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Variety	Key Varietal Characteristics	Variant
Descriptor Key	<ul> <li>Type = market class or crop type; HRWW = hard red winter wheat HWWW=hard white winter wheat</li> <li>Spkdens = spike density: lax (open or loose); md (mid-dense); den (dense or tight)</li> <li>Spike Shape = fusiform (tapering, usually fusiform wider at base than at tip); oblong (strap, or same width at top and bottom, not tapering).</li> <li>Chaff Color=the color of the plant when it has matured and has dried down: white, white-amber, yellow, brown, bronze, red</li> <li>Glume lxw = the length x width of the outer glume; l=long, s=short, n=narrow, w=wide, m=medium (i.e. med-long and med-wide)</li> <li>Glume Shoulder = the shape of the shoulder of the outer glumes; w=wanting; o=oblique; s=square; r=round; e=elevated; a=apiculate</li> <li>Beak Length/Shape = the length of the beak (vs=very short, s=short, m=medium, ml-medium long, l=long</li> <li>Note: some characters may be missing in the descriptions for some varieties</li> </ul>	Note: This table is for guidance only.  Every attempt has been made to accurately reflect varietal information as provided by companies and from Plant Variety  Protection applications and national review board summaries. For direct confirmation of the information contained in this table, please contact those above sources.
122016W Brand name HG Force	<u>Type:</u> HRWW <u>Spkdens:</u> mid dense <u>Spike Shape:</u> oblong <u>Chaff Color:</u> white/amber <u>Glume lxw:</u> m x n <u>Glume Shoulder:</u> oblique <u>Beak Length/Shape:</u> med x acuminate	10/1000 taller (8 to 15 cm) 1.8% white seed variant
2464411	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber  Awnletted variety Glume lxw: s x w Glume Shoulder: square Beak Length/Shape: med x obtuse	20/10000 taller (15 to 20 cm) 10/10000 bronze chaff 10/10000 fully awned
9447004	Type: HRWW Spkdens: Lax Spike Shape: tapering Chaff Color: white  Glume lxw: s x n Glume Shoulder: rounded Beak Length/Shape: med x acuminate	20/10000 taller (15 to 20 cm) 10/10000 bronze chaff 10/10000 awnless
841446398 Aka 719 Flex triticale	Type: Triticale Spkdens: dense Spike Shape: Oblong Awnletted Chaff Color: yellow Neck: Straight, slightly hairy Glume l x w: ml x mw Glume Shoulder: rounded Beak length/shape: ?/acuminate	< 10/1000 Bearded heads
946802617 Aka Gainer 154	Type: Triticale Spkdens: mid-dense Spike Shape: fusiform Spike awnedness: Awned Neck shape: wavy Neck hairiness: Heavy Glume Pubescence: slightly pubescent Glume Color: yellow Glume I x w: ml x mw Glume Shoulder: wanting Glume Beak shape: obtuse	Taller 1/1000
422T see NE422T	PVP certificate 200200153	
AG Golden	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white  Beak length officially not stated, 2021 foundation field observation  Glume l x w: m x m Glume Shoulder: oblique Beak Length/Shape: m 7-8 mm x acuminate	Taller up to 3 spike lengths above canopy 1/1000 Red or bronze glumes 1/1000 Awnless or awnletted 1/10000

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AG Icon	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white	Taller 1/1000
	Glume lxw: m x m  Glume Shoulder: square Beak Length/Shape: m x acuminate	Dark chaff 1/1000 White seeded up to 0.8%
AG Radical	Type: HRWW Spkdens: mid dense Juvenile plants have purple auricles present.  Glume I x w: m x n Glume Shoulder: oblique Beak Length/Shape: med. 5-6 mm x acuminate	Taller up to 3 spike lengths above canopy 1/1000 Red or bronze glumes 1/1000 Awnless or awnletted 1/10000
AM Cartwright	Type: HRWW Spkdens: mid dense Spike Shape: fusiform Chaff Color: White  Glume lxw: m x m Glume Shoulder: oblique Beak Length/Shape: s x acuminate	Taller 1 per 1000 Up to 0.8 % white seed
AP18 AX	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white Revised for 2022 based on certificate 2020000351 Glume lxw: m x n Glume Shoulder: rounded Beak Length/Shape: ?/acuminate	1/1000 Taller 1/1000 Red chaff 1/1000 Awnless
AP24 AX Exp.#: CO14A136-135	Type: HRWW Spkden: mid dense Spike Shape: tapering Chaff Color: white  Glume lxw: m x m Glume Shoulder: rounded Beak Length/Shape: short/acuminate	Less than 1/1,000 Taller (greater than one spike length above canopy) Less than 1/1,000 brown glumes Less than 1/1,000 awnless Up to 0.5% White seed
AP Baldy	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber  Glume lxw: 1 x m Glume Shoulder: wanting Beak Length/Shape: s x acuminate	A combined total of no more than 10/1000 taller or awnless plants
