Western Crop Innovations

TR22669

Two-row general purpose barley

- Semi-dwarf, 6-11 cm shorter than checks
- Higher grain yield under high-input conditions vs. other semi-dwarfs
- Improved disease package vs. other semi-dwarfs: resistant to loose/surface smuts, stem rust; intermediate to FHB, spot-form net blotch

Description

TR22669 is a promising two-row, semi-dwarf, hulled barley line that has demonstrated strong agronomic performance in the Western Cooperative Two-Row Malting Barley Registration Trials over the 2022 and 2023 growing seasons. Developed from a cross between the European variety Grace and Oreana, it is intended for **feed grain production**.

As a semi-dwarf variety, TR22669 thrives in high-input conditions. In direct comparisons, it outperformed current semi-dwarf varieties (Sirish and Esma), producing significantly higher grain yields (Tables 3 and 4). Additionally, TR22669 offers superior disease resistance compared to other available semi-dwarf varieties.

Strengths of TR22669

- Mean grain yield is 104% of CDC Copeland, 101% of AAC Synergy, and 98% of CDC Austenson in the Cooperative Trials.
- Superior performance in the Black and Grey Wooded soil zone, yielding 8% > CDC Copeland and 2% > AAC Synergy and CDC Austenson.
- 6% higher grain yields than Sirish in WCI trials, under conditions targeting semi-dwarf production.
- Short stature, 6-11 cm shorter than the checks.
- Large kernels with good plumpness and test weight.
- Lodging scores are lower than CDC Copeland, similar to AAC Synergy.
- Good disease resistance package, with R ratings to surface borne smuts, stem rust, and loose smut; and intermediate reactions to Fusarium Head Blight and spot form of net blotch.

Neutral Traits

- Percent plump intermediate to the checks.
- Maturity similar to CDC Austenson.

Approximately 200kg of Breeder Seed will be available for TR22669 in spring of 2025.

Table 1a. Yield and agronomic traits of TR22669 averaged over the 2022 and 2023 Western Cooperative Two-Row Barley Registration Trials.

	Western Black/Grey Soil		Eastern Black Soil		Brown Soil		Irrigated		Overall	
Entry	kg/ha	% CDC Copeland	kg/ha	% CDC Copeland	kg/ha	% CDC Copeland	kg/ha	% CDC Copeland	kg/ha	% CDC Copeland
CDC Copeland	7228	100	5443	100	4878	100	8528	100	5925	100
AAC Synergy	7643	106	5645	104	5055	104	8421	99	6121	103
CDC Austenson	7687	106	5754	106	5262	108	8600	101	6260	106
TR22669	**7825**	**108**	**5640**	**104**	**5096**	**104**	**8403**	**99**	**6178**	**104**
Stn. Years	6		15		9		3		33	

Entry	Heading (days)	Maturity (days)	Plant height (cm)	Lodging (1-9)	Test wt (kg/hL)	1000 Kernel wt (gm)	Plump > 6/64 (%)	Thins <5/64 (%)	NIT Protein
CDC Copeland	56.9	87.6	79.0	3.3	65.7	45.8	93.6	2.2	11.9
AAC Synergy	55.4	87.7	73.9	2.5	66.8	48.1	95.7	1.5	12.1
CDC Austenson	56.8	88.7	74.4	2.2	68.8	47.5	92.3	2.1	11.9
TR22669	**53.6**	**89.0**	**68.0**	**2.5**	**68.7**	**49.5**	**94.2**	**1.9**	**12.0**
Stn. Years	32	31	34	8	35	34	31	24	7

Table 1b. Yield and agronomic traits of TR22669 averaged over the 2022 Western Cooperative Two-Row Barley Registration Trials.

