Western Crop Innovations

WT0050

Winter triticale

- Reduced awn, suitable for forage and feed
- Grain yield 8% higher than Metzer and above Luoma
- Early maturity, 4 days ahead of both Luoma and Metzger
- Kernel weight higher than all checks

Description

WT0050 is a reduced-awn winter triticale developed for feed and forage production, well adapted to the variable growing conditions of western Canada. It demonstrates excellent yield potential, producing 108% of Metzger and 106% of Luoma in grain yield trials.

This variety has a strong package of agronomic traits. It is tall with good standability, making it well-suited for dryland regions. It matures four days earlier than the checks and has winter survival, lodging resistance, and test weight comparable to the reference varieties. Additionally, WT0050 exhibits a large kernel size.

WT0050 offers improved resistance to ergot, outperforming Bobcat and Hazlet while being slightly less resistant than Luoma and Metzger. For forage production, it yields 98% of Luoma and 105% of Bobcat in dry matter yield, with improved digestibility over Luoma and Metzger.

Breeding and Development

WT0050 was developed at Western Crop Innovations in Lacombe from a cross made in 2009 between 79B194002 and Bobcat. The parent line 79B194002 (pedigree: Muntzing 917.1) is a winter triticale germplasm introduction from the USA. Bobcat (Reg. no. CV-17, PI 608011) is a reduced-awn winter triticale released in 1999 by the Field Crop Development Centre, Lacombe, Alberta, Canada (Canadian Reg. no. 4945). Bobcat was derived from the cross 7631-ED4B/RL4137//7431A-68E4/3/Panther 'SY4/87ED01.

The breeding process involved growing the F_1 and segregating F_2–F_5 populations in Lacombe from 2010 to 2014. In 2015, individual head rows were screened for winter hardiness.

From 2016 to 2021, WT0050 was evaluated under diverse growing conditions in western Canada, assessing its yield potential, agronomic performance, and adaptation.

Based on grain, forage yield, agronomic, and forage quality data in yield trials, WT0050 was advanced to the Western Winter Triticale Coop Test in 2022.

Strengths of WT0050

- Sustainable high grain yield, 108% and 106% higher than Metzger and Luoma.
- Early maturity, four days earlier than Metzger and Luoma checks.
- Enhanced forage digestibility, better than Luoma and Metzger.
- Large seed, the kernel weight is higher than all checks.

Neutral Traits

- Winter survival is within the range of the checks.
- Good plant standability. Better than Luoma and Metzger.
- Descent ergot disease resistance, better than Bobcat.
- Dry matter yield is 105% higher than Bobcat and 98% of Metzger.
- Test weight is within the range of the checks.

Approximately 200kg of Breeder Seed for WT0050 will be available fall of 2025.

Table 1. Grain yield and agronomic traits performance of WT0050 compared to check cultivars based on the Winter Triticale Coop Tests 2022-2024.

	Yield (kg/ha^{-1})						Agronomic Data						
Entry	2022	2023	2024	Mean	Luoma (%)	Metzger (%)	Heading (days)	Maturity (days)	Survival (%)	Height (cm)	Lodg (1-9)	TestWt (kg/hl^{-1})	KernWt (g)
BOBCAT	5287	4586	5799	5224	92	94	169	211	82	95	2.3	68.7	35.0
HAZLET (Rye check)	6332	4898	7590	6273	110	113	159	210	91	105	1.9	73.4	35.8
LUOMA	5537	5854	5720	5704	100	103	174	213	86	121	3.8	70.0	36.7
METZGER	5355	5683	5633	5557	97	100	174	213	89	122	3.9	70.0	36.7
PINTAIL (Wheat check)	5725	5412	6435	5857	103	105	172	210	86	83	2.4	76.4	29.2
WT0050	**5739**	**5756**	**6573**	**6023**	**106**	**108**	**170**	**209**	**87**	**122**	**2.8**	**68.8**	**42.0**
Mean	5662	5365	6292	5773			170	211	87	108	2.8	71.2	35.9
CV%	10.2	9.6	10.95	6.0			0.5	0.6	5.9	3.0	19.3	2.5	7.6
$LSD_{0.05}$	328	397	478.7	134.9			0.3	0.5	2.5	1.2	0.2	0.7	1.2
Stn. Years	8	5	6	19			16	18	14	17	15	17	17

Lodg. – lodging, 1-9, where 9 is up to 100% lodged; KernWt = thousand kernel weight

Table 2. Ergot reactions of WT0050 compared to check cultivars based on the Winter Triticale Coop Tests 2022-2024

	Ergot (%)			
Entry	2022	2023	2024	Mean
BOBCAT	0.55	0.16	0.18	0.29
HAZLET (Rye check)	0.54	0.79	0.25	0.52
LUOMA	0.08	0.04	0.12	0.08
METZGER	0.08	0.08	0.12	0.09
PINTAIL (Wheat check)	0.01	0.00	0.02	0.01
WT0050	**0.26**	**0.13**	**0.08**	**0.16**
Mean	0.25	0.20	0.12	0.19
Stn. Years	7	4	2	13

Table 3. Dry matter yield and forage quality data of WT0050 compared to check cultivars based on Winter Triticale Forage Coop Tests 2022-2024.

	DMY (kg/ha^{-1})					Forage Quality Data[y]						
Entry	2022	2023	2024	Mean	Luoma (%)	ADF (%)	NDF (%)	TDN (%)	PROT (%)	STRC (%)	LIGN (%)	RFV (%)
BOBCAT	15442	16942	19185	17190	93	23.0	41.4	69.2	8.6	17.3	3.4	160
HAZLET	16202	15585	19401	17063	92	25.6	44.4	69.2	7.8	14.4	3.4	145
LUOMA	18035	15094	22492	18541	100	26.8	45.9	66.8	8.1	11.9	4.6	138
METZGER	18017	14916	23822	18918	102	29.3	48.1	66.5	8.4	11.8	4.5	128
PINTAIL	16501	16446	21048	17998	97	22.8	40.2	71.0	8.7	19.7	2.2	165
WT0050	**18355**	**14516**	**21481**	**18117**	**98**	**24.8**	**43.3**	**69.3**	**8.8**	**15.7**	**3.2**	**150**
Mean	17092	15583	21238	17971		25.4	43.9	68.7	8.4	15.1	3.5	147.7
CV%	5.9	13.1	6.3	9.5								
$LSD_{0.05}$	1662	3309	2252	1265.5								
Stn. Years	1	1	1	3		1	1	1	1	1	1	1

DMY = Dry Matter Yield, ADF= Acid Detergent Fiber, NDF= Neutral Detergent Fiber, TDN= Total Digestible Nutrients, PROT= Crude Protein content, STRC= Starch content, LIGN = Lignin Content, RFV = Relative Feed Value

[y] Forage Quality Data = The forage quality data is presented only for 2024, as we utilized wet chemistry analysis instead of Near-Infrared Spectroscopy (NIR).