

## HOP QUALITY REPORT CERTIFICATE OF ANALYSIS

To: Randy Urness - Fine Bine Farms

Sample ID: FBFCSH09302022

Variety: Cashmere

Whole Cone

Date : 10/7/2022

Pellet



Certifying Officer: Zach Lilla - Lab Manager  
 TTB Certified Chemist - Member AOAC - ASBC - BJCP

<u>Method</u>			
Hops-4C	Moisture Analysis	% Moisture	11.2
		% Dry Matter	88.8
AAR	Xanthohumol by HPLC		<b>NT</b> mg/g
Hops-12	Hop Storage Index	HSI	0.271
Hops-13	Essential Oil by Steam Distillation	mL/100g	<b>1.56</b>
Hops-14	Alpha and Beta Acids by HPLC	Cohumulone	22.1 (% of Total AA)
ICE-3		<b>% Alpha Acids</b>	<b>8.65</b>
		Colupulone	41.3 (% of Total BA)
		<b>% Beta Acids</b>	<b>7.02</b>
		a/b ratio	1.23
Hops-17	Hop Essential Oil by GC-FID (as is)	<b>% area</b>	<b>mg/100g</b>
		B-Pinene	0.39 5.26
		Myrcene	30.42 463.38
		Linalool	0.22 3.53
		Caryophyllene	15.19 212.44
		Farnesene	0.08 1.43
		Humulene	32.92 456.58
		Geraniol	0.57 9.10

NT=NOT TESTED

Signed:

Zachary Lilla - Lab Manager - TTB Certified Chemist  
 AAR LAB - ADVANCED ANALYTICAL RESEARCH  
 2517 Advance Rd Ste. A Madison WI 53718



# AROMA QUALITY (AQ) HOP QUALITY REPORT



Customer : Randy Urness - Fine Bine Farms

Sample ID: FBFCSH09302022

Variety: Cashmere

Whole Cone   
Pellet

Date : 10/7/2022

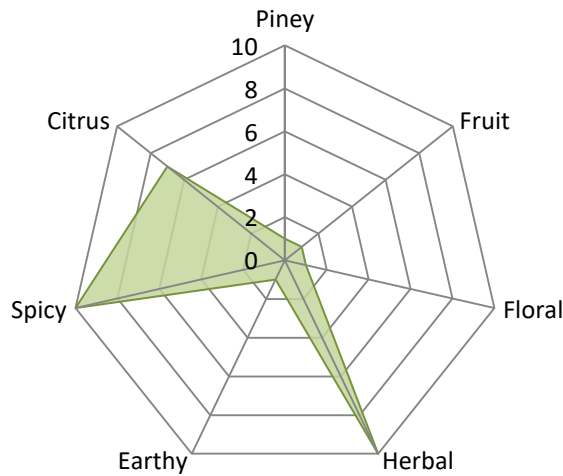
Certifying Officer: Zach Lilla - Lab Manager  
TTB Certified Chemist - Member AOAC - ASBC - BJCP

% Moisture	11.2	Typical Range	8 - 12%	<input checked="" type="checkbox"/>
<b>HOP QUALITY (adjusted to 10% moisture)</b>				
Total Oil ml/100g	1.58		1.2 - 1.4 mL	<input type="checkbox"/>
cohumulone	22.1		22 - 24%	<input checked="" type="checkbox"/>
Alpha Acids	8.76		7.7 - 9%	<input checked="" type="checkbox"/>
Beta Acids	7.12		6.0 - 7.0%	<input type="checkbox"/>

### AROMA QUALITY (AQ)

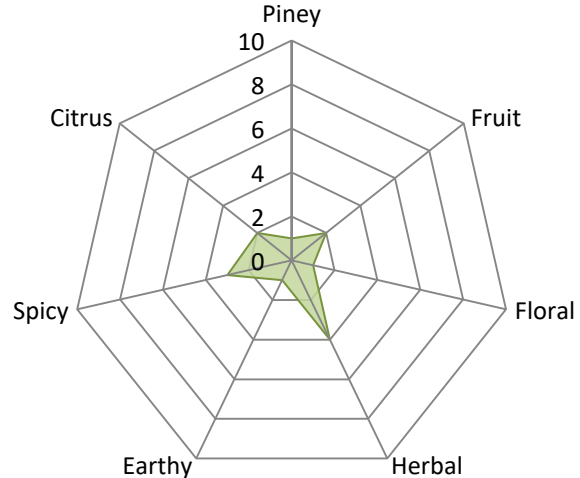
	% Area			mg/mL of Hop Oil			mg/100g of Hops (@10%H2O)		
	Value	Range	Dev	Value	Range	Dev	Value	Range	Dev
B-Pinene	0.39	0.40 - 1.00 %	↓	3.37	4 - 10	↓	5.34	4.8 - 14	✓
Myrcene	30.42	38.00 - 44.00 %	↓	296.61	380 - 440	↓	469.75	456 - 616	✓
Linalool	0.22	0.50 - 1.00 %	↓	2.26	5 - 10	↓	3.58	6 - 14	↓
Caryophyllene	15.19	11.00 - 14.00 %	↑	135.98	110 - 140	✓	215.36	132 - 196	↑
Farnesene	0.08	0.01 - 1.00 %	✓	0.92	0.1 - 10	✓	1.45	0.12 - 14	✓
Humulene	32.92	26.00 - 29.00 %	↑	292.26	260 - 290	↑	462.86	312 - 406	↑
Geraniol	0.57	0.01 - 1.00 %	✓	5.83	0.1 - 10	✓	9.23	0.12 - 14	✓

### AQ vs VARIETY SPECS



**Aroma Intensity= 16**

### AQ vs ALL HOP VARIETIES



**Aroma Intensity= 3**

Signed:   
Zachary Lilla - Lab Manager - TTB Certified Chemist

