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Making Better Decisions

**2022 Colorado Winter Wheat
Variety Performance Trials**

**2022 Colorado Certified
Seed Directory**

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Overview of 2021-2022 Eastern Colorado Winter Wheat Trials

Sally Jones-Diamond

Colorado State University researchers provide current, reliable, and unbiased wheat variety information to Colorado producers. Support of our research keeps public variety testing thriving in Colorado. Our work in Colorado is possible due to the support and cooperation of the entire Colorado wheat industry, the Colorado Wheat Administrative Committee, the Colorado Wheat Research Foundation, seed companies who enter varieties, and Colorado farmers who donate their resources and time to host wheat variety trials.

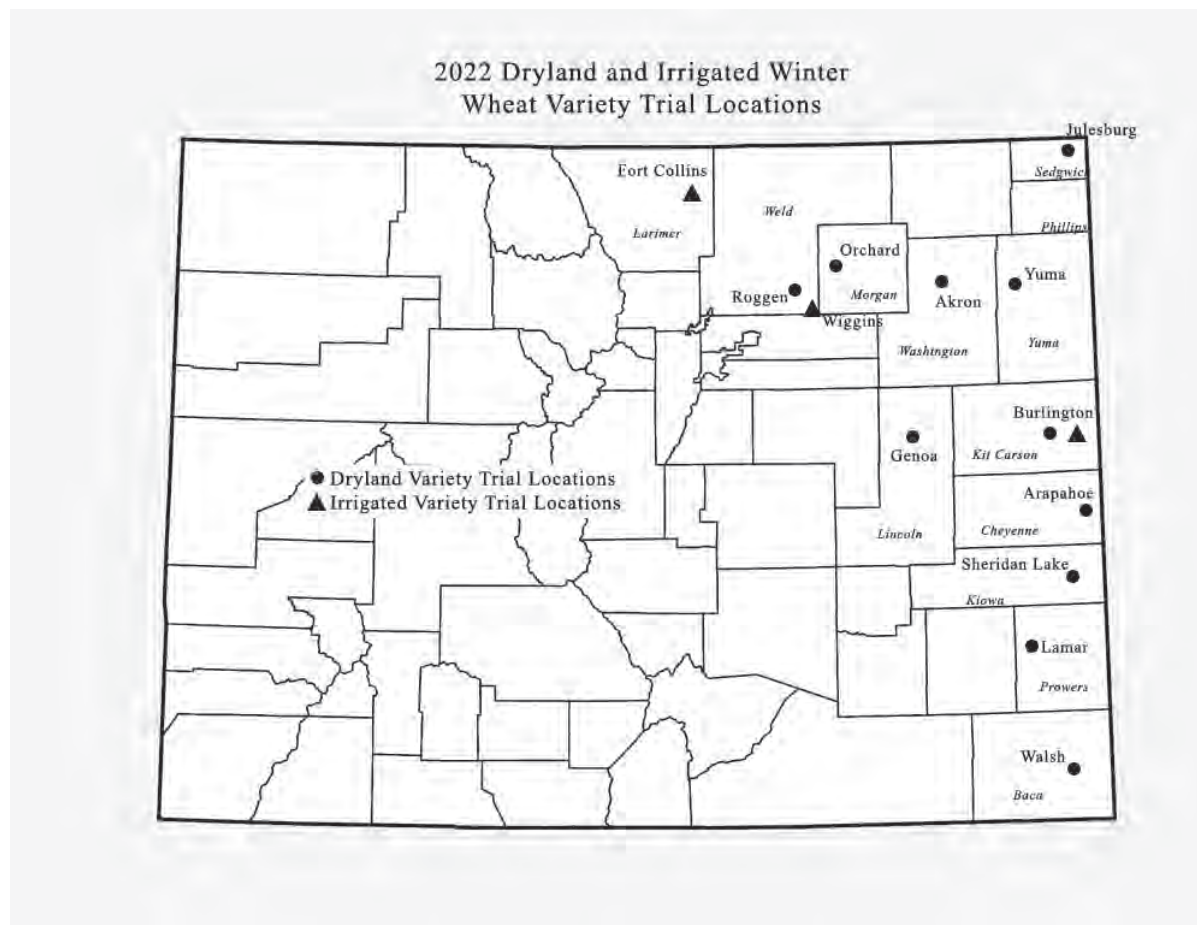
We test under a broad range of environmental conditions to best determine expected performance of new varieties. We have a regional uniform variety testing program, meaning that dryland varieties entered in our northeast region are tested across our six test locations in northeast Colorado, and varieties entered in our southeast region are tested across our five tests in southeast Colorado. All irrigated varieties are tested in all three irrigated trials across northeast Colorado. There were 41 varieties including experimental lines across the two regions of the 11 total dryland trials. The three irrigated trials each had 22 varieties. The variety trials included a combination of public and private varieties and experimental lines. Seed companies with entries in the variety trials included AgriPro Syngenta, CROPLAN by WinField United, and Meridian Seeds. There were entries from the Colorado marketing organization PlainsGold, the Kansas Wheat Alliance, Montana State University, Oklahoma Genetics, Inc., and Crop Research Foundation of Wyoming.

All dryland and irrigated trials were planted in a randomized complete block design with three replicates. Plot sizes were approximately 150 ft² (except the Fort Collins irrigated trial, which was 80 ft²) and all varieties were planted at 700,000 seeds per acre for dryland trials and 1.2 million seeds per acre for irrigated trials. Plot sizes for the COFT ranged from 0.20 to 1.5 acres per variety in side-by-side strips with seeding rates conforming to the seeding rate used by the collaborating farmer. Yield is corrected to 12% moisture. Variety trial plot weight, test weight, and grain moisture content information were obtained from a Harvest Master H2 weighing system on a plot combine. General Conditions Affecting the 2022 Colorado Wheat Crop

Fall 2021 was drier than normal in east-central and southeast Colorado, but scattered rainfall received in September allowed for most wheat to be planted into moisture. Soil moisture conditions quickly deteriorated throughout eastern Colorado, especially in Baca County in the southeast and Washington County in northeast. Temperatures in the fall were above average. The entirety of eastern Colorado was under moderate to extreme drought conditions from December 2021 through harvest in July 2022. Little precipitation was received during the winter months and warmer than average temperatures and windy conditions occurred in the spring.

Many wheat acres were chiseled or abandoned in the spring due to severe wind erosion and/or poor emergence due to the lack of moisture. The northeast and east-central parts of Colorado experienced a hard, late freeze in mid-April that caused mainly cosmetic damage to the leaves of the wheat plants. Scattered rainfall in May and June helped the remaining wheat, but some severe storms with hail occurred later in the season which caused more losses, especially in southeast Colorado.

Stripe rust disease was not an issue this season due to hot and dry conditions. Brown wheat mites were observed at very low levels in east-central and northeast Colorado, and higher levels that required chemical control were noted in parts of southeast Colorado. Wheat Stem Sawfly (WSS) was devastating and widespread across many northeast Colorado counties, with some producers swathing wheat to avoid lodging and to decrease harvest losses. WSS appeared at higher levels than seen in prior years in east-central Colorado including Lincoln and Kit Carson counties.





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Summary of 2022 Dryland Winter Wheat Variety Performance Results



Brand/Source	Market Class	Variety ^b	2022 Individual Trial Yield ^a			2022 Multi-Location Average				
			Julesburg	Roggen	Yuma	Yield ^c bu/ac	Test			
			bu/ac				% of avg	lb/bu	Protein ^c %	Heading ^d days from avg.
PlainsGold	HRW	Avery	28.0	37.5	41.5	35.7	115%	59	13.1	3
PlainsGold	HRW	Kivari AX	27.5	37.5	41.0	35.3	114%	59	13.4	2
PlainsGold	HWW	Monarch	30.0	35.0	39.5	34.8	112%	59	13.6	-1
PlainsGold	HRW	Whistler	28.5	33.0	41.0	34.2	110%	59	13.6	-1
PlainsGold	HRW	Byrd	27.0	37.5	37.5	34.0	110%	59	13.2	-1
PlainsGold	HRW	Canvas	28.5	32.5	40.0	33.7	108%	60	13.5	-1
PlainsGold	HRW	Crescent AX	28.0	36.0	37.0	33.7	108%	59	14.1	-1
PlainsGold	HWW	Breck	29.5	31.5	37.0	32.7	105%	61	14.1	0
Kansas Wheat Alliance	HWW	KS Silverado	26.0	31.0	40.5	32.5	105%	60	14.1	-6
PlainsGold	HRW	Langin	27.5	34.5	35.0	32.3	104%	59	13.9	-8
Crop Research Foundation of Wyoming, Inc	HRW	Steamboat	22.0	36.0	39.0	32.3	104%	60	14.5	0
PlainsGold	HRW	Amplify SF	24.5	35.5	36.5	32.2	104%	59	13.8	-1
AgriPro	HRW	AP Solid	26.0	30.0	40.0	32.0	103%	61	13.9	1
PlainsGold	HRW	Guardian	27.0	30.5	38.0	31.8	103%	59	13.8	0
PlainsGold	HRW	Byrd CL Plus	23.0	35.5	35.5	31.3	101%	59	13.6	-1
CROPLAN	HRW	CP7017AX	27.0	29.5	37.0	31.2	100%	60	13.6	2
Meridian Seeds	HRW	MS Maverick	26.5	32.0	34.5	31.0	100%	59	13.7	3
Kansas Wheat Alliance	HRW	KS Hamilton	22.0	31.5	36.5	30.0	97%	59	13.7	-1
AgriPro	HRW	AP Roadrunner	23.0	29.5	35.5	29.3	94%	57	13.9	1
PlainsGold	HRW	Hatcher	22.0	32.0	34.0	29.3	94%	59	13.4	3
Kansas Wheat Alliance	HRW	KS Dallas	24.5	30.0	32.5	29.0	93%	59	13.8	-1
PlainsGold	HWW	Windom SF	24.5	29.5	33.0	29.0	93%	57	14.3	0
PlainsGold	HRW	Fortify SF	22.5	31.0	32.0	28.5	92%	60	13.9	1
AgriPro	HRW	AP Bigfoot	26.0	25.5	33.5	28.3	91%	59	14.1	1
PlainsGold	HWW	Snowmass 2.0	24.0	29.5	30.0	27.8	90%	59	13.4	3
PlainsGold	HRW	Brawl CL Plus	24.0	25.5	33.5	27.7	89%	60	14.2	-2
PlainsGold	HWW	Sunshine	20.5	26.5	35.0	27.3	88%	59	14.4	0
AgriPro	HRW	SY Legend CL2	22.5	27.5	32.0	27.3	88%	59	14.2	-4
CROPLAN	HRW	CP7266AX	21.5	28.5	30.0	26.7	86%	59	14.0	2
PlainsGold	HRW	Ray	14.0	25.0	27.0	22.0	71%	54	15.8	8
Experimentals										
Colorado State University exp.	HRW	CO18035RA	29.5	35.5	41.5	35.5	114%	59	13.0	-3
Colorado State University exp.	HRW	CO17449R	28.0	35.0	41.0	34.7	112%	60	13.7	3
Colorado State University exp.	HRW	CO18042RA	27.0	37.0	36.5	33.5	108%	59	13.6	3
Colorado State University exp.	HRW	CO18D297R	29.0	34.0	37.5	33.5	108%	59	13.9	2
Colorado State University exp.	HWW	CO13D1479	28.5	33.0	38.5	33.3	107%	59	13.8	3
Colorado State University exp.	HWW	CO18D007W	27.0	34.0	38.0	33.0	106%	60	13.8	-1
Colorado State University exp.	HWW	CO16D402W	25.0	32.5	37.0	31.5	101%	59	14.5	1
Colorado State University exp.	HRW	CO16SF032	26.0	31.0	35.0	30.7	99%	60	13.4	3
Colorado State University exp.	HWW	CO18D076W	21.5	29.0	31.5	27.3	88%	59	14.8	3
Colorado State University exp.	HRW	CO16SF067	17.0	30.0	30.0	25.7	83%	59	15.2	2
Average			25.2	31.9	36.0	31.0	100%	59	13.9	May 28, 2022
°LSD (0.30)			1.5	2.5	2.0					
°LSD (0.05)			3.0	4.5	4.0					

^aVarieties in the top LSD yield group in each location are in bold.

^bVarieties ranked according to released varieties or experimentals, and then by average yield across three trials in 2022.

^cYield and protein adjusted to 12% moisture content. Protein averaged across three trials in 2022.

^dVarieties with positive values headed later than the trial average and varieties with negative values headed earlier than the trial average of May 28th.

^eFarmers selecting a variety based on yield should use the LSD (0.30) to protect from false negative decisions. Companies or researchers may be interested in the LSD (0.05) to avoid false positive conclusions. Any yield differences among varieties that are less than or equal to the LSD value are not statistically significant.

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Summary of 2-Year (2021-2022) Dryland Winter Wheat Variety Performance Results



Variety ^b	Brand/Source	Market Class ^c	2-Year Average ^a					
			Yield bu/ac	Yield % trial average	Test Weight lb/bu	Test Weight % trial average	Plant Height in	Protein percent
KS Silverado	Kansas Wheat Alliance	HWW	53.2	107%	59	104%	28	13.6
Langin	PlainsGold	HRW	52.9	107%	57	100%	29	13.3
CO16D402W	Colorado State University exp.	HWW	51.8	105%	56	99%	28	13.3
Snowmass 2.0	PlainsGold	HWW	51.6	104%	57	100%	28	13.4
CO18D007W	Colorado State University exp.	HWW	51.3	104%	57	100%	29	13.7
Byrd	PlainsGold	HRW	51.1	103%	57	101%	30	12.9
Monarch	PlainsGold	HWW	51.0	103%	57	100%	28	12.4
CO18D297R	Colorado State University exp.	HRW	50.9	103%	57	101%	30	13.6
KS Dallas	Kansas Wheat Alliance	HRW	50.7	103%	57	100%	29	13.7
KS Hamilton	Kansas Wheat Alliance	HRW	50.7	102%	56	99%	28	13.4
Canvas	PlainsGold	HRW	50.6	102%	56	99%	29	13.5
Crescent AX	PlainsGold	HRW	50.6	102%	57	100%	31	13.7
Kivari AX	PlainsGold	HRW	50.5	102%	56	98%	30	13.1
Avery	PlainsGold	HRW	50.3	102%	56	99%	31	13.1
AP Solid	AgriPro	HRW	49.7	100%	58	102%	28	13.2
CP7017AX	CROPLAN	HRW	49.3	100%	57	100%	29	13.2
Amplify SF	PlainsGold	HRW	49.1	99%	57	101%	32	13.1
CO16SF032	Colorado State University exp.	HRW	49.0	99%	57	101%	32	12.9
CO18D076W	Colorado State University exp.	HWW	48.7	98%	57	99%	30	13.5
Breck	PlainsGold	HWW	48.5	98%	58	102%	31	14.1
AP Roadrunner	AgriPro	HRW	48.2	97%	55	97%	29	14.0
Whistler	PlainsGold	HRW	48.1	97%	55	97%	31	13.3
Fortify SF	PlainsGold	HRW	48.0	97%	58	102%	31	13.2
Byrd CL Plus	PlainsGold	HRW	47.9	97%	56	99%	31	13.7
Brawl CL Plus	PlainsGold	HRW	47.1	95%	58	102%	31	13.7
Guardian	PlainsGold	HRW	45.8	93%	57	100%	31	13.8
Hatcher	PlainsGold	HRW	45.5	92%	55	98%	29	12.9
CO16SF067	Colorado State University exp.	HRW	43.9	89%	57	100%	31	14.2
Average			49.5	100%	57	100%	30	13.4

^aThe 2-year average yield and test weight are based on 12 trials (three 2022 and nine 2021 trials). Plant heights are based on 11 trials (three 2022 and eight 2021 trials). Protein is based on 9 trials (three 2022 and six 2021 trials).

