



# Brewing with Wild Vermont Hops

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# Vermont Hops

Kingdom: 15.1% alpha acid

Northfield: 3.6% alpha acid

Wolcott: 3.8% alpha acid

Control hop - Cascade: 7.7% alpha acid



# Questions:

1. What kind of flavor will a beer brewed with this hop have?
2. What kind of aroma will a beer brewed with this hop have?
3. How much bitterness will this hop add to the beer?
4. Will a beer brewed with this hop be drinkable?
5. Does this hop have any unique, desirable characteristics?

# Recipe

We used the same IPA recipe for the Kingdom, Wolcott, and Cascade brews

Desired IBUs: 75

We used a Pale Ale recipe for the Northfield brew due to a shortage of hops

Desired IBUs: 45

Smash Brew:

Single

Malt

And

Single

Hop



# Ingredients

Best Maltz Pilsner Malt

Gypsum

Wild whole cone hops

Switchback House Ale Yeast



There are two enzymes that break down starch chains to produce fermentable sugars.

We used a ratio of 1L of water to every 2Kg of grist.

This ratio produces a thin mash.

We wanted to make a light-



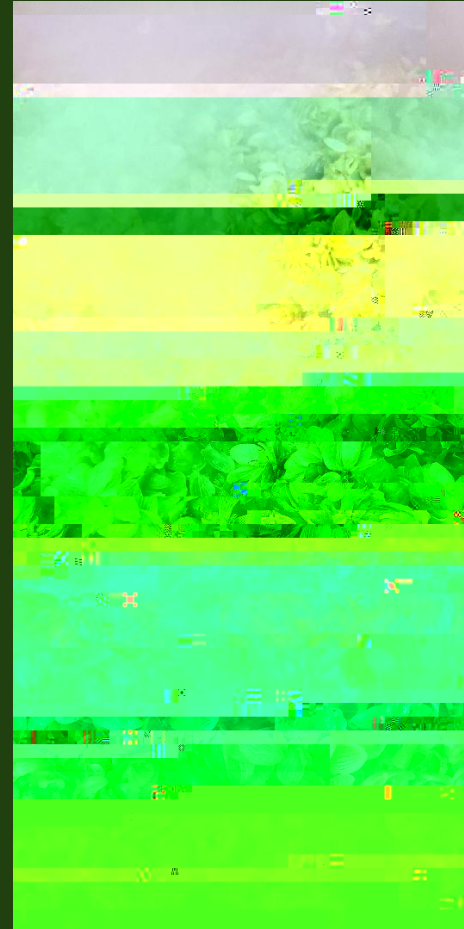
# Hop Additions

Bitterness: 75 minutes before the end of the boil

Flavoring: 20 minutes before the end of the boil

Aroma: End of boil

Dry Hopping: During primary fermentation



# Sensory Analysis - Questions

Would you enjoy drinking a beer brewed with this hop?

On a scale from 1-10, 1 being the least bitter and 10 being the most bitter, how bitter do you think this beer is?

Describe the flavor and aroma characteristics imparted by this hop

Would you enjoy drinking a beer brewed with this hop?

Kingdom:

44% of respondents said yes

56% of respondents said no

Wolcott

On a scale  
from 1-10,  
how bitter  
do you think  
this beer is?



