



'HomeFree' viburnum, available 2015



Pink Popcorn™ blueberries, available 2015



'LaCrescent' grape at vineyard near Lake Pepin

What's New?



The increasingly popular, and environmentally wise desire for locally grown, fresh,

and delicious food would resonate with the first plant breeders at the University of Minnesota. The drive for better plants in a challenging climate started soon after the Agricultural Experiment Station was created in 1887 with the quest for a hardy apple. Favorite trees from “back East” often suffered severe winter injury or failed to ripen before a killing autumn frost. Crossing them with wild Minnesota apples eventually led to the enduring favorites, ‘Haralson’ and ‘Beacon.’

The SnowSweet® apple featured on the cover continues the legacy. It has proven to be even more resistant to apple scab fungal disease than predicted when it was released in 2006. Trees are now readily available, and it grows easily in zone 4, producing large,

bronze-red blush fruit. It is a savory, sweet-tasting apple that is amazingly slow to turn brown when cut.

Good testing takes time. The University’s famous apples are sometimes in development for 30 years. But when a new cultivar, such as the new ‘Frontenac blanc’ grape or the hardy pink blueberry Pink Popcorn™ is released, nurseries are assured that the plants have been thoroughly tested for cold hardiness.

Time and temperature are the key factors in breeding and testing plants for cold climates. Sometimes, it’s just not cold enough in Minnesota, even “up north” near Grand Rapids. To accurately test plants, researchers put cuttings into the deep freeze. In a process and technology pioneered by the U of M in the 1960s, special freezers are programmed to shift down to specific temperatures for predetermined time periods.

Then the cuttings are planted in a warm greenhouse, and through that process scientists can see how quickly and completely the plants shut down for winter and whether they survive.

A Legacy of Discovery

University plant breeding encompasses apples, berries, grapes, ornamental trees and shrubs, flowers, and grasses. Breeding goals now go far beyond hardiness, and can include evaluating disease resistance, color, taste, growth habit, uses, and other differentiating features. The new ‘HomeFree’ viburnum was specifically selected for resistance to powdery mildew.

New and ongoing collaborations inspire and enhance plant development. Scientists collect germplasm from far-flung locales: native blueberries in the Adirondacks, wild grapes from Manitoba, wild apples from Kazakhstan, and kiwifruit from northern China.

The University began one of the earliest college horticulture programs in the United States and is nationally prominent today. More than 400 proven hardy varieties provide a foundation for Minnesota’s more than \$2 billion horticultural industry, spanning the borders from Roseau grass seed growers south to Lanesboro vineyards.

Throughout this book, a selective timeline highlights notable U of M plant breeding achievements.

1887: Minnesota Agricultural Experiment Station created as part of national land-grant university network

1888: U of M hires first horticulturist, Samuel Green, to improve tree fruits

1901: Vegetable breeding efforts begin

1908: St. Paul Fruit Breeding Farm established on 80 acres near Victoria



Hardy pear tree trials bear fruit at the University's Horticultural Research Center.

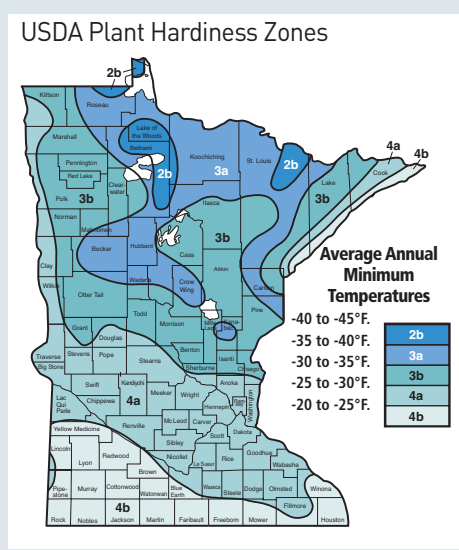
There is a large field for the plant breeder.... We need hardier cherries and better keeping varieties of plums for the market, we need long keeping varieties of apples and many other fruits. How are we going to get these? Only through the patient and hardworking plant breeder.

—CHARLES HARALSON, THE MINNESOTA HORTICULTURIST, NOVEMBER 1908

The University does not generally sell plant material directly to the public, but provides it to licensed propagators who then distribute it to growers, retailers, and landscapers. No one nursery carries all of the U of M introductions, but potted or bare root plants are sold at

thousands of commercial nurseries and garden centers. “Minnesota Hardy” is meant to help you make informed choices, whether you want to create your own edible or ornamental landscape, or commercially plant and be a high quality, environmentally responsible, local resource.

The Minnesota climate presents unique challenges to gardeners, farmers, and nurseries. Temperature fluctuations rival those of any state in the nation, from hot, sometimes dry summers to extremely cold winters that sometimes leave the land bare of insulating snow. For more than a century, University of Minnesota researchers have worked to develop, grow, and evaluate the best plants for conditions ranging from USDA Plant Hardiness Zone 4B in the south to Zone 2B in certain locations in the north. The University maintains Research and Outreach Centers where breeders and field assistants conduct numerous field trials. Most plant trials are replicated at Grand Rapids, Morris, Rosemount, St. Paul, and the Horticultural Research Center or the Minnesota Landscape Arboretum near Chanhassen. Some plants are also tested nationally, in cooperation with other institutions or private companies.



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On the cover: 'SnowSweet'® Apple Tree, released 2006

1909: University Extension Service begins
 1926: First flower breeding efforts result in hardier roses and chrysanthemums
 1954: Woody landscape breeding projects begin
 1967: Fruit Breeding Farm is renamed "Horticultural Research Center" to reflect the diversity of work on 230 acres
 1977: First U of M plant patent for 'Minnogopher' cushion mum