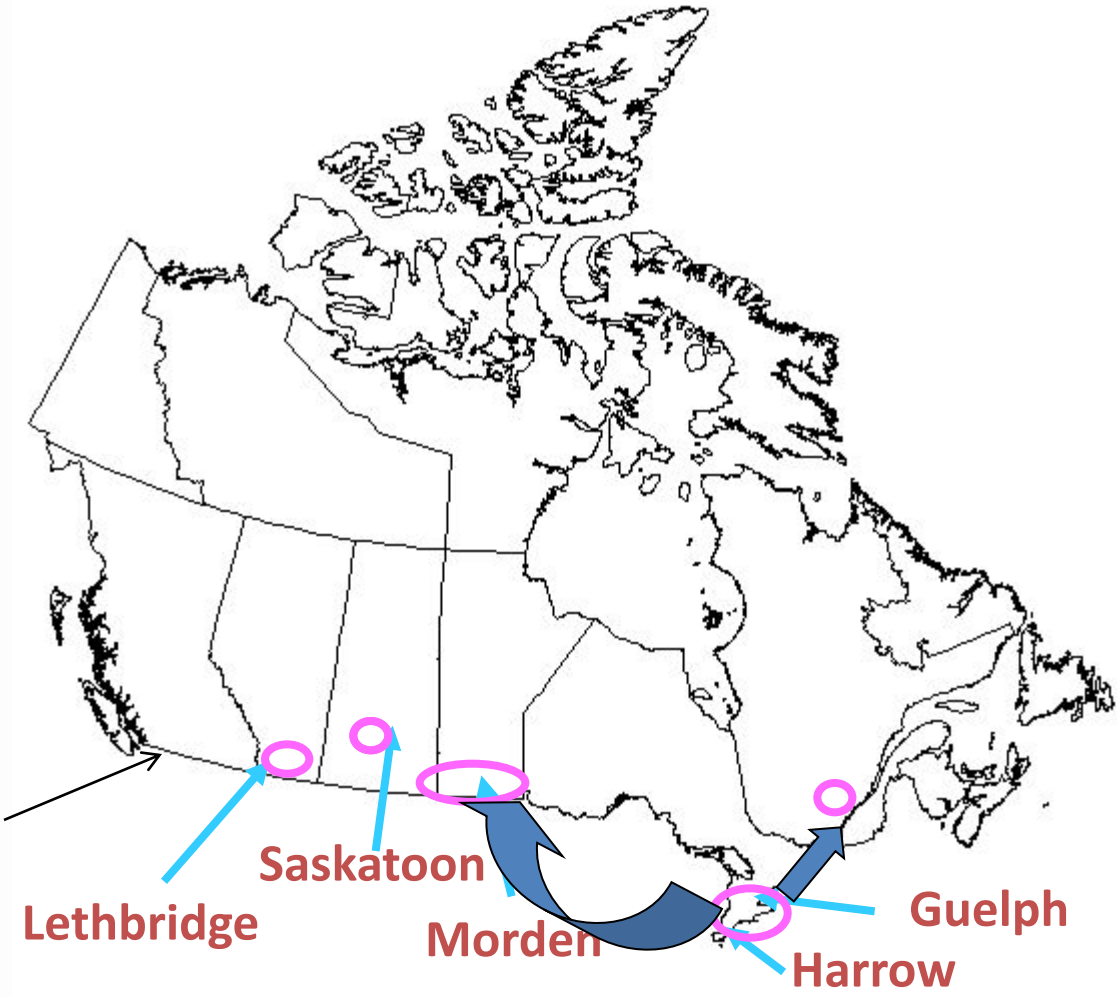
Canadian Dry Bean Growing Regions



Government of Saskatchewan

The climate

- North of the 49th parallel
  - Long days in summer
  - Warm days but cool nights
  - Frost in any month except July

The Challenge

- Produce a high value crop in <100days
- Compete with alternative pulse crops
  - Experience
  - Soil type – medium textured loam in thin black soil zone of SK (= higher rainfall)
  - Yield
  - Price

Need for premium quality

Government of Saskatchewan

Premium Quality

- The customer is always right!

Premium Quality

Slow darkening Regular darkening

fresh

aged

Government of Saskatchewan

Small red
(e.g. Redbond)

Pinto
(e.g. Winchester)

Pink
(e.g. Viva)

Navy
(e.g. Envoy)

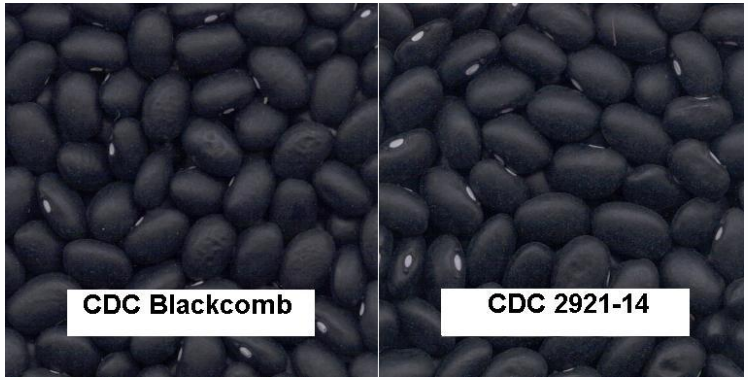
Black
(e.g. CDC Jet)

Great Northern
(e.g. Polaris)

Government of Saskatchewan

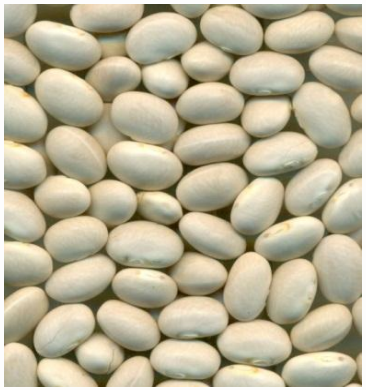
Newer Varieties bred for SK from CDC

CDC Sol



CDC WM-2

CDC Marmot



CDC 3458-7 navy

Government of Saskatchewan

Environmental effects

CDC Pintium @ Redvers 2002- stained

CDC Pintium @ Saskatoon 2002- not stained

Pre-disposition to staining likely due to cool wet weather during harvest

Government of Saskatchewan

Maturity problems

Too late

More mature

Early Maturity

- Early maturity in one environment does not = early maturity in another
- Watch out for effect of long days
  - Delayed DTF
- Watch out for effect of cool nights
  - Lengthens DTM
- Early maturity = shorter season for biomass accumulation and yield

Cold Tolerant Beans?

- Originated in sub-tropical regions
- Warm-season legume
  - Hate cold temperatures

- Cold tolerant beans would lengthen the season
  - ✓Germinate in cool soil
  - Survive the odd light late spring frost or early fall frost

Tepary Bean

- Wild & cultivated species originating in dry areas of Mexico and SW USA
- Looks like small common bean
- Reputation for tolerance to drought, heat and cold

- Crossing with common bean is difficult but possible
- testing hybrids for stress tolerance

Government of Saskatchewan

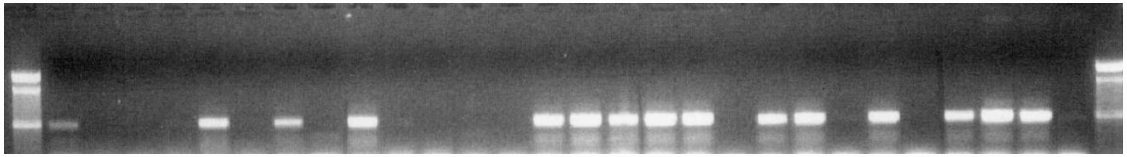
Breeding for tolerance

- White mould
  - plant architecture
  - Screening for tolerance of material in disease nurseries under irrigation

http://info.ag.uidaho.edu/pdf/PNW/PNW0568.pdf

Common Bacterial Blight

- Marker-assisted selection



- Followed by field confirmation

Now have early maturing, CBB tolerant blacks, navies & pintos

Halo Blight

- Crossing to exotic material resulted in introduction of susceptibility
- single gene control appears possible
- *I*-gene marker for BCMV may also work as marker for tolerance to HB

Anthracnose

- Becoming a problem in SK with wetter years
- Genetic resistance available for prevalent race 73
- Markers available and being used in breeding programs to ensure newer lines are tolerant

Government of Saskatchewan

Issues affecting quality

- Genetics of colour, size, shape
- Maturity
- Disease
- Agronomics
  - Maximize yield for particular production system
  - Decrease disease incidence
  - Take advantage of irrigation to keep seeds plump & to maintain yield potential

Future

- Niche marketing of new/improved types of beans
  - Smaller production of more types
    - De-commodification
  - new combinations of colours, shapes, sizes
  - specific profiles of nutrients

Is the consumer willing to pay a premium???

