

Hop Harvest Timing



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Who thinks they know
when to harvest their hops on time?

2017 Update

Hop Chemistry Development

1. Alpha (bitter)
2. Beta (aromatic)
3. Essential Oils



“... because oil synthesis is slower than resin synthesis, the time of picking is important especially if the hops are to be used for aroma purposes.”

Tool #1: Percent Moisture(Dry Matter) Testing

Goal 1: Harvest wet cones at 21-27% (variety dependent)

Goal 2: Process and store cones at 8% moisture

Hops will dry down approx. 1-2% each week

[UVM Hop Harvest Moisture Calculator](#)



Tool #2: Test Samples BEFORE Harvest

- Alpha Analytics, Yakima WA
- AAR (Advanced Analytical Research), WI
- Universities
- Carr Labs no longer does hop analysis



Factors Influencing Harvest Date: Fertility

- Too much N → Late Harvest (too much vegetation)
- Too little N → Early Harvest (not full chemistry)

The Sweet spot is specific to YOUR **farm** and **varieties**.

Typically fertigating 150-200lbs N/acre

Factors Influencing Harvest Date: Training Date



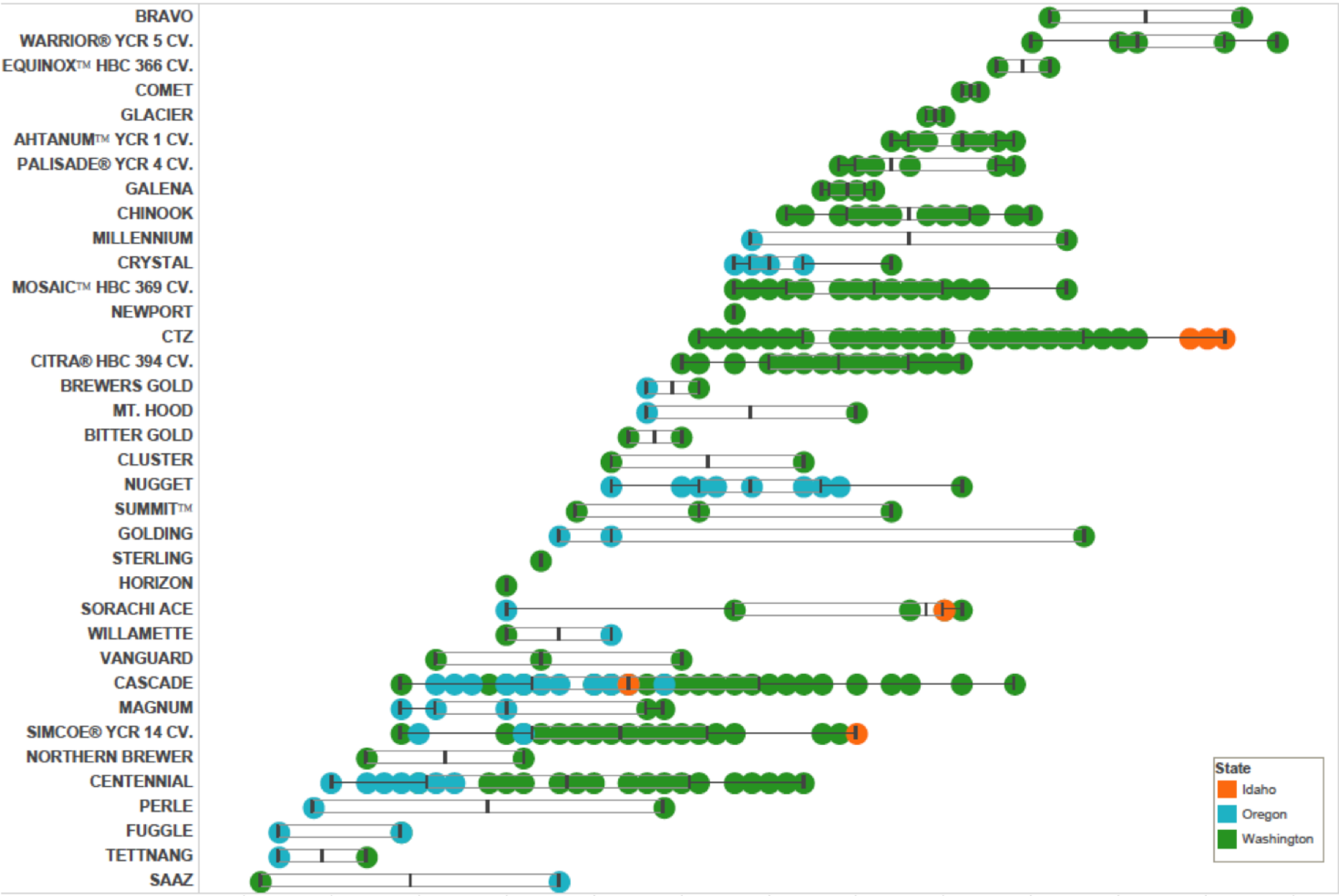
Training and harvest dates:

