

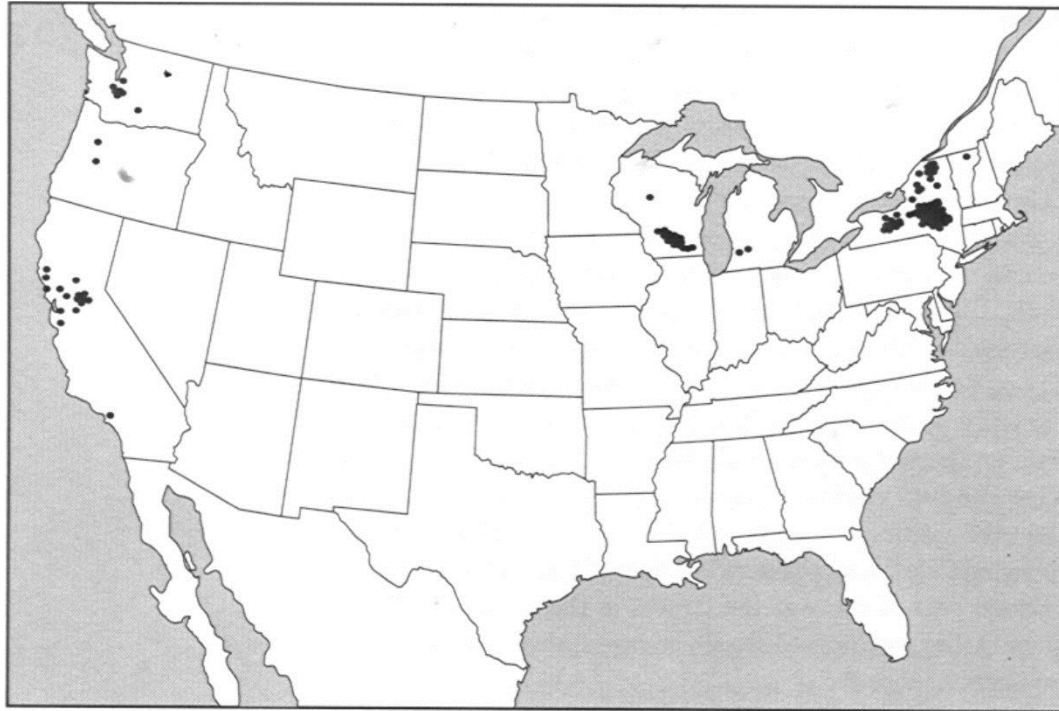
Getting started in hops





Rise

- 1880's - NYS produces 90% of the nation's supply of hops.