AP Bigfoot	Type: HRWW Spkdens: dense Spike Shape: tapering Chaff Color: white/amber  Glume lxw: m x n Glume Shoulder: Oblique Beak Length/Shape: 1 x acuminate	2/1000 Taller (8 to 15 cm) (0.2%) 9/10000 Red Chaff (0.09%) 4/1000 Awnless (0.4%)
AP EverRock	Type: HRWW Spkdens: mid dense Spike Shape: oblong Chaff Color: white/amber Revised for 2022 based on certificate no. 202100055  Glume lxw: 1 x w Glume Shoulder: Oblique Beak Length/Shape: 1 x acuminate	Taller (8 to 15 cm) 10/1000 (1%) Less than 1/10000 awnless 1.8% white seed
AP Longjack	Type: HRWW Spkdens: mid dense Spike Shape: oblong Chaff Color: white/amber	Taller (8-15 cm) 3/10000 Awned 4/10000
awnless	Glume lxw: 1 x m Glume Shoulder: rounded Beak Length/Shape: short x obtuse	Red chaff 1/10000
AP Prolific	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber  Glume lxw: m x m Glume Shoulder: square Beak Length/Shape: medium x acuminate	Allowed variants are taller and awnless plants up to 1% or 10/1000.  White seed variant about 1.8%

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AP Roadrunner AP14T21619	Type: HRWW Spkdens: mid dense Revised 2022 based on certificate 202100344 Spike Shape: tapering Chaff Color: white/amber	Taller (8 to 15 cm) 1/100 (1%)
AF 14121019	Glume lxw: m x w Glume Shoulder: oblique Beak Length/Shape: medium x acuminate	White seed variant 1.8%
AP Sunbird Exp. CP15CW3388#011	Type: HWWW Spkdens: mid dense Spike Shape: tapering Chaff Color: tan	Taller (3-10cm) up to 8/1000 (0.8%) White seed variant up to 1.8%
	Glume l x w: s x m Glume Shoulder: oblique Beak Length/Shape: s x acuminate	
Avery (CO11D174)	Type: HRWW Spkdens: dense Spike Shape: tapering Chaff Color: white/amber	Taller 1 per 1000 Red Chaff 1 per 1000
	Glume l x w: s x m Glume Shoulder: Oblique Beak Length/Shape: m x acuminate	
Big Country Awnless to	Type: HWWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white	Bronze chaff < 8/10000 (0.8%) Awned < 1/750 or 13/10,000 (0.13%)
Apically awnletted	Glume l x w: 1 x n to m Glume Shoulder: Oblique Beak Length/Shape: v short (2mm) x acumin	
Bob Dole	Type: HRWW Spkdens: mid dense Spike Shape: Tapering Chaff Color: white Glume 1 x w: m x n Glume Shoulder: wanting Beak Length/Shape: (see note) long x acuminate Note: We think the description may be incorrect and beak length should be short, wanting to oblique shoulder if you have questions contact KCIA	Taller 1/1000 Dark Chaff 1/1000 White seeded up to 0.8%
Brawl CL Plus	Type: HRWW Spkdens: mid dense Spike Shape: fusiform Chaff Color: white  Glume 1 x w: m x n Glume Shoulder: Oblique Beak Length/Shape: ? x acuminate	1 per 1000 Very tall greater than two spikelengths 1 per 1000 Red Chaff
Breadbox aka: OK15MASBx7ARS8-	Type: HRWW Spkdens: Lax to Mid-Dense Spike Shape: Strap Chaff Color: White  Glume I x w: m x w Glume Shoulder: Wanting Beak Length/Shape: med-long/Acuminate	Hight differential (~10cm) <1/500 Bronze Chaff <1/1,000
20		
Byrd	Type: HRWW Spkdens: mid dense Spike Shape: fusiform Chaff Color: white	1/1000 tall (two spike lengths or more) 1/1000 red chaff
	Glume l x w: m x n Glume Shoulder: Oblique Beak Length/Shape: ? x acuminate	
Byrd CL Plus	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber	Taller 1/1000 Brown glumes 1/1000
	Glume l x w: m x n Glume Shoulder: rounded Beak Length/Shape: m x acuminate	Awnless 1/1000 White seeded 1/200
Canvas (CSU)	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber	Taller 1/1000 Brown glumes 1/1000
	Glume l x w: m x n Glume Shoulder: rounded Beak Length/Shape: m x acuminate	Awnless 1/1000 White seeded 1/200

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CP7017 AX	Type: HRWW Spkdens: lax Spike Shape: Tapering Chaff Color: white	Taller 1/1000 up to 2 spike lengths
	Glume l x w: m x w Glume Shoulder: oblique Beak Length/Shape: ? x acuminate	Red or Bronze glumes 1/1000 Awnless or awnletted 1/1000 White seeded 0.75%
Crescent AX	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber	Taller 1/1000
Aka CO14A050	Glume l x w: m x n Glume Shoulder: rounded Beak Length/Shape: med x acuminate	Brown glumes 1/1000 Awnless 1/1000 White seeded 1/200
DE2001192 (QA) (Brand name: NSS 1419) PVP 202000213	Type: SRW Spkdens: mid dense Spike Shape: Tapering Chaff Color: white  Glume l x w: L x M Glume Shoulder: wanting Beak Length/Shape: ? x acuminate	No variants noted beyond normal environmental differences
