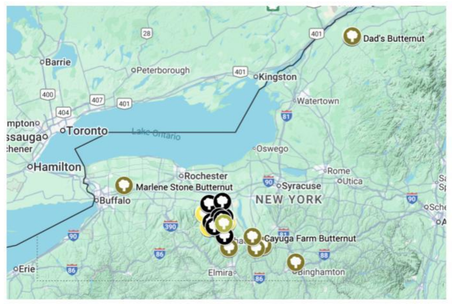
Identifying and Collecting Seed from Genetically Superior Walnut, Hickory and Pecan Trees on Yates County, New York Farms: 2024/2025 Project Progress Report

Introduction / Background

Collaborators: Black Squirrel Farms, Yates County Farm Bureau (with special thanks to Jason Henderson and John Kriese), Cornell Cooperative Extension- Yates County, Our Sci, Yates County Chamber of Commerce, Aziz Ebrahimi, Ph.D. (Hardwood Tree Improvement and Regeneration Center, Purdue University), Warren Chatwin, PhD. (Research Geneticist, Crop Germplasm Research Unit, USDA), Gabriel Smith, Carl Albers

Objective: Broaden and strengthen the genetic base of Juglandaceae family trees (walnut, hickory, pecan) in the Northeast long-term by identifying preferred seed trees in the Juglandaceae family on Yates County, NY area farmsteads and providing a path through which host farm families can route seeds from their superior trees directly into the regional seed supply. This project will engage at least 25 farm families, evaluate at least 40 trees and prioritize at least 10 trees for seed collection. Collected seeds will be processed and the resulting seeds shall enter the regional seed supply. Summarized tree data collected, seed selection approach, source tree locations and local growing conditions will be documented and detailed in the project report.

Methodology: This project will engage at least 25 farm families, evaluate at least 40 trees and prioritize at least 10 trees for seed collection. Collected seeds will be processed and the resulting seeds shall enter the regional seed supply. Summarized tree data collected, seed selection approach, source tree locations and local growing conditions will be documented and detailed in the project report. The project report and link to all project deliverables will be published on the Northeast Sustainable Agriculture Research and Education website after March 31, 2026.



- Butternut (white walnut)
- Pignut hickory
- Shagbark hickory
- Black walnut
- Shellbark hickory

Midway through the project, due to not finding bearing, accessible butternut trees on Yates County area farms that appeared canker-resistant, it was decided that any NY butternut trees old enough to bear and with no sign of butternut canker could be included in the project. Butternut, aka "white walnut", is a special case because this most cold-tolerant native walnut is under existential threat from a non-native canker.

Seed collected:
In 2024, 1306 lbs of raw seed was collected (427 lbs after the seeds were hulled and the bad ones discarded). In 2025, black walnut seed collection was discontinued and hickory and butternut seed collection continued and 392 lbs of raw seed was collected (171 lbs after the seeds were hulled and the bad ones discarded). In 2024, Black Squirrel Farms processed most of the seed collected. In 2025, the collectors of the seed processed most of the seed collected.

This work is supported by the USDA National Institute of Food and Agriculture through the Northeast Sustainable Agriculture Research and Education (SARE) program under subaward number ONE24-463-AWD00001359.

Being able to realize value from nut trees on farms in any manner adds value to farms and keeps more trees standing. For project-related comments or questions, please contact Sara Tyler, General Manager, Black Squirrel Farms, 832-493-3419, sara@tylerseneca.com

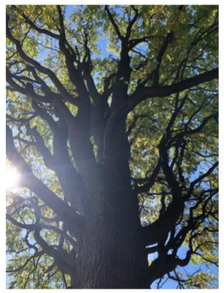
Results

There is an abundance of on-farm nut trees that could significantly increase the diversity and desirability of available regionally-adapted seed for trees in the Juglandaceae family (walnut, hickory, pecan).

Most farmers with non-orchard nut trees on their farms do not benefit from having these trees on their farms beyond aesthetic, timber or emotional value. Very few of the nuts grown in these settings are being intentionally used. There is a broad general desire within the agricultural community to productively use available resources and this ethos extends to on-farm native nuts. The purpose for which the nuts are used (seed, food, something else) is a less important question than whether there is a productive use; the preference for some intentional, productive use is widely agreed.

If used as seed, nuts from on-farm native nut trees would serve only the fraction of the tree seed market where genetic variability is an asset, not a detriment (reforestation, afforestation, select agroforestry applications).

Whether seed gathered from on-farm and other trees would reflect the range and depth of regional population genetics would depend on the seed aggregation and tracking approach implemented. An example of a tree trait affected by genetics and which can be shown with photos is below:


"Wystful Walnut" - Flat St, Yates County

Tree shape is a function of genetics, site conditions and environmental factors.

Compare the forms of these two 150+ yr old Yates County on-farm black walnut trees; one with unusually curvy branches and one with a more typical form for the species. Both are old, healthy, productive trees.

