

Dry Pea, Lentil, Chickpea and Winter Legume Breeding

2008 Progress Report



Prepared by
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Personnel, Cooperators and Cooperating Growers

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Spring Pea Yield Trials

In 2008, 21 advanced breeding lines and ten check varieties were included in the advanced green pea yield trial. The trial was planted at Pullman, WA, Walla Walla, WA, and Genesee, ID. The mean yield at Pullman was 2061 kg/ha, the mean yield at Walla Walla was 2292 kg/ha and the mean yield at Genesee was 1246 kg/ha. The grand mean over all three locations was 1867 kg/ha. All breeding lines were *afila* or semileafless types, a selected trait that contributes to upright growth habit. The advanced breeding line PS05100640 was the highest yielding entry over all locations, followed by the breeding line PS05100120 and the cultivar Ariel. Fifteen breeding lines had yields that were significantly higher than Columbian. The 21 advanced breeding lines ranged in yield from 1509-2322 kg/ha, while the average yields of the 10 check cultivars ranged from 1604 kg/ha (Columbian) to 2044 kg/ha (Ariel). Seed size among the check cultivars ranged from 17.8 g/100 seed (Ariel) to 22.5 g/100 seed (Lifter). Seed size among the advanced breeding lines ranged from 20.8 - 29.4 g/100 seed. Columbian flowered on average in 59 d while the earliest advanced breeding line flowered in 60 d.

Ten advanced breeding lines and four check varieties were included in the advanced yellow pea yield trial in 2008. All breeding lines were *afila* type lines. The nursery was planted at Pullman, WA, Walla Walla, WA, and Genesee, ID. The mean yield at Pullman was 2260 kg/ha, the mean yield at Walla Walla was 2459 kg/ha and the mean yield at Genesee was 1320 kg/ha. The grand mean over all three locations was 2013 kg/ha. The variety Universal was the highest yielding entry across all three locations (2271 kg/ha), followed by the breeding lines PS02101137 and PS03101822. The 10 advanced breeding lines ranged in yield from 1773-2254 kg/ha, while the average yields of the 4 check cultivars ranged from 1762 kg/ha (DS Admiral) to 2271 kg/ha (Universal). Seed size among the check cultivars ranged from 21.6 g/100 seed (Universal) to 24.3 g/100 seed (Carousel). Seed size among the advanced breeding lines ranged from 20.7 – 26.2 g/100 seed. Universal flowered on average in 55 d while the earliest advanced breeding line flowered in 54 d.

A preliminary replicated yield trial was conducted in 2008 at Spillman Farm that included 16 green pea breeding lines and 33 yellow and marrowfat breeding lines. Nine green pea breeding lines yielded higher than the check variety Stirling. Seed weight among the green pea breeding lines ranged from 21.3-25.1 g/100 seeds. Stirling was the earliest check variety, flowering in 52 d, while the earliest breeding line, PS06100595 flowered in 51 d. Fourteen yellow pea breeding lines yielded higher than the check variety Delta. Delta flowered in 57 d while the earliest yellow breeding line flowered in 51 d. Four breeding lines flowered in 53 d or less.

Pea breeding lines were evaluated for resistance to PEMV in Corvallis, OR. Breeding lines were also evaluated for resistance to soilborne diseases, including *Aphanomyces* root rot and *Fusarium* wilt in the field at Pullman, WA and Prosser, WA. Peas were also screened in the greenhouse for resistance to *Aphanomyces* root rot. Improving our capacity to screen for disease resistance in the greenhouse will accelerate the accurate identification of breeding lines with resistance to soilborne diseases. Breeding lines with multiple disease resistance will be identified and used as parents to incorporate resistance into adapted materials.

Product quality of breeding lines was assessed based on physical appearance and cooking characteristics. All green pea breeding lines were subjected to a simulated bleach test and those with high bleach scores were discarded. Cooking quality assays were conducted on the entries in the regional yield trials.

Results of preliminary and advanced yield trials suggest that improvement is being made in producing green and yellow pea breeding lines that have are high yielding, have resistance to multiple diseases, and have desirable food and cooking qualities. Breeding efforts are also yielding gains in developing winterhardy pea varieties that can be sown in the fall. Results of proximate analysis will provide information that will lead to the selection of breeding lines based on nutritional profile of harvested peas.

Potential Variety Releases

PS0310445 is a spring green pea breeding line that has averaged 16.3% higher yields than Columbian over 8 location/years of yield trials. PS0310445 is a short stature afile type plant that flowers in 67 d, matures in 98 d, and has approximately the same seed size (19.6 g/100 seed) as Banner.

PS02100026 is a spring green pea breeding line that has averaged 9.2% higher yields than Columbian over five location/years of field trials. PS02100026 is a short stature afile type plant that flowers in 67 d, matures in 95 d, and has approximately the same seed size (21.3 g/100 seed) as Medora.

PS03101822 is a spring yellow pea breeding line that has averaged 14.2 % higher yields than Delta over eight location/years of field trials. PS03101822 is a short stature afile type plant that flowers in 54 d, matures in 84 d, and has a large seed size (23.3 g/100 seed) than either Delta or Universal.

Performance of each of the above mentioned advanced breeding lines will need to be evaluated for at least one additional year in multiple locations prior to being considered for release as varieties or germplasm.

Table Location Yield Summary for the Advanced Green Pea Yield Trial (0801)

Name	Leaf Type	Vine Type	Genesee Seed Yield kg/ha	Pullman Seed Yield kg/ha	Walla Walla Seed Yield kg/ha	Mean Seed Yield kg/ha	% of Columbian
PS05100640	-	-	1551.0	2526.5	2887.7	2321.7	143
PS05100120	-	-	1398.3	2483.7	2413.0	2098.3	134
PS05100727	-	-	1175.7	2455.1	2446.5	2025.8	132
PS03101445	-	-	1241.7	2215.3	2501.9	1986.3	131
PS05100736	-	-	1440.0	2134.5	2494.5	2023.0	131
MEDORA	-	-	1387.8	2229.9	2268.7	1962.1	129
PS05100840	-	-	1307.4	2319.1	2418.9	2015.1	129
ARIEL	-	-	1485.3	2306.6	2339.4	2043.8	128
PACIFICA	-	-	1318.6	2204.9	2258.7	1927.4	127
PS05100627	-	-	1391.3	2195.0	2195.5	1927.3	127
PS05100632	-	-	1273.3	2325.7	2449.4	2016.1	127
PS04100505	-	-	1244.9	1894.8	2412.6	1850.8	125
PS05100735	-	-	1170.5	1953.8	2456.9	1860.4	125
BANNER	-	-	1568.9	2227.0	2081.9	1959.3	124
PS04100462	-	-	1261.3	1802.3	2336.6	1800.1	123
STIRLING	-	-	1368.0	1855.8	2292.7	1838.8	123
CRUISER	-	-	1441.3	2178.1	2164.7	1928.0	122
PRODIGY	-	-	1471.7	1774.4	2161.1	1802.4	122
PS04100328	-	-	1083.1	1884.3	2371.2	1779.5	122
PS05100728	-	-	1207.1	2073.7	2264.6	1848.5	122
PS05100522	-	-	1100.3	2065.2	2342.9	1836.1	121
ARAGORN	-	-	1297.0	2120.1	2131.5	1849.5	120
MONARCH	-	-	1089.1	1808.9	2494.9	1797.6	118
PS05100670	-	-	1296.3	1873.5	2078.0	1749.3	118
PS05100519	-	-	1254.9	1912.6	2338.3	1835.3	117
PS05100778	-	-	776.6	2239.8	2144.1	1720.2	117
PS05100518	-	-	1211.9	1979.5	2310.5	1834.0	116
LIFTER	+	-	1390.5	1984.8	1945.6	1773.6	114
PS02100026	-	-	905.7	1986.6	2019.6	1637.3	109
PS04100557	-	-	851.5	1678.8	2174.7	1568.3	105
COLUMBIAN(LOT-I)	+	+	1071.3	1583.6	2157.5	1604.1	100
PS0110827	-	-	861.1	1667.3	1998.5	1509.0	99.3
GRAND MEAN			1246.7	2060.7	2292.3	1866.5	0.00
CV			16.1	9.6	9.4	11.0	0.00
LSD			274.2	270.8	293.9	190.8	0.00

Leaf Type: + = normal leaf, - = afile or semi-leafless type.
 Plant Type: + = tall plant type, - = short plant type
 Yield data are means of three replications at each location.

Agronomic Data for the Advanced Green Pea Yield Trial (0801)

Name	FW 1	PM	PEMV	Days to Flower	Days to Maturity	Flower Node	Pods/ Peduncle	Pod Height	Pod Ht Maturity	Pod Ht Index	Vine Length	Canopy Height	Plant Ht Index	# Repr Nodes	100 Seed Weight
								..cm..	..cm..		..cm..	..cm..			..g..
PS05100640	+	+	-	61.0	95.0	18.5	2.0	52.3			63.8			2.8	20.6
PS05100120	+	-	+	67.0	98.0	17.7	2.0	49.7			63.3			4.0	20.9
PS05100727	+	+/-	+	68.0	103.0	18.5	2.0	59.0			71.2			3.0	23.7
PS03101445	+	-	-	67.0	98.0	17.7	2.0	44.7			58.5			3.0	19.6
PS05100736	+	-	+	68.0	101.0	18.8	2.0	43.3			52.8			2.7	23.5
MEDORA	-	-	-	69.0	100.0	19.0	2.0	53.5			64.3			2.5	21.6
PS05100840	+	-	-	68.0	103.0	20.2	2.0	51.0			60.8			2.5	21.3
ARIEL	+	+	-	65.0	95.0	16.7	2.0	46.7			59.5			3.2	17.8
PACIFICA	+	+	-	66.0	96.0	18.2	2.0	53.8			67.0			3.5	21.9
PS05100627	+	-	+	67.0	96.0	18.5	2.0	56.8			68.3			2.8	24.3
PS05100632	+	+/-	-	60.0	95.0	17.3	2.0	47.0			57.2			3.2	20.9
PS04100505	+	-	-	63.0	96.0	14.7	2.0	34.5			43.8			2.8	20.8
PS05100735	+	-	+	68.0	101.0	18.3	2.0	42.3			51.5			2.5	23.3
BANNER	-	+	-	64.0	95.0	14.7	2.0	54.7			68.8			2.7	19.7
PS04100462	+	-	+	68.0	101.0	19.0	2.0	39.5			51.2			3.0	22.8
STIRLING	+	-	-	62.0	95.0	14.7	2.0	37.3			49.3			3.2	21.8
CRUISER	+	+	-	64.0	95.0	18.2	2.0	51.0			62.7			3.5	19.8
PRODIGY	+/-	-	-	66.0	96.0	19.0	2.0	48.3			57.2			2.8	18.5
PS04100328	+	+	-	68.0	101.0	19.0	2.0	55.0			64.7			2.3	29.4
PS05100728	+	-	+	67.0	96.0	17.8	2.0	47.3			58.2			2.5	23.2
PS05100522	+	-	-	63.0	94.0	17.8	2.0	48.5			60.2			2.8	23.3
ARAGORN	+	+	-	64.0	94.0	17.7	2.0	44.2			54.3			2.7	20.4
MONARCH	+	+	-	61.0	95.0	14.3	2.0	36.3			49.2			3.2	18.2
PS05100670	+	-	+	67.0	100.0	17.0	2.0	45.5			60.0			4.5	23.8
PS05100519	+	-	-	64.0	94.0	17.3	2.0	51.3			61.7			3.5	23.3
PS05100778		+	-	68.0	101.0	20.8	2.0	63.8			72.0			2.7	25.6

FW 1 = Fusarium wilt race 1; + = resistant; - = susceptible.

PM = Powdery Mildew; + = resistant; - = susceptible.

PEMV = Pea enation mosaic virus; + = resistant, - = susceptible

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Rep Nodes = average number of reproducing nodes to a plant.

Agronomic data are means of three replications at Pullman, WA. Planting Date 04/23/08 Harvest Date: 08/07/08

Check variety = Columbian

Agronomic Data for the Advanced Green Pea Yield Trial (0801)

Name	FW 1	PM	PEMV	Days to Flower	Days to Maturity	Flower Node	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	# Repr Nodes	100 Seed Weight ..g..
PS05100518	+	-	-	62.0	94.0	17.7	2.0	50.7			62.3			3.0	23.5
LIFTER	+	-	+	67.0	101.0	16.3	2.0	49.0			61.2			3.7	22.5
PS02100026	+	-	-	67.0	95.0	18.0	2.0	45.7			57.5			2.7	21.3
PS04100557	+	-	-	67.0	101.0	20.3	2.0	51.3			63.8			2.8	26.5
COLUMBIAN(LOT-I)	+	+	-	59.0	95.0	12.0	1.0	48.0			76.7			4.8	19.4
PS0110827	+	-	-	67.0	101.0	18.8	2.0	52.8			64.8			3.7	22.8
GRAND MEAN				65.3	97.5	17.6	2.0	48.6			60.6			3.1	22.1
CV				1.5	2.5	6.9	5.2	8.5			7.1			20.5	3.9
LSD				1.4	3.4	1.7	0.1	5.6			5.9			0.9	1.2

FW 1 = Fusarium wilt race 1; + = resistant; - = susceptible.

PM = Powdery Mildew; + = resistant; - = susceptible.

PEMV = Pea enation mosaic virus; + = resistant, - = susceptible

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Rep Nodes = average number of reproducing nodes to a plant.

Agronomic data are means of three replications at Pullman, WA. Planting Date 04/23/08 Harvest Date: 08/07/08

Check variety = Columbian

Mean Yields of the Advanced Green Dry Pea Yield Trial, 2004 - 2008

Name	Leaf	Plant	2004		2005		2006		2007		2008	
	Type	Type	kg/ha	% COLUMBIAN	kg/ha	% COLUMBIAN	kg/ha	% COLUMBIAN	kg/ha	% COLUMBIAN	kg/ha	% COLUMBIAN
PS05100640	-	-	2322	143
PS05100120	-	-	2098	134
PS05100727	-	-	2026	132
PS03101445	-	-	1986	131
PS05100736	-	-	2023	131
MEDORA	-	-	1626	81	1307	65	1962	129
PS05100840	-	-	2015	129
ARIEL	-	-	2242	111	1958	98	2044	128
PACIFICA	-	-	2317	115	2009	100	1927	127
PS05100627	-	-	1927	127
PS05100632	-	-	2016	127
PS04100505	-	-	2042	102	1851	125
PS05100735	-	-	1860	125
BANNER	-	-	1959	124
PS04100462	-	-	1991	99	1800	123
STIRLING	-	-	3642	112	2608	130	2200	109	2014	100	1839	123
CRUISER	-	-	2139	106	1843	92	1928	122
PRODIGY	-	-	1880	93	1768	88	1802	122
PS04100328	-	-	1995	99	1780	122
PS05100728	-	-	1849	122
PS05100522	-	-	1836	121
ARAGORN	-	-	2208	109	1999	100	1850	120
MONARCH	-	-	2239	111	1886	94	1798	118
PS05100670	-	-	1749	118
PS05100519	-	-	1835	117
PS05100778	-	-	1720	117
PS05100518	-	-	1834	116
LIFTER	+	-	3306	102	2553	127	2068	102	2072	103	1774	114
PS02100026	-	-	2248	112	2232	111	1848	92	1637	109
PS04100557	-	-	1829	91	1568	105
COLUMBIAN(LOT-I)	+	+	3248	100	2003	100	2019	100	2007	100	1604	100
PS0110827	-	-	3613	111	1995	100	2283	113	1900	95	1509	99
Grand Mean			3598		2238		2222		1929		1867	
LSD _(a=0.05)			379		215		193		186		191	

Leaf type; + = normal leaf, - = *afila* or semileafless type.

Leaf type; + = normal leaf, - = *afila* or semileafless type.

Plant type; + = tall plant type, - = short plant type.

Yield data are means of three replications at each location, over four locations in each year except 2005 and 2006.

Table Location Yield Summary for the Advanced Yellow Pea Yield Trial (0802)

Name	Leaf Type	Vine Type	Genesse Seed Yield kg/ha	Pullman Seed Yield kg/ha	Walla Walla Seed Yield kg/ha	Mean Seed Yield kg/ha	% of Delta
UNIVERSAL	-	-	1584.9	2295.3	2934.1	2271.4	107
PS02101137	-	-	1799.6	2323.3	2639.2	2254.0	107
PS03101822	-	-	1154.1	2789.8	2759.6	2234.5	106
CAROUSEL	-	-	1529.5	2421.2	2440.6	2130.4	101
DELTA	-	-	1371.6	2063.0	2914.6	2116.4	100
PS05101158	-	-	1249.9	2456.0	2609.0	2105.0	99.5
PS05101240	-	-	1549.7	2228.5	2354.5	2044.2	96.6
PS05101142	-	-	1473.6	2003.3	2495.0	1990.6	94.1
PS05101139	-	-	1213.1	2128.8	2475.8	1939.2	91.6
PS01102958	-	-	1417.2	2137.6	2183.1	1912.6	90.4
PS04100922	-	-	879.0	2289.7	2332.2	1833.6	86.6
PS04100710	-	-	1180.0	2379.7	1896.6	1818.8	85.9
PS04100910	-	-	990.7	2143.1	2185.9	1773.2	83.8
DS ADMIRAL	-	-	1091.3	1985.0	2210.1	1762.1	83.3
GRAND MEAN			1320.3	2260.3	2459.3	2013.3	0.00
CV			17.7	5.8	7.4	9.3	0.00
LSD			325.2	182.0	252.2	174.8	0.00

Leaf Type: + = normal leaf, - = afila or semi-leafless type.
 Plant Type: + = tall plant type, - = short plant type
 Yield data are means of three replications at each location.

Agronomic Data for the Advanced Yellow Pea Yield Trial (0802)

Name	FW 1	PM	PEMV	Days to Flower	Days to Maturity	Flower Node	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	# Repr Nodes	100 Seed Weight ..g..
UNIVERSAL	+/-	+	-	55.0	84.0	15.7	2.0	46.7			55.0			2.7	21.6
PS02101137	+	-	-	56.0	86.0	17.0	2.0	49.2			60.0			2.8	22.8
PS03101822	+	-	-	54.0	84.0	14.7	2.0	42.0			52.8			2.7	23.3
CAROUSEL	-	+/-		56.0	88.0	16.3	2.0	51.8			64.7			2.5	24.3
DELTA	+	+	-	56.0	85.0	16.4	2.0	39.2			48.2			2.5	21.1
PS05101158	+	-	-	56.0	85.0	17.7	2.0	38.5			56.5			3.0	25.0
PS05101240	+	-	-	58.0	87.0	16.0	2.0	37.2			47.5			2.2	20.7
PS05101142	+	-	-	58.0	87.0	16.5	2.0	53.0			65.5			4.0	22.0
PS05101139	+	-	-	55.0	87.0	17.3	2.0	53.3			65.5			3.7	23.1
PS01102958	+	-	-	58.0	90.0	15.3	2.0	36.2			45.7			2.7	23.4
PS04100922	+	-	-	60.0	87.0	15.0	2.0	35.0			41.7			1.8	22.9
PS04100710	+/-	+/-	-	58.0	87.0	15.8	2.0	38.5			49.8			3.2	24.3
PS04100910	+	-	-	58.0	88.0	14.7	2.0	32.8			39.0			2.7	26.2
DS ADMIRAL	-	-	-	57.0	88.0	17.7	2.0	50.2			63.2			2.7	22.8
GRAND MEAN				56.8	86.6	16.2	2.0	43.1			53.9			2.8	23.1
CV				1.4	2.0	8.5	16.3	13.2			9.3			18.3	2.3
LSD				1.1	2.5	1.9	0.4	7.9			7.0			0.7	0.7

FW 1 = Fusarium wilt race 1; + = resistant; - = susceptible.

PM = Powdery Mildew; + = resistant; - = susceptible.

PEMV = Pea enation mosaic virus; + = resistant, - = susceptible

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Rep Nodes = average number of reproducing nodes to a plant.