Dry Bean

Main Characteristics of Varieties

Varieties of Grain Crops 2014

Variety	Type	Years Tested*	---- Yield % of CDC Pintium ---- Irrigation	Area 2	Area 3	Days to Flower	Maturity Rating**	% Pod Clearance ♠	Seed Weight (g/1000)	Growth Habit‡
CDC Pintium	pinto	12	100	100	100	50	E	85	350	I
Island	pinto	6	117	111	100	55	M	79	355	II
Mariah ^	pinto	4	112	113	94	55	L	82	293	II
Winchester	pinto	5	116	111	109	52	M	82	352	II
Winmor	pinto	6	118	104	100	55	M	72	350	II
CDC Marmot	pinto	4	109	120	115	50	E	80	367	I
CDC WM-2 ~	pinto	7	114	108	104	52	E	79	365	II
Envoy	navy	12	80	90	84	53	M	77	184	I
Lightning	navy	7	109	95	90	60	L	85	175	II
Skyline ^	navy	5	74	95	92	57	L	80	163	I
OAC Spark	navy	5	86	100	101	55	L	81	163	I
AC Polaris	great northern	7	97	102	95	52	L	70	310	III
AC Redbond	small red	8	98	103	99	51	M	65	290	II
CDC Blackcomb	black	6	113	99	94	56	M	85	167	II
Carman Black	black	5	125	115	112	59	M	88	180	II
CDC Jet	black	12	94	96	92	58	L	85	170	II
AC Black Diamond	shiny black	7	102	94	94	54	M	70	250	II
CDC Sol ~	yellow	6	102	93	85	55	L	78	399	I

* Co-op and regional trials grown in narrow rows. Direct comparisons to **CDC Pintium** since 2002.

** Maturity ratings based on E = 100 days L = 110 days for May 20 planting to swathing maturity. See page 2 for more information.

♠ Pod clearance: percentage of pods that completely clear the cutterbar at time of swathing (~4 cm).

‡ Growth habit: I = Determinate bush; II = Indeterminate bush; III = Indeterminate vine.

Canada-Saskatchewan Irrigation Diversification Centre

Dry Bean – Wide Row

Variety	Plant Type	Site Years	Yield as % of Winchester	Days to Maturity	Seed Weight (g/1000)
Pinto					
AC Island	II	16	124	102	376
Medicine Hat	II	7	122	101	364
CDC WM-2	II	11	113	100	388
Othello	III	14	103	103	353
Winchester	II	19	100	99	351
Black					
AC Black Diamond	II	19	102	102	271
Black Violet	II	13	98	104	192
CDC Blackcomb	II	5	82	102	193
CDC Jet	II	6	71	108	185
Great Northern					
AAC Tundra	II	6	112	100	362
AC Polaris	III	17	100	103	329
Resolute	II	18	88	100	347
Pink					
Viva	III	15	103	106	262
Early Rose	II	5	88	98	298
Small Red					
AC Redbond	II	17	108	98	323
AC Earlired	III	5	98	99	312
Yellow					
Arikara Yellow	I	5	76	96	397
CDC Sol	I	4	67	105	425

Government of Saskatchewan

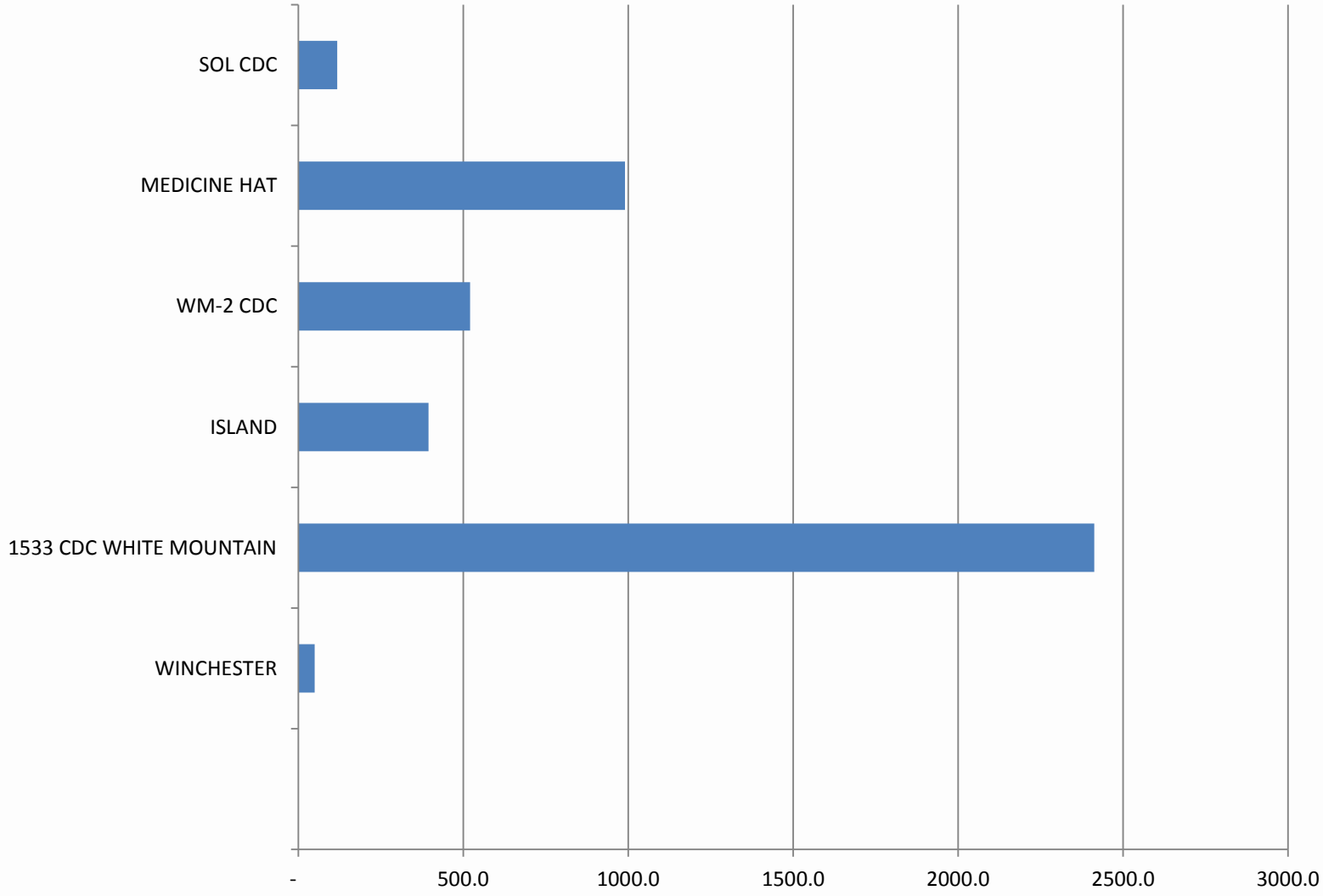
Canada-Saskatchewan Irrigation Diversification Centre

Dry Bean – Narrow Row

Variety	Plant Type	Site Years	Yield as % of Winchester	Pod Clearance Rating*	Days to Maturity
Pinto					
AC Ole	II	7	125	77	105
Winmor	II	10	112	75	103
AC Island	II	21	109	72	102
Winchester	II	21	100	78	100
CDC WM-2	II	15	93	73	98
CDC Pintium	I	17	92	88	94
Black					
AC Black Diamond	II	11	106	82	101
CDC Jet	II	12	106	88	106
Carmen Black	II	7	105	85	106
Black Violet	II	7	99	83	103
CDC Blackcomb	II	10	96	80	102
Great Northern					
AAC Tundra	II	5	114	67	100
AC Polaris	III	9	104	72	102
Alert	II	4	101	80	106
Resolute	II	11	88	73	100
Pink					
Viva	III	2	79	68	107
Small Red					
AC Redbond	II	9	98	79	99
Navy					
Envoy	I	10	90	79	99
OAC Lightning	II	8	85	86	104
Yellow					
CDC Sol	I	7	79	78	102
Arikara Yellow	I	6	71	74	95

