



Northern New York Agricultural Development Program 2019 Final Project Report

Malting Barley Variety Evaluations for Production in NNY

Project Leaders:

- Mark Sorrells, Professor of Plant Breeding and Genetics, Cornell University, 413 Bradfield Hall, Ithaca, NY 14853-1902; 607-255-1665, mes12@cornell.edu
- Gary Bergstrom, Professor of Plant Pathology, Cornell University, 331 Plant Science Building, Ithaca, NY 14853; 607-255-7849, gcb3@cornell.edu

Collaborators:

- Michael Davis, Farm Manager, Cornell University Agricultural Experiment Station/Willsboro Research Farm, Willsboro NY; 607-255-5459, mhd11@cornell.edu
- Kitty O'Neil, Regional Field Crops and Soils Specialist, Cornell Cooperative Extension North Country Regional Ag Team, 2043B State Highway 68, Canton, NY 13617, 315-379-9192, kao32@cornell.edu
- Mike Hunter, Regional Field Crops Specialist, Cornell Cooperative Extension North Country Regional Ag Team, 203 North Hamilton Street, Watertown, New York, 13601 315-788-8450, meh27@cornell.edu

Background:

The New York State (NYS) Farm Brewery Law, passed in 2012, spurred the development of new markets for NYS-grown malting barley, hops, and other small grains. In order to receive a Farm Brewery license with associated tax and marketing incentives in New York State, brewers must use NYS-grown farm products according to an increasing schedule. Currently, that proportion is 60%; in 2024 it increases to 90%. Presently, there is not enough malting barley being grown in NYS to meet this demand by brewers. Growers are considering this crop because of its high market value of \$8-12 per bushel.

Malting barley acreage is increasing in NYS and there is interest in growing winter malting barley in NNY, in part because winter barley yields are substantially higher than spring barley because the crop can take advantage of late fall growth and soil moisture from snow. However, winter malting barley is less winter hardy than winter wheat and rye so there is a need to evaluate winter malting barley under the northern NY growing conditions. Cash crop opportunities are limited on most NNY farms due to the short growing season and cool climate, and historically winter cereals are avoided due to insufficient winter hardiness. However, small grains, including

malting-grade and feed-grade barley, could become viable options in the NNY region if today's varieties will reliably overwinter in the regional climate.

If NNY growers can gain entry into the malting- and distilling-grade barley and rye markets, cash crop value could be improved significantly and a new cash crop opportunity for NNY farmers developed. Consequently, we proposed to evaluate, in replicated trials, both spring and winter malting barley at two NNY locations: Chazy and Canton.

Methods:

2019 Spring Malting Barley Variety Trials: Chazy

A spring malting barley variety trial was established on Roundabout silt loam soils in the Cornell field crop research area at the W.H. Miner Agricultural Research Institute in Chazy, NY (latitude 44 degrees 53 minutes, and longitude -73 degrees 28 minutes). The field was moldboard plowed in the fall of 2018, and 200 lbs/acre 15-15-15 fertilizer was broadcast applied and incorporated during the final seed bed preparations in the spring of 2019. Seed of eight varieties were obtained from the Cornell small grains breeding program.: Quest, KWS Tinka, ND Genesis, AAC Synergy, Newdale, KWS Jessie, KWS Chrissie, and LCS Opera. All entries were planted at a 3 bushel/acre seeding rate on April 29, 2019. A randomized complete block experimental design with four replications was employed. Individual plots were 16.5' long and eight rows wide with a 7"-row spacing.

Plant height and lodging data were collected prior to harvest. Plots were combined on August 14, 2019, and the seed was cleaned prior to determining grain weights, percent moisture levels, and bushel weights.

2019-2020 Winter Malting Barley Variety Trials: Willsboro

A winter malting barley variety trial was planted on a Stafford Fine Sandy Loam soil at the Willsboro Research Farm (latitude 44 degrees 22 minutes, longitude -73 degrees 23 minutes) on September 12, 2019. The winter trial included ten varieties: Saturn, KWS Scala, SY Tepee, Endeavor, AC07/041/8-Flavia, SU Mateo, DH 130910, LCS Calypso, LCS Violetta, and Buck. A randomized complete block design with four replications was used and the 16.5'-long plots consisted of 8 rows with a 7"-row spacing. Seedling emergence was uniform and the plants exhibited good fall growth. Plots are being monitored for winter survival and yield data will be collected during the 2020 field season.

2019 Spring and Winter Malting Barley Variety Trials: Canton

We were unable to plant the spring malting barley variety trial in Canton due to exceptionally rainy weather conditions that made it impossible to work the field.

The ten-variety winter malting barley trial was established at the Cornell Cooperative Extension Learning Farm (44.564544°, -75.102489°) on September 19, 2019, utilizing the same experimental design and plot size as the Willsboro site. Stand establishment was good in the Canton trial, and these plots are also being monitored for winter survival and agronomic performance in 2020.

Results:

Spring Malting Barley Variety Trials: Chazy

While the plots at Chazy ended up with solid stands, seedling emergence was slow and staggered over a one to two-week period. It is likely that frequent rains during the first few weeks of May impacted germination and emergence. The staggered emergence was evident both within and between plots, and this variability in emergence time appeared to translate into variable growth. Harvest data are presented in Table 1. No lodging was observed in the trial, so it was not included in the summary table. ND Genesis had the highest mean plot yield as well as the tallest mean plant height, while Newdale produced the lowest mean plot yield. Unusually wet soil conditions during the spring of 2019 made for difficult growing conditions, and additional years of data are needed to adequately evaluate variety performance. This trial will be repeated using the funding allocated for 2020.

Table 1. Chazy Spring Malting Barley Variety Trial Results Summary (Means), 2019.

Variety	Plot Grain Yield (grams)	Bushel Weight (Lbs/bu)	Plant Height (cm)
ND Genesis	2944	43.3	69
KWS Jessie	2539	43.6	44
LCS Opera	2040	43.4	41
KWS Tinka	2034	41.5	55
KWS Chrissie	1499	43.5	45
Quest	1347	36.6	47
AAC Synergy	1280	41.8	57
Newdale	1190	40	48

Spring Malting Barley Variety Trials: Canton

Unable to plant due to exceptionally rainy weather conditions at planting time.

Winter Malting Barley Variety Trials: Canton

Winter barley stand establishment was good in the Canton trial, and these plots are also being monitored for winter survival and agronomic performance in 2020. The 2019-2020 winter barley trials at Canton will be harvested using the funding allocated for this calendar year.

Winter Malting Barley Variety Trials: Willsboro

At Willsboro, winter malting barley seedling emergence was uniform and the plants exhibited good fall growth. Plots are being monitored for winter survival and yield data will be collected during the 2020 field season.

Outreach:

Results of this research project will be presented at field days, workshops, and CCE-hosted grower meetings in 2020 and available at www.nnyagdev.org.

Next Steps:

These trials have received a NNYADP grant to continue in 2020.

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For More Information:

- Mark Sorrells, Professor of Plant Breeding and Genetics, Cornell University, 413 Bradfield Hall, Ithaca, NY 14853-1902; 607-255-1665, mes12@cornell.edu