

Nebraska Craft Brewery Board

Project Final Report for FY 2024-25

Project Title

Commercial evaluation of Nebraska-adapted hops

Contract Number

#18-13-328

Amount of Award

\$20,000

Project Purpose

Our project was to address a desire by the local craft brewing industry for locally sourced hops. Since hops are primarily developed for Pacific Northwest production, commercially available hops are not well-adapted to Nebraska. The University of Nebraska-Lincoln hops breeding program is working to address this issue by developing hops adapted to our environment that are high yielding and have flavor and aroma characteristics of interest to brewers. This project supports the entire craft brewing industry by making new regionally adapted hops cultivars that will be available to regional producers.

Goals

The goals of this project are to 1) grow three distinct elite hop lines at four locations, 2) evaluate first year performance and assess commercial potential of the lines.

Achievement of Goals

1. Ten replicates from each of three genotypes were established at three hop yards in central and eastern Nebraska, including hop yards at North Platte (UNL), Denton (Skybound Hop Yard), and Fort Calhoun (Christensen Hop Yard). This is in addition to the lines already grown and under evaluation in Lincoln (UNL).
2. Scoring data sheets and recording hop performance is ongoing but should be completed before the end of the calendar year.

Results, Conclusions, Lessons Learned

Following several cycles of plant breeding and evaluation, three lines were developed by the University of Nebraska-Lincoln's hop breeding program for commercial evaluation; the lines are designated 19NEHOPS058-121 (95-27), 19NEHOPS059-208 (97-05), and 19NEHOPS059-204 (97-45). The hops were selected for commercial evaluation because of their performance in Lincoln, their high yield, quality compared to commercial lines under evaluation, and their acceptable brewing qualities based on test brewing in the previous year. Due to unforeseen personnel issues, the hops were planted later than initially intended in 2024, delaying the start to the season and the significance of first year performance.

Christensen Hops planted the lines July 17th, 2024, Skybound Hops planted June 25th, 2024, and the hops were planted in North Platte August 30th, 2024. Due to the late planting date, Skybound Hops expressed skepticism that the lines would perform in the first growing season, but they were trained regardless. At the end of the season, Skybound hops reported that each genotype flowered by August 1st at around 7 ft in height, they had harvested 3 lbs. of 95-27, 2 lbs. of 97-05, and 1.75 lbs. of 97-45 and that the quality of the plants in comparison to commercial varieties they grow are better based on pest resistance. Comparable results were reported by Christensen Hops, who expressed that they were impressed with the performance of the plants, especially given the late planting date. No data was collected from the North Platte location in 2024.

At the start of the 2025 growing season, Skybound Hops reported that one line did not survive, but that the remaining lines were performing well. Due to mislabeling, it was not clear which line was lost at the Denton NE location. In North Platte, line 97-45 only had four



Hops growing at Christensen Hop yard in Ft. Calhoun, NE

surviving plants suggesting poor overwintering given the late planting date at that location. Survival of the other two lines suggests that breeding efforts to improve local adaptation is

working. At Christensen Hop yards, they reported that all lines are performing well and that they were surprised by the late maturity date, which is common in locally adapted wild hops. At the UNL hop yards in Lincoln, NE 97-45 was the most aggressive, exhibiting the largest number of shoots early in the season and earlier flowering compared to the other lines. The 97-05 line had the highest occurrence of downy mildew disease. Downy Mildew is an economically important disease for hops producers so 97-05 will be further evaluated to determine how comparable the occurrence of disease is to commercial hops cultivars.

Beyond the scope of this project, we intend to continue data collection and evaluation for several years as the plants mature in these test hop yards. Successful performance will be judged based on yield, pest resistance, and consistent flavor and aromas. Lines performing well will be considered for commercial release. Overall, this was a successful start to a multi-year evaluation trial that could not have been done without this support from the Craft Brewery Board. In terms of lessons learned, the biggest setback was the late establishment of the lines in 2024. However, we are happy to report that the lines established well at each location, and that we are beginning to see performance differences that will help to distinguish the lines and allow for identification of top performing lines for producers.

Amount of Money Expended

\$19,947.55

Contact Information

Keenan Amundsen
134 Keim Hall
University of Nebraska-Lincoln
Lincoln, NE 68588
Office: 402-472-8390
Cell: 402-326-4592
Email: kamundsen2@unl.edu