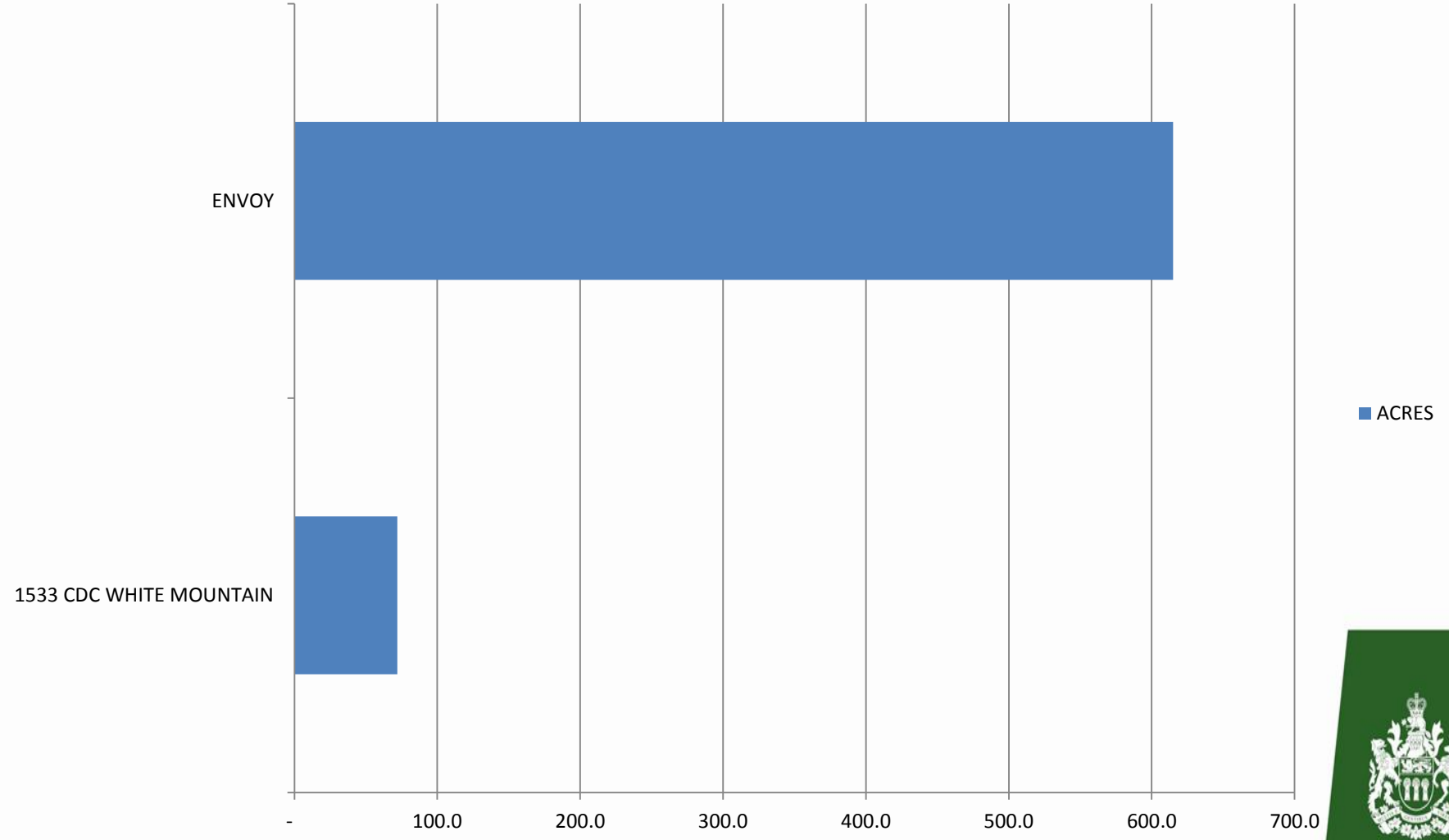
Government of Saskatchewan

Dry Bean Acres by Crop Type and Variety 2013 (irrigated)
Courtesy SCIC



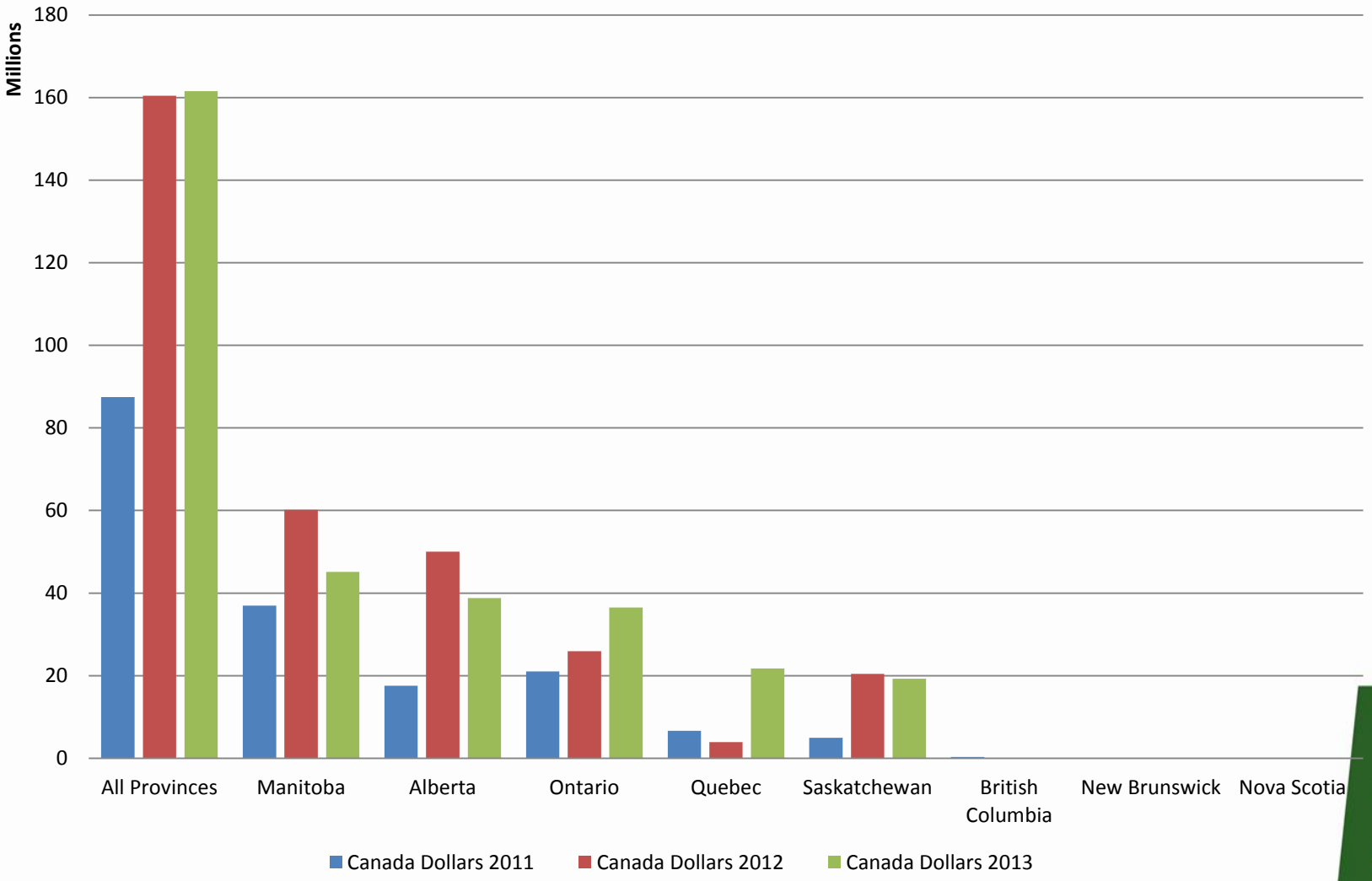
Government of Saskatchewan

Dry Bean Acres by Crop Type and Variety 2013 (dryland)
Courtesy SCIC