Agronomic data are means of three replications at Pullman, WA. Planting Date 05/02/08 Harvest Date: 08/07/08

Check variety = Delta

Mean Yields of the Advanced Yellow Dry Pea Yield Trial, 2004 - 2008

Name	Leaf Type	Plant Type	2004		2005		2006		2007		2008	
			kg/ha	% of Delta	kg/ha	% of Delta	kg/ha	% of Delta	kg/ha	% of Delta	kg/ha	% of Delta
PS02101137	-	-	2213	84	2413	100	2034	92	2254	107
UNIVERSAL	-	-	2547	105	2111	96	2271	107
PS03101822	-	-	2976	123	2207	100	2235	106
CAROUSEL	-	-	2594	107	1420	64	2130	101
DELTA*	-	-	4083	100	2641	100	2419	100	1972	89	2116	100
PS05101158	-	-	2105	100
PS05101240	-	-	2044	97
PS05101142	-	-	1991	94
PS05101139	-	-	1939	92
PS01102958	-	-	3555	87	2515	95	2191	91	1957	89	1913	90
PS04100922	-	-	1796	81	1834	87
PS04100710	-	-	2013	91	1819	86
PS04100910	-	-	1976	90	1773	84
DS ADMIRAL	-	-	1661	75	1762	83
Grand Mean									1917		2013	
LSD (a=0.05)									267		175	

Leaf type; + = normal leaf, - = afila or semileafless type.

Plant type; + = tall plant type, - = short plant type.

Yield data are means of three replications at each location, over four locations in each year except 2005 and 2006.

Agronomic and Yield Data for the Preliminary Green Dry Pea Observation Trial (0803)

Name	Leaf Type	Vine Type	FW 1	PM	PEMV	Days to Flower	Days to Maturity	Flower Node	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	# Repr Nodes	100 Seed Weight ..g..	Seed Yield kg/ha	% of Stirling
PS06100292	-	-	+	-		56.0	86.0	15.8	2.0	47.5			57.7			2.3	21.4	2489	116.6
PS06100595	-	-	+	+		51.0	84.0	14.0	2.0	60.3			61.2			3.2	22.3	2429	113.8
PS06101305	-	-	+/-	+		58.0	90.0	15.0	2.0	52.2			54.8			2.8	21.6	2424	113.6
PS06100490	-	-	+	+		54.0	84.0	16.5	2.0	57.5			60.8			3.3	22.7	2406	112.7
PS06100617	-	-	+	+		59.0	88.0	18.7	2.0	62.0			71.7			2.7	24.1	2395	112.2
PS06100531	-	-	+	+		53.0	85.0	15.3	2.0	51.3			63.3			2.8	23.8	2345	109.9
PS06100760	-	-	+	-		58.0	87.0	17.3	2.0	48.3			62.0			3.5	21.9	2317	108.6
PS05100914	-	-	+	+	-	58.0	92.0	15.5	2.0	38.0			43.3			2.3	25.1	2235	104.7
MEDORA	-	-	-	-	-	59.0	88.0	17.7	2.0	54.7			65.5			2.3	21.3	2202	103.2
PS06100684	-	-	+	-		51.0	84.0	13.5	2.0	38.8			50.2			4.0	22.0	2168	101.6
STIRLING	-	-	+	-	-	52.0	86.0	15.8	2.0	36.2			48.8			3.0	20.5	2134	100.0
PS06100542	-	-	+	+		57.0	86.0	17.8	2.0	56.7			66.5			2.3	23.0	2130	99.81
PS03690134	-	-	+	+	-	55.0	59.0	14.3	2.0	37.5			39.3			2.8	22.9	2113	99.02
PS06100597	-	-	+	-		53.0	86.0	16.0	2.0	54.5			58.2			3.2	23.3	2041	95.61
LIFTER	+	-	+	-	+	57.0	92.0	14.2	2.0	51.2			64.3			4.0	21.8	2029	95.07
PS06100427	-	-	-	+		55.0	85.0	15.3	2.0	45.8			49.2			2.7	22.6	1990	93.23
PS06100585	-	-	+	+		53.0	85.0	14.8	2.0	54.2			58.7			3.2	21.3	1927	90.28
PS06100547	-	-	+	+		50.0	83.0	14.3	2.0	45.8			52.2			3.5	21.7	1846	86.48
PS06100428	-	-	+	+		54.0	85.0	16.2	2.0	52.0			47.5			2.5	22.4	1815	85.06
PRODIGY	-	-	+/-	-	-	57.0	85.0	17.7	2.0	51.3			52.2			2.7	18.6	1680	78.72
GRAND MEAN						55.0	84.9	15.8	2.0	49.8			56.4			3.0	22.2	2156	0.00
CV						2.5	13.4	10.7	6.4	17.0			12.4			20.3	2.8	12.9	0.00
LSD						1.9	15.7	2.3	0.2	11.6			9.6			0.8	0.9	383.8	0.00

FW 1 = Fusarium wilt race 1; + = resistant; - = susceptible.

PM = Powdery Mildew; + = resistant; - = susceptible.

PEMV = Pea enation mosaic virus; + = resistant, - = susceptible

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Rep Nodes = average number of reproducing nodes to a plant.

Agronomic data are means of three replications at Pullman, WA. Planting Date 05/02/08 Harvest Date: 08/07/08

Agronomic and Yield Data for the Preliminary Yellow and Marrowfat Dry Pea Observation Trial (0804)

Name	Leaf Type	Vine Type	FW 1	PM	PEMV	Days to Flower	Days to Maturity	Flower Node	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	# Repr Nodes	100 Seed Weight ..g..	Seed Yield kg/ha	% of Delta
PS06101279	+	-	+/-	+		52.0	85.0	14.3	2.0	43.5			63.7			4.0	25.1	2632	126.6
PS06101240	-	-	+/-	-		60.0	94.0	17.0	2.0	42.7			54.3			3.7	23.8	2543	122.3
PS06101061	-	-	+	+		56.0	84.0	17.7	2.0	52.3			67.2			3.8	21.8	2511	120.8
PS06101119	-	-	+	-		55.0	84.0	16.7	2.0	49.5			62.5			3.7	24.5	2488	119.7
PS06101346	-	-	+	+		53.0	83.0	14.8	2.0	53.2			73.3			4.3	24.8	2471	118.8
PS01102958	-	-	+	-	-	57.0	86.0	15.8	2.0	41.2			49.7			2.7	24.4	2452	117.9
PS06101043	-	-	+	+		57.0	89.0	17.3	2.0	58.7			72.3			4.3	25.4	2445	117.6
PS06101138	-	-	+/-	-		56.0	85.0	16.7	2.0	48.3			61.3			3.3	21.2	2433	117.0
PS06101004	-	-	+	-		54.0	84.0	14.8	2.0	45.5			58.8			3.7	24.9	2305	110.9
PS06101337	-	-	-	+		51.0	83.0	15.2	2.0	53.2			72.0			4.3	24.6	2300	110.6
PS06101338	-	-	+/-	-		57.0	86.0	16.0	2.0	56.8			75.2			4.3	24.9	2251	108.2
PS06101065	-	-	+	+		58.0	88.0	18.5	2.0	50.2			64.8			3.8	23.6	2155	103.6
PS06101068	-	-	-	-		53.0	87.0	15.2	2.0	50.7			68.7			3.8	24.8	2132	102.5
PS06101273	-	-	+	+		58.0	88.0	18.2	2.0	44.2			53.5			2.8	25.6	2088	100.4
DELTA	-	-	+	+	-	57.0	85.0	15.5	2.0	42.5			50.7			2.2	21.7	2080	100.0
UNIVERSAL	-	-	+/-	+	-	54.0	85.0	16.0	2.0	46.7			59.3			2.8	21.4	2056	98.87
PS06101243	-	-	+	-		59.0	91.0	16.8	2.0	29.3			43.7			2.5	21.3	2054	98.75
PS06101096	-	-	+	-		55.0	86.0	13.8	2.0	42.0			59.5			4.7	21.2	1976	95.04
PS06100937	-	-		-		58.0	94.0	18.3	2.0	52.8			66.5			3.8	38.1	1920	92.32
PS06100875	+	-		-		56.0	92.0	15.5	2.0	39.2			55.7			3.3	34.6	1791	86.14
PS06100833	-	-	+	+	-	53.0	87.0	12.7	2.0	45.8			59.2			3.3	34.5	1786	85.91
PS06100840	-	-	+	+		56.0	89.0	14.5	2.0	40.0			52.2			2.8	32.7	1758	84.52
PS06100906	+	-	+	+		56.0	94.0	15.0	2.0	38.8			51.8			3.2	38.0	1733	83.32
PS06100934	-	-	+	-		59.0	94.0	17.2	2.0	41.0			51.5			3.3	36.5	1680	80.76
PS06100836	-	-	+	+	-	58.0	94.0	14.3	2.0	38.5			52.7			3.7	36.2	1671	80.35
SUPRA	-	-	+	+	-	58.0	91.0	15.7	2.0	38.3			55.0			3.5	34.5	1614	77.61

FW 1 = Fusarium wilt race 1; + = resistant; - = susceptible.

PM = Powdery Mildew; + = resistant; - = susceptible.

PEMV = Pea enation mosaic virus; + = resistant, - = susceptible

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Rep Nodes = average number of reproducing nodes to a plant.

Agronomic data are means of three replications at Pullman, WA. Planting Date 05/02/08 Harvest Date: 08/08/08

Agronomic and Yield Data for the Preliminary Yellow and Marrowfat Dry Pea Observation Trial (0804)

Name	Leaf Type	Vine Type	FW 1	PM	PEMV	Days to Flower	Days to Maturity	Flower Node	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	# Repr Nodes	100 Seed Weight ..g..	Seed Yield kg/ha	% of Delta
PS06100886	-	-	+	+		57.0	94.0	16.5	2.0	42.5			56.0			3.7	33.0	1613	77.57
PS06100940	+	-				57.0	92.0	16.0	2.0	45.0			60.0			3.8	37.8	1608	77.35
PS06100827	+	-	+	+		56.0	94.0	14.8	2.0	33.5			48.3			3.7	37.6	1567	75.35
PS06100846	-	-	+	-		56.0	94.0	16.5	2.0	46.8			61.7			3.0	31.8	1548	74.44
PS06100830	-	-	+	+		56.0	93.0	16.8	2.0	43.7			57.7			3.8	34.8	1487	71.53
PS06100882	+	-	+	+		56.0	94.0	13.7	2.0	36.7			52.5			3.8	38.2	1385	66.59
PS06100918	-	-		+		56.0	94.0	14.8	3.0	39.7			54.0			3.7	35.7	1291	62.10
PS06100826	-	-	+	+		58.0	94.0	15.0	2.0	37.0			50.3			3.0	38.1	1290	62.05
PS06100888	-	-	+	+		54.0	86.0	15.2	2.0	39.8			51.8			2.7	28.6	1182	56.85
PS06100848	-	-		+		54.0	92.0	14.3	2.0	41.5			57.0			3.5	33.4	1123	54.02
GRAND MEAN						56.0	89.3	15.8	2.1	44.2			58.5			3.5	29.4	1928	0.00
CV						1.7	2.2	7.7	13.4	8.7			8.2			18.5	4.4	12.3	0.00
LSD						1.3	2.6	1.6	0.4	5.3			6.5			0.9	1.8	322.3	0.00

FW 1 = Fusarium wilt race 1; + = resistant; - = susceptible.

PM = Powdery Mildew; + = resistant; - = susceptible.

PEMV = Pea enation mosaic virus; + = resistant, - = susceptible

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Rep Nodes = average number of reproducing nodes to a plant.

Agronomic data are means of three replications at Pullman, WA. Planting Date 05/02/08 Harvest Date: 08/08/08

Agronomic and Yield Data for the Preliminary Green, Yellow and Marrowfat Dry Pea Observation Trial (0805)

Name	Leaf Type	Vine Type	FW 1	PM	PEMV	Days to Flower	Days to Maturity	Flower Node	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	# Repr Nodes	100 Seed Weight ..g..	Seed Yield kg/ha
PS07100396	-	-		-		59.0	88.0	19.0	2.0	50.9			63.4			2.5	24.5	2842
PS07101095	-	-				56.0	86.0	17.0	2.0	48.8			63.1			3.7	22.8	2774
PS07100829	-	-				56.0	87.0	14.9	2.0	51.6			62.2			3.4	26.9	2762
PS07100945	-	-				58.0	91.0	17.4	2.0	39.6			48.7			1.9	20.3	2737
PS07100130	-	-		-		55.0	86.0	14.1	2.0	41.6			52.7			3.0	24.3	2715
PS07100029	-	-		-		58.0	90.0	15.6	2.0	33.9			40.4			2.2	23.7	2687
PS07100192	-	-		-		55.0	87.0	17.5	2.0	51.4			68.1			3.7	24.3	2654
PS07100005	-	-		+		56.0	81.0	19.1	2.0	69.3			81.9			4.2	26.2	2630
PS07100892	-	-				59.0	87.0	17.6	2.0	45.8			58.1			3.0	24.9	2625
PS07100212	-	-		-		56.0	88.0	15.9	2.0	54.0			66.6			2.4	26.6	2602
PS07101018	-	-		-		57.0	89.0	18.1	2.0	43.5			58.8			2.4	26.5	2580
PS07100888	-	-		-		58.0	92.0	15.9	2.0	37.3			51.1			3.2	28.0	2564
PS07100408	-	-		-		60.0	96.0	20.4	2.0	49.6			58.2			1.7	26.6	2560
PS07100067	-	-		-		64.0	97.0	19.2	2.0	59.1			67.1			2.2	25.0	2559
PS07100628	-	-		-		64.0	94.0	16.6	2.0	53.0			69.1			5.5	24.0	2555
PS07101067	-	-		+		57.0	85.0	14.5	2.0	34.9			47.3			4.7	27.1	2498
PS07100982	+	-		+		56.0	90.0	17.7	2.0	50.9			58.8			1.3	22.4	2474
PS07101002	+/-	-		+		57.0	89.0	16.9	2.0	42.1			53.2			2.8	25.3	2452
PS07100841	-	-		-		61.0	92.0	16.7	2.0	38.4			48.1			2.5	21.6	2449
PS07100644	-	-		-		55.0	86.0	12.9	2.0	48.3			64.1			3.8	22.0	2432
PS07100925	-	-		-		57.0	89.0	18.5	2.0	41.3			48.8			1.3	24.6	2419
PS07100916	-	-				57.0	87.0	19.0	2.0	43.6			54.1			2.7	24.2	2414
PS07101031	+	-		+		57.0	89.0	17.0	2.0	47.8			59.2			0.9	26.2	2412
PS07100165	-	-		-		56.0	90.0	17.5	2.0	51.8			63.4			2.5	26.4	2388
PS07100919	-	-				56.0	91.0	17.4	2.0	52.9			65.8			2.5	25.0	2373

FW 1 = Fusarium wilt race 1; not conducted on preliminary observation nurseries

PM = Powdery Mildew; + = resistant, - = susceptible

PEMV = Pea enation mosaic virus; not conducted on preliminary observation nurseries

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Rep Nodes = average number of reproducing nodes to a plant.

Agronomic data are means of three replications at Pullman, WA. Planting Date 05/03/08 Harvest Date: 08/08/08

Agronomic and Yield Data for the Preliminary Green, Yellow and Marrowfat Dry Pea Observation Trial (0805)

Name	Leaf Type	Vine Type	FW 1	PM	PEMV	Days to Flower	Days to Maturity	Flower Node	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	# Repr Nodes	100 Seed Weight ..g..	Seed Yield kg/ha
PS07100170	-	-	-			56.0	86.0	15.5	2.0	48.8			62.8			3.8	27.6	2372
PS07100119	-	-	-			59.0	89.0	18.4	2.0	47.1			62.9			2.7	24.4	2366
PS07100448	-	-	-			56.0	89.0	15.6	2.0	48.3			59.7			2.9	29.5	2354
PS07100914	+	-				56.0	95.0	16.5	2.0	50.4			69.3			4.2	27.6	2353
STIRLING	-	-	-			53.0	89.0	13.5	2.0	33.9			46.3			3.8	23.0	2346
PS07100909	-	-	-			57.0	88.0	15.2	2.0	42.5			53.7			2.4	26.0	2339
PS07100258	-	-	-			56.0	91.0	17.9	2.0	45.3			52.9			2.4	27.3	2338
PS07100262	-	-	-			55.0	87.0	14.6	2.0	37.9			49.7			3.2	23.9	2337
PS07101064	-	-	+			53.0	86.0	15.2	2.0	60.6			71.4			2.0	25.0	2336
PS07100616	-	-	-			56.0	86.0	17.5	3.0	38.5			51.8			2.7	23.9	2333
PS07100860	-	-				55.0	83.0	15.0	2.0	50.1			64.7			3.0	28.2	2329
PS07100346	-	-	-			63.0	91.0	16.0	2.0	35.4			41.1			1.9	24.0	2317
PS07100417	-	-	-			59.0	85.0	17.6	2.0	43.4			53.8			1.5	24.6	2295
PS07100104	-	-	-			53.0	86.0	15.7	2.0	42.1			53.1			2.9	26.2	2292
PS07101052	-	-	+			56.0	89.0	18.1	2.0	52.8			62.3			2.0	24.6	2284
PS07100480	-	-	-			60.0	90.0	19.9	2.0	58.3			66.8			2.5	25.6	2265
PS07100268	-	-	-			56.0	87.0	14.9	2.0	38.0			51.2			3.4	26.1	2259
PS07101061	-	-				57.0	87.0	14.5	2.0	44.6			59.8			4.4	23.7	2253
PS07100852	-	-				61.0	93.0	16.4	2.0	40.9			49.9			1.9	22.8	2250
PS07100429	-	-				57.0	89.0	16.7	2.0	44.9			55.4			2.4	24.4	2249
PS07100383	-	-	-			51.0	85.0	11.4	2.0	32.3			41.6			3.7	23.4	2242
PS07100680	-	-	-			60.0	93.0	17.1	2.0	34.8			45.4			2.4	30.5	2242
PS07100471	-	-	-			57.0	87.0	16.0	2.0	49.0			65.3			3.5	26.5	2236
PS07100992	-	-	+			58.0	89.0	17.9	2.0	48.4			58.8			2.2	26.8	2234
PS07100973	+	-	+			57.0	84.0	16.4	2.0	39.9			52.6			2.9	29.2	2225

FW 1 = Fusarium wilt race 1; not conducted on preliminary observation nurseries

PM = Powdery Mildew; + = resistant, - = susceptible

PEMV = Pea enation mosaic virus; not conducted on preliminary observation nurseries

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Rep Nodes = average number of reproducing nodes to a plant.

