

OHGG Hops Quality Standards

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Best Practices for Ohio Hop Growers Guild Hops



By achieving the following standards as hop growers, our brewing customers have confidence that our products are safe, of high quality and produced using sound, sustainable, and efficient practices.

This Document is written as a manual for Best Practices for Small Scale Hop Growers in Ohio. It also serves as a Self-Audit Checklist prior to applying for the Ohio Hop Growers Guild Quality Standards Seal.

Principles

- Quality Assurance: OHGG Standards provide brewers with a third-party assurance that certified growers have produced quality hops.
- Traceability: OHGG Standards require an auditable records trail to assure quality, and isolate/identify problems.
- Legally Sufficient: OHGG Standards ensure certified growers are complying with applicable regulatory requirements.
- Industry Standards: OHGG utilizes Hop Growers of America Standards whenever possible and available.

Best Practices Covers the Following Areas:

- Farm Practices: Records, Irrigation, Pest Control, Crop Production, Soil/Nutrient Management
- Processing Practices: Harvest Timing, Cone Evaluation, Drying Requirements, Baling Requirements, Pelleting Requirements,, Traceability, Labeling and Marketing
- Brewers Standards: Data points expected by Brewers and other customers.
- Educational Training and Business Practices

OHGG Quality Standard Seal Application Instructions

1. Grower self-assesses in accordance with Best Practices for Growing Hops. OHGG Hops Quality Standards Self-Audit Checklist, pages 3 through 7.
2. Grower assembles Farm Records Notebook containing all Standards documentation and evidence.
3. Grower must complete all mandatory requirements, depicted in bold, in the Standard that begins on the next page. Items that may be subcontracted (pelletizing and packaging) must be done by contractors certified by OHGG Standards Committee.
4. Grower applies to OHGG for certification via email to current OHGG Standards Committee Chairperson. Include grower name, full address and contact information. Contact OHGG for current Chair and committee members.
5. Grower will be contacted by email or phone to schedule an on-site inspection. No inspection will have the same inspector consecutively, nor conduct reciprocal inspections.
6. Inspector visit. Visit should be educational, collaborative, and rigorous, focusing on production of quality, safe hops.
7. May make on the spot corrections, or schedule follow-up for corrective action.
8. Inspector submits OHGG Hops Quality Seal Standards Inspection Report to OHGG Standards Committee for review. Copy given to Grower to keep for records.
9. Standards Committee recommends to the Board that seal be issued to the grower for a three year period or notifies grower of non-recommendation and deficiencies.
10. If not recommended, grower may correct and schedule new inspection.
11. OHGG Board acts at quarterly meetings to accept recommendations and approve use of OHGG Quality Seal to grower.
12. OHGG publishes certified growers list on website and to OCBA.
13. Grower may advertise using seal until recertification or action leading to revocation.

OHGG Hop Quality Standards

Items Listed in bold print are mandatory!

I. Farm Practices

A. Farm Records. The following records are to be up-to-date and kept on site. Copies of items 1 through 8 are to be submitted with request for OHGG certification.

1. **Farm Insurance Policy Statement (product liability coverage)**
2. **ODA Pesticide Private or Commercial Applicator license**
3. **ODA Fertilizer License (>50 acres only)**
4. **HGA (Hop Growers of America / USA Hops) grower number**
5. **Pesticide logs**
6. **Harvest logs**
7. **Soil reports**
8. **Traceability – Record of Sales**

See OHGG Farm Book Records: Forms for recommended record keeping formats. Also available in Microsoft Word for customization. Formats may be altered as long as minimum required information is provided.

B. Water Quality and Irrigation

1. **Untreated sewage or manure shall not be applied to the hopyard within 90 days of harvest.**
2. **All water used for drinking, hand washing and post-harvest use that comes in contact with the hop cones shall be potable.**
 - a) Municipal water sources require no testing.
 - b) Well water used for such purposes should be tested once per year.
 - c) Surface water (i.e. shallow wells, rainwater cisterns, springs, or ponds, or hauled water storage tanks that receive water from a public water supply), should be tested 3 times a year.
 - d) Lab results for a 100 ml water sample shall have no detection of any generic E. coli.
3. Irrigation Records. Record date and quantity of water used.

C. Pest Control

1. **Complete spray records to meet Maximum Restricted Limits (MRL) restrictions and USDA requirements.**
2. **Records shall be kept for three (3) years. Pre-harvest intervals documented and observed. Complete attached Pesticide Log AND Field Location Key for each field.**
3. **All pesticides are to be listed for use in Ohio and labeled for use on hops.**

D. Crop Production

1. Weekly Scouting Record. This recordkeeping will offer critical growing data used to manage and improve your farm's production, as well as provide valuable information for the Guild and Research Partners defining regional best practices.
2. Complete Machinery/Building/Equipment/Cleaning Maintenance Log. This shows you are checking and maintaining your facility and equipment.

