

Hop Production to Enhance Economic Opportunities for Ohio Farmers and Brewers

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

Background

Crop Year: 2015

Location: Piketon Research & Extension Center .
(lat. 39.07° N, long. 83.01° W,
elevation 578 ft.).

County/Town: Pike/Piketon

Soil Type: Doles (DoA)-Omulga (OmA) silt
loam

Drainage: field tile, sub-surface and 10 inch
raised beds

Previous Crop: Perennial Hops

Tillage: Permanent raised beds

Soil Test: pH 5.8

P 14 ppm(28 lb/ac)

K 86 ppm(172 lb/ac)

Planting Date: May 9, 2013

Nitrogen: 165 lb./ ac

Seeding Rate: 1,210 plants per acre

Harvest Date(s): 8/4, 8/6, 8/10, 8/11 ,8/12, 8/18
and 8/31

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 12 foot on center. Drip irrigation is installed on top 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 (17 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. Carla virus and Apple Mosaic virus was detected in Willamette Cv. samples. Fungicide applications were made on a 10 day schedule.

Irrigation: Drip irrigation was applied as needed throughout the growing season.

Fertilization: 165 lb/acre of Nitrogen fertilizer applications were made via fertigation through the drip irrigation system, over a six week period 4/15/15-6/10/15. Water soluble Nitrogen sources used were 12-48-8 and 28%.



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Yield data: Hop cones were hand 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 air tight packaged with a vacuum sealer and immediately placed into a freezer at -20 degrees F.

Results

Table 1: Hop Yields, Piketon Research & Extension Center, Piketon, Ohio 2015

| Cultivar(Cv.) | Wet lbs. per Acre | Wet lbs. per Plant | Dry lbs. per Acre | Dry lbs. per Plant |
|----------------------|------------------------------|-------------------------------|------------------------------|-------------------------------|
| Nugget | 2872 A | 2.3735 A | 1070 A | 0.8843 A |
| Columbus | 2670.2 A | 2.2068 A | 877.6 A | 0.7253 A |
| Cascade | 1484.6 B | 1.227 B | 482.2 B | 0.3985 B |
| Sterling | 1017.4 BC | 0.8409 BC | 307.2 BC | 0.2539 BC |
| Centennial | 503.7 C | 0.4163 C | 161.2 C | 0.1333 C |
| Willamette | 218.2 C | 0.1803 C | 52.6 C | 0.0435 C |
| LSD (0.05) | 874.34 | 0.7226 | 313.65 | 0.2592 |

- *Treatments with the same letter are not significantly different.*

Summary

Overall plant and hop cone quality was good. Wet pounds per acre ranged from a high of 2,872 (Cv. Nugget) to a low of 218 (Cv. Willamette). Wet pounds per plant ranged from a high of 2.37 pounds (Cv. Nugget) to a low of .18 pound (Cv. Willamette). Wet hop market prices average \$25 per pound with gross return potential from Ohio hops in excess of \$70,000 per acre. Acreage estimates indicate 80 mature Ohio hop acres harvested in 2015.

(http://www.usahops.org/userfiles/image/1452960660_2015%20Stat%20Pack.pdf)

Acknowledgement

- This research is made possible through a grant from the Ohio Department of Agriculture, the State of Ohio and the United States Department of Agriculture under the provisions of the Specialty Crop Block Grant.
- The authors express appreciation to the Horticulture research team at the Piketon Research & Extension Center including Wayne Lewis (Farm Manager), Thom Harker (Research Assistant), Chelsea Smith (Research Assistant), Charissa Gardiner (Program Assistant), Emily Weaks (Research Assistant), Ryan Slaughter (Research Assistant) and Summer Student Interns; Alexis Turner, Michael Daniels, Leah Diedrick, John Cassidy, Dane Peck and Dannah Diedrick for assistance with maintenance, management, harvest and data collection.



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