



Agriculture and  
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Canada-Saskatchewan  
Irrigation  
Diversification  
Centre

# CROP VARIETIES FOR IRRIGATION



January 2013



Saskatchewan



**Canada-Saskatchewan  
Irrigation  
Diversification  
Centre**

The Canada-Saskatchewan Irrigation Diversification Centre (CSIDC), Outlook, Saskatchewan, is managed and funded by the federal and provincial governments, by industry and by academia. The federal contribution is provided by Agriculture and Agri-Food Canada. The provincial partner is the Saskatchewan Ministry of Agriculture. Industry is represented by the Irrigation Crop Diversification Corporation (ICDC) and the Saskatchewan Irrigation Projects Association (SIPA). Academia is represented by the University of Saskatchewan.

The goal of CSIDC is to promote economic security and sustainable rural development, primarily through diversified cropping and intensive management of irrigated cropland.

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**CROPS:**

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# Using the Variety Guide

**Introduction** The yield comparison tables are compiled from irrigated yield tests conducted by the Irrigation Crop Diversification Corp (ICDC) and the Canada-Saskatchewan Irrigation Diversification Centre (CSIDC). The data used in the tables are from irrigated co-operative (pre-registration) trials, regional yield trials, agronomic and observational trials, and producer funded yield trials.

The trials are conducted on small replicated plots using specialized plot equipment. A high level of management is applied to eliminate differences caused by soil variability, weed pressure, or disease. The aim is to make conditions as uniform as possible so that yield differences are due to the varieties themselves, and not some other factor. The yield of small, uniform plots is generally greater than field yields; however, the relative ranking of varieties will be the same. Emphasis is placed on testing varieties with good lodging tolerance, suitable disease resistance, and ease of harvest under irrigated production.

Crop varieties respond differently from year to year. The highest yielding variety one year may be one of the lowest yielding in another year (for example, it may mature late and be at risk of frost). Choosing the highest yielding variety is no guarantee that it will give the highest yield for this season, or your farm. Selecting a lower ranked variety may be suitable, especially if some other characteristic, such as disease resistance or early maturity, is desired.

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## Interpreting the Tables

### Site years

One site year is a test performed for one year at one site. A test conducted over 10 years at one site, or one year at 10 sites equal's 10 site years in both cases. Results from less than six site years are reported only for those cases where data is limited.

### Relative yield of varieties

All varieties are compared as a percent of a standard "check" variety. This variety is included in all tests. All other varieties are compared to it. This allows comparisons from year to year, from site to site, and from test to test.

A well run test performed over a large number of site years can detect yield differences of 2 or 3 percent. Consider four varieties that yield 108, 107, 106, and 102 percent of the check: the top three have produced comparable yields, and are higher yielding than the fourth. However, where site years are limited, varieties within 6 or 8 percent cannot be said to be different based on the available data. Further testing is needed to rank the varieties more precisely.

### Lodging ratings

Lodging ratings are reported on a four point subjective scale. The ratings are based on both numerical ratings and on general field observations throughout the growing season. Lodging varies widely from year to year and from site to site.

## Interpreting the Tables (continued)

Lodging ratings are subjective, based on the judgement of the researcher. The rankings at CSIDC have been performed using a consistent method wherever possible. This improves the accuracy of the ranking of the varieties, but does not predict results for any given year, field, or level of management.

### Agronomic information

Agronomic information includes plant height, days to flowering or maturity, seed size and quality measurements. Crop height, for example, varies from year to year. Therefore, the agronomic information is useful only as a comparison between varieties. Find a variety you are familiar with and compare others to it to determine whether it is likely to be different.

### Disease ratings

ICDC does not routinely collect disease ratings for each variety. **Please consult Varieties of Grain Crops 2013, a publication of Saskatchewan Ministry of Agriculture, for disease ratings of specific varieties.**

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## A Word of Caution

Occasionally the comparison with the check variety can be misleading. In some years the check may have an exceptionally low or high yield, skewing the rankings. For example, a new variety with limited site years of data (compared to the long term check) may rank unusually high if the check performed much worse than average during one year. Further testing will even out the variability and the ranking of the varieties will more closely reflect performance in the field.

**Management practices may have a greater impact on yield than choice of variety.** For example, seeding date experiments at CSIDC for irrigated flax have shown up to 20 percent yield reduction for late May seeding as compared to early May. This 20 percent spread is greater than the yield difference between flax varieties.

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## Plant Breeders' Rights



Plant Breeders' Rights (PBR) ensure that private sector and institutional crop breeders are afforded reasonable control of their varieties and fair compensation for their efforts. Plant breeders may apply under the Plant Breeders' Rights Act to obtain certain controls over seed increase and seed sales of their varieties.

Sale or any other transfer of ownership of seed protected under the act is prohibited without the written permission of the breeder or the breeder's agent, and without payment of a royalty to the breeder or the agent. Under PBR, bona fide farmers are allowed to keep seed of the variety for use on their own farms.

**Varieties for which Plant Breeders' Rights are in effect at the time of printing are identified by the symbol . Varieties for which Plant Breeders' Rights have been applied for are identified by the symbol .**

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***For more detailed information on specific varieties, refer to the Saskatchewan Ministry of Agriculture publication Varieties of Grain Crops 2013.***

## Canola (*B. napus*)

Clubroot is a serious soil-borne disease of canola. Currently, there are no economical control measures that can remove the disease from infected canola fields. Sanitation and crop rotation are the most effective methods of prevention. Information about clubroot is available on the following website: [www.clubroot.ca](http://www.clubroot.ca).

**45H29** is the first variety registered with tolerance to clubroot. More recent clubroot tolerant varieties include **73-67 RR**, **73-77 RR**, **D3152** and **9558C** (limited data not shown).










**45S51** is the first variety registered with tolerance to white mold. More recent white mold tolerant varieties include **45S52** and **9557S** (limited data not shown).


