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Request for Support for Registration of FB21106

Crop: Barley (*Hordeum vulgare* L.)
Type: Two-row, spring, hulled (General Purpose)

Proposers: A.D. Beattie
Crop Development Centre
University of Saskatchewan
51 Campus Drive
Saskatoon, SK. S7N 5A8

Test #'s: FB21106 or SB180371

Pedigree: Altorado x SB130536

Area of Adaptation: Western Canada

Description:

FB21106 is a two-row, hulled feed barley with good adaptability across Western Canada. It combines excellent grain yield (6% higher than CDC Austenson) and good lodging resistance with similar height and slightly earlier maturity than CDC Austenson. It shows slightly lower test weight than CDC Austenson with higher kernel weight, higher plumpness and lower thins than CDC Austenson. **FB21106** shows moderate resistance to stem rust, loose smut and the surface smuts, and intermediate resistance to net blotch (both forms), spot blotch and FHB.

Strengths:

- High grain yield (> CDC Austenson).
- Good lodging resistance (= CDC Austenson).
- High kernel weight and plumpness (> CDC Austenson), low thins (<CDC Austenson).
- Moderate resistant to loose smut, surface smuts and stem rust.

Neutral characteristics:

- Height (= CDC Austenson).
- Maturity slightly earlier than CDC Austenson.
- Test weight slightly lower than CDC Austenson.
- Intermediate resistance to net blotch (both forms), spot blotch, and FHB.

Weaknesses:

- Susceptible to scald.

Table 1. Grain yield for FB21106 and checks from the 2021 Western Co-operative Feed and Forage Barley Registration Test.

Entry	Eastern Black Soil Zone		Western Black & Grey Zone		Brown & Dark Brown Soil Zone		Irrigated		Combined	
	% CDC		% CDC		% CDC		% CDC		% CDC	
	(kg/ha)	Austenson	(kg/ha)	Austenson	(kg/ha)	Austenson	(kg/ha)	Austenson	(kg/ha)	Austenson
AB Cattlelac	4218	93	3794	98	2906	94	8757	100	4065	95
CDC Austenson	4514	100	3882	100	3093	100	8786	100	4259	100
Gadsby	4204	93	3775	97	2806	91	7423	84	3922	92
Vivar	4115	91	3548	91	2941	95	8327	95	3947	93
CDC Cowboy	3693	82	3450	89	2822	91	6501	74	3585	84
FB21106	4680	104	4629	119	3420	111	8227	94	4553	107
Station Years	5		3		4		1		13	

Table 2. Grain yield for FB21106 and checks from the 2022 Western Co-operative Feed and Forage Barley Registration Test.

Entry	Eastern Black Soil Zone		Western Black & Grey Zone		Brown & Dark Brown Soil Zone		Irrigated		Combined	
	% CDC		% CDC		% CDC		% CDC		% CDC	
	(kg/ha)	Austenson	(kg/ha)	Austenson	(kg/ha)	Austenson	(kg/ha)	Austenson	(kg/ha)	Austenson
AB Cattlelac	5629	98	7433	99	5948	94	-- no data --		6168	97
CDC Austenson	5770	100	7472	100	6347	100			6385	100
Vivar	5462	95	7433	99	6045	95			6141	96
CDC Cowboy	4974	86	6316	85	5183	82			5364	84
FB21106	6175	107	7825	105	6644	105			6736	106
Station Years	5		3		5				13	

Table 3. Grain yield for FB21106 and checks from the 2021 and 2022 Western Co-operative Feed and Forage Barley Registration Test.

Entry	Eastern Black Soil Zone		Western Black & Grey Zone		Brown & Dark Brown Soil Zone		Irrigated		Combined	
	% CDC		% CDC		% CDC		% CDC		% CDC	
	(kg/ha)	Austenson	(kg/ha)	Austenson	(kg/ha)	Austenson	(kg/ha)	Austenson	(kg/ha)	Austenson
AB Cattlelac	4923	96	5613	99	4596	94	8757	100	5117	96
CDC Austenson	5142	100	5677	100	4900	100	8786	100	5322	100
Vivar	4788	93	5491	97	4666	95	8327	95	5044	94
CDC Cowboy	4334	84	4883	86	4134	84	6501	74	4475	84
FB21106	5428	106	6227	110	5211	106	8227	94	5645	106
Station Years	10		6		9		1		26	

Table 4. Agronomic characteristics for FB21106 and checks from the 2021 Western Co-operative Feed and Forage Barley Registration Test.

