

Keys to Canola Production in South Texas

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Canola Origin, Use, and Adaption. Canola is a patented term derived by the Canadian government which refers to rapeseed (*Brassica napus*) which has specific chemical properties which lend themselves towards the production of a high-quality cooking oil and an edible meal used in livestock rations. Improved varieties were named “canola” after the “CANadian-Oil-Low-Acid” breeding program.

Older rapeseed lines had problems with high content of erucic acid and glucosinolate. High erucic acid content is desirable for some industrial uses, but is unacceptable for cooking oil. Glucosinolate levels are not significant with respect to oil quality, but do affect the quality of meal for livestock feed following oil extraction. High glucosinolate levels in meal are toxic to livestock. The “canola” designation denotes those rapeseed varieties that contain oil with less than 2 percent erucic acid and less than 30 micromoles of glucosinolate per gram of meal. Common rapeseed has levels of around 1.5 percent glucosinolate.

Another term commonly used for canola-grade rapeseed is “double low.” The term LEAR refers to varieties low in erucic acid, while HEAR designates cultivars high in erucic acid, often up to 50 percent. There is still a demand for HEAR varieties, as erucic acid is widely used in a number of industrial applications. Canola and HEAR varieties may not be planted adjacent to each other, as cross pollination can produce oil qualities which are unacceptable for either use.

Rapeseed contains about 40 percent oil, as compared to the 20 percent commonly found in soybeans and cottonseed. The oil contains a very long carbon chain (22), which gives it excellent stability under heat. It is low in saturated fats (about 7%) and compares very favorably to sunflower and soybean oil (11 and 15%, respectively). Neither

rapeseed nor canola has local Texas markets. Canola has been planted in Texas in recent years because it is easier to market.

Canola (rapeseed) is a member of the mustard family (*Brassica*). It resembles cabbage when small, but upon reaching its full height (3 to 6 feet), bright yellow flowers will have progressed to long, slender pods containing shot-size seed. Upon reaching full size, pod clusters will dry to a light brown and will be ready for harvest in 3 to 4 weeks.

Canola is a cool-season annual, and is normally planted in the fall, with harvest in the spring or early summer. In northern climates, canola is planted as a spring crop to reduce problems from winter kill. It is similar to wheat in this respect and is considered an alternative crop to winter wheat. Yields of 800 to 1,500 pounds dryland and 2,000 pounds or more under irrigation are practical. It is believed that rape originated in Europe or Northwestern Africa, which explains its adaptation over southern Canada and across the United States as far south as South Texas. Canola has been successfully produced without irrigation at Vernon.

Field Selection. Because of the importance of seed placement and the seedbed preparation necessary to efficiently position such small seed, preparation of the initial seedbed should begin well in advance of actual planting. The seedbed should be free of weeds, heavy crop residues, and large clods. The field should be well-drained so as to avoid standing water or waterlogging. Loamy, coarser soils have demonstrated good results.

It is recommended that canola not be grown successively in the same field, so as to minimize disease buildups of *Sclerotinia* white mold, club root, blackleg, and stem rot. A one-in-four year rotation is recommended. Because canola is

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sensitive to so many broadleaf herbicides, it is important to not follow crops where soybean herbicides such as Scepter, Preview, or Classic have been used or high rates of atrazine have been used in cereal crops. Canola is very sensitive to carry-over from persistent herbicides such as atrazine, so caution should be used following sorghum or corn crops treated with high rates of atrazine.

Planting and Establishment. Canola can be either drilled or broadcast-seeded. If drilled, the recommended rate is 5 to 8 pounds per acre. If broadcasting, increase the seeding rate by 20 percent. If drilled, calibrate the drill to plant small seed and check the seed inside the grain box periodically to ensure that it is not being damaged by the fluted feeder parts. A grass or alfalfa seed attachment provides the most precise seeding rate and placement. A Brillion seeder with packer wheels has been used in South Texas with good results.

Shallow seed placement is a must. Typical planting depths are $\frac{3}{8}$ to $\frac{1}{2}$ inches into moist soil. Deeper plantings may be more practical in sandy soils. Good seed-to-soil contact must be provided. For this reason disking should be followed by rolling or cultipacking. Row widths of 6 to 12 inches are commonly used. A desirable plant population would be 250,000 plants per acre. This would be about 43 or 48 plants per 10 feet of drill row using 8- or 10-inch drill rows, respectively. Greater plant populations should be thinned with a rotary hoe a few days after emergence. Obtaining a good stand is one of the major limitations of canola production. Emergence is poor from soils that tend to crust. Planting in marginally dry soils has been effective in most years. The small, soft seed germinate easily with minimal rainfall.

