Economics and Yield of Dry Bean Market Classes

Purpose:

To evaluate the relative yield, seed quality, maturity and economics of different market classes of dry beans. To test a select number of promising commercial varieties and advanced lines with improved traits (e.g. blight resistance) from growing regions in the USA that have not been evaluated in Ontario.

Methods:

Varieties were sown in small plot with 4 replications each at two locations: Kippen, and Thorndale. Kippen is 2900 heat unit area with Huron clay loam soil texture. Thorndale location is 3000 HU with sandy loam soil texture. The Kippen location was planted June 12, and Thorndale on May 31**.**

Table 1: Site and Agronomic Information

Location/ Table #	Row Width	Market Types		Planting Date	Harvest Date	Herbicides
Kippen Table 2	76 cm	Cranberry Light Red Kidney (LRK) Dark Red Kidney (DRK) Great Northern		June 12	Sept 19	Pursuit 200ml/ha Rival 1.25 l/ha
Kippen Table 2	76 cm	White Black Light Red Kidney Pink	Small Red White Kidney Yellow Adzuki Otebo	June 12	Sept 19	Pursuit 200ml/ha Rival 1.25 l/ha
Kippen Table 3	37.5 cm	White Black Small Red Mexican Pink	Adzuki Otebo Pinto Great Northern	June 12	Sept 21	Pursuit 200ml/ha Rival 1.25 l/ha
Thorndale Table 4	76 cm	Light Red Kidney Cranberry Pinto		May 31	Aug 30, Sept 5,12,17	Pursuit 200 ml/ha Treflan 1.25 l/ha Dual II 1.25 l/ha
Thorndale Table 5	76 cm	White Black Light Red Kidney Small Red Mexican	Pink White Kidney Yellow Otebo	May 31	Sept 5,12,17	Pursuit 200 ml/ha Treflan 1.25 l/ha Dual II 1.25 l/ha

Results:

Table 2: 2007 Kippen Wide Row (76 cm) Trial

Variety Name	Type	Yield (kg/ha)	Yield % of T9905	Seed Quality (1-5)	100 Seed Weight gm	Days to Maturity	Maturity
T9905	White	3077	100	1.5	22.2	97	M
Condor	Black	2849	93	1.6	22.1	98	L
Red Kanner	LRK	3138	102	1.7	49.8	98	L
Merlot	SRM	2879	94	1.5	39.0	94	M
Sedona	Pink	2879	94	1.6	37.5	87	E
Beluga	WK	2480	81	1.6	49.7	95	M
Peruano	Yellow	3662	119	1.1	46.7	96	M
Azhiguara	Yellow	2481	81	1.8	39.6	90	E
Norrette	Yellow	2778	90	1.6	44.3	93	M
Erimo	Adzuki	2506	81	1.5	11.6	99	L
Hime	Otebo	3113	101	1.8	30.7	91	M
G05915	Otebo	2502	81	1.5	26.9	87	E
	Mean	2845		1.6	34.8	94	
	LSD(0.05)	220		na	1.8	3.0	

Table 3: 2007 Kippen Narrow Row (37.5 cm) Trial

Variety Name	Type	Yield Rank	Yield		Seed Quality	Pick	100 Seed Weight	Harvestibility[2]	Suitability for Direct Harvest	Days to Maturity	Maturity
			(kg/ha)	% of T9905	(1-5)	(%)	(g)				
T9905	**white**	**11**	**2594**	**100**	**1.1**	**1.5**	**22.6**	**2.0**	**VG**	**95**	**M**
Jaguar	black	20	2438	94	0.9	1.0	20.0	2.8	G	98	L
COOP00044 (Loreto)	black	15	2544	98	1.1	1.3	23.3	1.3	E	98	L
Eclipse	black	23	2391	92	0.9	1.1	21.5	1.8	VG	92	E
Condor	black	8	2637	102	0.9	1.3	22.5	1.5	E	97	M
Onyx	black	21	2429	94	1.3	1.8	20.9	2.3	VG	96	M
Black Velvet	black	1	2952	114	1.2	4.4	23.9	1.0	E	100	L
ADMB210237 (Bandit)	black	9	2606	100	1.2	1.0	21.0	1.3	E	99	L
Midnight	black	13	2585	100	0.8	1.7	21.9	1.3	E	101	L
Jet Black	black	14	2580	99	1.7	2.1	23.7	2.3	VG	103	L
Merlot	srm[1]	26	2286	88	1.8	3.8	36.4	2.3	VG	97	M
Sedona	pink	4	2682	103	1.7	2.9	34.5	2.5	G	90	E
Erimo	adzuki	16	2521	97	0.8	1.6	11.0	2.3	VG	100	L
Hime	otebo	25	2345	90	1.5	2.1	23.1	4.0	P	89	E
Maverick	pinto	24	2366	91	1.8	6.8	38.0	3.5	P	90	E
GTS 2404	gn*	3	2684	103	1.3	1.2	38.4	4.8	P	87	E
GTS 2405	gn*	27	2266	87	1.9	2.0	33.4	3.8	P	91	E
Matterhorn	gn*	19	2468	95	2.9	7.8	31.7	3.0	P	87	E
*** Great Northern (gn)**		Mean	2551		1.4	2.4	26.1	2.3		95	
[1] Small red mexican		LSD(0.05)	247		0.4	2.2	1.2	0.5		2	