^bVarieties ranked according to average 2-year yield.

^cMarket class: HRW=hard red winter wheat; **HWW**=hard white winter wheat.

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Summary of 3-Year (2020-2022) Dryland Winter Wheat Variety Performance Results



Variety ^b	Brand/Source	Market Class ^c	3-Year Average ^a				
			Yield bu/ac	Yield % trial average	Test Weight lb/bu	Test Weight % trial average	Plant Height in
Langin	PlainsGold	HRW	52.9	108%	57	100%	28
Snowmass 2.0	PlainsGold	HWW	52.4	107%	57	100%	28
KS Silverado	Kansas Wheat Alliance	HWW	51.6	106%	59	103%	27
Avery	PlainsGold	HRW	50.5	103%	56	99%	30
Byrd	PlainsGold	HRW	50.3	103%	57	100%	30
Monarch	PlainsGold	HWW	50.3	103%	57	100%	27
KS Dallas	Kansas Wheat Alliance	HRW	50.0	102%	57	100%	28
Kivari AX	PlainsGold	HRW	50.0	102%	56	98%	30
CP7017AX	CROPLAN	HRW	49.7	102%	57	100%	27
Whistler	PlainsGold	HRW	49.7	102%	55	97%	31
Canvas	PlainsGold	HRW	49.1	101%	56	99%	28
Breck	PlainsGold	HWW	48.5	99%	58	102%	30
Crescent AX	PlainsGold	HRW	48.3	99%	57	100%	29
Byrd CL Plus	PlainsGold	HRW	48.2	99%	56	99%	30
Brawl CL Plus	PlainsGold	HRW	47.7	98%	58	102%	30
Fortify SF	PlainsGold	HRW	47.6	97%	58	102%	29
CO16SF032	Colorado State University exp.	HRW	47.1	96%	57	101%	31
Guardian	PlainsGold	HRW	47.0	96%	57	101%	30
Amplify SF	PlainsGold	HRW	46.6	95%	57	100%	30
Hatcher	PlainsGold	HRW	44.9	92%	56	98%	27
CO16SF067	Colorado State University exp.	HRW	43.0	88%	57	100%	30
Average			48.8	100%	57	100%	29

^aThe 3-year average yield and test weight are based on 21 trials (three 2022, nine 2021, and nine 2020 trials). Plant heights are based on 19 trials (three 2022, eight 2021, and eight 2020 trials).

^bVarieties ranked according to average 3-year yield.

^cMarket class: HRW=hard red winter wheat; **HWW**=hard white winter wheat.

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2022 Collaborative On-Farm Test (COFT) Variety Performance Results

Sally Jones-Diamond, Ron Meyer, Todd Ballard, Michaela Mattes, and Candace Talbert

In the fall of 2021, twenty-eight eastern Colorado wheat producers received seed of six varieties of wheat and planted them in side-by-side strips under the same conditions as the wheat in the rest of the field. Ten viable harvest results were obtained due to drought conditions and hail that occurred during the growing season. The objective of our on-farm testing program is to compare the performance of wheat varieties of interest to Colorado farmers under farmer conditions.

The COFT program is in its 26th year and the majority of Colorado's winter wheat acreage is planted to varieties that have been tested in the program. On-farm testing leads to more rapid replacement of older inferior varieties and wider and faster adoption of improved varieties. The varieties tested in COFT this year fit different farmer needs and readers are encouraged to study the tables in the Description of Winter Wheat Varieties in Eastern Colorado and the Dryland Decision Tree for more information.

The same six entries were included in all tests. All varieties were hard red winters and included: Warhorse, KS Dallas, Kivari AX, Fortify SF, Ray, and a Warhorse/Whistler blend.

KS Dallas is a KSU-Hays release (2019), marketed by the Kansas Wheat Alliance. First entered in CSU variety trials in 2020. Medium maturity, medium height, average straw strength, moderate to intermediate resistance to stripe rust, good leaf rust resistance, very good wheat streak mosaic virus resistance, and good quality. **Kivari AX** is a CSU release (2020) marketed by PlainsGold. The new variety in the CoAXium® Wheat Production System based on Aggressor® herbicide, a different class of compounds from Beyond®, is an option for excellent control of winter annual grasses. Higher yielding and slightly later maturing than Crescent AX. Intermediate reaction to stripe rust and carries wheat curl mite resistance from Byrd parent. Certified seed only (CSO), no saved seed allowed. **Ray** is a Montana State University release being licensed to PlainsGold. Dual-purpose forage/grain that is winter hardy, late maturing, tall, and awnless. It is resistant to stripe rust. Certified seed only (CSO), no saved seed allowed.

Fortify SF is a CSU release (2019). Fortify SF is the first Colorado-bred semi-solid wheat to combat the wheat stem sawfly (WSS). It has a medium-early maturity and carries wheat curl mite resistance. The thickened stem slows the feeding and movement of the WSS larvae to the crown of the plant where it cuts the stem before harvest. CSO, no saved seed allowed. **Warhorse** is a Montana State University release (2013). First entered in CSU Variety Trials in 2014. Carries solid stem trait conferring some protection against WSS damage. It is planted by some Colorado producers to reduce risk of total crop loss to WSS even though it only yields 80% of CSU trial average yield. Our last entry was a **50/50 mix of Warhorse and Whistler**. The mixture is intended to test the theory that the Warhorse will reduce WSS cutting and reduce the risk of WSS induced lodging, while regaining some yield with Whistler. Whistler is a CSU release (2018), marketed by PlainsGold. It is later maturing, tall, and has marginal straw strength. Good stripe and stem rust resistance and carries wheat curl mite resistance from Byrd parent.



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Summary of 2022 Collaborative On-Farm Test (COFT) Winter Wheat Variety Performance Results



2022 Varieties (ranked left to right by highest yield)

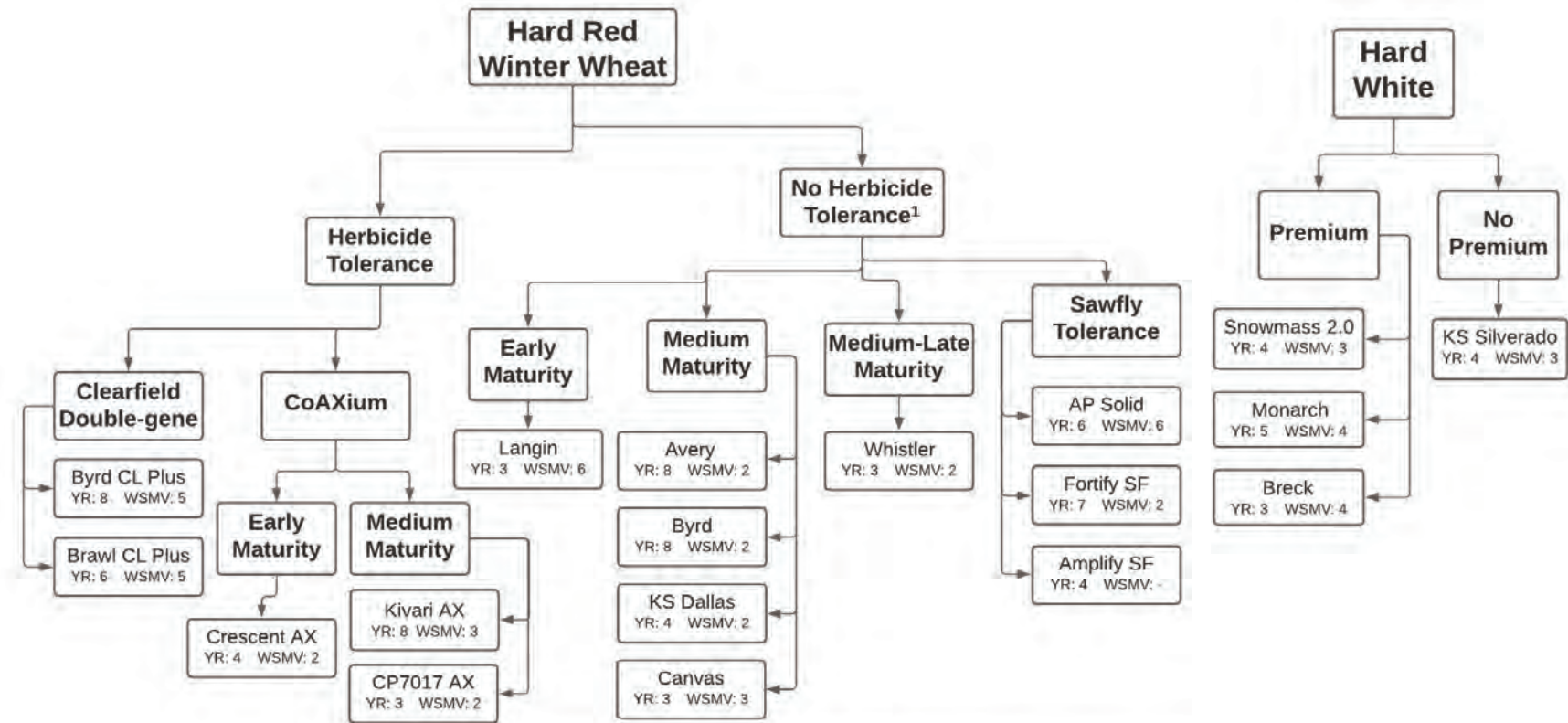
County/Nearest Town	Kivari AX			KS Dallas			Fortify SF			Warhorse & Whistler Blend (50/50)			Ray			Warhorse			COFT Average		
	Yield ^a bu/ac	Weight lb/bu	Protein percent	Yield ^a bu/ac	Weight lb/bu	Protein percent	Yield ^a bu/ac	Weight lb/bu	Protein percent	Yield ^a bu/ac	Weight lb/bu	Protein percent	Yield ^a bu/ac	Weight lb/bu	Protein percent	Yield ^a bu/ac	Weight lb/bu	Protein percent	Yield ^a bu/ac	Weight lb/bu	Protein percent
Adams/Bennett N	50	57	14	52	58	13	48	59	12	43	54	15	31	43	16	38	57	14	44	55	14
Adams/Prospect Valley	28	61	9	26	63	9	26	62	9	23	62	10	18	57	14	21	63	11	24	61	10
Arriba/Lincoln	45	59	12	46	59	13	44	58	12	43	56	14	30	51	15	36	59	15	41	57	14
Eads/Kiowa	33	57	8	24	59	9	25	58	9	28	58	9	30	57	10	26	59	9	28	58	9
Logan/Leroy	35	59	13	32	60	13	31	59	14	27	57	14	29	52	15	28	58	15	30	58	14
Phillips/Haxtun	35	56	15	35	57	16	32	56	15	30	53	17	25	51	18	24	54	18	30	55	16
Sedgwick/Julesburg	32	55	13	31	58	13	25	56	14	26	55	14	22	42	15	19	55	15	26	54	14
Seibert/Kit Carson	59	59	11	53	58	12	52	59	12	52	59	12	49	54	13	41	58	15	51	58	13
Stratton/Kit Carson	44	56	11	53	59	11	44	56	12	38	55	12	33	53	12	19	56	14	39	56	12
Washington/Akron	29	58	13	30	57	14	31	58	14	26	56	15	21	53	16	25	58	15	27	57	14
Average	38.9	57.8	11.9	38.2	58.8	12.2	35.7	58.1	12.3	33.7	56.6	13.2	28.8	51.2	14.5	27.6	57.5	14.0	33.8	56.7	13.0
Yield Significance ^b	A			A			B			C			D			D					

LSD ($p < 0.30$) for yield = 1.9 bu/ac, for test weight = 0.9 lb/bu, and for protein = 0.3 per

^aAll yield and protein data are corrected to 12% moisture.

^bYield significance: varieties with different letters have yields that are significantly different from one another.

CSU Fall 2022 Dryland Winter Wheat Decision Tree



YR=stripe rust and WSMV=wheat streak mosaic virus. Rating scale is 1=resistant and 9=susceptible.
¹No tolerance to herbicides used in Clearfield or CoAXium wheat production systems.
 Varieties in each section are listed from highest to lowest yield based on multi-year trial averages.





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Summary of 2022 Irrigated Winter Wheat Variety Performance Results



Brand/Source	Market Class	Variety ^b	2022 Individual Trial Yield ^a			2022 Multi-Location Average				
			Burlington	Fort		Yield ^c	Yield	Test		Heading ^d
				Collins	Wiggins			Weight	Protein ^c	
			bu/ac			bu/ac	% of avg	lb/bu	%	days from avg.
Kansas Wheat Alliance	HWW	KS Silverado	97.0	83.5	66.0	82.2	104%	62	14.3	-4
PlainsGold	HRW	Canvas	94.5	80.5	69.5	81.5	104%	61	14.6	0
PlainsGold	HWW	Breck	92.0	79.0	72.0	81.0	103%	62	14.8	3
CROPLAN	HRW	CP7017AX	92.5	86.0	64.5	81.0	103%	62	14.5	0
PlainsGold	HWW	Monarch	94.5	83.5	64.5	80.8	103%	60	13.6	2
PlainsGold	HRW	Crescent AX	97.0	77.0	68.0	80.7	102%	61	13.9	-7
PlainsGold	HRW	Kivari AX	89.0	84.5	68.0	80.5	102%	61	13.0	-2
PlainsGold	HWW	Windom SF	91.5	74.0	75.5	80.3	102%	61	14.4	1
PlainsGold	HRW	Byrd CL Plus	86.0	83.0	63.0	77.3	98%	61	14.2	1
Oklahoma Genetics, Inc.	HRW	Breakthrough	87.0	73.0	65.5	75.2	95%	61	14.2	0
PlainsGold	HRW	Brawl CL Plus	99.0	66.0	59.0	74.7	95%	61	14.9	-4
PlainsGold	HRW	Guardian	86.5	84.0	53.5	74.7	95%	61	14.9	1
PlainsGold	HRW	Fortify SF	77.0	74.0	71.5	74.2	94%	60	14.5	-3
PlainsGold	HRW	Ray	67.0	81.0	71.0	73.0	93%	53	15.4	9
CROPLAN	HRW	CP7266AX	85.0	72.0	59.5	72.2	92%	61	14.3	0
PlainsGold	HWW	Snowmass 2.0	75.5	69.5	56.5	67.2	85%	61	14.0	2
Experimentals										
Colorado State University exp.	HWW	CO18D007W	110.5	84.5	64.5	86.5	110%	61	14.1	0
Colorado State University exp.	HRW	CO18D297R	98.0	92.0	68.5	86.2	109%	61	14.1	1
Colorado State University exp.	HRW	CO17449R	99.5	80.5	66.5	82.2	104%	62	14.0	3
Colorado State University exp.	HRW	CO18035RA	97.5	83.5	62.5	81.2	103%	60	14.0	-4
Colorado State University exp.	HRW	CO18042RA	87.5	89.5	63.0	80.0	102%	60	14.5	0
Colorado State University exp.	HWW	CO13D1479	88.0	79.5	71.5	79.7	101%	60	14.3	1
Average			90.5	80.0	65.6	78.7	100%	61	14.3	May 26, 2022
°LSD (0.30)			6.0	2.5	4.5					
°LSD (0.05)			11.5	5.0	9.0					

^aVarieties in the top LSD yield group in each location are in bold.