Doublestop CL Plus	Type: HRWW Spkdens: mid dense Spike Shape: Oblong Chaff Color: bronze*  * Updated by OSU 6/16/14  Glume 1 x w: 1 x w Glume Shoulder: wanting Beak Length/Shape: ? x acuminate	1/200 Taller (>5 inches) below okay 1/250 White glume
Everest	Type: HRWW Spkdens: mid dense Spike Shape: f usiform Chaff Color: tan  Glume I x w: m x n Glume Shoulder: elevated Beak Length/Shape: med x acuminate	1/1000 Taller, may or may not have wanting to oblique shoulders, short to medium beak 1/1000 red chaff
Forage FX 1001	<b>Type:</b> Winter triticale <b>Description:</b> tall ~138cm, color is blue-green at boot stage), neck is straight and moderately hairy, no stem anthocyanin. Flag leaf is twisted, waxy bloom on leaf, leaf is drooping. Head is dense, ~9cm long, 10mm wide and oblong, awnletted with yellow awns. Glumes at maturity are slightly pubescent, yellow, long, narrow with a wanting shoulder and obtuse beak.	60/10000 taller (>10 cm) 300/10000 awned 95/10000bronze chaff
Goliath	Type: OATS HEAD: panicle shape intermediate, size medium, width mid broad Glumes: width 8 mm, length 19mm, no. of veins 9, color striped Lemma: length 12 mm, color white, dorsal surface hairless	None listed
Green Hammer	Type: HRWW Spkdens: mid dense Spike Shape: fusiform Chaff Color: bronze  Glume l x w: m x m Glume Shoulder: square Beak Length/Shape: m? x acuminate	Taller <10cm 2 per 1000 White glume color 5 per 1000
Guardian	Type: HRWW Spkdens: mid dense Spike Shape: fusiform Chaff Color: white/amber  Glume lxw: m x n Glume Shoulder: rounded Beak Length/Shape: med x acuminate	Taller > one spike length 1/1000 Brown glumes 1/1000 Awnless 1/1000 White seed 0.5%
High Cotton aka: OK18510	Type: HRWW Spkdens: lax to mid dense Spike Shape: tapering Chaff Color: white  Glume l x w: s-m x n- m Glume Shoulder: rounded Beak Length/Shape: med-long x acuminate	Taller (<10 cm) <1/1,000 Bronze chaff <1/1,250

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High Country	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber	Taller (15-20cm) 4/10,000
		Awnless 1/10,000
	Glume l x w: m x m Glume Shoulder: oblique Beak Length/Shape: long x acuminate	Red chaff 3/10,000
		Up to 1.8% white seed variant
Joe	Type: HWWW Spkdens: mid dense Spike Shape: tapering Chaff Color: tan	1/1000 taller
Formerly KS11HW39-5-4	Revised for 2021 based on Mar. 2020 AOSCA Small Grain Review Board	White or dark chaff 5/1000
	Glume l x w: m x m Glume Shoulder: oblique Beak Length/Shape: med x acuminate	Up to 0.3% red seed (amended 9/4/2018)
K1202SRW Brand	Type: SRW Spkdens: dense Spike Shape: tapering Chaff Color: tan	Taller 1/100 (1.0%)
6PLKV03B	JoMar JM 1521 shoulder shape and beak length not stated	Awnless1/100 (1.0%)
(GB206)	Glume l x w: ? x ? Glume Shoulder: ? Beak Length/Shape: ? x acuminate	
K1203SRW Brand	Type: SRW Spkdens: mid dense Spike Shape: tapering Chaff Color: tan	Taller 1/100 (1.0%)
6PJRS71B	JoMar JM 1529 glume width, and beak length not stated	Awnless1/100 (1.0%)
(GB208)	Glume l x w: s x ? Glume Shoulder: oblique Beak Length/Shape: ? x acuminate	
KanMark	Type: HRWW Spkdens: mid dense Spike Shape: Oblong Chaff Color: white	1/1000 tall
		1/1000 dark chaff
	Glume l x w: m x m Glume Shoulder: square Beak Length/Shape: med x acuminate	
Karl 92	Type: HRWW Spkdens: mid dense Spike Shape: ob-fus Chaff Color: white	Slightly taller
		Slightly darker
	Glume lxw: ml x n-mw Glume Shoulder: r-s Beak Length/Shape: 4-9mm x acum	Slightly later
		Total 1/10,000
Kivari AX	Type: HRWW Spkden: mid dense Spike Shape: tapering Chaff Color: White	Taller <1/1000
		Red glumed plants <1/1000
	Glume lxw: m x m Glume Shoulder: Square Beak Length/Shape: long/acuminate	Awnless < 1/1000
		White seed coat plants <1/200
KS12D03-1	Type: Durum Spkden: dense Spike Shape: Oblong Chaff Color: White/amber	Taller 1/1000
Aka DH-AFQ3-1		Dark chaff 1/1000
	Glume l x w: m x n Glume Shoulder: Oblique Beak Length/Shape: Medium/Acute	
KS160786S-6	No descriptors collect data	
KS170013D-19	No descriptors collect data	
KS170025D-11	No descriptors collect data	
KS Ahearn	Type: HRWW Spkdens: dense Spike Shape: oblong Chaff Color: white/amber	Taller 1/1000 (0.1%)
	<u> </u>	Dark chaff 1/1000 (0.1%)
KS12DH0156-88	Glume l x w: 1 x w Glume Shoulder: square Beak Length/Shape: short x acuminate	White seeded plants (0.8%)

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KS Big Bow Aka KS18HW106-4	Type: HWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber	Taller <1/100 (1.0%)