Agronomic data are means of three replications at Pullman, WA. Planting Date 05/03/08 Harvest Date: 08/08/08

Agronomic and Yield Data for the Preliminary Green, Yellow and Marrowfat Dry Pea Observation Trial (0805)

Name	Leaf Type	Vine Type	FW 1	PM	PEMV	Days to Flower	Days to Maturity	Flower Node	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	# Repr Nodes	100 Seed Weight ..g..	Seed Yield kg/ha
PS07100056	-	-		-		53.0	83.0	14.0	2.0	34.0			57.4			4.4	26.1	2221
PS07100882	-	-		-		59.0	91.0	18.1	2.0	51.1			62.8			3.7	25.0	2218
PS07100452	-	-				60.0	93.0	20.9	2.0	65.5			75.9			2.7	28.3	2201
PS07100716	-	-				56.0	89.0	17.1	2.0	52.8			65.3			2.5	22.7	2199
PS07101058	-	-		+		57.0	91.0	17.6	2.0	54.4			67.7			2.7	29.4	2194
PS07100377	-	-		-		56.0	88.0	19.4	2.0	42.1			50.3			3.0	28.2	2189
PS07100403	-	-				60.0	94.0	16.9	2.0	28.4			39.9			2.9	26.6	2182
PS07100466	-	-		-		60.0	95.0	19.1	2.0	34.4			45.2			2.2	21.2	2172
PS07100474	-	-				56.0	86.0	18.9	2.0	46.8			56.6			2.3	25.1	2170
PS07100883	-	-		-		57.0	90.0	16.7	2.0	42.6			52.8			2.3	24.1	2159
PS07100218	-	-		-		60.0	96.0	18.6	2.0	53.4			64.9			2.8	27.8	2158
PS07100404	-	-		-		57.0	87.0	18.5	2.0	46.4			58.3			2.4	23.5	2158
PS07100436	-	-				57.0	88.0	15.2	2.0	32.8			44.4			4.2	22.1	2154
PS07100175	-	-		-		55.0	87.0	16.6	2.0	50.5			61.3			2.7	25.8	2145
PS07100444	-	-				58.0	87.0	16.7	2.0	54.1			67.7			3.2	23.3	2134
PS07100006	-	-		+		55.0	91.0	18.7	2.0	51.8			60.1			1.3	30.9	2134
PS07100151	-	-		-		59.0	113.0	13.5	2.0	27.6			39.2			2.5	30.5	2133
PS07100627	-	-		-		55.0	93.0	15.5	2.0	40.1			55.3			3.5	27.9	2127
PS07100646	-	-				57.0	89.0	16.2	2.0	40.1			52.4			3.2	25.1	2127
PS07100196	-	-		-		59.0	90.0	17.7	2.0	48.5			57.3			2.5	28.3	2124
PS07100472	-	-		-		60.0	95.0	17.4	2.0	42.5			55.9			3.4	22.9	2124
PS07100100	-	-		-		66.0	96.0	22.0	2.0	58.3			68.2			2.5	25.8	2122
PS07100482	-	-		+		56.0	92.0	15.0	2.0	36.5			52.9			3.9	26.7	2121
PS07100430	-	-				58.0	91.0	18.1	2.0	48.9			63.9			3.0	26.6	2119
PS07100562	-	-		-		61.0	92.0	17.1	2.0	44.5			58.1			3.9	24.5	2114

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Agronomic data are means of three replications at Pullman, WA. Planting Date 05/03/08 Harvest Date: 08/08/08

Agronomic and Yield Data for the Preliminary Green, Yellow and Marrowfat Dry Pea Observation Trial (0805)

Name	Leaf Type	Vine Type	FW 1	PM	PEMV	Days to Flower	Days to Maturity	Flower Node	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	# Repr Nodes	100 Seed Weight ..g..	Seed Yield kg/ha
PS07100918	-	-				57.0	92.0	13.6	2.0	42.1			63.7			6.8	28.0	2112
PS07100091	+	-		-		58.0	88.0	18.1	2.0	47.5			59.6			1.8	26.0	2108
PS07101084	+	-		+		55.0	86.0	13.9	2.0	55.0			67.4			3.0	30.1	2100
PS07101032	+	-		+		56.0	89.0	16.7	2.0	43.0			49.2			1.8	23.8	2099
PS07101005	+	-		-		58.0	89.0	16.5	2.0	34.6			46.7			2.8	25.4	2099
PS07100121	-	-		-		62.0	92.0	18.6	2.0	48.0			58.1			3.5	24.3	2089
PS07100162	-	-		-		55.0	89.0	16.1	2.0	46.3			61.4			3.5	25.4	2089
PS07100880	-	-		-		56.0	92.0	14.0	2.0	43.8			59.6			3.7	24.0	2075
PS07100439	-	-				56.0	84.0	14.7	2.0	38.5			54.2			3.5	28.6	2072
PS07100266	-	-				55.0	83.0	13.9	2.0	45.0			55.6			2.0	22.2	2066
PS07100126	-	-		-		52.0	88.0	12.9	2.0	35.8			56.3			3.9	27.4	2063
PS07100631	-	-				58.0	83.0	14.1	2.0	25.9			33.3			2.9	14.4	2062
PS07100836	-	-				58.0	90.0	16.5	2.0	51.8			66.8			3.7	27.9	2059
PS07100963	+	-		+		55.0	89.0	14.5	2.0	48.9			60.6			2.8	24.0	2059
PS07100656	-	-				57.0	88.0	19.5	2.0	38.5			49.1			2.0	26.4	2055
PS07100470	-	-				55.0	83.0	15.7	2.0	44.4			52.2			2.7	24.5	2054
PS07101033	+	-				56.0	89.0	17.4	2.0	43.8			57.2			3.2	24.2	2052
SUPRA	-	-		+		57.0	91.0	17.2	2.0	43.5			55.2			2.9	26.1	2049
PS07100967	-	-		+		58.0	90.0	19.1	2.0	50.0			58.1			1.9	22.1	2045
PS07100410	-	-				58.0	86.0	14.9	2.0	36.3			55.1			4.3	27.1	2043
PS07100017	-	-		-		59.0	91.0	17.9	2.0	61.0			79.4			4.0	20.6	2039
PS07100991	-	-		+		58.0	89.0	17.2	2.0	39.5			48.1			1.8	20.9	2038
PS07100419	-	-		-		62.0	95.0	16.7	2.0	42.4			57.8			4.3	25.2	2029
PS07100276	-	-		-		55.0	87.0	14.6	2.0	39.6			54.9			4.2	25.7	2021
PS07100068	-	-		-		61.0	90.0	19.5	2.0	55.5			66.2			2.2	25.6	2017

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Agronomic and Yield Data for the Preliminary Green, Yellow and Marrowfat Dry Pea Observation Trial (0805)

Name	Leaf Type	Vine Type	FW 1	PM	PEMV	Days to Flower	Days to Maturity	Flower Node	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	# Repr Nodes	100 Seed Weight ..g..	Seed Yield kg/ha
PS07100931	-	-		-		57.0	90.0	10.7	2.0	56.6			70.2			2.7	23.1	1899
PS07100357	-	-		-		59.0	88.0	17.5	2.0	49.0			58.8			1.5	23.6	1894
PS07100418	-	-		-		56.0	89.0	17.2	2.0	51.0			63.4			2.5	27.9	1890
PS07100907	-	-				57.0	84.0	16.5	2.0	47.3			59.2			2.9	26.6	1878
PS07100224	-	-				55.0	80.0	13.4	2.0	35.3			54.4			3.7	20.9	1871
PS07100481	-	-		-		61.0	90.0	18.7	2.0	46.5			56.6			2.5	23.7	1862
PS07101030	-	-		+		57.0	89.0	16.6	2.0	51.6			66.1			5.4	25.7	1856
PS07100061	-	-		-		50.0	80.0	14.6	2.0	32.6			43.2			4.5	25.6	1853
PS07100135	-	-		-		64.0	93.0	22.0	2.0	59.4			66.9			1.4	23.8	1853
PS07100008	-	-		+		57.0	91.0	14.1	2.0	16.3			23.4			1.9	22.4	1850
PS07100851	-	-				54.0	80.0	16.2	2.0	43.9			59.8			4.5	25.9	1849
PS07100834	-	-				59.0	94.0	17.9	2.0	34.6			44.4			2.5	22.4	1839
PS07100450	-	-				59.0	94.0	18.0	2.0	37.3			46.2			1.9	20.0	1837
PS07100889	-	-				58.0	93.0	18.0	2.0	47.9			62.9			3.0	23.7	1829
PS07100633	-	-				57.0	86.0	17.7	2.0	36.4			45.3			1.3	27.4	1827
PS07100441	-	-		-		56.0	96.0	18.6	2.0	59.0			69.7			2.3	25.7	1825
PS07100435	-	-				56.0	86.0	17.7	2.0	54.3			65.3			2.3	25.1	1805
PS07100626	-	-		-		55.0	86.0	17.2	2.0	50.1			59.9			2.4	23.1	1803
PS07100477	-	-		-		52.0	91.0	10.0	2.0	36.3			56.7			4.8	27.7	1797
PS07100819	+	-				57.0	86.0	18.6	2.0	53.8			62.4			2.0	26.2	1787
PS07100905	-	-				51.0	95.0	14.0	2.0	36.1			57.3			4.3	26.0	1782
PS07101063	-	-				59.0	90.0	18.1	2.0	52.5			69.3			2.8	24.6	1777
PS07101078	-	-		+		58.0	91.0	19.2	2.0	29.9			40.1			2.3	23.8	1763
PS07100990	+	-		+		57.0	89.0	15.6	2.0	42.8			60.9			4.9	26.5	1758
PS07100499	-	+		+		55.0	85.0	15.7	2.0	58.4			69.2			1.7	26.6	1742

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Agronomic and Yield Data for the Preliminary Green, Yellow and Marrowfat Dry Pea Observation Trial (0805)

Name	Leaf Type	Vine Type	FW 1	PM	PEMV	Days to Flower	Days to Maturity	Flower Node	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	# Repr Nodes	100 Seed Weight ..g..	Seed Yield kg/ha
PS07100828	-	-				53.0	86.0	15.0	2.0	45.9			61.9			2.9	27.6	2003
PS07100827	-	-				56.0	86.0	16.0	2.0	33.1			44.4			2.7	22.4	2000
PS07100862	-	-				57.0	85.0	18.9	2.0	43.1			53.1			2.2	25.3	2001
PS07100107	-	-		-		56.0	88.0	15.2	2.0	47.5			56.8			2.8	26.0	2000
PS07100140	-	-		-		62.0	113.0	15.6	2.0	38.6			50.2			4.2	24.1	1996
PS07100781	-	-				62.0	96.0	17.2	2.0	42.1			54.6			3.2	23.5	1996
PS07100750	-	-		+		53.0	86.0	15.1	2.0	52.0			72.3			5.5	27.5	1994
PS01102958	-	-		-		57.0	89.0	16.5	2.0	40.3			50.1			2.8	23.1	1993
PS07101026	+	-		+		56.0	89.0	14.4	2.0	34.5			45.9			3.8	23.3	1987
PS07100180	-	-		-		58.0	89.0	19.5	2.0	46.8			59.6			2.8	24.1	1983
PS07100947	+	-		+		56.0	85.0	17.6	2.0	40.9			55.6			5.0	29.7	1980
PS07101062	-	-				53.0	86.0	15.9	2.0	42.3			54.1			3.2	24.1	1979
PS07100265	-	-		-		61.0	95.0	21.0	2.0	49.9			63.7			3.5	26.5	1978
PS07100847	-	-				55.0	91.0	16.1	2.0	44.9			57.9			2.4	23.8	1972
PS07101054	+	-		-		54.0	89.0	17.4	2.0	42.0			59.9			3.9	24.0	1967
PS07100097	-	-		-		49.0	81.0	12.2	2.0	36.0			56.2			3.8	24.3	1952
PS07100476	-	-				57.0	85.0	17.0	2.0	41.9			51.6			2.3	24.4	1952
PS07100962	-	-		+		56.0	90.0	15.2	2.0	44.0			63.2			4.8	26.4	1951
PS07100671	+	-				57.0	88.0	19.0	2.0	57.1			67.3			2.4	24.7	1943
PS07100194	-	-		-		58.0	90.0	17.0	2.0	44.0			54.9			2.7	24.5	1938
PS07100483	-	-				55.0	88.0	15.6	2.0	43.9			58.2			3.9	26.8	1926
PS07101060	-	-				59.0	93.0	17.6	2.0	64.1			78.8			2.7	26.4	1925
PS07101036	-	-		+		60.0	89.0	17.2	2.0	47.6			66.6			4.7	30.9	1922
PS07100428	-	-		-		54.0	85.0	15.4	2.0	42.6			53.3			2.9	24.0	1920
PS07100986	+	-		+		56.0	90.0	14.6	3.0	46.4			62.8			3.9	26.1	1904

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PS07100261	-	-		-		59.0	90.0	17.4	2.0	44.5			56.2			2.9	26.2	1737
PS07100406	-	-				55.0	85.0	14.7	2.0	53.8			66.8			3.3	24.7	1735
PS07100930	-	-		-		58.0	89.0	19.2	2.0	39.0			51.2			3.7	23.1	1730
PS07100356	-	-		-		58.0	92.0	16.9	2.0	63.4			94.4			4.9	28.2	1727
PS07100891	-	-				57.0	81.0	17.1	2.0	52.5			56.2			2.8	25.7	1727
PS07100960	-	-		+		57.0	85.0	16.0	2.0	47.3			58.8			1.9	30.4	1711
PS07101012	+	-		-		57.0	89.0	13.2	2.0	55.4			70.8			4.8	23.6	1709
PS07100445	-	-				59.0	86.0	17.1	2.0	29.8			42.1			2.3	24.6	1694
PS07100972	+	-		+		57.0	90.0	16.2	2.0	39.6			55.7			4.9	25.9	1690
PS07100143	-	-		-		61.0	111.0	19.4	2.0	51.3			60.3			2.2	22.3	1676
PS07100138	-	-		-		51.0	84.0	16.2	2.0	42.4			58.2			3.9	24.8	1663
PS07100166	-	-		-		60.0	91.0	18.0	2.0	42.1			55.2			3.7	20.5	1651
PS07100027	-	+		-		56.0	88.0	16.5	2.0	61.4			80.9			4.5	26.9	1635
PS07101014	+	-		+		58.0	89.0	18.5	2.0	41.9			51.1			0.9	26.3	1623
PS07100835	-	-				55.0	85.0	16.9	2.0	47.0			61.4			3.0	26.8	1618
PS07100399	-	-		-		55.0	87.0	14.7	2.0	55.3			67.1			3.5	25.3	1604
PS07100887	-	-		-		55.0	84.0	15.1	2.0	43.1			56.8			3.0	24.1	1559
PS07100995	+/-	-		+		55.0	89.0	15.2	2.0	51.9			64.4			3.2	25.9	1559
PS07100122	-	-		-		53.0	85.0	15.7	2.0	45.3			57.2			2.7	25.7	1544
PS07100456	-	-				53.0	81.0	12.6	2.0	48.0			68.4			4.3	30.8	1543
PS07100857	-	-				57.0	92.0	17.0	2.0	44.8			61.3			3.7	24.7	1526
PS07100301	-	-		-		58.0	92.0	20.4	2.0	60.3			71.4			1.8	26.7	1514
PS07100191	-	-		-		57.0	89.0	12.4	2.0	28.4			38.7			2.4	25.1	1463
PS07100220	-	-		+		58.0	89.0	17.4	2.0	52.3			64.8			3.2	26.0	1453
PS07100394	-	-		-		59.0	90.0	17.0	2.0	45.4			61.1			2.9	24.7	1448

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										..cm..	..cm..		..cm..	..cm..			..g..	kg/ha
PS07101043	+	-		+		58.0	89.0	11.6	2.0	34.8			47.4			3.7	22.9	1442
PS07100033	-	-		-		60.0	94.0	18.2	2.0	49.1			56.3			1.4	25.3	1406
PS07100411	-	-				51.0	85.0	13.5	2.0	45.6			57.9			3.9	22.5	1273
PS07101082	-	-				60.0	96.0	18.0	2.0	43.4			56.2			2.7	24.4	1272
PS07100641	-	-				54.0	85.0	16.5	2.0	43.9			54.8			2.3	24.6	1269
PS07100141	-	-		-		56.0	-0.7	18.7	2.0	55.4			68.4			2.4	23.6	1146
PS07100099	-	-		-		57.0	90.0	15.4	2.0	34.9			46.1			2.5	23.0	1092
PS07100004	-	-		+		61.0	93.0	16.0	2.0	36.1			56.3			4.8	25.6	1018
PS07100917	-	-				57.0	80.0	15.6	2.0	41.8			48.3			1.3	22.8	896.9
GRAND MEAN						56.8	88.6	16.5	2.0	44.8			57.3			3.0	25.1	2036
CV						4.6	9.1	12.3	6.2	18.5			16.2			32.7	9.2	17.0
LSD						0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0	0.0

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Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Rep Nodes = average number of reproducing nodes to a plant.

Agronomic data are means of three replications at Pullman, WA. Planting Date 05/03/08 Harvest Date: 08/08/08

Winter Pea Yield Trials

Advanced yield trials for fall sown winterhardy peas included 17 advanced breeding lines and three check varieties; Specter, Windham, and Whistler. Trials were planted in three locations in WA: Pullman, Rosalia, and Garfield. The winter of 2007-2008 was severe, and data could only be obtained from the Garfield location. The mean yield across all entries at Garfield in 2008 was 1973 kg/ha. Windham was the highest yielding variety (2220 kg/ha). Yields among the advanced breeding lines ranged from 1103-2942 kg/ha. Four breeding lines had yields that were significantly greater than Specter. Seed size among the check varieties ranged from 13.5 g/100 seeds (Specter) to 16.5 g/100 seeds (Whistler), while the advanced breeding lines ranged in size from 11.0-22.5 g/100 seeds.

Agronomic and Yield Data for the Advanced Dry Winter Pea- Garfield only (0822)

Name	Leaf	Vine	FW 1	PM	PEMV	Days to Flower	Days to Maturity	Flower Node	Pods/ Peduncle	Pod Height	Pod Ht Maturity	Pod Ht Index	Vine Length	Canopy Height	Plant Ht Index	# Repr Nodes	100 Seed Weight	Seed Yield	% of Specter
	Type	Type								..cm..	..cm..			..cm..						..cm..	..g..	kg/ha
PS05300228	+	-	-		-	239.0	284.0	14.7	2.0	34.8	24.2	0.7	57.3	48.3	0.9	3.5	15.5	2992	184.5
PS0230F210	+	+	+	+	-	239.0	283.0	15.8	2.0	67.2	18.3	0.3	112.7	42.8	0.4	3.8	17.9	2675	165.0
PS03100635	+	+	+	+	-	240.0	285.0	13.7	2.0	57.3	21.5	0.4	117.3	44.5	0.4	6.0	11.7	2640	162.8
PS05300239	-	-	+		-	241.0	287.0	12.3	1.0	35.2	25.3	0.7	62.5	47.7	0.8	5.2	16.7	2342	144.5
PS0017018	+	+	+		+	252.0	289.0	17.5	2.0	85.7	21.0	0.2	119.8	40.2	0.3	4.0	14.3	2171	133.9
WINDHAM	-	-	+	+	-	247.0	286.0	16.2	2.0	49.5	27.8	0.6	62.8	53.2	0.9	2.2	14.1	2157	133.0
PS03100848	+	+	+		+	248.0	287.0	17.0	2.0	93.0	15.3	0.2	132.0	32.8	0.3	3.8	16.5	2148	132.5
PS05300078	+	-	+		-	239.0	186.0	16.7	2.0	43.2	21.3	0.5	62.0	47.6	0.8	2.2	21.0	2137	131.8
PS03101269	-	+	+		-	254.0	287.0	18.2	2.0	96.2	20.2	0.2	127.3	42.0	0.3	3.2	15.4	2076	128.0
WHISTLER	-	-	+	+	-	243.0	285.0	15.7	2.0	49.5	26.7	0.5	64.8	50.7	0.8	2.5	16.5	2031	125.3
PS05300234	-	-	+		-	244.0	285.0	12.7	2.0	27.5	20.0	0.7	49.7	40.2	0.8	3.3	16.1	2006	123.7
PS0230F063	-	-	+	+	-	250.0	287.0	15.5	2.0	36.5	23.7	0.7	58.2	49.8	0.9	3.7	13.6	1897	117.0
PS03101160	-	-	+	+	-	253.0	290.0	15.3	2.0	34.2	17.5	0.5	52.5	32.7	0.7	2.3	14.9	1764	108.8
PS05300225	+	-			-	247.0	284.0	18.0	1.0	54.3	29.0	0.5	71.8	60.2	0.9	4.3	17.4	1737	107.1
SPECTER	-	+	+	+	-	247.0	287.0	16.5	2.0	71.0	22.3	0.3	96.5	53.5	0.6	3.0	13.5	1621	100.0
Pro 054-7256						247.0	286.0	16.0	2.0	42.2	27.2	0.7	58.3	53.8	0.9	3.0	14.5	1561	96.29
PS0230F092	-	-	+	+	-	249.0	289.0	18.0	2.0	45.7	24.2	0.6	60.3	45.0	0.8	2.5	13.6	1495	92.20
PS05300069	+	-	+		-	240.0	279.0	15.7	1.0	48.7	30.5	0.7	66.3	44.3	0.7	2.0	22.3	1430	88.22
PS05300083	+	-	+		-	240.0	279.0	16.2	1.0	45.2	36.5	0.8	58.5	52.2	0.9	2.2	22.5	1342	82.78
PS05300180	-	-	+		-	252.0	286.0	15.2	2.0	42.5	20.0	0.5	57.2	44.5	0.8	1.8	14.4	1234	76.12
GRAND MEAN						245.5	280.5	15.8	1.8	53.0	23.6	0.5	77.4	46.3	0.7	3.2	16.1	1973	0.00
CV						0.6	12.9	7.3	21.6	16.9	17.2	29.0	16.6	13.8	21.2	34.7	3.9	22.6	0.00
LSD						2.1	49.6	1.6	0.5	12.3	5.6	0.2	17.7	8.8	0.2	1.5	0.9	614.7	0.00

FW 1 = Fusarium wilt race 1; + = resistant; - = susceptible.