Entry	Grain yield (kg/ha)	% CDC Copeland	Heading (days)	Maturity (days)	Plant height (cm)	Lodg. (1-9)	Test Weight (kg/hL)	TKW (g)	Plumps >6/64 (%)	Thins <5/64 (%)	NIT grain protein (%)
CDC Copeland	5824	100	59.0	89.2	82.2	4.7	65.6	45.0	93.5	2.6	11.8
AAC Synergy	5862	101	57.6	89.6	77.9	3.4	67.1	47.1	95.4	1.8	11.8
CDC Austenson	6136	105	59.4	90.9	78.3	2.4	68.8	46.3	92.5	2.3	11.9
TR22669	**6125**	**105**	**55.3**	**91.5**	**71.3**	**2.9**	**68.5**	**48.1**	**94.2**	**2.2**	**11.5**
CV (%)	8.3		2.59	1.7	5.5	40.5	1.9	4.5	3.3	85.4	3.1
$LSD_{0.05}$	196		0.64	0.7	1.7	1.02	0.8	1.5	2.2	1.4	0.6
No. of reps	48		42	39	48	12	17	16	15	13	3

Lodg. = lodging, where 9 is up to 100% lodged; TKW = 1000 kernel weight, NIT = near-infrared transmittance measurement of grain protein

Table 1c. Yield and agronomic traits of TR22669 averaged over the 2023 Western Cooperative Two-Row Barley Registration Trials.

Entry	Grain yield (kg/ha)	% CDC Copeland	Heading (days)	Maturity (days)	Plant height (cm)	Lodg. (1-9)	Test Weight (kg/hL)	TKW (g)	Plumps >6/64 (%)	Thins <5/64 (%)	NIT grain protein (%)
CDC Copeland	6027	100	57.4	86.4	76.1	1.9	65.9	46.5	93.6	1.6	12.0
AAC Synergy	6337	105	52.4	86.3	70.4	1.6	66.6	49.1	96.0	1.1	12.3
CDC Austenson	6385	106	54.8	87.1	71.1	1.9	68.9	48.6	92.1	1.9	11.9
TR22669	**6211**	**103**	**52.9**	**87.2**	**65.1**	**2.0**	**68.8**	**50.8**	**94.3**	**1.5**	**12.3**
CV (%)	8.2		2.47	1.8	6.8	46.3	1.8	4.5	2.6	60.2	3.8
$LSD_{0.05}$	214		0.51	0.6	1.8	0.65	0.8	1.4	1.7	0.7	0.7
No. of reps	48		53	54	54	12	18	18	16	12	4

Lodg. = lodging, where 9 is up to 100% lodged; TKW = 1000 kernel weight, NIT = near-infrared transmittance measurement of grain protein

Table 2a. Overall disease ratings of TR22669 and the checks from the 2022 and 2023 Western Cooperative Two-row Barley Registration Test Disease Reaction Report.

Entry	Net form of net blotch	Sport form of net blotch	Scald	Spot Blotch	Surface Smuts	Loose Smut	Stem Rust	Fusarium Head Blight
CDC Copeland	I	I	S	MS	MR	R	R	I
AAC Synergy	MR	MS	S	I	MR	MR	R	I
CDC Austenson	I	MS	S	I	R	R	MR	I
TR22669	**MS**	**I**	**S**	**MS**	**R**	**R**	**R**	**I**

S – susceptible, S – moderately susceptible, I – intermediate, MR – moderately resistant, R – resistant

Table 2b. Disease Reaction Summary for TR22669 in the 2022 and 2023 Western Cooperative Two-row Malting Barley Registration Test.

		Net Blotch (Net form/Spot form)							Scald		
Entry		102	858	Lacombe NF	Lacombe SF	MBV25	Net-form Rating	Spot-form Rating	2275	Lacombe	Edmonton
CDC Copeland	2022	2	4	0	4.0	5	MR	I	S	7.0	9.0
	2023	2	5	3	4.5	2	I-MR	I	S	6	8.0
Overall					**I/I**					**S**	
AAC Synergy	2022	2	2	0	3.0	7	MR-R	MS-I	S	7.0	8.5
	2023	1	2	0	4.0	1	MR-R	MR	S	6	7.5
Overall					**MR/MS**					**S**	
CDC Austenson	2022	2	6	0	3.0	8	I-MR	MS-I	MS	6	8.0
	2023	2	7	0	4.0	5	I	MS-I	S	4.5	7.0
Overall					**I/MS**					**S**	
TR22669	2022	8	4	1.5	3.0	5	MS-I	I	S	8.0	8.5
	2023	8	6	0	4.5	3	MS-I	I	MS	7	8.5
Overall					**MS/I**					**S**	

S – susceptible, MS – moderately susceptible, I – intermediate, MR – moderately resistant, R – resistant