Entry	Days to Head	Days to Mature	Plant Height (cm)	Lodging Score (1-9)	Test Weight (kg/hl)	Kernel Weight (g/1000k)	Plump (% > 6/64)	Thins (% < 5/64)	NIT Protein (%)
AB Cattlelac	55.2	87.6	65.7	1.0	63.2	41.0	90.5	3.9	12.1
CDC Austenson	59.0	88.4	59.7	1.4	65.9	46.1	91.3	2.8	12.0
Gadsby	59.9	87.9	65.6	1.2	64.6	54.3	96.9	0.8	12.1
Vivar	56.5	86.5	57.0	1.0	60.9	43.7	88.5	4.2	12.1
CDC Cowboy	56.7	88.3	82.3	1.4	65.3	53.5	95.4	1.1	12.6
FB21106	59.9	87.7	58.8	1.0	65.1	49.7	94.5	1.2	11.8
Station Years	13	11	15	2	15	14	14	10	4

Table 5. Agronomic characteristics for FB21106 and checks from the 2022 Western Co-operative Feed and Forage Barley Registration Test.

Entry	Days to Head	Days to Mature	Plant Height (cm)	Lodging Score (1-9)	Test Weight (kg/hl)	Kernel Weight (g/1000k)	Plump (% > 6/64)	Thins (% < 5/64)	NIT Protein (%)
AB Cattlelac	56.5	90.4	91.6	3.4	66.2	41.0	85.8	2.5	12.0
CDC Austenson	59.4	91.5	79.6	2.6	68.8	47.3	91.1	2.0	11.6
Vivar	57.4	91.4	77.2	3.7	63.7	42.7	85.3	3.5	10.9
CDC Cowboy	58.2	91.2	98.0	4.1	68.2	53.6	93.3	2.0	12.1
FB21106	59.2	90.7	77.4	3.1	68.6	49.8	93.7	1.4	11.2
Station Years	12	13	14	6	14	14	14	12	3

Table 6. Agronomic characteristics for FB21106 and checks from the 2021 and 2022 Western Co-operative Feed and Forage Barley Registration Test.

Entry	Days to Head	Days to Mature	Plant Height (cm)	Lodging Score (1-9)	Test Weight (kg/hl)	Kernel Weight (g/1000k)	Plump (% > 6/64)	Thins (% < 5/64)	NIT Protein (%)
AB Cattlelac	55.8	89.0	78.6	2.8	64.7	41.0	88.2	3.2	12.1
CDC Austenson	59.2	89.9	69.6	2.3	67.4	46.7	91.2	2.4	11.8
Vivar	57.0	89.0	67.1	3.0	62.3	43.2	86.9	3.8	11.5
CDC Cowboy	57.4	89.8	90.2	3.4	66.8	53.5	94.3	1.5	12.3
FB21106	59.5	89.2	68.1	2.6	66.9	49.7	94.1	1.3	11.5
Station Years	25	24	29	8	29	28	28	22	7

Table 7. Disease reaction summary for FB21106 and checks from the 2021 Western Co-operative Feed and Forage Barley Registration Test.