PM = Powdery Mildew; + = resistant; - = susceptible.

PEMV = Pea enation mosaic virus; + = resistant, - = susceptible

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Rep Nodes = average number of reproducing nodes to a plant.

Agronomic data are means of three replications at Pullman, WA. Planting Date 05/02/08 Harvest Date: 08/07/08

Lentil Yield Trials

Seventeen entries and three check varieties ('Merrit', 'Richlea', and 'Riveland') were included in the advanced large-seeded yellow lentil yield trial in 2008. The nursery was planted at Pullman, WA, Farmington, WA, and Genesee, ID. The mean yield at Pullman was 1050 kg/ha, the mean yield at Farmington was 603 kg/ha and the mean yield at Genesee was 1254 kg/ha. The grand mean over all three locations was 969 kg/ha. The advanced breeding line LC01602300R was the highest yielding entry over all locations, followed by the varieties Richlea and Riveland. Eleven breeding lines exceeded or equaled the plant height index (vine length/canopy height) of the tallest, most lodging tolerant check variety, Riveland. In addition, these 11 breeding lines exceeded or equaled the pod height index (initial pod height/pod height at maturity) of Riveland, which had the highest pod height index of the three check varieties. Six advanced breeding lines had seed sizes (100 seed weight) that exceeded 8.0 g/100 seeds, the seed weight of Riveland, the largest seeded of the check varieties. Six advanced breeding lines required significantly fewer days to mature than Riveland. In addition, in a preliminary yield nursery planted at Pullman, WA we have identified 15 exceptionally large seeded breeding lines, each of which have weights that are equal or greater than 9.0 gms/100 seed. Data collected on the 17 advanced breeding lines indicates progress has been made in improving yield, seed size, height, tolerance to lodging, and early maturity.

Advanced yield trials for the Turkish Red market class were also planted at the same three locations mentioned above, with 15 advanced breeding lines and 'Crimson' included as the check variety. The mean yield at Pullman was 657 kg/ha, the mean yield at Farmington was 473 kg/ha and the mean yield at Genesee was 921 kg/ha. The grand mean over all three locations was 683 kg/ha. When averaged over all three locations, 11 advanced breeding lines yielded higher than Crimson. Five advanced breeding lines had higher yields than Crimson at all three locations. The plant height index of six entries was higher than that of the check Crimson. Seven advanced breeding lines had pod height index values that were equal to or greater than that of Crimson. The selections LC01602062T and LC06601934T were the highest yielding entries, averaged over all three locations 52.2% and 28.7% greater than Crimson, respectively. Six advanced breeding lines, including the high yielding LC066001934T, required significantly fewer days to mature than Crimson. All 15 advanced breeding lines had significantly larger seed size (100 seed weight) than Crimson. Data collected on the 15 advanced breeding lines indicate that progress has been made in improving yield, seed size, height, tolerance to lodging, and early maturity. The major objectives in selection of Turkish red types are increasing yield, seed size, plant height, and tolerance to lodging while reducing days to maturity.

Ten Eston type advanced breeding lines were compared to the check varieties Eston and Athena at the same three locations mentioned above. The mean yield at Pullman was 885 kg/ha, the mean yield at Farmington was 831 kg/ha and the mean yield at Genesee was 1114 kg/ha. The grand mean over all three locations was 943 kg/ha. Four advanced breeding lines (LC06600388E, LC01602273E, LC03601590E, and LC01602307E) had yields averaged over all three locations that were higher than either Athena or Eston. The yield of Athena averaged over all three locations was 954 kg/ha, 28.2% higher than the average yield of Eston. The average yields of the three highest yielding entries (LC01602307E, LC03601590E, and LC06600388E) were 56.0%, 49.2% and 38.4% higher than Eston and 21.7%, 16.4% and 8.0% higher than

Athena. There were no significant differences in plant height index between any of the advanced breeding lines and Eston or Athena. Among the three highest yielding advanced breeding lines, there were no significant differences in pod height index between Eston and LC01602307E or LC03601590E, but the pod height index of LC06600388E was significantly lower than that of Eston. LC01602307E and LC03601590E had pod height index values that were significantly greater than Athena. Four advanced breeding lines, including the high yielding LC06600388E required significantly fewer days to mature than Eston. Data collected on the 10 advanced breeding lines indicate that excellent progress is being made on improving yield relative to the checks Eston and Athena, and that considerable progress is also being realized on improving plant height, tolerance to lodging, and early maturity.

Thirteen Spanish Brown advanced breeding lines were compared to the check variety Pardina at four locations (Pullman, WA, Farmington, WA, Fairfield, WA, and Genesee, ID). The mean yield at Pullman was 692 kg/ha, the mean yield at Farmington was 449 kg/ha, the mean yield at Fairfield was 1425 kg/ha and was 918 kg/ha at Genesee. The grand mean over all four locations was 871 kg/ha. Four advanced breeding lines (LC02601144P, LC06601570P, LC0660907P, and LC06601572P) had yields that were greater than Pardina when averaged over all four locations. The average yield of LC02601144P, the highest yielding advanced breeding lines, was 21.5% greater than Pardina. There were no significant differences in plant height index or pod height index between any of the 13 advanced breeding lines and Pardina. There were no significant differences between the four highest yielding breeding lines and Pardina for days to maturity. Two of the advanced breeding lines, including the high yielding LC02601144P had significantly smaller seed size than Pardina, while two of the other highest yielding breeding lines (LC06600907P and LC06601572P) had significantly larger seed than Pardina. Data collected from the 13 advanced breeding lines indicates that progress is being made in improving yield in Spanish Brown breeding lines.

Eight zero-tannin advanced breeding lines were compared to the yellow seed zero-tannin check Shasta and the red seed zero-tannin check Cedar at three locations (Pullman, WA, Farmington, WA, and Genesee, ID). The mean yield at Pullman was 1145 kg/ha, the mean yield at Farmington was 356 kg/ha and the mean yield at Genesee was 1105 kg/ha. The grand mean over all three locations was 869 kg/ha. Shasta was the highest yielding entry across all three locations, averaging 1039 kg/ha while the lowest yielding entry over all locations was Cedar (638 kg/ha). All of the advanced breeding lines except for a red seed zero tannin line, LC99602585RZ, required significantly more days to mature than Shasta. LC99602585RZ required significantly fewer days to mature than all other entries. LC99602585RZ had 8.9% greater yield than Cedar. Results suggest that improvements still need to be made to produce new yellow seed zero-tannin varieties that have yields greater than Shasta and mature earlier than Shasta. Progress is being made to produce red seed zero tannin lines that mature earlier and have greater yields than Cedar.

Potential Variety Releases

Foundation seed of Shasta and Cedar (zero-tannin type) were produced in 2008.

Breeder seed of LC01602307E (Eston type) and LC01602062T (Turkish Red) was produced in 2008. LC01602307E averaged 1381 kg/ha over 37 location years, which is 32.5% greater than Eston over the same location/years. LC01602062T has averaged 1294 kg/ha over 35 location/years, which is 10.6% greater than Crimson over the same location/years. LC01602062T has a much larger seed (5.1g/100 seed) than Crimson (3.8 g/100 seed), which makes it much more amenable to splitting, and will be proposed for release in 2009.

LC01602273E, an Eston type lentil has been evaluated over 25 location/years and has an average yield of 1188 kg/ha, which is 24.1% greater than that of Eston over the same location/years. It has similar seed size, height, and maturity as Eston. Plants will be collected in 2009 for producing breeder seed in 2010.

LC01602300R, a large seeded green lentil, has been evaluated over 24 location years and has an average yield of 1175 kg/ha, which is 15.3% and 6.7% greater than yields of Merrit and Richlea over the same location/years. The seed is smaller than either Merrit or Richlea, but the line has similar maturity to these two varieties and greater tolerance to lodging as measured by plant height index. A decision will be made in 2009 regarding the release of LC01602300R as a variety or germplasm.

Table Location Yield Summary for the Advanced Large Yellow Type Lentil Yield Trial (0852)

Name	Pullman Seed Yield kg/ha	Genesee Seed Yield kg/ha	Fairfield Seed Yield kg/ha	Farmington Seed Yield kg/ha	Mean Seed Yield kg/ha
LC01602300R	1555.30	1404.10		640.50	1200.00
RICHLEA	1385.50	1248.10		749.90	1127.80
RIVELAND	1227.70	1354.80		652.90	1078.50
LC04600316R	1096.40	1238.60		814.90	1050.00
LC04600246L	1076.00	1412.70		669.30	1052.70
LC03601588R	994.90	1110.10		814.30	973.10
LC05601268L	1201.80	1371.60		590.50	1054.60
LC03600854L	1152.80	1301.30		491.90	982.00
LC04600736L	1108.80	1418.90		478.00	1001.90
MERRIT	1010.70	1222.10		740.90	991.20
LC04600705L	936.80	1162.90		734.00	944.60
LC05601303R	907.60	1200.20		864.20	990.70
LC04600650L	1122.70	1350.60		325.70	933.00
LC02600793L	1019.00	1204.10		703.20	975.40
LC04600633L	964.30	1386.90		377.20	909.50
LC02600193R	954.50	1164.20		457.10	858.60
LC05600977R	804.30	1215.00		304.80	774.70
LC04600064L	1023.90	1092.30		371.50	829.20
LC04600643L	695.20	1202.90		626.40	841.50
LC04600640L	736.10	1022.20		646.90	801.70
GRAND MEAN	1048.72	1254.18		602.71	968.53
CV	9.47	9.03		21.40	11.82
LSD	136.74	155.97		177.64	106.89

Yield data are means of three replications at each location.
 Check variety = Merrit

Agronomic Data for the Advanced Large Yellow Type Yield Trial (0852)

Name	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..
LC01602300R	60.00	104.0	2.00	13.50	12.80	0.96	30.70	30.00	0.96	5.20
RICHLEA	60.00	103.0	3.00	14.50	11.20	0.77	32.50	30.70	0.77	5.50
RIVELAND	55.00	102.0	2.00	13.30	11.30	0.85	35.70	33.50	0.85	8.00
LC04600316R	58.00	100.0	2.00	11.70	10.30	0.85	30.70	28.30	0.85	5.80
LC04600246L	61.00	98.00	3.00	13.80	12.00	0.86	29.20	27.00	0.86	6.70
LC03601588R	60.00	96.00	2.00	12.60	11.00	0.88	30.30	28.50	0.88	5.00
LC05601268L	56.00	102.0	2.00	14.80	11.20	0.76	33.00	31.30	0.76	8.10
LC03600854L	56.00	102.0	2.00	14.00	8.80	0.66	34.80	31.70	0.66	8.10
LC04600736L	59.00	102.0	2.00	13.80	12.00	0.87	33.60	31.90	0.87	8.20
MERRIT	52.00	101.0	2.00	13.70	8.50	0.64	32.70	27.50	0.64	7.10
LC04600705L	53.00	96.00	2.00	16.30	11.80	0.72	33.80	28.80	0.72	6.60
LC05601303R	55.00	96.00	2.00	10.50	10.80	1.00	29.20	27.70	1.00	5.20
LC04600650L	61.00	101.0	2.00	16.40	9.50	0.60	33.90	31.70	0.60	8.10
LC02600793L	57.00	105.0	2.00	12.60	10.50	0.85	30.20	28.80	0.85	8.10
LC04600633L	55.00	101.0	2.00	12.50	10.30	0.81	31.50	30.80	0.81	8.40
LC02600193R	59.00	100.0	2.00	12.20	11.80	0.98	30.20	24.00	0.98	5.50
LC05600977R	56.00	99.00	2.00	12.60	11.00	0.88	28.80	24.70	0.88	6.40
LC04600064L	53.00	101.0	2.00	12.70	9.70	0.76	31.00	28.30	0.76	7.40
LC04600643L	54.00	100.0	2.00	10.70	9.50	0.90	30.00	28.50	0.90	7.40
LC04600640L	55.00	91.00	2.00	13.70	11.50	0.85	28.70	26.50	0.85	7.40
GRAND MEAN	56.78	99.97	2.12	13.30	10.77	0.82	31.52	29.02	0.82	6.91
CV	2.63	2.49	12.67	10.99	20.13	18.64	4.58	7.03	18.64	2.41
LSD	2.05	3.43	0.37	2.02	3.00	0.21	1.99	2.82	0.21	0.23

Planting Date: 5/02/08. Harvest Date: 8/24/08

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height. Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Agronomic data are means of three replications at Pullman, WA

Check Variety = Merrit

Mean Yields of the Advanced Large Yellow Lentil Yield Trial, 2004 - 2008

Name	2004		2005		2006		2007		2008	
	kg/ha	% of Merrit	kg/ha	% of Merrit	kg/ha	% of Merrit	kg/ha	% of Merrit	kg/ha	% of Merrit
LC01602300R	2360	101	824	133	899	113	1716	120	1200	123
RICHLEA	2395	102	651	105	616	77	1646	116	1128	113
RIVELAND	2325	99	550	89	723	91	1726	121	1079	110
LC04600316R	...	...	...	...	...	...	...	...	1050	109
LC04600246L	...	...	...	...	...	...	...	...	1053	106
LC03601588R	...	...	...	...	918	115	1490	105	973	103
LC05601268L	...	...	...	...	...	...	1333	94	1055	103
LC03600854L	...	...	...	...	668	84	1673	117	982	102
LC04600736L	...	...	...	...	...	...	...	...	1002	101
MERRIT	2347	100	618	100	798	100	1543	108	991	100
LC04600705L	...	...	...	...	...	...	1524	107	945	98
LC05601303R	...	...	...	...	...	...	1311	92	991	98
LC04600650L	...	...	...	...	...	...	1574	111	933	96
LC02600793L	...	...	597	97	713	89	1508	106	975	95
LC04600633L	...	...	...	...	...	...	...	...	910	93
LC02600193R	...	...	663	107	812	102	1484	104	859	91
LC05600977R	...	...	...	...	...	...	...	...	775	88
LC04600064L	...	...	...	...	...	...	...	...	829	87
LC04600643L	...	...	...	...	...	...	1678	118	842	87
LC04600640L	...	...	...	...	...	...	1626	114	802	85
GRAND MEAN	2226		513		589		1482		969	
LSD	298		80		112		166		107	

Yield data are means of three replications at each location, over three locations in each year except 2006 which is the mean of two locations.

Table Location Yield Summary for the Advanced Turkish Red Type Lentil Yield Trial (0851T)

Name	Pullman Seed Yield kg/ha	Genesee Seed Yield kg/ha	Fairfield Seed Yield kg/ha	Farmington Seed Yield kg/ha	Mean Seed Yield kg/ha
LC01602062T	979.30	1065.20		757.60	934.00
LC06601228T	690.10	1151.50		363.10	734.90
LC06601934T	720.50	1034.00		615.50	790.00
LC05600043T	571.50	904.70		602.70	693.00
LC06601231T	821.10	1090.80		269.90	727.30
LC06601550T	699.80	1095.40		472.70	756.00
LC05600840T	549.50	952.20		477.50	659.70
LC01601724T	872.70	808.20		499.00	726.60
LC06601935T	508.70	1018.10		578.70	701.80
LC06601950T	543.90	1045.30		424.50	671.20
CRIMSON	655.60	831.70		353.40	613.60
LC05600787T	471.20	807.70		513.80	597.60
LC04600751T	754.90	727.30		483.60	655.30
LC06600916T	574.30	768.40		341.70	561.50
LC05600841T	575.70	707.40		392.50	558.50
LC03600126T	521.20	725.00		414.40	553.50
GRAND MEAN	656.88	920.80		472.53	683.41
CV	18.53	12.50		23.13	16.90
LSD	168.86	159.74		151.64	108.17

Yield data are means of three replications at each location.
 Check variety = Crimson

Agronomic Data for the Advanced Turkish Red Type Yield Trial (0851T)

Name	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..
LC01602062T	54.00	97.00	2.00	10.10	8.00	0.80	28.20	25.20	0.80	5.10
LC06601228T	54.00	99.00	2.00	10.60	9.00	0.86	29.30	28.20	0.86	5.20
LC06601934T	55.00	94.00	2.00	10.40	8.00	0.78	26.70	25.70	0.78	4.70
LC05600043T	56.00	95.00	2.00	10.80	9.30	0.87	29.70	24.50	0.87	4.90
LC06601231T	54.00	97.00	2.00	10.70	10.00	0.94	29.80	26.30	0.94	5.20
LC06601550T	54.00	95.00	2.00	10.10	8.50	0.85	24.30	23.70	0.85	4.50
LC05600840T	54.00	93.00	2.00	10.60	6.30	0.57	28.80	23.20	0.57	5.10
LC01601724T	56.00	98.00	2.00	8.80	8.00	0.91	26.50	23.00	0.91	4.70
LC06601935T	52.00	93.00	2.00	8.30	7.50	0.90	25.50	22.70	0.90	4.30
LC06601950T	53.00	94.00	2.00	9.60	7.50	0.79	26.20	22.20	0.79	4.70
CRIMSON	60.00	97.00	2.00	11.20	9.70	0.87	29.00	25.00	0.87	3.80
LC05600787T	54.00	95.00	2.00	11.00	7.80	0.74	30.80	23.50	0.74	5.20
LC04600751T	55.00	95.00	2.00	9.60	8.30	0.87	28.30	22.70	0.87	4.60
LC06600916T	53.00	93.00	2.00	11.20	9.70	0.87	26.40	22.40	0.87	4.70
LC05600841T	55.00	95.00	2.00	9.90	8.00	0.83	27.20	23.00	0.83	5.10
LC03600126T	56.00	94.00	2.00	7.80	6.30	0.81	28.00	22.20	0.81	4.90
GRAND MEAN	54.67	95.27	2.16	10.03	8.25	0.83	27.80	23.95	0.83	4.78
CV	2.44	2.59	14.89	14.54	15.82	16.76	6.19	8.58	16.76	6.15
LSD	1.85	3.42	0.45	2.06	1.84	0.20	2.39	2.85	0.20	0.41

Planting Date: 5/02/08. Harvest Date: 8/24/08

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height. Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Agronomic data are means of three replications at Pullman, WA

Check Variety = Crimson

Mean Yield of the Advanced Turkish Lentil Yield Trail, 2004-2008

Name	2004		2005		2006		2007		2008	
	kg/ha	% of Crimson	kg/ha	% of Crimson	kg/ha	% of Crimson	kg/ha	% of Crimson	kg/ha	% of Crimson
LC01602062T	2038	110	682	95	995	97	1789	171	934	142
LC06601228T	...	...	...	...	...	...	...	...	734.9	120
LC06601934T	...	...	...	...	...	...	...	...	790	118
LC05600043T	...	...	...	...	...	...	1343.4	128.334	693	117
LC06601231T	...	...	...	...	...	...	...	...	727	114
LC06601550T	...	...	...	...	...	...	...	...	756	113
LC05600840T	...	...	...	...	...	...	1512	144	660	109
LC01601724T	1685	91	617	86	934	91	1488.9	142.2335	726.6	108
LC06601935T	...	...	...	...	...	...	...	...	702	106
LC06601950T	...	...	...	...	...	...	...	...	671.2	102
CRIMSON	1858	100	715	100	1025	100	1047	100	614	100
LC05600787T	...	...	...	...	...	...	1359.7	129.8911	597.6	98
LC04600751T	...	...	...	...	1053	103	1080	103	655	97
LC06600916T	...	...	...	...	...	...	...	...	561.5	96
LC05600841T	...	...	...	...	...	...	1378	132	559	94
LC03600126T	...	...	648	91	1027	100	1388.9	132.6806	553.5	90
GRAND MEAN	1786		494		903		1333.708		683.4	
LSD	335		88		122		282		108	

Yield data are means of three replications at each location, over three locations in each year except 2006 which is the mean of two locations.