- Variety dependent
- Regionally specific

Pacific Northwest

2014 Harvest Date by Variety

AlphaAnalytics



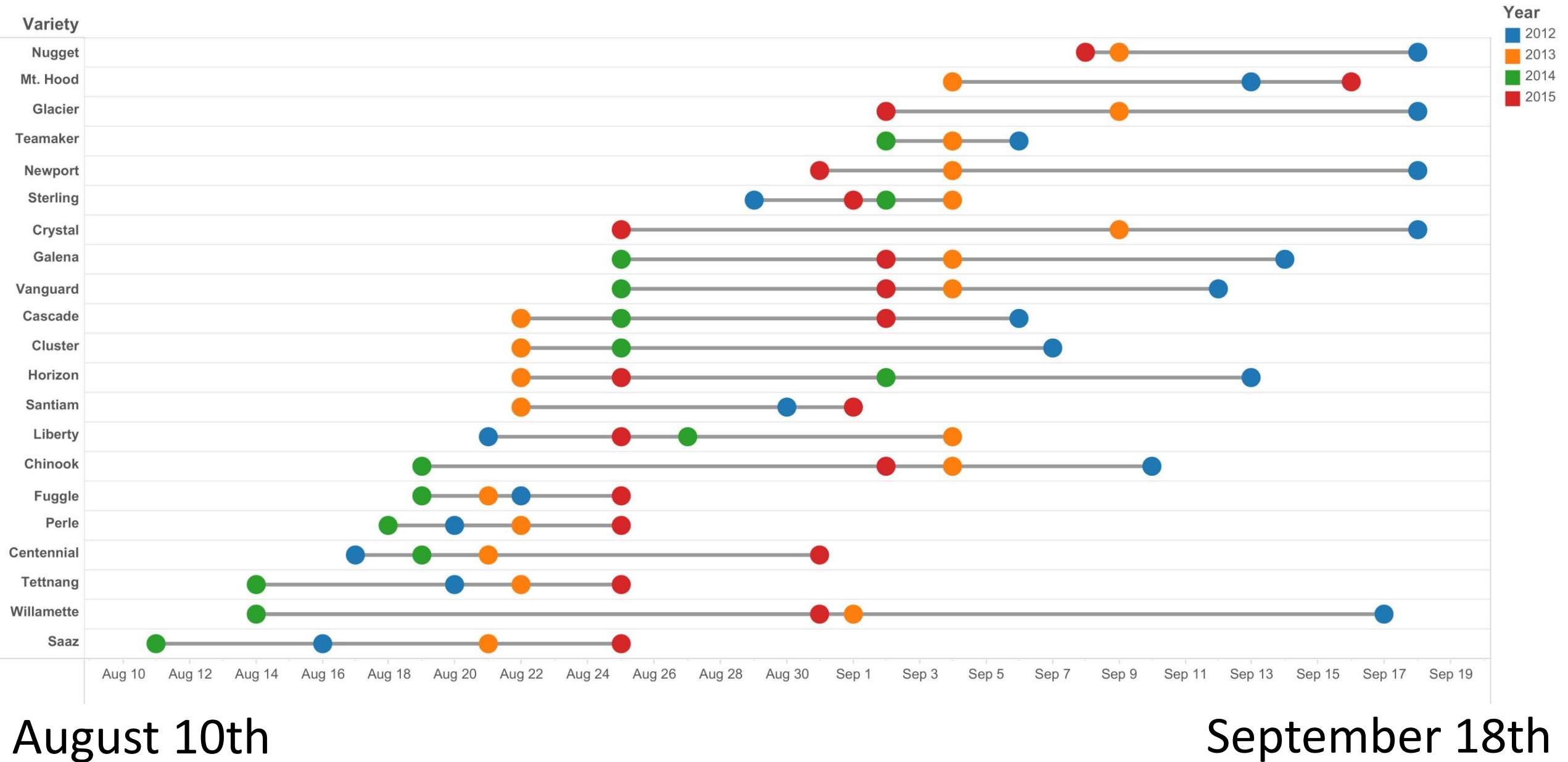
August 9th

Harvest Date

October 8th

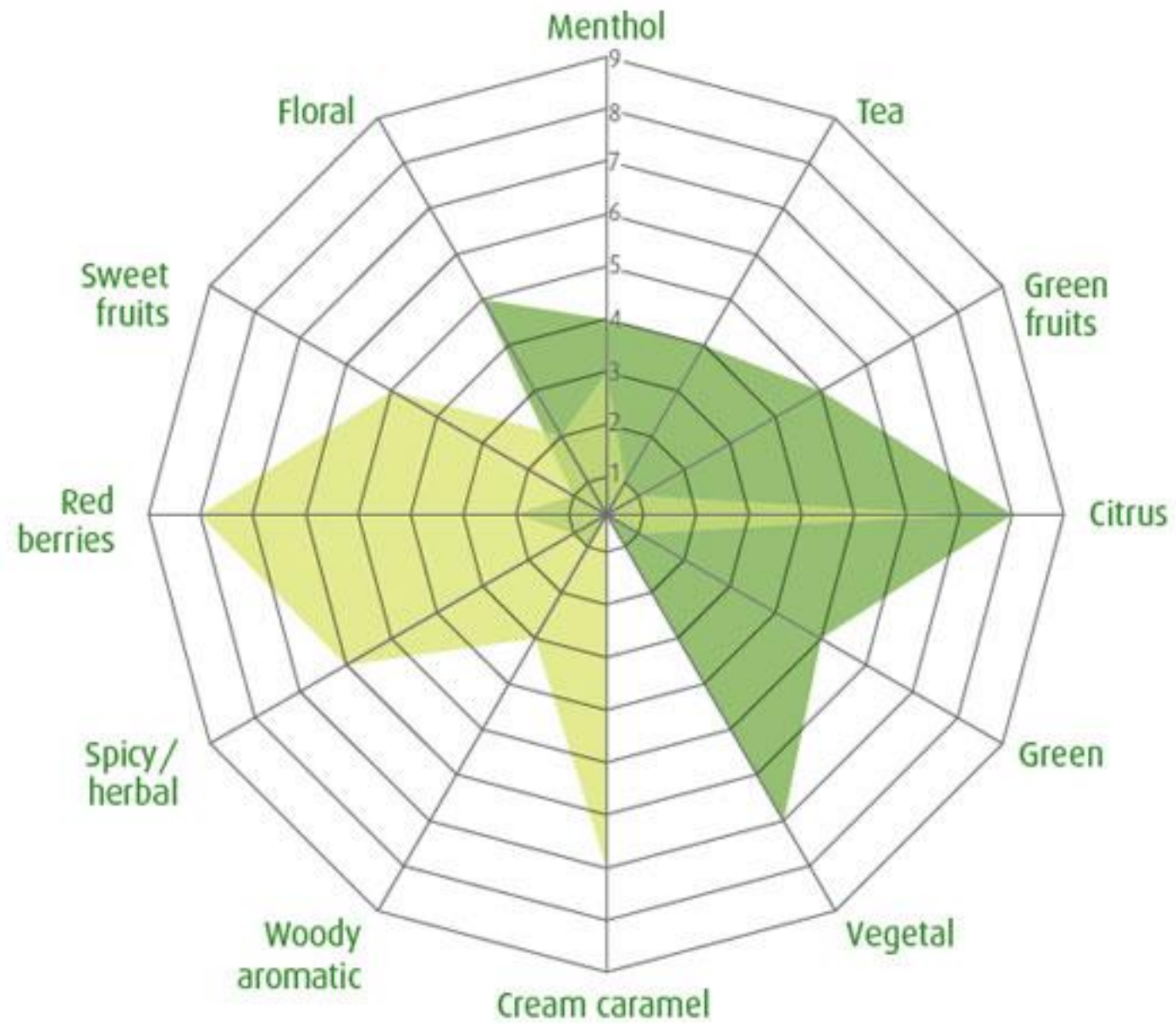