	Glume l x w: 1 x m Glume Shoulder: square Beak Length/Shape: medium x acuminate	red seeded plants (1.0%)
KS Bill Snyder Exp. KS19H10	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: White/Amber	Taller 10cm and above 100/10,000 White seed 150/10,000
	Glume l x w: L x narrow Glume Shoulder: Oblique Beak Length/Shape: L x Acuminate	
KS14H180-4-6	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber	Taller 1/100
	Glume l x w: m x n Glume Shoulder: oblique Beak Length/Shape: med x acuminate	White seeded plants < 1/1000
KS Dallas	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: White/Amber	Slightly taller 1 per 100
	Glume l x w: 1 x n Glume Shoulder: oblique Beak Length/Shape: m x acuminate	0.1% white seed
KS Hamilton Formerly KS15H137-2-2	Type: HRWW Spkdens: lax Spike Shape: tapering Chaff Color: White/Amber	Taller < 1/100 (1%)
	Glume l x w: m x m Glume Shoulder: elevated Beak Length/Shape: m x acuminate	White seeded $< 5/1000 (0.5\%)$
KS Hatchett	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: White	Taller 1/1000
Aka KS090049K-8	Beak length officially short 2021 foundation field observation s to med.	Dark chaff 1/1000
	Glume l x w: m x m Glume Shoulder: elevated Beak Length/Shape: s x acuminate	White seed up to 0.8%
KS Mako	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: White/Amber	Taller 1/1000
Exp. KS16DH0010-17		Dark chaff 1/1000
	Glume l x w: m x m Glume Shoulder: square Beak Length/Shape: L x obtuse	White seed up to 0.8%
KS Providence	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber	Taller 1/1000
Aka KS13DH0041-35		Dark chaff 1/1000
	Glume l x w: 1 x med Glume Shoulder: elevated Beak Length/Shape: s x acuminate	White seed up to 0.8%
KS Silverado	Type: HWWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber	Slightly taller 1 per 100
		Red seed 2%
	Glume l x w: m x m Glume Shoulder: square Beak Length/Shape: m x acuminate	
KS Territory Aka KS18H111-3	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber	Taller < 1/100 (1.0%)
	Glume l x w: l x n Glume Shoulder: Oblique Beak Length/Shape: long x acuminate	White seeds $< 3/1000 (0.3\%)$
KS Venada	Type: HWWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber	Taller 1/100
aka KS13HW92-3	Change I as any 1 as an Change Chemident while as Deal I are districted to	red seeded plants < 2/100
	Glume l x w: 1 x m Glume Shoulder: oblique Beak Length/Shape: 1 x acuminate	

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KS Western Star	Type: HRWW Spkdens: mid dense Spike Shape: fusiform Chaff Color: white/amber	Slightly taller 1 per 100
	Glume l x w: l x n Glume Shoulder: oblique Beak Length/Shape: m x acuminate	White seed 0.1%
KS20H124	Type: HRWW Spkdens: mid mid dense Spike Shape: tapering Chaff Color: white	10/1000 brown chaff
	Glume 1 x w: 1 x n Glume Shoulder: Oblique Beak Length/Shape: m x acuminate	50/10000 taller (> 9 cm)
KS20HDW185	Type: HWWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white	10/1000 brown chaff
		50/10000 taller (> 8 cm)
	Glume l x w: 1 x n Glume Shoulder: wanting Beak Length/Shape: 1 x acuminate	
L12024 (QA)	Type: SRWW Spkdens: lax Spike Shape: tapering Chaff Color: white	Taller <1/10,000 (up to 3 spike lengths)
Apically awnletted		Red/Bronze chaff <1/10,000
Aka NSS X24 (Brand) Aka L-024 (Brand)	Glume l x w: long x wide Glume Shoulder: oblique Beak Length/Shape: s x obtuse	Awned < 1/10,000
		White seed up to 0.75%
Langin	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white	Taller 1/1000
		Red chaff 1/1000
	Glume l x w: m x m Glume Shoulder: Oblique Beak Length/Shape: med x acuminate	White seed fewer than 1/200
Larry	Type: HRWW Spkdens: mid dense Spike Shape: Oblong Chaff Color: white	Taller 1/1000
		Dark chaff 1/1000
	Glume l x w: m x m Glume Shoulder: elevated Beak Length/Shape: long x acuminate	
LCS Atomic AX	Type: HRWW Spkdens: lax Spike Shape: tapering Chaff Color: white	1 per 1000 taller up to 2 spike lengths
		1 per 1000 red or bronze glumes
	Glume m x n : Glume Shoulder: rounded Beak Length/Shape: ?/accuminate	1 per 1000 awnless or awnletted
		Up to .75% white seeds
LCS Calypso	Type: 2 row Barley Spkdens: erect(dense) Spike Shape: strap slightly waxy	Taller up to 8 inches 1/1000
	Head: Slightly waxy; Glume Awns: equal to length of glumes; awn surface semi-smooth	Later-drooping heads 1/1000
	Glume: 1/2 length of lemma; no hair Lemma awns: longer than length of spike	
	<b><u>Lemma:</u></b> Numerous teeth; hair present; shape of base slight crease; rachilla hairs long.	
