



Alternative Crops Series

Canola

History

Because both the 1996 and 2002 Farm Bills allow farmers to produce for the market, opportunities exist for agronomic and economic diversification within farming systems, new crops such as canola can be grown as profitable alternatives to traditional crops. A broadleaf, winter annual crop, canola complements winter wheat production in the southern Great Plains.

Developed in the 1970s, canola is one of the most efficient oil-producing crops available. It has significant potential for the southern Great Plains. Both spring and winter types have been developed, but only the winter types have suitable yield potential for this region. Canola received GRAS (Generally Recognized as Safe) status from the Food and Drug Administration in 1985. One year later, the American Heart Association reported that diets low in saturated fats were better for maintaining good health. Canola oil is lower in saturated fats than any other vegetable oil and demand as a food oil has expanded rapidly.

The canola planted in the late 1980s in the southern Great Plains was Canadian or European in origin and was not adapted to the southern Great Plains. Because of this, farmers in Kansas who planted canola in the late 80s were disappointed and doubted the viability of canola as an alternative crop. Newly developed winter canola varieties are now available that are well adapted to the southern Great Plains.

Production

Canola works well as part of a winter wheat rotation. Some Kansas farmers have seen an 8 to 12 percent yield increase in winter wheat yields when it follows canola in a rotation. Canola also can be planted after corn, grain sorghum, and soybeans.

Winter canola is planted in early fall and the plants overwinter as rosettes. The seed is harvested the following summer, about the same time as wheat. Once a good stand is established, canola's dense leaf growth usually makes it strongly competitive against weeds.

Kansas State University has tested canola at a dozen test sites around the state. The average yield at the South Central Experiment Field in Hutchinson has been 55 to 60 bushels per acre (2,750 to 3,000 pounds per acre). In general, canola yields are roughly 85 percent of winter wheat in a given environment. The crop tends to have a higher market value than wheat, however.

Canola can be direct combine harvested with a reel head. Swathing is also possible when weed or humidity problems make direct harvest difficult.

Demand and Marketing

Consumption of canola oil and canola oil products is on the increase in the United States. Currently, two-thirds of U.S.

consumption is imported from Canada. The potential for a domestic canola industry is great.

Demand for canola oil has grown significantly because of its comparative health benefits. Canola oil has a lower level of saturated fat than any other vegetable oil. Canola oil is used primarily in the edible market in cooking oil, margarine, salad dressings, and shortenings. Canola oil also can be processed for industrial use, such as biodiesel, lubricants, and hydraulic fluid.

In addition, canola meal is well-suited as a livestock feed. The meal contains from 32 to 38 percent protein and is comparable to soybean meal in feed value.

Markets must be in place for an alternative crop to be successful. The marketing system for canola oil is still relatively young. Colorado Mills in Lamar, Colorado, currently is the closest canola crushing facility to Kansas.

However, canola can also be crushed at the same facilities as other oilseeds. Local soybean and sunflower crushing facilities are showing interest in canola. In some cases, these crushing facilities currently stand idle part of the year. Canola harvest begins several months before other oilseeds are harvested. Canola can help fill the gap between the time when the crush is completed on the previous soybean or sunflower crop and harvest begins on the new crop.

A substantial canola acreage in the area would allow local crushers in rural communities to keep their facilities processing the entire year as opposed to several down months as many are currently forced to do.

This increases the local economies that depend on a few small industry payrolls and supports the role of the rural community in a more sustainable agricultural system.

Several dairies in western Kansas and northwest Oklahoma are currently purchasing canola meal from North Dakota, so local markets for canola meal exist in the area. Locally crushed meal would provide lower transportation costs for those buyers, giving them incentive to buy locally.

Benefits

Canola production provides several benefits, enabling producers to achieve greater profitability and stewardship of their natural resources.

1. **Crop rotation.** Rotations with canola provide a break in insect, disease, and weed cycles. Grassy weeds that cause problems in continuous wheat are easily controlled in canola. Reduced inputs in the following wheat crop often occur due to the advantages of crop rotation. Since canola requires environmental conditions similar to winter wheat and has similar planting and harvest dates, canola is easier than summer row crops to incorporate in to a rotation with winter wheat.



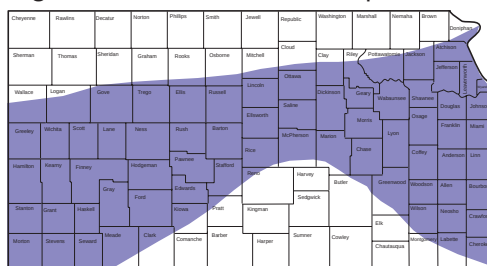
Equipment requirements are similar to winter wheat, so large machinery investments are not required in order to raise canola. The fall-seeded crop can spread out farm work load for producers raising primarily spring seeded crops.

2. **Economics.** Canola production in the Great Plains may increase long-term profitability and strengthen local economies in the area by increasing farm gate receipts and by lengthening the crush season at the small, local crushing facilities. Canola also helps to diversify economic risk by allowing Great Plains wheat farmers to produce a crop in a different commodity class. Dependence on one or two crops such as corn and wheat leaves farmers vulnerable to market price volatility. Canola brings income into the operation in early summer and may produce more income than wheat per acre. Canola has averaged about 80 to 85 percent of wheat yields in a given environment. Using current crop values and production costs, canola can return as much as \$30 more per acre than wheat. Canola offers producers the opportunity to grow a quality oilseed with high market value. Canada's canola harvest doesn't begin until late August, so U.S. growers will be able to take advantage of old crop prices when they harvest the new crop.
3. **Soil improvement.** Canola's long taproot improves soil structure by penetrating deep, providing aeration, permeability, and water flow. The taproot also uses nitrates and other nutrients deep in the soil. Canola contains a sulfur compound that is proven to have insecticidal, nematicidal, and fungicidal properties.
4. **Erosion control.** Canola provides excellent soil cover during the winter and spring months, reducing erosion.
5. **Wildlife habitat.** Canola provides an excellent game bird habitat during the nesting season. Upland bird hunting provides a substantial economic boost to the communities of the Great Plains.

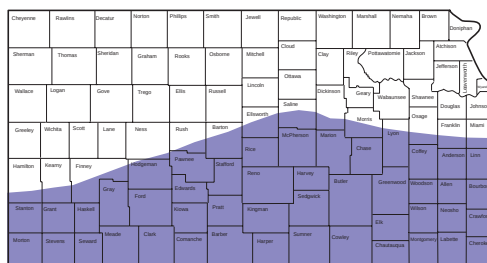
K-State Research:

Because of the strong potential of canola as a complement to winter wheat production, K-State Research and Extension began a canola breeding program in 1992. Canola genetics have been identified to meet the needs of the southern Great Plains, and two cultivars have been released. Plainsman, released in 1998, performs well in central and northern Kansas (Figure 1). Wichita,

Figure 1. Canola areas of adaptation in Kansas



Plainsman canola



Wichita canola

released in 1999, is better adapted to southern Kansas and Oklahoma. Certified seed of both these varieties is available from Kansas Foundation Seed at the K-State Department of Agronomy in Manhattan. Additional lines are under evaluation that possess even greater levels of winter hardiness, increased yield potential, and tolerance to herbicides.

Current experiments are underway to develop varieties that are resistant to sulfonylurea herbicides, such as Glean and Finesse. Canola is extremely sensitive to these herbicides. Their residual effects in cropland last about 18 to 24 months, preventing an immediate rotation from wheat to canola. Experiments are also underway to develop atrazine resistant canola, which could be planted after corn.

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and Extension Special Publication, April 1996
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