E. Soil/Nutrient Management

1. **Conduct Soil Testing to apply proper amounts of chemicals, not leach unnecessary chemicals into the environment. Mandatory - every three (3) years.** Recommended annually.
2. Conduct Petiole Testing to apply proper amounts of chemicals, such as nitrogen, for the health of the plants.
3. Maintain a Fertilizer Management Plan and record Fertilizer/Fertigation applications on the Fertilizer Log.
4. Meet with NRCS (National Resources Conservation Service) Office or County Soil and Water Conservation District (SWCD) for an assessment on farm practices and implement recommended conservation practices. This supports hop growers' commitment to sustainability.

II. Harvest & Processing

A. Harvest Timing & Cone Evaluation

1. **Test and record date that hops reach approximately 80% moisture content while still on bine. Grower can describe an appropriate method for determining moisture content. Oven Dry Method is recommended by OHGG. Record results.**

2. **Record date and time of each harvest by lot in Daily Harvest Log.**
3. **If selling wet hops – proper labeling is required. See Section E.4 of this document.**
4. Conduct Lab Analysis of a hop sample prior to harvest to check acid levels and moisture for proper harvest time.
5. Conduct Facility and Worker Pre-Harvest Food Safety Risk Assessment and Harvest Equipment Pre-Harvest Food Safety Risk Assessment. See attached checklist.
6. If you are subcontracting your cone picking and/or drying be sure to schedule in advance and coordinate with the subcontractor for the delivery timing of your hops to minimize time between cutting bines and drying cones. Hop bines or whole cones are to be shipped with a breathable covering to minimize heat and guard against the collection of any debris along the way.
7. Begin drying within 6 hours of cutting bine and dry to 8-10 % moisture or deliver fresh wet hops in food grade brewer's bags or containers to brewer within 24 hours of harvest.

B. Drying Requirements

1. **Drying shall occur in a Food Safe Oast. See OHGG Oast Guidelines, p.9.**
2. **Hops shall be dried using low temperature air to keep them below 120 degrees. All drying information shall be recorded in Daily Harvest Log.**
3. **Hops shall be dried down to 8 – 10 % moisture content, tested using either over dry or microwave dry matter test.**
4. **After drying and conditioning, hops shall be kept in a cold storage not to exceed 38 degrees F. at 50% relative humidity, either baled or packed in a sealable, airtight container.**

C. Baling Requirements

1. **Compression should be made using Food Safe Equipment and compressed to a point short of destroying lupulin oil glands. (7.5 psi max).**
2. **Hop Storage - bales or airtight containers shall be stored in cold storage not to exceed 38 degrees F. at 50% Relative Humidity. Appropriate equilibrium moisture content is reached and held in the hops of no less than 8 % and no more than 12 %.**
3. Dried hop cones should be baled, vacuum packed, or pelletized/packaged within 24 hours of completion of drying. Baling reduces surface area for

oxidation of hop oils, as well as reducing space requirements for hop storage.

D. Pelletizing

1. **Pelletizing is to be completed in an ODA (Ohio Dept. of Agriculture) Licensed Food Safe Room. Grower verifies Processing Facility's ODA License.**
2. **Mill to Brewing Industry Standards: T-90 Pellet Size. Pellet Compaction shall be 30- 35# of pellets per cubic foot.**
3. **A representative sample of the pelletized hops is to be tested for chemical analysis of Alpha and Beta acid percentages and Hop storage Index. This information is needed to complete final labeling on the packages.**
4. Total oils testing is recommended.
5. Proper Delivery Handling – Hops should be transported to the processor in a way to minimize heat, debris and breaking down of crop/oils.
6. During the Milling and Pelleting Process, any equipment making contact with the hops shall be kept sanitized and remain below 120 degrees. Pellets should NOT have a waxy sheen as this signifies lupulin oils have heated up and began to oxidize affecting flavor and quality.

E. Packaging and Labeling

1. **Packaging of hops for sale to end user shall be done in an ODA Licensed Food Safe Room.**
2. **Pellets or Whole Dried Hops shall be Vacuum Packaged into FDA-Approved Food Grade, Aluminized Mylar (4-5 mil thick) Bags with Food Safe, inert gas back-flush for hops preservation.**
3. **Packaged hops are to be measured by a certified weigh scale. A current Local County Weights and Measures Seal shall be displayed on scale.**
4. **Label is to be compliant with state law and includes Farm name, Ingredient, Alpha %, Beta %, HSI, Weight in Standard and Metric, Harvest Date, Process Date, Lot #. See Food Label Sample for Hops on page 11.**
5. Once Certified by the OHGG Board the Ohio Hop Growers Guild Quality Seal may be placed on hop packaging or incorporated into label, and/or advertised on website or other social media. **The OHGG Quality Seal must be displayed in its original design.**

III. Brewers' Standards

A. Analytical Testing per the American Society of Brewing Chemists

- 1. Alpha Acids, Beta Acids and Total Moisture less than 12 % (ASBC HOPS-6A)**
- 2. Hop Storage Index (HSI)(ASBC HOPS-12)**
3. Total Oils (ASBC HOPS-14)
4. Stem and Leaf Debris, Seed Content and Insect content noted and quantified. Growers should aim for the least % of debris in hop product. Content shall comply with American Society of Brewing Chemists (ASBC) protocols. Documented by Processing Facility.