	Shape of neck: Snaky	
LCS Chrome	Type: HRWW Spkdens: mid dense Spike Shape: oblong Chaff Color: tan	Awnless 2/1000
		Taller (up to three spike lengths) 5/1000
	Glume 1 x w: 1 x n Glume Shoulder: wanting Beak Length/Shape: medium / acuminate	White chaff 1/1000
LCS Galloway AX	Type: HRWW Spkdens: lax Spike Shape: tapering Chaff Color: white	Taller by 2 spike lengths 1/1000
		Red or bronze chaff 1/1000
	Glume 1 x w: 1 x m Glume Shoulder: elevated Beak Length/Shape: medium x acuminate	Awnless 1/1000
	~9 mm x ~3.5mm ~0.5cm	Up to 0.75% white grain

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LCS Helix AX	Type: HRWW Spkdens: lax Spike Shape: tapering Chaff Color: white  Beak length officially not stated, 2021 foundation field observation was med. to med. long 6-7 mm.  Glume l x w: m x n Glume Shoulder: square Beak Length/Shape: med. 6-7mm x acuminate	Taller up to 2 spike lengths 1/1000 Red or bronze chaff 1/1000 Anwless or awnletted 1/1000
LCS Julep	Type: HRWW Spkdens: lax Spike Shape: tapering Chaff Color: white  Beak length officially not stated, 2021 foundation field observation beak was med to med. long +- 1 cm.  Glume l x w: l x m Glume Shoulder: rounded Beak Length/Shape: med. +- 1 cm x acuminate	Taller to 3 spikelengths 1 per 1000 Red or Bronze 1 per 1000 Awnless 1 per 10,000 0.75% white grain
LCS Mint	Type: HRWW Spkdens: mid dense Spike Shape: oblong Chaff Color: white/amber  Glume l x w: m x w Glume Shoulder: square Beak Length/Shape: med x acuminate	1 per 1000 brown glumes 1 per 1000 taller plants (two spikelengths above canopy)
LCS Odessey (spring type 2-row barley)	<b>Awns</b> strong anthocyanin (reddish) coloration of tips. Ear (head) parallel shape, medium dense, long awns, two rows. Awns are medium to long compared to ear.	None listed
LCS Photon AX	Type: HRWW Spkdens: lax Spike Shape: tapering Chaff Color: white/amber  Glume l x w: l x n Glume Shoulder: elevated Beak Length/Shape: vl x acuminate	Awnless/awnletted 1/1000 Taller up to two spikes 1/1000 Red or Bronze 1 per 1000 White seed 0.75%
LCS Radar	Type: HRWW Spkdens: dense Spike Shape: tapering Chaff Color: tan Glume l x w: l x mw Glume Shoulder: oblique Beak Length/Shape: med to l (1.5cm) acuminate	1/1000 taller up to 2 spike lengths 1/500 awnless
LCS Runner	Type: HRWW Spkdens: lax Spike Shape: Tapering Chaff Color: white Beak length not officially stated Glume l x w: m x m Glume Shoulder: rounded Beak Length/Shape: ? x acuminate	Taller up to 3 spike lengths 1/1000 Red or bronze glumes 1/1000 Awnless 1/10000 White seed up to 0.75%
LCS Steel AX	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: tan  Beak length officially not stated, 2021 foundation field observation, shoulder also oblique to square, length med. to ml  Glume l x w: m x m Glume Shoulder: oblique Beak Length/Shape: med. +- 1 cm x acuminate	Taller up to 2 spike lengths above canopy 1/1000 White or red glumes 1/1000 Awnless or awnletted 1/1000
LCS Valiant	Type: HRWW Spkdens: mid dense Spike Shape: Tapering Chaff Color: white  Glume I x w: m ~3-5mm X m ~8mm Glume Shoulder: oblique Beak Length/Shape: m (0.92cm) X acuminat revised for 2021 based on PVP certificate 202000191	Taller by 10 cm 1/200 What is described as glume variants 1/100 No color or awn variants observed
LCS Warbird AX	Type: HRWW Spkdens: dense Spike Shape: tapering Chaff Color: tan  Glume l x w: m x w Glume Shoulder: oblique Beak Length/Shape: m (.3cm) /acuminate to acute	1/1000 taller up to 2 spike lengths 1/1000 awnless

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LCS White Lightning (LCH18-9027)	Type: HWW Spkdens: mid dense Spike Shape: Tapering Chaff Color: white Beak length not officially stated	Taller up to 3 spike lengths 1/1000 Red or bronze glumes 1/1000
