SC-01-2020

Wooden V Trellis Hop Production to Enhance Economic Opportunities for Ohio Farmers 2020

Brad Bergefurd, Extension Educator, South Centers
Thomas Harker, Horticulture Research Associate, South Centers
Ryan Slaughter, Horticulture Research Assistant, South Centers
Wayne Lewis, Farm Manager, South Centers

Objective

To screen hop cultivars for suitability, production performance and quality attributes under Ohio growing conditions.

Background

This study was conducted at the Ohio State University (OSU) South Centers/Piketon Research & Extension Center at Piketon, Ohio (lat. 39.07° N, long. 83.01° W), elevation 578 feet. The experimental soil is designated as a DoA—Doles silt loam, with 0–3% slopes. It is a deep, nearly level and somewhat poorly drained soil. Typically, the soil surface is a brown, friable silt loam about 20 cm deep and beneath this the subsoil is about 18.5 m.

Methods

Experimental design is Randomized Complete Block (RCB) with 4 replications of each treatment Rhizomes were hand planted into 10 inch tall raised beds covered with black landscape fabric for weed and soil erosion control. Plants are spaced 3 feet apart in row and beds are spaced 14 foot on center. Drip irrigation is installed on high tinsel wire above the landscape fabric. 159 pounds of P2O5, 140 pounds of K2O and 2477 pounds of CaCO3 per acre was applied according to soil test results and incorporated before forming beds and applying landscape fabric. A high trellis training system (20 ft. tall) was installed and assembled after formation of the raised beds.

Insect control: Collected leaf samples were inspected weekly for the presence of two-spotted spider mite, hop aphid and the potato leaf hopper. Chemical control was used when the thresholds had been reached for each insect type.

Disease control: Plant samples were analyzed by the Plant Pathology lab, OARDC to evaluate for disease as needed throughout the growing season.

Fungicide applications were made on a 7-10 day schedule depending on weather conditions and disease pressure.

Irrigation: Drip irrigation was applied weekly throughout the growing season.

Fertilization: 200 lb. per acre of Nitrogen fertilizer applications were made via fertigation through the drip irrigation system, over a eight week period. Primary nitrogen source used was 28%.

Yield data

Hop cones were mechanically harvested as they reached physiological maturity according to chemical analysis results and fresh weight data was collected. Hop cones were then dried to 8% moisture using a hop drying Oast (dryer), weighed, and pelletized.

Table 1: Wooden V Trellis Hop Yields Piketon, Ohio 2020

Cultivar	*Wet lbs. per Plant*	*Wet lbs. per acre*	*Dry lbs. per Plant*	*Dry lbs. per acre*
Nugget	2.0787 A	2515.3 A	0.86509 A	1046.76 A
Cascade	1.353 B	1637.1 B	0.3918 B	474.07 B
Columbus	0.9504 B	1150 B	0.5402 B	653.64 B
Centennial	0.2343 C	283.5 C	0.0837 C	101.28 C
Willamette	0.0977 C	118.3 C	0.02065 C	24.99 C
Sterling	0.0843 C	101.9 C	0.0625 C	75.63 C
LSD	0.422	510.68	0.1628	196.95

**Any means with the same letter are not significantly different.*

Table 2: observational Hop Yields 2020.

Cultivar	*Wet lbs. per Plant*	*Wet lbs. per acre*	*Dry lbs. per Plant*	*Dry lbs. per acre*
Edesem	2.211	2675.85	1.015	1228.65
Alleigh	0.746	903.50	0.307	371.79
Spalter Select	0.191	231.87	0.129	156.58

Summary

Overall plant and hop cone quality was good. Wet pounds per acre ranged from a high of 2,515 (Cv. Nugget) to a low of 101(Cv. Sterling). Wet pounds per plant ranged from a high of 2.07 pounds (Cv. Nugget) to a low of .08 pound (Cv. Sterling). Dry pounds per acre ranged from a high of 1046 (Cv. Nugget) to a low of 24(Cv. Willamette). Dry pounds per plant ranged from a high of .86 pounds (Cv. Nugget) to a low of .02 pound (Cv. Willamette).

SC-01-2020

THE OHIO STATE UNIVERSITY

For more information, contact:
Brad Bergefurd
OSU South Centers
1864 Shyville Road
Piketon, Ohio 45661
bergefurd.1@osu.edu