^bVarieties ranked according to released varieties or experimentals, and then by average yield across three trials in 2022.

^cYield and protein adjusted to 12% moisture content. Protein averaged across two trials in 2022.

^dVarieties with positive values headed later than the trial average and varieties with negative values headed earlier than the trial average of May 26th.

^eFarmers selecting a variety based on yield should use the LSD (0.30) to protect from false negative decisions. Companies or researchers may be interested in the LSD (0.05) to avoid false positive conclusions. Any yield differences among varieties that are less than or equal to the LSD value are not statistically significant.

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Summary of 2-Year (2021-2022) Irrigated Winter Wheat Variety Performance Results



Variety ^b	Brand/Source	Market Class ^c	2-Year Average ^a					
			Yield	Yield	Test Weight	Test Weight	Plant Height	Protein
			bu/ac	% trial average	lb/bu	% trial average	in	percent
CO18D007W	Colorado State University exp.	HWW	93.9	110%	60	100%	29	13.8
CO18D297R	Colorado State University exp.	HRW	88.7	104%	60	99%	29	13.7
KS Silverado	Kansas Wheat Alliance	HWW	87.7	103%	61	102%	28	13.7
Monarch	PlainsGold	HWW	87.7	103%	59	99%	29	12.8
Canvas	PlainsGold	HRW	86.7	102%	60	100%	29	13.1
CP7017AX	CROPLAN	HRW	86.1	101%	60	100%	27	14.1
Crescent AX	PlainsGold	HRW	85.4	101%	60	100%	32	13.3
Brawl CL Plus	PlainsGold	HRW	84.7	100%	60	100%	31	14.3
Breck	PlainsGold	HWW	84.7	100%	61	101%	29	13.9
Snowmass 2.0	PlainsGold	HWW	82.0	96%	60	99%	31	12.7
Kivari AX	PlainsGold	HRW	80.6	95%	59	98%	32	12.9
Breakthrough	Oklahoma Genetics, Inc.	HRW	80.2	94%	60	100%	28	14.3
Guardian	PlainsGold	HRW	76.6	90%	60	100%	31	13.9
Average			85.0	100%	60	100%	30	13.6

^aThe 2-year average yield and test weight are based on six trials (three 2022 and three 2021 trials). Plant heights are based on five trials (three 2022 and two 2021 trials). Protein is based on four trials (two 2022 and two 2021 trials).

^bVarieties ranked according to average 2-year yield.

^cMarket class: HRW=hard red winter wheat; **HWW**=hard white winter wheat.

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Summary of 3-Year (2020-2022) Irrigated Winter Wheat Variety Performance Results



Variety ^b	Brand/Source	Market Class ^c	3-Year Average ^a				
			Yield bu/ac	Yield % trial average	Test Weight lb/bu	Test Weight % trial average	Plant Height in
KS Silverado	Kansas Wheat Alliance	HWW	85.1	104%	61	102%	29
Canvas	PlainsGold	HRW	84.4	103%	60	100%	29
Monarch	PlainsGold	HWW	84.1	103%	59	99%	30
Crescent AX	PlainsGold	HRW	83.0	102%	60	101%	32
CP7017AX	CROPLAN	HRW	82.5	101%	60	100%	29
Breck	PlainsGold	HWW	81.1	99%	60	101%	30
Brawl CL Plus	PlainsGold	HRW	81.1	99%	60	101%	31
Snowmass 2.0	PlainsGold	HWW	80.4	98%	59	99%	31
Kivari AX	PlainsGold	HRW	79.8	98%	59	98%	32
Guardian	PlainsGold	HRW	75.4	92%	60	100%	31
Average			81.7	100%	60	100%	30

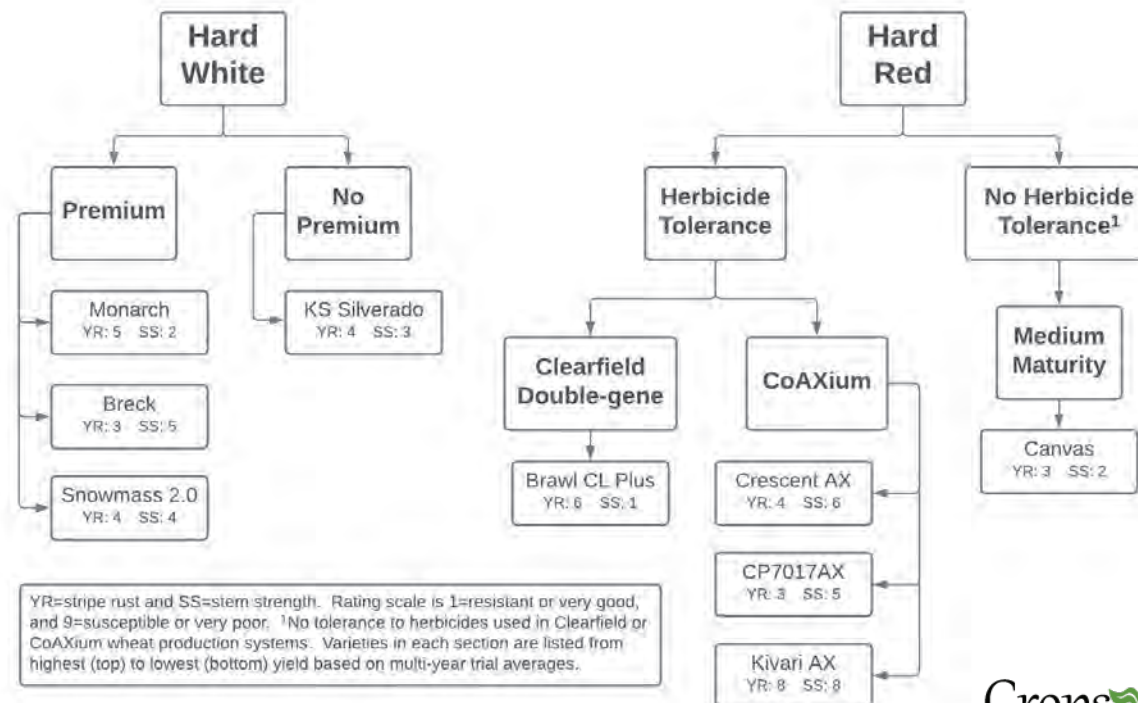
^aThe 3-year average yield and test weight are based on nine trials (three 2022, three 2021, and three 2020 trials). Plant heights are based on seven trials (three 2022, two 2021, and two 2020 trials).

^bVarieties ranked according to average 3-year yield.

^cMarket class: HRW=hard red winter wheat; **HWW**=hard white winter wheat.

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CSU Fall 2022 Irrigated Winter Wheat Decision Tree



YR=stripe rust and SS=stem strength. Rating scale is 1=resistant or very good, and 9=susceptible or very poor. ¹No tolerance to herbicides used in Clearfield or CoAXium wheat production systems. Varieties in each section are listed from highest (top) to lowest (bottom) yield based on multi-year trial averages.



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Important Variety Selection Considerations

Sally Jones-Diamond

It is not possible to accurately predict which variety will perform best in each field every year. However, there are some selection guidelines to improve the ability to select superior varieties. The variety performance summary tables and decision trees in this report provide useful information to farmers for improving variety selections. Other guidelines that improve selections are below.

- Focus on multi-year and location yield summary results when selecting a variety – use results from the three-year variety performance trials or the collaborative on-farm tests. You can also use the wheat variety database, which is an excellent resource found online at www.ramwheatdb.com
- Pay attention to ratings for maturity, disease tolerance, insect resistance, and end-use quality characteristics that are relevant to you. Refer to the Description of Winter Wheat Varieties in Eastern Colorado Dryland and Irrigated Trials (2021-2022) for variety-specific information.
- Control volunteer wheat and weeds to avoid loss of valuable soil moisture and to avoid creating a green bridge. Green bridges can lead to serious virus disease infections vectored by the wheat curl mite (wheat streak mosaic virus, high plains wheat mosaic virus, and triticum mosaic virus) or vectored by aphids (barley yellow dwarf virus and cereal yellow dwarf virus).
- Be aware of current ratings for stripe rust resistance as well as the potential of new races of stripe rust to develop. If variety susceptibility, market prices, expected yield, and fungicide and application costs warrant an application, consult the North Central Regional Committee on Management of Small Grain Diseases (NCERA-184) fungicide efficacy chart.
- Plant treated seed for protection against common bunt (stinking smut) and other seed-borne diseases. Information on seed treatments is available from Kansas State University at: tinyurl.com/jgeznu
- Soil sample to determine optimum fertilizer application rates. Sampling should be done prior to planting. Information on fertilizing winter wheat is available from Colorado State University Extension at: bit.ly/2Kn8egF
- Plant seeds per acre and not pounds per acre. Different varieties and seed lots can vary widely in seed size. Reassess and adjust your seeding rate as necessary when changing varieties, switching seed lots, and as planting season progresses.



Description of Winter Wheat Varieties in Eastern Colorado Dryland and Irrigated Trials (2021-2022)

Name/Class/Pedigree	Origin	HD	HT	SS	COL**	YR	LR	SR	WSMV*	TW	PRO**	MILL	BAKE	Comments
Amplify SF Hard red winter Bearpaw/Antero//Antero	CSU EXP	6	7	4	4	6	4	--	2	4	6	4	6	CSU release (2021), marketed by PlainsGold. Medium height, medium maturity. Carries semi-solid stem trait for partial resistance to the wheat stem sawfly. Certified seed only.
AP Bigfoot Hard red winter	AgriPro 2022	3	4	3	3	4	2	2	4	1	--	2	4	AgriPro release (2021). Early to med-early variety with very good test weight and WSMV tolerance.
AP Roadrunner Hard red winter Undisclosed	AgriPro 2020	6	4	4	1	2	3	8	4	7	4	2	1	AgriPro release (2020). First entered in CSU variety trials in 2020. Medium-late variety with good winter hardiness and resistance to WSMV. Good leaf and stripe rust resistance.
AP Solid Hard red winter Undisclosed	AgriPro 2021	8	2	3	4	6	6	5	5	2	4	3	4	AgriPro release (2021). First entered in CSU variety trials in 2020. Medium-late semi-solid stem variety for use in managing wheat stem sawfly. Very good test weight and straw strength.
Avery Hard red winter TAM 112/Byrd	CSU 2015	6	8	7	5	8	8	8	2	5	6	4	3	CSU release (2015), marketed by PlainsGold. Doubled haploid-derived line, similar to Byrd with higher yield potential, larger kernels and slightly improved quality. Carries wheat curl mite resistance from TAM 112 parent. Susceptible to stripe rust.
Brawl CL Plus Hard red winter Teal 11A/Above//CO99314	CSU 2011	2	7	1	7	6	6	7	5	4	1	3	3	CSU release (2011), marketed by PlainsGold. Two-gene Clearfield wheat. Excellent test weight, straw strength, milling and baking quality. Early maturity, medium height, long coleoptile. Intermediate reaction to both stripe rust and leaf rust. Certified seed only.
Breakthrough Hard red winter Wsm1-Overley/Fuller//CO050270/3/CO050337-8	OK 2020	5	3	5	2	6	3	3	2	2	4	2	3	OSU release (2020). Good resistance to WSMV based on <i>Wsm1</i> and stem rust. Very good test weight and milling quality, and above-average protein.
Breck Hard white winter Denali/HV9W07-482W//Antero	CSU 2017	5	7	5	7	3	5	2	4	2	2	2	3	CSU release (2017), marketed by PlainsGold in CWRP-Ardent Mills UltraGrain Premium Program. Good stripe rust resistance, sprouting tolerance, straw strength, grain protein deviation, and quality. Very high test weight, lower polyphenol oxidase (PPO) activity for improved whole grain bread and noodle quality. Certified seed only.
Byrd Hard red winter TAM 112/CO970547-7	CSU 2011	4	7	6	4	8	7	8	2	5	6	4	3	CSU release (2011), marketed by PlainsGold. Excellent drought tolerance and quality. Average test weight and straw strength. Moderately susceptible to stripe rust. Carries wheat curl mite resistance from TAM 112 parent.
Byrd CL Plus Hard red winter CO06072/4*Byrd	CSU 2018	5	8	4	4	8	5	8	5	5	6	5	5	CSU release (2018), marketed by PlainsGold. Two-gene Clearfield wheat in Byrd background. Highly similar to Byrd with exception of tolerance to Beyond herbicide. Has shown some non solid-stem based tolerance to wheat stem sawfly. Certified seed only.

Column Key - heading date (HD), plant height (HT), straw strength (SS), coleoptile length (COL), stripe rust resistance (YR), leaf rust resistance (LR), stem rust resistance (SR), wheat streak mosaic virus tolerance (WSMV), test weight (TW), protein (PRO), milling (MILL) and baking quality (BAKE). Rating scale: 1 - very good, very resistant, very early, or very short to 9 - very poor, very susceptible, very late, or very tall/long.

** Coleoptile length ratings range from 1=very short (~50 mm or ~2 in) to 9=very long (~100 mm or ~4 in). Coleoptile lengths should be interpreted for relative variety comparisons only.
+ WSMV ratings are based on field evaluations in Colorado under pressure from wheat curl mite transmitted viruses. Scores may reflect both resistance to the wheat curl mite and resistance to mite-transmitted viruses.