Table Location Yield Summary for the Advanced Eston Type Lentil Yield Trial (0851E)

Name	Pullman Seed Yield kg/ha	Genesee Seed Yield kg/ha	Fairfield Seed Yield kg/ha	Farmington Seed Yield kg/ha	Mean Seed Yield kg/ha
LC01602307E	1272.50	1263.00		946.60	1160.70
LC03601590E	1114.70	1332.80		883.00	1110.20
LC06600388E	758.00	1273.40		1057.30	1029.60
LC01602273E	1044.10	1092.10		862.70	999.60
ESTON	1037.50	1073.60		752.20	954.40
LC05600812E	822.30	1168.60		751.60	914.20
LC05600810E	840.40	1239.50		677.70	919.20
LC06600385E	832.00	935.50		1064.90	944.10
LC06601820E	895.30	1053.80		848.60	932.60
LC06601816E	721.70	998.80		815.00	845.20
ATHENA	708.70	1018.30		505.40	744.10
LC06601225E	567.20	914.10		810.00	763.80
GRAND MEAN	884.54	1113.61		831.26	943.14
CV	7.24	8.91		14.78	10.43
LSD	90.01	139.39		172.62	92.60

Yield data are means of three replications at each location.
Check variety = Eston

Agronomic Data for the Advanced Eston Type Yield Trial (0851E)

Name	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..
LC01602307E	61.00	100.0	2.00	13.80	12.00	0.87	31.80	26.50	0.86	4.50
LC03601590E	59.00	96.00	2.00	13.70	11.50	0.85	29.00	24.80	0.87	3.90
LC06600388E	59.00	92.00	2.00	16.20	9.50	0.60	31.00	25.00	0.86	4.10
LC01602273E	58.00	97.00	2.00	11.00	9.70	0.89	28.00	24.50	0.89	3.90
ESTON	58.00	98.00	2.00	10.30	9.70	0.94	27.50	25.50	0.93	3.60
LC05600812E	56.00	98.00	2.00	14.00	5.80	0.42	26.50	23.30	0.89	4.80
LC05600810E	56.00	97.00	3.00	14.80	10.20	0.71	28.00	24.00	0.86	4.80
LC06600385E	60.00	97.00	2.00	13.00	11.20	0.86	25.80	22.50	0.88	4.10
LC06601820E	52.00	94.00	2.00	13.20	10.50	0.80	31.20	28.80	0.93	4.60
LC06601816E	52.00	93.00	2.00	11.20	9.30	0.84	26.00	21.30	0.88	4.50
ATHENA	57.00	97.00	3.00	13.50	8.30	0.62	28.50	23.20	0.82	4.70
LC06601225E	56.00	94.00	2.00	10.70	9.20	0.86	25.50	23.80	0.94	3.70
GRAND MEAN	57.00	96.06	2.22	12.94	9.74	0.77	28.24	24.44	0.88	4.27
CV	2.31	1.87	15.50	14.03	21.75	17.03	7.92	7.81	10.42	2.64
LSD	1.84	2.52	0.48	2.55	2.97	0.18	3.13	2.68	0.13	0.16

Planting Date: 4/23/08. Harvest Date: 8/24/08

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height. Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Agronomic data are means of three replications at Pullman, WA

Check Variety = Eston

Mean Yields of the Advanced Eston Type Lentil Yield Trial, 2004 - 2008

Name	2004		2005		2006		2007		2008	
	kg/ha	% of Eston	kg/ha	% of Eston	kg/ha	% of Eston	kg/ha	% of Eston	kg/ha	% of Eston
LC01602307E	1890	123	983	258	940	147	1516	112	1161	120
LC03601590E	...	...	1004	264	1004	157	1568	116	1110	110
LC06600388E									1030	106
LC01602273E	1680	109	1022	268	1149	180	1630	121	1000	101
ESTON	1539	100	381	100	639	100	1348	100	954	100
LC05600812E							1639	122	914	99
LC05600810E							1639	122	919	97
LC06600385E									944	97
LC06601820E									933	94
LC06601816E									845	90
ATHENA	1733	113	430	113	687	108	1451	108	744	78
LC06601225E									764	77
GRAND MEANS	1638		608		698		1499		943	
LSD ($\alpha=0.05$)	311		89		127		171		93	

Yield data are means of three replications at each location, over three locations in each year except 2006 which is the mean of two locations.

Table Location Yield Summary for the Advanced Pardina Type Lentil Yield Trial (0851P)

Name	Pullman Seed Yield kg/ha	Genesee Seed Yield kg/ha	Fairfield Seed Yield kg/ha	Farmington Seed Yield kg/ha	Mean Seed Yield kg/ha
LC02601144P	1182.50	1188.60	1699.30	516.50	1146.70
LC06601570P	699.80	1143.60	1736.80	547.30	1031.90
LC06600907P	770.20	996.80	1642.10	592.90	1000.50
LC06601572P	773.10	919.50	1521.70	633.30	961.90
PARDINA	744.00	985.60	1414.80	628.80	943.30
LC03600204P	753.60	1009.50	1611.70	316.90	922.90
LC06600446P	681.80	1016.50	1361.70	567.50	906.90
LC04600350P	735.10	922.10	1492.30	381.50	882.80
LC04600346P	470.70	913.30	1283.60	529.90	799.40
LC06600898P	727.70	899.60	1275.20	175.80	769.60
LC05600995P	623.20	773.30	1373.20	293.20	765.70
LC06600900P	535.30	756.00	1227.30	416.00	733.70
LC06600906P	507.60	730.70	1302.70	336.70	719.40
LC03601426P	488.30	603.00	1015.00	346.30	613.20
GRAND MEAN	692.33	918.44	1425.53	448.76	871.27
CV	21.14	15.76	10.61	28.07	16.35
LSD	203.80	201.82	211.04	175.71	115.29

Yield data are means of three replications at each location.
 Check variety = Pardina

Agronomic Data for the Advanced Pardina Type Yield Trial (0851P)

Name	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..
LC02601144P	53.00	97.00	2.00	15.80	9.80	0.62	37.20	24.80	0.62	4.10
LC06601570P	51.00	92.00	2.00	12.70	9.80	0.80	28.20	21.50	0.80	4.40
LC06600907P	56.00	96.00	2.00	15.30	10.50	0.69	28.70	23.00	0.69	4.50
LC06601572P	51.00	90.00	2.00	12.50	6.70	0.54	27.70	22.50	0.54	4.60
PARDINA	52.00	94.00	2.00	12.80	9.80	0.77	28.00	21.30	0.77	4.30
LC03600204P	53.00	96.00	2.00	14.00	11.30	0.81	31.70	22.50	0.81	4.20
LC06600446P	52.00	93.00	2.00	14.30	8.80	0.62	28.70	20.70	0.62	4.30
LC04600350P	54.00	95.00	2.00	13.20	10.50	0.80	28.50	21.70	0.80	4.50
LC04600346P	50.00	96.00	2.00	13.30	9.70	0.73	28.30	20.80	0.73	4.60
LC06600898P	53.00	99.00	2.00	11.30	9.30	0.84	28.30	22.50	0.84	4.20
LC05600995P	53.00	96.00	2.00	13.30	8.80	0.68	26.80	22.00	0.68	4.70
LC06600900P	52.00	98.00	2.00	13.70	10.00	0.74	27.80	21.30	0.74	4.00
LC06600906P	50.00	95.00	2.00	14.70	9.30	0.64	28.50	21.30	0.64	4.50
LC03601426P	51.00	94.00	2.00	13.50	9.30	0.69	28.90	21.40	0.69	4.80
GRAND MEAN	52.21	95.10	1.94	13.61	9.56	0.71	29.09	21.96	0.71	4.42
CV	2.46	3.10	10.52	12.26	16.48	19.52	8.50	9.48	19.52	2.40
LSD	1.79	4.11	0.28	2.32	2.19	0.19	3.45	2.90	0.19	0.15

Planting Date: 5/02/07. Harvest Date: 08/24/08

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height. Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height. Agronomic data are means of three replications at Pullman, WA

Check Variety = Pardina

Mean Yields of the Advanced Pardina Type Lentil Yield Trial, 2004-2008.

Name	2004		2005		2006		2007		2008	
	kg/ha	% of Pardina	kg/ha	% of Pardina	kg/ha	% of Pardina	kg/ha	% of Pardina	kg/ha	% of Pardina
LC02601144P	2090	94	1180	114	899	84	1439	105	1147	122
LC06601570P	...	...	...	...	...	...	...	...	1031.9	109
LC06600907P	...	...	...	...	...	...	...	...	1001	106
LC06601572P	...	...	...	...	...	...	...	...	961.9	102
PARDINA	2230	100	1037	100	1069	100	1370	100	943	100
LC03600204P	...	...	927	89	940	88	1394	101.7444	922.9	98
LC06600446P	...	...	...	...	...	...	...	...	907	96
LC04600350P	...	...	...	...	1072	100	1118.5	81.63638	882.8	94
LC04600346P	...	...	...	...	1142	107	1200	88	799	85
LC06600898P	...	...	...	...	...	...	...	...	769.6	82
LC05600995P	...	...	...	...	...	...	1337	98	766	81
LC06600900P	...	...	...	...	...	...	...	...	733.7	78
LC06600906P	...	...	...	...	...	...	...	...	719	76
LC03601426P	...	...	...	...	...	...	1385.4	101.1167	613.2	65
GRAND MEAN	2084		833		940		1256.725		871.3	
LSD	262		87		199		179		115	

Yield data are means of three replications at each location, over three locations in each year except 2006 which is the mean of two

Table Location Yield Summary for the Advanced Zero Tannin Type Lentil Yield Trial (0861)

Name	Pullman Seed Yield kg/ha	Genesee Seed Yield kg/ha	Fairfield Seed Yield kg/ha	Farmington Seed Yield kg/ha	Mean Seed Yield kg/ha
LC7601114YZ	1164.50	1261.60		689.60	1038.60
LC06600939YZ	1288.60	1268.40		464.70	1007.20
LC04600415YZ	1321.20	1139.80		274.20	911.70
LC06600930YZ	1234.10	1288.10		364.50	962.20
LC04600389YZ	1264.20	1133.10		273.60	890.30
LC06600948YZ	1058.00	1021.30		458.80	846.00
LC04600387YZ	1116.50	1233.90		286.40	878.90
LC99602585RZ	971.70	949.60		222.50	714.60
LC06600932YZ	1175.90	972.70		245.90	798.20
LC00600917RZ	850.50	779.50		284.20	638.10
GRAND MEAN	1144.52	1104.80		356.44	868.59
CV	7.08	9.58		50.11	14.82
LSD	115.16	150.33		253.70	121.62

Yield data are means of three replications at each location.
 Check variety = LC00600917RZ

Agronomic Data for the Advanced Zero Tannin Type Yield Trial (0861)

Name	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..
LC7601114YZ	55.00	105.0	2.00	15.50			32.50			6.70
LC06600939YZ	55.00	110.0	2.00	13.30			31.80			7.00
LC04600415YZ	55.00	112.0	2.00	15.80			33.80			7.20
LC06600930YZ	55.00	113.0	2.00	15.00			35.70			5.90
LC04600389YZ	56.00	110.0	2.00	15.70			32.50			7.00
LC06600948YZ	55.00	112.0	2.00	15.20			32.30			7.00
LC04600387YZ	56.00	113.0	2.00	15.00			31.50			6.70
LC99602585RZ	56.00	98.00	2.00	11.20			29.50			4.80
LC06600932YZ	56.00	112.0	2.00	13.80			33.70			6.00
LC00600917RZ	55.00	110.0	2.00	12.30			30.50			5.40
GRAND MEAN	55.40	109.5	2.00	14.28			32.38			6.37
CV	0.69	2.88	6.27	11.39			6.06			4.01
LSD	0.54	4.46	0.18	2.30			2.78			0.36

Planting Date: 05/02/08. Harvest Date: 08/24/08

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height. Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height. Agronomic data are means of three replications at Pullman, WA

Agronomic and Yield Data for the Preliminary Large Yellow Lentil Yield Trail (0854)

Name	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..	Seed Yield kg/ha	% of Merrit
LC06600619r	61.0	102.0	3.0	13.7	11.1	0.8	31.0	29.0	0.9	4.8	1589	173.4
LC06601734L	55.0	101.0	3.0	16.0	9.5	0.6	31.6	31.1	1.0	7.8	1362	148.5
RICHLEA	60.0	99.0	2.0	16.5	13.1	0.8	28.8	29.7	1.0	5.6	1350	147.2
LC06601616R	60.0	99.0	3.0	15.5	13.4	0.9	33.5	31.8	1.0	6.1	1339	146.0
LC06600517L	61.0	97.0	2.0	17.2	14.8	0.9	34.2	29.5	0.9	6.6	1262	137.6
LC06601439L	61.0	99.0	2.0	15.2	14.5	1.0	30.7	28.8	0.9	6.6	1220	133.1
LC06601347L	61.0	104.0	3.0	17.2	12.8	0.8	32.8	28.4	0.9	8.0	1198	130.7
LC06600880L	55.0	104.0	2.0	14.0	12.8	0.9	33.2	29.3	0.9	7.3	1188	129.6
RIVELAND	58.0	102.0	2.0	15.1	11.7	0.8	21.3	31.2	0.9	7.9	1176	128.3
LC06601388L	56.0	101.0	2.0	14.0	13.5	1.0	33.8	31.1	0.9	7.6	1168	127.4
LC06600839L	55.0	106.0	2.0	14.7	13.1	0.9	28.3	28.7	1.0	8.8	1155	126.0
LC06601366C	56.0	102.0	2.0	15.8	13.0	0.8	35.3	32.6	0.9	6.9	1075	117.2
LC06601386C	55.0	101.0	2.0	14.5	13.6	1.0	35.0	33.3	1.0	7.7	1046	114.1
LC06601609L	58.0	102.0	2.0	15.7	13.9	0.9	29.5	28.5	1.0	8.0	1034	112.8
LC06600548r	55.0	102.0	2.0	11.0	10.4	0.9	28.8	25.8	0.9	4.7	977.1	106.6
LC06601428R	56.0	93.0	2.0	13.3	11.2	0.9	33.6	28.1	0.9	5.7	966.0	105.4
LC06601413L	57.0	103.0	2.0	15.5	12.3	0.8	30.6	30.4	1.0	7.7	962.7	105.0
LC06600531R	61.0	97.0	3.0	15.2	12.7	0.8	29.1	25.4	0.9	6.3	956.0	104.3
LC06601604L	59.0	98.0	3.0	16.5	10.5	0.6	30.3	30.2	1.0	8.0	928.6	101.3
MERRIT	53.0	97.0	2.0	13.5	10.7	0.8	31.3	30.4	1.0	7.0	916.8	100.0
REDCHIEF	56.0	107.0	2.0	10.5	7.0	0.7	31.3	24.9	0.8	6.7	282.2	30.78
GRAND MEAN	57.6	100.8	2.3	14.8	12.2	0.8	31.1	29.5	0.9	6.9	1103	0.00
CV	1.7	1.7	19.6	12.4	14.3	17.6	13.9	6.7	7.0	3.5	7.7	0.00
LSD	1.3	2.4	0.6	2.5	2.4	0.2	6.0	2.8	0.1	0.3	117.1	0.00

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height. Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height. Agronomic data are means of three replications at Pullman, WA. Planting Date 05/02/08 Harvest Date: 08/08/08

Agronomic and Yield Data for the Preliminary Lentil Screening Nursery (0855)

Name	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..	Seed Yield kg/ha
LC07600436R	61.0	103.0	2.0	13.8	12.0	0.9	33.4	29.5	0.9	9.1	1588
LC07600689L	59.0	99.0	1.0	20.7	15.0	0.7	40.4	36.5	0.9	4.6	1510
LC07600342L	57.0	95.0	2.0	11.5	11.5	1.0	26.8	25.5	0.9	5.8	1487
LC07600716L	56.0	99.0	3.0	11.5	12.1	1.0	27.1	29.5	1.0	6.1	1477
LC07600780R	59.0	102.0	3.0	16.5	13.5	0.8	34.0	28.0	0.8	6.8	1450
LC07600303T	55.0	96.0	2.0	16.0	15.5	1.0	31.4	28.0	0.9	6.1	1427
LC07600180E	59.0	100.0	2.0	-9.0	-9.0	-9.0	32.8	29.5	1.0	6.6	1403
LC07600559L	58.0	96.0	2.0	11.2	6.3	0.6	30.7	35.0	0.9	6.8	1393
LC07600501T/P	56.0	101.0	2.0	15.9	15.2	1.0	32.3	29.0	1.1	6.6	1388
RIVELAND	58.0	98.0	2.0	15.8	16.1	1.0	37.3	29.5	0.9	9.3	1341
LC07600378L	59.0	97.0	3.0	19.0	15.3	0.8	29.8	31.5	1.0	7.3	1326
LC07600524L	61.0	105.0	2.0	15.2	11.5	0.8	26.9	26.5	1.0	6.6	1316
LC07600564L	58.0	94.0	2.0	15.8	11.1	0.7	31.1	34.5	1.0	6.8	1315
LC07600705L	59.0	96.0	1.0	13.0	11.3	0.9	28.3	29.0	0.9	6.1	1311
LC07600586R	61.0	110.0	3.0	16.0	15.0	0.9	-9.0	0.0	1.0	5.8	1304
LC07600474T	59.0	102.0	1.0	15.8	14.2	0.9	31.4	27.5	1.0	7.1	1268
LC07600353L	61.0	106.0	3.0	20.3	12.7	0.6	36.1	31.0	0.9	9.1	1268
LC07600364L	60.0	104.0	1.0	14.2	13.7	0.9	32.8	28.5	0.9	8.3	1259
LC07600595R	58.0	99.0	2.0	-9.0	-9.0	-9.0	32.4	29.0	0.9	6.8	1250
LC07600334c	59.0	95.0	2.0	12.3	13.8	1.0	-9.0	0.0	0.9	8.1	1235
LC07600247L	59.0	97.0	2.0	14.4	14.3	1.0	30.4	28.0	1.0	6.8	1210
LC07600286P	56.0	91.0	2.0	-9.0	-9.0	-9.0	31.7	24.5	0.9	6.8	1209
LC07600186E	59.0	103.0	1.0	11.0	11.0	1.0	-9.0	0.0	1.0	6.1	1205
LC07600166L	60.0	103.0	2.0	14.9	14.6	1.0	33.1	29.5	1.0	10.3	1201
ESTON	57.0	94.0	1.0	12.7	12.5	1.0	-9.0	0.0	1.0	5.3	1200
LC07600536L	61.0	105.0	2.0	18.5	16.0	0.9	31.7	34.0	1.0	6.8	1192

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height. Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height. Planting Date 05/03/08 Harvest Date: 08/25/08

Agronomic and Yield Data for the Preliminary Lentil Screening Nursery (0855)

Name	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..	Seed Yield kg/ha
LC07600265P	55.0	102.0	2.0	-9.0	-9.0	-9.0	-9.0	0.0	1.0	5.6	1181
LC07600394P	57.0	95.0	2.0	10.3	9.7	1.0	32.6	27.5	0.9	4.6	1173
LC07600368L	58.0	100.0	3.0	14.0	10.8	0.8	32.1	29.5	0.9	7.3	1171
LC07600456P	58.0	98.0	2.0	18.9	15.0	0.8	38.1	29.5	0.9	6.1	1169
LC07600455E	57.0	94.0	3.0	15.5	13.3	0.9	28.1	26.0	1.1	6.3	1139
LC07600415T	56.0	104.0	3.0	16.0	12.3	0.8	35.4	26.0	0.8	6.8	1133
LC07600199E	59.0	96.0	2.0	15.0	9.2	0.6	27.1	28.0	0.9	5.3	1129
LC07600612T	58.0	95.0	2.0	12.5	10.6	0.9	30.2	23.5	0.8	3.6	1125
LC07600233L	57.0	102.0	2.0	-9.0	-9.0	-9.0	31.2	34.0	1.0	6.3	1122
LC07600566L	58.0	95.0	3.0	12.7	12.1	0.9	31.2	27.0	0.8	5.8	1122
LC07600573L	55.0	96.0	2.0	10.3	7.8	0.8	26.8	29.0	1.0	7.1	1120
LC07600591R	58.0	96.0	2.0	14.2	11.2	0.8	32.7	30.0	0.9	6.6	1119
LC07600310YZ	58.0	109.0	2.0	13.5	12.3	0.9	35.6	28.5	0.8	7.6	1118
LC07600751L	59.0	94.0	2.0	13.7	9.7	0.7	31.2	30.0	0.9	5.6	1112
LC07600274P	59.0	102.0	2.0	-9.0	-9.0	-9.0	35.9	28.0	0.9	6.6	1111
LC07600454R	61.0	105.0	2.0	14.5	10.0	0.7	31.3	24.0	0.9	7.6	1110
LC07600312YZ	59.0	105.0	2.0	12.9	13.8	1.0	33.1	31.0	1.0	6.6	1110
LC07600234L	60.0	94.0	2.0	15.2	14.2	0.9	34.3	31.0	0.8	6.6	1110
LC07600198E	59.0	100.0	2.0	13.2	11.1	0.9	-9.0	0.0	1.0	5.8	1095
LC07600488T	59.0	99.0	3.0	16.7	14.6	0.9	36.4	24.0	0.8	6.8	1084
LC07600517L	59.0	103.0	2.0	17.5	15.8	0.9	32.4	32.0	1.0	8.1	1081
LC07600541L	58.0	98.0	3.0	19.0	13.5	0.7	32.8	34.0	1.0	6.8	1077
LC07600264E	63.0	99.0	2.0	14.8	13.2	0.9	30.9	29.5	0.9	6.3	1074
LC07600370L	62.0	104.0	2.0	17.8	13.3	0.8	34.7	31.5	0.9	5.8	1051
LC07600570L	59.0	96.0	2.0	16.3	12.5	0.8	31.1	30.0	1.0	6.1	1051
LC07600576c	57.0	92.0	2.0	15.5	13.3	0.9	32.1	25.5	0.8	6.8	1049

