

ANNUAL FORAGES

Nutritive Value Results

A composite sample for each treatment underwent a feed analysis, and the pertinent nutritive aspects are presented here. Of focus is the content of total digestible nutrients, crude protein, acid detergent fibre, calcium and phosphorus.

Nutritive forage values for barley, oat, wheat and triticale, and alternative forage trials						
Nutritive Forage Value Content (%)						
Treatment	Seeding Rate (lb ac ⁻¹)	Total Digestible Nutrients	Crude Protein	Acid Detergent Fibre	Calcium	Phosphorus
Barley						
CDC Churchill	120	66.13	12.10	26.70	0.16	0.28
CDC Bow	101	64.86	11.36	26.18	0.10	0.27
Amisk	115	64.73	13.14	26.91	0.19	0.30
Canmore	107	64.55	11.59	26.84	0.15	0.31
SR17515 / AB Tofield	125	64.15	12.39	27.46	0.17	0.29
AB Wrangler	135	64.07	11.36	28.64	0.11	0.24
TR18647 / AB Hauge	128	63.91	12.01	25.65	0.12	0.29
Altorado	124	63.77	11.04	28.24	0.13	0.24
Sundre	106	63.56	12.47	28.87	0.11	0.30
Esma	162	63.54	12.00	29.20	0.07	0.22
Claymore	108	63.37	12.30	27.33	0.12	0.30
CDC Austenson	142	62.46	10.81	28.41	0.18	0.27
AB Cattellac	99	62.44	13.07	28.63	0.19	0.28
AB Advantage	138	62.43	11.34	27.67	0.18	0.27
SR18645 / AB Prime	127	62.09	10.24	28.05	0.14	0.28
Stockford	148	61.98	11.70	29.16	0.23	0.31
CDC Cowboy	157	61.79	11.32	29.70	0.13	0.29
CDC Maverick	169	61.39	10.17	30.16	0.26	0.26
Oat						
CDC Baler	118	63.41	11.67	30.38	0.37	0.25
CDC Haymaker	126	63.31	12.86	29.47	0.41	0.25
CDC Endure	123	62.84	10.46	31.30	0.32	0.24
CS Camden	117	62.43	11.19	31.72	0.39	0.23
AC Juniper	112	62.13	9.62	34.20	0.37	0.22
OR3542M	103	61.58	11.00	35.02	0.40	0.26
CDC Nasser	105	61.17	10.51	32.06	0.37	0.25
AC Morgan	127	60.84	11.54	30.81	0.34	0.22
CDC SO-1	127	60.24	10.67	32.36	0.42	0.24
Murphy	117	59.08	9.65	32.73	0.23	0.21
CDC Arborg	116	55.60	11.86	34.90	0.54	0.24
Spring Wheat and Triticale						
Alderon	140	71.15	13.04	22.79	0.10	0.21
WPB Whistler	124	71.08	14.29	22.88	0.13	0.22
AC Sadash	89	68.83	13.64	25.76	0.21	0.17
Taza	129	68.31	13.09	26.43	0.18	0.23
Sunray	144	66.52	13.40	28.73	0.17	0.19
AC Andrew	125	66.44	14.27	28.83	0.13	0.15
AAC Delight	148	66.03	12.20	29.36	0.16	0.22
AAC Awesome	132	65.19	14.17	30.44	0.14	0.17
AAC Paramount	100	63.58	10.40	32.50	0.13	0.13
Bunker	133	62.76	11.20	33.55	0.15	0.18
T256 / AB Stampeder	134	62.62	10.88	33.73	0.11	0.25
Alternatives						
Forage Turnip	10	76.63	15.38	15.75	0.85	0.26
Forage Brassica	10	72.46	13.08	21.11	0.93	0.24
Forage Kale	5	70.34	13.17	23.83	0.92	0.24
Sorghum Sudan Grass	13	66.85	10.50	28.31	0.44	0.17
Chicory	10	65.91	14.87	29.51	0.85	0.21
Millet	10	65.70	11.19	29.78	0.55	0.21
Plantain	10	62.12	14.19	34.38	0.79	0.19
Phacelia	10	62.10	13.91	34.40	1.34	0.23
Forage Radish	5	60.46	13.56	36.51	0.88	0.29
Double Max Radish	5	57.04	10.67	40.90	0.73	0.20