++ PRO ratings represent "grain protein deviation" (relative grain protein level accounting for differences in grain yield).

Description of Winter Wheat Varieties in Eastern Colorado Dryland and Irrigated Trials (2021-2022)

Name/Class/Pedigree	Origin	HD	HT	SS	COL**	YR	LR	SR	WSMV*	TW	PRO**	MILL	BAKE	Comments
Canvas Hard red winter Denali/Antero//Byrd	CSU 2018	6	3	2	6	3	6	2	3	4	5	3	3	CSU release (2018), marketed by PlainsGold. Hard red winter, medium maturing, medium-short, good straw strength. Good stripe and stem rust resistance and carries wheat curl mite resistance from Byrd parent. Good test weight and milling and baking quality.
CO16SF032 Hard red winter Bearpaw/Antero//Antero	CSU EXP	6	8	6	5	5	--	2	--	3	6	4	6	CSU experimental line, on increase for potential release. Semi-solid stem for partial resistance to the wheat stem sawfly.
CO16SF067 Hard red winter Antero/Judee//Antero	CSU EXP	8	6	7	9	2	--	4	--	4	2	5	4	CSU experimental line, on increase for potential release. Semi-solid stem for partial resistance to the wheat stem sawfly. Good stripe rust resistance compared to other solid stem lines
CO18035RA Hard red winter (AF28/Byrd//AF26/Byrd)//2*Byrd//AF10 M3/2*Byrd//AF26/Byrd)//2*Byrd/ (AF28/Byrd//AF26/Byrd)//2*Byrd/Langin	CSU EXP	4	4	5	4	4	--	--	--	5	5	2	1	CSU experimental line. CoAXium wheat for winter annual grassy weed control.
CO18042RA Hard red winter (AF28/Byrd//AF26/Byrd)//2*Byrd//AF10 M3/2*Byrd//AF26/Byrd)//2*Byrd/ (AF28/Byrd//AF26/Byrd)//2*Byrd/Langin	CSU EXP	5	7	6	5	2	--	--	--	5	5	2	2	CSU experimental line. CoAXium wheat for winter annual grassy weed control.
CO18SFD009W Hard white winter Warhorse/Breck//CO12D1028	CSU EXP	5	5	5	7	8	--	1	3	2	4	2	2	CSU experimental line, on increase for potential release. White-seeded with strong mixing and baking properties. Semi-solid stem for partial resistance to the wheat stem sawfly. Has WSM2 for resistance to wheat streak mosaic virus.
CP7017AX Hard red winter Undisclosed	Croplan 2020	4	3	5	4	3	4	1	2	4	6	5	7	CROPLAN by WinField United release (2020). First entered into CSU trials in 2020. CoAXium wheat for winter annual grassy weed control. Strong yield potential, strong drought tolerance, tolerates acid soils and resistant to soilborne mosaic virus. Certified seed only.
CP7266AX Hard red winter	Croplan EXP	4	7	1	6	2	1	5	--	1	1	--	--	CROPLAN by WinField United release (2021). First entered into CSU trials in 2022. CoAXium wheat for winter annual grassy weed control.
Crescent AX Hard red winter (AF28/Byrd)//(AF10/2*Byrd)	CSU 2018	3	7	6	4	4	6	--	2	4	7	3	3	CSU release (2018), marketed by PlainsGold. CoAXium wheat for winter annual grassy weed control. Approximately 66% Byrd and 34% Hatcher parentage. Earlier and much improved yield and test weight relative to Incline AX. Intermediate reaction to stripe rust and carries wheat curl mite resistance from Byrd parent. Certified seed only.
Fortify SF Hard red winter Byrd/Bearpaw//Byrd	CSU 2019	4	6	6	4	7	7	4	2	3	6	5	6	CSU release (2019), marketed by PlainsGold. Medium height, medium maturity. Carries wheat curl mite resistance from Byrd parent and semi-solid stem trait for partial resistance to the wheat stem sawfly. Certified seed only.

Column Key - heading date (HD), plant height (HT), straw strength (SS), coleoptile length (COL), stripe rust resistance (SR), leaf rust resistance (LR), stem rust resistance (SR), wheat streak mosaic virus tolerance (WSMV), test weight (TW), protein (PRO), milling (MILL) and baking quality (BAKE). Rating scale: 1 - very good, very resistant, very early, or very short to 9 - very poor, very susceptible, very late, or very tall/long.

** Coleoptile length ratings range from 1=very short (~50 mm or ~2 in) to 9=very long (~100 mm or ~4 in). Coleoptile lengths should be interpreted for relative variety comparisons only.
 + WSMV ratings are based on field evaluations in Colorado under pressure from wheat curl mite transmitted viruses. Scores may reflect both resistance to the wheat curl mite and resistance to mite-transmitted viruses.
 ++ PRO ratings represent "grain protein deviation" (relative grain protein level accounting for differences in grain yield).



Description of Winter Wheat Varieties in Eastern Colorado Dryland and Irrigated Trials (2021-2022)

Name/Class/Pedigree	Origin	HD	HT	SS	COL**	YR	LR	SR	WSMV*	TW	PRO**	MILL	BAKE	Comments
Guardian	CSU 2019	6	7	7	5	3	4	2	1	3	2	4	3	CSU release (2019), marketed by PlainsGold. Medium height, medium maturity. Excellent resistance to WSMV due to combination of resistance to wheat curl mite and the virus itself. Good combined resistance to all three rusts, good test weight, good milling and baking quality, high grain protein deviation. Certified seed only.
Hard red winter Antero/Snowmass//Byrd	CSU 2004	5	4	6	4	4	7	3	6	6	7	5	4	CSU release (2004), marketed by PlainsGold. Medium maturing semidwarf. Good test weight, moderate resistance to stripe rust, good milling and baking quality. Develops "leaf speckling" condition.
Yuma/PI 372129/TAM-200/3/4*Yuma/4/KS91H184/Vista	CSU 2020	6	6	8	5	8	5	3	3	6	8	5	3	CSU release (2020), marketed by PlainsGold. CoAXium wheat for winter annual grassy weed control. Higher yielding and slightly later maturing than Crescent AX. Intermediate reaction to stripe rust and carries wheat curl mite resistance from Byrd parent. Certified seed only.
Kivari AX	KS-Hays 2019	5	4	7	7	4	2	1	2	4	5	3	3	KSU-Hays release (2019), marketed by the Kansas Wheat Alliance. First entered in CSU variety trials in 2020. Medium maturity, medium height average straw strength, medium-long coleoptile, moderate to intermediate resistance to stripe rust, good leaf rust resistance, very good wheat streak mosaic virus resistance, good quality.
Hard red winter KS08HW112-6//TX03A0148/Danby TR	KS-Hays 2020	5	2	5	3	5	4	3	5	4	3	5	5	KSU-Hays release (2020), marketed by the Kansas Wheat Alliance. First entered in CSU variety trials in 2020. Medium maturity, medium height, and good resistance to WSMV. Intermediate reaction to stripe rust and leaf rust.
KS Hamilton	KS-Hays 2019	2	2	3	5	4	2	2	3	1	3	3	3	KSU-Hays release (2019), marketed by the Kansas Wheat Alliance. First entered in CSU variety trials in 2020. Early maturity, medium-short, good straw strength, good to moderate resistance to stripe rust, leaf rust, and wheat streak mosaic virus. Good test weight, good milling and baking quality, good pre-harvest sprouting tolerance.
Hard white winter KS05HW122-5-2//KS05HW15-2-2//KS06HW46-3	CSU 2016	1	4	7	4	3	6	8	6	5	6	5	2	CSU release (2016), marketed by PlainsGold. Early maturing semidwarf. Good drought stress tolerance and winterhardness, stripe rust resistance, and quality. Medium coleoptile. Carries wheat curl mite resistance from Byrd parent. Very high yield potential for irrigation, but straw strength requires use of growth regulator.
Langin	CSU 2018	6	3	2	5	5	2	4	4	7	5	4	4	CSU release (2018), marketed by PlainsGold. Hard white winter with excellent straw strength and very high irrigated yield potential. Good stripe rust resistance. Quality more similar to Breck, but very low PPO. Certified seed only.
Hard red winter CO050270//Byrd	Meridian Seeds 2022	7	5	3	5	1	1	3	--	2	2	5	1	Meridian Seeds Release (2021). Good overall disease package. Good grain quality
Monarch	MT State 2018	8	7	7	3	2	--	8	--	6	4	4	4	Forage line available through the PlainsGold Brand with improved grain yield compared to other forage varieties.
Hard red winter Yellowstone*2/98X168E1	CSU 2018	3	4	4	5	4	5	1	3	5	5	4	1	CSU release (2018), marketed by PlainsGold in CWRP-Arden Mills Ultragrain Premium Program. Hard white wheat, quality profile very similar to Snowmass but low PPO and better grain protein deviation. Good stripe and stem rust resistance and wheat streak mosaic virus resistance. Good straw strength, good test weight. Certified seed only.
Snowmass 2.0	CSU 2020	6	9	7	6	3	3	3	2	3	6	3	4	CSU release (2020), marketed by Crop Research Foundation of Wyoming. Medium maturing, tall, marginal straw strength. Good resistance to all three rusts and carries resistance to the wheat curl mite from Byrd. Good test weight and milling and baking quality.
Hard white winter CO07W722-F5/Snowmass//Brawl CL Plus	CSU 2014	3	6	4	5	5	6	2	7	6	4	4	3	CSU release (2014), marketed by PlainsGold in CWRP-Arden Mills Ultragrain Premium Program. Hard white wheat. Excellent quality, good sprouting tolerance and straw strength, intermediate reaction to stripe rust. Very susceptible to mite-transmitted viruses. Certified seed only.
Steamboat	AgriPro 2018	4	3	5	2	3	3	--	4	5	3	6	5	AgriPro release (2018), first entered in CSU trials in 2018. Two-gene clearfield herbicide tolerance technology. Medium early and medium tall with good test weight. Above average leaf disease package.
Hard red winter TAM 114//Antero//Byrd	CSU 2018	8	8	9	5	3	6	1	2	6	6	7	3	CSU release (2018), marketed by PlainsGold. Hard red winter, later maturing, tall, marginal straw strength. Good stripe and stem rust resistance and carries wheat curl mite resistance from Byrd parent. Very good milling and baking quality.
Hard red winter CO08W218//Snowmass//Byrd	CSU 2018	8	8	9	5	3	6	1	2	6	6	7	3	CSU release (2018), marketed by PlainsGold. Hard red winter, later maturing, tall, marginal straw strength. Good stripe and stem rust resistance and carries wheat curl mite resistance from Byrd parent. Very good milling and baking quality.

Column Key - heading date (HD), plant height (HT), straw strength (SS), coleoptile length (COL), stripe rust resistance (YR), leaf rust resistance (LR), stem rust resistance (SR), wheat streak mosaic virus tolerance (WSMV), test weight (TW), protein (PRO), milling (MILL) and baking quality (BAKE). Rating scale: 1 - very good, very resistant, very early, or very short to 9 - very poor, very susceptible, very late, or very tall/long.

** Coleoptile length ratings range from 1=very short (~50 mm or ~2 in) to 9=very long (~100 mm or ~4 in). Coleoptile lengths should be interpreted for relative variety comparisons only.

+ WSMV ratings are based on field evaluations in Colorado under pressure from wheat curl mite transmitted viruses. Scores may reflect both resistance to the wheat curl mite and resistance to mite-transmitted viruses.

++ PRO ratings represent "grain protein deviation" (relative grain protein level accounting for differences in grain yield).

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Additional Resources

Colorado State University Crop Variety Testing Program: www.csucrops.com and on Twitter with the handle @CSUCrops

Colorado State University Wheat Breeding Program: www.agsci.colostate.edu/wheat/

Colorado Wheat Variety Performance Database: www.ramwheatdb.com

Colorado Wheat Administrative Committee (CWAC), Colorado Association of Wheat Growers (CAWG), and Colorado Wheat Research Foundation (CWRWF): www.coloradowheat.org

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The authors are thankful for the cooperation and selfless contributions of land, labor, and equipment made by the following Colorado wheat farmers who consented to having wheat variety performance trials conducted on their farms: Stulp Farms (Lamar, Prowers County), Scherler Farms (Brandon, Kiowa County), Matt Campbell (Arapahoe, Cheyenne County), Barry and Michael Hinkhouse (Burlington, Kit Carson County), Carlson Farms (Julesburg, Sedgwick County), Cooksey Family Farms (Roggen, Weld County), Cooksey Farms LLC (Hoyt, Adams County), Homestead Farms (Genoa, Lincoln County), Wickstrom Farms (Orchard, Morgan County), Mike Dorman (Burlington, Kit Carson County), and Andrews Brothers Farms (Yuma, Yuma County).

We are very thankful for the efforts and sacrifices made by Colorado wheat producers who contributed time, land, and equipment to the success of the Collaborative On-Farm Test (COFT) program. We appreciate the Tempel Grain (Wiley, CO) elevator for analyzing COFT grain samples for protein. We thank Syngenta Crop Protection for their generous donation of seed treatment product.

Colorado State University is very grateful to the Colorado Wheat Administrative Committee for printing this report.

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DISCLAIMER

The Colorado Seed Growers Association is not the producer, processor, or seller, and therefore makes no warranties, expressed or implied, of merchantability, fitness for a particular purpose, or otherwise.

Foreword

The Colorado Seed Growers Association (CSGA) is a non-profit educational and service organization, affiliated with Extension of Colorado State University and authorized by the Colorado State Legislature as the official seed certifying agency in Colorado. Growers listed in this directory are members of the CSGA, producing certified seed in accordance with the rules and regulations of the Association. CSGA is a member of the Association of Official Seed Certifying Agencies (AOSCA). AOSCA is an organization composed of agencies responsible for seed certification in the United States, Canada, Argentina, Australia, Chile, New Zealand, Panama and South Africa. The following listings include fields eligible for certification in 2022. Each seed producer is responsible for maintaining the integrity of the certifiable seed listed herein. Final certification and the right to represent the seed as certified is dependent upon the results of field inspection, proper seed conditioning and laboratory analysis.

Growers warrant that seed sold by them conforms to the standards of the CSGA and to applicable state and federal seed laws. Certified seed may be sold bagged or in bulk. Bagged seed must be packaged in new containers and have an official certified tag or label attached to each bag. Each sale of certified seed in bulk must be accompanied by a bulk sales certificate completed and signed by the producer.

Colorado Seed Law requires that each container be labeled as to its origin, the germination percentage and date tested, percent by weight pure seed, other crop seed, weed seed and inert matter. In addition, the label must contain a lot number or lot identification, along with the name and address of the person who labeled or sold the seed.