Table 2b. *Continued.*

Entry		Spot Blotch					Loose Smut	Surface Smuts	
								AAFC-Morden	
		1903	Brandon	U of SK	Melfort	Lacombe		U. hordei	U. nigra
CDC Copeland	2022	5	6.0	3	3.5	5.0	0.0	8.0	14.0
	2023	7	7.0	.	.	5		8	17
Overall		**MS**					**R**	**MR**	
AAC Synergy	2022	7	4.0	2.5	1.5	4.0	25.0	34.0	37.0
	2023	3	2.0	.	.	3.5		20	19
Overall		**I**					**MR**	**MR**	
CDC Austenson	2022	7	3.5	1	3.0	3.5	0.0	4.0	1.0
	2023	7	2.0	.	.	3.5		6	9
Overall		**I**					**R**	**R**	
TR22669	2022	8	5.5	4	4.0	5.0	0.0	5.0	0.0
	2023	7	7.0	.	.	5		0	1
Overall		**MS**					**R**	**R**	

S – susceptible, MS – moderately susceptible, I – intermediate, MR – moderately resistant, R – resistant

Entry		Stem Rust				Fusarium Head Blight						
		Field		CDC Rpg1 marker	Seedling MCC	Rating				DON		Average DON
		Coverage	Reaction			Morden	Brandon	Chtwn	Morden	Brandon	Chtwn	
CDC Copeland	2022	1	R	.	;	1.3	2.0	7.7	32.3	26.6	.	29.4
	2023	1	R	6R	0;	0.8	2.5	.	2.2	17.4	.	9.8
Overall		**R**				**I**						
AAC Synergy	2022	1	R	.	;	1.3	1.8	7.3	33.7	42.1	.	37.9
	2023	1	R	6R	0;	0.2	1.3	.	0.3	29.5	.	14.9
Overall		**R**				**I**						
CDC Austenson	2022	2	MR	.	0;	1.2	2.0	7.0	43.6	30.6	.	37.1
	2023	1	R	6R	0;	0.2	1.5	.	2.1	36.0	.	19.0
Overall		**MR**				**I**						
TR22669	2022	1	R	.	;1-	2.7	1.5	7.3	39.0	20.0	.	29.5
	2023	1	R	6R	;1-	0.8	2.3	.	1.8	22.1	.	11.9
Overall		**R**				**I**						

S – susceptible, MS – moderately susceptible, I – intermediate, MR – moderately resistant, R – resistant; Chtwn = Charlottetown

Table 3. Supplemental grain yield data (kg/ha) of TR22669 and popular varieties in the 2024 WCI trials across different environments.

Entry	Taber (Dryland)	Taber (Irrigated)	Lacombe	Olds	Westlock	Overall	% Sirish
Sirish	4159.8	6470.4	3769.3	6615.4	6765.0	5556.0	100
Esma	4641.8	6488.5	3965.4	6605.6	7175.0	5775.2	104
CDC Austenson	5110.0	6719.6	3883.1	6603.6	6669.0	5797.1	104
TR22669	**4790.3**	**6774.8**	**3884.2**	**6853.2**	**7100.3**	**5880.6**	**106**
Mean	4512.0	6626.5	3816.3	6390.4	6761.7	5621.4	
CV (%)	9.6	6.6	12.6	5.7	2.0	6.9	
$LSD_{0.05}$	789.7	797.8	872.2	664.8	242.6	286.3	
No. of reps	3	3	3	3	3	15	

Table 4. Supplemental grain yield data (bushels/acre) of TR22669 and popular varieties in strip plot trial at Stamp Seeds, Enchant, AB, presented in seeding order. Trial conducted under high-input conditions: irrigation, fertilization; application of fungicide and plant growth regulator.

Variety	Bushel Wt. (lb/bu)	Grain Yield (bu/ac)
CDC Churchill	47.9	83.3
CDC Fraser	45.9	95.8
Bill Coors 100	45.5	95.8
AB Dram	46.0	95.8
RGT Planet	45.1	106.3
RGT Asteroid	46.1	104.2
TR22669	**47.3**	**137.5**
Sirish	47.4	95.8
SY Stanza	45.5	104.2
Esma	46.3	95.8
CDC Durango	48.3	112.5
AB Hague	48.7	95.8
CDC Renegade	46.7	104.2
AB Tofield	42.1	104.2