Crop Varieties and Descriptions

Crop types for spring wheat and triticale trial	
Variety	Crop/Class
AAC Awesome	CWSP
KWS Alderon	CWSP
WPB Whistler	CWSP
AAC Paramount	CWSWS
AC Andrew	CWSWS
AC Sadash	CWSWS
AAC Delight	Spring triticale
Bunker	Spring triticale
Sunray	Spring triticale
T256 / AB Stampeder	Spring triticale

Crop types for spring/winter mix cereal/pulse mix trials.	
Variety	Crop/Class
Prima	Fall rye
CDC Baler	Forage oat
Taza	Spring triticale
CDC Austenson	Feed barley
Bobcat	Winter triticale
Luoma	Winter triticale
Metzger	Winter triticale
AAC Wildfire	Winter wheat
DL Tesoro	Faba bean
Snowbird	Faba bean
Aberdeen	Field pea
CDC Meadow	Field pea
DL Delicious	Forage pea
DL Goldeneye	Forage pea
DL Lacross	Forage pea

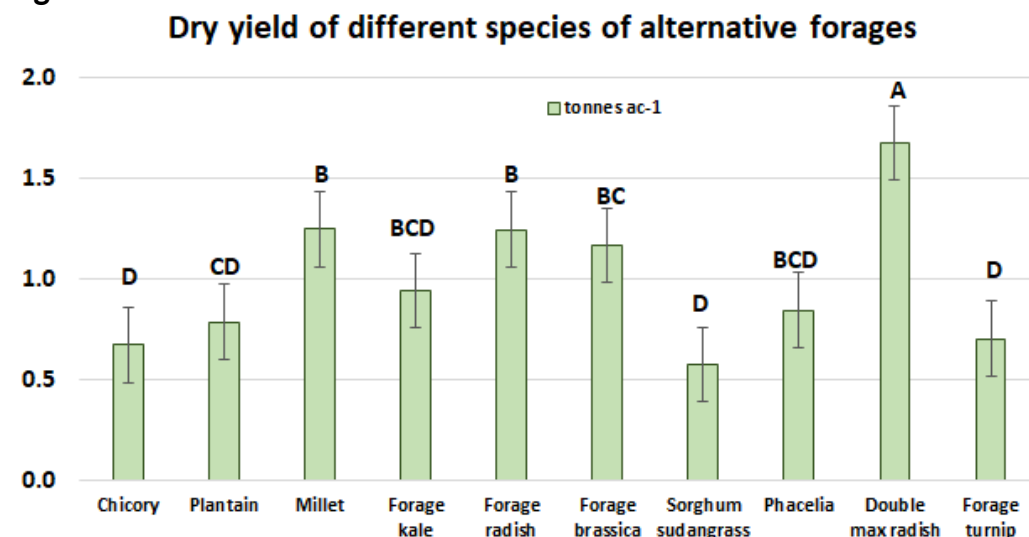
Nutritive forage values for spring and winter cereal mix trial and cereal and pulse mix trial							
Seeding Rate*		Nutritive Forage Value Content (%)					
Treatment	lb ac ⁻¹	% of Mix	Total Digestible Nutrients	Crude Protein	Acid Detergent Fibre	Calcium	Phosphorus
Spring and Winter Cereal Mixes							
Metzger	111	100	77.56	21.59	28.87	0.63	0.32
Luoma	119	100	76.58	19.93	29.12	0.64	0.33
AAC Wildfire	59	48	74.22	19.13	29.27	0.47	0.31
Taza	64	52					
Metzger	55	46	72.75	18.98	29.44	0.56	0.31
Taza	64	54					
Bobcat	119	100	72.71	18.64	31.74	0.66	0.31
Prima	39	36					
CDC Austenson	71	64	70.41	13.42	27.70	0.38	0.27
Metzger	55	43					
CDC Austenson	71	56	70.01	13.58	24.68	0.40	0.28
Luoma	60	46					
CDC Austenson	71	54	69.67	13.61	26.65	0.35	0.28
Bobcat	59	45					
CDC Austenson	71	55	68.78	11.29	28.67	0.39	0.28
AAC Wildfire	59	45					
CDC Austenson	71	55	68.58	13.06	26.92	0.39	0.28
Prima	39	38					
Taza	64	62	68.18	13.76	30.72	0.42	0.25
Luoma	60	48					
Taza	64	52	67.88	15.37	31.37	0.50	0.28
Prima	39	40					
CDC Baler	59	60	66.95	13.35	27.79	0.34	0.24
AAC Wildfire	59	50					
CDC Baler	59	50	66.49	14.26	30.64	0.48	0.26
Metzger	55	48					
CDC Baler	59	52	66.47	13.16	31.15	0.46	0.25
Luoma	60	50					
CDC Baler	59	50	66.44	14.04	30.13	0.46	0.27
Bobcat	59	48					