In South Texas planting dates from September 15 to October 15 should allow establishment before cold weather. While severe cold is rare in this region, the goal is to plant 2 to 3 weeks prior to the time to plant winter wheat for grain. The objective is to obtain a minimum of 30 days of growth to build a root system and the 6 to 8 leaves necessary to overwinter the stand. This equates to approximately 8 to 10 inches of plant height and a root that is approximately $\frac{1}{2}$ -inch in diameter. Freezing weather may injure the crop or cause desiccation of foliage. Small skips and missing plants are usually of no concern since canola compensates for small stand reductions.

Select certified seed for planting. Saving and planting back homegrown seed will result in rising glucosinolates and discounts or disqualification of the contract which may not meet FDA minimums. Several "Double Zero" canola varieties are available, ranging from late medium to early medium in maturity and offering reasonable winterhardiness and yield potential.

Fertilization. Canola grows best on soils with a pH of 5.8 to 7.5. Higher-pH soils are acceptable, but yields may be lower. Preplant phosphorous and potassium requirements are the same as for wheat. Plan on 100 to 130 pounds of nitrogen per acre applied in two applications in regions with high production potential. Apply one-third preplant and the remainder topdressed in late winter. If stands are poor or soil moisture is short, reduce the topdress application accordingly. Except for the sandier soils, sulfur is not expected to be lacking in soil tests. Canola requires twice the sulfur used by wheat. On sandier soils with low organic matter apply 30 to 40 pounds per acre, preferably as ammonium sulfate or ammonium thiosulfate: one-third fall and two-thirds with the topdress application (late January to early February). A 35-bushel canola crop will remove 20 to 25 pounds of sulfur per acre.

Weed Control. Treflan (trifluralin) is the only practical preplant herbicide labeled for use with canola. Development of a vigorous, full stand is important in reducing weed pressure. Once sufficient size is attained, the dense canola canopy provides significant competition to broadleaf weeds. Treflan (PPI) is effective in controlling volunteer small grains and grass species. Poast Plus with a surfactant or crop oil is an effective postemergence herbicide labelled to control grasses emerging during the growing season.

Avoid planting to fields heavily infested with wild mustard since no herbicide is available that has selective control of this canola relative. Canola itself can pose a volunteer problem in following crops. Volunteer canola is easily eliminated by following canola production fields with corn or sorghum where atrazine will be used for weed control.

Insect Problems. Little is known of the potential of insect pressure on expanding canola acreage. Canola planted in the High Plains of Texas has been damaged by aphids. Cabbage aphid has infested canola stands in South Texas. Insect problems are

expected to be more severe in regions with extensive vegetable production. Few insecticides are labeled for canola.

Harvesting. Canola is an indeterminate plant whose pods mature in the bottom of the plant first and then up the plant. This may lead to mature pods and shattering on the bottom and green, immature pods at the top. Harvest is usually made when one-third of the pods have turned brown. The crop is swathed to ensure rapid drying without shattering. Plants are cut at about 9 inches above the soil. Tall stubble reduces crop loss from rains after swathing.

Canola is usually ready to harvest about the same time as wheat. This unfortunately coincides with the highest probability of rainfall in the Texas Coastal Bend. Rainfall has delayed timely harvest and weather damage has been observed in two production years. If the plants have not been cut and can be harvested before extensive shattering occurs, the standing crop may not be seriously affected by April rains. No desiccant is currently cleared for rapeseed.