Average plot yield of 45H21 (check):  
4,820 kg/ha (86 bu/ac)

Variety	Type	Site Years	Yield as % of 45H21	Lodging Rating	Height (cm)	Days to Maturity
<b>Conventional</b>						
46A65	OP	43	83	G	119	99
<b>Clearfield</b>						
5525 CL	HYB	13	105	VG	127	99
45H73	HYB	20	102	G	124	98
45P70	HYB	16	97	G	124	99
1651 H	HYB	10	82	G	128	98
<b>Liberty Link</b>						
8440	HYB	16	115	VG	120	99
5440	HYB	21	113	VG	128	99
L150	HYB	10	113	G	128	99
5030	HYB	28	112	VG	135	99
5770	HYB	12	111	VG	115	100
L130	HYB	10	111	VG	123	99
9590	HYB	20	107	VG	123	98
5070	HYB	14	106	G	127	100
<b>Roundup Ready</b>						
45H29	HYB	10	114	G	131	99
6060 RR	HYB	8	112	VG	126	101
45H26	HYB	17	107	G	124	99
45H28	HYB	13	106	G	126	99
1950	HYB	5	106	G	127	99
1956	COM	7	104	G	120	99
72-55 RR	HYB	5	104	F	119	98
46P50	HYB	16	103	G	128	100
VR 9553 G	HYB	12	103	G	125	99
D3150	HYB	13	102	G	125	99
45H21	HYB	43	100	G	122	99
6040 RR	HYB	11	100	G	125	100
71-45 RR	HYB	20	100	F	118	97
VT 500G	HYB	8	100	VG	126	99
VT Remarkable	COM	8	100	G	123	100
72-65 RR	HYB	7	98	G	119	99
V1037*	HYB	14	98	F	124	100
1855 H	HYB	5	98	G	123	99
83S01 RR	COM	6	98	G	123	98
45S51	HYB	8	98	G	120	97
1841	HYB	19	97	VG	128	99
4424 RR	HYB	5	97	G	125	99
93H01 RR	HYB	7	96	G	124	99
V1040*	HYB	6	96	G	120	100
1852 H	HYB	10	96	G	132	99
*VT Desirable	COM	14	90	G	117	97

Specialty oil  
 HYB = Hybrid; COM = Composite Hybrid; OP = Open Pollinated  
 Lodging: F = fair; G = good; VG = very good

# Flax

Variety	Site Years	Yield as % of CDC Bethune	Lodging Rating	Days to Maturity
CDC Bethune 	30	100	G	114
Prairie Thunder 	22	100	G	114
Prairie Blue 	30	95	G	118
Macbeth 	29	94	G	114
Prairie Grande 	19	94	G	113
Taurus 	14	93	G	114
Lightning 	15	92	G	116
AC Watson	18	92	G	114
Hanley 	29	92	G	112
CDC Sorrel 	22	89	F	115
CDC Arras	23	90	G	114
Vimy	17	83	P	114

Average plot yield of CDC Bethune (check): 3,209 kg/ha (51 bu/ac)  PBR in effect  
Lodging: P = poor; F = fair; G = good; VG = very good

All varieties are resistant to rust.

Frozen flax should be analyzed by a feed testing laboratory to determine that it is free of prussic acid before using it as a livestock feed.

The Flax Council of Canada's Triffid Stewardship Program recommended the testing of all flax seed intended for planting, and only flax seed which tests negative for the presence of Triffid be planted. For the latest recommendations, please visit [www.flaxcouncil.ca](http://www.flaxcouncil.ca)

The Canadian Food Inspection Agency has provided notification in their Proposed List of Variety Registration Cancellations the oilseed flax varieties **CDC Morris** and **CDC Normandy** will be cancelled (deregistered) effective August 1, 2013.

# Spring Wheat

Producers are strongly encouraged to use a combination of the Canadian Food Inspection Agency's List of Registered Varieties (<http://www.inspection.gc.ca/plants/variety-registration/registered-varieties-and-notifications/eng/1300109081286/1300109176745>) and the Canadian Grains Commission's Variety Designation Lists (<http://www.grainscanada.gc.ca/legislation-legislation/orders-arretes/ocgcm-maccg-eng.htm>) to determine the registration and grade eligibility status of varieties.

## **Canada Western Red Spring**

**Fieldstar VB, Goodeve VB, Shaw VB, Unity VB, CDC Utmost VB** and **Vesper VB** are CWRS wheat midge tolerant varieties. They contain the "SM1" tolerant gene. To manage against the build-up of midge resistance to the gene, an "interspersed refuge" will be used commercially. These varieties are not immune to wheat midge and can suffer midge damage when high infestation levels occur. More information on midge tolerant wheat can be found at <http://www.midgetolerantwheat.ca/farmers/faq.aspx>.

**CDC Imagine, CDC Abound, CDC Thrive** and **WR859CL** are tolerant to the CLEARFIELD® herbicides Adrenalin SC and Altitude FX.

**Lillian** is a solid stem variety offering some resistance to wheat stem sawfly.

## **Canada Western Amber Durum**

Limited quantities of **Transcend** will be available in 2013. **Brigade, Eurostar** and **Navigator** have strong gluten properties. All durum varieties are susceptible to two new races of loose smut.

## **Canada Western Extra Strong**

**Glencross VB** is the only CWES wheat midge tolerant variety using the "SM1" gene.

## **Canada Prairie Spring**

**Conquer VB** is a CPS-red midge tolerant variety using the "SM1" gene.

## **Canada Western General Purpose**

Varieties in the General Purpose market class are intended for ethanol and livestock feed purposes.


































## **Canada Western Soft White Spring**

Soft white spring wheat may have potential demand as a feedstock in the production of ethanol. All soft white wheat varieties are eligible for both domestic and export markets. Soft white spring wheat varieties are susceptible to pre-harvest sprouting. The leaf spot pathogens that affect other wheat classes also affect soft white cultivars and therefore recommendations for leaf spot control are similar.