The CSGA assumes no financial responsibility for seed listed in this directory or for disagreements over sales which may arise from this list. However, any complaints or irregularities should be reported to the CSGA office.

Foundation Seed

Foundation seed of public varieties is produced by CSU Agronomy Foundation Seed, Department of Soil and Crop Sciences, Colorado State University.

Foundation seed of the following varieties is available for planting in the Fall of 2022. Foundation Seed orders will be accepted until August 17, 2022, after which the seed will be allocated. Individual orders should be placed with Tyler Benninghoven with Colorado Wheat. Please call Tyler at 970-702-1460 (cell) or 970-449-6994 (office). You may also email Tyler at tbenninghoven@coloradowheat.org.

CSU Agronomy Foundation Seed is located at the Ag Research Development and Education Center (ARDEC) on the east frontage road along I-25 north of Fort Collins; shipping can be handled with prior arrangements. Any seed ordered but not paid for or picked up by September 15, 2022 will be released to other growers.

SEED AVAILABLE TO CWRP PARTICIPANTS - FALL 2022

HARD RED WINTER WHEAT

Amplify SF	Avery	Byrd
Canvas		Fortify SF
Guardian		Langin
Ray		Whistler

Clearfield: Brawl CL Plus and Byrd CL Plus

CoAXium: Crescent AX, Incline AX and Kivari Ax

HARD WHITE WINTER WHEAT

Antero	Breck	Monarch	Sunshine
	Snowmass		Snowmass 2.0

Seed Arbitration

The Colorado Seed Law mandates for the arbitration of disputes between seed buyer and seller. The law states that all seed sold shall be tagged with a notice of the required arbitration.

If the seed buyer believes that the seed did not perform as warranted, a claim may be filed with the Colorado Commissioner of Agriculture. The law provides for a board who will hear testimony, review evidence and decide the validity of the claim. Findings of the board are not binding but may be used as evidence in any civil suit.

Further information on arbitration or assistance in filing for arbitration should be directed to the Colorado Department of Agriculture at 303-869-9070.

NOTICE: Listings are based on acres applied for. Eligibility for certification will depend on satisfactory field and seed inspections.

Wheat Stem Sawfly Tolerant Wheats

The wheat stem sawfly (WSS) is a native grass insect that has emerged as a significant threat to winter wheat in Colorado. Female sawflies lay eggs when they emerge in the spring, inserting eggs into the first available internode. Larvae develop and move down the stem, feeding as they go. Feeding injury weakens the wheat stems, and cutting at the base of the stem by the larvae just prior to harvest causes lodging. Wheat breeding programs are aimed at finding varieties that can tolerate sawfly damage and continue to stand up while sustaining some level of damage from larval feeding.

Several wheat varieties are now available with tolerance to wheat stem sawfly. These varieties contain a gene called 'Sst1' that confers stem solidness of varying degrees depending on the variety. The solid stem characteristic has been shown to be effective in reducing damage caused by wheat stem sawfly.

Several wheat breeding programs around the region are incorporating the solid stem trait into their varieties, include CSU, Syngenta, and WestBred. The wheat breeding program at Colorado State University is initiating long term research into novel methods for making the wheat plant less attractive to the sawfly. CSU entomologists are also researching the presence and effectiveness of natural enemies to supplement solid stem wheat breeding tactics for sawfly management.

Fact Sheet:

Wheat Stem Sawfly: A New Pest of Colorado

Wheat - 5.612 - Extension (colostate.edu)

HARD RED WINTER WHEAT

AMPLIFY SF HARD RED WINTER WHEAT - Amplify SF hard red winter wheat was released by Colorado State University (CSU) in 2021. Amplify SF has a semi-solid stem conferring partial resistance to the wheat stem sawfly and has shown much less stem cutting than hollow-stem varieties under severe sawfly pressure. Amplify SF has a stem solidness rating of 16.5 on a scale of 5 to 25, with 5 being completely hollow and 25 being completely solid. Amplify SF is derived from the cross Bearpaw//Antero//Antero, and is thus 75% Antero by parentage. Amplify SF is an awned, white-chaffed, medium-late maturing wheat with medium plant height, a medium-long coleoptile, very good test weight, and good straw strength in the absence of the wheat stem sawfly. Amplify SF has shown good dryland yields (better under sawfly pressure), good drought stress tolerance and winterhardiness, intermediate grain protein content (measured as "grain protein deviation"), and average milling and baking quality. Amplify SF is marketed by the Colorado Wheat Research Foundation under the PlainsGold™ Brand. Certified seed of Amplify SF will be sold as "Certified Seed Only"; grain production may not be saved for replanting under any circumstances. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
Adams		
Kalcevic Farms Inc. • Bennett	303-644-3443	R
Lewton, Curtis • Bennett	303-644-4327	R
Progressive Capital • Byers	720-244-6775	R
Trupp's Certified • Bennett	303-644-3646	R

Elbert		
Kochis Farms • Matheson	719-775-2596	R
Kit Carson		
Farm S Inc. (Tim Stahlecker)		
Bethune	719-342-3197	R
Logan		
Anderson Wheat Farms • Haxtun	970-774-4143	R
Ring, Terry • Crook	970-253-5009	R
Morgan		
Midcap Seed & Grain • Wiggins	970-483-5566	R
Wickstrom, Inc. • Orchard	970-768-1384	R
Sedgwick		
Carlson Grain • Julesburg	970-474-2715	R
Washington		
Pachner Agri-Enterprises • Akron	970-554-0645	R
Wagers Seed • Woodrow	970-842-2022	R
Weld		
Cooksey Farms • Roggen	970-396-9084	R
	970-396-8041	
Mertens Bros. • New Raymer	970-370-0153	R
Yuma		
Andrews Brothers Seed, Inc. • Yuma	970-848-0709	R

AP18 AX HARD RED WINTER WHEAT - AP18 AX is a semidwarf hard red winter wheat developed by Colorado State University (CSU) and transferred to the Colorado Wheat Re-

search Foundation (CWRF). CWRF has issued exclusive marketing rights for AP18 AX to Syngenta Seeds LLC in the United States. AP18 AX is a CoAXium wheat with tolerance to Aggressor® herbicide. AP18 AX is medium maturing, medium height with good test weight, very good milling, and fair baking quality. AP18 AX has intermediate tolerance to stripe rust, leaf rust, and wheat streak mosaic virus. Growers must sign the CoAXium® Wheat Production System Stewardship Agreement at point of sale. **Grain production of AP18 AX may not be saved for replanting under any circumstances.** Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
Morgan		
Kniewel Seed • Wiggins	970-483-6166	C
Andrews Brothers Seed, Inc. • Yuma	970-848-0709	C

AP BIGFOOT HARD RED WINTER WHEAT - AP Bigfoot is a hard red winter wheat developed by Syngenta Crop Protection AG. AP Bigfoot was selected for height, maturity and green leaf duration. Selection in future generations was based on yield, disease, and quality. The area of adaptation includes Central, Southern, and Western Plains. No claims are made regarding pest resistance. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
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Continued on page 20.

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Continued from page 19

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YumaAndrews Brothers Seed, Inc. • Yuma
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AP EVERROCK HARD RED WINTER WHEAT - AP EverRock is a hard red winter wheat developed by Syngenta Crop Protection AG. AP EverRock was selected for height, maturity, green leaf duration, disease reaction, and end use quality. AP EverRock was tested in Kansas, Oklahoma, Texas, Colorado and Nebraska and is a well-adapted bread wheat to the irrigated and dryland production areas of the Central and Western Irrigated High Plains. AP EverRock is moderately resistant to common races in the Central Plains of leaf and stripe rust. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
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LarimerRevolution Soil and Seed • Fort Collins
970-666-1878 C

AP ROADRUNNER HARD RED WINTER WHEAT - AP RoadRunner is a hard red winter wheat developed by Syngenta Crop Protection AG. AP RoadRunner was selected for height, maturity, green leaf duration, disease reaction, and end use quality. AP RoadRunner is a well-adapted bread wheat to the irrigated and dryland production areas of the Central Dryland and Western Dry and Irrigated High Plains. AP RoadRunner is moderately resistant to common races in the Central Plains of leaf rust and moderately susceptible to common races of stripe rust in the Central Plains. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
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Logan

Ring, Terry • Crook 970-253-5009 R & C

Sedgwick

Carlson Grain • Julesburg 970-474-2715 C

AP SOLID HARD RED WINTER WHEAT - AP Solid is a hard red winter wheat developed by Syngenta Crop Protection AG. AP Solid was selected for height, maturity, stem solidness, green leaf duration, disease reaction, and end use quality in yield and disease test plots following doubled haploid method. AP Solid was tested in Kansas, Oklahoma, Colorado, Nebraska, South Dakota and Montana and is well-adapted as to be a high yielding bread wheat in Montana. AP Solid is moderately susceptible to common stripe rust races in the Central Plains. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Variety Protection Applied For - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
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Logan

Ring, Terry • Crook 970-253-5009 R

Yuma

Andrews Brothers Seed, Inc. • Yuma 970-848-0709 R

AVERY HARD RED WINTER WHEAT - Avery hard red winter wheat was released by Colorado State University (CSU) in 2015. Avery is an awned, white-chaffed, medium maturing wheat with medium -tall height, a medium coleoptile, good straw strength, and good test weight. Avery is derived from the cross TAM 112/Byrd. Avery is very similar to Byrd in having good winterhardiness, excellent drought stress tolerance, and very high yield potential. Avery differs from Byrd in having slightly larger kernels, and being two days later in heading date, Avery is susceptible to prevalent races of stripe rust, leaf rust and stem rust, but performs very well against wheat streak mosaic virus due to presence of the wheat curl mite resistance gene. Avery is marketed by the Colorado Wheat Research Foundation under the PlainsGold™ Brand. Unauthorized Propagation

Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety. - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
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Adams

Trupp's Certified Seed • Bennett 303-644-3646 C

Baca

Brooks, Bill • Walsh 719-523-4473 C

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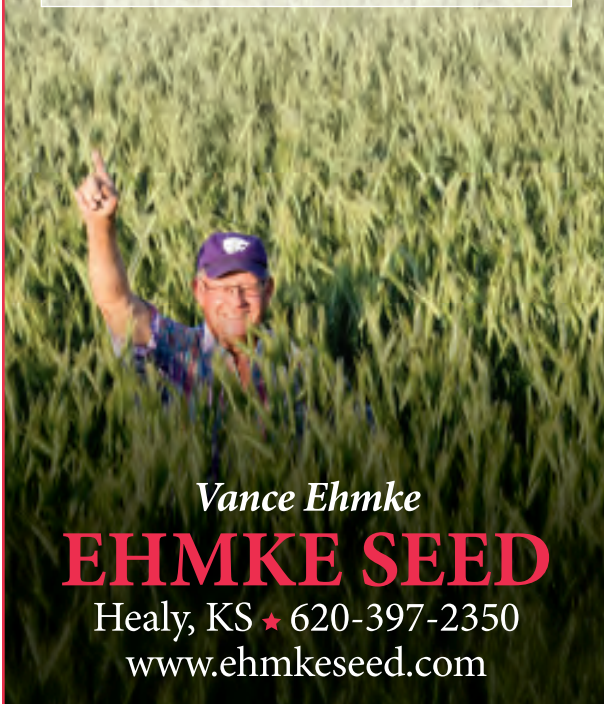
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Continued from page 20

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Kochis Farms • Matheson	719-775-2596		C
Kit Carson			
Eastern Colorado Seeds, LLC. • Burlington	866-655-7380		C
Farm S Inc. (Tim Stahlecker) • Bethune	719-342-3197		C
Logan			
Anderson Wheat Farms • Haxtun	970-774-4143	R & C	
Dickinson, Danny • Crook	970-253-5005		C
Ring, Terry • Crook	970-253-5009	R & C	
Weld			
Mertens Bros. • New Raymer	970-370-0153		C

BRAWL CL PLUS HARD RED WINTER WHEAT - Brawl CL Plus was released by Colorado State University in 2011. It is an awned, white-chaffed, medium height, early maturing wheat with excellent straw strength and very good test weight. Brawl CL Plus is moderately susceptible to stripe rust, leaf rust and stem rust. Brawl CL Plus is a two-gene Clearfield wheat which allows growers to add methylated seed oil to the tank mix with Beyond™ herbicide and increase effectiveness of the herbicide, especially on jointed goatgrass. Brawl CL Plus makes protein very well and has very good milling and baking quality. **Grain production of Brawl CL Plus may not be saved for replanting under any circumstances.** Brawl CL Plus is marketed by the Colorado Wheat Research Foundation under the PlainsGold™ Brand. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety. - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
Elbert		
Kochis Farms • Matheson	719-775-2596	C
Logan		
Anderson Wheat Farms • Haxtun	970-774-4143	C
Dickinson, Danny • Crook	970-253-5005	R & C
Ring, Terry • Crook	970-253-5009	C
Phillips		
Eagle Farms • Holyoke	970-854-5328	C
Sedgwick		
Carlson Grain • Julesburg	970-474-2715	R & C

BYRD HARD RED WINTER WHEAT - Byrd was released by Colorado State University (CSU) in 2011. It is an awned, white-chaffed, medium-early wheat that is medium in height, has very good test weight and fair straw strength. Byrd is susceptible to stripe rust, leaf rust, and stem rust. Byrd is resistant to prevailing biotypes of the wheat curl mite, the vector of wheat streak mosaic and other viruses. Byrd shows high dryland and irrigated yields, excellent drought stress tolerance, and very good milling and baking quality. Byrd is marketed by the Colorado Wheat Research Foundation under the PlainsGold™ Brand. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety. - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
Kit Carson		
Eastern Colorado Seeds, LLC. • Burlington	866-655-7380	C

Yuma
Andrews Brothers Seed, Inc. • Yuma 970-848-0709 C

BYRD CL PLUS HARD RED WINTER WHEAT - Byrd CL Plus was released by Colorado State University (CSU) in 2018 and is marketed by the Colorado Wheat Research Foundation under the PlainsGold™ Brand. It is an awned, white-chaffed, medium-tall, and medium maturing wheat with a medium-short coleoptile, moderate straw strength, good milling and baking quality, and average test weight. Byrd CL Plus is a two-gene Clearfield wheat which allows growers to add methylated seed oil to the tank mix with Beyond™ herbicide and increase effectiveness of the herbicide, especially on jointed goatgrass. Byrd CL Plus is susceptible to stripe rust and stem rust, susceptible to stem rust, intermediately susceptible to leaf rust, and shows an intermediate reaction to wheat streak mosaic virus. **Grain production of Byrd CL Plus may not be saved for replanting under any circumstances.** Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety. - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
Adams		
Lewton, Curtis • Bennett	303-644-4321	R & C
Kit Carson		
Eastern Colorado Seeds, LLC. • Burlington	866-655-7380	R
Farm S Inc. (Tim Stahlecker) • Bethune	719-342-3197	C
Logan		
Anderson Wheat Farms • Haxtun	970-774-4143	R & C
Morgan		
Midcap Seed & Grain • Wiggins	970-483-5566	R & C
Phillips		
Eagle Farms • Holyoke	970-854-5328	C
Sedgwick		
Carlson Grain • Julesburg	970-474-2715	C
Washington		
Pachner Agri-Enterprises • Akron	970-554-0645	C
Weld		
Cooksey Farms • Roggen	970-396-9084	C
	970-396-8041	
Mertens Bros. • New Raymer	970-370-0153	C