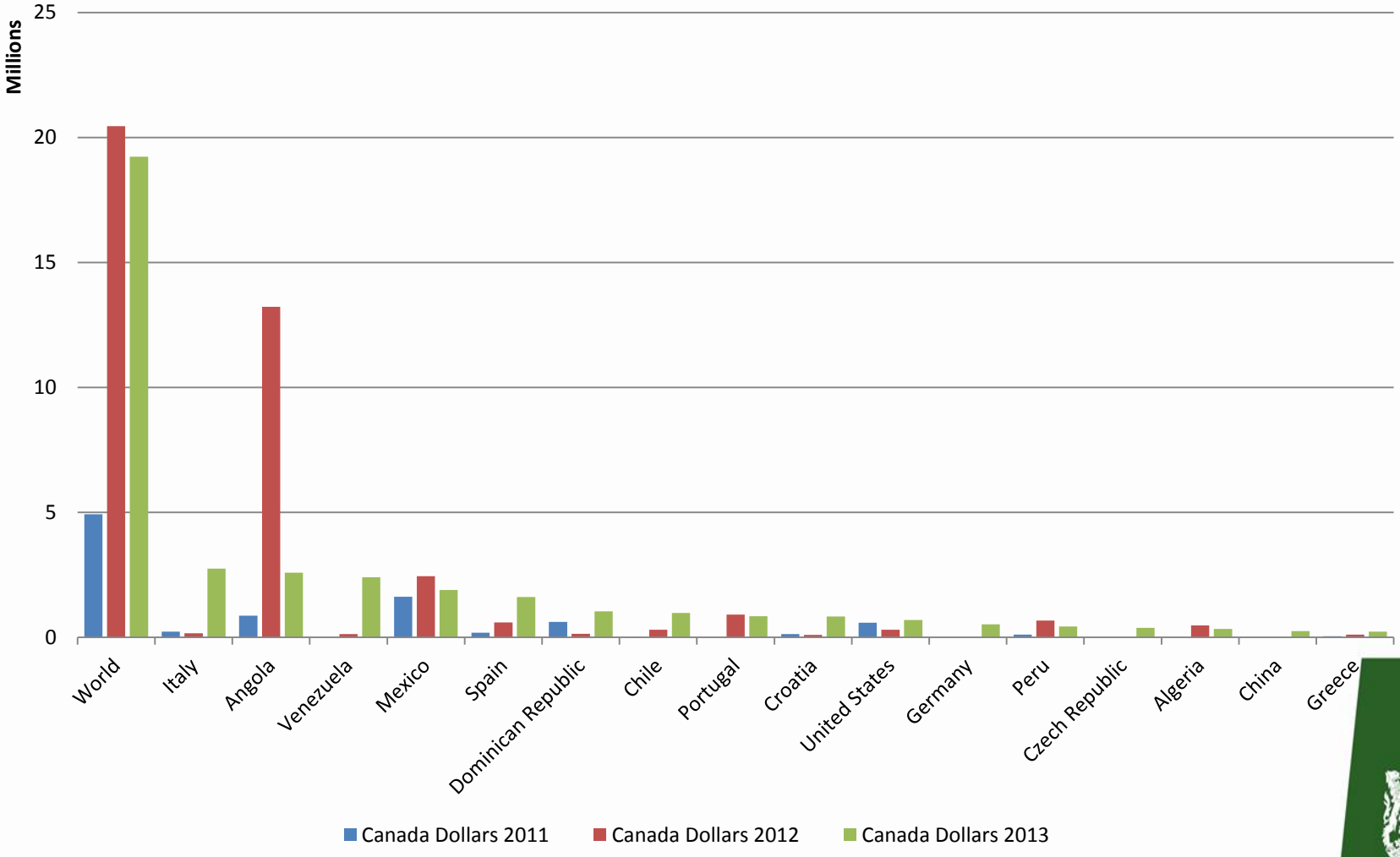


Government of Saskatchewan

Canadian Export to World Via Province: Beans Nesoi (Black, Lima, Pinto, Cowpeas, Etc.)

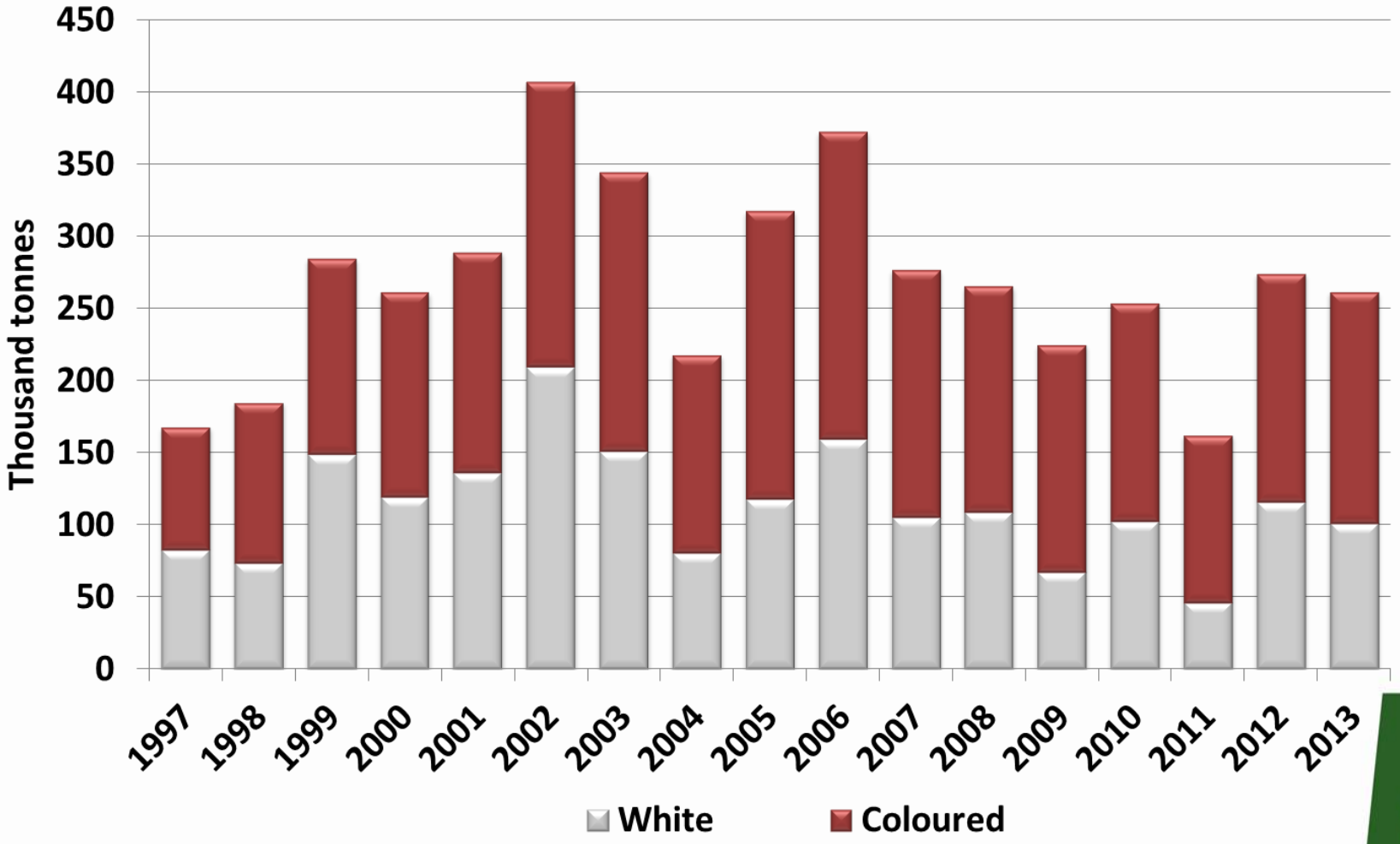


Canadian Export to World: Beans Nesoi (Black, Lima, Pinto, Cowpeas, Etc..)