Irrigated areas in south and central Saskatchewan are susceptible to fusarium infestations. Sow less susceptible cereal types and varieties on irrigated fields with a history of fusarium head blight. Use fusarium tested seed to prevent new infestations of irrigated land. Durum and CWES are the most susceptible wheat types followed by CWSWS, CPS and CWRS. Information on tolerance levels in wheat varieties is available in the Saskatchewan Ministry of Agriculture publication:

**Varieties of Grain Crops 2013.**

# Spring Wheat

Variety	Site Years	Yield as % of AC Barrie	Lodging Rating	Height (cm)	Days to Maturity	% Protein +/- AC Barrie	Head Awns Present
<b>Canada Western Red Spring</b>							
Glenn 	12	115	G	90	108	-0.8	Y
Muchmore 	12	113	G	79	105	-1.3	Y
WR859CL 	13	113	G	85	103	-0.6	Y
CDC Abound 	19	113	G	85	108	-0.5	Y
CDC Kernen 	8	113	G	96	104	-0.2	Y
Unity VB 	22	112	G	92	103	-0.5	Y
CDC Utmost VB 	8	112	G	91	103	-0.7	N
Goodeve VB 	20	110	G	91	103	-0.3	N
5603HR 	13	110	G	94	105	-0.7	Y
Shaw VB 	12	109	G	97	103	-0.7	N
CDC Stanley 	8	109	G	91	104	-0.3	N
Carberry 	12	108	G	82	106	-1.0	Y
Stettler 	17	108	G	90	105	+0.3	Y
Fieldstar VB 	17	108	G	95	103	-0.3	Y
McKenzie	22	107	F	92	103	-0.5	Y
Superb 	39	106	G	88	106	-0.4	Y
CDC Thrive 	8	105	G	96	103	-0.2	N
5602HR 	29	103	G	92	106	+0.3	Y
Kane 	17	101	G	87	103	-0.5	Y
AC Barrie 	60	100	G	94	104	15.8%	N
Waskada 	17	99	G	95	104	+0.3	Y
CDC Imagine 	17	97	G	91	104	-0.1	N
Lillian 	23	96	F	93	103	+0.5	N
Harvest 	15	94	G	89	102	-0.3	N
<b>Canada Western Amber Durum</b>							
Enterprise 	16	111	F	91	110	-0.4	Y
Brigade 	22	109	G	96	111	-0.7	Y
Strongfield 	45	107	G	89	108	-0.1	Y
AC Avonlea 	44	107	G	91	106	-0.2	Y
CDC Verona 	22	104	G	90	111	-0.3	Y
Navigator 	33	103	G	81	107	-1.2	Y
Eurostar 	22	102	G	93	110	-0.6	Y
Transcend 	10	99	G	97	107	-0.2	Y
<b>Canada Western Soft White Spring</b>							
Sadash 	42	133	G	87	108	-3.9	Y
AC Andrew	60	125	G	84	108	-3.7	Y
Bhishaj	47	122	G	85	107	-3.8	Y
<b>Canada Western General Purpose</b>							
Minnedosa 	12	126	G	87	104	-2.6	Y





Average plot yield of AC Barrie (check): 5,671 kg/ha (84 bu/ac)  
Lodging: F = fair; G = good

 PBR in effect

Wheat Table continued following page.



## Spring Wheat

Variety	Site Years	Yield as % of AC Barrie	Lodging Rating	Height (cm)	Days to Maturity	% Protein +/- AC Barrie	Head Awns Present
<b>Canada Western Hard White</b>							
Snowstar 	17	106	G	85	103	-1.5	N
Snowbird 	32	93	G	95	104	-0.3	N
<b>Canada Prairie Spring White</b>							
AC Vista 	49	119	G	85	106	-2.1	Y
<b>Canada Prairie Spring Red</b>							
Conquer VB 	12	135	G	91	105	-1.8	Y
5702PR 	19	119	G	85	106	-1.2	Y
AC Crystal 	46	114	G	84	106	-2.3	Y
<b>Canada Western Extra Strong</b>							
CDN Bison	17	110	G	90	107	-0.7	Y
Burnside	29	102	G	101	105	-0.6	N
Glencross VB	20	101	G	103	105	-0.6	N

Average plot yield of AC Barrie (check): 5,671 kg/ha (84 bu/ac)  
 Lodging: F = fair; G = good

 PBR in effect

# Barley

## Malt Barley

Growers are reminded that the malting industry is cautious about using new varieties.

Information on recommended malting barley varieties for 2012-2013 can be found on the Canadian Malting Barley Technical Centre (CMBTC) website at [www.cmbtc.com](http://www.cmbtc.com).

### Lines Under Test
































Commercial acceptability of malting varieties is given only after two years of successful plant scale evaluation. Several carload lots of barley are malted and brewed then subjected to a taste panel. This process normally takes a minimum of three years since a crop grown in one year will be malted in January-February, brewed in May-June, and aged and tasted in October-November of the following year.

Growers are cautioned that most malting varieties, especially two rows, are susceptible to sprouting. Two-row barley varieties are generally more resistant to shattering than six-row varieties.


### Feed and Food Barley

**CDC Cowboy** is a forage variety. **CDC McGwire** is a normal starch hullless barley suitable for food use.

Disease resistance, straw strength and maturity are more critical when barley is grown under irrigation. Growers should select early, strong strawed, disease resistant varieties. For additional information refer to the Saskatchewan Ministry of Agriculture "Variety of Grain Crops 2013."

