

Prairie Harvest Germplasm hackberry

USDA Natural Resources Conservation Service, Plant Materials Center, Bismarck, North Dakota



Prairie Harvest Germplasm hackberry (selected class) *Celtis occidentalis*

Description

Common hackberry may grow to a height of 30 to 50 feet in the Northern Plains. The bark is grayish-brown in color and deeply furrowed with corky ridges. The simple, alternate, coarsely-toothed, light green leaves are 2 to 4 inches long and 1 to 2 inches wide, with narrow, tapering tips. Galls caused by insects known as psyllids commonly occur on hackberry leaves, but do not affect plant performance.

Inconspicuous pale-green flowers of both sexes appear in April or May on the new growth among the young leaves. The flowers are wind pollinated. Dark purple, small, cherry-like fruits hang suspended



Leaves are toothed and pale green in color.

on slender stems and ripen in September and October. They remain on the tree into the winter and are sought by birds.

Uses

Prairie Harvest Germplasm is released for use as a native species in windbreak plantings, riparian area plantings, wildlife plantings, ornamental/recreational plantings, and other conservation uses. It is a northern source seed-propagated release exhibiting genetic diversity to broaden its area of adaptation. Hackberry is promoted as an alternative choice tree species to add diversity in conservation plantings and decrease the high numbers of green ash (*Fraxinus pennsylvanica*) currently being planted. Green ash is being threatened by the emerald ash borer (*Agrilus planipennis*).



Hackberry has a dense growth form and works well in windbreak plantings. It is a good alternative species to green ash.

Selection

Common hackberry is native to southern Canada and the United States. It occurs from Maine and Quebec west to Manitoba, southward through Colorado to Texas and Georgia. It commonly grows in rich, moist soil along streams or on flood plains. Prairie Harvest Germplasm hackberry was collected in October 1982 from two mature trees growing in a natural stand of hackberry in a wooded oxbow of the Red Lake River. The seed was collected by James Ayen, District Conservationist in the field office, in Crookston, MN. The site is located near the town of Fisher in Polk County, MN, on land owned by Roger Wagner and family. This accession was included with 179 other hackberry accessions in a provenance study established in 1990 by the USDA, ARS Northern Great Plains Research Laboratory near Mandan, ND. Prairie Harvest Germplasm was superior in size and form to all other sources. It had a 25 percent increase in total height compared to 'Oahe' hackberry, after 17 growing seasons. Prairie Harvest Germplasm was 25 feet tall at 16 years of age. The South Dakota source Oahe is subject to winter injury in USDA Plant Hardiness Zone 3.

Establishment

Nursery-grown seedlings establish readily when planted at locations free of competing vegetation. Two-year-old bareroot seedlings should be planted in the spring once the threat of frost is past. If the bareroot seedlings were lifted in the fall, they may need to be “sweated” to get them to leaf out. The goal of sweating is to increase the humidity and temperature around the stock enough to force the buds to swell. The procedure used to break dormancy is placing the plants in moist sand or peat moss, covering them with plastic, and maintain temperatures of 50 to 70 degrees F. Bud swell should begin in five to ten days in this warm, moist environment. If the bareroot seedlings were lifted in the spring, sweating is usually not needed.

The seedlings should be spaced eight to twelve feet apart in the row. They may also be alternated with other tall tree species. If animal populations are high, it will be necessary to place protective shelters around the hackberry plants. Deer readily browse hackberry. Control of invading weeds and grasses is important for plant growth.



Nipple gall commonly occurs on hackberry leaves but does not affect plant performance.

Potential Area of Adaptation

This northern seed source has performed well as documented in a replicated trial in central North Dakota compared to 179 other accessions over an 18-year period. There were no signs of winter injury or tip die-back. The primary area of adaptation targeted for Prairie Harvest Germplasm is North Dakota and the northern half of Minnesota on soils/sites recommended for the species, as referenced in the North Dakota and Minnesota NRCS Field Office Technical Guides. Secondary adaptation is anticipated to be across the regions of the Upper Midwest and Northern Great Plains. The best plant performance for hackberry has generally been on Conservation Tree and Shrub Groups 1, 3, 4, and 5. Timely and consistent weed control improves overall plant performance.



Pea-sized fruit is dark purple when mature.

Production

Prairie Harvest Germplasm hackberry is a seed propagated release. Mature fruit can be picked in September and October. Collection is much easier after the leaves have fallen, though by then, some of the fruit may also have started to drop. Fruit that is not dark purple is not fully ripe. The fruit can be cleaned by running through a macerator. Use water to remove all the pulp, or the seeds will still be sticky. If the seeds will be fall planted, they do not need to be dried. Once the seeds are dry, they can be stored for many years. There are approximately 4,300 seeds per pound. The PMC staff found 20-year-old seeds to still be viable under controlled storage conditions. Prairie Harvest Germplasm hackberry seeds have a dormancy which can be overcome by a cold, moist stratification of 90 days at about 38 degrees F. Once the seed has germinated, two years are needed to produce seedlings large enough for conservation plantings.

Availability

Prairie Harvest Germplasm hackberry seedlings will be available in the spring of 2011 from conservation nurseries in the Upper Midwest. Prairie Harvest Germplasm is a selected class germplasm release from Minnesota. It is released by the USDA NRCS Plant Materials Center, Bismarck, ND; USDA ARS, Ames, IA; and the Agricultural Experiment Stations in North Dakota and Minnesota.

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