2004

Black walnut cultivar performance

Billie Hanson

Iowa Nut Growers Association

Follow this and additional works at: http://lib.dr.iastate.edu/leopold_grantreports

Part of the Agricultural Science Commons, Agriculture Commons, Fruit Science Commons, Horticulture Commons, and the Other Forestry and Forest Sciences Commons

Recommended Citation

Hanson, Billie, "Black walnut cultivar performance" (2004). Leopold Center Completed Grant Reports. 230.
http://lib.dr.iastate.edu/leopold_grantreports/230

This Article is brought to you for free and open access by the Leopold Center for Sustainable Agriculture at Iowa State University Digital Repository. It has been accepted for inclusion in Leopold Center Completed Grant Reports by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.
Black walnut cultivar performance

Abstract
Those interested in planting black walnuts have lacked information about the best cultivars available for planting in Iowa. This project initiated long-term studies of several varieties of black walnut trees to determine the best cultivars for Iowa growers.

Keywords
Agroforestry, Fruit and vegetables, Market research and feasibility studies

Disciplines
Agricultural Science | Agriculture | Fruit Science | Horticulture | Other Forestry and Forest Sciences

This article is available at Iowa State University Digital Repository: http://lib.dr.iastate.edu/leopold_grantreports/230
Black walnut cultivar performance

Abstract: Those interested in planting black walnuts have lacked information about the best cultivars available for planting in Iowa. This project initiated long-term studies of several varieties of black walnut trees to determine the best cultivars for Iowa growers.

Question & Answer
Q: What black walnut trees are the best varieties for planting in Iowa?
A: Two cultivars—Rowher and Surprise—seem to offer the best options for the state’s novice growers learning how to graft. Surprise also joins another cultivar—Hay—in having both a very high growth rate and second-year survival rate.

Background
Black walnut trees may be planted by commercial growers or serious hobbyists. Choosing the best cultivars to plant is a major concern for these growers. Black walnut cultivars are trees grafted in the same manner as grafted apple, pear, or other fruit trees so that the specific desired trait is obtained in every tree planted.

The Iowa Nut Growers Association (INGA), other state nut grower associations, and the Northern Nut Growers Association have evaluated black walnuts for many years to identify potential cultivars for planting. These efforts are limited to evaluating size, ease of cracking, percentage of kernel yield, and other characteristics of the nut itself. Black walnut cultivars normally produce three times as much kernel (nut meat) than the average native trees.

This project moved beyond evaluating nut characteristics to evaluating the entire cultivar tree and its nut-producing capacity. Trees were to be graded on their overall production and quality performance characteristics. These characteristics include kernel yield, nut production, overall harvested kernel quality, insect resistance, tree structure, harvestability, initial survivability, precocious trait, and nut maturation trait.

Approach and methods
By late 2003 more than 600 grafted black walnut trees had been planted and were growing at 54 privately owned sites throughout Iowa. Some have been in place since 2001 and 2002. Two hundred trees were planted in spring 2003.

Principal Investigator:
Billie Hanson
Iowa Nut Growers Association
Centerville

Budget:
$750 for year one
$1,850 for year two

Volume 13 (2004) • Leopold Center Progress Report • page 13
to replace trees from the 2002 planting that did not survive. Among them were new plantings of cultivars that were not available earlier, including a promising new tree type.

The trees have been placed on land in six regions of Iowa owned by members of the Iowa Nut Growers Association with each grower caring for approximately 12 trees. Funding to purchase the trees came from the Iowa Farm Bureau Federation, the Iowa Department of Agriculture and Land Stewardship, the Leopold Center and the Northern Nut Growers Association, Land, planting, care, and other costs were provided by individual member growers.

**Results and discussion**

Initial growth rates of the 2- to 4-inch trees planted in 2001 showed many trees 34 to 70 inches tall. The cultivars planted in 2002 had an overall height of 8.7 inches and numerous trees measured 12 to 18 inches tall. However, the tallest trees are not necessarily the ones with the greatest potential for long-term, high growth rates. These early growth figures mesh with the project goal of obtaining data on growth and survival rates and measurable production data in 2007.

Survival rates for cultivars planted in 2002 ranged from 45 to 92 percent, with an overall survival rate of 74.4 percent. This is limited data, but it is clear that there are several factors affecting survival rate. Among them are scion (the piece of wood grafted onto a root stock) quality, root stock quality, scion-to-rootstock compatibility, handling, and pre- and post-planting care.

Surprisingly, there appeared to be only a weak correlation between survival rate and average height. It may be that site characteristics (such as moisture and fertility) are more important success factors for some cultivars. Observations to date indicate that Bowser may be one such cultivar.

The selection of the best cultivars will require several years of data. However, the early survivability and initial insect resistance (2002 shoot borer results) are data already available to start building the selection data matrix.

**Conclusions**

The results to date indicate that stock that is at least one year old should be utilized when procuring large numbers of grafted trees. This will improve survival rates and it helps the grower avoid the very careful handling that would be necessary for a large number of smaller, younger trees.

As for cultivar varieties, early data suggest that Rowher and Surprise have both unusually good survival and strong initial growth rates. These two cultivars would be good choices for beginners who might be grafting black walnuts to start plantings based on their own initial work. In addition, it appears that cultivars Bowser, Hay, and G-4 should be avoided by those just learning how to graft. If the cultivars Bowser, Hay, and G-4 are desired for a planting, it is highly recommended that the grower select commercial one- to two-year-old grafted stock.
Impact of results
The project is on schedule to attain excellent data on growth, production, and survival rates in five years. The cultivars with the strongest growth and production records will become apparent during this time period, and findings will be made available to the public through the Iowa Nut Growers Association and the Leopold Center.

Education and outreach
The data from the project will be collected and published in an Iowa Black Walnut Cultivar Selection Guide for commercial growers and hobbyists.

For more information, contact
Billie Hanson, 19304 238th Ave
Centerville, IA 52544-8834;
phone: 641-856-8375,
e-mail benswalnuts@yahoo.com