Vermont Variety Trial Harvest Dates

Darby 2015



Sensory Evaluation in the Field... eh Good Brewer-Grower Collaboration

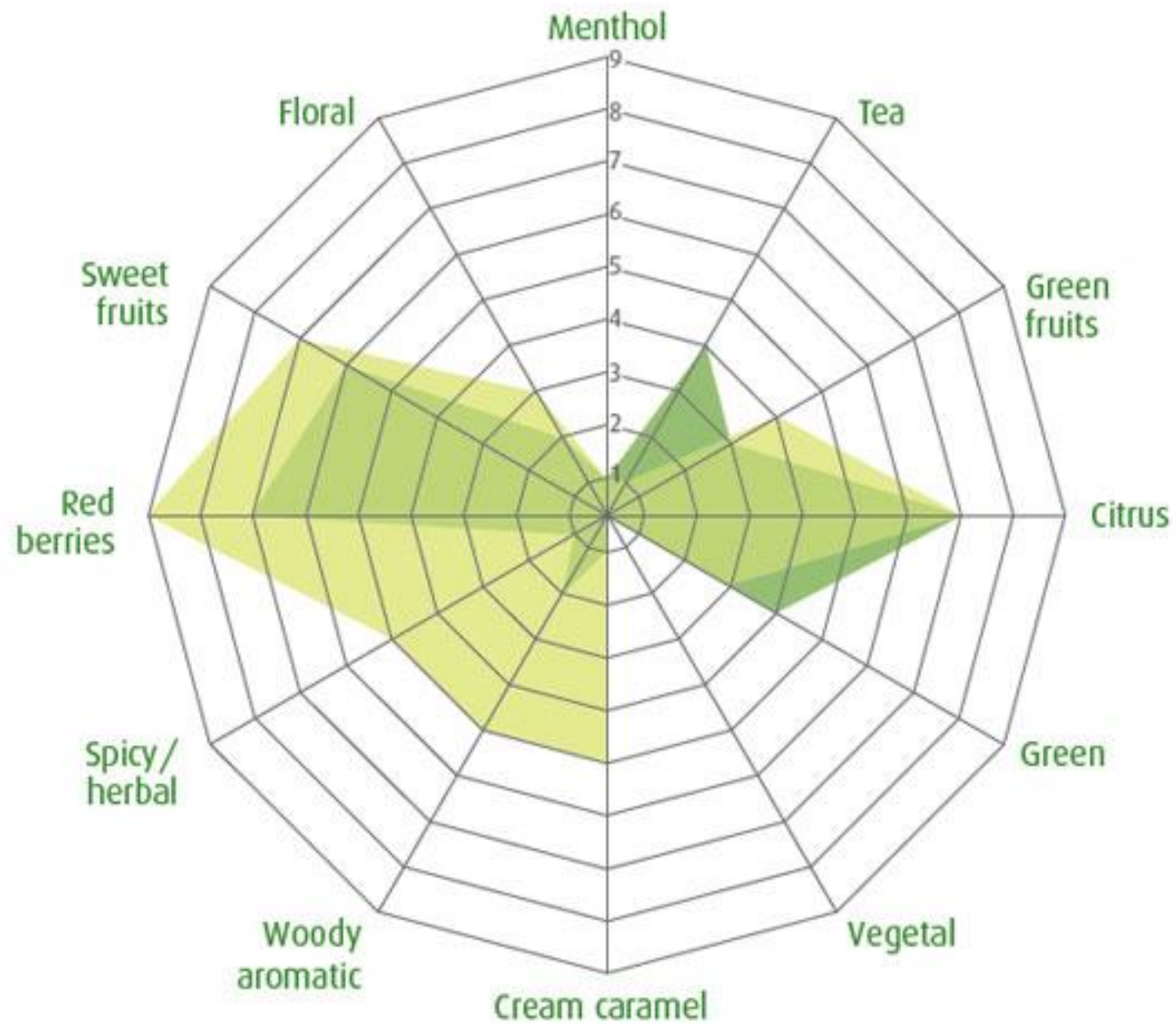




Cascade USA (cold infusion*)

Cascade USA (raw hops)

