FIELD FACTS

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# Canola Growing Guide for Western North Dakota – Tips for New Growers

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## Introduction


Canola, a cool season oil crop, has gained increasing popularity since first introduced into western North Dakota around 15 years ago. As a result, new growers are considering canola as a viable rotational cropping option but often have questions surrounding management necessary for highest yields. This ***Field Facts*** discusses canola management practices to help growers achieve the best possible canola production outcome.

## Planting Date and Rotation

Canola planting dates in western North Dakota generally range from late April to early May as canola is a relatively frost tolerant crop and can survive temperatures as low as 24 degrees F. Additionally, canola often does best following a small grain crop and when grown in a two-year rotation with alternative cropping options ahead of planting. Shortening up this rotation may run additional risk of disease issues, which may require the use of fungicides for disease prevention.

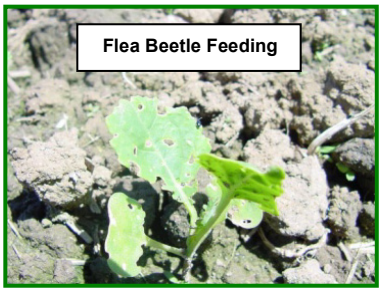
## Stand Establishment

Canola has a tremendous ability to compensate when faced with various stresses. However, a canola plant cannot do this unless it is first well established. Numerous factors influence emergence and stand establishment including seedbed conditions (such as tilth and moisture), seeding depth and rate, and insect and disease pressure.

**Seedbed:** As with all crops, planting into favorable soil conditions will help ensure the best establishment possible. Good seed-to-soil contact is important for seeds to imbibe moisture needed for germination. A relatively firm seedbed is usually needed for small-seeded crops like canola and alfalfa, but too fine can result in crusting. No-till is the most common option for western North Dakota that often provides the best stand establishment when properly timed.

**Seeding depth:** The ideal seeding depth for canola ranges from ½ to 1 inch, with most veteran growers attempting a ¾-inch average depth. Planting too deep can often result in an increased risk of crusting prior to emergence, while planting too shallow may lead to inadequate moisture for germination.

**Seeding rate:** Seeding rates ranging from 4 to 6 pounds per acre are the most common in the western North Dakota growing area to help ensure adequate stands. Within that range, growers should consider seedbed and weather conditions as well as final plant population target to determine their seeding rate.




**Insect and disease pressure:** Utilization of Helix XTra® seed treatment is essential to protect young seedlings from diseases and to minimize seedling damage from flea beetles. Because both diseases and flea beetles can be devastating to canola crops in the early stages of growth, Pioneer provides Helix XTra as the standard seed treatment on all its canola products.

**Conclusion:** When good stand establishment is achieved, the chance of obtaining the high yield that new Pioneer(R) brand canola products offer is greatly increased. Refer to ***Table 1*** on page two for troubleshooting stand establishment issues.

## Soil Fertility

Fertility requirements for canola are very similar to those of small grains. Sulfur is one of the most important fertility requirements in helping to ensure a crop success. Fields that test low to medium in sulfur would typically require around 20 to 30 pounds of actual sulfur applied per acre. For soils testing high in residual sulfur, 10 to 15 lbs of actual sulfur per acre is most often recommended.

Nitrogen requirements for a 2,000 pound per acre canola crop are about 130 pounds of actual N/acre, and phosphate require-

ments for the same crop would be about 40 pounds/acre. In addition, canola is very sensitive to salt accumulation, so avoiding high rates of fertilizer close to the seed will minimize potential germination issues. As a result, broadcasting or deep banding fertilizer is often the preferred method for applying fertilizer to canola. Remember, soil testing is always a good idea to help prevent nutrient deficiencies.

## Weed Control

Research conducted in Canada suggests that the best general timing for weed control is at the one to four leaf stage of the canola crop. This same research also indicated that weeds emerging when the canola crop was at the four to six leaf stage of growth can still impact yields by as much as *10 percent*. Heavy weed infestations, the use of a pre-plant weed control application, and stand densities will all influence the most ideal timing. Experience has shown that earlier applications protect more yield. Consider two herbicide application passes if stand densities are minimum, weed pressure is high, or a pre-plant weed control application was not implemented. Pioneer offers two herbicide tolerant canola options, Clearfield® and Roundup Ready® systems. Alternate use of these systems can provide exceptional weed control and rotational flexibility.

## Harvesting Canola

There are two primary options for harvesting canola. The first method requires swathing roughly two weeks prior to harvest, or when the crop exhibits around 30 to 40% of seeds have colored from green to brown and the stem is turning brown.

An additional method that is gaining popularity involves the direct cutting of canola and harvesting without swathing. Straight combining tends to result in less green seed and generally higher oil content and test weight when compared to swathing.

Combining does involve some additional risks over swathing, however. One risk is that the crop is more vulnerable to seed loss from possible shattering when harvest is delayed and seed moisture falls below the optimum for direct cutting (below 10%).

Pioneer offers several canola varieties which tend to "table top", making them excellent candidates for direct cutting. Please contact your local Pioneer sales professional for specific seed recommendations based on your operation.

***Table 1: Diagnosing poor canola stand establishment.***

| Observation | Contributing Factors | Management Solutions |
|---|---|---|
| Seed found at various depths | Planter traveling too fast causing seed bounce | Slower planting speed and insure proper depth settings of ½-1" |
| Poor emergence following rain | Soil may crust during periods of heavy rain followed by warm temperatures | Avoid planting into saturated soils or prior to forecasted heavy rains |
| Uneven emergence – ungerminated seeds found at ½" | Seed may have been planted above moisture | Plant ½ - 1 ½" deep into moisture |
| Seedlings emerge slow and display pinched roots at or below soil surface | Seedling disease | Use a seed applied fungicide. Planting canola once every 3-4 years will reduce disease incidence. |
| Seedlings emerge slowly and develop yellow leaf edges and then fall | Cutworm feeding | Scout for cutworms and apply foliar insecticide during the evening while they are feeding. Look for a greenish underside of the cutworm as an indication of feeding. |
| Cotyledons have pin hole in leaf tissue | Indicative of flea beetle feeding | Use a insecticide seed treatment like Helix® or Helix XTra® |
| Seeds germinate uniformly, but produce a thin stand | Large seed or improper seeding rate | Apply seed at 4.5 – 5.5 lbs per acre. Consider the TKW of larger seed at seeding and adjust accordingly. |

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