Taza	64	52	65.54	15.72	29.37	0.78	0.27
Bobcat	59	50					
CDC Baler	59	50	65.49	14.99	31.26	0.60	0.27
CDC Baler	118	100	64.80	10.64	28.70	0.33	0.24
CDC Austenson	142	100	64.48	10.77	29.61	0.35	0.26
Taza	129	100	60.35	10.04	32.13	0.34	0.23
Cereal and Pulse Mixes							
Taza	64	34					
DL Delicious	123	66	74.47	16.45	30.72	1.05	0.33
CDC Baler	59	32					
DL Delicious	123	68	71.11	14.72	29.18	0.81	0.29
Taza	64	38					
DL Goldeneye	103	62	70.07	13.41	27.90	0.65	0.25
Taza	64	29					
DL Tesoro	157	71	69.10	18.92	30.89	1.88	0.39
Taza	129	100	69.03	11.43	26.40	0.62	0.28
Taza	64	34					
CDC Meadow	122	66	68.95	12.79	27.78	0.58	0.26
Taza	64	42					
DL Lacross	90	58	68.61	13.26	28.91	0.78	0.28
Taza	64	30					
Aberdeen	150	70	68.54	12.63	28.51	0.82	0.27
CDC Austenson	71	41					
DL Goldeneye	103	59	66.71	10.60	26.53	0.31	0.23
CDC Austenson	71	37					
DL Delicious	123	63	66.37	12.21	31.56	0.64	0.26
CDC Austenson	71	32					
Aberdeen	150	68	66.24	11.41	28.62	0.53	0.26
CDC Baler	59	28					
Aberdeen	150	72	66.10	11.91	28.51	0.43	0.24
CDC Austenson	71	44					
DL Lacross	90	56	66.08	11.07	27.85	0.37	0.24
CDC Austenson	71	31					
DL Tesoro	157	69	65.61	12.10	29.91	0.72	0.27
CDC Baler	59	36					
DL Goldeneye	103	64	64.79	12.75	31.34	0.57	0.25
CDC Austenson	71	37					
CDC Meadow	122	63	64.74	11.03	27.62	0.31	0.25
CDC Austenson	142	100	64.32	10.54	27.57	0.30	0.25
CDC Austenson	71	31					
Snowbird	155	69	64.25	12.60	27.34	0.42	0.25
CDC Baler	118	100	63.65	11.67	30.28	0.47	0.23
CDC Baler	59	27					
DL Tesoro	157	73	63.42	12.71	31.14	0.80	0.25
Taza	64	29					
Snowbird	155	71	63.19	11.78	30.02	0.92	0.28
CDC Baler	59	28					
CDC Baler	59	40	63.16	11.51	29.00	0.64	0.24
DL Lacross	90	60	63.11	10.55	29.68	0.52	0.22
CDC Baler	59	33					
CDC Meadow	122	67	61.39	10.80	29.05	0.34	0.21

* Spring and winter cereal mixes consisted of two cereal varieties at 50% the recommended seeding rate, respectively. Cereal and pulse mixes were made up of a cereal at 50% the recommended seeding rate and a pulse at 75% the recommended seeding rate.

