

2014 Regional Silage Variety Trials

CATTLE producers grow ever-increasing amounts of annual crops for feed (silage, green feed and swath grazing), and measuring those that produce the highest forage yield becomes increasingly important. Silage is an integral forage source in feedlots across the province and has become more prevalent in cow herds as well. With many producers trying to lower production costs, swath grazing of cow herds has increased dramatically in the last few years. It could also be argued that there is more grain forage than cereal grain fed to take a market animal from conception to plate.

Participating Organizations

Under the umbrella of the Agricultural Research and Extension Council of Alberta, eight applied research groups performed the project at twelve locations throughout the province.

Agricultural Research and Extension Council of Alberta, Leduc, Alta., (780) 612-9712

Battle River Research Group, Forestburg, Alta., (780) 582-7308

Chinook Applied Research Association, Oyen, Alta., (403) 664-3777

Gateway Research Organization, Westlock, Alta., (780) 349-4546

Lakeland Agricultural Research Association, Bonnyville, Alta., (780) 826-7260

Smoky Applied Research and Demonstration Association, Falher, Alta., (780) 837-2900

West-Central Forage Association, Evansburg, Alta., (780) 727-4447

North Peace Applied Research Association, Manning Alta., (780) 836-5230

Peace Country Beef and Forage, Fairview, Alta., (780) 835-6799

Major Sponsors

Government of Alberta (ARD) – Alex Fedko Coordinator
Agricultural Opportunity Fund – Fred Young Coordinator
A & L Canada Laboratories Inc.

Association of Alberta Co-op Seed Cleaning Plants
Alberta Seed Growers' Association

Trial Information

This is the sixth year the groups have conducted forage testing of various varieties. The tables show the summaries from the last two years as compared to the control variety (in bold). Test Yield categories are similar to the crop variety tables.

Varieties of barley, oats, triticale and peas commonly used for silage, greenfeed and swath grazing were included in the trial, as well as new varieties showing good potential for these uses. The cereal trials, (barley, oats and triticale), were seeded at recommended seeding density rates and at recommended fertility; its objective was to determine yield and nutritional values. The pulse mixture trial looked at increasing the nutritional value of silage, as well as decreasing nitrogen costs. Thus, the pulse mix

plots were seeded with 50 pounds of 11-52-0-0 only, while the monoculture cereal comparison plots were fertilized with 50 per cent of the recommended cereal rates. Peas were seeded at 75 per cent of their recommended seeding rate and cereals at 50 per cent when in mixtures. The monoculture cereal comparison plots were seeded at 100 per cent the recommended seeding rate.

Test Yield Categories

The defined range for each Test Yield Category is provided in tons per acre. Variety yields are reported as average yields in Low, Medium and High Test Yield Categories for comparison with the check for productivity regimes and environments that may be anticipated. Varieties that are statistically higher (+) or lower (–) yielding than the standard check are indicated. No symbol after the yield figure indicates that there is no statistical difference. Caution is advised when interpreting the data with respect to new varieties that have not been fully tested.

To make effective use of the yield comparison tables, producers first need to decide if their target yield for the season fits within the Low, Medium or High Test Yield categories. It should be noted that the indicated yield levels are those from small plot trials, which are often 15 to 20 per cent higher than yields expected under commercial production. Also remember that yield is not the only factor that affects net return. Be sure to consider the other important agronomic and disease resistance characteristics. The genetic yield potential of a variety is often masked by various crop management factors, some of which can be controlled.

Site Information

There were 12 sites across the province, representing various agroecological zones. Sites were located near Castor, Stettler, Fort Kent, Lac La Biche, New Fish Creek, Wildwood, Hanna, Manning, Fairview, St. Paul, Stony Plain and Westlock. The Fairview site seeded the barley and pulse mixed trials only. The Stony Plain and Westlock sites did not report their data, but is available locally. The New Fish Creek site abandoned the oats and pulse mixture. Maturity, plant height and lodging were not measured in the trials as it extensively reported on in the Cereal Regional Variety Trial program.

Nutritional Analysis

Nutrition was assessed using wet chemistry analysis. Full nutritional analysis was done on each sample, however, we have only reported on six nutritional categories; crude protein (CP), total digestible nutrients (TDN) which is an estimation of energy, calcium (Ca), phosphorus (P), potassium (K) and magnesium (Mg).

BARLEY

Variety	Overall Yield	Overall Station Years of Testing	Area (t/ac)					Yield Category (% Vivar)			Nutritional Data					
			2	3	4	5	6	Low < 2.0 (t/ac)	Medium 2.0-4.0 (t/ac)	High > 4.0 (t/ac)	CP (%)	TDN (%)	Ca (%)	P (%)	K (%)	Mg (%)
Varieties tested in the 2012-2014 trials (Yield and agronomic data only directly comparable to Vivar)																
Vivar (t/ac)	4		4.7	4.8	3	4.5	2.5	1.7	3.3	5.2	10.5	66.2	0.4	0.2	1.3	0.2
Vivar	100	25	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Busby	100	25	99	101	94	105+	95	96	99	103	99	99	97	104	96	88
CDC Austenson	109+	25	103	105	127	106	109	121	104	110	101	100	82	106	102	88
CDC Coalition	98	25	103	96	104	91	106	102	95	100	100	100	80	107	102	84
CDC Cowboy	109+	25	99	110	120	109	108+	115	107	109	95	97	97	108	112	101
CDC Maverick	106	15	94	97	89	109	116	117	108	100	92	98	94	105	97	99
Chigwell	96-	25	90-	91	100	93-	105	110	92-	96	100	98	109	102	105	98
Conlon	91-	15	78-	92	98	85-	104	104	88	90-	92	99	88	112	94	84
Gadsby	109+	25	102	108	119	108+	111	123	105	109	98	99	100	106	99	93
Muskwa	96	15	108	90	102	90-	102	101	96	95	98	99	108	106	116	97
Ponoka	106	25	102	104	112	107+	104	115	101	108	96	99	114	105	102	97
Ranger	100	15	116	99	90	99	98	97	100	102	96	98	111	106	118	102
Seebe	105+	25	101	106	113	105	102	111	103	105	104	97	102	114	110	87
Sundre	95-	25	88	95	95	95	101	101	94	95	103	99	104	109	115	100
Trochu	97	24	96	92	101	99	94	103	94	96	99	101	102	109	103	99
Xena	103	25	97	108	106	101	107	106	103	103	101	100	82	111	97	86