Variety	2 or 6 Row	Site Years	Yield as % of AC Metcalfe	Lodging Rating	Height (cm)	Days to Maturity
<b>Malting Varieties</b>						
<b>Malting Acceptance: Recommended</b>						
Newdale 	2	8	116	G	89	96
CDC Copeland 	2	8	114	G	99	96
Legacy 	6	9	114	G	89	98
Tradition 	6	10	112	G	89	98
Major 	2	4	110	G	89	94
Steller ND 	6	3	105	VG	86	95
CDC Meredith 	2	5	104	F	90	97
Celebration 	6	3	104	VG	89	94
AC Metcalfe 	2	11	100	F	92	96
Merit 57 	2	5	100	G	90	100
<b>Malting Acceptance: Under Test</b>						
CC Mayfair 	6	5	115	G	86	99
Cerveza 	2	3	108	VG	88	96
Bentley 	2	5	105	G	93	97
CDC Kindersley	2	3	102	G	90	93
CDC Anderson	6	3	102	G	87	98
CDC Landis 	2	5	99	G	90	96
Norman 	2	4	94	G	89	94
<b>Other: A malting market may exist, review CMBTC recommendation list for updates</b>						
CDC Clyde 	6	6	125	G	84	98
CDC Laurence 	6	8	117	G	94	101
CDC Kamsack 	6	5	110	G	83	101
CDC Kendall 	2	10	100	P	89	96
Harrington	2	11	84	P	87	95
<b>Feed and Food</b>						
AC Rosser 	6	9	128	P	86	95
Alston	6	5	123	G	86	101
Champion 	2	7	121	G	87	96
Xena 	2	6	121	F	92	96
CDC Coalition 	2	5	120	VG	87	96
CDC Bold	2	7	117	F	86	96
McLeod 	2	8	116	G	82	94
CDC Trey 	2	7	114	G	92	96
TR07728	6	4	112	VG	89	95
Sundre 	6	7	110	G	92	100
CDC Helgason 	2	7	108	G	93	95
CDC Mindon 	2	7	107	G	88	94
CDC Dolly	2	9	105	P	83	94
Chigwell 	6	5	105	VG	87	97
CDC Cowboy 	2	8	102	G	107	100
<b>Hulless 2-row</b>						
CDC McGwire 	2	7	88	F	93	98

Average plot yield of AC Metcalfe (check): 6,201 kg/ha (115 bu/ac)

 PBR in effect

Lodging: P = poor; F = Fair; G = Good

Maturity: E = early; M = medium; L = late














# Field Pea

All Green, Yellow and Maple varieties listed in the table are semi-leafless types. **CDC Sonata** and **40-10** are normal leaf silage varieties. Normal leaf varieties are not generally recommended for irrigated production.

**Argus** and **Hugo** are newer yellow pea varieties.

**CDC Acer**, **CDC Rocket** and **40-10** have purple flower colour and pigmented seed coats. **CDC Acer** and **CDC Rocket** have a maple patterned seed coat, **40-10** has a speckled seed coat. All other varieties have white flower colour and non-pigmented seed coats.



All pea varieties will lodge under irrigation. Those with better lodging tolerance will stand later into the season. These varieties tend to be less affected from disease, fill more fully, and generally produce a higher yield with superior seed quality.

Variety	Site Years	Yield as % of Cutlass	Lodging Rating	Days to Maturity	Vine Length (cm)	Seed Weight (g/1000)
<b>Green</b>						
Stratus 	9	108	P	99	76	249
CDC Striker	38	104	P	97	81	229
Camry 	12	104	P	100	68	248
CDC Tetris	11	103	G	102	92	205
Cooper 	34	103	G	100	83	255
CDC Patrick	18	103	G	99	87	162
CDC Sage	14	93	G	99	81	173
SW Sergeant	14	92	G	99	82	186
Tamora	13	89	G	100	81	264
<b>Yellow</b>						
Agassiz 	18	121	G	96	90	214
CDC Centennial	14	120	P	99	77	247
Argus 	6	118	G	97	83	231
Hugo 	7	116	F	95	74	200
CDC Meadow	27	114	G	95	88	196
Reward 	12	114	G	97	91	236
SW Midas 	14	113	F	95	80	199
Sorento 	14	113	F	98	80	225
CDC Treasure	18	112	G	95	87	199
Polstead 	22	110	F	95	74	254
CDC Hornet	13	109	G	99	94	198
Thunderbird 	16	109	G	99	87	202
CDC Mozart	26	108	P	97	76	212
CDC Golden	28	104	F	96	85	198
Canstar 	15	101	F	95	85	219
Eclipse 	43	101	G	99	82	225
Cutlass	43	100	G	97	81	206
CDC Bronco	23	99	G	99	82	189
<b>Maple</b>						
CDC Rocket	11	92	G	97	86	188
CDC Acer	3	56	VP	98	85	126
<b>Forage/Silage</b>						
CDC Leroy	11	91	G	99	85	135
CDC Tucker	11	88	G	100	94	159
40-10	7	53	VP	101	97	115

Average plot yield of Cutlass (check): 5,128 kg/ha (76 bu/ac)  
Lodging: VP = very poor; P = poor; F = fair; G = good

 PBR in effect

# Dry Bean – Wide Row

Variety	Plant Type	Site Years	Yield as % of Winchester	Days to Maturity	Seed Weight (g/1000)
<b>Pinto</b>					
Medicine Hat 	II	6	125	101	361
Island	II	15	124	102	373
CDC WM-2 	II	10	114	100	387
Othello	III	14	103	103	350
Winchester	II	18	100	99	348
CDC WM-1	I	8	79	97	362
<b>Black</b>					
AC Black Diamond	II	18	102	102	269
Black Violet	II	13	98	104	191
CDC Jet	II	6	71	108	183
<b>Great Northern</b>					
AAC Tundra	II	5	114	100	360
AC Polaris	II	16	100	102	327
Resolute	II	17	87	99	345
<b>Pink</b>					
Viva	III	15	103	105	260
Early Rose	II	5	88	98	295
<b>Small Red</b>					
AC Redbond	II	17	108	98	321
AC Earlired	III	5	98	98	310

## Wide Row Trials



Commercial row crop production is typically on 55 cm (22 in.) or 75 cm (30 in.) centres. The wide row bean trials are grown on 60 cm (24 in.) rows to evaluate varieties under conditions similar to conventional practice.

Yield and days to maturity are important factors when choosing a bean variety. Spring or fall frost can destroy a dry bean crop. It is important to select a variety that will mature in the normal frost-free season for your region.