IV. Educational, Training and Business Practices

A. Educational, Training

1. USA Hops Best Practices Self-Certification Program - Module #1 – Harvest Practices and Food Safety.
2. Attend OHGG Hop Conference Annually.
3. Attend OHGG training sessions.
4. Participate in related webinars, training, conferences, events and certificates of completion and attendance kept on file.

B. Business Practices

- 1. OHGG Regular Membership – current & paid**
2. Hop Growers of America (USA Hops) Member
3. Ohio Farm Bureau Member
4. Ohio Proud Member

This Document is written as a manual for Best Practices for Small Scale Hop Growers in Ohio. The Ohio Hop Growers Guild Quality Standards Seal provides value-added to the Hop product, all regulatory/legal compliance is the responsibility of the grower.

Reference Sources

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https://www.gipsa.usda.gov/fgis/handbook/hopHB/HopInspection_2016-02-23.pdf
- United States; United States Food and Drug Administration; Food Safety Modernization Act (FSMA); 2013; www.fda.gov/Food/GuidanceRegulation/FSMA/
- Madison, Wisconsin; Gorst Valley Hops LLC; Gorst Valley Processing Guide; 2013; gorstvalleyhops.com/wp-content/uploads/2015/03/Processing-Manual.pdf
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- East Lansing, MI; Michigan State University; 2017;
<http://msue.anr.msu.edu/topic/info/hops>
- Moxee, Washington; Hop Growers of America; 2017;
<https://www.usahops.org/growers/food-safety.html>
- Columbus, Ohio; Ohio Department of Agriculture; 2017; www.agri.ohio.gov/foodsafety/
- Ohio Hop Growers Guild Bylaws; 2017; ohgg.org/pdf/OHGG-bylaws.pdf
- Columbus, Ohio; Ohio State University; Hop Research Program; Ohio State University Extension Education Center; 2017;
<https://southcenters.osu.edu/horticulture/other-specialties/hops>
- Ithaca, New York; Cornell University; Produce Safety Alliance Grower Training Course; 2017; <https://producesafetyalliance.cornell.edu/training/grower-training-courses>
- Burlington, Vermont; University of Vermont ; NW Crops and Soils Program; 2017;
<http://www.uvm.edu/extension/cropsoil/hops>
- Yakima, Washington; Yakima Chief; Hopunion; GreenChief Quality Growing Standards; 2017; <https://ychhops.com/who-we-are/quality-at-the-farm/green-chief>

OHGG HOP OAST GUIDELINES

Guidelines for Food Safe Hops Dryer

(for Growers Drying Their Own Harvest Once a Year)

1. The Oast must operate in a space that has EASILY CLEANABLE, WASHABLE SURFACES.

Examples: A partitioned area of a barn, garage, outbuilding in which the floors, walls, and ceiling can be washed. Dirt floors are NOT compliant, nor an area open to animal manure, bird nesting, rodents, etc.

2. Any surface in contact with the wet or dry hops must be easily cleaned and sanitized.

3. Enclosed Light Fixtures/Shatter-proof Bulbs

4. Hand Washing Station present. Example: Igloo cooler with soap, paper towels and trash receptacle

For those drying for others, the requirements are more detailed and should be investigated through their ODA Representative

The Food Safety Modernization Act (FSMA)

Produce Safety Rule

Hops are exempt from the FSMA Produce Rule if according to §112.2 (b) (1) “The produce receives commercial processing that adequately reduces the presence of microorganisms of public health significance. Examples of commercial processing that adequately reduces the presence of microorganisms of public health significance are processing in accordance with the requirements of part 113, 114, or 120 of this chapter, treating with a validated process to eliminate spore-forming microorganisms (such as processing to produce tomato paste or shelf stable tomatoes) and processing such as refining, distilling, or otherwise manufacturing/processing produce into products such as sugar, oil, spirits, wine, beer or similar products.”

For a farm that only grows hops:

- If your 3-year rolling average of gross hop sales, as claimed on your federal tax forms, are under \$25,000 you would be exempt from the regulation.
- If your 3-year rolling average of gross hop sales, are over \$25,000, you would be required to
 - supply a disclosure letter to your customers that your hops are “not processed to adequately reduce the presence of microorganisms of public health significance.”
 - annually obtain a written assurance from your customers that perform commercial processing that the customer has established and is following procedures (identified in the written assurance) that adequately reduce the presence of microorganisms of public health significance; or...
 - Annually obtain a written assurance from Customer “A” that an entity (Customer “B”) in the distribution chain subsequent to Customer “A” will perform commercial processing and that Customer “A”:
 - Will disclose in documents accompanying the hops, in accordance with the practice of the trade, that the hops “are not processed to adequately reduce the presence of microorganisms of public health significance”; and
 - Will only sell to another entity (Customer “B”) that agrees, in writing, it will either:
 - Follow procedures (identified in a written assurance) that adequately reduce the presence of microorganisms of public health significance; or
 - Customer “A” will obtain a similar written assurance from Customer “B” that the hops will receive commercial processing and that there will be disclosure in documents accompanying the hops, that it “is not processed to adequately reduce the presence of microorganisms of public health significance.”