Canola Seeding Date Effect on Yield and other Agronomic Traits-Langdon 2010-2012

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Canola seeding date trials were established in 2010, 2011 and 2012 at the Langdon Research Extension Center. Two hybrid cultivars were used; Liberty Link InVigor 8440 and Roundup Ready DKL 30-42. The trial was conducted using best management practices for canola including seeding rate, fertility, weed control, fungicide and harvest management.

The trial in 2010 had poor emergence at the first 3 seeding dates. We received 2.04 inches of rain between the April 29 and May 10 seeding date. Rainfall between seeding dates of May 10 and May 21 was 0.81 inches . Rainfall between seeding dates of May 21 and June 1 was 2.80 inches. Planting depth was between 3/4 and 1 inch but was often deeper with soil washing after rains. Soil crusting was also a factor. Rainfall and temperatures were above normal for the growing season. Yields were very good despite the early poor stands which demonstrates canola's abilty to compensate for poor stands. Seeding date effects on yield were non-significant in 2010. Percent oil decreased with with later seeding dates.

Soil conditions were very saturated from fall rains and winter snow in the 2011 trial. The first seeding date of May 9 was much earlier than any canola that was seeded in the area. Stands were very good with no soil crusting after each date. July and August were both 2.5 degrees above normal for temperatures. There was only one day with temperatures over 90 degrees. The increase in average daily temperatures came from warmer nights. Moisture was near normal in June and July and 1.8 inches below normal in August. There was no apparent moisture stress in the trial. The May 19, June 9 and June 16 seeding date in 2011 had significantly higher yields than the May 9 seeding date. Percent oil tended to decrease with later seeding dates. Canola performed very well at the later seeding dates under the environmental conditions observed in 2010 and 2011.

Rainfall was above normal in June and July but nearly an inch lower in August in 2012. Above normal temperatures in all months were observed. July was 4.6^{o} F above normal. There were numerous days in the 80's and only one day over 90^{o}F was observed. A deficit in soil moisture along with the above normal temperatures likely resulted in lower yields at the later dates. The June 1 and 12 seeding date yields were significantly lower than the April 27, May 9 and May 21 seeding date. Days to first flower, end flower and maturity generally decreased with each later seeding date in all years. There was no signifcant differences in yield between varieties in 2011 and 2012. In 2011, InVigor 8440 yielded significantly higher than DKL 30-42. Environmental conditions have a big impact on seeding date effects on yield. Yield differences across seeding dates in 2010 were non-significant. The highest canola yields in 2011 occurred on the June 9 and 16th seeding date. In contrast, the highest yield occurred on the April 27 seeding date and lowest yields on the June 1 and 12th seeding date in 2012. Although optimum seeding dates will varying from year to year, the best management practice is to seeding when soil conditions and temperature allow for rapid germination.

Canola Seeding Date Trial - 2010

Seeding date effect on canola yield and other agonomic traits averaged over cultivars.

Seeding Date	Yield lbs/a	Stand Rating 0-100	1st Flower DAP[1]	End Flower DAP	Flower Duration Days	Maturity DAP	HT in	Lodging 0-9	Oil %	1000 KWT g
29-Apr	2968	53	52.3	72.1	19.9	97.8	40.8	2.5	45.0	3.51
10-May	3108	38	44.5	68.1	23.6	94.0	42.4	1.0	43.5	3.52
21-May	3560	26	43.5	64.8	21.3	94.0	42.4	1.8	43.5	3.50
1-Jun	3080	93	38.6	58.9	20.3	86.9	42.1	1.9	43.2	3.19
9-Jun	3161	86	38.5	61.9	23.4	87.3	43.9	4.3	41.0	3.31
LSD 5%	NS	21.8	0.5	1.0	0.9	0.8	NS	1.2	1.4	0.19
C.V. %	11.6	33.9	1.1	1.4	3.7	0.8	5.5	49.1	3.0	5.1

Comparison of canola cultivars averaged over planting dates

Variety	YIELD	ST	1STF	END	FD	DM	HT	LGD	OIL	KWT
InVigor 8440	3350	63.5	44.2	65.3	21.2	92.6	43.9	2.2	42.2	3.26
DKL 30-42	3001	54.5	42.8	65.0	22.2	91.4	40.7	2.4	44.2	3.55
LSD 5%	142	8.0	0.4	NS	0.6	0.3	1.0	NS	0.8	0.07
C.V. %	6.6	20.1	1.5	1.1	4.2	0.5	3.4	34.2	2.8	3.2

[1]DAP=Days after planting.