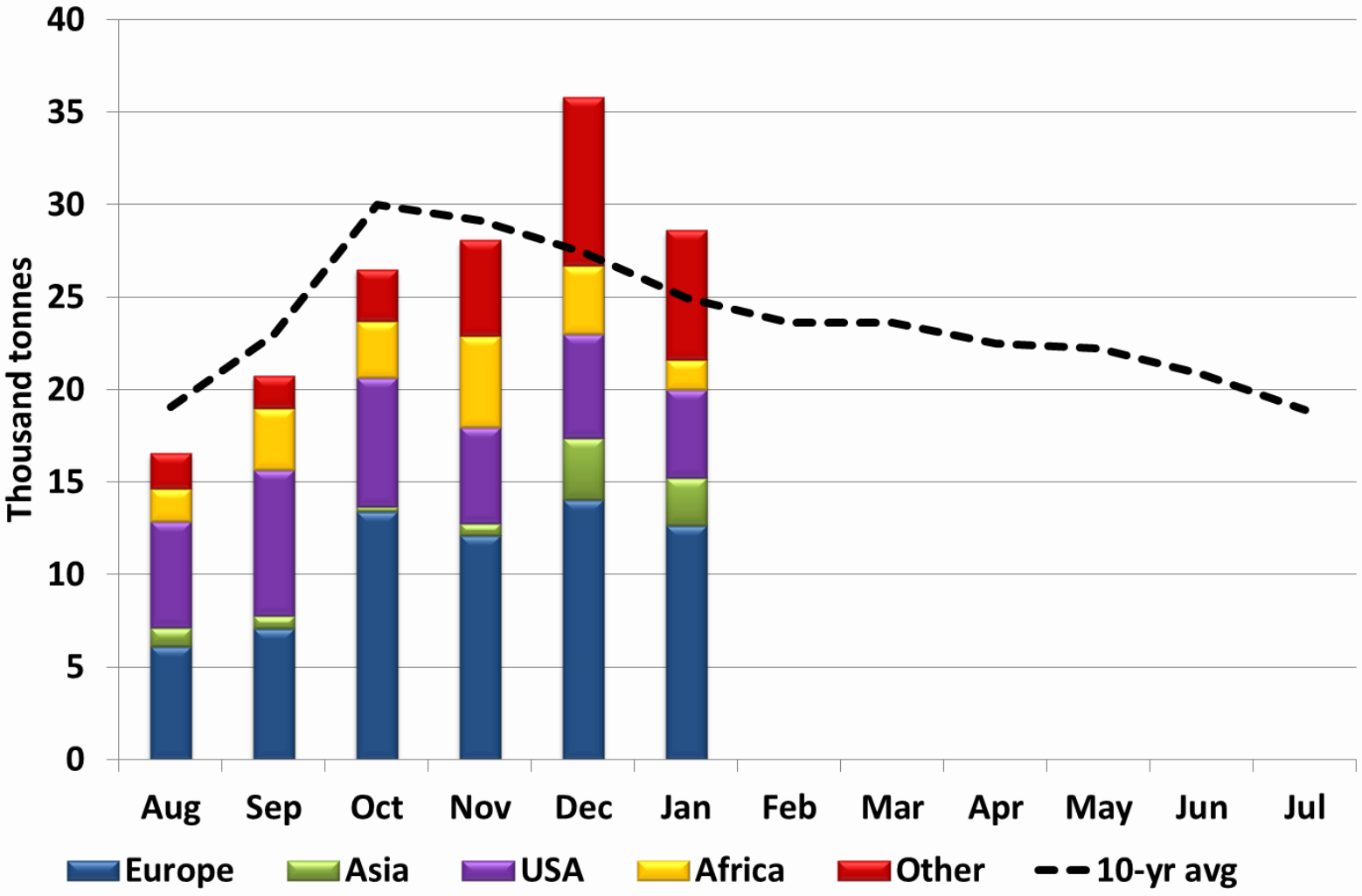
Government of Saskatchewan

Canadian Dry Bean Production



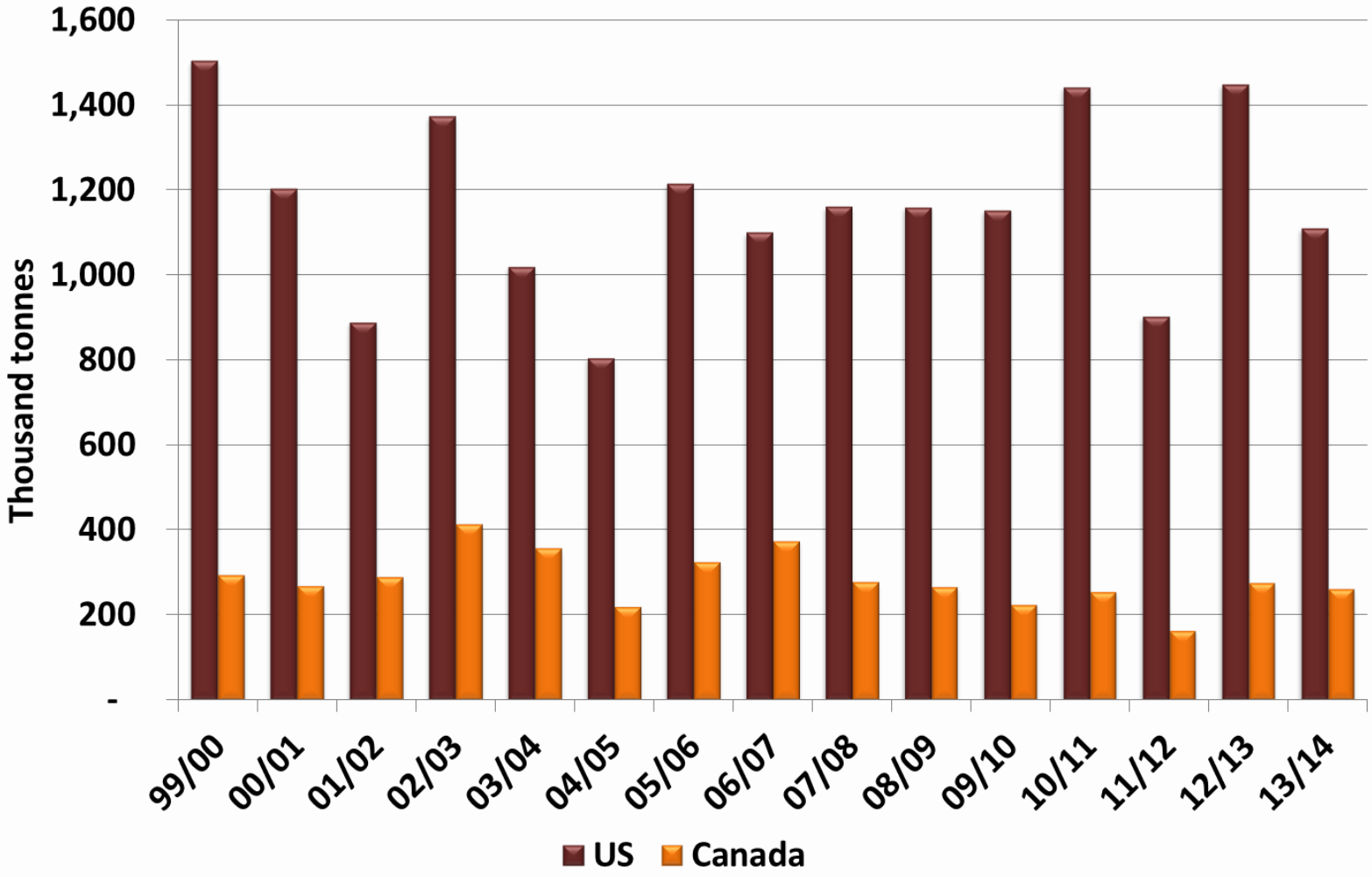
Government of Saskatchewan

2013/14 Canadian Dry Bean Exports



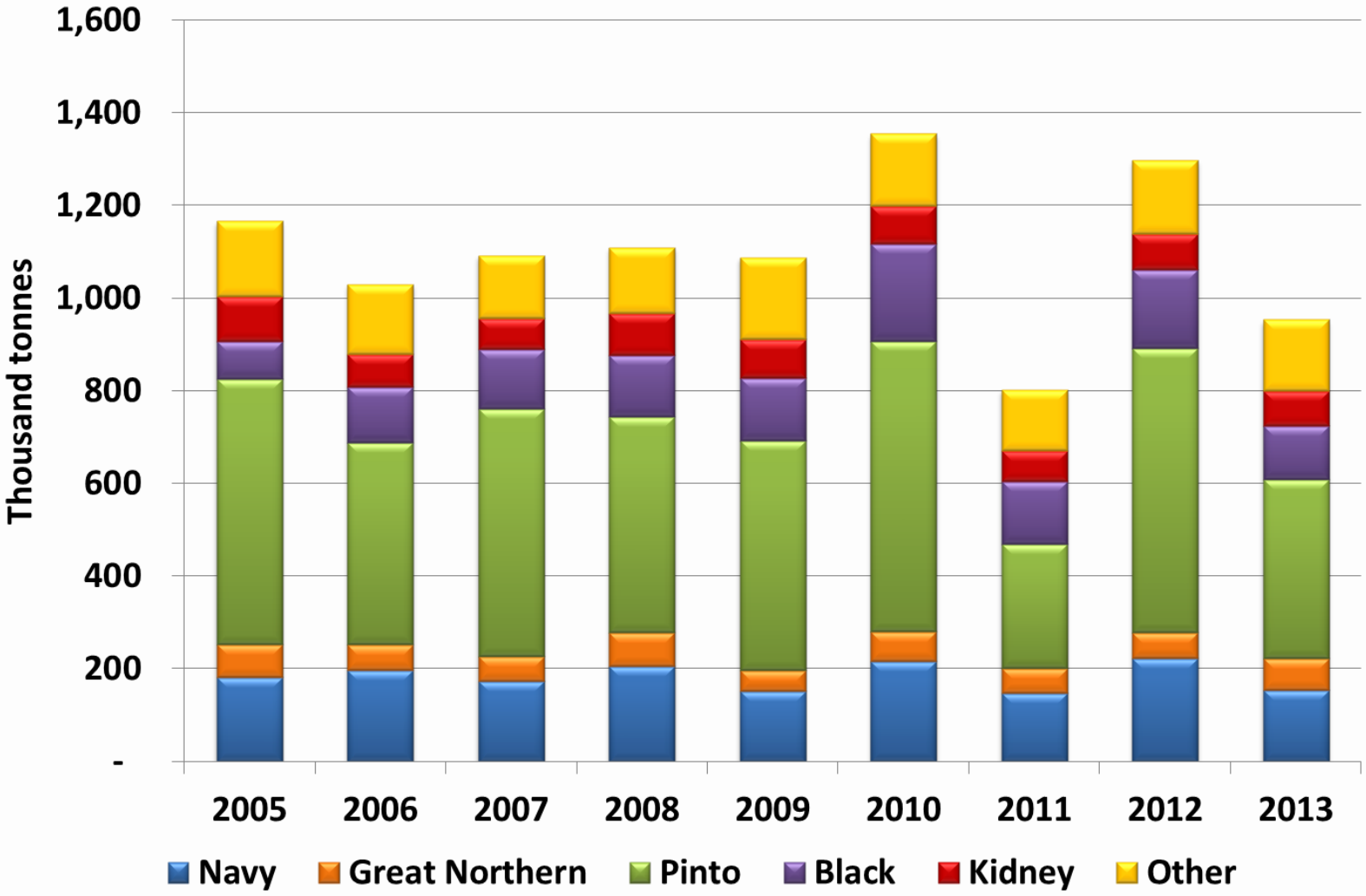
Government of Saskatchewan

North American Dry Bean Production



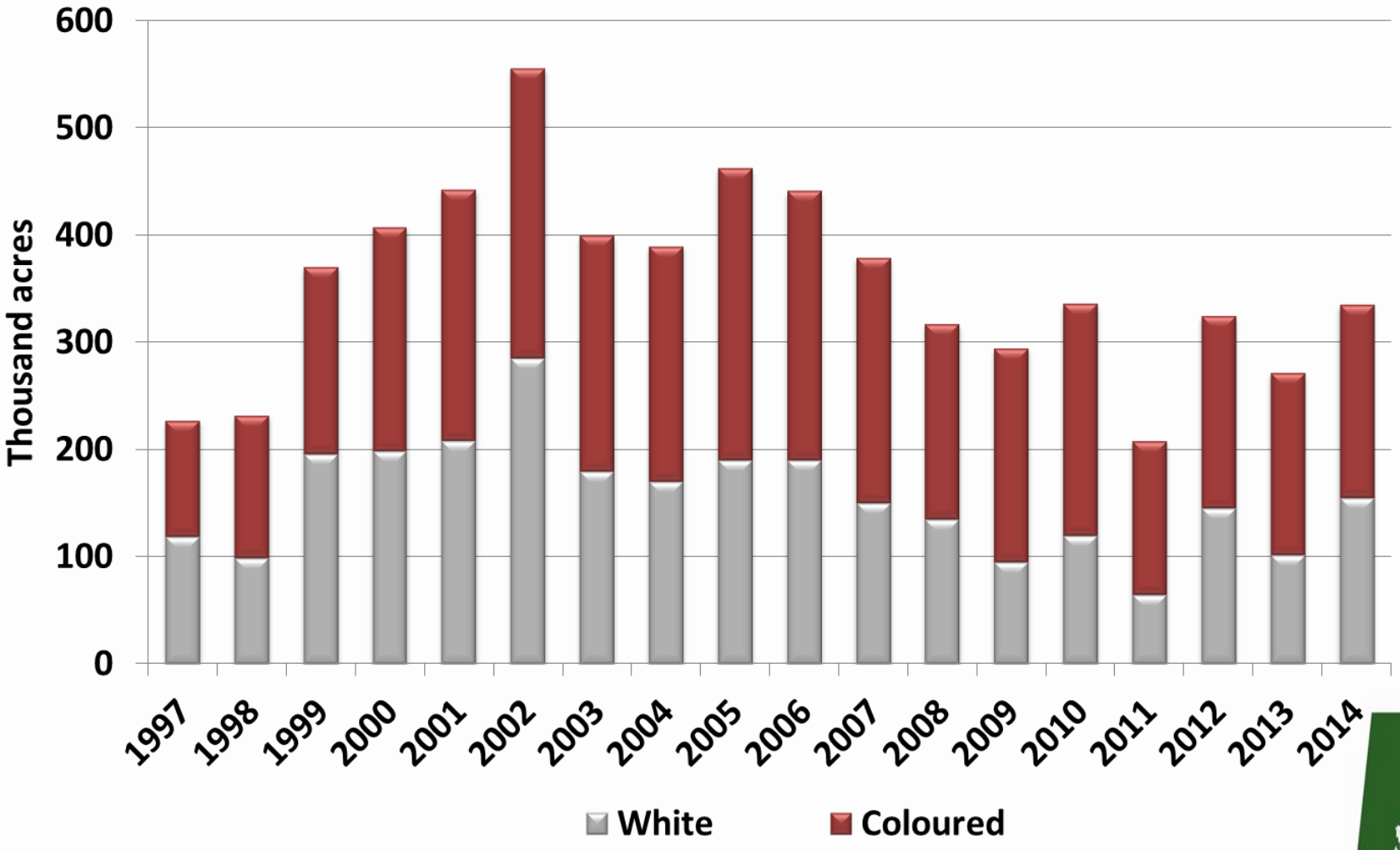
Government of Saskatchewan

US Dry Bean Production



Government of Saskatchewan

Canadian Dry Bean Seeded Area



Government of Saskatchewan

CGC Weekly Handling Statistics

Includes only bulk movement through licensed facilities (thousand tonnes)

Grain Shipping Week: 30

Week ending: March 2, 2014

	Flax	Peas	Lentils	Chickpeas	Canaryseed	Mustard	Sunflowers	Dry Beans
Farm Deliveries								
Current	10.3	53.3	3.5	0.0	-	0.0	0.0	0.0
Last week	7.2	24.9	0.3	0.0	-	0.0	0.0	0.0