CANVAS HARD RED WINTER WHEAT - Canvas hard red wheat was released by Colorado State University (CSU) in 2018. Canvas is an awned, white-chaffed, medium maturing wheat with medium-short plant height, a medium length coleoptile, and excellent straw strength and test weight. Canvas is derived from the cross Denali/Antero//Byrd, and is thus 50% Byrd and 25% each Denali and Antero by parentage. Canvas has shown high dryland yields and particularly good adaptation to high management under irrigation. Canvas has good winterhardness, intermediate grain protein content (measured as "grain protein deviation"), and excellent milling and baking quality. Canvas is moderately resistant to prevalent races of stripe rust (including both 2010 and 2012 races), intermediate to leaf rust, resistant to stem rust, moderately resistant to wheat soilborne mosaic virus, susceptible to prevalent biotypes of Hessian fly, and resistant to the wheat curl mite which effectively reduces infection by wheat streak mosaic virus. Canvas is marketed by the Colorado Wheat Research Foundation under the Plain-

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sGold™ Brand. Unauthorized Propagation Prohibited – To Be Sold By Variety Name Only As A Class Of Certified Seed – U.S. Protected Variety – 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
Elbert		
Kochis Farms • Matheson	719-775-2596	C
Kit Carson		
Eastern Colorado Seeds, LLC. • Burlington	866-655-7380	C
Farm S Inc. (Tim Stahlecker) • Bethune	719-342-3197	C
Phillips		
Eagle Farms • Holyoke	970-854-5328	C
Prowers		
Doug Melcher Seeds • Holly	719-537-6214	R & C
Washington		
Pachner Agri-Enterprises • Akron	970-554-0645	C
Weld		
Cooksey Farms • Roggen	970-396-9084	C
Mertens Bros. • New Raymer	970-370-0153	R & C

CRESCENT AX HARD RED WINTER WHEAT - Crescent AX was released by Colorado State University (CSU) in 2018 and is marketed by the Colorado Wheat Research Foundation under the PlainsGold™ Brand. It is an awned, white-chaffed, medium height, and early maturing wheat with moderate straw strength, very good milling and baking quality and good test weight. The pedigree of Crescent AX is (AF28/Byrd)/(AF10/2*Byrd), and thus is approximately 66% Byrd by parentage. Crescent AX carries two genes for tolerance to Aggressor® herbicide which has shown excellent selective control of cheatgrass, downy brome, feral rye, and jointed goatgrass with fall or spring herbicide application at labelled rates by weed species. Growers should note that Crescent AX is not tolerant to Beyond™ herbicide. Crescent AX has an intermediate reaction to stripe rust and leaf rust and is resistant to the wheat curl mite which effectively reduces infection by wheat streak mosaic virus. Growers must sign the CoAXium® Wheat Pro-

duction System Stewardship Agreement at point of sale. **Grain production of Crescent AX may not be saved for replanting under any circumstances.** Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety. - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
Adams		
Kalcevic Farms Inc. • Bennett	303-644-3443	C
Lewton, Curtis • Bennett	303-644-4327	C
Trupp's Certified Seed • Bennett	303-644-3646	C
Kit Carson		
Farm S Inc. (Tim Stahlecker) • Bethune	719-342-3197	C
Logan		
Anderson Wheat Farms • Haxtun	970-774-4143	C
Ring, Terry • Crook	970-253-5009	R & C
Morgan		
Midcap Seed & Grain • Wiggins	970-483-5566	C
Phillips		
Eagle Farms • Holyoke	970-854-5328	C
Sedgwick		
Carlson Grain • Julesburg	970-474-2715	C
Washington		
Pachner Agri-Enterprises • Akron	970-554-0645	C
Weld		
Cooksey Farms • Roggen	970-396-9084	C
	970-396-8041	
Mertens Bros. • New Raymer	970-370-0153	C
Yuma		
Andrews Brothers Seed, Inc. • Yuma	970-848-0709	C

FORTIFY SF HARD RED WINTER WHEAT - Fortify SF hard red winter wheat was released by Colorado State University (CSU) in 2019. Fortify SF has a semi-solid stem conferring partial resistance to the wheat stem sawfly and has shown much

less stem cutting than hollow-stem varieties under severe sawfly pressure. Fortify SF has a stem solidness rating of 12.3 on a scale of 5 to 25, with 5 being completely hollow and 25 being completely solid. Fortify SF is derived from the cross Byrd/Bearpaw//Byrd, and is thus 75% Byrd parentage. Fortify SF is an awned, white-chaffed, medium maturing wheat with medium plant height, a medium length coleoptile, good test weight, and fair straw strength in the absence of the wheat stem sawfly. Fortify SF has shown good dryland yields (better under sawfly pressure), good drought stress tolerance and winterhardiness, intermediate grain protein content (measured as "grain protein deviation"), and average milling and baking quality. Fortify SF is marketed by the Colorado Wheat Research Foundation under the PlainsGold™ Brand. Certified seed of Fortify SF will be sold as "Certified Seed Only", **grain production may not be saved for replanting under any circumstances.** Unauthorized Propagation Prohibited – To Be Sold By Variety Name Only As A Class Of Certified Seed – U.S. Protected Variety – 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
Adams		
Kalcevic Farms Inc. • Benett	303-644-3443	C
Lewton, Curtis • Bennett	303-644-4327	R
Progressive Capital • Byers	720-244-6775	C
Trupp's Certified Seed • Bennett	303-644-3646	C
Elbert		
Kochis Farms • Matheson	719-775-2596	C
Kit Carson		
Eastern Colorado Seeds, LLC. • Burlington	866-655-7380	C
Farm S Inc. (Tim Stahlecker) • Bethune	719-342-3197	R & C

GUARDIAN HARD RED WINTER WHEAT - Guardian hard red winter wheat was released by Colorado State University (CSU) in 2019. Guardian is derived from the cross Antero/Snowmass//Byrd, and is thus 50% Byrd by parentage. Guardian carries industry-leading resistance to wheat streak mosaic virus via excellent resistance to the wheat curl mite (from the Byrd parent) and excellent resistance to the virus itself (from the Snowmass parent). Guardian is an awned, white-chaffed, medium maturing wheat with medium plant height, a medi-

Continued on page 23



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Ben McClure: 620-544-1579

Continued from page 22

um length coleoptile, average straw strength, and excellent test weight. Guardian has shown good dryland yields, good drought stress tolerance and winterhardiness, excellent grain protein content (measured as “grain protein deviation”), and very good milling and baking quality. In addition to excellent resistance to wheat streak mosaic virus, Guardian is resistant to moderately resistant to prevalent races of stripe rust, leaf rust, and stem rust and susceptible to wheat soilborne mosaic virus and prevalent biotypes of Hessian fly. Guardian is marketed by the Colorado Wheat Research Foundation under the PlainsGold™ Brand. Certified seed of Guardian will be sold as “Certified Seed Only”, **grain production may not be saved for replanting under any circumstances.** Unauthorized Propagation Prohibited – To Be Sold By Variety Name Only As A Class Of Certified Seed – U.S. Protected Variety – 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
Adams Trupp’s Certified Seed • Bennett	303-644-3646	C
Kiowa Sand Creek, Inc. • Sheridan Lake	719-729-3367	C
Kit Carson Farm S Inc. (Tim Stahlecker) • Bethune	719-342-3197	R & C
Prowers Doug Melcher Seeds • Holly	719-537-6214	R
Sedgwick Carlson Grain • Julesburg	970-474-2715	C

HATCHER HARD RED WINTER WHEAT - Hatcher was released by Colorado State University in 2004. Hatcher is marketed by the Colorado Wheat Research Foundation. Hatcher has established a very stable yield record in Colorado. Hatcher was developed via a three-way cross with Yumar (50% parentage), Vista (25% parentage), and an experimental hard white winter wheat from Kansas State University (25% parentage). Hatcher is an awned, white-chaffed, medium maturing, medium height variety. Hatcher has intermediate coleoptile length, good shattering tolerance, average straw strength and average test weight. Hatch-

er is moderately susceptible to leaf rust and moderately resistant to stripe rust. Milling and baking characteristics of Hatcher are good. Hatcher is marketed by the Colorado Wheat Research Foundation under the PlainsGold™ Brand. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety. - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
Elbert Kochis Farms • Matheson	719-775-2596	C

KIVARI AX HARD RED WINTER WHEAT - Kivari AX was released by Colorado State University (CSU) in 2020 and is marketed by the Colorado Wheat Research Foundation under the PlainsGold™ brand. It is an awned, white-chaffed, medium-height, and medium-early maturing wheat with fair straw strength, very good baking quality, and good test weight. The pedigree of Kivari AX is (AF28/Byrd)/(AF10/2*Byrd), and thus is approximately 66% Byrd by parentage. Kivari AX carries two genes for tolerance to Aggressor® herbicide, which has shown excellent selective control of cheatgrass, downy brome, feral rye, and jointed goatgrass with fall or spring herbicide application at labelled rates by weed species. Growers should note that Kivari AX is not tolerant to Beyond™ herbicide. Kivari AX is susceptible to stripe and leaf rust and is resistant to the wheat curl mite which effectively reduces infection by mite-transmitted viruses including wheat streak mosaic virus. Growers must sign the CoAXium® Wheat Production System Stewardship Agreement at point of sale. **Grain production of Kivari AX may not be saved for replanting under any circumstances.** Unauthorized Propagation Prohibited – To Be Sold By Variety Name Only As A Class Of Certified Seed – U.S. Protected Variety. – 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
Adams Kalcevic Farms Inc. • Bennett	303-644-3443	C
Lewton, Curtis • Bennett	303-644-4327	R
Progressive Capital • Byers	720-244-6775	C
Trupp’s Certified Seed • Bennett	303-644-3646	R
Weld Cooksey Farms • Roggen	970-396-9084 970-396-8041	C

Yuma
Andrews Brothers Seed, Inc. • Yuma 970-848-0709 R

KS DALLAS HARD RED WINTER WHEAT - KS Dallas is a hard red winter wheat developed at the Agricultural Research Center in Hays, KS – Kansas State University. KS Dallas is adapted to dryland production systems and was selected for its good test weight, baking quality and winter hardiness. It is resistant to wheat streak mosaic virus, stripe rust and stem rust. It is moderately resistant to leaf rust. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety. - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
Logan Anderson Wheat Farms • Haxtun	970-774-4143	C

KS HAMILTON HARD RED WINTER WHEAT - KS Hamilton is a hard red winter wheat variety developed at the Agricultural Research Center-Hays, Kansas State University. KS Hamilton was selected for test weight, grain yield, baking quality, disease resistance (WSMV, stripe rust, leaf rust, stem rust, SBMV, Hessian fly), and other agronomic traits (PPO, coleoptile length, grain shattering, lodging, winter hardiness, maturity). KS Hamilton was extensively tested in Kansas and is adapted to the dryland production system in western Kansas. KS Hamilton is resistant to wheat streak mosaic virus, stem rust, soilborne mosaic virus, and Hessian fly. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety. - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
Logan Anderson Wheat Farms • Haxtun	970-774-4143	C

LANGIN HARD RED WINTER WHEAT - Langin hard red winter wheat was released by Colorado State University (CSU) in 2016. Langin is an awned, white-chaffed, early maturing wheat with medium-short height, a medium length coleoptile,

Continued on page 24

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WHEAT ALLIANCE

KS HAMILTON

HARD RED WINTER



WHEAT ALLIANCE

KS DALLAS

HARD RED WINTER

HARD RED WINTER

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KS WESTERN STAR

HARD WHITE WINTER

DANBY • JOE • KS SILVERADO

COMING FALL 2023

KS PROVIDENCE • KS BIG BOW

KS TERRITORY




KSWHEATALLIANCE.ORG

Continued from page 23

fair straw strength, and good test weight. Langin is derived from the cross CO050270/Byrd (CO050270 = Hatcher/NW97S295 pedigree). Langin is similar to Byrd and Avery in having good winterhardiness, excellent drought stress tolerance, and very high yield potential. Langin differs from Byrd in having improved stripe rust resistance and slightly improved baking quality characteristics. Langin is moderately resistant to prevalent races of stripe rust, susceptible to leaf rust and stem rust, moderately susceptible to wheat streak mosaic virus, and resistant to the wheat curl mite and wheat soil borne mosaic virus. Langin is marketed by the Colorado Wheat Research Foundation under the PlainsGold™ Brand. Unauthorized Propagation Prohibited – To Be Sold By Variety Name Only As A Class Of Certified Seed – U.S. Protected Variety. – 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
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Adams

Lewton, Curtis • Bennett	303-644-4327	C
Trupp's Certified Seed • Bennett	303-644-3646	R & C

Elbert

Kochis Farms • Matheson	719-775-2596	C
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Kit Carson

Eastern Colorado Seeds, LLC. • Burlington	866-655-7380	C
Farm S Inc. (Tim Stahlecker) • Bethune	719-342-3197	R

Logan

Anderson Wheat Farms • Haxtun	970-774-4143	C
Ring, Terry • Crook	970-253-5009	C

Phillips

Eagle Farms • Holyoke	970-854-5328	C
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Prowers

Doug Melcher Seeds • Holly	719-537-6214	R & C
Schenck, Craig • Holly	719-688-6203	C

Sedgwick

Carlson Grain • Julesburg	970-474-2715	R & C
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Washington

Pachner Agri-Enterprises • Akron	970-554-0645	C
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Yuma

Andrews Brothers Seed, Inc. • Yuma	970-848-0709	C
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LCS HELIX AX HARD RED WINTER WHEAT - LCS Helix AX was released by Limagrain Cereal Seeds in 2019. This variety is a medium-early maturity with medium height. This variety stands exceptionally well and had very good yields last year and this year. LCS Helix AX has very good end-use quality and has an additional advantage of a long coleoptile. LCS Helix AX carries two genes for tolerance to Aggressor® herbicide, which has shown excellent selective control of cheatgrass, downy brome, feral rye, and jointed goatgrass with fall or spring herbicide application at labelled rates by weed species. LCS Helix AX is one of the most adaptable CoAXium® varieties available due to its top-end yield, high test weight, winterhardiness, acid soil tolerance, and resistances to stem and stripe rust. This variety has excellent tolerance to scab and stem rust. Growers must sign the CoAXium® Wheat Production System Stewardship Agreement at point of sale. **Grain production of LCS Helix AX may not be saved for replanting under any circumstances.** Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
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Weld