Canola Seeding Date Trial - 2011

Seeding date effect on yield and other agonomic traits averaged over cultivars.

Planting Date	Yield lbs/a	Stand Rating 0-100	1st Flower DAP[1]	End Flower DAP	Flower Duration Days	Maturity DAP	HT in	Lodging 0-9	Oil %	1000 KWT g
9-May	2840	100	51.3	65.6	14.4	93.5	28.0	0.0	47.2	3.16
19-May	3240	99	44.1	60.1	16.0	89.8	30.6	0.1	48.1	3.34
3-Jun	2951	98	36.9	55.4	18.5	81.9	33.5	0.8	47.5	3.44
9-Jun	3301	99	35.9	49.5	13.6	84.0	36.6	3.4	45.4	3.22
16-Jun	3430	99	32.8	49.3	16.5	84.0	39.5	1.4	46.3	3.26
LSD 5%	306	NS	0.7	0.8	0.9	1.2	0.4	0.8	0.6	NS
C.V. %	8.9	1.2	1.6	1.3	4.8	1.3	1.0	63.3	1.2	5.2

Comparison of canola cultivars averaged over planting dates

Variety	YIELD	ST	1STF	END	FD	DM	HT	LGD	OIL	KWT
InVigor 8440	3183	99	40.9	56.7	15.8	87.6	34.0	0.9	45.6	3.16
DKL 30-42	3121	99	39.5	55.3	15.8	85.7	33.2	1.4	48.2	3.40
LSD 5%	NS	NS	NS	0.5	NA	1.3	0.3	NA	1.4	0.16
C.V. %	8.9	1.7	1.5	0.6	4.2	1.0	0.6	84.3	2.0	3.2

[1]DAP=Days after planting.

Canola Seeding Date Trial - 2012

Seeding date effect on yield and other agonomic traits averaged over cultivars.

Planting Date	Yield lbs/a	Stand Rating 0-100	1st Flower DAP[1]	End Flower DAP	Flower Duration Days	Maturity DAP	HT in	Lodging 0-9	Oil %	1000 KWT g
27-Apr	2214	100	55.3	70.6	15.4	95.9	38.8	1.5	48.3	2.72
9-May	1929	98	49.5	63.5	14.0	87.6	37.5	0.0	48.1	2.94
21-May	2068	100	42.4	59.3	16.9	80.9	35.0	0.3	47.1	2.86
1-Jun	1259	74	39.6	54.8	15.5	75.9	38.4	0.0	47.5	2.66
12-Jun	1361	94	35.6	48.9	13.3	74.4	35.0	0.1	47.3	2.76
LSD 5%	206	7.8	0.6	1.1	1.3	1.1	0.8	1.0	0.9	0.14
C.V. %	10.6	7.5	1.3	1.8	7.6	1.2	1.9	226	1.6	4.6

Comparison of canola cultivars averaged over planting dates

Variety	YIELD	ST	1STF	END	FD	DM	HT	LGD	OIL	KWT
InVigor 8440	1782	93	45.6	60.5	15.0	84.1	38.2	0.3	46.3	2.65
DKL 30-42	1836	94	43.3	58.3	15.1	81.8	35.7	0.5	49.1	2.93
LSD 5%	65.8	NA	0.3	0.2	NA	0.3	1.3	NA	0.6	0.07
C.V. %	7.1	4.4	0.9	0.4	3.1	0.6	5.2	108	1.8	3.8

[1]DAP=Days after planting.