

Hardiness of Strawberry Varieties

W. G. BRIERLEY, University of Minnesota

During the several years in which the cold resistance of strawberry plants has been studied at University Farm considerable information has been obtained relative to the hardiness of nine varieties commonly grown in Minnesota. As this study is now nearly completed it seems desirable to present a brief statement of the results.

In all of these studies potted plants were used in order to avoid the mechanical injuries to crown and roots that commonly occur when plants are dug from frozen soil. Strong, well developed plants of uniform size were dug in the field in late September and set in five inch pots. They then were plunged in peat in open frames where they could finish maturing as they would have done in the field. After the plants had been hardened by exposure to several light frosts they were mulched to protect against injury from severe freezing.

The plants so handled were available for freezing tests at any time during the winter, and could be handled easily without injury to crowns and roots. After the various lots of plants were exposed to controlled freezing temperatures for twenty-four hours they were thawed slowly

and placed in a cool greenhouse where the growth response of each lot indicated the extent of injury. The observations presented here cover a period of eight years and are based on the performance of several thousand plants.

The Danger Point

From the behavior of the plants used in many tests it is obvious that well matured and hardened plants of all the June-bearing varieties studied are able to withstand exposure to a temperature of 21 degrees Fahrenheit for 24 hours with little injury. However, considerable injury was found to occur at this temperature among plants that for any reason were not well matured. Everbearing varieties that had fruited heavily before potting also showed considerable injury at 21 degrees.

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Dr. Brierley points out that differences in hardiness between varieties may be of less importance than applying the mulch at the right time and preventing the over crowding of plants in the row, so far as plant survival is concerned.

STRAWBERRY HARDINESS

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So it appears that 21 degrees probably can be regarded as close to the "Danger Point" — a point below which severe injury may occur.

Freezing tests at 16 degrees with similar plants showed much more injury than at 21 degrees. Again, the plants that were fully matured and hardened showed the least injury. Injury at this temperature appeared to be increased if drouth in the fall hindered the development of maturity. Also there was more injury among plants taken from over crowded rows in which competition prevented full development.

Tests carried on for 24 hours at 10 degrees indicated that this temperature is close to the actual "Killing Point" for strawberry plants of any variety. Plants that were not fully matured and hardened almost always were killed at this temperature. A very few plants that had benefited from favorable weather as they matured and hardened were able to survive at this temperature without evident injury, but the percentage of severely injured and killed plants was very high for all varieties.

Hardiness Rating

A summary of the results obtained in this study shows clear-

ly that the June-bearing varieties as a group are definitely hardier than the everbearers. A final rating of the 9 varieties is as follows:

June-bearers

Hardest Burgundy
Dependably hardy at 21 degrees, Beaver, Dunlap, Premier
Somewhat less hardy Catskill

Everbearers

Usually hardy at 21 degrees,
Minn. No. 1166 and Minn. No. 1167.
Somewhat less hardy Gem
Severely injured at 21 degrees,
Wayzata.

In all of the work no evidence has been obtained to indicate that strawberry plants become hardier during the course of the winter. Survival among the potted plants used commonly was not as good in the late winter tests. Although some of the increase in injury in late winter can be attributed to the disturbance of mulch and plants as samples were withdrawn, the records show that in no test conducted later in the winter was survival better than in early winter tests.

When these results are considered in relation to what we have learned about temperatures beneath mulches in winter it is apparent that we do not need to be greatly concerned in an ordinary winter about the exact

RASPBERRIES

NEW SUNRISE, TAYLOR &
NEWBURGH

HARDY MINNESOTA NEW
APPLES, PLUMS, PEARS

—and—

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degree of cold resistance in well hardened plants that are protected by a good mulch. In an average winter the temperature beneath the mulch and snow in the field generally does not fall below the danger point".

Careful selection of the proper mulching time, however, is fully as important if not more so than hardiness. Growers should keep in mind that as a general rule mulching should not be done before several light frosts have served to mature and harden the plants, but the mulch should go on before the temperature close to the crowns of the plants falls to 20 degrees. Of course it is not always possible to avoid injury, but if field management

practices can be adjusted to what we now know about the hardening and cold resistance of strawberry plants it should be possible to carry a field through the winter with a minimum of injury from low temperatures.

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