Established January 2010 by the US Hop Industry
US Hop Industry Overview

Hop varieties are classified as “aroma types” and “alpha types”.

Over 50 varieties in production.

US 2009: 38% of world’s raw hops & 45% of alpha acid (#1 in both).

Primary commercial production region: PNW.

Germany 2009: 28% of world’s raw hops & 33% of alpha acid (#2).

All other countries combined – 34% of raw hops and 22% of alpha.
US Hop Industry Overview

Washington: Represents 79% of US commercial hop production
- 70+% export, 30% domestic

Oregon: Represents 13% and 8% of US commercial hop production
- 40% export, 60% domestic

Idaho: Represents 8% of US commercial hop production
- 40% export, 60% domestic

US exports nearly 70% of annual crop (50+ customer countries)

Other states – CO, PA, VT, MN, NC, NY, others – generally tied to domestic craft brewing industry
World’s Largest Alpha Producers 2009

- USA: 45%
- Germany: 33%
- China: 8%
- Other: 14%
US Hop Acreage – 1990-2009 (20 yr)
Hop Organization Structure

Oregon, Washington & Idaho hop commissions – formed under state statutes; represent growers, collect assessments to fund research, other programs.

Hop Research Council – growers, merchants, processors, brewers – voluntary membership, assessments fund research.

Certified Rootstock Committee
sponsored by WA Hop Commission.
Evolution of Hop Clean Planting Stock

Virus Research at WSU-Prosser since mid-1960s.

WA Quarantine Laws - targeted *Verticillium albo atrum*.

Regionalization of Certified program in 2000s – due to Hop stunt viroid.

Certified Rootstock Program targeted viruses.

Hop Foundation Program Procedures

• Priority hop selections are identified by industry committee & obtained from domestic sources.
• Growth chamber for thermotherapy – improves efficiency of obtaining virus/viroid-free shoot tips for culture.
• After meristem culture, plants re-established in greenhouse.
• Tested (molecular and serological assays) during growing season.
• Expanded to 3-5 potted plants.
• Retained in screenhouse for distribution to certified propagators for expansion.
• Screenhouse plants also strung to allow production of green cuttings for distribution.
Current Hop Foundation Program

Virus-free certified hop planting stock program has operated at WSU-IAREC since 1964.

- Supported by a combination of:
  - industry contributions
  - in-kind contributions of WSU
  - check-offs from the sale of certified material

- Facilities include:
  - Virus-free accessions in screenhouse (2,895 ft²)
  - Greenhouse (702 ft²)
  - Tissue culture lab (152 ft²) & walk-in growth chamber (72 ft²)
  - Shared laboratory space
    - Associated with other specialty crop clean plant programs at WSU – provide access to lab equipment, etc.
Completely renewed since 2005
Hop Foundation Program

Essential collaboration between foundation (HCPN), research and service activities
Research Component

Discovery of Hop stunt viroid in US commercial growing area – 2004 – can reduce yields by 60+%
- Emphasized need for cooperative regional/national approach to reduce distribution of infected planting stock.

Develop and improve diagnostic techniques for viruses and viroids.

Survey extent of spread in commercial fields.

Determine mechanism for spread, and recommendations for containment.

Determine yield impacts for individual varieties.

Develop strategies for producing virus and viroid free foundation plants.
Combined testing facilities provide services for growers and propagators.

- WA Technology Grant funds (administered by WA Hop Commission) were used to create a molecular diagnostic service lab.
- Used to diagnose hop grower samples on a fee for service basis (self supporting).
- Critical component of the testing program for hop, grapevine & fruit tree foundation programs.
Virus/viroid cleanup for public cultivars.

Virus/viroid cleanup services for proprietary cultivars.

Establish and maintain clean plant collection.

Distribution of clean planting stock.
- A single clean foundation plant can expand to 6,000 plants in a year via green cuttings.
Next Steps...

Expand capacity of foundation program to insure availability of clean planting stock for all hop cultivars.

Establish improved mechanism for distribution of clean planting stock and program administration.

Move from regional to national scope.
Hop Clean Plant Network

Formal merger of state commission, Hop Research Council, & Certified Rootstock Committee efforts.

Ensures formal representation of all impacted segments of the industry.

Improved collaboration between clean planting stock service and research programs, the National Clonal Germplasm Repository and hop breeding programs (public and proprietary).

Opportunity to partner with other crops (grapevine & fruit tree) to maximize cost-effectiveness of administrative and service components.
HCPN Tier 2 Timeline

- **2009** – discussions between hop organizations and decision to move forward.
- **October 2009** – Charter drafted and distributed for comments.
- **November 2009** – Hop Certified Rootstock Committee revised and endorsed charter.
- **March 25, 2010** – confirmation of HCPN Tier 2 specialty crop committee members.
HCPN Tier 2 Specialty Crop Committee Voting Members:

- One representative from each of the hop commissions of Washington, Oregon & Idaho: Reggie Brulotte-WA, Fred Geschwill-OR and Mike Gooding-ID
- One at-large grower representing commercial hop production: Bernard Gamache-WA
- One brewer representative - Ed Atkins, ABI
- One hop merchant representative – Paul Matthews, SS Steiner
- One private hop breeding program representative – Jason Perrault, Hop Breeding Company
- One university representative with plant pathology expertise – Dr. Ken Eastwell, WSU
- One state regulatory agency representative representative – Leo Kazek, WSDA
HCPN Tier 2 Specialty Crop Committee Non-Voting Members:

- NCPN National Coordinator or representative of NCPN governing board

- National Clonal Germplasm Repository –
  - Dr. Kim Hummer, Corvallis

- APHIS (PPQ) observer

- University public hop breeder –
  - Dr. Stephen Kenny, WSU-Prosser

- Subject matter experts as needed
Three service programs exist at WSU-IAREC:

- Fruit tree foundation program created in 1955
- Grapevine foundation program created in 1961
- Hop foundation program created in 1964
Collaboration between PNW specialty crops (hops, grapes & tree fruit)

- maximize cost-effectiveness of administrative and service components.

Maximize utilization of equipment, facilities and technical support.

“One stop shop” for growers and propagators.
2009 proposal included fruit trees, grapes and hops

Fruit trees and grapes received funding

2010 proposal seeks to add hops to this program

Primary component of hop proposal is a technical support, to expand the clean-up program and bring more selections into the program.
Questions?

Thank you!

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