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The annual forage trials are performed every year to report yield and forage quality of several varieties in each trial type (alternative, oat, barley, triticale and wheat varieties as well as mixes such as spring and cereal and pulse and cereal). This is a project performed with sister associations such as Battle River Research Group (BRRG), Chinook Applied Research Association (CARA), Gateway Research Organization (GRO), Lakeland Agricultural Research Association (LARA), Mackenzie Applied Research Association (MARARA), Peace Country Beef and Forage Association (PCBFA), and West Central Forage Association (WCFA).

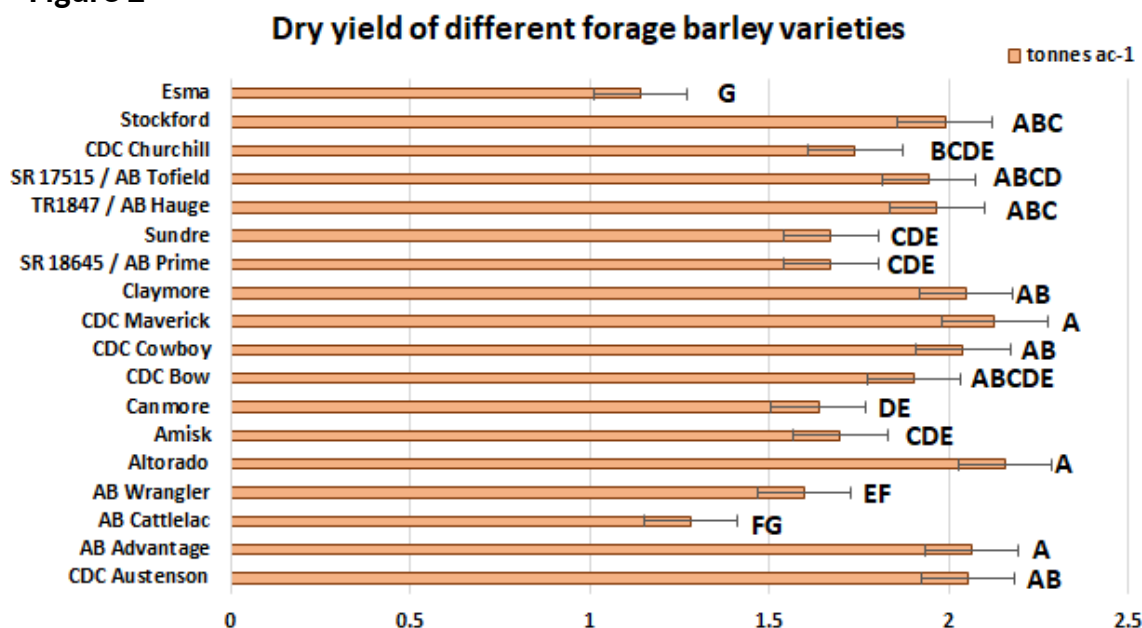
Figure 1



In the alternative forage trial, double max radish was more productive in yield compared to sorghum sudangrass, forage turnip, and chicory (P=0.0002, Figure 1). Figure 2 shows that the Altorado, the CDC Maverick and the AB Advantage varieties in the barley forage trial were the highest yielding in contrast to the Esma variety (P<0.0001).