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height. Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height. Planting Date 05/03/08 Harvest Date: 08/25/08

Agronomic and Yield Data for the Preliminary Lentil Screening Nursery (0855)

Name	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..	Seed Yield kg/ha
LC07600224YZ	59.0	106.0	2.0	15.4	12.5	0.8	30.3	32.5	0.9	6.6	1048
LC07600223YZ	59.0	106.0	2.0	14.7	13.2	0.9	35.2	36.0	0.9	7.1	1032
LC07600684L	61.0	103.0	3.0	14.5	13.2	0.9	27.6	25.5	0.8	8.6	1023
LC07600545L	58.0	104.0	1.0	-9.0	-9.0	-9.0	25.8	27.0	1.0	7.1	1021
LC07600553R	60.0	99.0	3.0	14.5	12.5	0.9	32.1	28.5	0.8	5.8	1019
LC07600549L	58.0	97.0	2.0	14.5	14.0	1.0	29.6	26.0	0.9	7.3	1016
LC07600231YZ	59.0	104.0	2.0	16.5	16.0	1.0	34.7	32.0	0.8	5.8	1014
LC07600734L	58.0	106.0	2.0	12.2	10.0	0.8	29.6	28.5	0.9	7.1	1014
LC07600320YZ	56.0	103.0	2.0	14.7	14.1	0.9	-9.0	0.0	1.0	5.3	1012
LC07600574L	59.0	101.0	2.0	14.0	12.3	0.9	31.1	28.0	0.9	5.8	1004
LC07600519c	59.0	101.0	2.0	14.5	13.3	0.9	33.1	29.0	0.9	7.3	1002
LC07600434E	55.0	97.0	2.0	13.8	10.7	0.8	31.2	30.0	1.0	6.1	1002
LC07600183T	58.0	88.0	2.0	-9.0	-9.0	-9.0	29.2	26.5	0.9	6.3	994.0
LC07600738L	58.0	97.0	2.0	14.9	14.5	1.0	29.3	29.5	1.0	7.1	993.8
LC07600268P	59.0	100.0	2.0	11.0	11.0	1.0	39.1	31.5	0.9	6.8	993.7
LC07600530c	58.0	97.0	2.0	14.5	13.0	0.9	33.2	26.5	0.7	6.6	990.6
LC07600380L	54.0	103.0	2.0	17.2	12.2	0.7	38.7	28.5	0.7	8.3	988.6
LC07600226YZ	58.0	100.0	2.0	12.3	10.6	0.9	32.8	33.0	0.9	6.6	988.5
LC07600185P	58.0	107.0	2.0	-9.0	-9.0	-9.0	29.2	26.0	0.9	7.6	979.5
LC07600176P	55.0	102.0	2.0	13.0	10.2	0.8	33.9	24.0	0.7	5.3	977.9
LC07600675L	58.0	102.0	2.0	16.2	13.3	0.8	38.4	31.5	0.9	6.1	975.2
LC07600302T	59.0	102.0	2.0	12.5	9.1	0.7	29.1	25.0	0.9	6.3	971.2
LC07600362L	59.0	98.0	3.0	14.2	15.0	1.0	31.8	29.5	1.0	6.6	966.7
LC07600147R	58.0	99.0	1.0	11.7	11.8	1.0	31.1	26.0	0.9	7.6	965.7
LC07600145B	58.0	99.0	3.0	17.3	15.0	0.9	34.2	29.0	0.9	6.3	962.8
RICHLEA	62.0	104.0	2.0	12.7	10.5	0.8	31.1	26.0	0.9	6.8	959.4

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 Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.
 Planting Date 05/03/08 Harvest Date: 08/25/08

Agronomic and Yield Data for the Preliminary Lentil Screening Nursery (0855)

Name	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..	Seed Yield kg/ha
LC07600156L	56.0	96.0	2.0	14.4	12.0	0.8	31.7	29.0	1.0	7.1	958.7
LC07600151R	61.0	101.0	2.0	16.9	12.3	0.7	32.3	29.5	0.9	5.3	957.8
LC07600520c	58.0	98.0	2.0	15.8	10.8	0.7	34.8	30.5	0.9	6.6	957.7
LC07600228YZ	60.0	100.0	2.0	-9.0	-9.0	-9.0	27.9	30.0	1.0	6.6	938.8
LC07600369L	58.0	104.0	1.0	14.0	12.7	0.9	31.6	30.0	0.9	7.3	937.8
LC07600720L	59.0	97.0	2.0	15.0	10.5	0.7	32.1	28.5	0.9	5.8	937.2
LC07600241L	59.0	113.0	2.0	13.3	11.7	0.9	35.6	34.0	1.0	8.6	932.4
LC07600433E	58.0	95.0	2.0	11.9	11.3	1.0	27.9	25.0	0.9	5.8	930.2
MERRIT	58.0	98.0	3.0	16.4	11.7	0.7	36.1	27.5	0.8	8.1	926.5
LC07600762L	59.0	102.0	2.0	15.2	15.3	1.0	34.0	32.0	0.9	8.6	925.8
LC07600760L	59.0	112.0	2.0	15.7	7.3	0.5	-9.0	0.0	1.0	8.6	916.8
LC07600690L	60.0	94.0	3.0	14.0	9.3	0.7	30.9	23.5	0.7	6.1	914.1
LC07600279P	59.0	102.0	2.0	9.0	8.5	0.9	25.1	19.5	0.9	6.6	909.4
LC07600750R	59.0	94.0	3.0	17.2	18.0	1.1	33.7	32.5	0.9	4.6	905.8
LC07600769L	58.0	92.0	2.0	10.9	10.8	1.0	31.0	30.0	1.0	5.3	905.4
LC07600187E	59.0	100.0	2.0	-9.0	-9.0	-9.0	27.5	27.0	1.0	6.1	904.2
LC07600446E	57.0	93.0	2.0	16.5	12.7	0.8	27.8	23.5	0.9	5.6	897.8
LC07600556L	60.0	99.0	2.0	-9.0	-9.0	-9.0	-9.0	0.0	1.0	5.8	897.2
PARDINA	58.0	104.0	2.0	9.5	11.8	1.1	27.3	25.0	1.0	5.3	882.4
LC07600376L	59.0	95.0	3.0	-9.0	-9.0	-9.0	28.7	31.0	1.0	7.3	876.1
LC07600292T	59.0	98.0	2.0	14.4	14.1	1.0	32.2	24.5	0.9	7.1	875.4
LC07600225YZ	58.0	92.0	2.0	16.7	13.1	0.8	31.7	32.5	0.9	6.6	869.4
LC07600562L	58.0	103.0	2.0	14.9	13.2	0.9	38.8	37.0	0.8	6.6	868.6
LC07600420R	59.0	100.0	2.0	-9.0	-9.0	-9.0	32.1	27.5	1.0	7.8	866.7
LC07600238L	58.0	96.0	2.0	18.3	12.3	0.7	29.2	26.5	0.8	7.3	861.0
LC07600593R	58.0	96.0	2.0	-9.0	-9.0	-9.0	28.9	27.5	0.9	6.1	859.3

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 Planting Date 05/03/08 Harvest Date: 08/25/08

Agronomic and Yield Data for the Preliminary Lentil Screening Nursery (0855)

Name	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..	Seed Yield kg/ha
LC07600703L	58.0	112.0	2.0	11.0	11.2	1.0	28.1	31.0	1.0	7.6	855.6
LC07600301T	60.0	103.0	1.0	15.0	16.0	1.1	38.8	30.5	0.9	6.1	844.7
LC07600144B	58.0	99.0	2.0	15.4	8.7	0.5	31.1	21.5	0.7	5.1	844.0
LC07600338B	57.0	95.0	2.0	13.4	12.1	0.9	31.8	30.5	0.9	5.1	835.1
LC07600193E/T	56.0	93.0	2.0	11.9	11.1	1.0	33.0	23.5	0.6	7.6	823.5
LC07600588R	57.0	97.0	2.0	12.9	10.0	0.8	28.9	28.0	0.9	6.1	820.9
LC07600441E	58.0	98.0	2.0	19.0	16.6	0.9	38.1	31.0	0.9	5.6	812.1
LC07600267P	59.0	103.0	2.0	-9.0	-9.0	-9.0	-9.0	0.0	0.9	6.8	809.6
LC07600495T	59.0	99.0	2.0	12.7	8.7	0.7	28.2	24.0	1.0	6.6	806.4
LC07600230YZ	60.0	102.0	2.0	17.0	16.0	0.9	31.3	31.0	0.9	6.3	806.3
LC07600502T/P	60.0	101.0	3.0	17.3	12.1	0.7	35.8	27.0	0.8	5.8	794.9
CRIMSON	59.0	97.0	2.0	17.8	9.5	0.5	26.7	21.5	0.8	4.8	790.1
LC07600710L	59.0	100.0	2.0	17.2	13.5	0.8	32.3	30.5	0.9	6.3	788.1
LC07600704L	58.0	96.0	3.0	16.2	12.7	0.8	33.6	32.5	1.0	7.3	785.2
LC07600255B	55.0	86.0	2.0	15.4	12.6	0.8	29.7	26.5	0.9	6.6	777.1
LC07600578c	60.0	103.0	2.0	14.0	11.2	0.8	28.9	26.5	0.9	8.1	775.7
LC07600558L	60.0	101.0	3.0	14.9	16.3	1.1	25.7	29.5	0.9	7.1	766.5
LC07600575L	59.0	99.0	3.0	17.7	14.8	0.9	35.8	28.0	0.8	6.6	757.5
LC07600278P	59.0	100.0	2.0	-9.0	-9.0	-9.0	27.2	22.0	0.9	6.6	742.7
LC07600222YZ	59.0	99.0	2.0	16.4	15.3	0.9	32.7	33.5	0.9	7.6	737.5
LC07600678L	57.0	96.0	3.0	18.2	10.6	0.6	29.3	29.0	1.0	6.1	720.4
LC07600337L	59.0	99.0	2.0	13.4	11.5	0.8	28.1	28.0	1.0	7.8	719.2
LC07600263E	59.0	101.0	2.0	14.2	8.8	0.6	28.4	24.5	0.8	5.6	713.7
LC07600615T	58.0	102.0	2.0	11.3	11.2	1.0	25.2	23.0	0.9	4.8	707.6
LC07600712L	59.0	100.0	3.0	17.3	15.7	0.9	36.8	30.0	0.8	6.6	690.7
LC07600504T	56.0	91.0	3.0	11.9	10.5	0.9	26.8	26.0	1.0	5.1	687.6

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Agronomic and Yield Data for the Preliminary Lentil Screening Nursery (0855)

Name	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..	Seed Yield kg/ha
LC07600412T	61.0	97.0	2.0	11.7	9.8	0.9	26.4	21.5	0.9	5.8	686.2
LC07600543L	58.0	96.0	3.0	17.0	14.5	0.9	36.7	28.0	0.7	5.6	681.6
LC07600361E	56.0	93.0	2.0	9.8	10.0	0.9	26.6	27.0	1.0	4.8	672.3
LC07600366L	58.0	93.0	3.0	18.4	11.8	0.7	31.3	28.5	0.9	5.1	664.1
LC07600728L	59.0	101.0	2.0	17.4	12.1	0.7	34.9	29.5	0.8	8.1	660.9
LC07600464T	59.0	100.0	2.0	10.5	9.5	0.9	28.1	22.5	0.9	6.1	650.2
LC07600496P	59.0	102.0	2.0	12.7	10.7	0.9	29.7	19.5	0.7	6.6	648.6
LC07600168c	60.0	102.0	2.0	14.9	12.7	0.9	27.7	23.5	0.9	4.6	641.5
LC07600569c	61.0	114.0	2.0	17.9	15.5	0.9	36.7	31.5	0.8	7.1	617.5
LC07600525c	58.0	97.0	2.0	-9.0	-9.0	-9.0	31.3	31.0	1.0	6.6	606.6
LC07600685L	59.0	100.0	2.0	11.7	14.1	1.1	29.2	30.5	1.0	7.3	606.4
LC07600600L	61.0	106.0	2.0	16.3	12.5	0.8	36.2	30.0	0.9	9.8	575.0
LC07600360R	60.0	103.0	2.0	-9.0	-9.0	-9.0	35.1	26.5	0.8	5.3	573.9
LC07600563L	59.0	103.0	2.0	17.0	15.2	0.9	28.9	35.0	1.0	6.8	560.8
LC07600329c	63.0	106.0	2.0	23.8	11.7	0.5	38.0	31.5	0.7	7.1	536.3
LC07600409T	65.0	105.0	2.0	17.9	16.7	0.9	28.8	27.5	1.0	5.3	510.4
LC07600182E	61.0	100.0	2.0	-9.0	-9.0	-9.0	31.7	27.0	0.9	6.3	508.3
LC07600304T	61.0	87.0	2.0	15.5	8.2	0.5	28.7	27.5	1.0	5.6	486.2
LC07600788R	61.0	103.0	2.0	20.9	16.1	0.7	36.5	31.5	0.8	7.1	483.7
LC07600450E	60.0	108.0	2.0	11.0	11.1	1.0	30.4	21.5	0.8	6.3	388.9
GRAND MEAN	58.6	99.5	2.2	14.9	12.5	0.8	31.7	28.5	0.9	6.6	968.4
CV	2.8	4.8	22.3	17.2	17.9	16.1	10.7	12.0	9.2	16.4	24.5
LSD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LC07600668	59.0	98.0	2.0	14.5	13.7	0.9	33.6	31.0	1.0	-9.0	-9.0

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Winter Lentil Yield Trials

Advanced yield trials for fall sown winterhardy Turkish Red lentils, which included 17 advanced breeding lines and the variety Morton, were planted in three locations in WA: Pullman, Rosalia, and Garfield. The winter of 2007-2008 was severe, and no data could be obtained from any locations. In fall 2008, the 18 entries were again planted at the same three locations.

Chickpea Yield Trials

Twenty advanced breeding lines and four check varieties (Sierra, Dwelley, Dylan, and Troy) were included in the advanced large Kabuli chickpea yield trials conducted at Genesee, ID, Walla Walla, WA and Pullman, WA in 2008. Mean yield of the trial at Spillman Farm (Pullman) was 1491 kg/ha, 960 kg/ha at Genesee, and 1420 kg/ha at Walla Walla. The highest yielding check, Sierra, averaged 1224 kg/ha over three locations while the lowest yielding check was Troy (911 kg/ha). 15 advanced breeding lines had mean yields that were greater than Sierra. The highest yielding breeding lines were CA0469C025 and CA04900851C, which had average yields of 1501 kg/ha and 1492 kg/ha, respectively. These two advanced breeding lines were also among the earliest maturing of all entries.

The 2008 Preliminary Yield Trial conducted at Pullman, WA for large Kabuli chickpeas had 41 advanced breeding lines (36 Café and 5 Spanish White) and the check varieties Sierra, Dwelley, and Troy. Similar to the Advanced Yield Trials, the highest yielding variety was Sierra and the lowest was Troy. The average yield of all entries was 1252 kg/ha, and 12 breeding lines had plot yields greater than Sierra (1353 kg/ha). Four café breeding lines had average yields that were at least 20% greater than Dwelley. The highest yielding Spanish White breeding line had a mean yield of 1206 kg/ha. Seed size among the breeding lines ranged from 44 to 64 g/100 seeds.

A preliminary yield trial for Desi type chickpeas was evaluated at Spillman Farm in 2008, which included five breeding lines and the variety Myles. Average seed yield was 853 kg/ha. Three advanced breeding lines had significantly higher yields than Myles, with the top line, CA0490B0214D, yielding 1029 kg/ha.

Breeding lines have been developed that have high yield, improved resistance to *Ascochyta* blight, and early maturity. These lines have been used as parents in crossing blocks with exceptionally large seeded Kabuli lines. The objective of this component of the breeding program is to develop large Kabuli chickpea varieties that are early maturing and have high yield. A constant challenge of the breeding program is to correctly anticipate future market needs in order to develop breeding strategies that will result in timely varieties that meet these changing needs.

Disease screening

Perhaps the most interesting results from successive years of screening for resistance to *Ascochyta* blight is the recent ascendancy in the Advanced Large Kabuli Yield Trials of CA0469C025C and CA04690020C, two café Kabuli lines that exhibit both high yield and resistance to *Ascochyta* blight. Although these two lines are small seeded, their yield potential, disease resistance, and early maturity makes them very promising breeding materials.

Disease screening in the *Ascochyta* blight nursery at Spillman Farm was very successful in 2008. Besides using infected chickpea debris as inoculum, the nursery was also artificially infested with inoculum of both pathotypes 1 and 2 of *Ascochyta rabiei*. Overhead irrigation was applied to the nursery at regular intervals, usually at night, to ensure good spread of the disease and to promote infection of pods, leaves and stems. Plants were scored for disease reaction twice during

the growing season. Disease pressure due to *Ascochyta* blight was severe in 2008. Dwelley and Troy both exhibited susceptible reactions while the reaction of Sierra was tolerant. Among 20 entries in the Advanced Yield trials, two lines were identified that were considered resistant to *Ascochyta* blight and 12 tolerant lines were also identified. Among the 41 breeding lines in the 2008 preliminary Kabuli yield trial, 3 resistant and 19 tolerant lines were identified. 668 different breeding lines were also evaluated for blight resistance and 178 were selected for future evaluation or seed increase.

Potential variety releases

Sawyer a medium seeded Kabuli type, was released in 2008. Sawyer is a high yielding café type with improved resistance to *Ascochyta* blight. Sawyer has exhibited consistently high yields in WA, ID, ND, and MT. Additional breeder seed of Sawyer was also produced in 2008.

CA0469C025 and CA0469C020 are two early maturing high yielding advanced breeding lines with enhanced levels of resistance to *Ascochyta* blight. Over 10 location/years, in advanced trials in WA, ID, MT, ND, and SD, CA0469C025 has averaged 1562 kg/ha, which was a 39.2% and 35.6% increase in yield over Dwelley and Sierra, respectively. Over 11 location/years, CA0469C020 has averaged 1439 kg/ha, a 28.3% and 24.9% increase in yield over Dwelley and Sierra. Both breeding lines are small café Kabuli types that could serve as a high yielding, early maturing variety for the production of small chickpeas. Sufficient field evaluations have been conducted for these two advanced breeding lines to be considered for the production of breeder seed and subsequent varietal release.

