Project Title: 2021 Canola Planting Date Study

Objective: To identify the optimum planting dates and varieties of winter canola to ensure winter survival and high yield potential in northwestern Montana

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Summary:

Six varieties of winter canola were planted at three planting dates: August 15th, September 1st, and September 15th of 2020. They were managed using irrigation and all were harvested on August 11th of 2021 (Table 1).

Yield was affected by planting date and canola variety. Canola planted on August 15 and Sep 1 yielded 105 bu/A and 103 bu/A, respectively, outyielding canola planted September 15. Average yield decreased as planting was delayed beyond August 15 with the highest average yield at 105 bu/A for August 15 to the lowest average at 96 bu/A for September 15 (Table 2, Figure 2). Within the August 15 planting date the varieties CP1022WC, P_Quartz, and R_Mercedes were the highest yielding. Within the September 1 planting date P_Quartz, R_Mercedes, and R_PluraxCL were the highest yielding varieties (Table 2).

Canola survival rate during the overwinter period was affected by planting date. Canola planted on August 15 and September 1 suffered stand reduction near 20% (Table 4). Canola planted on September 15 resulted in significantly poorer survival and 41.6% stand reduction was observed during the overwintering period.

Oil content is generally high for all varieties planted in the study, with oil content values ranging from 47.4% up to 51%. Oil content was affected by variety with R_Mercedes having the highest oil content at 51.2% (Table 3).

Based on our first season results, planting dates between August 15th to September 1st would be optimum to establish winter canola in northwestern Montana. Repeated years of research on this study will strengthen results.

Table 1. Management information

Seeding date:	8/15/2020	**Field Location:**	R3
Julian date:	272	**Harvest date:**	8/12/2021
Seeding rate:	18.4 plants/ft^2	**Julian date:**	224
Previous crop:	Spring Wheat	**Soil type:**	Fine Sandy Loam
Herbicide:	None	**Tillage:**	Conventional
Insecticide:	Lambda-CY 6/11/21	**Soil residual nutrient (NO3-1, P, K lb/A):**	48-12-186
Fungicide:	None	**Nutrient fertilizer applied (N, P2O5, K20 lb/A):**	Applied Spring 2021 186-40-35-20S

Table 2. Agronomic performance of the winter canola varieties based on planting date

Planting Date	Average Yield (bu/A)	Variety	Survival %	Yield (bu/A)
15-Aug	105.2	CP1022WC	**90.3**	**105.7**
		CP225RR	**94.5**	92.1
		CP320RR	**91.8**	92.8
		P_Quartz	**90.5**	**114.2**
		R_Mercedes	**95.0**	**119.3**
		R_PluraxCL	86.3	107.1
1-Sep	103.1	CP1022WC	**92.5**	103.7
		CP225RR	**95.0**	91.8
		CP320RR	**93.3**	94.1
		P_Quartz	**93.5**	**110.2**
		R_Mercedes	**95.5**	**109.6**
		R_PluraxCL	85.5	**109.4**
15-Sep	96.3	CP1022WC	70.0	83.5
		CP225RR	70.0	89.3
		CP320RR	73.3	88.9
		P_Quartz	71.3	99.8
		R_Mercedes	85.5	108.7
		R_PluraxCL	83.8	107.6
CV	8.9		86.5	7.2
LSD	6.4		5.6	10.4
Mean	101.5		6.8	101.5
PR>F	0.03312		<.0001	<.0001

Bolding denotes equal value to highest or earliest value within a column based on LSD(0.05)

Table 3. Oil content by variety

Variety	Oil %
R_Mercedes	**51.2**
R_PluraxCL	50.5
P_Quartz	50.4
CP1022WC	48.3
CP225RR	47.9
CP320RR	47.4
Mean	49.3
CV	1.4
LSD	0.6
PR>F	<0.001

Bolding denotes equal value to highest or earliest value within a column based on LSD(0.05)

Table 4. Stand reduction by planting date

Planting Date	Stand Reduction %
15-Aug	23.2
1-Sep	17.9
15-Sep	**41.6**
CV	61.4
LSD	12
Mean	27.6
PR>F	.007

Bolding denotes equal value to highest or earliest value within a column based on LSD(0.05)