[2] Harvestability <1.8= E, 1.8-2.3=VG, 2.4-2.8=G, >2.8=Poor

Maturity <93=E, 93-97=M, >97=L

Suitability for Direct Harvest <1.8=**E**xcellent, 1.8-2.3=VeryGood,2.4-2.8=**G**ood, >2.8= **P**oor

Table 4: 2007 Thorndale & Wide Row Cranberry, Kidney Trial

Variety	Market Class	Yield kg/ha		Seed Quality	100 Seed Weight	Days to Maturity	
		Thorndale	Kippen	(1-5)	(g)	Thorndale	Kippen
Red Kanner	LRK	2424	3123	1.9	50.4	104	105
Blush	LRK	1985	2720	1.4	56	104	108
Chinook 2000	LRK	1944	2453	1.8	53.9	104	100
Pink Panther	LRK	2209	2210	2.0	58.1	100	95
Cornell 605*	LRK	1584	2208	1.3	55.4	106	104
Average LRK		**2084**	**2612**	**1.5**			
Cabernet	DRK	1850	2265	1.9	50	95	94
Fiero	DRK	1948	2562	1.7	52.8	103	106
Mogul	DRK	2001	1916	1.9	50.9	102	103
Average DRK		**1937**	**2255**	**1.6**			
Messina	Cran	2109		1.4	48.9	105	
Etna	Cran	2377	2344	1.5	53.6	96	93
Capri	Cran	1979	2716	2.0	56.6	102	102
Chiante	Cran	2198	2501	2.1	55.1	101	100
October	Cran		2247	**1.5**	29.6		98
Average Cran		**2000**	**2560**	**2.3**			
PT99195MR	Pinto	3537		1.6	33.4	100	
* White Mould	**Mean**	**2081**	**2487**	**1.8**	**52.8**	**101**	**99**
Resistant	LSD	**304**	**243**	**0.4**	**2.7**	**2.4**	**2.2**

Summary:

Varieties yielded significantly different by location and row width. Relative to the check white bean variety T9905, most other types yielded lower, but this differed by location. For example the pink variety Sedona yielded between 77% - 103% of T9905. Other bean types yielded the lowest relative to T9905 at Thorndale. In the Kidney, Cranberry bean trial, Red Kanner was the highest yielding LRK variety, which is similar to the results for this variety in the Ontario Performance trials. Etna, the most widely grown cranberry variety was the highest yielding cranberry bean at Thorndale but yielded significantly less than Capri at Kippen.

Experimental varieties were omitted from the tables to simplify presentation. Caution is advised in interpreting the results, as only one year data is presented with 2 locations.

Table 5: Thorndale Wide Row Miscellaneous Trial

Treatment Name	Market Class	Yield Rank	Yield		Seed Quality	100 Seed Weight	Days to Maturity
			kg/ha	% of T9905	(1-5)	(g)	(d)
T9905	**Navy**	**1**	**3449**	**100**	**1.6**	**23**	**110**
Condor	Black	5	2490	72	2	19.2	109
Red Kanner	LRK	8	1900	55	1.9	53.6	112
Merlot	SRM	2	2898	84	2.1	34.3	100
Sedona	Pink	4	2665	77	2.3	33.4	99
Beluga	WK	9	1844	53	1.8	51.3	105
Hime	Otebo	7	1957	57	1.6	22.9	103
Peruano	Yellow	6	2357	68	2.5	41.6	111
Jet Black	Black	3	2688	78	1.5	21.6	111
Mean			**2483**		**1.9**	**33.4**	**107**
LSD(0.05)			**273**		**0.3**	**1.6**	**1.6**

Next Steps:

Results of this project will be presented to the Ontario Bean Producers Marketing Board and Ontario Coloured Bean Growers for consideration of continuing the trials.

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