Growing Indiana’s Hop Industry

Rapid growth in the craft brewing industry has created an opportunity for Hoosier farmers to start growing hops. Hops are the female flowers (also called cones) from the hop plant (*Humulus lupulus*). This high-value, perennial crop is used to flavor and stabilize beer. Indiana has over 100 breweries currently operating and plans for another 50 coming soon. The price of hops has continued to steadily increase with the growing craft brewing industry and there are concerns about hop shortages in the future. Indiana hop acreage will double or triple in 2015 to provide locally-grown hops to Indiana brewers. This project includes a comprehensive research and outreach program to meet the demands of this rapidly growing industry.

Project goals

- Determine establishment and management costs associated with tall and dwarf trellis production systems
- Identify hop varieties best adapted to Indiana’s growing conditions
- Identify the most problematic pests and develop efficient and sustainable control strategies
- Obtain approval for pesticide registrations
- Design scale-appropriate equipment for harvesting and processing
- Facilitate interaction between hop growers and brewers to help develop local markets

Research and outreach activities to date

- Established tall (18ft) and dwarf (10ft) trellis system at Meigs Farm
- Planted six commercial varieties in a randomized complete block design within each system
- Monitored insect and pathogen incidence, as well as yield and hop cone quality
  - Downy mildew (*Pseudoperonospora humuli*), potato leafhopper (*Empoasca fabae*), and twospotted spider mites (*Tetranychus urticae*) were the most problematic pests
  - Yields were greater than expected in the 1st year
- Hosted 1st Hop Production Workshop at Meigs Farm on August 21st. Over 200+ hop growers and brewers were in attendance

Funding sources

- Purdue: Mary S. Rice Grant
- IN Specialty Crop Block Grant

Resources for hop growers

- Website - Purdue Hops Network
  https://ag.purdue.edu/hla/fruitveg/Pages/Hops.aspx
  - announcements
  - webinar archive
    - Scouting in your Hopyard (Erin Lizzote)
    - Hops: Costs of Production (Rob Srinrre)
  - extension bulletins
  - links to hop resources
- List-serve - GrowINhops
  https://lists.purdue.edu/mailman/listinfo/growinhops
  - announcements
  - news updates
  - ask questions
- Integrated Pest Management Guide for hops in Indiana 2014
- Production Workshops
  - Save the date!
  - March 5th, 2015
  - Indiana Small Farm Conference
  - Danville, IN

Variety usage alpha acid% (standard) beta acid% (standard)

<table>
<thead>
<tr>
<th>Variety</th>
<th>usage</th>
<th>alpha acid% (standard)</th>
<th>beta acid% (standard)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cascade</td>
<td>aroma</td>
<td>4.74 (4.5-7.0)</td>
<td>5.10 (4.8-7.0)</td>
</tr>
<tr>
<td>Centennial</td>
<td>aroma</td>
<td>9.93 (9.5-11.5)</td>
<td>7.48 (3.5-4.5)</td>
</tr>
<tr>
<td>Chinook</td>
<td>high</td>
<td>9.6 (12.0-14.0)</td>
<td>2.94 (3.0-4.0)</td>
</tr>
<tr>
<td>Galena</td>
<td>high</td>
<td>4.59 (11.5-13.5)</td>
<td>1.81 (7.2-8.7)</td>
</tr>
<tr>
<td>Nugget</td>
<td>high</td>
<td>5.54 (11.5-14.0)</td>
<td>4.56 (4.2-5.8)</td>
</tr>
<tr>
<td>Zeus (CTZ)</td>
<td>super</td>
<td>12.56 (15.5-16.5)</td>
<td>3.77 (4.0-5.0)</td>
</tr>
</tbody>
</table>

First Year Yields at Purdue Hopyard (2014)

<table>
<thead>
<tr>
<th>Variety</th>
<th>usage</th>
<th>avg lbs per plant at 8% moisture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cascade</td>
<td>aroma</td>
<td>-</td>
</tr>
<tr>
<td>Centennial</td>
<td>aroma</td>
<td>-</td>
</tr>
<tr>
<td>Chinook</td>
<td>high</td>
<td>10.2 (8.2-14.5)</td>
</tr>
<tr>
<td>Galena</td>
<td>high</td>
<td>11.6 (10.2-13.0)</td>
</tr>
<tr>
<td>Nugget</td>
<td>high</td>
<td>10.1 (9.1-11.1)</td>
</tr>
<tr>
<td>Zeus (CTZ)</td>
<td>super</td>
<td>13.8 (12.3-15.4)</td>
</tr>
</tbody>
</table>

* Dwarf trellis was significantly different than the tall trellis

For more information contact:

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