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## WINTER CANOLA NUTRITION

Canola was developed in Canada from rapeseed using traditional breeding techniques to make its oil fit for human consumption and improve the meal for feed. The Western Canadian Oilseed Crushers Association trademarked the term Canola in 1978, and today Canola oil is a popular, healthy and widely consumed product in North America.

**In the late 90s and early 2000s winter Canola varieties became available as an alternative to winter wheat in the central and southern Great Plains.** The rotation of a broadleaf (canola) with a grass (wheat) provides several advantages such as disruption of wheat disease cycles and expanded weed control options. Winter Canola popularity has grown considerably in states like Oklahoma where plantings for the crop years 2009 to 2013 increased by a factor of about six, from 42,000 to 250,000 acres (USDA-NASS).

**Nutrition plays an important role in the winter survival, yield and oil quality of canola. Fertility requirements are similar to wheat with two notable exceptions—it needs more N and S than for comparable yields.** It is also more sensitive to soil acidity than is winter wheat, with best growth between pH 6.0-7.0. Lime is normally recommended below pH 5.8.

**Good N management is critical in Canola production.** A misstep in any of the 4Rs of N management can result in serious penalties. Too much or too little N in the fall can reduce the likelihood of winter survival. Both KSU (Great Plains Canola Production Handbook) and OSU (Fertilizer and Lime Recommendations for Canola in Oklahoma) published guidelines base N recommendations on yield goal, and calculate it as follows:

$$\text{Total Fertilizer N} = \text{Yield Potential (lb/A)} \times 0.05 - \text{soil nitrate-N (lb N/A; 0-24 in. sampling depth)}$$

**Deep sampling for nitrate-N (and sulfate-S) is usually recommended as close to planting in the fall as possible.** Applying N at the right time is especially critical with winter Canola. The OSU extension guidelines recommend that one third (about 35-50 lb/A) of the total season's N be applied preplant, with the remainder applied top-dress in the spring.

**Phosphorus and K application rate, as for other crops, should be based on soil test results.** Crop removal in the grain, according to the KSU handbook, is approximately 0.9 lb P<sub>2</sub>O<sub>5</sub> and 0.45 lb K<sub>2</sub>O/bu. Preplant broadcast-incorporated, or side band applications of P and K are recommended over in-furrow (seed placement) application because Canola, like other oilseed crops, is especially sensitive to seedling damage from fertilizer. Thus, placement of fertilizer and seed together should be done cautiously, or avoided altogether.

**Canola has a relatively high S requirement.** Deep (0-2 ft.) soil samples taken for nitrate-N analysis should also be analyzed for sulfate-S. A good rule of thumb is to keep available S:N ratio at about 1:7 (KSU). When soil test level is <10 ppm sulfate-S the crop will likely respond to supplemental S (KSU).

**Winter Canola has gained in popularity in recent years in the central and southern Great Plains, and has considerable potential for even further growth.** The success in production of winter Canola is highly dependent on managing according to 4R principles—application of the right fertilizer source at the right rate, time, and place.

– WMS –

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Abbreviations: N = nitrogen; P = phosphorus; K = potassium; S = sulfur; ppm = parts per million.

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