



Breeding for Flavor within Regional Grain Economies

Grains Week 2021



Evan B. K. Craine
evan.craine@wsu.edu



*Stephen
Bramwell*



*Kevin
Murphy*



*Carolyn
Ross*



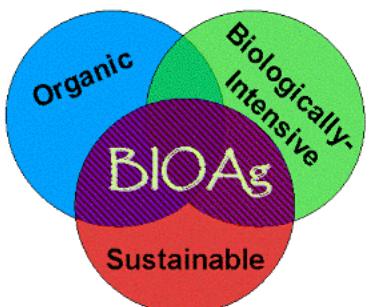
*Evan
Mulvaney*



*Brian
Thompson*



GOLD RUSH MALT
BAKER CITY, OREGON



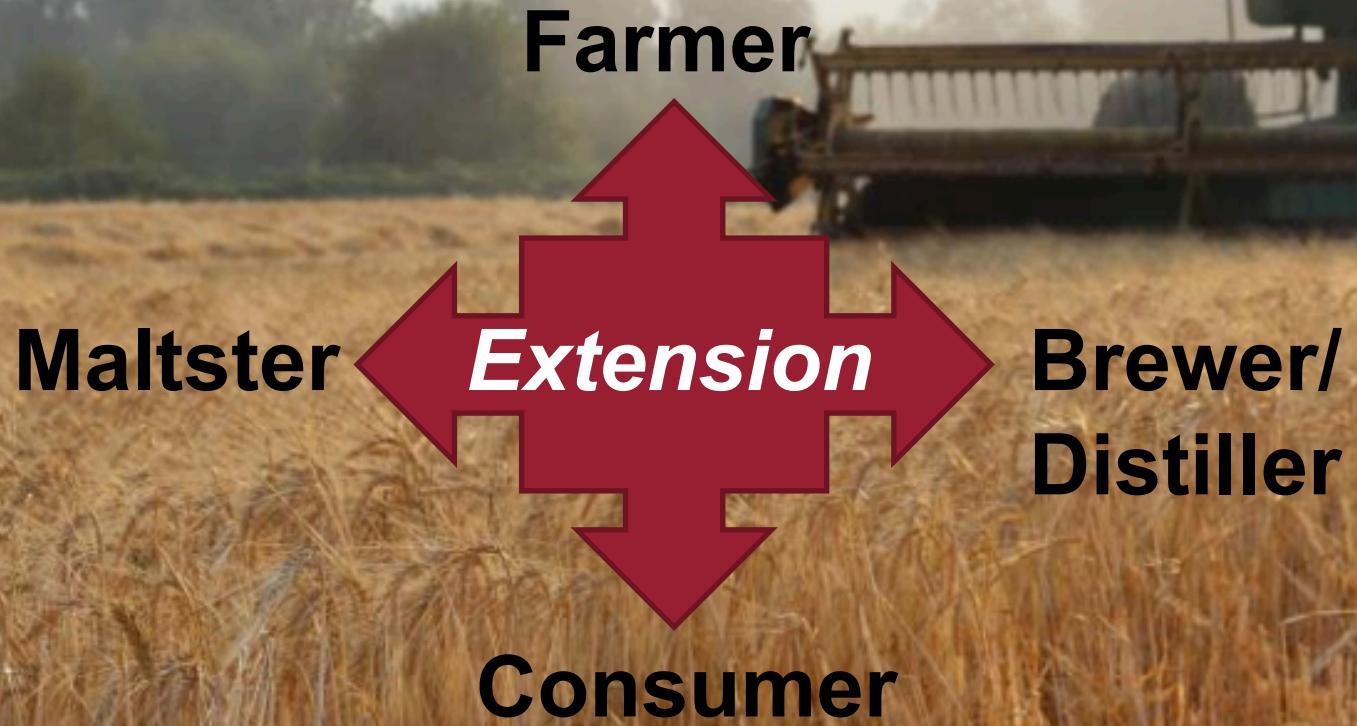
 **Port of Olympia**



TITLE: FROM GROUND TO GLASS: EVALUATION OF UNIQUE BARLEY VARIETIES FOR WESTERN WASHINGTON CRAFT MALTING, BREWING AND DISTILLING



PRINCIPAL INVESTIGATOR(S) AND COOPERATOR(S): STEPHEN BRAMWELL (PI), DR. KEVIN MURPHY (Co-PI), DR. THOMAS COLLINS (Co-PI)