# Hop Characteristics

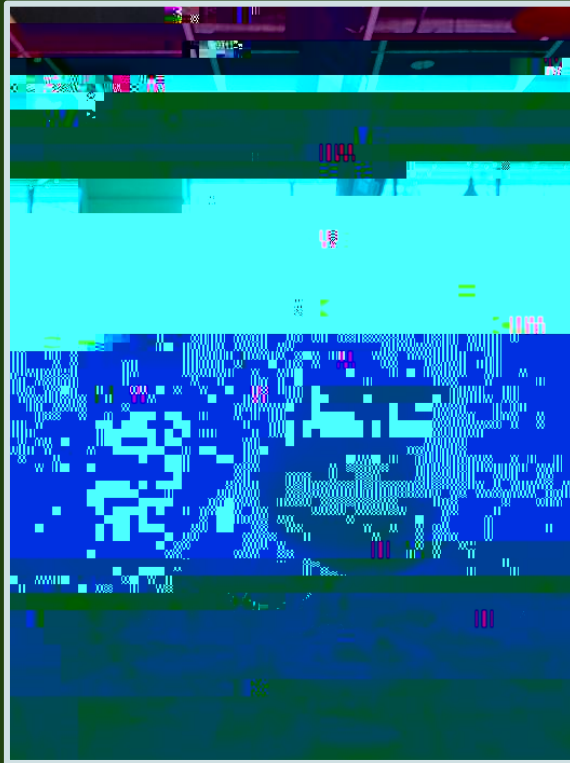
Citrusy

Floral

Fruity

Herbal

Onion/Garlic



Piney

Tropical

Spicy

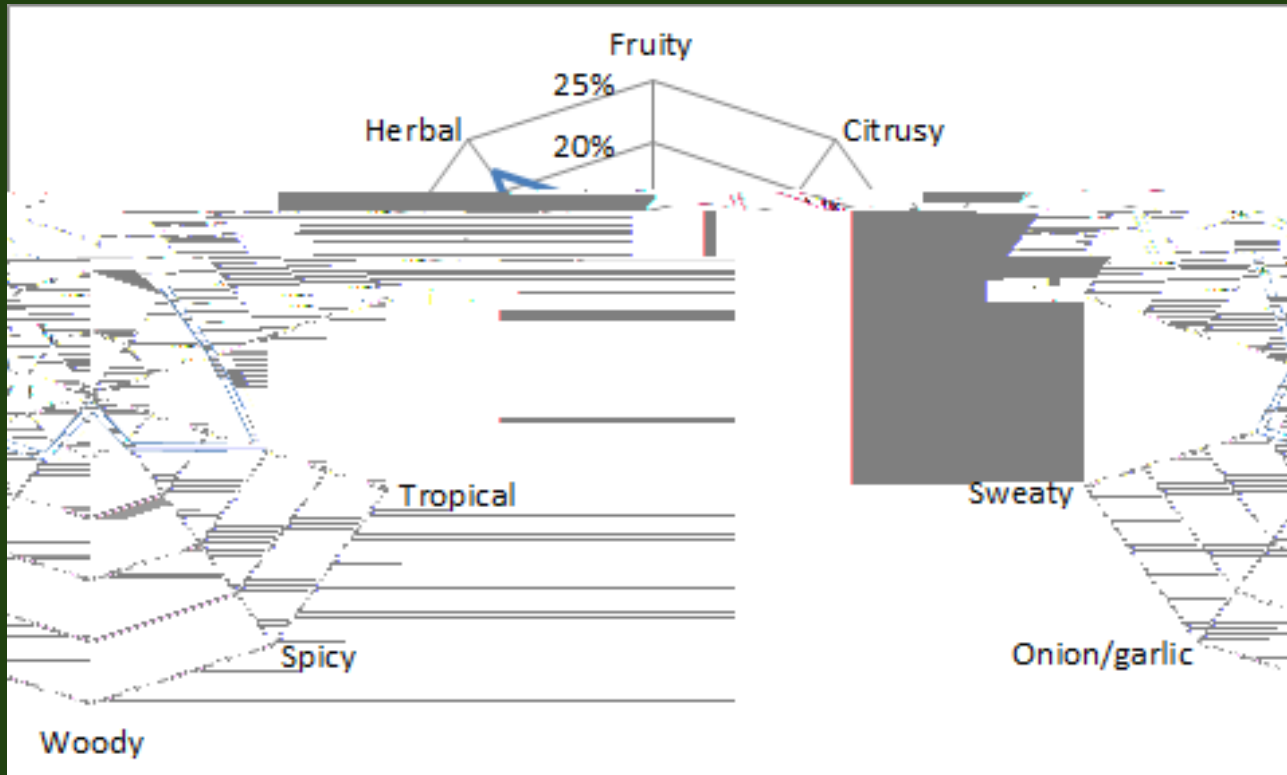
Sweaty

Woody

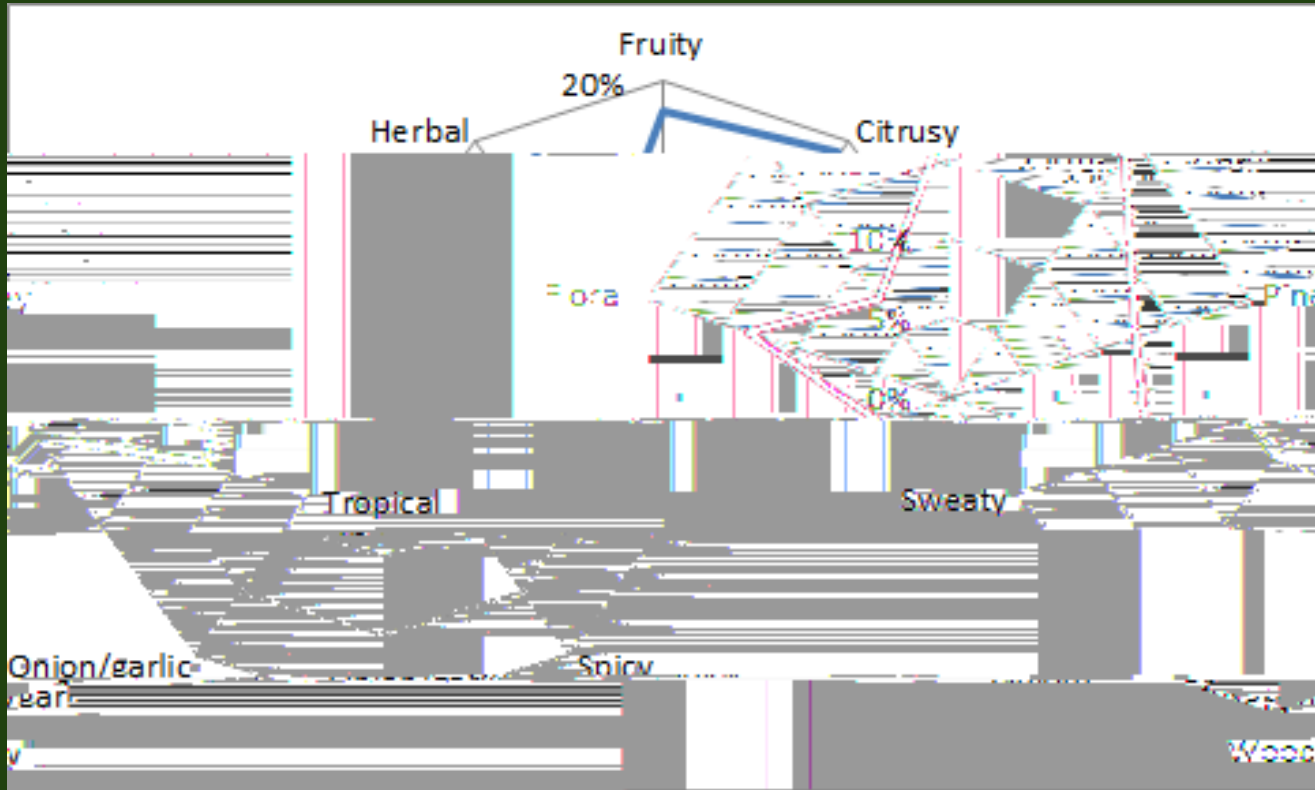
# Kingdom Hopped Beer



# Northfield Hopped Beer

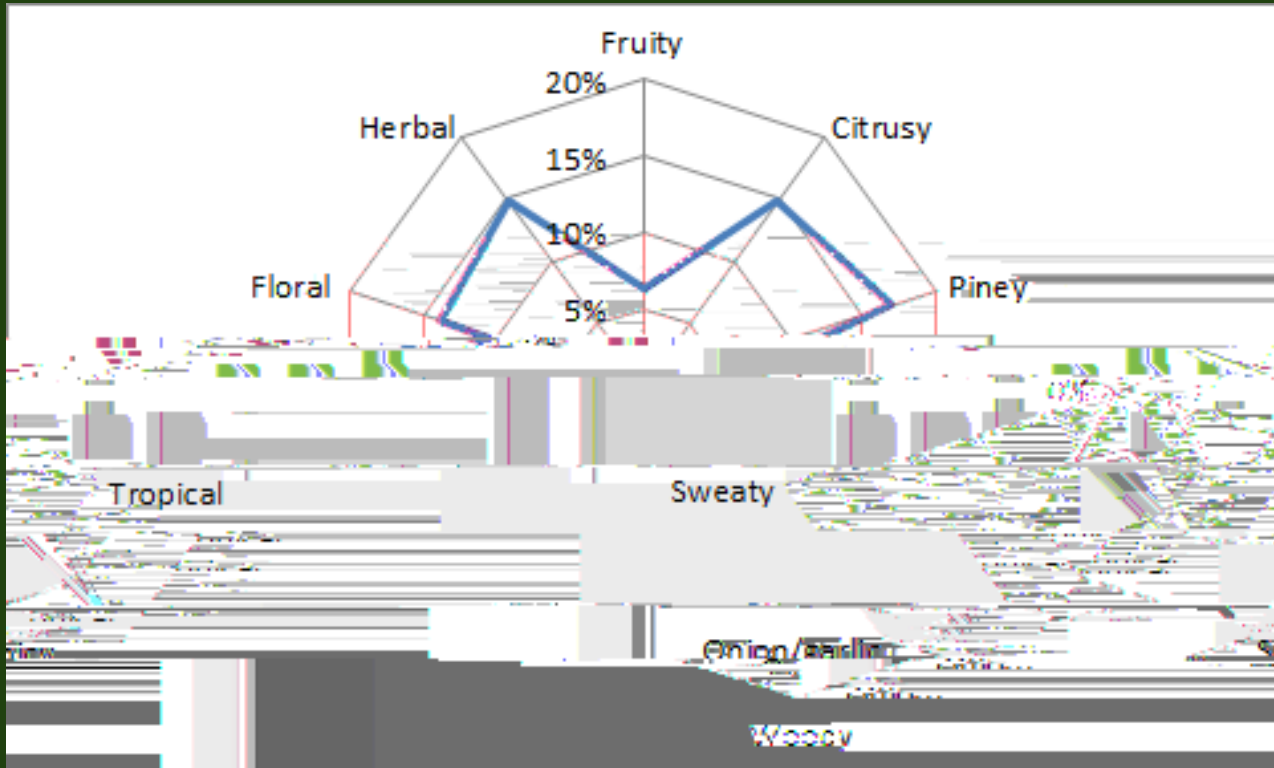