The Final Blow



1920-1933



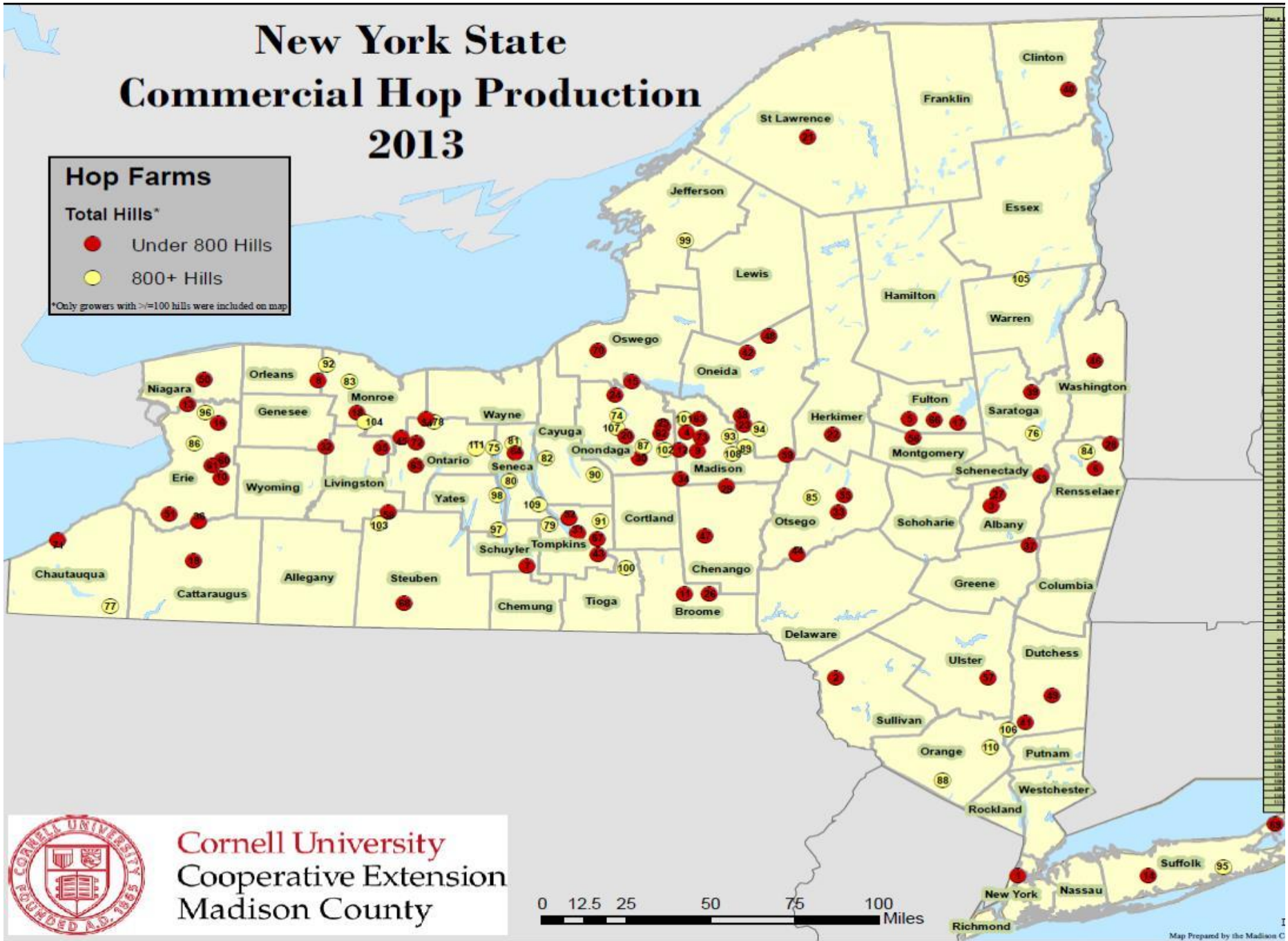
New York State Commercial Hop Production 2013

Hop Farms

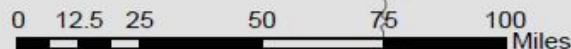
Total Hills*

- Under 800 Hills
- 800+ Hills

*Only growers with >=100 hills were included on map



Cornell University
Cooperative Extension
Madison County



Site Selection

- Soil type
 - Well-drained
- Depth to bed rock
- Full sun
- Close to water









Cedar and Tamarack poles 20 to 22 ft X 6 in.
65 @\$30-60 each, have seen them for \$25







Estimated costs per Acre

• Trellis establishment	\$5-6,000
• Drip Irrigation system – (not including source)	\$1,200
• Rhizomes or plants	\$2-4,000
• Land Prep (fert.,seed,coir)	\$1,000
• Labor	\$3-4,000
 Total	 \$12-16,000/A









Site Selection

- Soil type
 - Well-drained
- Depth to bed rock
- Full sun
- Close to water



Variety Selection

- Talk to your brewer
- Aroma vs bittering
- Disease resistance
- See our websites for variety updates



