

Potato Facts



Spring Canola

An Oilseed Crop for Potato Growers

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Introduction

Canola is a potential new cash crop for potato growers in Maine. It is a small-seeded, broadleaf crop and is a member of the mustard family. Its primary use is for the production of cooking oil. The seed is about 40 percent oil, which is valued for being low in saturated fats. The meal from the crushed seed is about 35 to 39 percent protein and is used as a protein supplement in livestock rations.

Planting Date and Conditions

Plant when the soil temperature reaches 50 degrees F for rapid germination. Planting into cold soil slows emergence and increases the probability of weeds and diseases becoming problems. If planting into cold soil, use an appropriate fungicide seed treatment and an increased seeding rate (six to eight lb per acre) to help achieve adequate stands. Hardened seedlings are reported to withstand frost down to 24 degrees F. Canola seedlings that have not been exposed to cool temperatures are more susceptible to frost; however, exposure to cool temperatures increases

resistance to frost damage. Late planting tends to decrease yield.

Seeding Pattern and Rate

A firm seedbed is important for even emergence. Seed with a grain drill, at a rate of five to eight lb per acre. A five-lb seed rate is quite adequate under good conditions. Consider using a higher rate (six to eight lb) when sowing into cold soil or a poorly prepared seed bed. Avoid broadcast seeding and incorporating seed with a harrow, as this often results in poor stands and uneven maturity.

Seedbed Preparation and Seeding Depth

Prepare the seedbed to allow shallow, uniform depth of seed placement. Ideally, the seedbed should



be firm enough that footprints are not deeper than the sole of a boot. Seed one-half to one inch deep. With early planting and adequate moisture, the shallower end of this range (about one-half inch deep) appears to work well. Shallow seed placement may be particularly helpful where the soil is prone to crusting. Do not seed more than one inch deep. Deep seeding slows emergence, increases the risk of disease incidence, and gives weeds more opportunity to compete with the crop.

Soil pH

Canola tolerates low pH better than barley or wheat. Expect yield to drop sharply at pH values less than 5.5, and to show a weak response to lime between 5.5 and 6.0. Initial research suggests that canola grown at a pH of 5.0 will yield about one-third less than canola grown at a pH of 5.5.

Soil Fertility

A 2000 lb canola crop will take up approximately 120:60:100 lb per acre of N:P2O5:K2O. Present suggestions for N:P2O5:K2O fertilizer following potatoes are 70:0:0 lb per acre respectively. Consider the previous crop and soil test to determine fertilizer requirements. Canola is usually responsive to nitrogen. Canola needs more sulfur and boron than small grains do. Preliminary recommendations are to apply one lb of B per acre.

Weed Control

Some growers in Maine have successfully grown canola without using herbicides, while others have had severe weed problems. Rapid emergence helps suppress weeds. Another factor to consider is how clean the field is to start with. Trifluralin (e.g. Treflan®), sethoxydim (Poast®),

quizalofop (Assure II®), and clethodim (Select®) are currently (as of March, 2003) registered for use on canola. Trifluralin is reported to provide partial to good control of lambsquarter and pigweed, along with several annual grasses. It is applied before planting and should be incorporated according to label directions. Sethoxydim, quizalofop, and clethodim are post-emergence grass herbicides. Using an oil adjuvant with the grass herbicides will improve control.

Insects

Flea beetles, aphids and cutworms are potential problems in canola, as are tarnished plant bugs. The crucifer flea beetle and the striped flea beetle that attack canola do not attack potato. Both flea beetles and cutworms may devastate young stands of canola. The economic threshold for flea beetles is at 25 percent loss of leaf area. The economic threshold for cutworms is three cutworms per square yard. Flea beetles have not been a common problem for commercial canola production in Maine. There have been a few occasions in which cutworms have caused severe problems in some fields.

Rotation and Disease Issues

You should not plant canola more than once every four years in a given field. It is susceptible to white mold (*Sclerotinia sclerotiorum*), which can cause yield losses. White mold can also be a problem in potatoes. Canola is susceptible to clubroot, (*Plasmodiophora brassicae*) which is also a problem for broccoli.

