Rapeseed production in Colorado

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Quick Facts

Processed rapeseed produces two products—an oil that has industrial and edible uses, and a high-protein meal used in animal feed.

Winter rapeseed should be planted approximately four to six weeks before winter wheat and will be ready for harvest at approximately the same time as winter wheat. Production practices and equipment are similar to that used with small grains.

Industrial-type rapeseed containing high erucic acid shouldn't be grown without a marketing contract.

The potential of rapeseed as an alternative dryland crop can best be realized when integrated into a conservation tillage management system.

Rapeseed (Brassica napus) production provides potential as an alternative income source for the Colorado agricultural producer. In addition, rapeseed production provides the opportunity to break up disease, insect, and weed cycles associated with traditional wheat production systems.

Description

Rapeseed is in the Brassica family and is related to species such as broccoli, cabbage and cauliflower (see Figure 1). Rapeseed plants grow 2 to 4 feet tall with branching from the central stem. The yellow flowers have four petals and the pods, which are 1 to 1½ inches long and approximately ⅛ inches wide.

Uses

Traditionally, rapeseed has been used for birdseed or industrial purposes. Industrial varieties of rapeseed contain about 55 percent erucic acid and are used to make lubricants and diesel fuel substitutes and to manufacturer plastics.

These varieties have high levels of toxic glycosinolates along with high erucic-acid levels, which renders the processed meal unsuitable for human or livestock consumption.

New varieties of rapeseed, developed in Canada and Europe, are low in erucic acid and glycosinolates. These varieties are the so-called “double-low” types and sometimes are marketed as Canola. The extracted oil is used as an edible vegetable oil. Domestic markets are expected to increase because previous restrictions are being relaxed.

Winter rapeseed can be grazed by livestock during the fall growth period but should not be grazed in the spring. In the spring each plant develops from one single growing point, and if grazed, the plant would be destroyed.

Figure 1: Rapeseed plant in bloom.

Production

Two growth habit types exist—winter and spring rapeseed. Winter rapeseed is planted in the fall and provides vegetative soil cover to prevent soil erosion.

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To simplify technical terminology, trade names of products and equipment occasionally will be used. No endorsement of products named is intended nor is criticism implied of products not mentioned.
Fall plantings generally are made in early to late August, approximately four to six weeks before winter wheat. This assures the development of a well-established root system that reduces the risk of winter kill. The seedlings must emerge and establish adequate crowns in the fall to ensure winter survival. Spring rape plant generally is planted in March to April with an anticipated September harvest.

Current seeding rate recommendations range from 1½ to 6 pounds per acre. If the crop is to be irrigated, an appropriate change in seeding rate and row spacing will be necessary, depending on the particular management system.

Rapeseed should be planted 1 to 1½ inches deep in moist soil. Either a hoe or disk-type drill is acceptable as long as it will successfully plant in large amounts of residue needed for erosion control. To achieve the relatively low planting rates, cracked wheat, cracked corn or cracked sorghum that has been screened may be required as a drill box filler. Three parts filler to one part rapeseed is an acceptable ratio for planting. A seeder designed to plant vegetable seeds is preferred. If soil crusting caused by heavy rain is a problem after planting but before emergence, a rotary hoe or other light tillage operation may be considered and used with caution. The use of clean pure seed known to be reasonably free of mustard is a must. Rapeseed contaminated with other mustard is docked heavily.

Weed Control

When planting winter rapeseed in August, fall weed control must be addressed. Preplant incorporated applications of trifluralin (Treflan) should be made prior to planting. Set incorporation equipment for a depth of 3 to 4 inches. Broadcast rates of 1 pound ai/acre and 0.5 lb ai/A are recommended for fine- and medium-textured soils, respectively. Trifluralin can be used to control certain broadleaf and grassy weed species in Colorado. Consult and follow labeled procedures. For conservation tillage management systems where rapeseed is to be planted into previous crop residues, contact herbicides such as parquat (Parquat+Plus), glyphosate (Roundup) and glyphosate + 2,4-D (Landmaster) successfully have been used for weed control during the fallow period prior to planting.

Fertilizer

Fertilizer requirements for rapeseed are similar to dryland winter wheat. Application decisions should be made only from information obtained from adequate soil sampling and reliable soil tests. When nitrogen is recommended, it is best applied in a split application with one-third to one-half applied prior to or at planting, and the remainder topdressed in the spring. Phosphorus applications should be made preplant or at planting time. Single nitrogen applications are best made in the spring.

Growth and Harvest

Following winter dormancy, new leaves emerge and the rapeseed plant develops a single stalk from the crown. From this single stalk, flowering branches originate exhibiting an indeterminate growth habit. The plants generally begin to develop yellow flowers in early April and continue to grow, bloom and set seed for five to six weeks. Pod set occurs from approximately 18 inches above the crown to the top of the plant generally 55 to 60 inches tall. Harvest will occur during late June and early July, similar to that of winter wheat. At Walsh, Colorado, in 1985, 1,020 to 1,850 pounds per acre of rapeseed were obtained in research plots under limited irrigation.

Rapeseed can be direct combined; however, to reduce the risk of shatter, the crop should be swathed when the bottom pods are brown, and the pods at the top of the plant green, but well-filled.

Pests and Diseases

Several insect pests have been observed to attack rapeseed, including the cabbage seedpod weevil, aphid, and the harlequin bug. The two primary diseases that affect rapeseed are Sclerotinia stem blight and Pythium (damping off). Sclerotinia is most prevalent where warm, wet conditions occur. Increased incidence of Sclerotinia should be expected when other susceptible crops are grown in rotation with rapeseed including irrigated sunflower, dry beans or vegetables. Sclerotinia under dryland conditions shouldn't be a problem. The incidence of Pythium is most prevalent when rapeseed is planted late. The disease has not been a problem so far in Colorado.

Irrigation

Irrigation methods including center-pivot, lateral move and furrow can be used effectively for the successful production of rapeseed. When sprinkler irrigation is employed, special precautions and good water management practices are required to reduce the risk of disease infection. Little is known regarding the specific water requirements of rapeseed. For production in southeastern Colorado with limited water, a preplant or pre-emergence irrigation plus one irrigation during the late flowering period seems to be adequate for average yields.

Marketing

At present, at least one western Kansas processor is writing grower contracts to accept production from 50 percent of the farmer's total acreage. The balance of the rapeseed crop can be sold at cash price anytime after harvest. Rape seed is classified as an oil crop. The price offering typically has been approximately 75 percent of the current Chicago soybean price per pound. Growers who consider rapeseed production for the industrial oil market should grow it under contract only.