Cluster



Perle

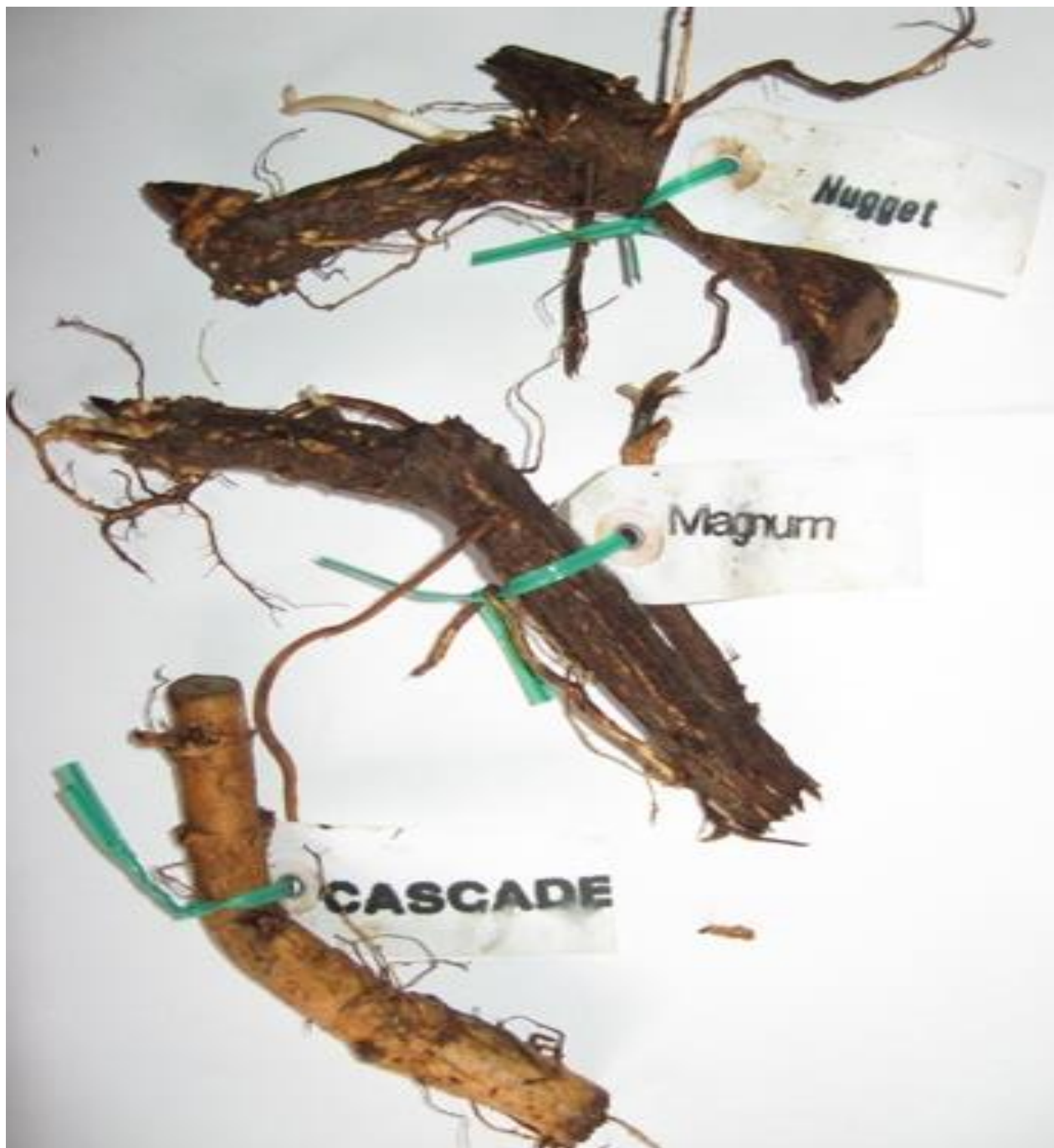


Cascade

Variety	Usage	Disease Susceptibility*		
		Powdery Mildew	Downy Mildew	Verticillium Wilt
Brewers Gold	Bittering	S	MR	MR
Bullion	Bittering	S	MR	R
Cascade	Aroma	MR	MR	MR
Centennial	Bittering	MR	S	U
Chinook	Bittering	MS	MR	R
Columbia	Aroma	MS	MR	S
Comet	Bittering	R	S	R
Crystal	Aroma	R	S	R
East Kent Golding	Aroma	S	S	MR
First Gold	Bittering	R	S	MR
Fuggle	Aroma	MS	R	S
Galena	Bittering	S	S	R
Glacier	Aroma	S	S	U
Hall. Gold	Aroma	MS	R	S
Hall. Magnum	Bittering	S	R	MR
Hall. Mittelfrüh	Aroma	MS	S	S
Hall. Tradition	Aroma	MR	R	MR
Horizon	Bittering	MS	S	MR
Late Cluster	Aroma	S	S	R
Liberty	Aroma	MR	MR	U
Mt. Hood	Aroma	MS	S	S
Newport	Bittering	R	R	U
Northern Brewer	Bittering	S	S	R
Nugget	Bittering	R	S	S
Olympic	Bittering	S	MS	R
Perle	Aroma	S	R	MR
Pioneer	Bittering	MR	MR	U
Saazer	Aroma	S	MS	S
Saazer 36	Aroma	S	MS	S
Spalter	Aroma	S	R	MR
Sterling	Aroma	MS	MR	U
Teamaker	Aroma	MR	MR	S
Tettnanger	Aroma	MS	MS	S
Tolhurst	Aroma	S	S	U
U.S. Tettnanger	Aroma	MS	MS	S
Vanguard	Aroma	S	S	U
Willamette	Aroma	MS	MR	S