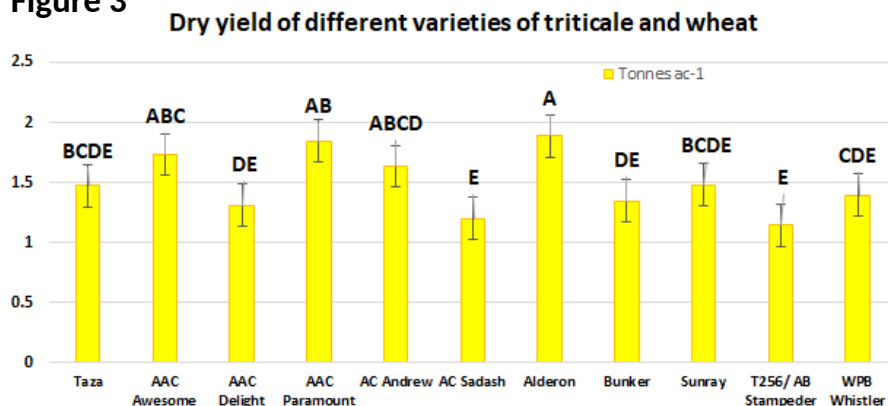
It can be inferred that for best forage yield in alternative, double max radish should be sown and hence similar varieties should be pursued for production. Barley varieties such as Altorado and CDC Maverick are the best choices for forage, nevertheless varieties such as Stockford, SR 17515/AB Tofield, TR1847 /AB Hauge, Claymore, CDC Cowboy, CDC Bow and CDC Austenson are also great choices for high yielding forage varieties.

Figure 2



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Figure 3



The Alderon variety in the triticale and wheat variety forage trial produced a higher yield than that of AC Sadash, and T256/ AB Stampeder ($P \leq 0.0001$, Figure 3). Varieties such as CDC Haymaker and CDC Nasser were higher yielding than AC Morgan in the oat forage varieties ($P \leq 0.0001$, Figure 4). Of the triticale and wheat varieties, AAC Paramount, AAC Awesome and AC Andrew produced competent yield compared to the Alderon variety.



Oat Forages 07/26



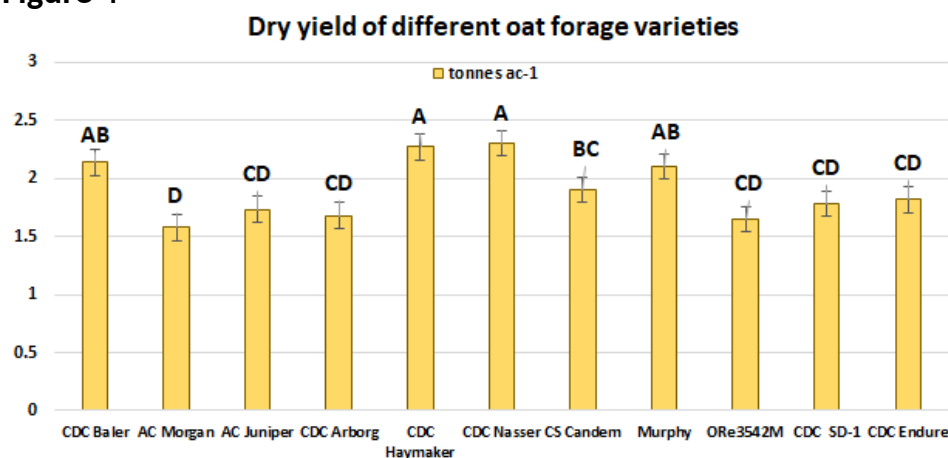
Wheat and Triticale 08/19



Harvesting Barley Forages 08/24

As for oat forage varieties, CDC Baler and Murphy are also competent yielding varieties. On the same note, AAC Delight, Bunker, Sunray and WPB Whistler for wheat and triticale forage and AC Juniper, CDC Arborg, Ore3542M, CDC SD-1 and CDC Endure for oat forage should not be regarded as high yielding annual forage varieties in warm and dry conditions such as those experienced this year.