# Wolcott Hopped Beer





# Cascade Hopped Brew

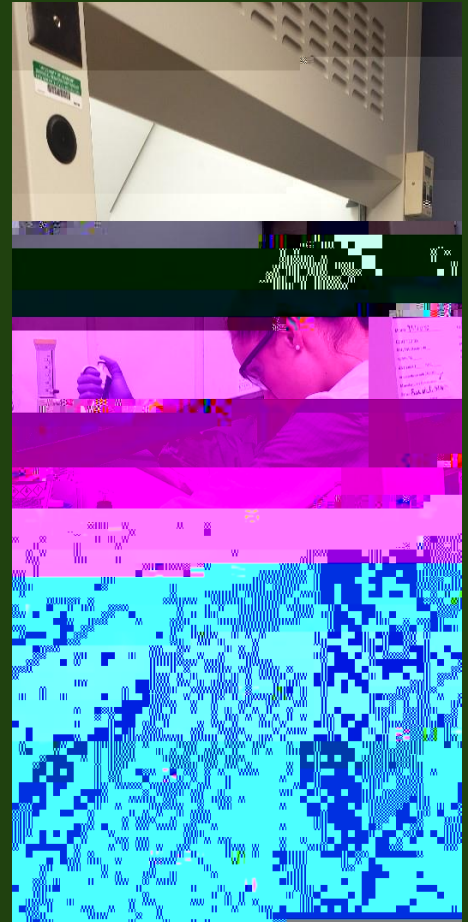


# IBU Testing

International Bitterness Units (IBUs)

IBUs are a measurement of specific chemicals, including isomerized alpha acids, that are known to make beer taste bitter

Most beers contain between 5 and 120 IBUs





# Perceived vs Calculated Bitterness



# Conclusion

## Possible Sources of Error

- Possible lab errors in alpha acid calculations
- Switchback house bias

## Future Research

- Each batch of beer had different flavors and aromas
- More research and selective breeding will help determine whether these hops have commercial value

And now for the results...

