

# Planting Date and Variety Effect on Winter Camelina Production

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## Introduction

Camelina is an oilseed crop that has had limited success in the U.S. over the last two decades (Sindelar et al., 2015). With continued interest in renewable energy and healthy oils there have been new efforts to incorporate camelina into crop rotations. Camelina oil can be used to produce fuel (Moser, 2010), healthy edible oils, and supplemental livestock feed. Winter camelina is seeded in September and harvested around mid-June, is relatively drought tolerant, and is a winter annual that has potential to fit into dryland or irrigated rotations in Wyoming.

## Objectives

The objectives were to determine if planting date and planting method affect the plant stand and seed yield of winter camelina.

## Materials and Methods

We evaluated the performance of two winter camelina varieties, 'Bison' and 'Joelle', across four planting dates (September 7 and 19, and October 5 and 18, 2016) using two different seeding methods (disc drill and shoe drill). The trial was conducted under irrigation, but only received a one-time irrigation of 0.3 inches on September 14, 2016. Natural rainfall accumulation was 1.9 inches and 9.8 inches in the 2016 to 2017 phase of the trial, respectively. We used a randomized complete block design with three replications. Plots were 5 feet wide by 20 feet long. The disc drill seeded 7 rows on 7.5-inch spacing, and the shoe drill seeded 4 rows on 12-inch spacing. Seed was planted at 7 lb/ac at a depth of 1/2 to 1 inch. Stand counts were taken in the fall (November 12, 2016) and at harvest (June 29, 2017) in the same 3.3-foot row for each plot. The crop was harvested by hand cutting two 3.3-foot rows from each plot, and samples were threshed using a HALDRUP thresher with a 6-millimeter (~0.04-inch) screen.

## Results and Discussion

Crop stands were highly variable (Fig. 1) across all varieties, planting dates, and seeding methods. Fall crop stands, harvest crop stands, and seed yield are reported in Table 1. Seed planted on October 18 had almost no fall

germination, but those seeds germinated in the spring and still produced high seed yields. Seed yield was most consistent for Bison and Joelle when seeded with the disc drill on September 19 and later dates (Table 1). Both Bison and Joelle had treatments with seed yields of more than 1,000 lb/ac. At these yields winter camelina has the potential to be a competitive crop in Wyoming (Eberle et al., 2015). It is clear that planting date and seeding method impacted winter camelina yield. Preliminary results indicate that winter camelina may be the most productive when disc drilled later in the season and allowed to germinate during winter and spring. More work is needed to determine optimum seeding practices to ensure a consistent crop yield. Economic markets will also need to be created to make this crop a viable option for producers. Dryland trials are underway to better understand the feasibility of winter camelina in Wyoming.

## Acknowledgments

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**Table 1.** Stand counts (plants per 3.3 feet) and seed yield (lb/ac) for winter camelina varieties ‘Bison’ and ‘Joelle’ planted in early fall 2016. Fall stand counts were taken on November 12, 2016, in one 3.3-foot row of each plot. Harvest stand counts were taken June 29, 2017, in the same row as fall stand counts. Yield is based on two 3.3-foot row hand samples.

Planting Date	Bison			Joelle		
	Fall Stand	Harvest Stand	Seed Yield (lb/ac)	Fall Stand	Harvest Stand	Seed Yield (lb/ac)
<b>Disc Drill</b>						
9/7/2016	2.0	1.3	390 ± 676	0.0	0.0	0
9/19/2016	18.0	22.3	1,651 ± 862	12.3	7.7	1,076 ± 538
10/5/2016	29.7	16.7	1,113 ± 450	0.0	0.3	500 ± 440
10/18/2016	1.7	13.3	1,201 ± 406	0.0	22.7	1,201 ± 170
<b>Shoe Drill</b>						
9/7/2016	26.3	16.3	1,038 ± 726	11.0	14.0	1,332 ± 1166
9/19/2016	0.7	1.0	0	0.0	0.0	0
10/5/2016	0.0	0.0	0	0.0	0.7	0
10/18/2016	1.0	35.7	602 ± 58	0.0	26.3	663 ± 312



**Figure 1.** Stand variation of winter camelina in spring 2017.