(LCH16-9021)	Glume 1 x w: 1 x w Glume Shoulder: square Beak Length/Shape: v. long (~1.2 cm) x acuminate	Awnless 1/10,000
	~9mm X ~4mm	Red seed up to 0.75%
NE441T (triticale)	Type: Triticale Spkdens: dense Spike Shape: Clavate Awned with Awn color: tan	None listed
Aka: NE96T441	Glumes: pubescent, tan in color, long, mid-wide with wanting shoulders, Beak: accuminate	
NE422T (Triticale)	Type: Winter triticale Description: tall ~148cm, color is green (as opposed to yellow-green or	Taller (10-20cm) 1/10,000
	blue-green), neck is non hairy and straight, no stem anthocyanin. Flag leaf not twisted, waxy bloom	1/8000 Shorter (25-30cm) and later (3-4
aka 422T	on leaf, leaf is re-curved (as opposed to upright, or drooping). Head is mid-dense, ~9.6cm long,	days)
PVP cert. 200200153	4mm wide and oblong, awned with tan awns. Glumes at maturity are pubescent, tan, mid long,	Up to 1% 10/10,000 variant plants are
	narrow with a wanting shoulder and acuminate beak.	allowed
Oakley CL	Type: HRWW Spkdens: mid dense Spike Shape: fusiform Chaff Color: white	Slightly taller 1 per 1000
		Purple auricles 1 per 100
	Glume l x w: med x med Glume Shoulder: Oblique Beak Length/Shape: med /acuminate	White-seeded plants 1 per 1000
OK Corral	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white	1/1000 Taller (<10cm)
Apically awnletted	Based on certificate 202000252.	1/750 Awned (0.133%) approx. 1.3/1000
	Glume lxw: s ~7mm x w ~4mm Glume Shoulder: square Beak Length/Shape: v. short x acute	
Paradise	Type: HRWW Spkdens: lax Spike Shape: Tapering Chaff Color: tan (updated 2018)	Taller by 8 to 15 cm 10/1000 (1%)
		White seed up to 1.8%
	Glume l x w: l x m Glume Shoulder: oblique Beak Length/Shape: medium x acute	(chaff color updated to bronze 6/19/18)
Paradox	Type: HRWW Spkdens: lax Spike Shape: Strap Chaff Color: white	Hight differential (~10cm) <1/500
Aka:		Bronze Chaff <1/1,000
OK15MASBx7ARS8- 29	Glume 1 x w: m x n Glume Shoulder: oblique Beak Length/Shape: medium x acuminate	
Rock Star	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: tan	2/1000 Taller
		Up to 1.8% white seed variant
	Glume 1 x w: 1 x n Glume Shoulder: oblique Beak Length/Shape: 1 x acuminate	
SD Buffalo	Type: OATS Glumes: width 7 mm, length 23 mm, no. of veins 9, color yellow	None given
Showdown	Type: HRWW Spkdens: mid dense Spike Shape: fusiform Chaff Color: white	Taller <10cm 1 per 1000 Bronze glumes 1 per 800
	Glume l x w: 1 x m Glume Shoulder: oblique Beak Length/Shape: m? x acuminate	Bronze granico i per ouv

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Smiths Gold	Type: HRWW Spkdens: mid dense Spike Shape: Tapering Chaff Color: white	Taller by <10 cm 1/800 Bronze glumes 1/500
	Glume l x w: 1 x m Glume Shoulder: oblique Beak Length/Shape: ? x acuminate	-
Spirit Rider	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white	Taller by <10 cm 1/500 Bronze glume 1/500
	Glume l x w: m x m Glume Shoulder: rounded Beak Length/Shape: ? x acuminate	-
Strad CL Plus	Type: HRWW Spkdens: lax to mid dense Spike Shape: tapering Chaff Color: tan	White chaff < 1/1000 (0.1%)
	Glume l x w: m x m Glume Shoulder: oblique Beak Length/Shape: med to long x acum	
SY 517 CL2	Type: HRWW Spkdens: lax Spike Shape: tapering Chaff Color: white	Taller by 8 to 15 cm 10/1000 (1%) Awnless 10/1000 (1%)
	Glume l x w: m x n Glume Shoulder: oblique Beak Length/Shape: med x acuminate	White seed up to 1.8%
SY Achieve CL2	Type: HRWW Spkdens: lax Spike Shape: tapering Chaff Color: white	Taller (8-15cm) 8 per 1000 Awnless 1 per 10,000
	Glume l x w: m x n Glume Shoulder: oblique Beak Length/Shape: m x acuminate	Up to 10 per 1000 total Up to 1.8% white seed variant