Sample 1 - Kingdom

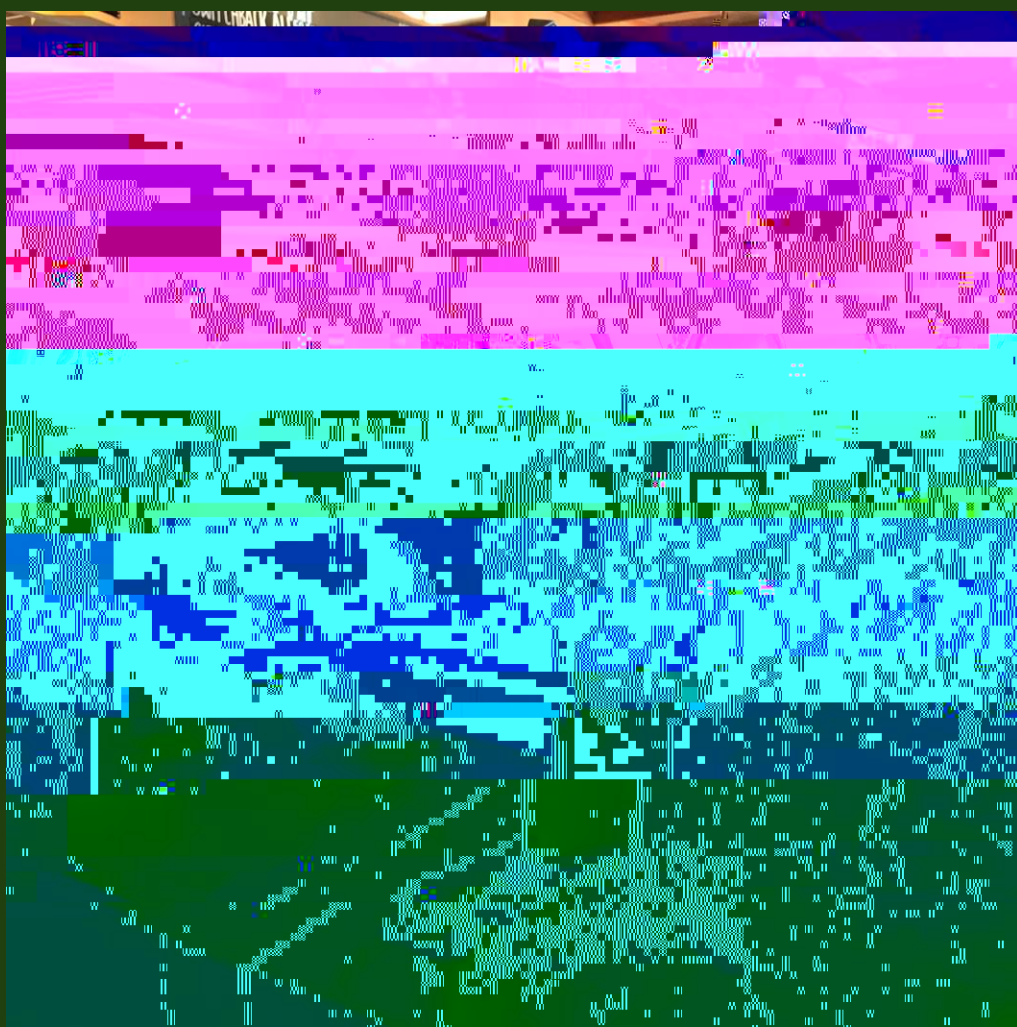
Sample 2 - Northfield

Sample 3 - Wolcott

Sample 4 - Cascade

Please check out our website for  
the questionnaire results:

<https://www.switchbackvt.com/news>



Cheers!