Figure 4

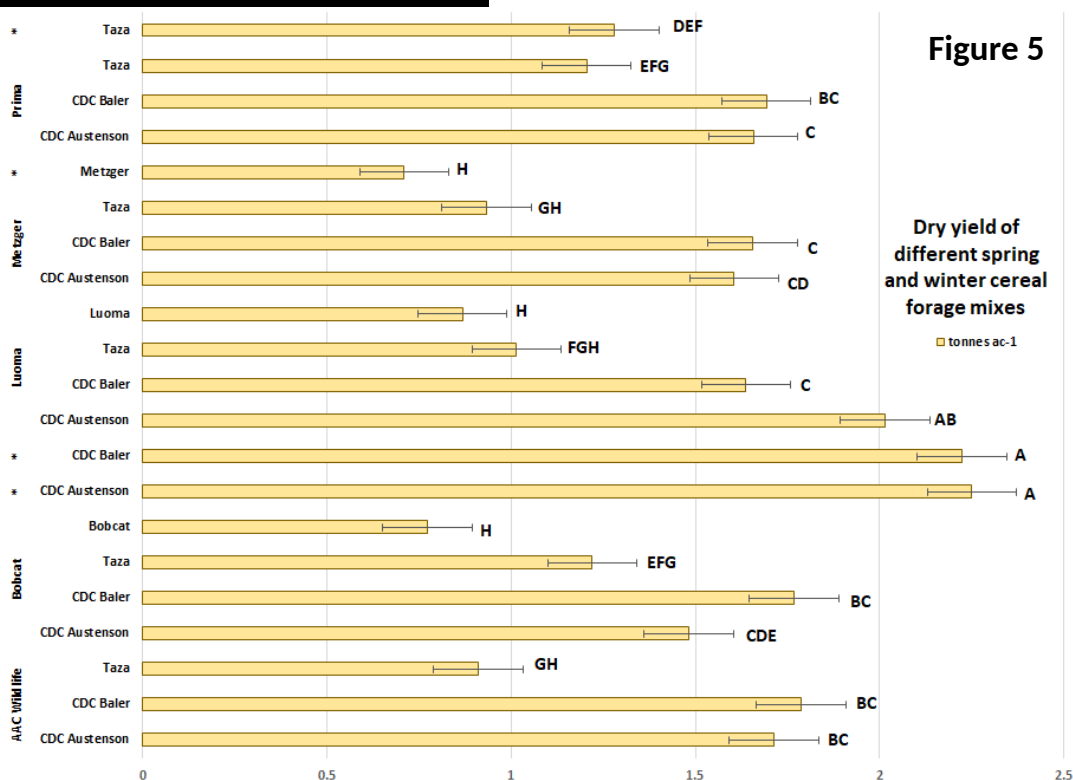


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Spring and Winter Cereal Mixes 07/26

In the 2021 growing season two mixed forage trials were seeded: spring and winter cereal mixes and pulse and cereal mixes. In the spring and winter cereal mix forage trial, the single varieties of CDC Baler and CDC Austenson produced more yield than the mixes (Figure 5), however, the Luoma + CDC Austenson produced as much yield as these two varieties sown as a monocrop ($P < 0.0001$). Lowest yielding mixes of spring and winter cereals were found to be Metzger + Taza, Luoma + Taza, and AAC Wildlife + Taza. Yields of these mixes were as low as yields from Metzger, Luoma, and Bobcat varieties sown as monocrops (Figure 5). Given the conditions of drought and extensive heat, it is expected that spring cereals would be higher yielding and produce more as a monocrop instead of intersown with a companion winter cereal.