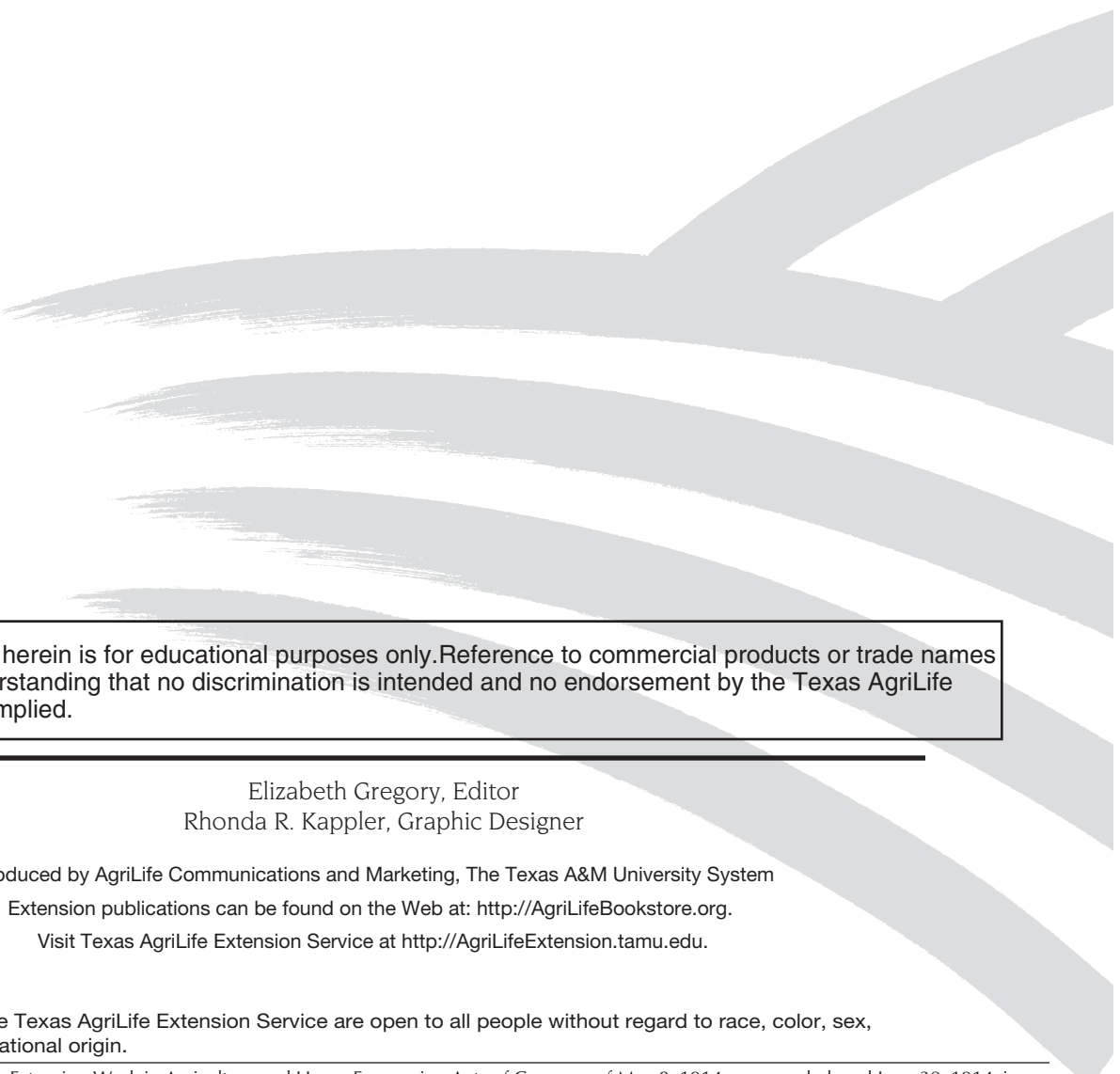
Although canola is normally swathed and dried in the field, it can also be cut direct, if the pods are fully dry (8 to 10% for minimum shattering). If the pods are too dry or subjected to wetting and drying from rainfall, shattering may cause great losses. Care should be taken to seal all holes and cracks in the combine and other harvest equipment as rapeseed flows freely from such openings because of its small, round seed characteristics. The same considerations should be given to trucks and trailers used to haul canola seed. Plan on artificially drying if harvested seed runs over 9 percent moisture.

Marketing. Since canola is a specialty crop, ensure your market before growing more than experimental acreages. It should be planted only if a forward contract is available. Prices generally run about 75¢ to \$1.50 per bushel below that of soybeans. Since a bushel of canola weighs 50 pounds, compared to 60 for soybeans, prices are fairly comparable. A grower association began promotion of canola in 1991 in South Texas, and many oilseed processors and food corporations are closely following this crop.

Additional information is available from the following promoter:

U.S. Canola Association
1100 Connecticut Avenue NW, Suite 1106
Washington, D.C. 20036
(202)331-7373

Local Processing. While the price paid for canola seed has been favorable (\$7 per bushel), transportation costs have discouraged Texas growers from expanding canola acreage. Rail shipment to Canada or Georgia processors is far more costly than is acceptable. The cooking oil industry is currently placing more canola oil on grocery shelves than any other type of oil. Many blended oils contain substantial canola oil. A Texas-based canola processor would provide a strong incentive to develop canola acreage in regions currently producing wheat for grain.



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