

Evaluating nitrogen rate effect on the Camelina variety Cheyenne observed at four dates of planting

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Objective

To determine an optimum nitrogen rate at various dates of planting for spring planted camelina variety Cheyenne.

Background

Crop Year:	2009	Tillage:	plowed & leveled fall 2008
Location:	OARDC, NW Branch	Soil Test	pH 6.0, P 87lbs/A, K 415lbs/A
County/Town:	Wood/Custer	Planting Date:	March 29, April 13, April 27, May 19
Soil Type:	Hoytville clay loam	Nitrogen:	urea: 0, 30, 60, 90 lbs/A
Drainage:	systematic subsurface	Seeding Rate:	5 lbs/A
Previous Crop:	soybeans	Harvest Date:	July 8, July 16, July 27, Aug 5
Crop use:	oilseed crop and protein meal		

Methods

Plots were grouped according to date of planting and randomized within those blocks according to nitrogen rate. Within each planting date, four nitrogen rate treatments were applied.

Date of Planting Blocks – March 29, April 13, April 27, May 19
Treatments: Nitrogen Rates – 0, 30, 60, 90 lbs/acre

Camelina was spring seeded into plots that were plowed and leveled the fall of 2008. Planting was done with a Hege Manufacturing research planter seeding 7 rows, 7 inches apart. Prior to DOP May 19, a burn down herbicide of glyphosate (32 oz/a) was applied to control emerged weeds. Nitrogen was applied based on crop development and timed at or just prior to stem elongation. Nitrogen source was urea (46-0-0) and applied using a Gandy brand drop spreader. Crop was harvested based on maturity using a Massey Ferguson 8XP research harvester. As a result of high percentage of foreign material, all samples were cleaned an additional time on gravity table seed cleaner.

Results

Prior to harvest of the DOP May 19 a small amount of hail occurred and it knocked a observable but unknown amount of yield out of the tops of the plants. The estimated yield loss is not included in reported yield. The date of harvest for DOP March 29, April 13, April 27 and May 19 were July 8, July 16, July 27 and Aug 5, respectively. Days to harvest for DOP March 29, April 13, April 27, and May 19 were 101, 94, 91, 78 days, respectively.

Camelina Variety: Cheyenne

Nitrogen Response on Camelina Yield Planting Date: March 29	
N Rate (lbs/a)	Yield (lbs/A)
0	917.2 a
30	1198.2 b
60	1183.8 b
90	1292.7 b
LSD (0.05)	247.8
CV%	13.5

Nitrogen Response on Camelina Yield Planting Date: April 27	
N Rate (lbs/a)	Yield (lbs/A)
0	1030.3
30	1245.2
60	1088.8
90	1192.8
LSD (0.05)	NS

Nitrogen Response on Camelina Yield Planting Date: April 13	
N Rate (lbs/a)	Yield (lbs/A)
0	663.8
30	997.8
60	962.9
90	976.2
LSD (0.05)	NS

Nitrogen Response on Camelina Yield Planting Date: May 19	
N Rate (lbs/a)	Yield (lbs/A)
0	652.0
30	767.2
60	761.3
90	721.5
LSD (0.05)	NS

Summary

Camelina, at this site, did not respond to nitrogen except at the earliest planting date and even then the lowest N rate was adequate. This study found the DOP blocks of March 29 had a statistically significant yield response with the nitrogen rates of 30, 60 and 90 lbs of nitrogen per acre compared to the zero (0) nitrogen rate. The DOP blocks of April 13, April 27 and May 19 had no statistically significant yield response to nitrogen rates compared to the zero (0) rate. Additional work is needed to repeat the treatments of DOP, address the pod shatter prior to harvest, repeat the nitrogen rates, weed control options, and additional varieties. Camelina commodity markets are not established in Ohio. Camelina is a potentially new bio-energy crop that contains oil and protein meal.

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