Canola

***Brassica napus* (Argentine type) and *Brassica campestris* (Polish type) are members of the Brassicaceae (mustard) family. Varieties are suited for planting at specific times of year. Those that have been grown in California include Legend, Moneta, and Westar.**

Canola is edible oilseed rape. It contains small, nontoxic amounts of the same erucic acid and glucosinolates that make conventional rapeseed toxic to humans and animals. Canola resembles a turnip plant in the fall, but without the large root. When mature it is 4 to 6 feet tall, with tan stems and seed pods that are 2 inches long and contain 15 to 20 seeds each. Canola flowers are mustard-yellow.

Market Information

Imports supply most of the U.S. market for canola, which reached 300 million pounds in 1988. Canada produces 15 percent of the world's canola. The European Economic Community produces 17 percent. Domestic production, centered in Minnesota and North Dakota, accounts for 1 percent of the world market. Some acreage is planted to canola in the Pacific Northwest. There is a large potential market in Japan for June-harvested canola such as is grown in California.

California Oils Corporation in Richmond is the only canola processor in California. In 1990 there were three others in the United States and Canada: Canola Processors (Central Soya) in Chattanooga, Tennessee; ADM in Windsor, Ontario; and ADM in Velva, North Dakota. Growers will need a local elevator that will ship to the processor.

Current yield and production. Soils that produce the highest yields for wheat will do the same for canola. Most production is for cash sales at the market. Processors offer forward contracts to growers. All pricing relates to the Winnipeg Commodity Exchange in Manitoba, and is listed daily in the Wall Street Journal.

Use. In California, rapeseed and mustards have long been used as cover crops or green manure crops for orchards and vineyards. When its high oil content is removed, canola is a high-quality, highly palatable feed concentrate of 37 percent protein. Canola oil is a superior cooking oil. It has a bland flavor, light color, and delicate aroma. Both canola species produce seed high in polyunsaturated fatty acids.

Canola in flower, one day after irrigation. (Photo: Tom Kearney)

Culture

Climatic requirements. Canola is adapted to the cool extremes of the temperate zone. The crop emerges at an optimum temperature of 50°F, with a low emergence temperature of 41°F. Minimum temperature for growth is 30°F. Snow covers are suggested for winter annual varieties, although they have been produced in Michigan without snow covers. When the plant has about 6 leaves and is about 5 inches tall, it has adequate root reserves to survive winter dormancy.

Propagation and care. To avoid contamination, do not plant canola near wild mustard crops that have high seed levels of erucic acid. If you practice summer fallow, plant canola after the fallow, with a cereal crop following the canola crop. A firm, level, weed-free, moist seedbed is ideal. Seedlings cannot compete with weeds that germinate after fall rains. If there are no early fall rains, a dry seedbed is acceptable. Seeding time is similar to that of wheat: early November to early December. Sow as deep as 1 inch at rates of 5 to 10 pounds per acre (*B. napus*) or 4 to 5 pounds per acre (*B. campestris*). Space the rows 6 to 12 inches apart. Apply 25 pounds of nitrogen at planting after summer fallow and 30 pounds per acre as a top dressing. After a cereal crop, double these amounts. For phosphorus, use 50 pounds per acre if broadcast

and 25 pounds per acre if supplied with the seed. Fertilizers containing sulfur should be used where legumes respond to sulfur.

Contamination with weedy mustard relatives is a serious problem. The oil and protein quality may be lost, causing crop values to fall. It is important to plant high-quality seed free from outcrossing to weedy mustards and non-canola rapeseed.

Harvest and postharvest practices. Canola dries from bottom to top. During harvest, it requires careful management since it is susceptible to shattering when mature. Most farmers direct-harvest when the moisture content reaches 8 to 10 percent if they are using a standard combine.

In 1990–1991 most of California's commercial acreage was sprayed with Spodnam DC (active ingredient: polymer of cyclohexane, 1-methyl-4-[1-methylethyl]) to prevent shattering. The chemical seals pods to keep them from shattering, and is applied when pods range from green to not completely mature. The 1990–1991 crop was direct-combined. Canola can also be swathed first and then direct-threshed with a combine. You should windrow canola at 35 percent moisture, when the crop is greenish brown with firm seeds.

Canola harvesting requires particular attention to crop moisture levels, combine settings, and environmental conditions at the time of harvest. The harvester's reel speed and forward movement speed should be equal, with the cutter bar set just below the level of the seed pods. Once the crop reaches 35 percent moisture it will mature in 4 to 6 days, so windrowing should not be delayed. Rapeseed is ready to be picked up and threshed when the seed contains 10 to 8 percent moisture. Adjust the harvester's pickup speed and forward travel to eliminate any tearing of the swath. Reduce the combine cylinder speed to two-thirds of that used for cereals. Open the combine's concaves to reduce breakage of the stems and pods. The seeds are lightweight, so fan speeds should be reduced and fan louvers partially closed to shake the seed out of the chaff. The top sieve or chaffer should be slightly open, and the lower sieve nearly closed. Always consider wind speed and direction, and make frequent adjustments to compensate for these factors.

Store harvested canola in tight bins, and inspect it often to prevent heating and spoilage. The seeds are small and not conducive to good air flow in bins, so the wet seeds must be arranged in thin layers to dry. Blowing air through the bins might also be helpful. After harvesting, chop all of the field residue fine and spread it uniformly over the field to prevent any toxic effect on following crops. Soybeans have been found to have better yields when planted after canola.

Pests and diseases. White rust–downy mildew complex, sclerotinia stem rot, and blackleg all affect canola. Some newer canola strains have a higher tolerance to blackleg. Practice crop rotation to prevent disease in the crop, separating canola crops with at least two cereal crops. Good water and fertilizer management also limits the incidence of disease.

Cabbage aphids can hurt canola crops. If you use insecticides, be careful not to harm the bees that will be present when canola is in bloom. Monitor aphids closely after flowering, since restrictions apply to some aphicides as the crop nears harvest. Aphid honeydew from a heavy infestation can affect combine performance and harvesting.

Weed control is crucial. Tillage, establishment of a good stand, and weed control in previous crops are all good weed-prevention practices.

Sources

Seed

Bonis and Company Ltd., Box 217, Lindsay, Ontario, K9V 5Z4, Canada

Kaystar Seed, Division of Kaystar Corp., 702 Third Street SW, Huron, SD 57350

Northern Sales Co. Ltd., 5th Floor–200 Portage Ave., Winnipeg, Manitoba R3C 3X2, Canada

SeedTec International Inc., Woodland, CA 95695

More information

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SeedTec International. *Management/production guide for winter and spring canola.* SeedTec International Inc., Woodland, CA.

NOTE: Other information is available from the United States Canola Association, 1150 Connecticut Avenue NW, Washington, DC 20036.

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