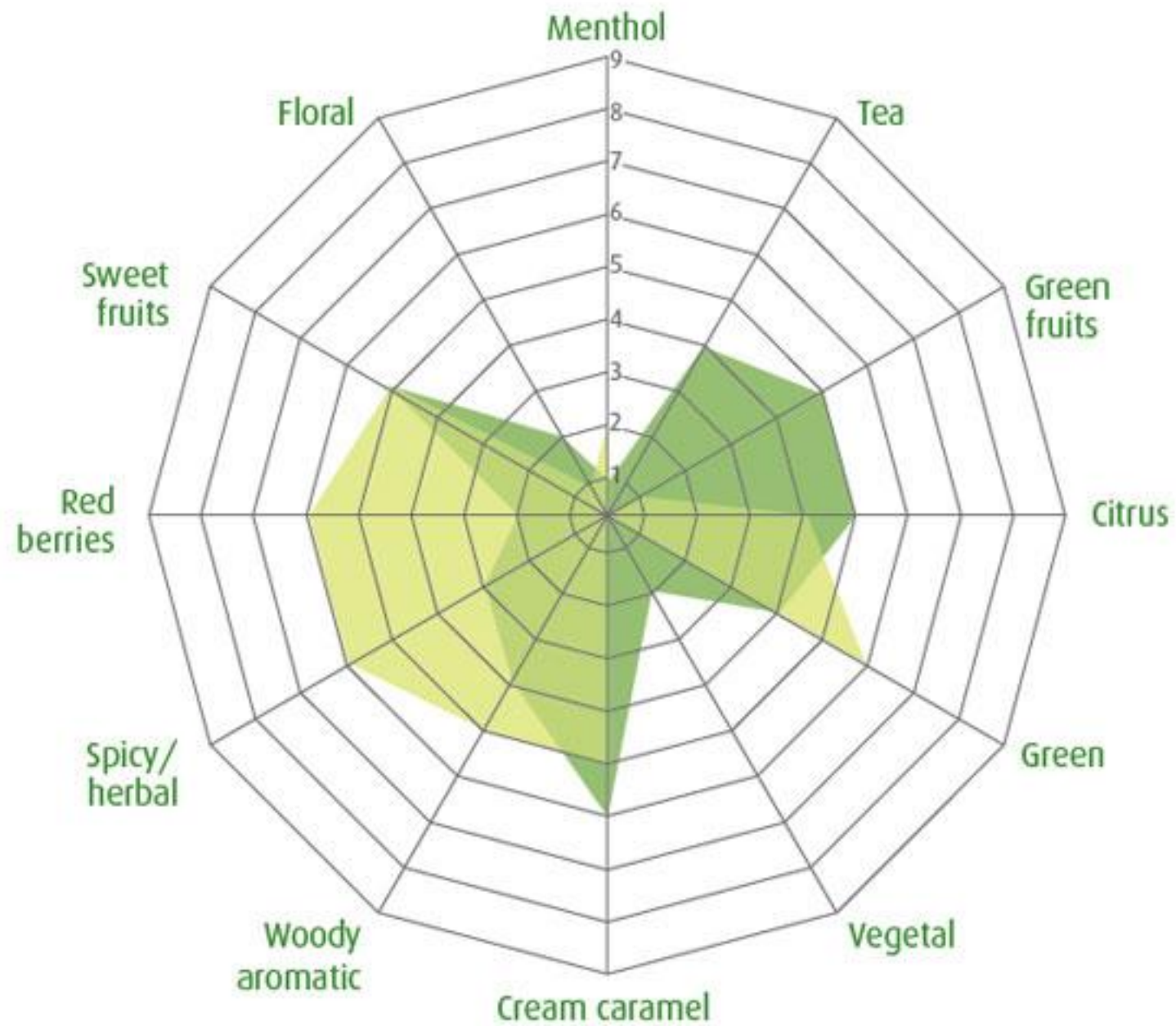
Shellhammer et al. 2010



Cascade Australia (cold infusion*)

Cascade Australia (raw hops)

Shellhammer et al. 2010

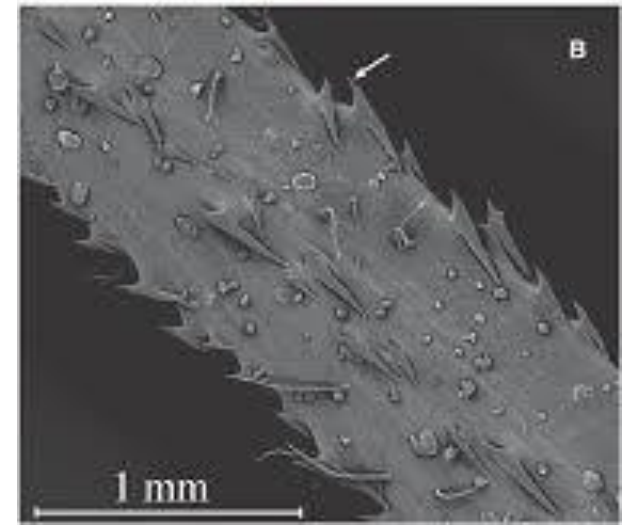
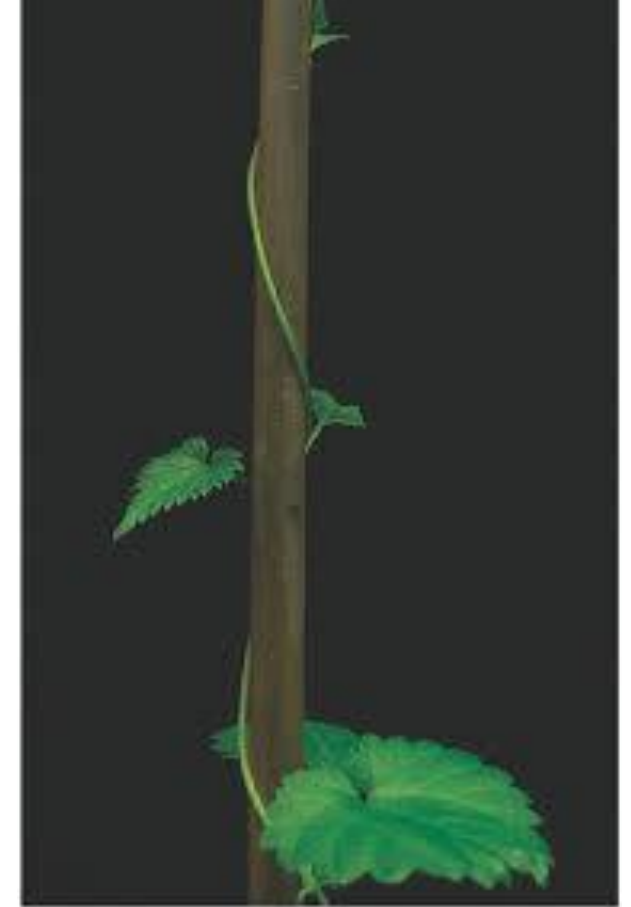


© ■ Cascade UK (cold infusion*) ■ Cascade UK (raw hops)