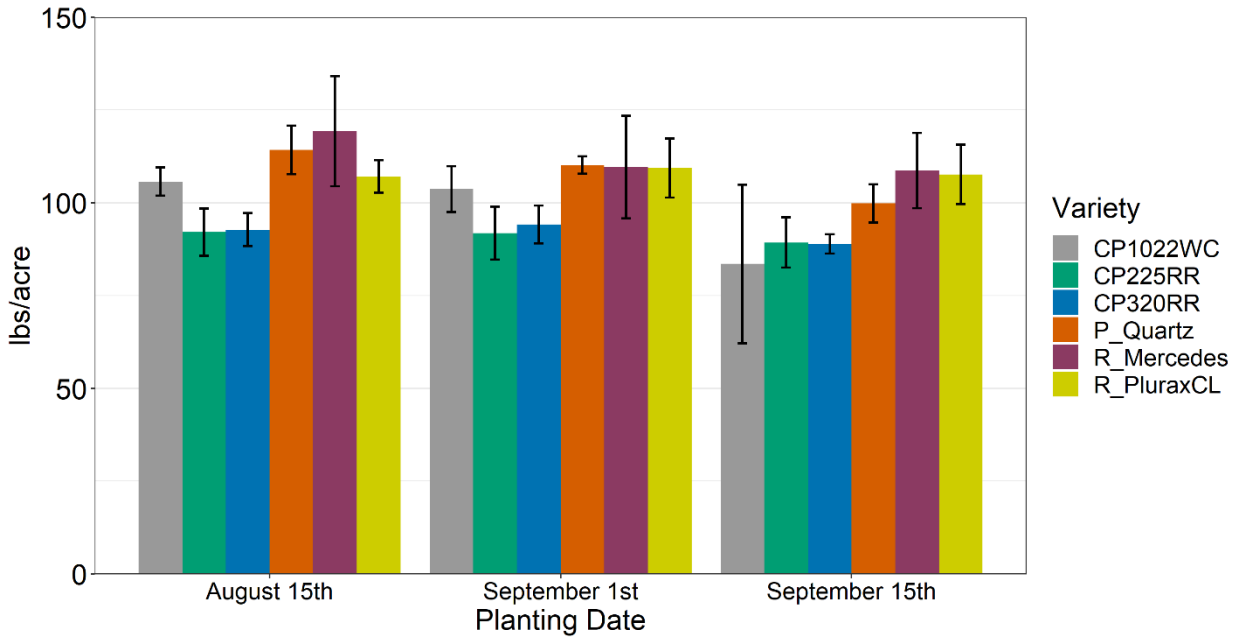

Figure *1* Winter canola yield by planting date

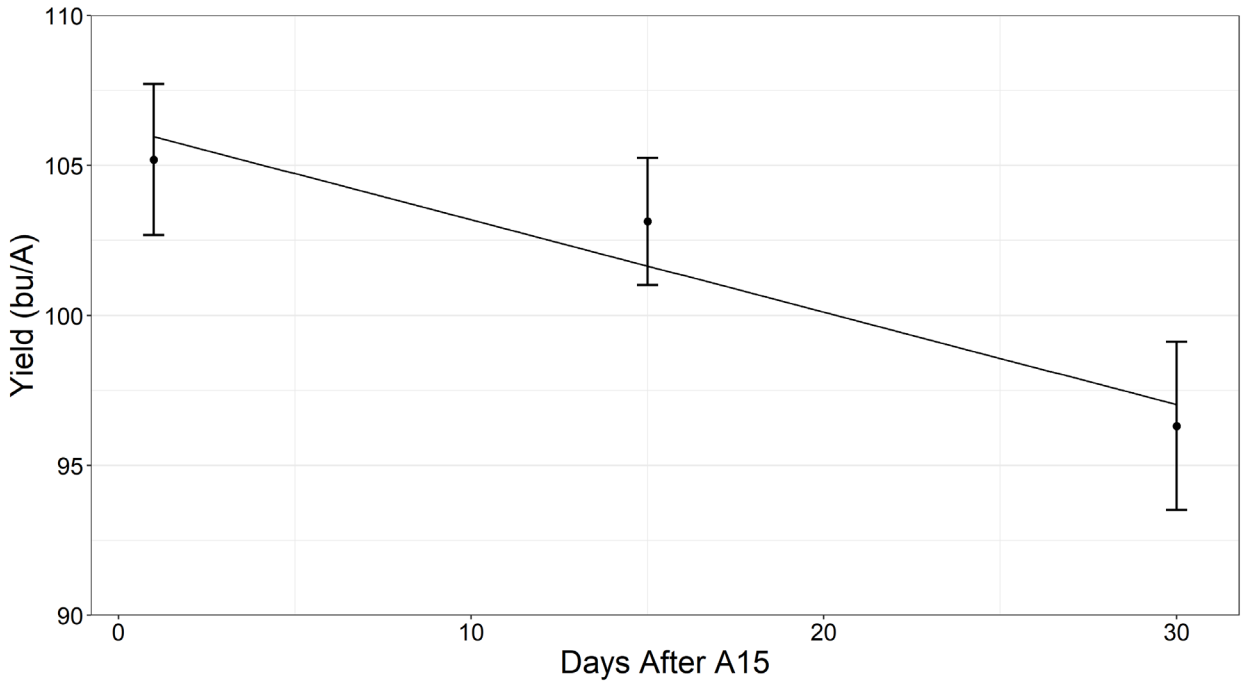

Figure 2 Regression of yield for 30 days after August 15th planting date