

## Metal 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 potted plants 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. 240 pounds of P<sub>2</sub>O<sub>5</sub>, 153 pounds of K<sub>2</sub>O and 3494 pounds of CaCO<sub>3</sub> 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>Crystal</i>	2.79 A	2895 A	0.65 ABC	682 ABC
<i>Columbus</i>	2.22 AB	2308 AB	0.78 A	812 A
<i>Yakima Gold</i>	1.94 BC	2014 BC	0.54 ABCD	564 ABCD
<i>Nugget</i>	1.53 BCD	1589 BCD	0.72 AB	753 AB
<i>Chinook</i>	1.47 BCD	1525 BCD	0.42 BCDEF	437 BCDEF
<i>Galena</i>	1.36 CD	1418 CD	0.5 ABCDE	521 ABCDE
<i>Magnum</i>	1.05 DE	1096 DE	0.35 CDEFG	366 CDEFG
<i>Cascade</i>	0.96 DE	1003 DE	0.25 DEFG	262 DEFG
<i>Willamette</i>	0.42 EF	440 EF	0.08 FG	89 FG
<i>Sterling</i>	0.39 EF	413 EF	0.11 FG	122 FG
<i>Mt Hood</i>	0.39 EF	412 EF	0.15 EFG	162 EFG
<i>Centennial</i>	0.13 F	137 F	0.05 G	59 G
<i>Golding</i>	0.06 F	65 F	0.01 G	19 G
<i>Northern Brewer</i>	0.05 F	58 F	0.01 G	17 G
<i>LSD</i>	0.78	809	0.35	365

## Summary

Overall plant and hop cone quality was good. Wet pounds per acre ranged from a high of 2,895 (Cv. Crystal) to a low of 58 (Cv. Northern Brewer). Wet pounds per plant ranged from a high of 2.79 pounds (Cv. Crystal) to a low of .05 pound (Cv. Northern Brewer). Dry pounds per acre ranged from a high of 753 (Cv. Nugget) to a low of 17 (Cv. Northern Brewer). Dry pounds per plant ranged from a high of .72 pounds (Cv. Nugget) to a low of .01 pound (Cv. Northern Brewer).