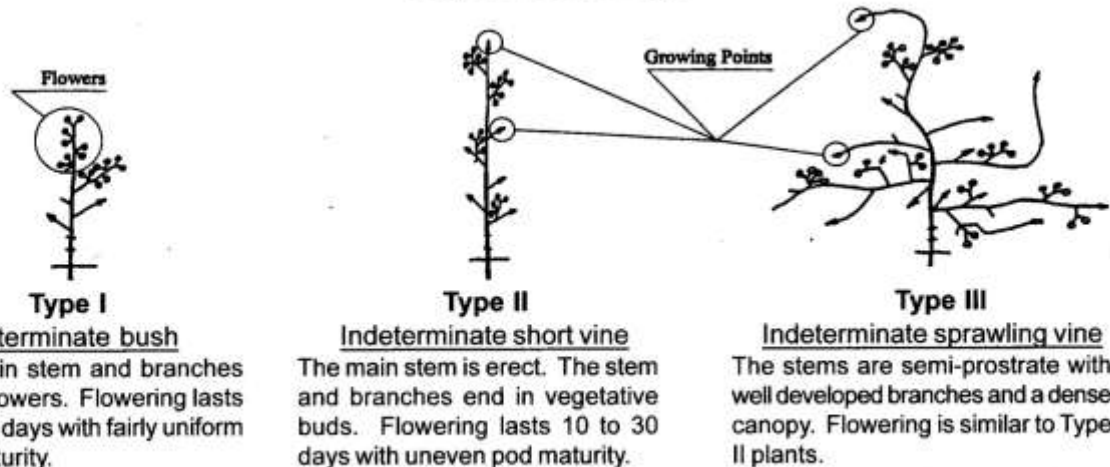
**CDC WM-1** and **CDC WM-2** are slow darkening pinto dry bean varieties.

**AC Black Diamond** has large shiny seeds. **Black Violet** has smaller, buffed coloured seed.

Average plot yield of Winchester (check):  
3,145 kg/ha (2806 lb/ac)

-  PBR applied for
-  PBR in effect

## Dry Bean Plant Type



Graphic courtesy Colorado Dry Bean Production and IPM Bulletin 548A. Colorado State University Co-operative Extension and Agricultural Experimental Station. 1990.

# Dry Bean – Narrow Row

## Narrow Row Trials

The narrow row dry bean trials are sown on 20 cm (8 in.) row spacing to evaluate performance in a solid seeding management practice.

The pod clearance rating is a measure of the proportion of pods held 5 cm (2 in.) or more above ground level. This gives an indication of the suitability for harvest using a direct cut harvest system. Varieties with higher pod clearance ratings will normally have lower harvest losses.

The narrow row variety trials are a separate test from the wide row trials. These tests are not designed to compare conventional wide row and solid seeded management. **Yields and variety rankings cannot be compared between the tables.**

Variety	Plant Type	Site Years	Yield as % of Winchester	Pod Clearance Rating*	Days to Maturity
<b>Pinto</b>					
AC Ole	II	7	125	77	104
Winmor	II	8	111	77	103
Island	II	17	106	73	103
Winchester	II	17	100	78	99
CDC WM-2 ☐	II	11	92	78	98
CDC Pintium	I	15	91	87	94
CDC WM-1	I	13	88	82	97
<b>Black</b>					
AC Black Diamond	II	9	106	80	101
CDC Jet	II	10	103	90	106
Carmen Black	II	5	101	84	106
Black Violet	II	7	99	83	103
CDC Blackcomb	II	5	97	83	100
<b>Great Northern</b>					
AC Polaris	II	9	104	72	101
Alert	II	4	101	80	106
Resolute	II	9	84	78	100
<b>Pink</b>					
Viva	III	2	79	68	106
<b>Small Red</b>					
AC Redbond	II	9	98	79	99
<b>Navy</b>					
Envoy	I	8	91	82	98
Lightning	II	6	75	86	105
<b>Yellow</b>					
Arikara Yellow	I	6	71	74	95
CDC Sol ☐	I	5	68	75	103

Average plot yield of Winchester (check): 3,507 kg/ha (3,128 lb/ac)




\*Pod clearance rating = % of pods that completely clear the cutter-bar at time of swathing.


☐ PBR applied for

## Faba Bean

Faba bean is late maturing, and should be sown early for best results.

**CDC Fatima** combines earlier maturity and shorter height with high yield potential. Its large seed size is preferred in some markets. White-flowered types are zero tannin. All coloured flower types have seed coats that contain tannins and are considered suitable for food markets if seed size and quality match customer demand.

Variety	Site Years	Yield as % of CDC Fatima	Height (cm)	Days to Maturity	Seed Weight (g/1000)
<b>Coloured Flower</b>					
Florent	3	125	134	112	424
CDC Fatima	7	100	123	111	526
CDC Blitz	7	98	129	115	434
Orion	6	91	119	117	354
Taboar 	3	84	134	112	485
<b>White Flower</b>					
Imposa 	3	111	125	114	549
Snowbird 	4	86	115	111	509

Average plot yield of CDC Fatima (check): 5,187 kg/ha (4,622 lb/ac)  PBR in effect

## Soybean

CSIDC and ICDC began soybean performance adaptability and performance evaluations in 2006. Table 1 is a summary of better adapted varieties tested during this time period. However for 2013 RR Rosco will no longer be commercially available necessitating a change to the check variety. As of 2013 the Saskatchewan Advisory Council on Grain Crops adopted the soybean variety 23-10RY as an alternative check variety. ICDC has therefore started the development of a new data base of soybean variety performance, as shown in Table 2. Producers are cautioned on the limited number of test years within Table 2 and to use this information as a guide but seek further information on any variety.

