy's bloom (and hopefully wood) resistance to cold injury. Thus, overall for this climate 'Burgundy' might be a better choice than 'Brozzonii,' especially when late occurring snows negate the late blooming advantage.

Strong wind tolerance --- I don't have to have another 'Edith Bogue' stripped of its leaves to learn this lesson. Most of our strong winds are in winter, and thus the advantage of deciduous trees. In addition to mechanical damage to evergreens the winds are obviously desiccating especially when the ground is frozen preventing roots from absorbing water. I applied an anti-desiccant spray to

'Edith Bogue' prior to the January winds and February cold to no avail. Brittleness of wood in winds needs to be considered. *Magnolia x veitchii* is notoriously brittle. One wonders if this characteristic will be transmitted in part to the Gresham hybrids. Staking to prevent "root rock" or uprooting of the plant must also be considered. Siting to take advantage of mechanical buffers to wind is helpful. Burlap screens can also be erected, but in strong winds these may blow over onto the plant it is to protect. This happened with my burlap screen for 'Edith Bogue.' Compact plants such as 'Royal Star' with relatively smaller abundant leaves may also be an advantage here. Grafted plants may be susceptible to breaking at the graft in strong winds.

Early hardening-off — This is beneficial especially with September snows. It would be nice to have a plant

grow rapidly like 'Picture,' then cease its annual growth early. However, 'Royal Star,' being bone hardy and a vigorous grower, does not seem to need this trait and thus has a longer effective growing season. However, other less cold hardy plants will certainly benefit from early hardening off. Late season fertilizing should be withheld so as not to encourage late, cold susceptible growth.

Drought tolerance — With only eighteen inches of precipitation per year, this could be a significant consideration. My sprinkler system overcomes this disadvantage. Mulching also helps retain moisture. Winter watering at least once per month is also important to remember.

Summer heat/low humidity — Even though 'Leonard Messel' is "cold hardy," the leaves seem very susceptible to leaf scorch. The heat, despite adequate watering, was the obvious final insult to *M. sprengeri* 'Diva' that killed this already stressed plant. *Magnolia sinensis* and others are said to do better in partial shade. Some magnolias do best in overhead sun but prefer reflected shade to cool the root area.

Bright winter sun — sunscald — Wrapping of the trunk is beneficial, but some bushy magnolias that branch close the ground don't lend themselves to wrapping. Planting in a position minimizing winter sun but allowing for very adequate summer sun is helpful. But who is so lucky to have many such ideal spots?

Minimize ground freezing — Mulching helps to warm the root area, delaying ground freezing. This allows a longer root growing season, especially while the root system is first getting

established. Magnolias are better grown in the ground in winter rather than in containers where the roots are susceptible to cold injury.

Planting-out early in season — Planting while the plant is dormant is advantageous in most climates. This gives the roots longer to establish and recover from root shock to support active growth. However, my limited experience ('Ann,' 'Picture') and our abruptly changing weather makes me wonder whether late spring, early summer planting may be more advantageous in our climate. I certainly will never plant in the fall again.

Recovering ability — This was exemplified in comparing *M. sprengeri* 'Diva's response to repeated insults compared to 'Leonard Messel' and 'Galaxy.'

Leaf cold hardiness — (See "Observations of Magnolia leaf hardiness..." by Philip Savage, Jr. in Issue 17) This is a problem in the spring and the fall. 'Galaxy' exhibited very poor leaf cold hardiness in both seasons. It set the plant back considerably in the spring — more than just a cosmetic insult. Significant fall injury and resultant leaf dehiscence have some clear disadvantages but could also be beneficial in this climate as far as cold injury to the plant under obligation to continue to expend energy to support maintenance of foliage. Wind damage is also potentially less to plants that lose their leaves earlier. However, leaves also do contribute energy to the plant and it is hard to imagine that 'Royal Star's leaf hardiness is a disadvantage in the fall. To some less hardy or wind susceptible species it may be a disadvantage.

Soil tolerance — Some magnolias

are noted for being more tolerant of alkalinity, clay, poor drainage, and soil compaction than others. However, much can be done to amend the soil. This has been written about extensively in the past.

Hybrid parentage — The various factors described above may be inherited to a variable extent. With some reservation, one can guess what these qualities are likely to be in a new hybrid. Only experimentation, observation, and time will tell for certain. Hybridizers obviously give a lot of consideration to these factors when considering matches.

Diseases, insects, and pests — Our dry, hot summers predisposes to spider mites but lessens the possibility of other diseases and insects. Deer damage to trees is a common problem in winter here.

Mechanical and physical factors — These are not unique to Boulder and include: lawnmower damage, over and under fertilizing, over and under watering, disturbance of root zone, size at planting, room for growth, and people damage (including "lawn aerator men"). All are factors that effect the

survivability of the plant.

Aesthetic qualities — Last but surely not least! These include color, size, form and presentation of flower (abundance, out of reach, position, degree of opening, in one crop or in succession, length of flowering, late season blooming, precocious or not, etc.) — i.e. showiness of flower. Foliage and bark characteristics, growth rate, shrub vs. tree, eventual size, cost, availability, etc. are other considerations.

After considering all of the above, some hard lessons, lots of reading, and a lot of hard choices (practical and emotional) for my limited planting sites, I have ordered the following magnolias for planting in spring, 1990: 'Forrest Pink,' 'Paul Cook,' 'Lennei,' 'Pinkie,' 'Ruby,' 'Sundew,' 'Burgundy,' 'Orchid,' 'Garnet,' and *stellata* 'Rosea' FV 33 petal.

Why do I grow magnolias in Boulder — for love, for beauty, for enjoyment, for accomplishment, for fun, and for the challenge to prove that showy magnolias can and do grow in Boulder, Colorado. ■

Notice is hereby given that
The President of the Magnolia Society, Incorporated
duly calls a
MEETING OF THE BOARD OF DIRECTORS
of said society.

The meeting will commence at 6:00 PM, Friday, October 26, 1990,
continuing until 12:00 noon, Sunday, October 28, 1990.

The meeting will be held at the Valley Inn,
Highway 27, Hamilton, Georgia 31811.

John Allen Smith, President
May 11, 1990