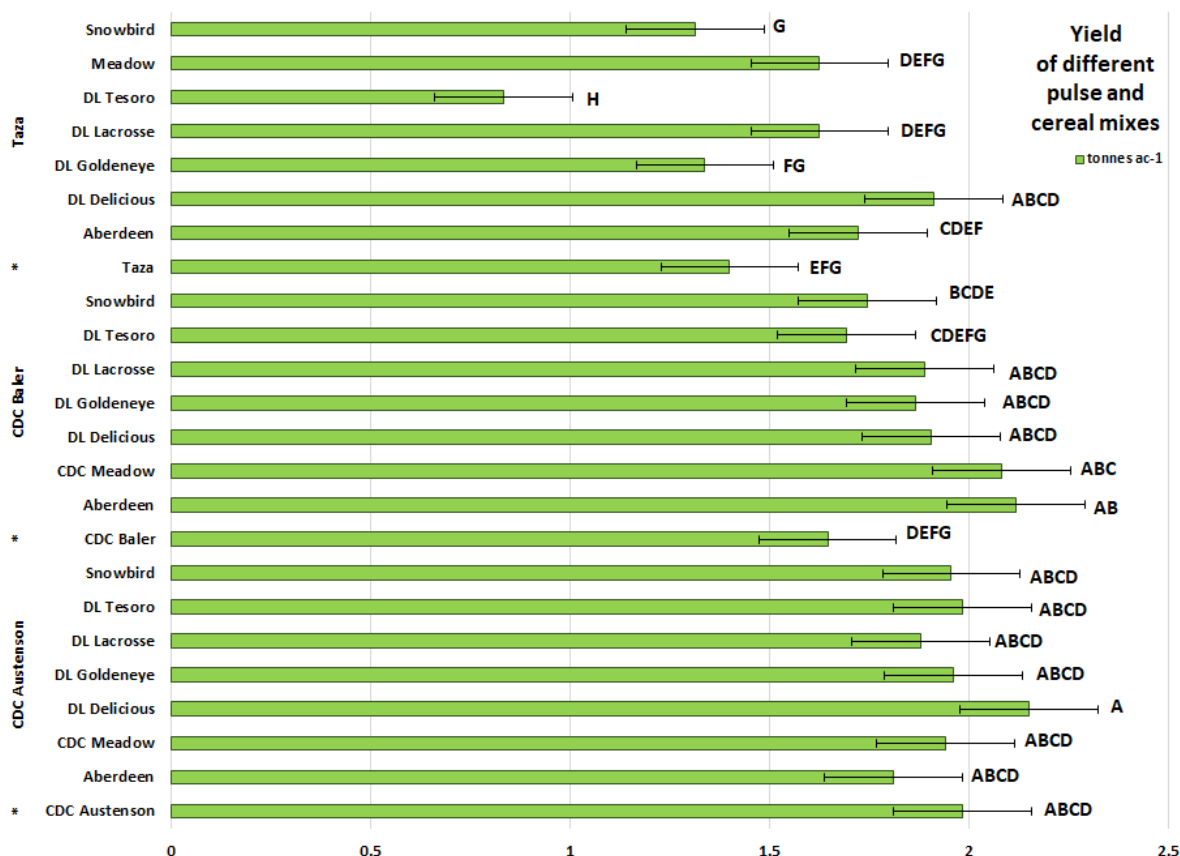
As for the pulse and cereal mix forages, Taza variety with DL Tesoro mix, was the least productive compared to CDC Austenson mixed with DL Delicious ($P < 0.0001$). The mix of CDC Austenson + DL Delicious was just as productive as the CDC Austenson variety sown on its own and greater than the CDC Baler and Taza varieties sown on their own (Figure 6). Yield is likely owed more to the cereal upper biomass than the pulse biomass. Hence, cereal varieties intersown were more productive compared to sown as an individual crop.



Cereal and Pulse Forage Mixes 08/06

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Figure 6



PERENNIAL FORAGES

NPARA seeded five perennial forage trials this year. Next year, forage yields will be harvested, weighed, and sent for nutritive analysis. Forage trials include:

- grass varieties,
- alfalfa varieties,
- sainfoin and cicer milk vetch varieties,
- grass and legume mixes, and
- sainfoin varieties. This was the establishment year for the trials.

Along with the trials, two perennial demos were seeded on July 14th, one featuring Kernza, an intermediate wheatgrass, and the other, creeping alfalfa. The Kernza struggled to catch, but the creeping alfalfa emerged relatively well. Stay tuned for demo observations come 2022.