**Table 1: Performance of Soybean Varieties Pre - 2012**

Variety	Site Years	Yield as % of RR Rosco	Corn Heat Units*	Height (cm)	Lodge Rating	Seed Weight (g/1000)	Hilum Colour
Apollo RR	9	110	2375	75	VG	139	BR
NSC Warren RR	6	110	2375	79	VG	136	BR
LS 0036RR	6	106	2425	71	VG	129	BR
RR Rosco	9	100	2450	76	G	148	IY
Isis RR	4	92	2400	79	VG	136	BR
NSC Argyle RR	4	90	2450	73	G	140	BR
LS 0028RR	4	89	2400	62	VG	114	BR

Average plot yield of RR Rosco (check): 2,925 kg/ha (2,609 lb/ac)

Hilum is the point where the seed attaches to the pod : BR = Brown; IY = Imperfect Yellow

For a complete list of commercial varieties see **Seed Manitoba 2013** ([www.seedmb.ca](http://www.seedmb.ca)).

\* Refer to the **Corn** section in this bulletin for information on corn heat units in Saskatchewan .

**Soybean continued on next page.**

**Table 2: Performance of Soybean Varieties 2012**

Variety	Type	Site Years	Yield as % of 23-10RY	Corn Heat Units*	Days to Maturity	Height (cm)	Lodge Rating	Seed Weight (g/1000)	Hilum Colour
TH 32004R2Y	RR2	4	116	2425	131	82	VG	205	BL
Sampsa RR	RR2	4	114	2425	132	79	VG	207	IB
24-10RY	RR2	4	114	2425	134	81	VG	207	IB
004R21	RR2	4	114	2425	136	84	VG	203	BL
HS 006RYS24	RR2	2	111	2450	133	NA	VG	207	BL
900Y61	RR1	4	101	2425	134	81	VG	203	BR
23-10RY	RR2	4	100	2325	127	79	VG	204	IY
900Y71	RR1	4	98	2450	134	80	VG	202	IY
Pekko R2	RR2	4	91	2325	125	83	VG	204	BL

Average plot yield of 23-10RY (check): 3,034 kg/ha (2,707 lb/ac).

Varieties are either Roundup Ready 1 or Genuity Roundup Ready 2 Yield TM.

Seed weight of 2012 harvested seed.

Hilum is the point where the seed attaches to the pod: BR = Brown; IY = Imperfect Yellow, BL = Black, IB = Imperfect Black

For a complete list of commercial varieties see **Seed Manitoba 2013** ([www.seedmb.ca](http://www.seedmb.ca)).

\* A corn heat unit map of Saskatchewan is available on the Saskatchewan Agriculture website at [www.agriculture.gov.sk.ca/Corn\\_Heat\\_Units](http://www.agriculture.gov.sk.ca/Corn_Heat_Units).

Soybean is a potential new legume crop that may have promise within the irrigated areas of Saskatchewan. By definition they are not a “pulse crop.” The Food and Agricultural Organization (FAO) categorizes pulse crops as those harvested solely for the dry seed, such as field pea, dry bean and lentil. Soybean is primarily grown for its oil content although its meal is also a commodity. In practical terms consider soybean as an oilseed crop with the ability to fix nitrogen!

Experience in commercial production in Saskatchewan is limited, however, the following considerations based upon established soybean producing areas should be considered;

- Limit first time acreage, start slowly.
- Select an early maturing Corn Heat Unit (CHU) variety. CHU’s ratings are assigned by individual seed companies; growers should not rely on only one source for judging maturity.
- Best suited to medium to light (irrigated) soils, heavy textured soils may cause planting and emergence problems such as compaction and crusting. However, heavier textured soils can produce soybean well once the crop is established.
- Despite their long maturity, do not seed too early! Soil temperatures need to warm to, or exceed, 10° C, the warmer the soil the quicker the emergence, similar to dry bean. Cool soil temperatures can result in seed rot and pathogenic seedling diseases. Treat with a recommended fungicide seed treatment.
- Target a plant population of 445,000 plants/ha (180,000 plants/ac). Emergence should ensure 40 plants/m<sup>2</sup> (4 plants/ft<sup>2</sup>). Soybean varieties differ in seed size. Equipment calibration is required to achieve successful established populations.
- Seeding depth should be approximately 2.0 – 3.8 cm (0.75 – 1.5 inches), soybean are sensitive to deep seeding.
- **INOCULATE** – soybean require a specific species of rhizobia not native to our soils, failure to inoculate with a “soybean” specific inoculant will result in complete nitrogen fixation failure! First-

time growers in Manitoba were advised to use a full rate of granular inoculant coupled with a liquid seed applied inoculant. Though inoculant costs exceed those of pea/lentil they are warranted.

- Soybean are not as efficient as pea/lentil/faba bean in terms of nitrogen fixation, being more similar to dry bean. Should plants start yellowing by, or during, flowering consider a top-dress application of 45 – 55 kg/ha N (40 – 50 lbs/ac N), irrigate with 0.6 – 1.25 ml/ha (0.25 – 0.5 inch/ac).
- Do not exceed 22 kg/ha P<sub>2</sub>O<sub>5</sub> (20 lbs/ac P<sub>2</sub>O<sub>5</sub>) seed placed phosphorus in solid seeded production. Soybean is an efficient “scavenger” of soil phosphorus but these phosphorus rates may be insufficient on soils with low soil phosphorus reserves. Higher rates need to be side banded. For row cropped production reduce seed row rates. Side band applications are recommended.
- Weed control is essential as soybean seedlings are non-competitive. Cultivation can be used in wide row production. For both conventional and herbicide tolerant varieties refer to the Saskatchewan Ministry of Agriculture publication 2013 Guide to Crop Production for herbicide options.
- Wireworms and grasshoppers may be the primary insect pests in irrigated areas.
- *Sclerotinia* (white mold) can affect soybean. Sufficient separation from pulses and canola in crop rotation is important.
- A killing frost will likely dictate time of harvest. A killing frost will not degrade the oil quality of the crop, but diminish seed size of later maturing top pods. Soybean varieties tested have excellent lodging resistance so can be direct combined. Combine when seed moisture is less than 20% and adjust cylinder speed and concave clearance to minimize cracking or splitting of seed. Safe seed storage is 12% moisture or less.