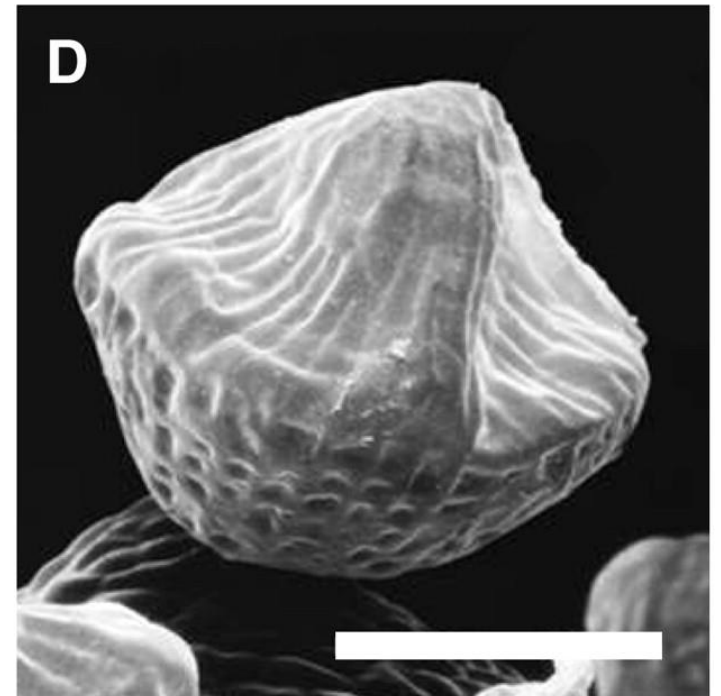
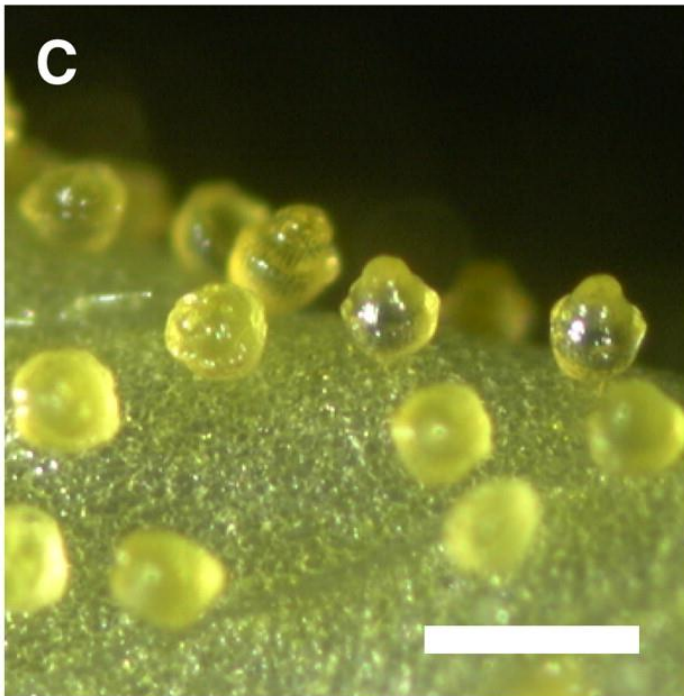
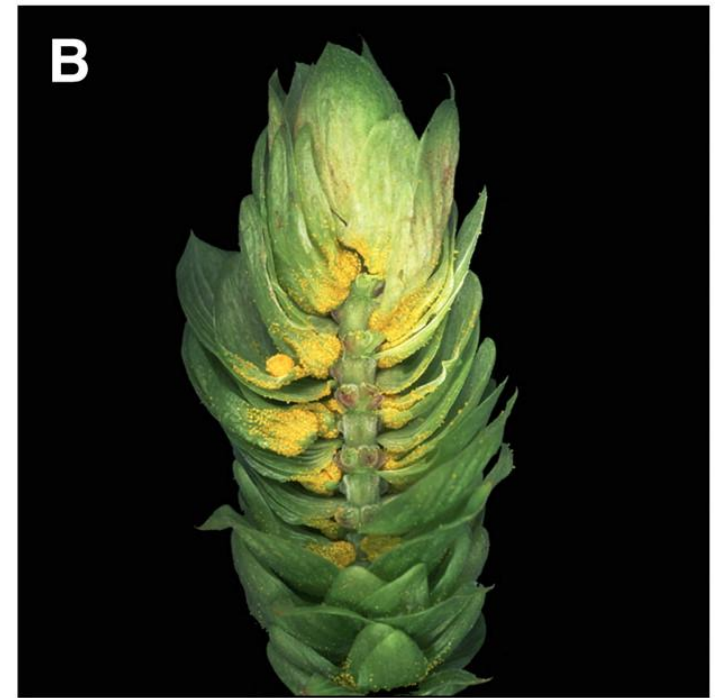
Shellhammer et al. 2010

