The Oregon Hooded Barley Blend (OHBB)

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The Oregon Hooded Barley Blend (OHBB): The Oregon Hooded Barley Blend (OHBB) is mixture of 9 unreleased doubled haploid 6-row, hooded, lines. The OHBB is intended as a resource for others to build upon the efforts of the OSU Barley Project and carry germplasm to the variety release stage.

Hooded barley: In a hooded barley, the awn is genetically re-programmed to form an inverted flower (Müller et al. 1995). The end result is a softer texture inflorescence that may be more palatable to livestock than an inflorescence with awns (Surber et al. 2002).

A brief history of hooded barley research at OSU: The OSU Barley Project developed and released the six-row winter hooded barley Verdant in 2010. Verdant was exclusively licensed to Tri-State Seeds, who pursued promoting the variety, internationally, with a burst of enthusiasm. The Tri-State license was relinquished in 2018 and re-assigned to AgriSource, who (as of 2019) has yet to market any seed. The Verdant story describes the overall trajectory of hooded barley research at OSU: lots of initial enthusiasm, increasing ennui, and eventual abandonment.

The specific case of the OHBB: During the burst of enthusiasm phase for breeding hooded barley, the OSU program developed 99 doubled haploids from crosses of Verdant x Alba, Alba x Verdant, and Verdant x Kurtford. Verdant was described previously in this document. Alba is a winter 6-row awned variety – publicly released by OSU in 2012. Kurtford is a spring, semi-dwarf, hooded variety. There were 53 hooded doubled haploids selected from the 99. These were tested and selected at Oregon State University Hyslop Agronomy Farm (near Corvallis Oregon), as resources allowed, from 2014 until 2016. By 2016, the total was reduced to 30 selections. No doubled haploids derived from the crosses with Kurtford survived the selection process. The 30 selected lines were grown in a two-replicate Randomized Complete Block trial at the Hyslop Agronomy Farm. The controls were Alba and Verdant. Based on data from this trial, 9 lines were selected (Table 1). All of the selected doubled haploids are hooded. They range in maturity from earlier to later than the parents. Plant heights are similar to the parents, with the tallest at 4 inches taller than the parents. Lodging resistance is generally better than Verdant, with only one line having 15% greater susceptibility. Scald resistance is good to acceptable – with the highest severity value being 5% more than Verdant. All lines had superior kernel plumpness compared to Alba and generally equal to or better than Verdant. Grain proteins are similar to the parents. Grain yield is an outstanding feature of this germplasm. All selections are higher yielding than Verdant and comparable to Alba. Test weights are all superior to Verdant. The ennui /abandonment phase was brief but definitive. Faced with a lack of resources available for hooded barley development, seed of the 9 selections was blended in equal proportions to constitute the OHBB.

Access to the OHHBB: In order to provide a foundation for those interested in hooded barley development, the OHBB is offered as a resource free of charge and with one

condition: should a variety be selected from the blend, that OSU be credited as the source of the germplasm. 500g samples (one per recipient) will be available until the supply of 20kg is exhausted.

Table 1. Agronomic trait data on selected components of the Oregon Hooded Barley Blend compared to Alba and Verdant checks. Corvallis, OR 2016 harvest. LSD calculated for the complete trial. Plump grain and protein from one replication only.

Name	Pedigree	Heading date	Height	Lodging	Scald	Plump grain	Protein	Yield	Test weight
		(after 1/1)	(inches)	(%)	(%)	(% on 6/64)	(%)	(lbs/acre)	(lbs/bu)
Alba	Strider/Orca	115	45	18	0	86	10	10194	49
Verdant	Kold/Hoody	114	45	23	13	92	11	8380	46
DH140537	Verdant/Alba	119	47	20	5	96	10	9904	47
DH140541	Verdant/Alba	109	43	18	3	90	11	10828	50
DH140637	Verdant/Alba	111	44	8	18	95	10	10307	50
DH140661	Verdant/Alba	114	45	3	3	95	10	10394	48
DH140760	Verdant/Alba	111	44	7	11	93	10	9295	47
DH140787	Alba/Verdant	114	45	0	5	97	10	10328	53
DH140789	Alba/Verdant	124	49	5	5	95	10	10128	48
DH140791	Alba/Verdant	123	48	38	8	98	10	11248	48
DH140796	Alba/Verdant	115	45	28	18	92	9	10012	48
	LSD	2	10	16	13	NA	NA	1820	7

Bibliography

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