Marc Arnusch Farms • Keenesburg	303-732-4074	C
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LCS JULEP HARD RED WINTER WHEAT - LCS Julep is a newer release from Limagrain Cereal seeds. This variety comes from the LCS Mint pedigree, and acts very similar with added benefits. Released in 2019, this variety is a true medium with excellent end-use quality. LCS Julep's straw strength, quick emergence, and drought tolerance package are its main assets. It has a very high tiller count and late spring green up which has allowed this variety to handle late freezes very well. LCS Julep is a nice step up from an already great variety in

LCS Mint. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
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Kit Carson

Eastern Colorado Seeds, LLC • Burlington	866-655-7380	C
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Prowers

Schenck, Craig • Holly	719-688-6203	C
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Continued on page 25

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KS Dallas
Joe



Langin

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LCS MINT HARD RED WINTER WHEAT - LCS Mint is a hard red winter wheat that was released by Limagrain Cereal Seeds in 2012. LCS Mint has shown a broad adaptation across the Central Plains. LCS Mint is a medium maturing variety with excellent tolerance to both low pH soils and drought conditions. The disease resistance package for LCS Mint is headlined by resistance to the 2012 race of Stripe Rust and resistance to Soilborne Mosaic Virus. LCS Mint is susceptible to leaf rust, and can lodge under irrigation. Seed of LCS Mint must be grown by licensed Limagrain Cereal Seeds distributors. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
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Kit Carson Eastern Colorado Seeds, LLC • Burlington	866-655-7380	C
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RAY HARD RED WINTER WHEAT - Ray is a dual-purpose forage/grain hard red winter wheat licensed from Montana Ag Experiment Station by Colorado Wheat Research Foundation, being marketed under the PlainsGold™ brand in Colorado as a Certified Seed Only variety. Ray is a winter hardy, late maturing, tall, very awnless variety with forage yield and quality similar to Willow Creek but superior grain yield compared to Willow Creek. Ray has good test weight and grain protein if taken for grain, but should be primarily utilized for grazing, hay, or haylage. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class of Certified Seed - U.S. Protected Variety. - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
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Kit Carson Eastern Colorado Seeds, LLC. • Burlington	866-655-7380	C
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Phillips Eagle Farms • Holyoke	970-854-5328	C
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Washington Pachner Agri-Enterprises • Akron	970-554-0645	C
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SY LEGEND CL2 HARD RED WINTER WHEAT - SY Legend CL2 is a hard red winter wheat bred and developed by Syngenta Participations AG. SY Legend CL2 was selected for type, disease, Greenleaf duration, herbicide tolerance, test weight, yield and quality. SY Legend CL2 is primarily adapted to Western High Plains spanning from Texas panhandle through Oklahoma panhandle, western Kansas, eastern Colorado, and western Nebraska and panhandle. SY Legend CL2 demonstrates good tolerance to leaf rust, stripe rust, barley yellow dwarf virus and soil born mosaic virus. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
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Logan Ring, Terry • Crook	970-253-5009	R
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SY MONUMENT HARD RED WINTER WHEAT - SY Monument is a hard red winter wheat bred and developed by Syngenta Seeds, Inc. SY Monument is the result of a cross

made in 2003 by Syngenta Seeds, Inc. in Junction City, KS. SY Monument was selected for height, straw strength, yield, bread making quality and resistance to leaf and stripe rust. SY Monument is best adapted to the winter wheat growing areas of the High Plains. Syngenta Seeds, Inc. maintains seed stock and certified classes of Foundation, Registered and Certified. Certified seed will be available in the fall of 2015. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
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Sedgwick Carlson Grain • Julesburg	970-474-2715	C
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SY SUNRISE HARD RED WINTER WHEAT - SY Sunrise is a hard red winter wheat and is the result of a cross made in 2006 by Syngenta Seeds, Inc. from an AgriPro experimental, CDC Falcon, and a University of Nebraska experimental. SY Sunrise was selected for test weight, height, green leaf duration, quality, winter hardiness and yield. SY Sunrise is adapted throughout the winter wheat growing areas of the United States Central Plains based on tests conducted in Kansas, Colorado, Nebraska, Wyoming and South Dakota. Target market is irrigated and high management dryland. Syngenta Seeds, Inc. maintains seed stock and certified classes of Foundation, Registered and Certified. Certified seed will be available in the Fall of 2016. Certified Seed will be sold as "Certified Seed Only" and growers are required to sign a stewardship agreement. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
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Yuma Andrews Brothers Seed, Inc. • Yuma	970-848-0709	R
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SY WOLVERINE HARD RED WINTER WHEAT - SY Wolverine is a hard red winter wheat developed by Syngenta Participations AG. SY Wolverine was selected for height, maturity, green leaf duration, disease reaction and end use quality. SY Wolverine has shown above average tolerance to leaf rust. It is broadly adapted across the Northern, Central, and Western Plains. Certified seed became available Fall - 2020. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY	PH	CLASS
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Logan Ring, Terry • Crook	970-253-5009	R & C
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Sedgwick Carlson Grain • Julesburg	970-474-2715	C
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Yuma Andrews Brothers Seed, Inc. • Yuma	970-848-0709	C
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WB4418 HARD RED WINTER WHEAT - WB4418, a Hard Red Winter wheat variety, Semi-Solid stem variety with excellent stand-ability and tolerance to the Wheat Stem Sawfly. a medium maturing variety with excellent yield potential

Continued on page 26

Continued from page 25

Widely adapted from east to west, this variety provides very good resistance to leaf rust, strip rust and WSMV. Unauthorized Propagation Prohibited. U.S. Protected Variety- 1994 PVPA

<u>COUNTY/NAME/CITY</u>	<u>PH</u>	<u>CLASS</u>
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Logan Ring, Terry • Crook	970-253-5009	C
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WB4483 HARD RED WINTER WHEAT - WB4483 is a Hard Red Winter wheat variety, a medium maturing solid stem variety which give excellent tolerance to the wheat stem sawfly. Also includes excellent winter hardiness and drought tolerance. This medium-tall variety also offers excellent test weight and overall great health package. Unauthorized Propagation Prohibited. U.S. Protected Variety- 1994 PVPA.

<u>COUNTY/NAME/CITY</u>	<u>PH</u>	<u>CLASS</u>
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Logan Anderson Wheat Farms • Haxtun	970-774-4143	C
Ring, Terry • Crook	970-253-5009	C

Morgan Midcap Seed & Grain • Wiggins	970-483-5566	C
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Washington Pachner Agri-Enterprises • Akron	970-554-0645	C
Wagers Seed • Woodrow	970-842-2022	R

Weld Marc Arnusch Farms • Keenesburg	303-732-4074	C
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WB4595 HARD RED WINTER WHEAT - WB4595, a Hard Red Winter wheat variety, Western High Plains medium-maturing, high tillering wheat variety with excellent yield potential. It carries an overall good disease resistance package with very good Leaf Rust and stripe resistance. This variety also has excellent winter hardiness, drought tolerance and tolerance to WSMV. Unauthorized Propagation Prohibited. U.S. Protected Variety- 1994 PVPA.

<u>COUNTY/NAME/CITY</u>	<u>PH</u>	<u>CLASS</u>
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Kit Carson Farm S Inc. (Tim Stahlecker) • Bethune	719-342-3197	C
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Weld Marc Arnusch Farms • Keenesburg	303-732-4074	C
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WB4792 HARD RED WINTER WHEAT - WB4792, a Hard Red Winter wheat variety, is a medium-late maturing wheat variety with excellent straw strength and drought tolerance. It has a very good overall health package in part due to its very good resistance to Leaf Rust and Yellow (Stripe) Rust and BYD. This medium height Hard Red Winter wheat variety also has very good winter hardiness and tolerance to WSMV. Unauthorized Propagation Prohibited. U.S. Protected Variety- 1994 PVPA.

<u>COUNTY/NAME/CITY</u>	<u>PH</u>	<u>CLASS</u>
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Kit Carson Farm S Inc. (Tim Stahlecker) • Bethune	719-342-3197	C
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Logan Anderson Wheat Farms • Haxtun	970-774-4143	C
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Ring, Terry • Crook	970-253-5009	C
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Morgan Midcap Seed & Grain • Wiggins	970-483-5566	C
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Washington Wagers Seed • Woodrow	970-842-2022	R
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WHISTLER HARD RED WINTER WHEAT - Whistler hard red wheat was released by Colorado State University (CSU) in 2018. Whistler is an awned, white-chaffed, late maturing wheat with tall plant height, a medium length coleoptile, and fair straw strength and test weight. Whistler is derived from the cross CO08W218/Snowmass//Byrd, and is thus 50% Byrd and 25% Snowmass by parentage. Whistler has shown high dryland yields, good drought stress tolerance and winterhardiness, intermediate grain protein content (measured as “grain protein deviation”), and excellent baking quality. Whistler is moderately resistant to prevalent races of stripe rust, intermediate to leaf rust, resistant to stem rust, resistant to wheat soilborne mosaic virus, susceptible to prevalent biotypes of Hessian fly, and resistant to the wheat curl mite which effectively reduces infection by wheat streak mosaic virus. Whistler is marketed by the Colorado Wheat Research Foundation under the PlainsGold™ Brand. Unauthorized Propagation Prohibited – To Be Sold By Variety Name Only As A Class Of Certified Seed – U.S. Protected Variety – 1994 PVPA.

<u>COUNTY/NAME/CITY</u>	<u>PH</u>	<u>CLASS</u>
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Kit Carson Farm S Inc. (Tim Stahlecker) • Bethune	719-342-3197	C
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Prowers Schenck, Craig • Holly	719-688-6203	C
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Washington Pachner Agri-Enterprises • Akron	970-554-0645	R
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HARD WHITE WINTER WHEAT

ANTERO HARD WHITE WINTER WHEAT - Antero hard white wheat was released by Colorado State University (CSU) in 2012. Antero is an awned, white-chaffed, medium maturing wheat with medium height, a medium length coleoptile, fair straw strength, and average test weight. Antero is derived from the cross KS01HW152-1 (Trego/Betty sib)/TAM 111. Antero has shown high dryland and irrigated yields, good drought stress tolerance, and good milling and baking quality. Antero is resistant to prevalent races of stripe rust, susceptible to leaf rust, resistant to stem rust and wheat soilborne mosaic virus, and has good pre-harvest sprouting tolerance (similar to Snowmass and Hatcher, better than Thunder CL). Antero is marketed by the Colorado Wheat Research Foundation under the PlainsGold™ Brand. Unauthorized Propagation Prohibited – To Be Sold By Variety Name Only As A Class Of Certified Seed – U.S. Protected Variety – 1994 PVPA.

<u>COUNTY/NAME/CITY</u>	<u>PH</u>	<u>CLASS</u>
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Kiowa Thunderbird Commodities LLC • Sheridan Lake	800-289-1415	R
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BRECK HARD WHITE WINTER WHEAT - Breck was released by Colorado State University (CSU) in 2017. Breck is an awned, white-chaffed, medium maturing wheat with medium height, a medium-long coleoptile, very good straw strength, and excellent test weight. Breck is derived from

the cross Denali/HV9W07-482W//Antero, and is thus 50% Antero and 25% Denali by parentage. Breck has shown high dryland and irrigated yields, good drought stress tolerance and winterhardiness, and excellent milling and baking quality. Breck expresses a lower level of polyphenol oxidase (PPO) in the grain which favors its use in whole grain flour products. Breck is resistant to prevalent races of stripe rust, intermediate to leaf rust, resistant to stem rust, moderately susceptible to wheat soilborne mosaic virus, intermediate to wheat streak mosaic virus, and resistant to prevalent biotypes of Hessian fly. Breck has very good pre-harvest sprouting tolerance, better than Snowmass, Antero, and Sunshine and at least as good as most adapted hard red winter wheat varieties grown in Colorado. Breck is marketed by the Colorado Wheat Research Foundation under the PlainsGold™ Brand as a Certified Seed Only variety. Grain of Breck is available for contracting in the CWRP-Ardent Mills Ultragrains® Premium Program. Participants in the program will need to sign a Grain Pricing Schedule with Ardent Mills which details contract terms and requires planting of certified seed. Breck is also available as a non-exclusive variety in the grain trade to other millers. Unauthorized Propagation Prohibited – To Be Sold By Variety Name Only As A Class Of Certified Seed – U.S. Protected Variety – 1994 PVPA.

<u>COUNTY/NAME/CITY</u>	<u>PH</u>	<u>CLASS</u>
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Adams Progressive Capital • Byers	720-244-6775	R & C
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Logan Anderson Wheat Farms • Haxtun	970-774-4143	R & C
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Phillips Eagle Farms • Holyoke	970-854-5328	C
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Sedgwick Carlson Grain • Julesburg	970-474-2715	C
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Weld Cooksey Farms • Roggen	970-396-9084 970-396-8041	C
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MONARCH HARD WHITE WINTER WHEAT - Monarch hard white wheat was released by Colorado State University (CSU) in 2018. Monarch is an awned, white-chaffed, medium maturing wheat with medium-short plant height, a medium length coleoptile, excellent straw strength, and good test weight. Monarch is derived from a three-way cross that involves CO07W722-F5 (pedigree = KS02HW89 1/BC97ROM-41W) as 75% and Snowmass as 25% of the parentage. Monarch has shown superior grain yield under irrigation, good dryland yields, good drought stress tolerance and winterhardiness, medium grain protein content (measured as “grain protein deviation”), and good milling and baking quality. Monarch expresses a very low level of polyphenol oxidase (PPO) in the grain which favors its use in whole grain flour and noodle products. Monarch is moderately resistant to prevalent races of stripe rust, intermediate to leaf rust, resistant to stem rust, resistant to wheat soilborne mosaic virus, moderately tolerant of wheat streak mosaic virus, and susceptible to prevalent biotypes of Hessian fly. Monarch is moderately susceptible to pre-harvest sprouting. Monarch is marketed by the Colorado Wheat Research Foundation under the PlainsGold™ Brand as a Certified Seed Only variety and is available as a non-exclusive variety in the grain trade. Unauthorized Propagation Prohibited – To Be Sold By Variety Name Only As A Class Of Certified Seed – U.S. Protected Variety – 1994 PVPA.