Year-to-date	297.7	1464.1	405.9	15.8	-	0.0	0.6	28.0
Last YTD	222.3	1342.2	n/a	n/a	n/a	n/a	n/a	n/a
Shipments								
Current	15.7	38.0	3.8	0.0	0.0	0.0	0.0	0.0
Last week	2.6	22.8	0.5	0.0	0.0	0.0	0.0	0.0
Year-to-date	241.8	1369.8	168.2	8.5	0.0	0.0	0.4	6.4
Last YTD	0.0	1322.6	n/a	n/a	n/a	n/a	n/a	n/a
Exports								
Current	3.83	0.00	11.12	-	0.00	-	0.00	0.00
Last week	1.81	24.26	0.00	-	0.00	-	0.00	0.00
Year-to-date	191.91	1078.37	177.83	2.94	18.84	2.34	0.59	28.03
Last YTD	162.50	1022.90	n/a	n/a	n/a	n/a	n/a	n/a
Visible Stocks								
Primary & Proc	72.72	117.65	20.57	7.47	0.00	0.60	3.71	17.80
Terminal	3.84	17.76	8.09	0.00	0.14	1.74	0.00	0.00
In-transit	16.48	36.91	10.69	0.00	0.48	0.34	0.00	0.00
Total	93.04	172.32	39.35	7.47	0.62	2.68	3.71	17.80
Last week	91.28	131.89	43.68	7.47	0.51	2.34	3.71	17.80
Last yr total	80.60	362.00	n/a	n/a	n/a	n/a	n/a	n/a