## Corn

The Alberta Corn Committee (ACC) irrigated grain and silage corn hybrid performance trials were conducted at CSIDC from 2003-2011. Silage hybrid performance trials continued in 2012. Results from the trials for each individual year as well as a multi-year summary are available on the ACC website at [www.albertacorn.com](http://www.albertacorn.com).

A second silage corn hybrid performance trial was initiated in 2012, specifically on behalf of ICDC. For this trial seed company representatives were invited to submit silage hybrids they deemed adapted to the Lake Diefenbaker Development Area, and were commercially available at the local level.










On the basis of these two trials the following silage corn hybrid performance results were generated specifically for the irrigated area of west central Saskatchewan. Results of the 2012 ICDC dry land silage corn hybrid trial are available upon request.

Hybrid	Company	CHU Rating	Site Years	Yield (T/ac)	% of Baxxos RR Check	Whole Plant Moisture (%)	Days to Anthesis	Days to Silking
HL R219 RR	Hyland	2350	5	6.9	119	61.4	78	79
SilEx Bt RR	Pickseed	2200	4	6.7	116	63.9	77	80
P7443R	Pioneer	2100	3	6.6	114	53.8	75	79
HL 3085 RR	Hyland	2400	3	6.6	113	62.0	79	82
39M26 RR	Pioneer	2100	3	6.5	113	58.4	69	77
HL B22R	Hyland	2400	3	6.0	104	69.4	78	83
39F57	Pioneer	2200	4	6.0	103	60.2	76	79
Baxxos RR	Hyland	2250	8	5.8	100	61.6	72	77
N05C-GT	Syngenta	2250	4	5.8	100	60.9	74	78
HL 2093	Hyland	2300	5	5.6	97	58.3	72	77
DKC26-78	Monsanto	2150	3	5.6	96	59.2	70	75
39D95	Pioneer	2150	5	5.2	90	60.5	75	79
39F45	Pioneer	2000	3	5.2	90	51.0	65	71
HL SR06	Hyland	2250	4	5.1	88	66.4	73	80

Select a variety with a Corn Heat Unit (CHU) rating suitable to your area. A CHU map of Saskatchewan is available on the Saskatchewan Ministry of Agriculture website at [www.agriculture.gov.sk.ca/Corn Heat Units](http://www.agriculture.gov.sk.ca/Corn_Heat_Units).

Information on corn production can be found in [Corn Production in Manitoba](#), published by the Manitoba Corn Growers Association. To order the manual, go to the Manitoba Agriculture website at [www.gov.mb.ca/agriculture/crops/cropproduction/qaa01d22.html](http://www.gov.mb.ca/agriculture/crops/cropproduction/qaa01d22.html).

# Annual Cereal Forage

Variety	Site Years	Dry Matter Yield (% of check)	% CP	% NDF	% ADF	% TDN
<b>Barley 2-row</b>						
Newdale 	8	108	12.3	48.4	29.7	63.9
CDC Cowboy 	9	108	12.4	51.2	31.9	62.6
CDC Copeland 	9	102	11.6	51.1	32.6	62.4
Stockford 	6	103	13.3	52.2	32.8	61.8
CDC Bold	10	95	12.9	49.3	30.5	64.1
<b>Barley 6-row</b>						
Binscarth	6	110	12.9	48.0	29.3	63.9
AC Ranger (check)	12	100	12.5	49.5	30.7	63.4
AC Rosser 	12	102	13.0	47.4	29.2	64.8
AC Hawkeye	11	96	12.7	51.9	32.6	62.2
Vivar 	11	96	11.8	48.9	29.7	64.4
Trochu 	11	94	12.7	48.1	29.8	60.5
CDC Battleford 	9	93	12.1	47.3	30.5	64.4
<b>Oats</b>						
Pinnacle 	11	105	11.0	52.5	34.6	60.2
Calibre	11	104	11.5	51.8	35.3	59.2
AC Morgan	11	102	11.1	51.0	33.7	60.3
CDC Baler* (check)	11	100	11.5	56.5	37.0	58.4
<b>Triticale</b>						
Comet*	12	101	12.1	58.5	40.0	55.3
Banjo	12	100	13.4	59.6	39.4	55.5
Viking*	12	98	12.2	59.5	40.1	55.2
Pronghorn (check)	12	100	13.9	57.9	38.3	55.8
AC Ultima	12	94	12.6	55.3	35.8	58.9

Average dry matter yield of check: AC Ranger = 15,248 kg/ha (6.80 tons/ac)  
 CDC Baler = 15,703 kg/ha (7.00 tons/ac)  
 Pronghorn = 13,908 kg/ha (6.00 tons/ac)


 PBR in effect

Barley and oat varieties harvested at soft dough; triticale varieties harvested at late milk – early dough.

CP = Crude Protein; NDF = Neutral Detergent Fibre  
 ADF = Acid Detergent Fibre; TDN = Total Digestible Nutrients

\*Varieties available for annual forage production.

# Alfalfa

Variety	Site Years	Yield as % of Beaver	Variety	Site Years	Yield as % of Beaver
Steak	3	118	Atomic	3	104
Approved	3	114	WL 319 HQ	3	104
Forecast 1001	3	112	Equinox	3	103
WinterGold	3	112	53Q60	7	103
AC Nordica	4	111	AC Grazelander Br 	7	103
WL 327	3	110	Dakota	3	103
Starbuck	3	109	Tophand	3	103
54V46	4	109	StockWell	10	102
WL 232 HQ	3	109	Proleaf	3	102
Spredor 4	3	108	Barrier	11	102
Gibraltar	3	107	Gala	4	102
Perfect	3	107	Magnum 3801 Wet	3	101
Multi5301	3	107	Quattro HR	3	101
Survivor	3	106	Beaver	31	100
AC Longview	7	106	Rangelander	19	98
Pickseed 2065MF	7	106	Rhino	3	98
54V54	7	106	Magnum III-WET	3	97
Pickseed 8925MF	4	105	Matrix	3	96
421Abacus	3	105	HayGrazer	3	96
AmeriStand 201+Z	7	105	Convoy	3	95
AgriMaster	3	105	53Q30	3	94
AC Blue J	19	104	54Q25	3	93
Geneva	7	104	Dalton	3	93
HybriForce-400	3	104	Runner	6	93
134	3	104	Rambler	31	92

Average dry matter yield of Beaver (check): 11,507 kg/ha (5.13 tons/ac)

 PBR in effect

The varieties were evaluated in the Western Forage Testing (WFT) System trials from 1996 to 2009 and in the ICDC/Saskatchewan Forage Council trials established under irrigation in 2002 at CSIDC and in 2003 at Osler, Saskatchewan. WFT variety trials are established each year and forage yields are measured for each of the following three years. All data is for a two cut system except for 2001 to 2003 in which three cuts were taken.

