

Growing Nut Trees in Minnesota¹

W. G. BRIERLEY, Division of Horticulture, University Farm and
R. E. HODGSON, Southeast Experimental Station, Waseca

PART I. The Range of Native and Introduced Species

A LONG-TIME personal interest in nut growing led, in the spring of 1918, to the beginning of a study of the possibilities for growing nut trees in Minnesota. The study at first was based on the excellent account of the distribution of native species which later appeared as "Trees and Shrubs of Minnesota" by Rosendahl and Butters². To this was added a record of plantings of seedling trees which have shown how some kinds, such as the Black Walnut, have been grown successfully well beyond their native range. Whenever possible similar records have been made of plantings of Sweet Chestnut, King Nut, English Walnut, Pecan, Manchurian Walnut and Filbert which are not native to Minnesota. Reports of progress in the study have appeared at times in the Minnesota Horticulturist³.

The first part of this report deals with the native range, how the range has been extended by plantings, and behavior of introduced kinds. Attention will be given later to cultural methods, behavior of propagated varieties, and grafting.

BUTTERNUT, or WHITE WALNUT (*Juglans cinerea*)

This species occurs in the wild throughout the southeastern quarter of the state in the area bounded roughly by the Wisconsin and Iowa state lines, by Martin and Renville counties on the West, to Wadena, Cass, Aitkin and Pine counties on the North. Trees of this species have been grown successfully beyond the native range in Jackson, Lac Qui Parle, Polk, Itasca and St. Louis counties.

The Butternut is likely to succeed in good soil on protected sites almost anywhere south of a line from Moorhead to Duluth. Over the entire range, but particularly toward the western part of the state, trees may be severely damaged by sunscald or drouth. Shading of the trunk in winter may help to



Shellbark or King Nut Hickory planted by Peter M. Gideon.

avoid the first trouble, and thorough watering in a dry season should avoid drouth injury. There are several propagated varieties which have not been tested here.

BLACK WALNUT (*Juglans nigra*)

This species is not as widely distributed in the wild as the Butternut. Native trees are found in the southeastern part of the state westward to Nobles and Redwood counties, and northward to Sibley and Dakota counties. However, this species has been grown far beyond its native range throughout all of central Minnesota and as far north as Kittson, Beltrami, Itasca and St. Louis counties.

That Black Walnuts are more widely planted than Butternuts seems to be due to slightly greater cold resistance, less injury from sunscald, and because the wood is less brittle and not so subject to breakage. As trees grow rapidly and are long lived they frequently are used for shade or in ornamental plantings. North of the Twin Cities, however, some growing seasons may be too short or too cool for the nuts to fill and ripen properly. There are more than a hundred propagated varieties, many of which are hardy and produce nuts of excellent quality.

SHAGBARK HICKORY (*Carya ovata*)

This species is native over a limited range in Houston, Fillmore and Winona counties and in adjacent parts of Wabasha, Olmsted, Dodge, Mower and Freeborn counties. Nuts borne by these native trees usually are of good quality but often are small in size. Some widely scattered plantings have been made beyond the native range in Hennepin and Ramsey counties, along the Minnesota river valley, and southward. There are some old trees growing at Hickory Island northeast of Albert Lea that are said to have been planted by Indians many years ago. Plantings of seedling trees beyond the native range are few because the long taproot makes transplanting difficult. Also, trees grown from nuts are very slow to reach bearing age.

Some seedling trees grown by Peter M. Gideon at Excelsior are said to have begun bearing in eighteen or twenty years. Records of several trees in other locations show that they did not bear until more than thirty years old. Although rather slow growing the trees



Group of Shagbark Hickories (*Carya ovata*) Planted by Peter M. Gideon in 1879.

1. Paper No. 759 of the Miscellaneous Journal Series, Minnesota Agricultural Experiment Station.
2. Trees and Shrubs of Minnesota. Rosendahl, C. O. and Butters, F. K., University of Minnesota Press, 1928.
3. Minnesota Horticulturist 48:182-185. June 1920. Minnesota Horticulturist 53:259-261. November 1925. Minnesota Horticulturist 73:137-138. November 1945.

sturdy and are useful as ornamentals. There are many propagated varieties some of which are hardy enough for planting in the southeastern part of the state.

BUTTERNUT or SWAMP HICKORY
(*Carya cordiformis*)

This species occurs in the wild from the southern borders of Aitkin and Crow Wing counties southward to the Iowa state line, in the "Big Woods" area. The trees are hardy and long lived but the nuts are not edible. In some localities a root disease apparently causes death of trees of all ages.

Young trees may be used as stocks in which named varieties of the Shagbark Hickory can be grafted, but only Butternut x Shagbark or Hickory x Pecan hybrids are said to form good unions on this stock. A number of apparently successful grafts of hybrid varieties have made good unions with this stock here and have grown well for thirteen years.

HAZELNUTS

(*Corylus americana* and *C. rostrata*)

These two species are common in Minnesota. The first is found over the entire state in thickets and on hillsides. The second generally is confined to the Mississippi river valley and northward into Itasca, St. Louis, Lake and Cook counties. Although the nuts often are gathered and stored for home use their small size and susceptibility to disease and weevil damage tend to limit their use. There are a few selections and hybrids which are superior to wild forms, but these have not been planted extensively.

