

Wooden V-Trellis Hop Production to Enhance Economic Opportunities for Ohio Farmers 2018

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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: 275lb./acre of Nitrogen fertilizer applications were made via fertigation through the drip irrigation system, over a nine week period 5/15/18-7/10/18. Primary nitrogen source used was 28%. 161 lb./acre Potassium was applied over the six week period using 9-15-30.



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: V Trellis Hop Yields Piketon, Ohio 2018

<i>Cultivar</i>	<i>Wet lbs. per Plant</i>	<i>Wet lbs. per Acre</i>	<i>Dry lbs. per Plant</i>	<i>Dry lbs. per Acre</i>
<i>Columbus</i>	1.41 A	1706 A	0.45 A	546 A
<i>Cascade</i>	1.26 A	1534 A	0.4 A	490 A
<i>Nugget</i>	1.24 A	1503 A	0.39 A	481 A
<i>Sterling</i>	0.86 AB	1045 AB	0.27 AB	334 AB
<i>Centennial</i>	0.21 B	265 B	0.07 B	84 B
<i>Willamette</i>	0.15 B	189 B	0.05 B	60 B
<i>LSD</i>	0.72	882	0.23	282

Summary

Overall plant and hop cone quality was good. Wet pounds per acre ranged from a high of 1706 (Cv. Columbus) to a low of 189(Cv. Willamette). Wet pounds per plant ranged from a high of 1.41 pounds (Cv. Columbus) to a low of .15 pound (Cv. Willamette). Dry pounds per acre ranged from a high of 546 (Cv. Columbus) to a low of 60(Cv. Willimatte). Dry pounds per plant ranged from a high of .45 pounds (Cv. Columbus) to a low of .05 pound (Cv. Willamette).