To preserve the range and depth of regional tree genetics, the most effective seed-gathering strategy would to gather seed from many trees, preferably not co-located.


"Swingset Walnut" - Friend Rd, Yates County

If feasible, a seed gathering strategy which prioritizes gathering from the healthy offspring of remarkably old, still-healthy trees would be preferred over gathering directly from the remarkably old trees themselves. For black walnut, the quality of seed from very old trees (average age ~175 yrs, some old enough to have been standing since before Yates County was founded in 1823) was found to be inferior to the quality of seed from intermediate-age trees, implying an age-related decline in reproductive capacity, a surprising result. It is assumed that the same pattern would hold for other Juglandaceae family trees. An example of an ancient tree surrounded by healthy apparent offspring was found in Yates County agriculturalist Brian Cunningham's woods, where a 200+ yr old healthy black walnut tree was surrounded by many younger black walnut trees in a growing pattern suggestive of squirrel dispersal of nuts from the ancient tree.

Butternut (aka "white walnut", the most cold-tolerant North American walnut tree) is an exception to this general recommendation because apparent resistance to the non-native butternut canker, an existential threat to the species, is by far the most important trait to replicate, as opposed to seeking to preserve the range and depth of regional tree population genetics. Any bearing butternut tree with apparent canker resistance should be evaluated as a potential seed-producing tree and, ideally, tree health should be monitored on an ongoing basis.

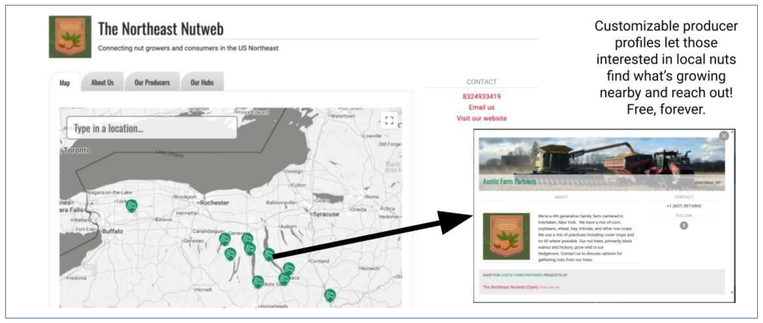
"Ease of gathering" is the most practical way to rank the probability that nuts from any particular tree will be gathered. This implies that prioritizing future on-farm tree assessment work according to the following ranking 1) Yard trees (highest priority), 2) Field edge and/or hedgerow trees, 3) Woodlot trees (lowest priority) would be a pragmatic approach.

Deliverables, Future Work

There is both supply and demand for seed from on-farm Juglandaceae family trees. For on-farm tree nuts to reach the seed market, practical paths to market need to be developed. While there are many, many barriers which prevent farmers from supplying their on-farm nuts directly to the seed market, this project has grouped those barriers into two primary categories and is proceeding to develop tools to at least partially address these barriers.

BARRIER CATEGORY 1:
Lack of seed market transparency regarding seed pricing and seed buyer requirements (both regulatory and practical) .

Related **deliverable** (released): The "**Northeast Nutweb**" - this online tool can make local tree seed supply transparent if enough growers use the tool. Seed buyers could then self-determine whether particular local trees meet their requirements by reaching out to potential suppliers.



BARRIER CATEGORY 2:
Grower/owner awareness and/or confidence gaps regarding tree identification, best practices for nut collection, handling, processing, storage, testing, packaging, and seed certification or labeling requirements.

Related project **deliverable** (in process): A **handbook** addressing as many of this issues as possible for native northeast Juglandaceae family trees is being compiled. It is not available at this time.

Financial support for this project will end on March 31, 2026 and the final project report and deliverables will be published. After this date, the "Northeast Nutweb" will remain live and fully supported and Black Squirrel Farms will continue to provide support for NYS butternut tree identification, assessment and select seed gathering due to the critical need for identifying additional canker-resistant seed-producing butternut trees. Anyone with a butternut tree is encouraged to leave their tree standing at this time. Anyone with an apparently healthy, productive NYS butternut tree is encouraged to contact Black Squirrel Farms about the details of their tree(s).

OPPORTUNITIES FOR FUTURE PROJECTS: There is considerable on-farm interest regarding how to grow tree seedlings from self-sourced nuts. Opportunities or best practices regarding self-sourced nuts for animal feed were not discussed or addressed.

OF NOTE: The development of markets for non-seed native nut products (nut meat, nut oil, nut shells) are complementary, not competitive, to developing practical paths to the market for tree seed from farms. Nuts for tree seed are a niche use for tree nuts and aggregating nuts for any purpose (like the Black Squirrel Farms black walnut collection program) can be synergistic with efforts to aggregate nuts for tree seed because the cost of aggregation can be reduced and quality assessment standards or practices and well as nut processing and handling, can be shared or partially shared.