- 
- Cascade
 - Centennial
 - Chinook
 - Cluster
 - Crystal
 - Fuggle
 - Galena
 - Glacier
 - ~~Hallertau~~
 - Liberty
 - Mt Hood
 - Newport
 - Nugget
 - Perle
 - Saaz
 - Santiam
 - Sterling
 - Tett nang
 - Vanguard
 - Willamette

Plus some exciting new varieties from the USDA – ARS breeding program, courtesy of Dr. John Henning!!!



Local Propagation of virus
free hop plants





Major Pests

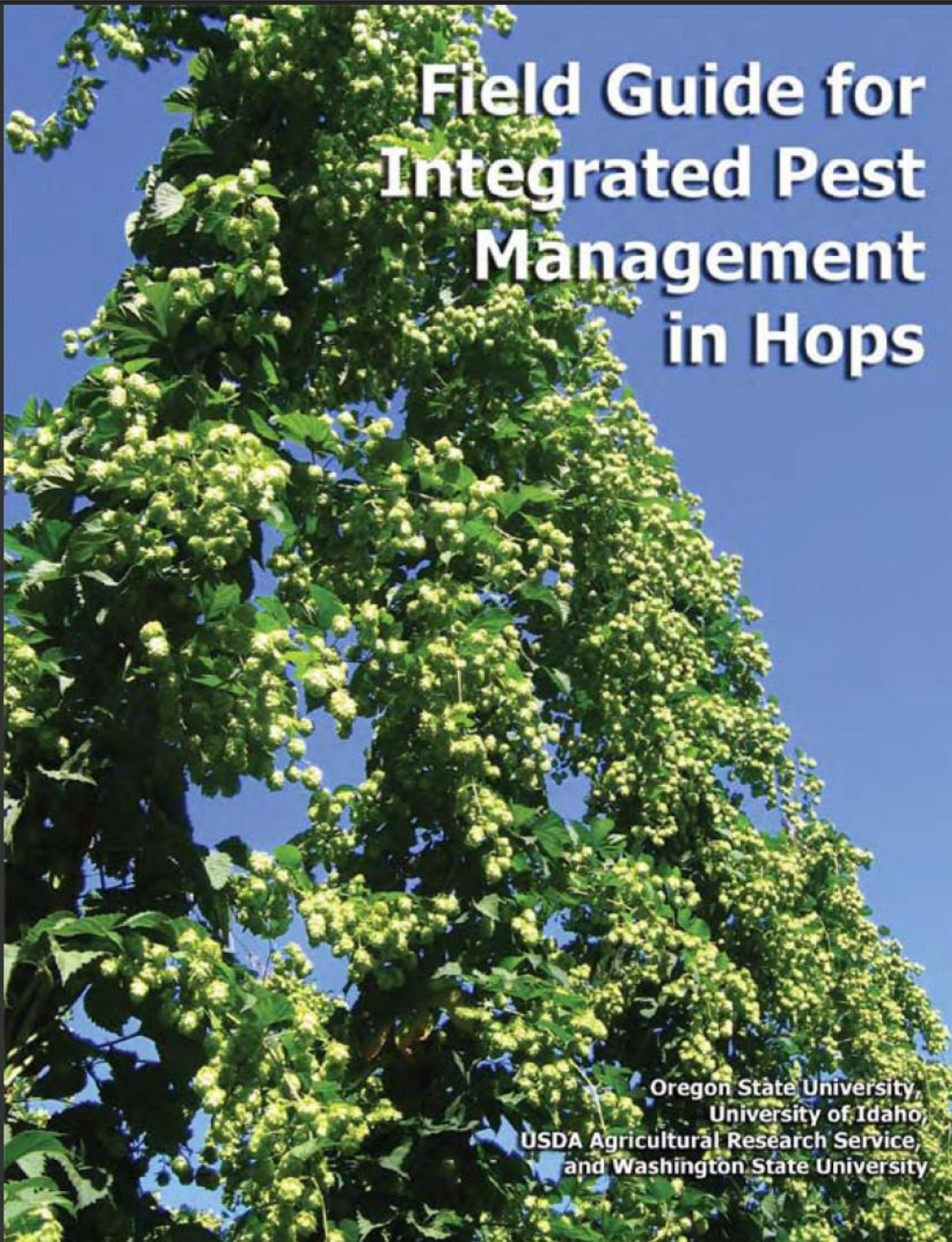
Downy mildew

Powdery mildew

2 spotted spider mite

Hop aphid

weeds



**Field Guide for
Integrated Pest
Management
in Hops**

Oregon State University,
University of Idaho,