Table Location Yield Summary for the Advanced Large Kabuli Chickpea Yield Trial (0881)

Name	Leaf Type	Seed Type	Pullman Seed Yield kg/ha	% of Dwelley	Walla Walla Seed Yield kg/ha	% of Dwelley	Genesee Seed Yield kg/ha	% of Dwelley	Mean Seed Yield kg/ha
CA0469C025C	C	C	1342.0	103.20	1538.8	116.66	1623.5	207.13	1501.4
CA04900843C	C	C	1779.0	136.81	1316.7	99.82	1050.4	134.02	1382.0
CA0469C028C	C	C	1664.7	128.02	1422.1	107.81	1159.1	147.89	1415.3
CA04900421C	C	C	1456.8	112.03	1611.7	122.18	1308.1	166.89	1458.9
CA04900608C	S	C	1845.2	141.90	1405.8	106.58	901.8	115.06	1384.3
CA04900804C	S	C	1495.0	114.97	1470.4	111.47	1253.0	159.87	1406.1
CA04900808C	S	C	1516.4	116.62	1560.4	118.30	1146.8	146.32	1407.9
CA0469C020C	C	C	1334.6	102.63	1558.1	118.12	1324.1	168.93	1405.6
CA04900443C	C	C	1847.5	142.08	1381.6	104.74	799.5	102.00	1342.9
CA04900851C	S	C	1589.1	122.20	1867.4	141.57	1018.5	129.95	1491.7
CA0390B007C	C	C	1503.7	115.64	1390.9	105.44	1081.6	137.99	1325.4
CA0090B347C	S	C	1240.5	95.40	1898.5	143.92	1311.2	167.29	1483.4
CA04900612C	S	C	1695.0	130.35	1423.7	107.93	753.6	96.15	1290.8
CA04900765C	S	C	1334.5	102.63	1360.5	103.14	1017.5	129.82	1237.5
SIERRA	S	C	1398.1	107.52	1362.2	103.27	911.5	116.29	1223.9
CA04900820C	S	C	1576.8	121.26	1341.5	101.70	727.6	92.83	1215.3
CA04900436C	C	C	1562.7	120.17	1470.5	111.48	725.1	92.51	1252.8
CA04900716C	S	C	1493.7	114.87	1519.2	115.17	784.9	100.14	1265.9
CA04900509C	C	C	1481.0	113.89	1380.0	104.62	770.4	98.29	1210.5
CA04900606C	S	C	1437.1	110.52	1333.4	101.08	698.9	89.17	1156.5
DWELLEY	S	C	1331.3	102.38	1319.1	100.00	783.8	100.00	1144.7
DYLAN	C	W	1177.3	90.54	1359.9	103.10	830.6	105.97	1122.6
TROY	C	W	1294.7	99.57	841.5	63.80	597.3	76.20	911.2
CA04900965C	C	C	1380.7	106.18	944.6	71.61	460.0	58.69	928.4
GRAND MEAN			1490.7	0.00	1419.9	0.00	960.0	0.00	1290.2
CV			13.2	0.00	13.4	0.00	30.8	0.00	18.0
LSD			270.3	0.00	260.6	0.00	405.8	0.00	217.0

Leaf Type: C = compound leaf, S = simple leaf type. Seed type; W = white seed type, C = cafe seed type
Yield data are means of three replications at each location.

Agronomic Data for the Advanced Large Kabuli Chickpea Yield Trial (0881)

Name	Blight	Days to Flower	Days to Maturity	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..
CA0469C025C	3.3	56.0	107.0	20.0	12.0	0.6	35.0	32.0	0.9	41.4
CA04900843C	7.3	61.0	118.0	26.0	19.0	0.7	45.0	33.0	0.8	62.7
CA0469C028C	5.7	63.0	121.0	31.0	21.0	0.7	56.0	48.0	0.9	40.6
CA04900421C	5.0	56.0	111.0	25.0	15.0	0.6	40.0	33.0	0.8	52.3
CA04900608C	6.7	60.0	112.0	30.0	19.0	0.6	44.0	32.0	0.7	59.9
CA04900804C	6.7	59.0	114.0	26.0	17.0	0.7	42.0	33.0	0.8	50.7
CA04900808C	7.0	60.0	108.0	24.0	21.0	0.9	45.0	35.0	0.8	58.6
CA0469C020C	3.7	56.0	111.0	19.0	11.0	0.6	37.0	29.0	0.8	41.3
CA04900443C	7.3	59.0	114.0	24.0	20.0	0.8	47.0	37.0	0.8	63.5
CA04900851C	7.0	60.0	113.0	30.0	19.0	0.7	46.0	38.0	0.8	58.6
CA0390B007C	6.3	60.0	117.0	26.0	19.0	0.7	46.0	37.0	0.8	54.6
CA0090B347C	7.0	59.0	112.0	18.0	17.0	1.0	36.0	31.0	0.9	44.2
CA04900612C	6.3	60.0	112.0	27.0	22.0	0.9	46.0	42.0	0.9	60.6
CA04900765C	6.7	62.0	115.0	28.0	21.0	0.8	46.0	36.0	0.8	61.0
SIERRA	6.3	61.0	116.0	24.0	17.0	0.7	37.0	34.0	0.9	53.6
CA04900820C	6.7	61.0	112.0	32.0	17.0	0.5	47.0	36.0	0.8	56.9
CA04900436C	7.3	60.0	112.0	27.0	21.0	0.8	43.0	35.0	0.8	64.8
CA04900716C	6.7	64.0	116.0	26.0	21.0	0.8	42.0	32.0	0.8	60.2
CA04900509C	7.0	56.0	109.0	23.0	13.0	0.6	43.0	35.0	0.8	58.5
CA04900606C	6.3	60.0	110.0	23.0	16.0	0.7	39.0	32.0	0.8	58.9
DWELLEY	8.0	63.0	114.0	24.0	13.0	0.5	40.0	35.0	0.9	53.0
DYLAN	7.0	56.0	114.0	14.0	12.0	0.9	39.0	33.0	0.9	58.1
TROY	6.3	59.0	119.0	26.0	18.0	0.7	43.0	33.0	0.8	60.9
CA04900965C	7.3	61.0	112.0	29.0	20.0	0.7	44.0	34.0	0.8	56.4
GRAND MEAN	6.5	59.7	113.2	25.1	17.5	0.7	42.9	34.8	0.8	55.5
CV	11.0	2.3	3.3	13.9	18.2	28.6	9.3	6.7	10.6	2.1
LSD	1.0	1.9	5.2	4.8	4.4	0.3	5.5	3.2	0.1	1.6

Planting Date: 05/01/08. Harvest Date: 09/05/08

Ascochyta Blight Scores: 1 = Highly Resistant, 3 = Resistant, 5 = Tolerant, 7 = Susceptible, 9 = Highly Susceptible

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Agronomic data are means of three replications at Pullman, WA

Mean Yields of the Advanced Large Kabuli Chickpea Yield Trial, 2004 - 2008

Name	Seed Type	Leaf Type	2004		2005		2006		2007		2008	
			kg/ha	% of Dwelley	kg/ha	% of Dwelley	kg/ha	% of Dwelley	kg/ha	% of Dwelley	kg/ha	% of Dwelley
CA0469C025C	C	C	...	...	...	...	...	...	1525	103	1501	140
CA04900843C			...	...	...	...	...	...	...	...	1382	134
CA0469C028C			...	...	...	...	...	...	...	...	1415	134
CA04900421C	C	C	...	...	...	...	...	...	1415	96	1459	131
CA04900608C			...	...	...	...	...	...	...	...	1384	130
CA04900804C			...	...	...	...	...	...	...	...	1406	130
CA04900808C			...	...	...	...	...	...	...	...	1408	126
CA0469C020C	C	C	...	...	...	...	...	...	1415	96	1406	126
CA04900443C	C	C	...	...	...	...	...	...	1518	103	1343	125
CA04900851C			...	...	...	...	...	...	...	...	1492	123
CA0390B007C	C	C	...	...	...	...	1494	111	1553	105	1325	122
CA0090B347C	C	S	...	...	...	...	...	...	1450	98	1483	121
CA04900612C	C	S	...	...	...	...	...	...	1504	102	1291	116
CA04900765C			...	...	...	...	...	...	...	...	1238	111
SIERRA	C	S	2163	96	1156	128	1451	108	1253	85	1224	109
CA04900820C			...	...	...	...	...	...	...	...	1215	109
CA04900436C	C	C	...	...	...	...	...	...	1417	96	1253	108
CA04900716C	C	S	...	...	...	...	...	...	1500	102	1266	108
CA04900509C	C	C	...	...	...	...	...	...	1441	98	1211	106
CA04900606C			...	...	...	...	...	...	...	...	1157	101
DWELLEY*	C	S	2258	100	901	100	1346	100	1242	84	1145	100
DYLAN	W	C	2390	106	1098	122	1433	106	1302	88	1123	95
TROY	W	C	...	...	...	...	...	...	1227	83	911	89
CA04900965C			...	...	...	...	...	...	...	...	928	87
Grand Mean			2195		1048		1308		1330		1290	
LSD (a=0.05)			550		109		243		151		217	

Yield data are means of three replications at each location, over three locations in each year and two locations in 2004 and 2006.

Agronomic and Yield Data for the Preliminary Large Kabuli Chickpea Yield Trial (0883)

Name	Blight	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..	Seed Yield kg/ha	% of Dwelley
CA0690B0250C	7.30	59.00	120.0		33.00	23.00	0.71	50.00	45.00	0.90	57.80	1717	132.2
CA05900066C	8.10	61.00	123.0		24.00	17.00	0.72	56.00	44.00	0.79	59.10	1698	130.8
CA05900082C	8.70	59.00	117.0		32.00	29.00	0.91	56.00	42.00	0.75	58.50	1587	122.2
CA05900092C	5.60	61.00	122.0		22.00	15.00	0.73	41.00	31.00	0.76	56.60	1575	121.3
CA05900087C	7.60	59.00	120.0		30.00	26.00	0.91	56.00	50.00	0.89	55.90	1528	117.6
CA0690B0307C	6.30	58.00	116.0		27.00	21.00	0.79	47.00	34.00	0.73	53.60	1507	116.0
CA0690B0555C	5.10	60.00	114.0		24.00	18.00	0.76	46.00	36.00	0.79	55.10	1466	112.9
CA0690B0277C	8.00	59.00	110.0		28.00	19.00	0.67	53.00	41.00	0.78	57.30	1462	112.6
CA0690B0602C	6.60	60.00	116.0		26.00	13.00	0.55	39.00	32.00	0.81	52.30	1450	111.7
CA0690B0709C	0.00	60.00	116.0		24.00	19.00	0.80	40.00	33.00	0.82	46.70	1449	111.6
CA0690B0409C	6.30	60.00	112.0		24.00	18.00	0.72	48.00	35.00	0.71	57.30	1386	106.7
CA0690B0578C	6.10	60.00	119.0		25.00	17.00	0.71	46.00	35.00	0.77	50.90	1384	106.6
SIERRA	6.70	61.00	116.0		24.00	17.00	0.71	43.00	33.00	0.77	54.50	1353	104.2
SAWYER	6.00	61.00	112.0		20.00	14.00	0.72	41.00	29.00	0.72	44.00	1343	103.5
CA0690B0427C	4.00	61.00	122.0		20.00	16.00	0.83	44.00	31.00	0.71	52.30	1317	101.5
DWELLEY	8.00	64.00	120.0		26.00	18.00	0.74	46.00	35.00	0.77	55.30	1298	100.0
CA05900158C	6.60	61.00	119.0		30.00	26.00	0.87	48.00	36.00	0.77	57.30	1288	99.21
CA0690B0670C	5.10	60.00	116.0		23.00	17.00	0.74	42.00	35.00	0.82	50.00	1271	97.89
CA0690B0418C	8.60	61.00	122.0		29.00	22.00	0.78	51.00	41.00	0.81	52.70	1256	96.74
CA0690B0672C	6.10	59.00	110.0		29.00	17.00	0.60	43.00	33.00	0.78	50.70	1240	95.46
CA0690B0468C	0.00	62.00	122.0		24.00	17.00	0.72	45.00	40.00	0.90	62.00	1238	95.31
CA0690B0649C	4.10	60.00	120.0		20.00	16.00	0.80	43.00	36.00	0.83	47.00	1235	95.15
CA0690B0433C	7.00	61.00	119.0		25.00	26.00	1.00	47.00	41.00	0.89	59.80	1222	94.12
CA0690B0330C	0.00	61.00	119.0		28.00	23.00	0.83	51.00	39.00	0.77	57.50	1220	93.99

Ascochyta Blight Scores: 1 = Highly Resistant, 3 = Resistant, 5 = Tolerant, 7 = Susceptible, 9 = Highly Susceptible

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Rep Nodes = average number of reproducing nodes to a plant.

Agronomic data are means of three replications at Pullman, WA. Planting Date 05/01/08 Harvest Date: 09/05/08

Agronomic and Yield Data for the Preliminary Large Kabuli Chickpea Yield Trial (0883)

Name	Blight	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..	Seed Yield kg/ha	% of Dwelley
CA0690B0268W	6.70	60.00	119.0		25.00	15.00	0.60	42.00	34.00	0.80	56.10	1206	92.91
CA0690B0392C	7.70	65.00	117.0		25.00	18.00	0.73	41.00	35.00	0.86	52.10	1206	92.87
TROY	7.30	61.00	122.0		23.00	16.00	0.71	41.00	33.00	0.80	63.30	1179	90.77
CA0690B0738C	0.00	60.00	118.0		25.00	19.00	0.76	46.00	33.00	0.72	55.80	1174	90.40
CA0690B0399W	8.30	61.00	123.0		24.00	15.00	0.62	42.00	35.00	0.83	64.40	1168	89.92
CA0690B0253C	6.70	62.00	114.0		26.00	20.00	0.77	45.00	36.00	0.82	53.70	1162	89.48
CA0690B0595C	7.10	60.00	120.0		19.00	12.00	0.64	44.00	34.00	0.78	52.10	1161	89.45
CA0690B0397W	6.90	61.00	120.0		20.00	11.00	0.57	40.00	30.00	0.77	59.00	1154	88.84
CA0690B0259C	6.70	60.00	114.0		27.00	14.00	0.54	45.00	34.00	0.76	64.40	1145	88.17
CA0690B0138C	7.70	62.00	120.0		25.00	16.00	0.64	46.00	39.00	0.85	57.50	1142	87.97
CA0690B0338C	7.60	57.00	120.0		20.00	15.00	0.75	42.00	32.00	0.76	57.00	1128	86.87
CA0690B0714W	0.00	60.00	123.0		20.00	12.00	0.65	43.00	33.00	0.76	58.40	1099	84.66
CA0690B0685C	6.10	59.00	108.0		23.00	15.00	0.70	44.00	33.00	0.76	54.00	1097	84.48
CA0690B0413C	5.30	62.00	124.0		20.00	15.00	0.74	41.00	32.00	0.78	56.50	1043	80.31
CA0690B0395W	7.00	60.00	119.0		21.00	19.00	0.88	42.00	31.00	0.75	61.80	1008	77.62
CA0590B0509C	7.30	62.00	112.0		28.00	20.00	0.75	47.00	38.00	0.81	55.40	954.1	73.48
CA0690B0684C	7.10	58.00	105.0		22.00	12.00	0.54	41.00	32.00	0.79	50.90	942.7	72.60
CA0690B0712C	4.10	60.00	113.0		24.00	17.00	0.69	43.00	33.00	0.78	51.40	924.9	71.23
CA0690B0114C	6.60	62.00	118.0		26.00	17.00	0.65	42.00	31.00	0.74	59.00	890.5	68.58
CA0690B0342C	7.70	59.00	112.0		21.00	17.00	0.85	43.00	32.00	0.75	47.80	811.5	62.50
GRAND MEAN	6.72	60.36	117.3		24.48	17.69	0.73	45.05	35.40	0.79	55.34	1252	0.00
CV	12.79	2.16	3.23		12.48	20.82	24.44	7.93	8.74	11.15	3.42	11.23	0.00
LSD	1.17	1.77	5.15		4.15	5.00	0.24	4.85	4.20	0.12	2.57	190.8	0.00

Ascochyta Blight Scores: 1 = Highly Resistant, 3 = Resistant, 5 = Tolerant, 7 = Susceptible, 9 = Highly Susceptible

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Rep Nodes = average number of reproducing nodes to a plant.

Agronomic data are means of three replications at Pullman, WA. Planting Date 05/01/08 Harvest Date: 09/05/08

Mean Yields of the Advanced Yellow Dry Pea Yield Trial, 2004 - 2008

Name	Leaf Type	Plant Type	2004		2005		2006		2007		2008	
			kg/ha	% of Delta	kg/ha	% of Delta	kg/ha	% of Delta	kg/ha	% of Delta	kg/ha	% of Delta
PS02101137	-	-	2213	84	2413	100	2034	92	2254	107
UNIVERSAL	-	-	2547	105	2111	96	2271	107
PS03101822	-	-	2976	123	2207	100	2235	106
CAROUSEL	-	-	2594	107	1420	64	2130	101
DELTA*	-	-	4083	100	2641	100	2419	100	1972	89	2116	100
PS05101158	-	-	2105	100
PS05101240	-	-	2044	97
PS05101142	-	-	1991	94
PS05101139	-	-	1939	92
PS01102958	-	-	3555	87	2515	95	2191	91	1957	89	1913	90
PS04100922	-	-	1796	81	1834	87
PS04100710	-	-	2013	91	1819	86
PS04100910	-	-	1976	90	1773	84
DS ADMIRAL	-	-	1661	75	1762	83
Grand Mean									1917		2013	
LSD _(a=0.05)									267		175	

Leaf type; + = normal leaf, - = afilea or semileafless type.

Plant type; + = tall plant type, - = short plant type.

Yield data are means of three replications at each location, over four locations in each year except 2005 and 2006.

Agronomic and Yield Data for the Preliminary Chickpea Yield Trial (0884)

Name	Blight	Days to Flower	Days to Maturity	Flower Node	Pods/Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	# Repr Nodes	100 Seed Weight ..g..	Seed Yield kg/ha	% of Myles kg/ha
CA0490B0214D		61.0	119.0			20.0	9.7	0.5	38.0	27.0	0.7		24.2	1029	139.6
CA0490B0223D		56.0	119.0			19.0	13.0	0.7	36.0	26.0	0.7		30.0	1017	138.0
CA0690B0674D		58.0	116.0			24.0	17.0	0.7	45.0	37.0	0.8		32.6	954.1	129.5
CA0490B0224D		56.0	119.0			17.0	8.5	0.5	34.0	29.0	0.9		32.2	767.3	104.2
MYLES		57.0	112.0			20.0	17.0	0.9	39.0	31.0	0.8		18.6	736.7	100.0
CA0490B0221D		61.0	116.0			16.0	8.7	0.5	36.0	24.0	0.7		25.3	615.9	83.61
GRAND MEAN		58.3	116.8			19.2	12.3	0.6	37.9	29.0	0.8		27.1	853.2	0.00
CV		2.7	3.7			8.9	25.5	27.9	6.8	7.4	11.5		1.3	12.7	0.00
LSD		2.3	6.4			2.5	4.6	0.3	3.8	3.2	0.1		0.5	162.7	0.00

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height. Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height. Agronomic data are means of three replications at Pullman, WA. Planting Date 05/01/08 Harvest Date: 09/09/08

Agronomic and Yield Data for the Preliminary Large Kabuli Chickpea Screening Nursery (0885)