A fungal disease called "blackleg" is a potential problem in canola. Blackleg in canola is caused by *Phoma lingam*, which is different from the

pathogen that causes blackleg in potato (*Erwinia carotovora*). Less often reported diseases are downy mildew, aster yellows, *Alternaria* blackspot, and white rust.

Canola is susceptible to herbicide carryover with some herbicides (e.g. metribuzin). The more well-limed the soil (higher pH), and the higher the herbicide rate used, the more likely a carryover problem with metribuzin.

Varieties

There are two major classes of canola varieties: Argentine (*Brassica napus*) and Polish (*Brassica rapa*). Currently, only varieties belonging to the Argentine (*Brassica napus*) class of canola are being grown in Maine. The Polish varieties mature earlier, but have a lower yield potential, and are more susceptible to blackleg.

Swathing & Harvest

Seed shattering can be a very severe problem with canola. Seed matures from the base of the stem sequentially up to the top of the main stem. By the time the seed at the upper part of the plant is mature, the pods at the bottom of the plant will likely have shattered. Swathing can reduce shattering losses because it causes the seed to mature more uniformly.

The best time to swath is when the seed is 30 to 35 percent moisture. Another way to determine swathing time is by changes in seed color. Change in seed color is a sign of physiological maturity. Swath when 30 to 40 percent of the seeds on the main stem have begun to change color. Swathing later than this results in increased losses to shattering, and swathing earlier than this results in decreased seed size and more immature seed.

Growers with a small acreage of canola will want to wait for optimum conditions to swath. Growers with larger acreages of canola will want to start swathing before the optimum time—for example, at 20 percent color change rather than 30 percent—so that they can get their whole crop swathed before the better part of it shatters. The unripe seed will continue to mature in the swath.

In most regions, growers often combine at 10 to 11 percent moisture. However, depending on drying and storage costs, it may be wise to combine at slightly greater moisture than this to decrease shatter loss. Seed moisture should not exceed eight percent for long-term storage. Currently, most of the growers who are experimenting with canola in Maine are direct combining. This is done to spare the expense of a swather and because of concern over how well the windrow would dry down if there were a prolonged rainy period.

Yields

Initial yields in northern Maine have typically been on the order of 1,500 to 2,000 lb per acre. Yields should increase as growers gain familiarity with the crop and its management.

Markets

There is a solid market for canola for processing into cooking oil, and the seed meal has value as a protein supplement for livestock. The price of canola is subject to fluctuations in global supply and demand for edible oils. Canola oil is also a source of renewable energy, one of several vegetable oils that may be used to fuel diesel engines in the growing biodiesel market.

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Canola Enterprise Budget

Production costs vary from farm to farm and prices vary from season to season, but the following table provides a starting point for reviewing the production costs of canola following potatoes on your farm. Note that fixed costs are not included in this analysis.

<u>Variable Costs:</u>	<u>Amount/acre</u>	<u>Price</u>	<u>Cost/acre</u>	<u>Your Costs</u>
Soil Test	0.1	10.00	\$ 1.00	_____
Chisel Plow	0	12.00	0.00	_____
Harrow	2	8.00	16.00	_____
Fertilizer				
70 lb N	70	0.30	21.00	_____
no P	0	0.30	0.00	_____
no K	0	0.15	0.00	_____
1 lb B	1	2.20	2.20	_____
custom application	1	9.00	9.00	_____
Herbicides				
Trifluralin	0.19	29.00	5.51	_____
43 percent ai - 1.5pts/acre application	1	9.00	9.00	_____
Planting				
seed	6	2.50	15.00	_____
equipment + labor (4 acres/hour)	1	10.00	10.00	_____
Harvest				
custom combine	1	25.00	25.00	_____
Trucking				
\$12/ton	0.9	12.00	10.80	_____
Miscellaneous				
Pickup, etc.	10.00		10.00	_____
Interest (10 percent for 6 months)			7.00	_____
TOTAL VARIABLE COSTS			\$141.51	_____
	<u>Yield/acre</u>	<u>Price/lb</u>	<u>Income</u>	
Gross Income: (Sept 2002 price)	1,800 lb	0.11	\$198.00	

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Information Resources on the Internet

Canola Connection. Canola Council of Canada. Includes growers manual and information on markets, nutrition, biotechnology and crop forecasts. <www.canola-council.org> as of 5/13/03.

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