Tool #3: Hop Trichomes

- Leaf
- Bine



Cone Trichomes

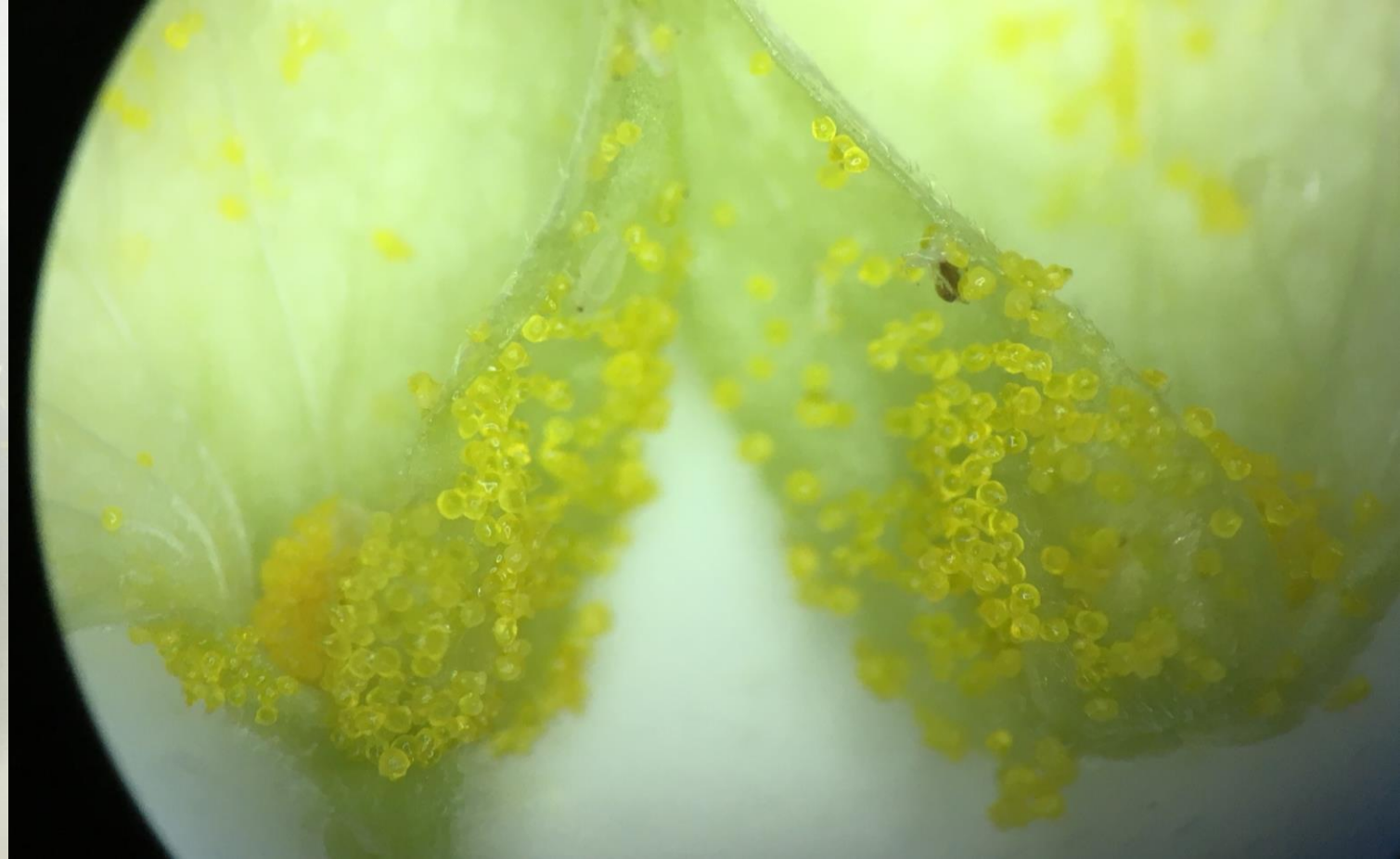


Flat Disk → Full Acorn





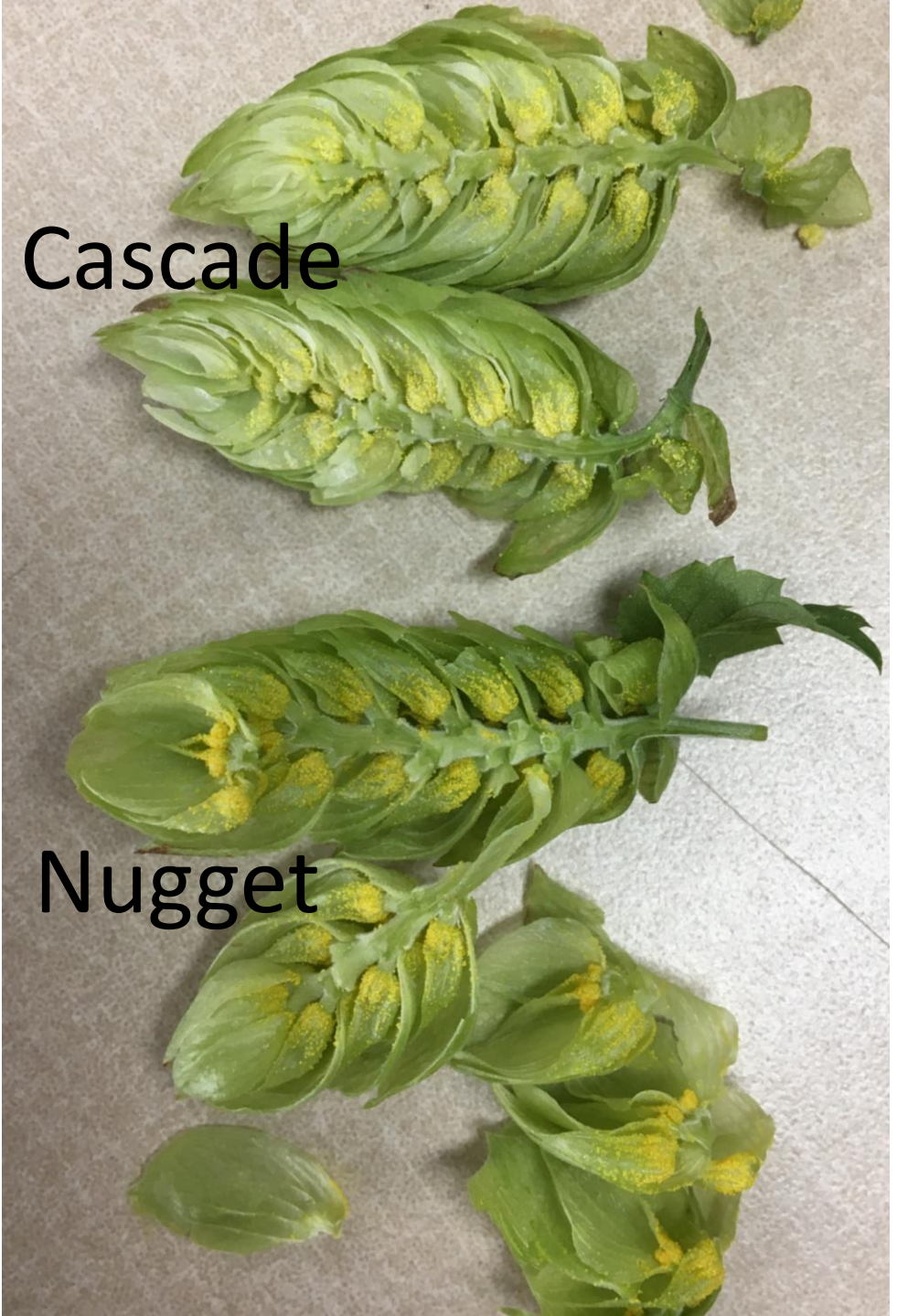
August 30, 2017



Starting to fill but not full yet.
These are not GOLD!



