

# UC Davis Triticale Breeding – 2022 Update

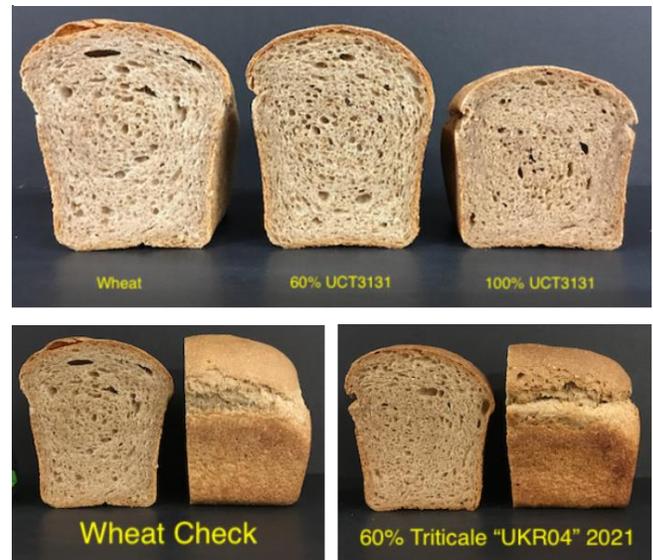
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The UC Davis triticale-breeding program was initiated in 2016 with a research interest to enhance the bread making performance of triticale but has expanded to include the additional objective of delivering improved forage and feed cultivars. Since 2019, this effort now includes winter hearty material being tested in the Klamath Basin and in Washington and Colorado, in collaboration with the Arron Carter and Esten Mason, the winter wheat breeders at WSU and CSU, respectively.

**Fig. 1.** Triticale Breeding locations



**Fig. 2.** Bread made from triticale with improved baking performance



In 2021, we released two fully owned triticale cultivars, UC-Atrea and UC-Bopak. UC-Bopak, tested as UC3190 is a medium height spring triticale intended for the production of silage forage or feed grain. Compared to 158EP, its heads emerge 4 days earlier, is 7.5 inches taller and yields 8.3% more grain, on average. Compared to UC-Atrea (UC3185), it is 3 inches taller, heads 2 days earlier and has a slightly greater yield potential. UC-Atrea has been licensed to Second Nature and UC-Bopak is licensed to Baglietto Seeds.

**Table 1.** Spring planted grain and soft dough forage yield results from 2021.

Name	Species	2021 IREC Spring				Soft Dough Yield	
		Height in	Hedging Date	Grain Yield		Dry t/ac	% Yeco.
				t/ac	% Yeco.		
UC-Atrea	Triticale	38.6	24-Jun	5.10	33%	9.56	9%
UC-Bopak	Triticale	38.2	22-Jun	5.55	45%	9.76	11%
UC3193	Triticale	38.3	24-Jun	3.87	1%	8.68	-1%
UC3196	Triticale	44.4	23-Jun	5.49	43%	10.19	16%
Yecora Rojo	Wheat	29.8	21-Jun	3.83	0%	8.79	0%
Average		37.9	23-Jun	4.77		9.39	

**Table 2.** Grain and forage yield results from fall planted triticale in the 2020-2021 growing season. Lodging 1 = none, 9 = flat on ground. Yield results are given in tons per acre (t/ac) and relative to the wheat cultivar Brundage (Brun.).