SY-Grit	Type: HWWW Spkdens: lax Spike Shape: tapering Chaff Color: white	8/1000 Taller (8 to 15cm) 1/1000 Awnless
	Glume 1 x w: 1 x m Glume Shoulder: square Beak Length/Shape: long x acuminate	
SY Monument	Type: HRWW Spkdens: mid dense Spike Shape: fusiform Chaff Color: white/amber	Taller 9 per 1000 Red chaff 1 per 1000
	Glume l x w: med x med Glume Shoulder: oblique Beak Length/Shape: med / acuminate	
SY TF 813 Triticale	Type: Triticale Spkdens: mid dense Spike Shape: clavate Chaff Color: white Glume 1 x w: 1 x n Glume Shoulder: wanting Beak Length/Shape: m x acute Awnletted; Neck shape: Wavy Neck hairiness: moderate Height: Semi-dwarf	1/1000 Taller 1/1000 awned
SY Wolverine	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber  Glume I x w: 1 x n Glume Shoulder: oblique Beak Length/Shape: short* x acuminate  *Amended by company 2020	1.8% white seeded variant
T154	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white-amber	10/10000 brown chaff 10/10000 taller
	Glume l x w: m x m Glume Shoulder: square Beak Length/Shape: m x acuminate	10/10000 awnless
T158	Type: HRWW Spkdens: mid dense Spike Shape: fusiform Chaff Color: white-amber	Awnless Brown glumes
	Glume l x w: m x w Glume Shoulder: oblique Beak Length/Shape: m x acute	Taller Total 3/10,000

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TAM 114	Type: Spkdens: mid dense Spike Shape: oblong Chaff Color: tan	6/1000 taller
		2/1000 white
	Glume l x w: m x m Glume Shoulder: oblique Beak Length/Shape:	1/1000 white awnless
		1/1000 red awnless
TAM 115	Type: Spkdens: mid dense Spike Shape: oblong Chaff Color: red	Taller up 5 to 15cm 8/1000
		White glumes, awned 1/1000
	Glume l x w: m x m Glume Shoulder: oblique Beak Length/Shape: ? x acuminate	Awnless red 1/2000
		Awnless white 1/2000
Tatanka	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white	Taller 1/1000
		White seeded 1/1000
	Glume l x w: m x m Glume Shoulder: square Beak Length/Shape: m x obtuse	
Thunder	Type: 2 row Barley Spkdens) Spike Shape	None available
	Very limited data available describe as about 35 inchaes tall rough awned with short rachilla hairs	
WB2545	Type: SRW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber	20/10000 taller (15 to 20 cm)
		10/10000 bronze chaff
Apically awnletted	Glume l x w: m x m Glume Shoulder: rounded Beak Length/Shape: medium x obtuse	10/10000 fully awned
WB4347	Type: HRWW Spkdens: lax Spike Shape: oblong Chaff Color: white/amber	20/10000 Taller 15 to 20 cm
		10/1000 Awnless
	Glume 1 x w: 1 x w Glume Shoulder: square Beak Length/Shape: 1 x acuminate	10/10000 Bronze chaff
WB4401	Type: HRWW Spkdens: lax Spike Shape: tapering Chaff Color: white	Taller 10-15 cm 20 per 10,000
		Awnless 10 per 10,000
	Glume l x w: m x w Glume Shoulder: elevated Beak Length/Shape: short x accuminate	Bronze chaff 10 per 10,000
	Beak length changed to short for 2021 based on revision in AOSCA Aug. small grain VRB	White seed 0.50%
WB4422	Type: HRWW Spkdens: mid dense Spike Shape: oblong Chaff Color: tan	Taller by 15 to 20 cm 20/10000 (0.2%)
	Purple auricles are present in juvenile plants	Awnless 10/10000 (0.1%)
	Glume l x w: 1 x n Glume Shoulder: oblique Beak Length/Shape: 1 x acuminate	White chaff 10/10,000 (0.1%)
	·	White seed .25%
WB4444	Type: HRWW Spkdens: lax Spike Shape: tapering Chaff Color: white/amber	20/10000 Taller 15 to 20 cm
		10/1000 Awnless
	Glume l x w: s x w Glume Shoulder: square Beak Length/Shape: 1 x acuminate	10/10000 Bronze chaff
WB4445CLP	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber	Taller (15-20cm) 20/10,000 (0.2%)
		Tan/Bronze 10/10,000 (0.1%)
	Glume 1 x w: 1 x n Glume Shoulder: oblique Beak Length/Shape: 1 x acuminate	Awnless 10/10,000 (0.1%)
		White seed up to 0.50%