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COUNTY/NAME/CITY PH CLASS

Kit Carson

Eastern Colorado Seeds, LLC • Burlington
866-655-7380 C

NUGRAIN HARD WHITE WINTER WHEAT - NuGrain was released by Syngenta in 2006. NuGrain's parentage is one-half Platte. It is a medium height semidwarf with medium late maturity. NuGrain has good straw strength and winter survival, with an intermediate reaction to stripe rust and moderate resistance to leaf rust. NuGrain has excellent test weight and grain quality, and is high in polyphenol oxidase. NuGrain is adapted to western Kansas, eastern Colorado, and southwestern Nebraska. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY PH CLASS

Yuma

Andrews Brothers Seed, Inc. • Yuma
970-848-0709 C

SNOWMASS 2.0 HARD WHITE WINTER WHEAT - Snowmass 2.0 hard white wheat was released by Colorado State University (CSU) in 2018. Snowmass 2.0 is an awned, white-chaffed, medium-early maturing wheat with medium height, a medium length coleoptile, and very good straw strength and test weight. Snowmass 2.0 is derived from the cross CO07W722-F5/Snowmass//Brawl CL Plus, and is thus 50% Brawl CL Plus and 25% Snowmass by parentage. While Brawl CL Plus is in the parentage, growers should note that Snowmass 2.0 is not tolerant to Beyond™ herbicide. Snowmass 2.0 has shown high dryland and irrigated yields, good drought stress tolerance and winterhardiness, good grain protein content (measured as "grain protein deviation"), and excellent milling and baking quality. Snowmass 2.0 expresses a significantly lower level of polyphenol oxidase (PPO) in the grain which favors its use in whole grain flour and noodle products. Snowmass 2.0 is moderately resistant to prevalent races of stripe rust, intermediate to leaf rust, resistant to stem rust, moderately susceptible to wheat soilborne mosaic virus, moderately resistant to wheat streak mosaic virus, and susceptible to prevalent biotypes of Hessian fly. Snowmass 2.0 has moderate pre-harvest sprouting tolerance, similar to Snowmass, Antero, and Sunshine and at least as good as most adapted hard red winter wheat varieties grown in Colorado. Snowmass 2.0 is marketed by the Colorado Wheat Research Foundation under the PlainsGold™ Brand. Grain of Snowmass 2.0 may only be grown under contract in the CWRP-Ardent Mills Ultragrain® Premium Program. Participants in the program will need to sign a Grain Pricing Schedule with Ardent Mills which details contract terms and requires planting of certified seed. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY PH CLASS

Adams

Progressive Capital • Byers 720-244-6775 R & C

Elbert

Kochis Farms • Matheson 719-775-2596 C

Logan

Anderson Wheat Farms • Haxtun 970-774-4143 C
Ring, Terry • Crook 970-253-5009 C

Phillips

Eagle Farms • Holyoke 970-854-5328 C

Sedgwick

Carlson Grain • Julesburg 970-474-2715 C

Weld

Cooksey Farms • Roggen 970-396-9084 C
970-396-8041

SUNSHINE HARD WHITE WINTER WHEAT - Sunshine was released by Colorado State University (CSU) in 2014. Sunshine is an awned, white-chaffed, early maturing wheat with medium height, a medium-long coleoptile, very good straw strength, and good test weight. Sunshine is derived from the cross KS01HW152-6/HV9W02-267W. Sunshine has shown good dryland and irrigated yields and very good milling and baking quality. Sunshine shows an intermediate reaction to prevalent races of stripe rust, moderate susceptibility to leaf rust, resistance to stem rust, moderate susceptibility to wheat soilborne mosaic virus, and good pre-harvest sprouting tolerance (similar to Hatcher, slightly better than both Snowmass and Antero). Sunshine is marketed by the Colorado Wheat Research Foundation under the PlainsGold™ Brand. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY PH CLASS

Prowers

Schenck, Craig • Holly 719-688-6203 C

SOFT WHITE WINTER WHEAT

SY ASSURE SOFT WHITE WINTER WHEAT -SY Assure is a Soft White Winter Wheat developed by Syngenta Seeds, Inc. SY Assure was selected for high yield potential and test weight, lodging resistance and resistance to stripe rust. SY Assure has shown good adaptation in the high to moderate rainfall regions of western Idaho, eastern Washington, north-central and northeastern Oregon and irrigated production in the southern Snake River region of Idaho and the irrigated production areas of Washington. SY Assure is resistant to the current predominant races of stripe rust and has no known insect resistance. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY PH CLASS

Larimer

Revolution Soil and Seed • Fort Collins
970-666-1878 C

SY OVATION SOFT WHITE WINTER WHEAT - SY Ovation is a soft white winter wheat bred and developed by Syngenta Seeds, Inc. SY Ovation has shown good adaptation in the high to moderate rainfall regions of western Idaho, eastern Washington, north-central and northeastern Oregon and irrigated production in the southern Snake River region of Idaho and the irrigated production areas of Washington. SY Ovation is resistant to current predominant races of stripe rust. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY PH CLASS

Larimer

Revolution Soil and Seed • Fort Collins
970-666-1878 C

TRITICALE

SY TF 813 TRITICALE- SY TF 813 is a tall semi-dwarf cultivar of winter triticale which is shorter statured than 348 triticale. It matures earlier and is more productive than 348 but somewhat later than TAMCALE 5019. Grain yields of SY TF 813 have been substantially higher than the silage variety 348 and significantly greater than the forage cultivar TAMCALE 5019. SY TF 813 is well suited for multiple uses. Its vegetative biomass production in the fall is superior to 348 and TAMCALE 5019 and silage harvests also have been equal to or greater than check cultivars. SY TF 813 is uniformly awnletted which is preferred for hay and silage over fully awned cultivars. SY TF 813 generally produces silage with higher crude protein and higher relative feed value than either 348 or TAMCALE 5019. SY TF 813 is sufficiently winter hardy to withstand the cold temperatures characteristic of the Texas Panhandle and western Kansas. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY PH CLASS

Kit Carson

Eastern Colorado Seeds, LLC. • Burlington
866-655-7380 C

Rio Grande

Colorado Seed LLC • Monte Vista 719-852-3505 R & C

Sedgwick

Green Cover Seed • Bladen, NE 402-469-6784 C

Weld

Revolution Soil and Seed • Fort Lupton
970-666-1878 R

841446398 WINTER TRITICALE- 841446398 is an awnletted winter triticale developed by Northern Agri-Brands LLC. 841446398 was selected for its awn length, lodging resistance, substantially higher seed yield, and high silage forage yield. It possesses excellent lodging tolerance. Certified seed of this variety became available in Fall 2017. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY PH CLASS

Weld

PGS Hybrids • Longmont 303-827-5784 R
Revolution Soil and Seed • Fort Lupton
970-666-1878 C

934271498 WINTER TRITICALE - 934271498 is a winter triticale developed by Northern Agri-Brands LLC. It was selected for silage yield production, improved grain yield, winter hardiness and awnlessness. Certified seed of 934271498 became available in 2021. Unauthorized Propagation Prohibited - To Be Sold By Variety Name Only As A Class Of Certified Seed - U.S. Protected Variety - 1994 PVPA.

COUNTY/NAME/CITY PH CLASS

Rio Grande

Colorado Seed LLC • Monte Vista
719-852-3505 R & C

Sedgwick

Green Cover Seed • Bladen, NE 402-469-6784 C



APPROVED CERTIFIED SEED CONDITIONERS

The Approved Conditioner Program in Colorado is designed to fill the need for efficient cleaning and distribution of Colorado Certified Seed. Approved seed conditioners are regular members of the Colorado Seed Growers Association and provide quality assurance for the seed producer and the seed customer. An approved conditioner is not only responsible for cleaning certified seed, but also serves as a connection between the seed producer and the seed trade. Approved conditioners include: 1) firms that are authorized to purchase field-approved seed and move it into their plants for conditioning, submit samples for laboratory analysis, order tags, labels or bulk sales certificates, and merchandise the finished product, and 2) firms that provide seed cleaning and handling services which prepare the certifiable seed to be marketed by its grower. According to CSGA standards, all certifiable hard red winter wheat must be cleaned by an approved conditioner that has secondary equipment capable of removing jointed goatgrass. Such conditioners are noted with *. The following list does not include seed producers approved to condition only their own seed.

AAA Vidas Mobile Seed Cleaning* Goodland, KS (Portable) 409-795-0123	Curtis Lewton* Bennett 303-803-8581	Southwest Seed Inc. Dolores 970-565-8722
Andrews Brothers Seed* Yuma 970-848-0709	Midcap Seed & Grain* Wiggins 970-483-5265	Splitter Farms* Sheridan Lake (Portable) 719-729-3567
Colorado Seed, LLC* Monte Vista 719-852-3505	The Pachner Outfit* Gage, OK (Portable) 580-273-5094	Twin Peaks Seed & Grain, LLC* Longmont 303-772-7333
Cooksey Farm* Roggen (Portable) 970-396-9084 970-396-8041	Perry Bros. Seed, Inc.* Otis 970-246-3401	Wagers Seed* Woodrow (Portable) 970-554-0057
Grain Conditioning 2 Inc.* Conifer (Portable) 724-650-5774	Producers Co-op Olathe 970-323-6343	Worley Family Farms, LLC Monte Vista (Portable) 719-852-4097
Heritage Seed & Grain, LLC* Flagler 719-760-9768	Revolution Soil and Seed* Fort Lupton 970-666-1878	
Kalcevic Farms Inc.* Bennett 303-644-3443	Roggen Farmers Elevator Roggen 303-849-5506	

Plant Variety Protection Act and Federal Seed Law, Title V

The Plant Variety Protection ACT (PVPA) was signed into law on December 24, 1970. The PVPA's objective is to encourage the development of novel varieties of sexually-reproduced plants and make them available to the public, providing protection to those who breed, develop, or discover them, and thereby promoting agricultural progress in the public interest. The U.S. Dept. of Agriculture is responsible for administering the Act.

A Certificate of Protection is valid 20 years from date of issuance in most cases. The owner has the right to exclude others from selling, offering for sale, reproducing, importing, or exporting the variety during this time. The owner is responsible for enforcing these rights.

Two options for plant variety protection are available to the developer of the variety. The first option enables the developer to sell or authorize for sale either certified or uncertified seed of the variety. The second option is the "certification only" option which utilizes provisions of Title V of the Federal Seed Act. A variety protected in this manner may be sold by variety name only as a class of certified seed. Sale of non-certified seed by variety name is in violation of both the certificate owner's rights and federal and state seed laws. Seed may be called "Certified" only after meeting all requirements and standards of a member of the Association of Official Seed Certifying Agencies (AOSCA). Violators of Title V may be prosecuted by the federal or state government. Most newly released varieties are protected under the "certification only" option. Contact CSGA with questions regarding PVP status of varieties.

Seed Classes

Seed certification relies on a generation sequence of seed increase from the original Breeder seed through two or three subsequent generations. The number of generations beyond Breeder seed is determined by the originator at the time a variety is formally released. These generations are often identified as classes, and each class is produced and handled to maintain genetic purity. The primary advantage is that seed sold to a farmer is never more than a limited number of multiplications from that produced under the breeder's control. The limited generation system, when coupled with strict production and seed standards, assures genetically pure high-quality seed.

Breeder - Breeder seed shall be that seed or vegetative propagating material directly controlled by the originating or sponsoring plant breeder, institution, or firm which provides the source for the initial and recurring increase of Foundation seed. (B)

Foundation - Foundation seed is produced from Breeder seed and maintained by state agricultural experiment stations or private companies. Foundation seed is the source of Registered and/or Certified seed. (F)

Registered - Registered seed is the progeny of Foundation seed. Registered seed, when a Registered class is designated, is the parent stock for the production of Certified seed. (R)

Certified - Certified seed is the progeny of Foundation or Registered seed. Certified seed is the planting stock recommended for commercial production. (C)

Questions and Answers on Plant Variety Protection

Q: What are the benefits of PVP for farmers?

A: The Plant Variety Protection Act was designed to promote the development of new plant varieties. It allows the breeder to recoup some of the development costs, often through royalties, to reinvest in future variety development programs.

Q: What does PVPA Title V protection mean?

A: The variety can only be SOLD as a class of certified seed. Sales of non-certified seed of these varieties is illegal.

Q: Can a farmer save seed of a protected variety?

A: For varieties protected under 1994 PVPA, yes. A farmer can save seed to plant on his own holdings (land owned, leased, or rented). For varieties protected by CLEARFIELD or COAXIUM Utility Patent, no. New certified seed must be purchased each year.

Q: Can a farmer sell seed of a protected variety?

A: For varieties protected under 1994 PVPA or Utility Patent, no, unless permission is given by the variety owner. Contact CSGA if you do not know what protection a variety is covered by.

Q: In an effort to get around the law, can a farmer advertise farmer-saved seed of a protected variety as "Variety Not Stated" (VNS)?

A: No, selling a protected variety as VNS is a violation of the law.

Q: Can I condition/clean seed for a farmer?

A: Yes, but any actions taken as a step in marketing farmer-saved seed infringes upon the rights of the variety owner. Under the 1994 PVPA, cleaning or storing farmer-saved seed for sale are infringements. Anyone who cleans or conditions farmer-saved seed should keep written documentation from the farmer stating that the seed being cleaned is not in violation of PVP laws or patents.

Utility Patents

Utility patents are another means of protection for developers of new plant varieties. The CLEARFIELD and COAXIUM wheat technologies are protected under U.S. Patent law and can be used by farmers only if they sign an appropriate Stewardship Agreement for the year in which they will grow CLEARFIELD or COAXIUM wheat. The agreement requires that the farmer, among other things, use CLEARFIELD or COAXIUM wheat solely for planting a single commercial crop.

DERIVED FROM NATURE VETTED BY FARMERS 100% REPLANT GUARANTEE



"We tested on 300 acres of wheat to start. It was night and day. 10 bushels an acre more than our untreated fields. It even bumped up our protein content, which netted us a 37 cent premium."

Jon Johnson • Kansas Farm and Ranch Management

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Indigo does not guarantee any specific outcomes. A wide range of variables affect product performance, your results may vary.



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PRECISE PLACEMENT FROM PRIMARY TO COVER CROPS

Many producers are making the switch to linear box affordability with the versatility to accurately plant high yielding primary crops as well as cover crops that produce valuable nitrogen and protect against soil erosion. Cover crops require the same seeding accuracy and depth control as primary crops. Achieving this requires the accuracy of the exclusive Fluted Seed Meter and the industry's first Pneumatic Down Pressure opener system. From 10' through 50' widths, the ruggedly built Landoll 5000 Series Drills deliver linear box affordability with unmatched standability.



Cover crops sequester carbons from the atmosphere and place them in your soils as valuable nutrients for your primary crop.

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WINTER WHEAT

WEST GAINES SEED

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TRITICALE

WEST GAINES SEED

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At **West Gaines Seed**, our commitment to our customers goes far beyond simply being a seed provider. Grower owned and headquartered in Seminole, TX, we're the regional leader for all your small grains and sorghum-sudangrass hybrid planting seed requirements, as well as offering full-service cottonseed and small grains production and processing.

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