USDA Agricultural Research Service,
and Washington State University

Download
free of charge
from:

USAhops.org

Harvesting



- Quackenbush Farm, Stockbridge



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Mobile Hop Picker

A project of University of Vermont Extension, Vermont Agency of Agriculture and Massachusetts Department of Agricultural Resources through the USDA Specialty Crops Block Grants Program.







Oast – A Matter of Scale





Dry 800 lbs wet
cones per day
4'x8'x7'



UVM Extension Hops Balers



University of Vermont SEED Program

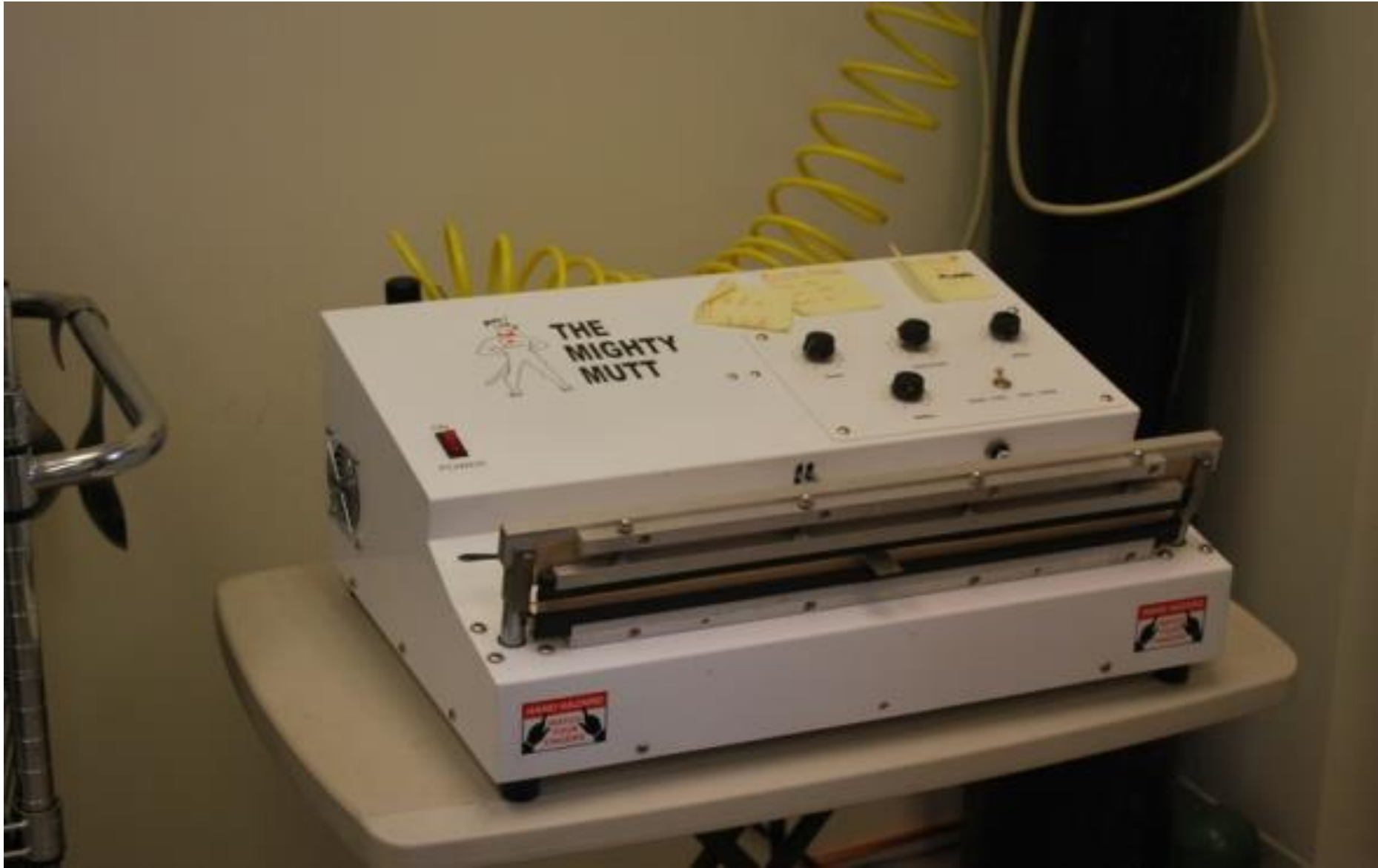
What else?