Name	Species	Awns?	Source	2021 IREC			Grain Yield		Soft Dough Yield		Boot Forage Yield		Re-Growth Yield		Boot+Re-Growth Yield	
				Height in	Hedging Date	Lodging 1-9	t/ac	% Brund.	t/ac	% Brund.	t/ac	% Brund.	t/ac	% Brund.	t/ac	% Brund.
				UKR04	Triticale	Yes	UCD	57.6	12-Jun	8.8	4.58	22%	12.78	21%	4.54	8%
UC-Atrea	Triticale	Yes	UCD	40.6	6-Jun	1.0	4.46	19%	10.18	-4%	4.09	-3%	1.72	-65%	5.81	-36%
UC-Bopak	Triticale	Yes	UCD	45.0	8-Jun	1.0	4.62	23%	11.65	10%	4.45	6%	3.33	-32%	7.78	-14%
Brundage	Wheat	No	Winema	40.6	17-Jun	1.0	3.76	0%	10.60	0%	4.20	0%	4.87	0%	9.07	0%
Forerunner	Triticale	Yes	Winema	57.3	7-Jun	8.0	3.18	-16%	11.60	9%	4.63	10%	1.95	-60%	6.58	-28%
HighOctane	Triticale	Reduced	Winema	51.3	12-Jun	1.0	5.44	44%	12.55	18%	4.50	7%	1.05	-78%	5.55	-39%
MerlinMax	Triticale	No	TriCal	55.8	9-Jun	9.0	3.98	6%	11.75	11%	4.86	16%	0.73	-85%	5.59	-38%
Gunner	Triticale	No	TriCal	63.3	10-Jun	3.8	4.40	17%	12.55	18%	5.19	24%	0.68	-86%	5.87	-35%
Surge	Triticale	No	TriCal	62.7	9-Jun	4.0	4.32	15%	12.38	17%	4.38	4%	0.99	-80%	5.37	-41%
Hyb52	Triticale	No	TriCal	54.6	7-Jun	4.3	4.73	26%	12.40	17%	4.71	12%	1.23	-75%	5.94	-35%
Hyb53	Triticale	No	TriCal	64.7	8-Jun	3.5	3.87	3%	12.70	20%	4.56	9%	1.36	-72%	5.92	-35%
TriCal131	Triticale	No	TriCal	64.3	11-Jun	6.0	3.77	0%	13.13	24%	4.99	19%	1.30	-73%	6.28	-31%
Average				3.18	10-Jun	4.27	4.26		12.02		4.59		1.94		6.53	

**Table 3.** Forage yield results from fall planted triticale in the 2021-2022 growing season. Yield results are given in tons per acre (t/ac) and relative to the wheat cultivar Brundage (Brun.). The trial at the Klamath Basin REC in Klamath Falls, OR was rain-fed, experience a strong drought stress.

Name	Species	Awns?	Source	2022 IREC			Soft Dough, 19 July Yield			Boot Forage, 07 June Yield			2022 KBREC Soft Dough, 06 July Yield		
				Winter Kill %	Hedging Date	Height in	Dry t/ac	% Brund.	Height in	Dry t/ac	% Brund.	Height In	Dry t/ac	% Brund.	
				UKR04	Triticale	Yes	UCD	0%	14-Jun	51.8	12.63	11%	33.3	6.48	2%
UCT3131	Triticale	Yes	UCD	0%	13-Jun	47.1	12.95	14%	31.5	6.71	5%	29.5	4.22	21%	
UC-Atrea	Triticale	Yes	UCD	40%	16-Jun	36.4	9.15	-19%	20.2	3.61	-43%	19.1	2.53	-28%	
UC-Bopak	Triticale	Yes	UCD	20%	15-Jun	38.2	10.10	-11%	23.8	3.91	-39%	23.6	3.69	6%	
Forerunner	Triticale	Yes	Winema	0%	13-Jun	51.9	11.87	5%	36.5	6.06	-5%	37.7	4.98	43%	
Gunner	Triticale	No	TriCal	0%	12-Jun	59.8	13.80	22%	39.9	7.66	21%	45.5	6.37	83%	
Thor	Triticale	No	TriCal	0%	12-Jun	63.4	12.97	14%	39.1	7.37	16%	44.6	4.67	34%	
Merlin Max	Triticale	No	TriCal	15%	14-Jun	50.1	11.19	-1%	29.8	4.60	-28%	29.2	3.02	-13%	
Surge	Triticale	No	TriCal	0%	11-Jun	59.5	12.37	9%	37.6	6.72	6%	42.8	5.54	59%	
TriMark099	Triticale	Yes	ProGene	0%	14-Jun	44.5	12.14	7%	28.8	6.06	-5%	31.5	4.93	41%	
Alvena	Wheat	No	WalkerSeed	10%	20-Jun	40.5	10.84	-5%	26.4	5.85	-8%	21.1	3.22	-8%	
Brundage96	Wheat	No	WalkerSeed	0%	20-Jun	36.6	9.99	-12%	23.7	5.82	-9%	23.7	4.55	30%	
Yamhill	Wheat	No	WalkerSeed	15%	22-Jun	42.8	10.09	-11%	26.5	5.09	-20%	19.9	2.49	-29%	
Mandala	Wheat	No	WalkerSeed	5%	18-Jun	41.4	11.27	-1%	27.3	5.57	-12%	20.3	3.69	6%	
Brundage	Wheat	No	Winema	0%	16-Jun	37.0	11.35	0%	26.8	6.36	0%	21.6	3.48	0%	
Average					15-Jun	46.7	11.5		30.1	5.9		29.5	4.1		