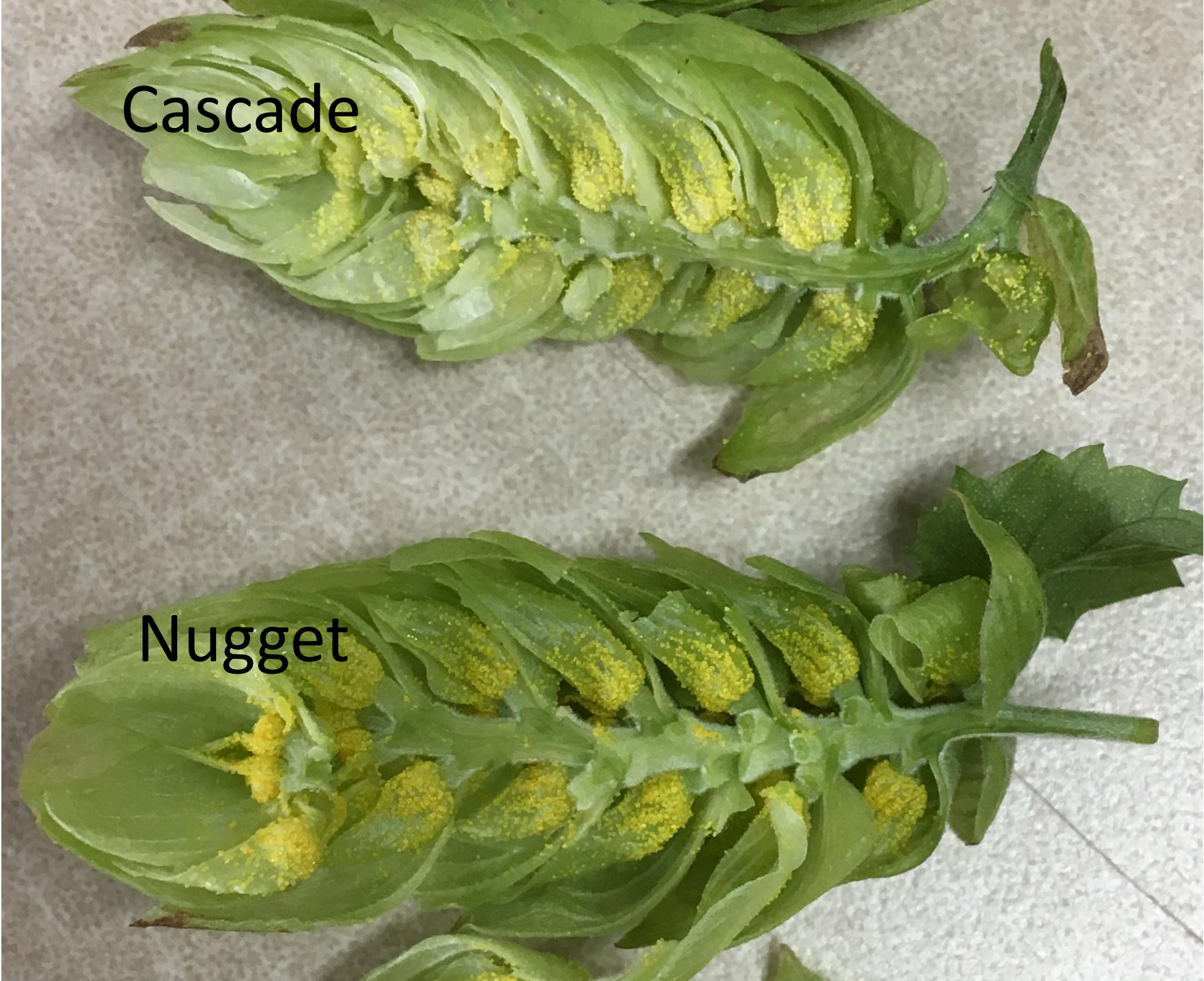
September 4, 2017
Four Star Farm



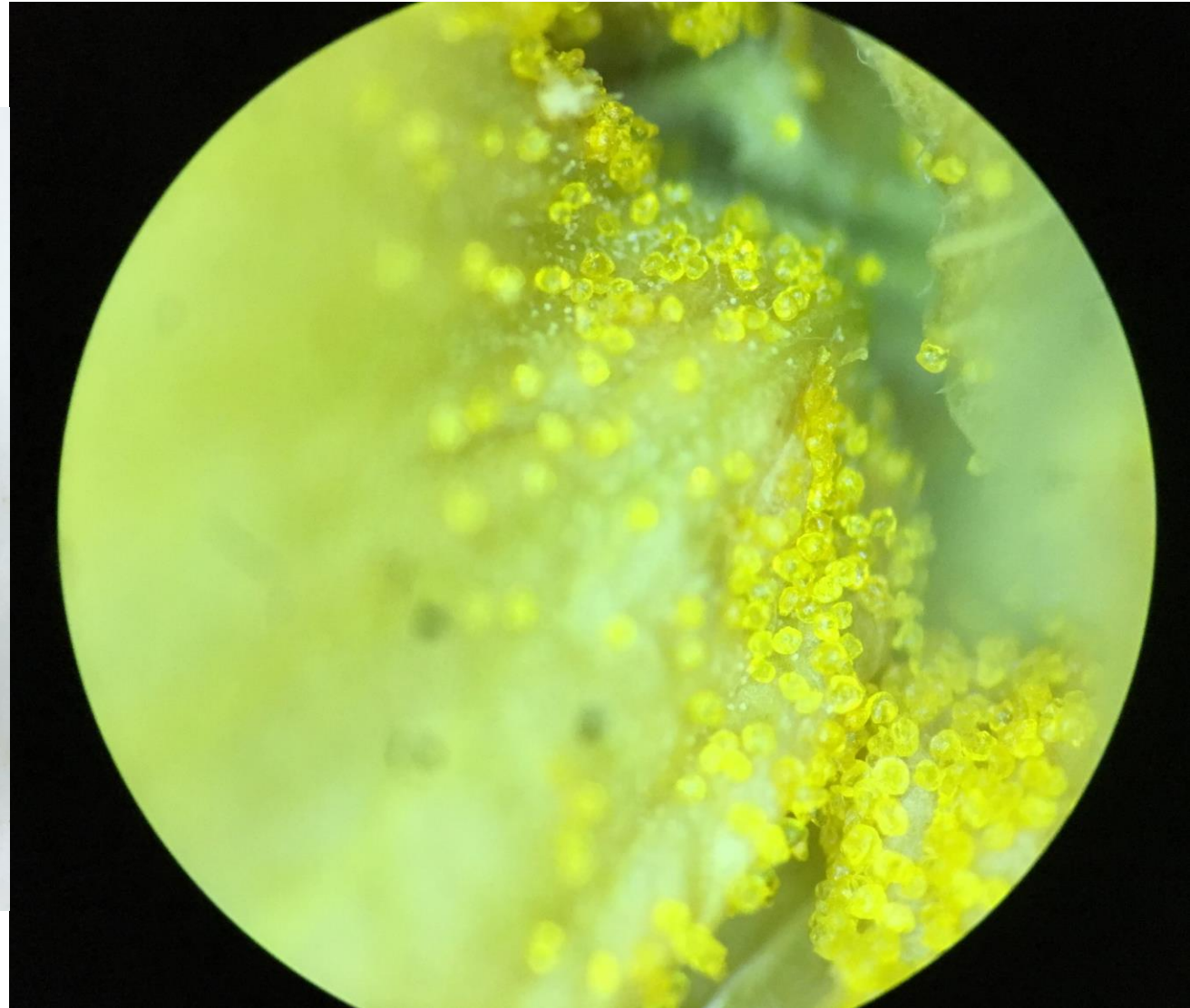
COLOR!

Cascade

Nugget



September 7, 2017 (Cascade, not ready yet)



Starting to fill but not full yet.
Starting to shine.



September 7, 2017
(Diseased Cone)