Entry	Net Blotch					Spot Blotch			
	Seedling (1-10)			Lacombe Field (1-10)		Seedling (0-9)	Field (1-9)		
	102	858	MBV25	Net	Spot	1903	Brand	Melf	Lac
AB Cattlelac	7	8	3	0.0	3.5	3	2.5	1.0	4.0
CDC Austenson	4	7	7	0.0	4.0	2	3.5	2.0	3.5
Gadsby	2	8	3	1.5	4.5	5	7.5	2.5	3.5
Vivar	7	7	3	0.0	5.0	5	6.0	2.0	4.0
CDC Cowboy	3	7	3	1.5	5.5	5	6.0	3.0	3.0
FB21106	3	8	6	1.5	4.5	5	7.0	0.5	2.5

Entry	FHB						Stem Rust			
	Brandon		Morden		Charlottetown		Seeding	Morden Field		CDC
	FHB (0-5)	DON (ppm)	FHB (0-5)	DON (ppm)	Index (0-100)	DON (ppm)	MCC IT	Sev. (%)	IT	Rpg1
AB Cattlelac	2.5	26.5	2.5	13.3	65.8	no data	0;	-- no data --		+
CDC Austenson	2.0	11.2	3.0	8.1	58.0		1-			+
Gadsby	1.5	2.5	2.2	4.0	64.0		1-			+
Vivar	4.7	23.5	3.8	18.4	72.0		1			+
CDC Cowboy	1.0	3.6	1.7	2.1	58.0		;1-			+
FB21106	2.8	8.0	1.8	6.5	59.8		1-			+

Entry	Scald			Smuts			
	Morden Seeding	Field (1-9)		CDC Field (%)	Morden Field (%)		
		Lac	Edm	Covered	U. nuda	U. hordei	U. nigra
AB Cattlelac	MS	4.0	2.5	9.7	10.0	7.0	9.0
CDC Austenson	S	3.0	1.0	1.3	16.7	6.0	4.0
Gadsby	MR	1.0	0.5	0.0	0.0	0.0	3.0
Vivar	S	4.5	4.0	0.0	0.0	0.0	10.0
CDC Cowboy	MS	3.5	2.5	1.6	23.1	7.0	0.0
FB21106	S	4.0	3.5	0.7	20.0	9.0	3.0

Table 8. Disease reaction summary for FB21106 and checks from the 2022 Western Co-operative Feed and Forage Barley Registration Test.

Entry	Net Blotch					Spot Blotch			
	Seedling (1-10)			Lacombe Field (1-10)		Seedling (0-9)	Field (1-9)		
	102	858	MBV25	Net	Spot	1903	Brand	Melf	Lac
AB Cattlelac	7	2	7	0.0	3.5	5	3.5	1.0	4.0
CDC Austenson	2	3	7	0.0	3.0	5	4.0	4.0	3.5
Vivar	3	4	7	0.0	3.5	7	4.0	2.5	6.0
CDC Cowboy	2	2	5	1.0	3.5	5	5.5	3.5	5.0
FB21106	2	3	5	0.0	3.0	5	5.5	1.5	5.0

Entry	FHB						Stem Rust			
	Brandon		Morden		Charlottetown		Seeding	Morden Field		CDC
	FHB (0-5)	DON (ppm)	FHB (0-5)	DON (ppm)	Index (0-100)	DON (ppm)	MCC IT	Sev. (%)	IT	Rpg1
AB Cattlelac	3.0	43.8	2.0	36.2	62.0	no data	0;	1	R	+
CDC Austenson	1.8	43.3	0.8	55.7	62.0		;1-	2	MR	--
Vivar	4.2	50.1	4.0	36.6	62.0		;1-	1	R	--
CDC Cowboy	1.3	16.1	1.2	14.0	60.0		;	2	MR	--
FB21106	1.7	18.7	1.7	32.2	66.0		;1-	2	MR	+

Entry	Scald			Smuts			
	Morden Seeding	Field (1-9)		CDC Field (%)	Morden Field (%)		
		Lac	Edm	Covered	U. nuda	U. hordei	U. nigra
AB Cattlelac	MR	6.5	6.5	no data	0.0	14.0	6.0
CDC Austenson	MS	7.0	7.5		100.0	14.0	6.5
Vivar	S	7.5	7.5		0.0	0.0	0.0
CDC Cowboy	MS	7.0	6.0		33.3	10.0	9.0
FB21106	S	7.5	8.5		17.6	16.0	22.0