# Seed and Oil yield of Canola in Richmond BC

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## INTRODUCTION

- Canola (low erucic acid varieties of Brassica napus, B.rapa or B.juncea)
- Bright yellow flowering Brassica
- Bred from rapeseed to have low erucic acid content (<2%)
- Cultivated for its oil-rich seed and protein meal
- World's third-largest source of vegetable oil
- World's second largest source of protein meal

## OBJECTIVES

- Distinguish between different planting dates of canola
- Influence of dates on canola seed and oil yield.
- Used a Randomized Complete Block Design to eliminate variability
- for environmental conditions
- Can we produce canola in Richmond BC?

## METHODS

Study site: KPU Farm on the Garden City lands, Richmond, BC
Certified organic (BC Assoc. Regen. Ag.), as of April, 2021

**Randomized Complete Block Design**

Three planting dates

| | |
|---|---|
| Early | 20 April, 2021 |
| Mid | 4 May, 2021 |
| Late | 18 May, 2021 |

**Four replicate blocks**

12 plots, measuring
3 x 3 m (9 m2)

**Plot preparation**

Cover crop incorporation with roto-tiller in late March

Clean cultivation immediately before seeding/transplant

Blocks arranged in a straight line (north-south)

**Planting**

Direct-seed canola with Jang Seeder at 100 seeds/plot
(Provided by Stonehenge Organics, SK

**Irrigation**

Five lines of drip tape running through full length of study site

Monitor soil volumetric water content and irrigate as needed

## METHODS

**Weed management**

Weekly until canopy closure

Manual Chaff Extraction

**Harvest**

Collect above-ground canola biomass with scythe

Oil Extractor


**Processing**

Rough chaff removed by hand threshing in tarpaulin envelope

Remaining chaff removed with chaff extraction unit

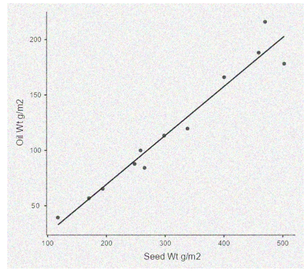
Seed weighed

Oil pressed from seed with kitchen-scale auto expeller extractor

Oil weighed

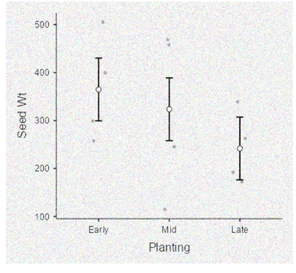
## RESULTS

Graph 1.



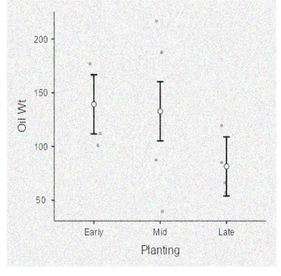

**Relationship between seed and oil yield for canola grown in Richmond, BC (*n* = 12)**

Graph 2.




**Canola seed yield by planting time in Richmond, BC. Error bars denote standard error of mean (*n* = 4).**

Graph 3.




**Canola seed yield by planting time in Richmond, BC. Error bars denote standard error of mean (*n* = 4).**

## RESULTS

**Insufficient evidence to reject null hypothesis of no planting time effect**

**ANOVA - Seed Wt.**

| | Sum of Squares | df | Mean Square | F | p |
|---|---|---|---|---|---|
| Overall model | 69806 | 5 | 13961 | 0.815 | 0.580 |
| Planting | 31358 | 2 | 15679 | 0.915 | 0.450 |
| Block | 38448 | 3 | 12816 | 0.748 | 0.562 |
| Residuals | 102758 | 6 | 17126 | | |

**ANOVA - Oil Wt.**

| | Sum of Squares | df | Mean Square | F | P |
|---|---|---|---|---|---|
| Block | 9356 | 3 | 3119 | 1.03 | 0.444 |
| Planting | 8026 | 2 | 4013 | 1.32 | 0.334 |
| Residuals | 18172 | 6 | 3029 | | |

## DISSCUSSION

- No significant effect of planting time on canola seed or oil yield
- Flexible planting times in Richmond climate
- High yields in all treatments: Study average = 310 g/m2 = 3.1 t/ha
- Compare to Canadian average canola yield of 1.4 t/ha in 2021 (Canola Council of Canada, 2022)
- Small-scale canola production in Richmond yielded more than twice the Canadian average
- Excellent summer canola yield in Richmond over an extended range of planting times

## ACKNOWLEDGEMENTS

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