Name	Blight	Leaf Type	Seed Type	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..	Seed Yield kg/ha
CA0790B0709C	0.0	C		60.0	117.0		28.0	23.0	0.8	43.0	38.0	0.9	50.6	2295
CA0790B0547C	0.0	C		58.0	117.0		21.0	9.5	0.5	44.0	42.0	1.0	54.3	2115
CA0790B0698C	0.0	C		61.0	122.0		29.0	15.0	0.5	48.0	39.0	0.8	63.1	2024
CA0790B0763C	7.0	C		58.0	115.0		21.0	18.0	0.9	39.0	33.0	0.9	63.4	2017
CA0790B0054C	6.0	C		61.0	115.0		32.0	22.0	0.7	46.0	34.0	0.7	56.9	1996
CA0790B0769C	9.0	C		58.0	111.0		25.0	17.0	0.7	43.0	35.0	0.8	63.2	1965
CA0790B0804W	7.0	C		60.0	117.0		26.0	16.0	0.6	40.0	32.0	0.8	61.5	1928
CA0790B0235C	8.0	C		58.0	117.0		22.0	15.0	0.7	50.0	54.0	1.1	56.5	1831
CA0790B0753C	4.0	C		58.0	117.0		26.0	17.0	0.7	44.0	32.0	0.7	50.1	1776
CA0790B0549C	0.0	C		58.0	117.0		21.0	9.5	0.5	43.0	38.0	0.9	50.1	1763
CA0790B0733C	3.0	C		58.0	115.0		24.0	20.0	0.8	41.0	28.0	0.7	53.7	1763
CA0790B0053C	0.0	C		58.0	115.0		33.0	21.0	0.6	54.0	46.0	0.9	61.0	1736
CA0790B0099C	5.0	C		60.0	115.0		30.0	21.0	0.7	53.0	40.0	0.8	64.0	1675
CA0790B0043C	7.0	C		58.0	115.0		27.0	22.0	0.8	49.0	50.0	1.0	56.9	1625
CA0790B0742C	5.0	C		61.0	122.0		22.0	17.0	0.8	43.0	34.0	0.8	47.6	1577
CA0790B0093C	5.0	C		61.0	115.0		18.0	20.0	1.1	47.0	33.0	0.7	60.8	1561
CA0790B0378C	0.0	C		58.0	122.0		21.0	20.0	1.0	41.0	36.0	0.9	62.9	1550
CA0790B0782C	0.0	S		64.0	111.0		33.0	13.0	0.4	50.0	29.0	0.6	50.2	1543
CA0790B0630C	0.0	C		58.0	117.0		20.0	10.0	0.5	45.0	35.0	0.8	60.0	1535
CA0790B0439C	0.0	C		60.0	117.0		31.0	24.0	0.8	61.0	47.0	0.8	59.4	1522
CA0790B0042C	0.0	C		58.0	117.0		24.0	19.0	0.8	52.0	41.0	0.8	49.2	1506
CA0790B0810W	0.0	C		60.0	122.0		20.0	14.0	0.7	40.0	35.0	0.9	62.2	1496
CA0790B0050C	0.0	C		61.0	117.0		24.0	16.0	0.7	46.0	44.0	1.0	54.4	1484
CA0790B0738C	0.0	C		58.0	117.0		23.0	8.0	0.4	37.0	29.0	0.8	56.1	1474
CA0790B0808W	8.0	C		58.0	117.0		22.0	17.0	0.8	42.0	30.0	0.7	61.1	1448
CA0790B0100C	7.0	S		58.0	111.0		30.0	23.0	0.8	46.0	32.0	0.7	57.5	1446

Ascochyta Blight Scores: 1 = Highly Resistant, 3 = Resistant, 5 = Tolerant, 7 = Susceptible, 9 = Highly Susceptible

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Agronomic data are means of three replications at Pullman, WA. Planting Date 05/03/08 Harvest Date: 08/08/08

Agronomic and Yield Data for the Preliminary Large Kabuli Chickpea Screening Nursery (0885)

Name	Blight	Leaf Type	Seed Type	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..	Seed Yield kg/ha
CA0790B0754C	7.0	C		58.0	115.0		20.0	15.0	0.8	45.0	37.0	0.8	58.1	1443
CA0790B0764C	8.0	C		58.0	115.0		21.0	14.0	0.7	43.0	35.0	0.8	63.6	1437
CA0790B0008C	7.0	C		61.0	117.0		22.0	25.0	1.1	50.0	44.0	0.9	56.2	1418
CA0790B0642C	0.0	C		61.0	117.0		23.0	16.0	0.7	50.0	33.0	0.7	61.8	1413
CA0790B0779C	0.0	S		58.0	107.0		27.0	25.0	0.9	49.0	35.0	0.7	57.3	1412
CA0790B0010C	5.0	C		58.0	117.0		27.0	20.0	0.7	48.0	43.0	0.9	55.0	1411
CA0790B0155C	6.0	S		64.0	107.0		21.0	12.0	0.6	40.0	33.0	0.8	60.7	1408
CA0790B0095C	6.0	S		64.0	107.0		30.0	26.0	0.9	46.0	38.0	0.8	60.9	1398
CA0790B0414C	0.0	C		58.0	117.0		27.0	20.0	0.7	45.0	47.0	1.0	66.2	1376
CA0790B0143C	7.0	C		58.0	117.0		0.0	0.0	0.0	48.0	52.0	1.1	54.4	1357
CA0790B0200C	0.0	C		58.0	122.0		20.0	17.0	0.9	44.0	38.0	0.9	64.5	1357
SIERRA	0.0	S	C	61.0	117.0		21.0	16.0	0.8	42.0	33.0	0.8	53.8	1351
CA0790B0152C	5.0	C		58.0	104.0		25.0	22.0	0.9	44.0	39.0	0.9	49.8	1350
CA0790B0374C	0.0	C		61.0	122.0		22.0	16.0	0.7	47.0	36.0	0.8	54.8	1342
CA0790B0528C	0.0	C		60.0	122.0		17.0	13.0	0.8	42.0	34.0	0.8	57.0	1320
CA0790B0442C	0.0	C		58.0	117.0		27.0	22.0	0.8	56.0	45.0	0.8	57.5	1312
CA0790B0732C	0.0	C		60.0	122.0		25.0	16.0	0.6	47.0	34.0	0.7	65.5	1310
CA0790B0807W	7.0	C		60.0	115.0		25.0	12.0	0.5	40.0	31.0	0.8	60.8	1305
CA0790B0024C	7.0	C		60.0	117.0		24.0	20.0	0.8	43.0	42.0	1.0	49.3	1304
CA0790B0377C	0.0	C		58.0	117.0		23.0	20.0	0.9	49.0	35.0	0.7	52.2	1284
CA0790B0699C	6.0	C		61.0	117.0		26.0	20.0	0.8	44.0	37.0	0.8	55.4	1282
CA0790B0389C	0.0	S		58.0	117.0		24.0	14.0	0.6	47.0	37.0	0.8	49.7	1268
CA0790B0224C	0.0	C		64.0	122.0		16.0	16.0	1.0	52.0	22.0	0.4	57.6	1262
CA0790B0652C	0.0	C		60.0	117.0		26.0	20.0	0.8	44.0	36.0	0.8	62.9	1242
CA0790B0035C	7.0	C		60.0	117.0		25.0	14.0	0.6	43.0	39.0	0.9	59.5	1234
CA0790B0640C	5.0	C		61.0	117.0		18.0	14.0	0.8	38.0	32.0	0.8	57.3	1221

Ascochyta Blight Scores: 1 = Highly Resistant, 3 = Resistant, 5 = Tolerant, 7 = Susceptible, 9 = Highly Susceptible

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Agronomic data are means of three replications at Pullman, WA. Planting Date 05/03/08 Harvest Date: 08/08/08

Agronomic and Yield Data for the Preliminary Large Kabuli Chickpea Screening Nursery (0885)

Name	Blight	Leaf Type	Seed Type	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..	Seed Yield kg/ha
CA0790B0083C	6.0	S		64.0	117.0		32.0	22.0	0.7	51.0	34.0	0.7	54.2	1195
CA0790B0312C	0.0	C		61.0	129.0		21.0	18.0	0.9	60.0	55.0	0.9	56.8	1195
CA0790B0307C	0.0	C		64.0	117.0		21.0	6.0	0.3	46.0	35.0	0.8	55.7	1193
CA0790B0034C	7.0	C		61.0	117.0		20.0	19.0	1.0	49.0	41.0	0.8	56.0	1187
CA0790B0009C	7.0	C		61.0	117.0		20.0	20.0	1.0	47.0	46.0	1.0	41.1	1184
CA0790B0505C	0.0	S		61.0	117.0		30.0	28.0	0.9	47.0	42.0	0.9	50.5	1175
CA0790B0364C	0.0	C		61.0	128.0		20.0	14.0	0.7	40.0	35.0	0.9	73.0	1172
CA0790B0614C	0.0	S		58.0	107.0		27.0	13.0	0.5	40.0	32.0	0.8	59.9	1163
CA0790B0809W	8.0	C		60.0	122.0		25.0	13.0	0.5	49.0	29.0	0.6	60.6	1162
CA0790B0300C	0.0	C		61.0	122.0		18.0	8.0	0.4	43.0	34.0	0.8	53.0	1156
CA0790B0633C	0.0	C		58.0	117.0		23.0	17.0	0.7	40.0	36.0	0.9	60.1	1153
CA0790B0345C	0.0	C		70.0	125.0		26.0	18.0	0.7	57.0	41.0	0.7	59.3	1143
CA0790B0382C	0.0	S		58.0	115.0		22.0	20.0	0.9	46.0	33.0	0.7	60.6	1143
CA0790B0385C	0.0	C		58.0	115.0		16.0	18.0	1.1	40.0	34.0	0.9	52.5	1142
CA0790B0002C	0.0	S		58.0	117.0		23.0	13.0	0.6	42.0	38.0	0.9	58.9	1134
CA0790B0102C	7.0	S		58.0	115.0		24.0	17.0	0.7	45.0	30.0	0.7	56.2	1132
CA0790B0608C	0.0	S		61.0	117.0		26.0	14.0	0.5	40.0	34.0	0.9	53.0	1128
CA0790B0620C	0.0	C		58.0	117.0		20.0	17.0	0.9	39.0	34.0	0.9	57.9	1127
CA0790B0062C	0.0	S		64.0	115.0		30.0	16.0	0.5	44.0	34.0	0.8	56.5	1122
CA0790B0150C	0.0	C		61.0	117.0		16.0	14.0	0.9	43.0	32.0	0.7	59.6	1119
CA0790B0689C	0.0	S		67.0	117.0		20.0	15.0	0.8	44.0	37.0	0.8	45.2	1112
CA0790B0434C	0.0	C		60.0	122.0		29.0	26.0	0.9	60.0	55.0	0.9	57.8	1095
CA0790B0052C	0.0	S		60.0	115.0		18.0	12.0	0.7	52.0	38.0	0.7	47.4	1092
CA0790B0343C	0.0	C		61.0	117.0		20.0	7.5	0.4	48.0	36.0	0.8	57.1	1085
CA0790B0149C	4.0	C		58.0	117.0		21.0	17.0	0.8	46.0	38.0	0.8	56.8	1083
CA0790B0639C	7.0	C		61.0	122.0		22.0	13.0	0.6	46.0	35.0	0.8	61.8	1069

Ascochyta Blight Scores: 1 = Highly Resistant, 3 = Resistant, 5 = Tolerant, 7 = Susceptible, 9 = Highly Susceptible

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Agronomic data are means of three replications at Pullman, WA. Planting Date 05/03/08 Harvest Date: 08/08/08

Agronomic and Yield Data for the Preliminary Large Kabuli Chickpea Screening Nursery (0885)

Name	Blight	Leaf Type	Seed Type	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..	Seed Yield kg/ha
CA0790B0353C	0.0	C		61.0	122.0		16.0	10.0	0.6	33.0	32.0	1.0	55.9	1069
CA0790B0613C	0.0	C		60.0	117.0		14.0	16.0	1.1	42.0	31.0	0.7	58.2	1059
CA0790B0215C	0.0	C		64.0	122.0		30.0	8.5	0.3	49.0	44.0	0.9	54.6	1026
CA0790B0302C	0.0	C		64.0	122.0		14.0	14.0	1.0	44.0	31.0	0.7	56.4	1022
CA0790B0815W	0.0	C		61.0	122.0		24.0	10.0	0.4	40.0	31.0	0.8	59.6	996.9
DWELLEY	0.0	S	C	64.0	122.0		28.0	16.0	0.6	41.0	37.0	0.9	55.0	996.1
CA0790B0655C	0.0	C		61.0	117.0		20.0	19.0	1.0	43.0	39.0	0.9	61.1	995.9
CA0790B0509C	0.0	S		64.0	122.0		30.0	28.0	0.9	46.0	44.0	1.0	51.7	979.5
CA0790B0667C	0.0	C		61.0	128.0		12.0	13.0	1.1	49.0	36.0	0.7	74.5	947.9
CA0790B0218C	0.0	C		64.0	122.0		26.0	23.0	0.9	52.0	44.0	0.9	58.2	940.2
CA0790B0773C	0.0	C		61.0	122.0		20.0	21.0	1.1	47.0	38.0	0.8	68.0	932.8
CA0790B0248C	0.0	C		61.0	122.0		25.0	19.0	0.8	52.0	36.0	0.7	72.7	929.3
CA0790B0687C	0.0	S		66.0	117.0		21.0	13.0	0.6	43.0	29.0	0.7	43.3	928.5
CA0790B0437C	0.0	C		58.0	117.0		25.0	22.0	0.9	45.0	45.0	1.0	58.6	928.0
CA0790B0038C	0.0	S		61.0	117.0		13.0	20.0	1.5	43.0	39.0	0.9	52.0	917.3
CA0790B0207C	0.0	C		64.0	122.0		29.0	13.0	0.5	58.0	42.0	0.7	55.7	916.9
CA0790B0512C	0.0	S		70.0	125.0		27.0	29.0	1.1	48.0	44.0	0.9	47.8	899.9
CA0790B0380C	0.0	C		58.0	115.0		16.0	19.0	1.2	42.0	33.0	0.8	53.2	896.4
CA0790B0563C	0.0	C		58.0	117.0		13.0	11.0	0.9	43.0	32.0	0.7	57.2	894.5
CA0790B0119C	0.0	S		64.0	122.0		22.0	13.0	0.6	39.0	36.0	0.9	57.3	888.8
CA0790B0560C	0.0	S		58.0	117.0		22.0	13.0	0.6	39.0	37.0	1.0	51.8	883.2
TROY	0.0	C	W	61.0	122.0		16.0	9.5	0.6	39.0	34.0	0.9	62.5	880.5
CA0790B0632C	0.0	C		61.0	117.0		22.0	9.5	0.4	40.0	31.0	0.8	57.2	859.8
CA0790B0444C	0.0	S		64.0	111.0		24.0	21.0	0.9	43.0	35.0	0.8	53.8	857.7
CA0790B0684C	7.0	C		66.0	128.0		20.0	17.0	0.9	44.0	27.0	0.6	46.8	857.5
CA0790B0165C	0.0	S		64.0	122.0		20.0	14.0	0.7	40.0	38.0	1.0	64.3	852.2

Ascochyta Blight Scores: 1 = Highly Resistant, 3 = Resistant, 5 = Tolerant, 7 = Susceptible, 9 = Highly Susceptible

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Agronomic data are means of three replications at Pullman, WA. Planting Date 05/03/08 Harvest Date: 08/08/08

Agronomic and Yield Data for the Preliminary Large Kabuli Chickpea Screening Nursery (0885)

Name	Blight	Leaf Type	Seed Type	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..	Seed Yield kg/ha
CA0790B0228C	0.0	C		64.0	122.0		20.0	12.0	0.6	46.0	30.0	0.7	53.8	840.4
CA0790B0368C	0.0	C		60.0	122.0		21.0	14.0	0.7	40.0	31.0	0.8	57.6	834.8
CA0790B0624C	0.0	S		61.0	117.0		15.0	12.0	0.8	42.0	29.0	0.7	62.2	773.4
CA0790B0309C	0.0	C		58.0	129.0		29.0	19.0	0.7	52.0	48.0	0.9	52.2	766.3
CA0790B0635C	0.0	C		61.0	122.0		23.0	16.0	0.7	38.0	31.0	0.8	62.3	758.1
CA0790B0575C	0.0	C		58.0	107.0		13.0	4.5	0.4	46.0	36.0	0.8	51.5	757.9
CA0790B0419C	0.0	C		58.0	122.0		18.0	7.5	0.4	43.0	30.0	0.7	55.6	747.9
CA0790B0394C	0.0	C		61.0	122.0		26.0	20.0	0.8	46.0	43.0	0.9	58.4	730.6
CA0790B0449C	0.0	S		64.0	115.0		33.0	15.0	0.5	52.0	49.0	0.9	57.1	700.0
CA0790B0493C	0.0	C		61.0	122.0		24.0	16.0	0.7	40.0	31.0	0.8	60.0	693.5
CA0790B0648C	0.0	C		61.0	122.0		19.0	12.0	0.6	47.0	33.0	0.7	74.3	682.2
CA0790B0483C	0.0	C		61.0	125.0		19.0	14.0	0.7	48.0	33.0	0.7	60.7	676.0
CA0790B0297C	0.0	C		61.0	117.0		13.0	11.0	0.9	42.0	32.0	0.8	56.5	665.4
CA0790B0494C	0.0	C		64.0	122.0		21.0	10.0	0.5	59.0	30.0	0.5	59.6	657.6
CA0790B0610C	0.0	S		61.0	117.0		15.0	12.0	0.8	42.0	36.0	0.9	59.5	643.5
CA0790B0479C	0.0	S		64.0	115.0		29.0	17.0	0.6	49.0	43.0	0.9	53.1	634.8
CA0790B0607C	0.0	C		60.0	122.0		13.0	11.0	0.9	45.0	36.0	0.8	56.8	624.9
CA0790B0570C	0.0	C		61.0	117.0		18.0	13.0	0.7	42.0	31.0	0.7	50.2	623.4
CA0790B0457C	0.0	S		58.0	117.0		22.0	14.0	0.6	44.0	29.0	0.7	60.4	621.4
CA0790B0513C	0.0	C		70.0	129.0		24.0	15.0	0.6	50.0	39.0	0.8	60.9	610.0
CA0790B0499C	0.0	C		58.0	117.0		18.0	10.0	0.6	35.0	30.0	0.9	59.1	601.7
CA0790B0814W	0.0	C		61.0	122.0		19.0	9.5	0.5	36.0	40.0	1.1	62.0	601.5
CA0790B0582C	0.0	C		61.0	117.0		9.5	8.0	0.8	37.0	34.0	0.9	50.3	582.1
CA0790B0425C	0.0	C		61.0	122.0		16.0	12.0	0.8	39.0	31.0	0.8	63.2	577.8
CA0790B0014C	0.0	C		61.0	122.0		20.0	14.0	0.7	48.0	37.0	0.8	70.6	544.3
CA0790B0003C	0.0	S		60.0	117.0		19.0	16.0	0.8	38.0	34.0	0.9	60.4	537.2

Ascochyta Blight Scores: 1 = Highly Resistant, 3 = Resistant, 5 = Tolerant, 7 = Susceptible, 9 = Highly Susceptible

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Agronomic data are means of three replications at Pullman, WA. Planting Date 05/03/08 Harvest Date: 08/08/08

Agronomic and Yield Data for the Preliminary Large Kabuli Chickpea Screening Nursery (0885)

Name	Blight	Leaf Type	Seed Type	Days to Flower	Days to Maturity	Pods/ Peduncle	Pod Height ..cm..	Pod Ht Maturity ..cm..	Pod Ht Index	Vine Length ..cm..	Canopy Height ..cm..	Plant Ht Index	100 Seed Weight ..g..	Seed Yield kg/ha
CA0790B0030C	4.0	C		64.0	122.0		19.0	14.0	0.7	41.0	35.0	0.9	68.6	503.1
CA0790B0278C	0.0	C		64.0	128.0		19.0	17.0	0.9	49.0	37.0	0.8	86.9	466.3
CA0790B0358C	0.0	C		70.0	129.0		25.0	21.0	0.8	49.0	34.0	0.7	62.4	456.4
CA0790B0118C	0.0	S		64.0	129.0		24.0	22.0	0.9	43.0	36.0	0.8	61.5	424.9
CA0790B0574C	0.0	C		61.0	117.0		12.0	8.0	0.7	48.0	35.0	0.7	50.6	417.5
CA0790B0432C	0.0	C		67.0	122.0		21.0	17.0	0.8	46.0	40.0	0.9	60.9	402.4
CA0790B0559C	0.0	C		58.0	128.0		17.0	8.5	0.5	43.0	34.0	0.8	62.4	400.3
CA0790B0134C	0.0	S		67.0	122.0		19.0	16.0	0.8	44.0	36.0	0.8	62.8	362.7
CA0790B0677C	0.0	C		67.0	129.0		32.0	18.0	0.6	50.0	37.0	0.7	0.0	0.0
CA0790B0678C	0.0	C		67.0	129.0		26.0	20.0	0.8	48.0	39.0	0.8	0.0	0.0
GRAND MEAN	6.3			61.0	118.8		22.3	16.0	0.7	45.2	36.5	0.8	57.8	1119
CV	21.3			4.8	4.1		22.4	30.1	27.1	11.4	15.8	13.3	10.8	35.9
LSD	0.0			0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Ascochyta Blight Scores: 1 = Highly Resistant, 3 = Resistant, 5 = Tolerant, 7 = Susceptible, 9 = Highly Susceptible

Pod height was measured at the green pod stage and at harvest maturity. Pod height index was determined by dividing pod height at harvest maturity by the green pod height.

Plant height was measured at the green pod stage and at harvest maturity. Plant height index was determined by dividing pod height at harvest maturity by the green pod height.

Agronomic data are means of three replications at Pullman, WA. Planting Date 05/03/08 Harvest Date: 08/08/08