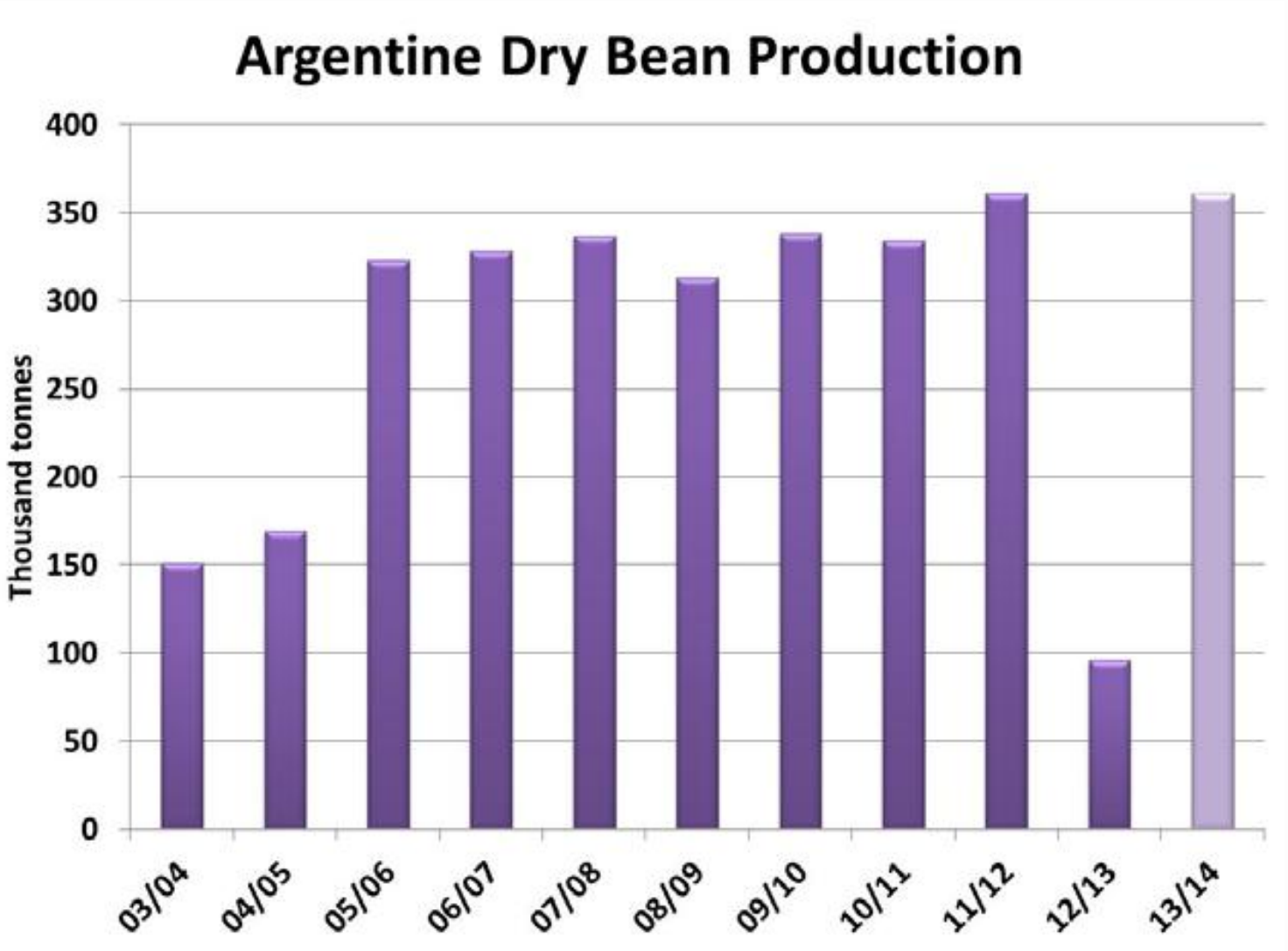
Government of Saskatchewan

Canadian Dry Bean Supply & Disposition

	09/10	10/11	11/12	12/13	13/14	14/15
Seeded Acres, 000's	295	336	208	325	**272**	**335**
Harvested Acres, 000'	279	315	164	319	**265**	**313**
Yield (lbs/acre)	1,781	1,777	2,183	1,899	2,176	**1,963**
Supply ('000 tonnes)						
Carry-In	13	10	44	20	**38**	**30**
Production	224	254	162	274	**262**	**279**
Imports	55	58	55	79	**60**	**50**
Total Supply	292	322	262	373	**360**	**358**
Disposition ('000 tonnes)						
Total Domestic	26	40	18	38	**40**	**30**
Exports	255	237	224	297	**290**	**300**
Total Disposition	281	277	242	335	**330**	**330**
Ending Stocks	10	44	20	38	**30**	**28**
Stocks/Use	3.6%	15.9%	8.3%	11.4%	**9.1%**	**8.6%**

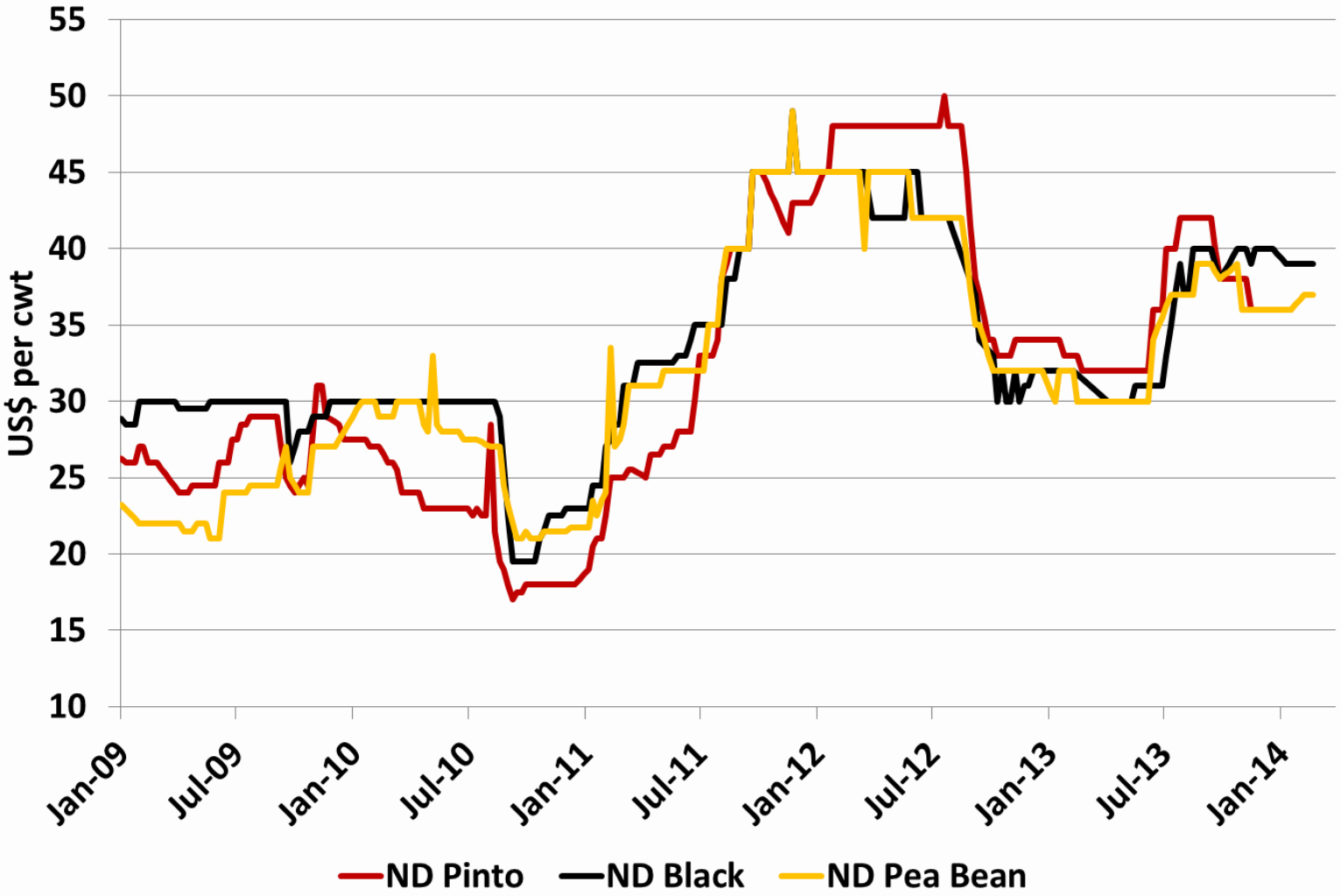
Source: StatsCan & AgCan with LeftField projections in bold