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PULSE MIXTURES

Variety	Overall Yield	Overall Station Years of Testing	Area (t/ac)					Yield Category (% Vivar)			Nutritional Data					
			2	3	4	5	6	Low < 2.0 (t/ac)	Medium 2.0-4.0 (t/ac)	High > 4.0 (t/ac)	CP (%)	TDN (%)	Ca (%)	P (%)	K (%)	Mg (%)
Varieties tested in the 2012-2014 trials (Yield and agronomic data only directly comparable to Vivar)																
Vivar (t/ac)	3.5		3.7	4.3	2.3	3.4	3.1	2.5	3.5	4.7	9.3	63.2	0.4	0.2	1.4	0.2
Vivar	100	25	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Murphy	116	24	94	107	157	126+	98	124	117	107	90	95	76	101	126	89
Pronghorn	110	25	98	95	109	119+	112	107	112	108	102	101	62	110	101	77
40-10/Murphy	96	18	55	76	132	102	95	105	97	75	130	98	153	122	119	133
40-10/Pronghorn	95	18	62	78	113	103	97	99	94	92	125	97	148	117	103	126
40-10/Vivar	94	18	70	77-	108	94	116	101	94	83	143	99	174	112	106	137
CDC Horizon/Murphy	108	25	67	97	144	120	97	112	107	106	111	95	125	99	126	111
CDC Horizon/Pronghorn	106	25	76	91	132+	113	112	108	110	97	124	98	139	106	107	105
CDC Horizon/Vivar	99	25	84	94	112	103	98	95	102	96	130	98	157	107	105	117
CDC Meadow/Murphy	110	7	84	105	XX	125+	103	84	109	121+	104	95	116	101	129	95
CDC Meadow/Pronghorn	103	7	81	91	XX	117	106	81	112	101	122	99	124	113	111	95
CDC Meadow/Vivar	104	7	92	94	XX	116	98	92	113	98	115	100	197	89	105	129

OATS

Variety	Overall Yield	Overall Station Years of Testing	Area (t/ac)					Yield Category (% Murphy)			Nutritional Data					
			2	3	4	5	6	Low < 2.0 (t/ac)	Medium 2.0-4.0 (t/ac)	High > 4.0 (t/ac)	CP (%)	TDN (%)	Ca (%)	P (%)	K (%)	Mg (%)
Varieties tested in the 2012-2014 trials (Yield and agronomic data only directly comparable to Murphy)																
Murphy (t/ac)	3.9		3.8	4.7	3.2	4.4	1.9	1.6	3.4	4.8	8.7	58.8	0.3	0.2	1.9	0.2
Murphy	100	25	100	100	100	100	100	100	100	100	100	100	100	100	100	100
AC Juniper	95	20	96	98	95	85-	119	112	90	95	121	107	100	116	99	108
AC Morgan	101	25	101	95	100	97	122	111	99	100	112	106	105	115	96	95
AC Mustang	98	25	106	97	86	98	105	112	94	100	124	105	98	110	98	100
CDC Baler	96	24	85-	100	103	96	93	98	95	97	123	107	106	113	101	102
CDC Haymaker	99	17	98	100	125	95	102	117	99	97	119	106	104	110	103	99
CDC So-i	94-	25	91	104	79-	95	95	98	90-	97	119	107	101	105	99	105
Everleaf	86	7	XX	98	108	73-	68	68	95	76	117	104	112	107	100	102
Foothills	99	25	95	97	107	98	102	110+	94	102	120	103	106	109	101	101
Jordan	98	25	107	96	84	97	108	107	95	99	119	105	100	106	97	112
Waldern	100	25	93	104	99	99	111	113	99	100	110	105	109	104	93	98

TRITICALE

Variety	Overall Yield	Overall Station Years of Testing	Area (t/ac)					Yield Category (% Pronghorn)			Nutritional Data					
			2	3	4	5	6	Low < 3.0 (t/ac)	Medium 3.0-4.5 (t/ac)	High > 4.5 (t/ac)	CP (%)	TDN (%)	Ca (%)	P (%)	K (%)	Mg (%)
Varieties tested in the 2012-2014 trials (Yield and agronomic data only directly comparable to Pronghorn)																
Pronghorn (t/ac)	4.2		4.3	4.4	3.4	4.8	2.1	2.5	4	5.3	9.3	62.8	0.2	0.3	1.4	0.1
Pronghorn	100	26	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Bunker	97	26	87	96	98	101	93	93	97	99	101	98	118	95	94	109
Sunray	97	17	85	94	129	99	90	87	101	98	108	102	111	100	97	102
Taza	100	26	96	102	95	102	96	101	97	101	99	100	108	103	94	97
Tyndal	95-	26	91	101	92	96	92	92	97	96	96	100	102	99	91	98