- Grower Map and contacts on NeHA website
- 4 new malt houses
- Need for several thousand acres of malting barley
- New manufacturer for harvesters
- Hop pelleting/processing Kendall, NY
- Lab testing

Pelletizing



Packaging and storage







NY Farm Brewery Law 2013

- Do not have to be on a farm
- Must use at least 20% NY grown hops
- Must use at least 20% NY grown barley , etc

- These increase to 60%after 2018
- And 90% after 2023

**Experience with major approvals**

To apply for:	You will need to have:	Duration	Cost
Zoning Approval	Specific building site, general business plan, site plan	3 months	\$0
NYS DOT Driveway permit (State highway)	Construction drawings of driveway and entrance	3 months	\$550 permit \$175 insurance \$5000 deposit
Onsite waste treatment system permit (county)	Engineered plan of treatment system, soil tests	2 weeks	\$425 fee
NYS DEC SPDES permit	Septic system design	14 months	\$0 application \$300/yr fee
Building Permit	Construction drawings, approved septic system design, driveway permit (if state highway)	2 weeks	\$1000 fee
Federal Brewers Notice	Completed building, installed brew system, business incorporation, Fed tax ID, financing, bond	3 months	\$0 fee \$1000 cash bond
State Brewery License	Federal brewers notice, state bond, Certificate of Authority (sales tax), State certificate of Assumed Name (DBA), Workers comp and Disability Insurance policies	2 months	\$900/yr fee \$375 retail fee \$1000 bond \$102/person fingerprint fee
NY Ag and Mkts 20-C	Workers comp policy	3 months	\$400



Who do I contact ?

Sam Filler Empire State Development Corp

625 Broadway 8th floor

Albany, NY 12207

518 292-5366

sfiller@esd.ny.gov



From Farm to Foam

Approvals

- Zoning 6 months
- County Health Dept 1 week
- NY DOT for driveway 3 months
- DEC for SPDES permit 14 months
- Federal TTB brewers notice 3 months
- NY SLA brewery license 2 months
- NY Ag and Markets food processing 2 months+

What can I sell?

- NY farm beers, wines, spirits, and ciders
- On site and at farmers markets
- Can have a tasting room and sell by the pint, bottle or keg

Hop stunt viroid

Viroid-free

Viroid-infected



Viruses

- Apple Mosaic Virus – Can reduce cone weight by 50%, and reduce alpha acids content (10%)
- Hop Mosaic Virus – Has been shown to reduce yield by 62% and alpha acids content by 18%
- Hop Latent Virus - Has been shown to reduce yield by 70% and alpha acids content by 44%
- American Hop Latent Virus - Has been shown to reduce yield by 14% and alpha acids content by 12%