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WB4462	Type: HRWW Spkdens: lax Spike Shape: tapering Chaff Color: white	Taller (15-20cm) 20 per 10,000
		Awnless 10 per 10,000
	Glume l x w: 1 x m Glume Shoulder: elevated Beak Length/Shape: 1 x acuminate	Bronze head 10 per 10,000
		Up to 0.25% white seed variant
WB4510 CLP	Type: HRWW Spkdens: lax Spike Shape: tapering Chaff Color: white/amber	Taller (15 to 20 cm) 20/10,000 (0.2%)
		Awnless 10/10,000 (0.1%)
	Glume l x w: l x n Glume Shoulder: oblique Beak Length/Shape: long x acuminate	Bronze head 10/10,000 (0.1%
		Up to 0.5% white seed variant
WB4523	Type: HRWW Spkdens: mid dense Spike Shape: oblong Chaff Color: white/amber	Taller by 15 to 20 cm 20/10,000 (0.2%)
	Purple auricles are present in juvenile plants	Awnless 10/10,000 (0.1%)
	Glume l x w: s x m Glume Shoulder: square Beak Length/Shape: ml x acute	Bronze head 10/10,000 (0.1%)
		White seed .25%
WB4595	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber	Taller (15-20cm) 20/10000 (0.2%)
		Awnless 10/10000 0.1%
	Glume l x w: m x w Glume Shoulder: elevated Beak Length/Shape: long x acuminate	Bronze head 10/0000 (0.1%)
WB4632	Type: HRWW Spkdens: Mid-Dense Spike Shape: Tapering Chaff Color: White/amber	White seed up to 50/10,000 (0.50%)
		Taller (15-20cm) 20/10,000 (0.2%)
	Glume l x w: l x m Glume Shoulder: Elevated Beak Length/Shape: Medium/Acuminate	Bronze head 10/10,000 (0.1%)
		Awnless 10/10,000 (0.1%)
WB4699	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber	Taller (15-20cm) 20/10000 (0.2%)
		Awnless 10/10000 0.1%
	Glume l x w: m x n Glume Shoulder: elevated Beak Length/Shape: long x acuminate	Bronze chaff 10/0000 (0.1%)
WB4733CLP	Type: HRWW Spkdens: mid dense Spike Shape: Tapering Chaff Color: White/Amber	White seed up to 50/10,000 (0.5%)
Aka XF4108CLP		Taller (15-20cm) 20/10,000 (0.2%)
	Glume l x w: m x n Glume Shoulder: wanting Beak Length/Shape: Short x Acuminate	Bronze chaff 10/10,000 (0.1%)
		Awnless 10/10,000 (0.1%)
WB4739 AX	Type: HRWW Spkden: lax to mid-dense Spike Shape: Tapering Chaff Color: White	Taller 1/1000 (up to 2 spike lengths above
Aka LCH18-7069		canopy)
	Glume l x w: 1 x m Glume Shoulder: Oblique Beak Length/Shape: Medium x Acuminate	Awnless 1/1000
		White Seed 0.75%
WB4792	Type: HRWW Spkdens: mid dense Spike Shape: tapering Chaff Color: white/amber	Taller (15-20cm) 20/10000 (0.2%)
		Awnless 10/10000 (0.1%)
	Glume l x w: m x m Glume Shoulder: elevated Beak Length/Shape: short* x acuminate	Bronze head 10/0000 0.1%
	*amdended by company	

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WB9303	<u>Type:</u> HRSW <u>Spkdens:</u> mid dense <u>Spike Shape:</u> oblong <u>Chaff Color:</u> white/amber	Taller (15-20cm) 20/10,000 (0.2%)
	Glume l x w: l x n Glume Shoulder: Apiculate Beak Length/Shape: long x acuminate	Bronze head 10/10,000 (0.1%) Awnless 10/10,000 (0.1%) White seed up to 0.5%
WB-Grainfield	Type: HRWW Spkdens: mid dense Spike Shape: fusiform Chaff Color: white	2/10,000 Awnless
	Glume l x w: s ~7mm x n Glume Shoulder: square Beak Length/Shape: ? x acuminate	5/1000 Talls (10 cm) 4/1000 Red Chaff
Whistler (CO13D1783)	Type: HRWW Spkdens: mid dense Spike Shape: oblong Chaff Color: white	Taller 1/1000
		Brown glumes 1/1000
	Glume l x w: m x n Glume Shoulder: rounded Beak Length/Shape: m x acuminate	Awnless 1/1000 White seeded 1/200
Winterhawk	Type: HRWW Spkdens: mid dense Spike Shape: fusiform Chaff Color: white-amber	1/1000 Taller (5-10mm)
	Glume l x w: ml x? Glume Shoulder: e to o* Beak Length/Shape: m x acuminate *slightly elevated shoulder falls to oblique	1/10000 Brown/bronze chaff
Zenda	Type: HRWW Spkdens: mid dense Spike Shape: oblong Chaff Color: white	Taller 1/1000
		Dark chaff 1/1000
	Glume l x w: m x m Glume Shoulder: square Beak Length/Shape: ml x acuminate	