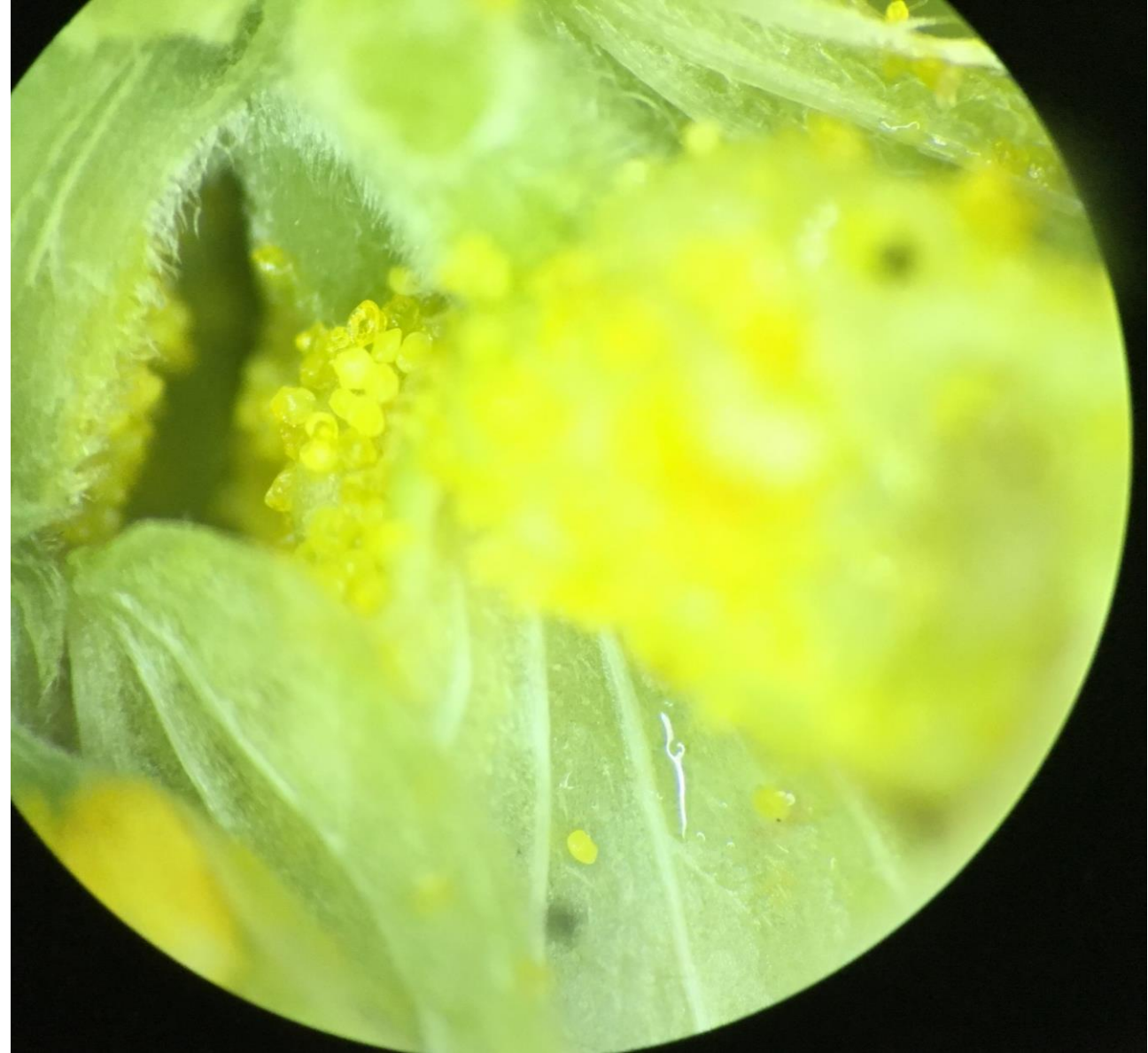


Harvest when Cheeto
color and smell
STARTS to set in.

DON'T harvest
Cheetoos!



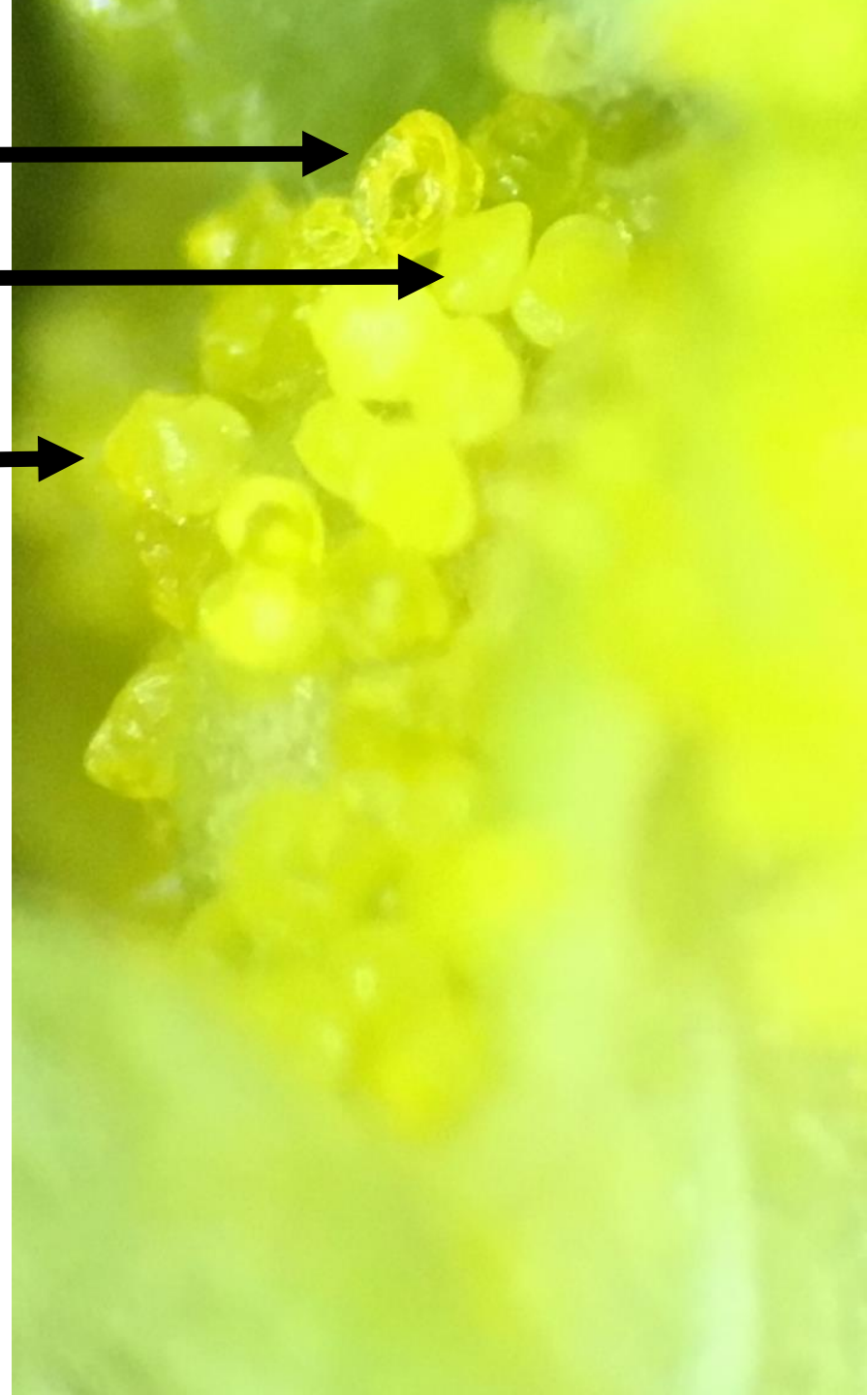
September 21, 2017



Flat disk →

Starting to fill →

Almost full →



Cone Disease Can Determine Harvest



Hop Downy Mildew

Phoma sp.
+ wind damage
+ sprayer damage



Alternaria sp.





Marketable (pellet)

Not marketable



Ready or Not? Thank you! Questions?



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