Government of Saskatchewan



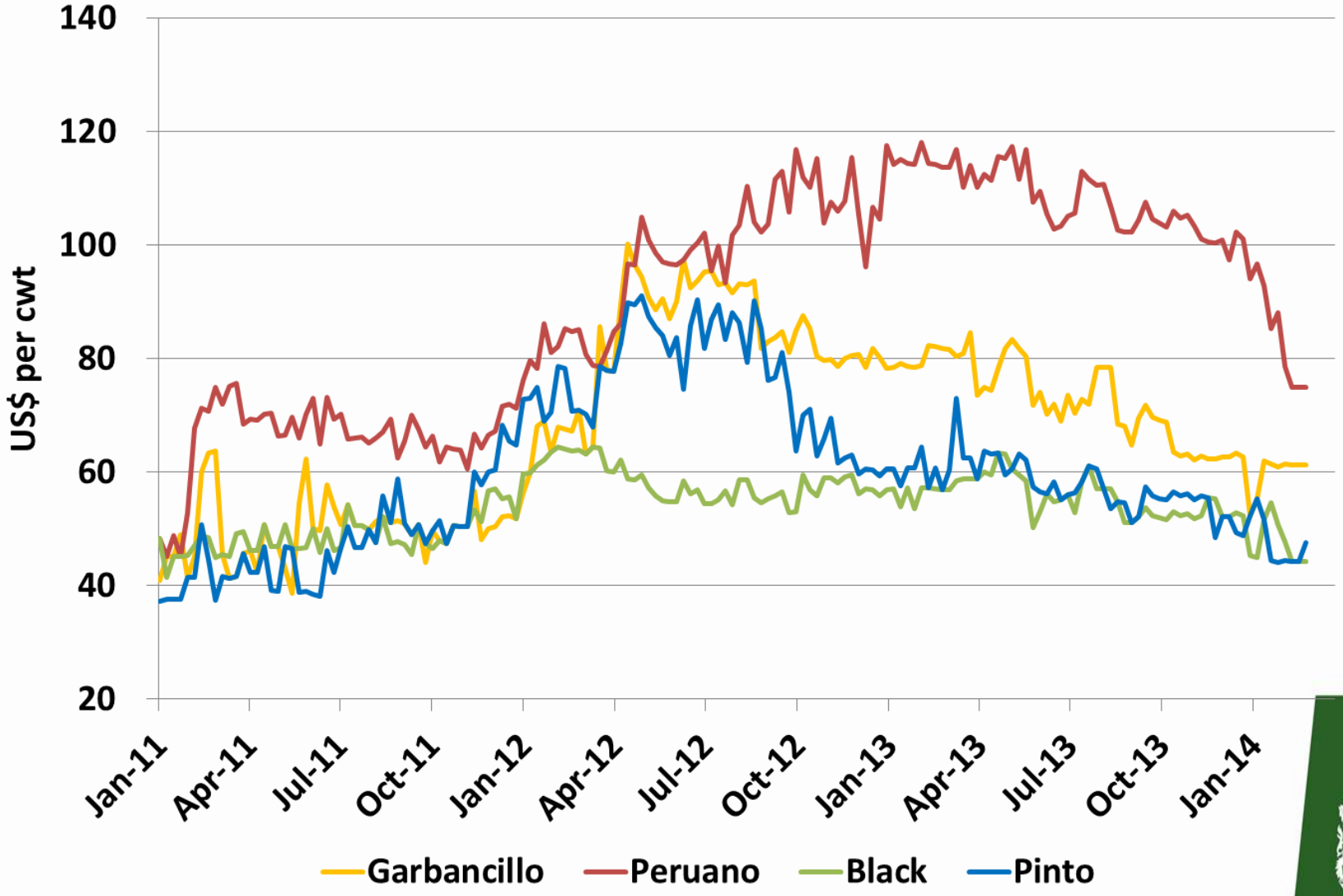
Government of Saskatchewan

North Dakota Dry Bean Producer Bids



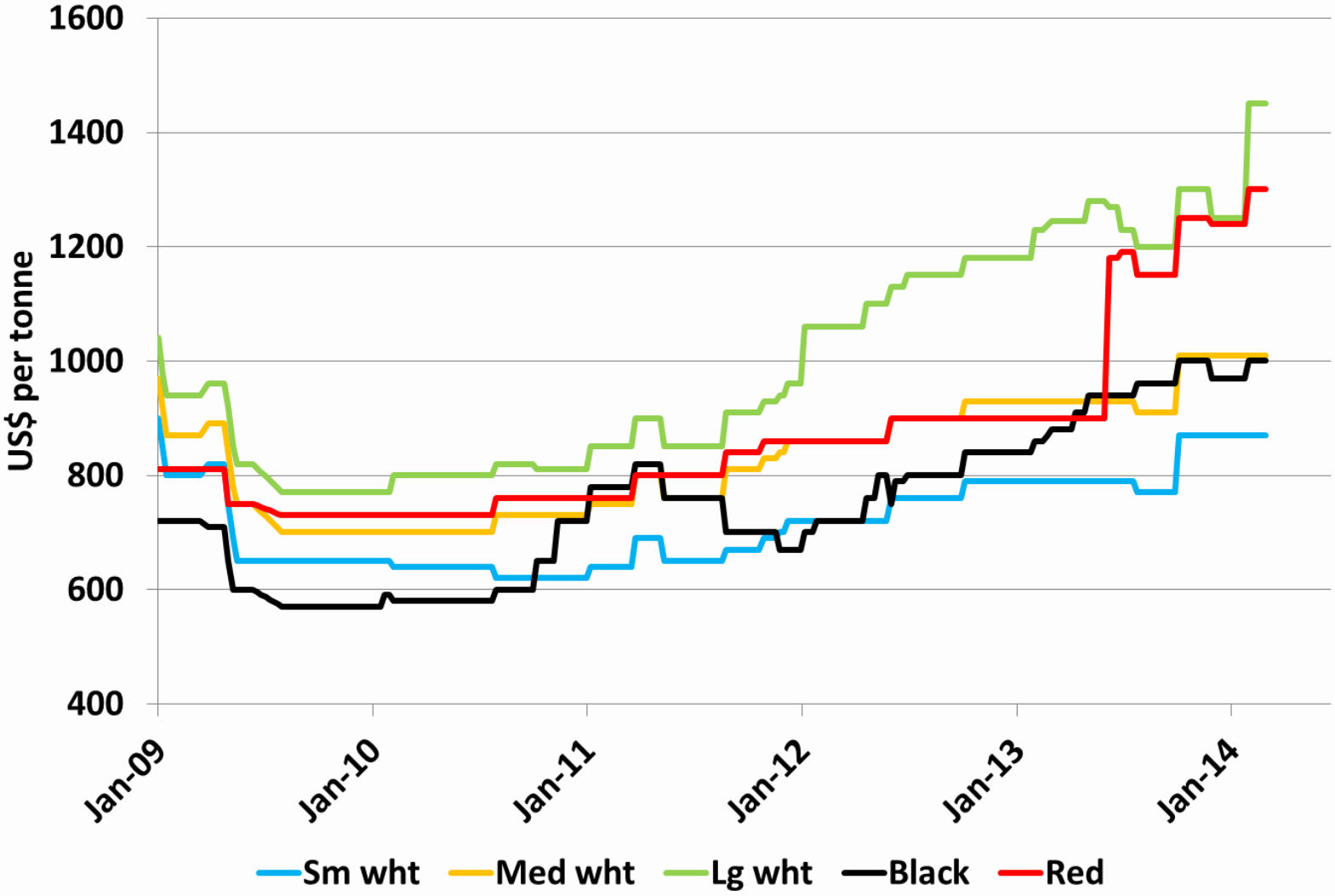
Government of Saskatchewan

Mexico Wholesale Bean Prices



Government of Saskatchewan

Argentine Dry Bean Prices



Government of Saskatchewan

Statpub collects from a variety of sources. Todays prices for Saskatchewan.

BEANS	SPOT MARKET	AVERAGE	2014 CROP
(CDN cents per pound farmers dressed quality delivered plant)			
No 1 Navy/Pea Beans	37.00 to 37.00	37.00	28.50 to 30.00
No 1 Great Northern	60.00 to 60.00	60.00	33.30 to 35.00
No 1 Cranberry Beans	64.00 to 64.00	64.00	42.80 to 45.00
No 1 Light Red Kidney	55.00 to 55.00	55.00	42.80 to 45.00
No 1 Dark Red Kidney	60.00 to 60.00	60.00	42.80 to 45.00
No 1 Black Beans	35.00 to 35.00	35.00	
No 1 Pinto Beans	32.00 to 32.00	32.00	25.70 to 27.00
No 1 Small Red			
No 1 Pink	40.00 to 40.00	40.00	

Government of Saskatchewan

Todays Prices: (Source Saskcan)

New crop pricing:

Pintos	Navies	Black
~30	Mid 30's	Low 30's

Old Crop pricing

~32	36-37	33-35

CourtesySaskcanPulse

Alvin Klassen cellular: 204 312 0888

aklassen@Saskcan.com

Government of Saskatchewan

Saskatchewan processor

- Saskcan Actively looking at navy beans being developed at CDC
- Market looking for new sources of dry bean
- Will be actively promoting dry beans and faba beans in coming years under irrigation.
- Fb 9-4 faba under irrigation in Alberta yielded 110 bu. / acre.

Government of Saskatchewan

Questions? comments!