INTRODUCED SPECIES

From the time of the earliest settlers attempts have been made to grow nut species popular elsewhere but which are not native here. That the majority of these plantings resulted in failure indicates a lack of sufficient cold resistance to enable them to survive.

SWEET CHESTNUT
(*Castanea americana*)

This species does not seem to be hardy enough to survive in the Twin City area or in the lower Minnesota river valley. Seedlings or propagated varieties planted in those areas usually have failed within a few years. However, in Houston, Fillmore, Winona and Olmsted counties a number of trees are known to have lived many years.

On the Klinsky farm north of Caladonia some nuts obtained from an eastern source were planted in the late 80's. These trees have thrived and fruited for over sixty years. Charles Dubbels

of Viola has about fifty trees grown from seed which his father brought from New York in 1870. These trees are fifty to sixty feet high and are said to bear nearly every year. Nuts obtained from these sources have produced vigorous bearing trees on nearby farms. A beautiful ornamental tree on the Harris farm at La Crescent grew to a diameter of fourteen inches on the stump. It was cut down about 1918 because the nuts never filled as there were no other trees near for cross pollination.

These performance records show that Sweet Chestnut trees can be grown successfully in the southeastern corner of Minnesota so long as the destructive chestnut blight disease is not introduced here.

PECAN

(*Carya pecan*)

This close relative of the Hickory is adapted to warmer southern localities and rarely has been grown successfully where winters are severe or the growing season short and cool. Numerous attempts have been made in Minnesota to grow varieties of the northern strain which is believed to be slightly hardier than the southern strain. Although some trees are known to have survived several winters, generally they have been winterkilled before reaching bearing age.

Hybrids between Pecan and Hickory, called "Hicans," seem to be slightly hardier than the northern strain of Pecan. A few of these hybrid trees have survived several winters, but they often are injured. Some hybrid varieties

have been grafted on shagbark or bitter-nut stocks with some promise of success. At present there is little to indicate that Pecans will be useful here.

ENGLISH or PERSIAN WALNUT
(*Juglans regia*)

This walnut is a close relative of the native Butternut and Black Walnut and is the walnut commonly grown in California and Oregon. Many attempts have been made to grow trees of this species here but practically all attempts have ended in failure. None of the common varieties seems to escape winterkilling here. The Crath selection may be slightly hardier but none of the trees under observation has escaped severe winter injury. Young trees grow vigorously but mature so late they cannot endure early cold spells.

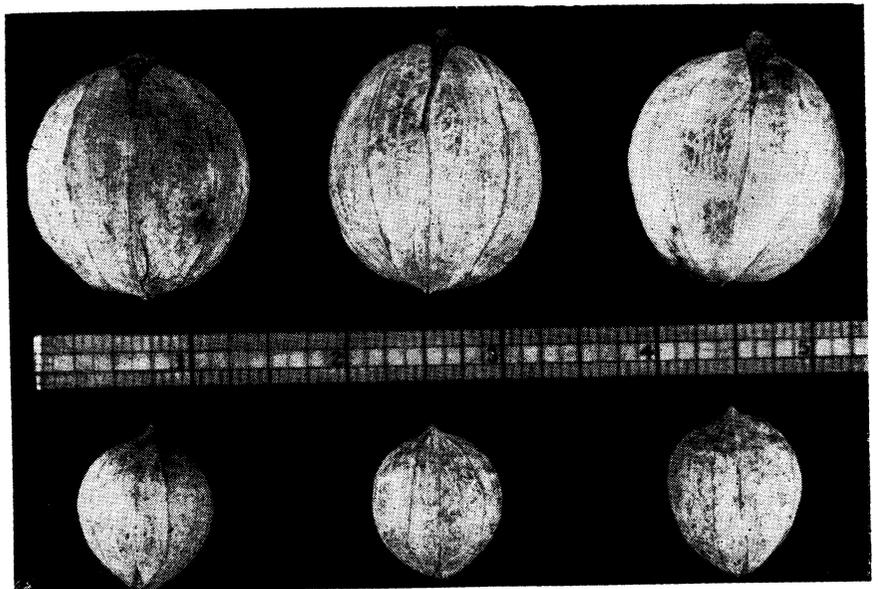
JAPANESE WALNUT
(*Juglans manshurica*)

Trees of this and related species resemble the native Butternut. They grow vigorously in the southern half of the state and begin to bear early. The wood is brittle, and injury from sunscald is common. Quality of the nuts does not equal the Butternut as the oil content produces peculiar and undesirable flavors.

FILBERTS
(*Corylus avellana*)

Attempts have been made to grow this close relative of the native Hazels. Winter injury has been common and blossom buds usually have been killed on bushes that survive. Hybrids with the native Hazels offer some promise

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Samples of Nuts from the Gideon Trees. Above—*Carya laciniosa*, Shellbark or King Nut Hickory. Below—*Carya ovata*, Native Shagbark Hickory.