Breeder

Food Science



Breeder

Three breeding lines and control

Farmer

0.5 acre plots in triplicate



Maltster

4,000 lbs per variety



Brewer

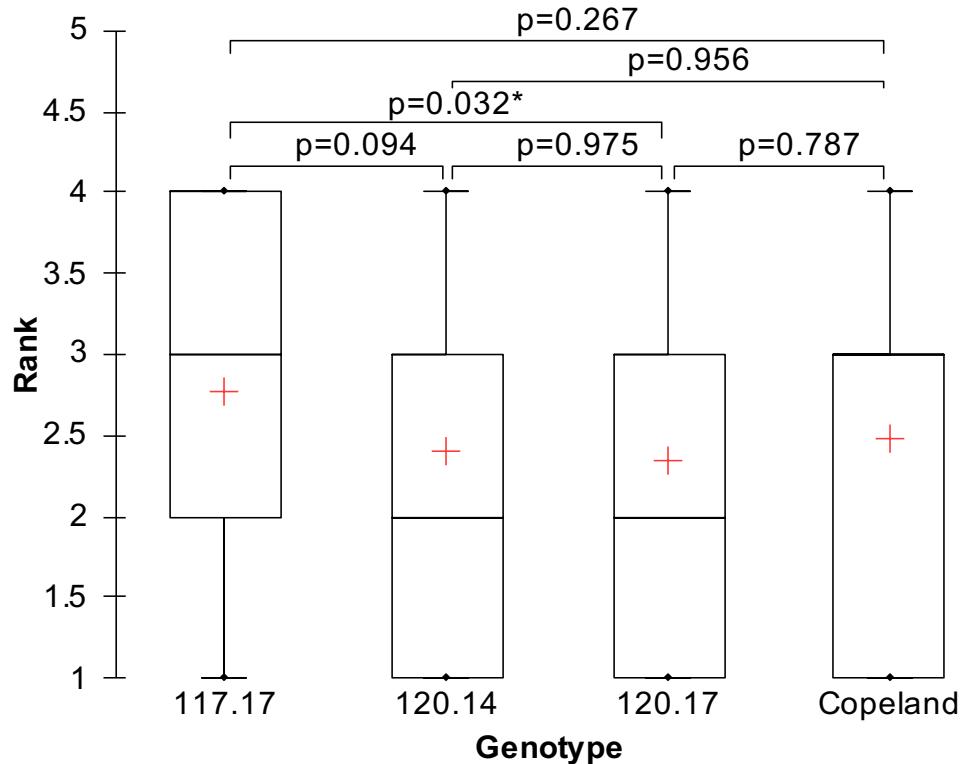
Vary beers only by variety



Consumer

138 untrained consumers





- **117.17 ranked lowest**, and significantly lower than 120.17
- Why a lower rank for 117.17?
 - Woody
 - Sour
 - Dairy
- **Differentiation & objective validation**

DataSet	Attribute	117.17	120.14	120.17	Copeland	P value
Flavor Map	bitter	0.1 (ab)	0.2 (b)	0.1 (a)	0.2 (ab)	0.01
	smooth	0.1 (a)	0.2 (b)	0.1 (ab)	0.1 (ab)	0.02
	thin	0.04 (a)	0.05 (ab)	0.07 (ab)	0.1 (b)	0.02
Description	sour	0.1 (b)	0.03 (a)	0.07 (ab)	0.07 (ab)	0.004
	woody	0.1 (b)	0.04 (ab)	0.007 (a)	0.05 (ab)	0.03
Combined	sour	0.2 (b)	0.04 (a)	0.1 (ab)	0.1 (ab)	0.004
	dairy	0.1 (b)	0.02 (ab)	0.01 (ab)	0.007 (a)	0.03

Willing to pay?

“It is important to me that beer is brewed with local ingredients”

- 26.1% “Neither Disagree or Agree”
- 21% “Moderately Agree”

“I would pay more for a beer if I knew that it supported local farmers”

- 32% “Agree very much”
- 27% “Moderately Agree”
- 25% “Extremely Agree”



Impact



- Port of Olympia – \$10,500
- Thurston County Lodging Tax – \$5,000
- WSU Barley Breeding program (contribution) – \$5,000
- Lewis County Distressed County funds for grain facility in Lewis County with Port of Chehalis – \$800,000
- 30 growers attend field days and are aware of opportunity to grow barley in western WA
- 10 local government decision-makers more aware of brewing/distilling using local grain
- Agronomic data to growers, end-use quality to brewers and distillers for available varieties

Thank you!



**Shout out to Gold Rush!
1st place Pilsen & Pale Malt
and
2021 Craft Maltser's Guild
Malt Cup Winner!!**