Varieties with rapid re-growth after cutting are best suited to intensive management. For more information on alfalfa varieties, including disease resistance, consult the latest **Forage Crop Production Guide** available from Saskatchewan Ministry of Agriculture ([www.agriculture.gov.sk.ca/Forage-Crop-Production-Guide](http://www.agriculture.gov.sk.ca/Forage-Crop-Production-Guide)).

The contribution and co-operation of Dr. B. Coulman of the Department of Plant Sciences, University of Saskatchewan, toward the alfalfa, timothy, and forage grass variety testing is gratefully acknowledged.

# Timothy

Variety	Site Years	Yield as % of Climax
AC Alliance	5	116
Dolina	3	114
Express	3	113
Grinstad	11	112
Joliette	5	112
Jonatan	5	111
Richmond	8	109
Timfor	6	108
Turku	3	104
Winnetou	3	103
TimPro	3	102
Tenho	3	102
Alexander	6	101
Drummond	8	100
Nike	6	100
Climax	11	100
Argus	6	97
Toro	6	97
Glacier	3	96
Carola Champ	6	93
Topi	3	91
Bottnia II	6	89
Tuukka	3	87

Average dry matter yield of Climax (check):  
11,040 kg/ha (4.92 tons/ac)

Irrigated timothy trials were conducted at the CSIDC and at the Semiarid Prairie Agricultural Research Centre (SPARC) in Swift Current from 1995 to 1997. Western Forage Testing (WFT) System trials were conducted at CSIDC from 1996 to 2007. AAFC Timothy Performance Trials were conducted at CSIDC in 2004 and 2005. Results from all trials are included in the table.

The trials were harvested in early July and in late August of each year. Export markets prefer high leaf content and long seed heads. **Drummond** had the longest seed heads and the second highest leaf content in the trials conducted from 1995 to 1997. **Richmond** had a lower fiber content and higher nutritive value making it better suited to the domestic dairy hay market than other varieties tested in the 1995 to 1997 trials.

## Perennial Forage

Variety	Site Years	Yield as % of check
<b>Birdsfoot Trefoil</b>		
AC Langille	3	117
Leo (check)	3	100
<b>Cicer Milkvetch</b>		
Windsor	2	101
Oxley (check)	2	100
AC Oxley II	2	90
<b>Crested Wheatgrass</b>		
AC Goliath	2	109
Kirk (check)	3	100
<b>Smooth Bromegrass</b>		
Carlton (check)	3	100
AC Rocket	3	100
Radisson	3	99
<b>Meadow Foxtail</b>		
Dan (check)	3	100
Mountain	3	87

 PBR in effect

Variety	Site Years	Yield as % of check
<b>Orchard Grass</b>		
Tundra	3	121
Early Arctic	3	118
Kootenay	3	106
Killarney	3	105
Kay	3	100
Kayak	3	91
<b>Meadow Bromegrass</b>		
Montana	3	112
MBA	3	104
Fleet (check)	3	100
<b>Tall Fescue</b>		
Courtney (check)	3	100
Kokanee	2	88

Average dry matter yield of check:

Leo = 10,743 kg/ha (4.79 tons/ac)	Dan = 10,155 kg/ha (4.53 tons/ac)
Oxley = 9,496 kg/ha (4.24 tons/ac)	Kay = 11,398 kg/ha (5.03 tons/ac)
Kirk = 14,493 kg/ha (6.46 tons/ac)	Fleet = 13,433 kg/ha (6.09 tons/ac)
Carlton = 16,004 kg/ac (7.14 tons/ac)	Courtney = 13,958 kg/ha (6.23 tons/ac)

# Potato

Variety	Consumption Grade ( >45 mm diameter tubers )		Seed Grade ( <90 mm diameter tubers )	
	Site Years	Yield	Site Years	Yield
<b>Table potato</b>		<b>% of Norland</b>		<b>% of Norland</b>
Atlantic	31	106	28	96
Russet Norkotah	40	100	38	98
Norland	43	100	40	100
Shepody	43	99	40	92
<b>French Fry potato</b>		<b>% of Russet Burbank</b>		<b>% of Russet Burbank</b>
Shepody	50	124	44	101
Ranger Russet	34	108	28	97
Russet Burbank	50	100	44	100
<b>Chipping potato</b>		<b>% of Atlantic</b>		<b>% of Atlantic</b>
AC Ptarmigan	3	108	2	111
Niska	3	102	2	112
Atlantic	8	100	4	100
Snowden	8	93	4	94
Norchip	2	93	1	97

Average consumption grade plot yield of check: Average seed grade plot yield of check:  
 Norland = 32.8 tonnes/ha (292 cwt/ac)    Norland = 46.1 tonnes/ha (411 cwt/ac)  
 Russet Burbank = 27.7 tonnes/ha (247 cwt/ac)    Russet Burbank = 43.1 tonnes/ha (385 cwt/ac)  
 Atlantic = 38.3 tonnes/ha (341 cwt/ac)    Atlantic = 44.0 tonnes/ha (392 cwt/ac)

The potato variety comparisons shown are based on varietal, agronomic, and fertility trials conducted at CSIDC from 1995 to 2011. The potatoes were grown using standard commercial practice under full irrigation.

Varieties which are commonly used in more than one market appear twice in the table. Shepody, for example, is used primarily as a French fry potato but is also grown for table use.