

# Tips for analyzing your canola crop's fertilizer needs

CANOLA COUNCIL OF CANADA RELEASE

Canola fertility needs have never been higher. And with current field conditions, soil fertility levels have never been so uncertain. The following tips will help growers find solutions to meet the nutritional demands of their high-yielding genetics.

Canola growers last year could be divided into three camps: wet fields, dry fields or high yields. No matter the situation a grower experienced last year, the soil nutrient situation for 2011 will be hard to predict.

"The high moisture levels in many fields across the Prairies this spring just adds to the uncertainty," says Dan Orchard, agronomy specialist with the Canola Council of Canada. "Growers have a lot of questions about fertility rates, application methods for wet fields, and what products to try."

The following 11 tips for 2011 will help to answer many of these questions.

- Get a soil analysis. While fall and winter tests are convenient in terms of timing, spring soil tests are the most accurate in predicting the soil nutrient situation at seeding. Sample the most representative areas of the field. Sampling areas that were productive last year and comparing to areas that were flooded out or fallowed last year may also provide useful information.

- Low areas flooded for long periods lack the oxygen needed for microbial breakdown of organic matter. Therefore nutrients made available through mineralization will be lower than expected in these low-lying areas. Denitrification and leaching of nitrogen and leaching of sulphur will be higher in those areas as well, especially in the top six inches. Test saturated areas separately. If results are different from the rest of the field, adjust fertilizer rates for these areas to improve your dollar return and fertilizer efficiency.

- Fertilize to match yield potential. Growers applying their usual fertilizer rates but getting higher-than-usual yields may need to increase fertilizer rates for 2011 to maintain yield potential. A 50 bu./ac. canola crop needs 140-175 lb./ac. of nitrogen, 65-80 lb./ac. of phosphate, 105-125 of potash and 25-30 of sulphur. Of those amounts, harvested seed removes 87-105 lb./ac. of nitrogen, 47-57 of phosphate, 23-29 of K<sub>2</sub>O and 14-17 of sulphur.

- Broadcast works in a pinch. Broadcast application can be a reasonable plan B for soils too wet for proper drill function.

Here are few quick broadcasting tips: Do not leave nitrogen fertilizer and seed mixed in the tank for more than a few hours. Nitrogen fertilizer could start to reduce seed viability within a day.



- Double the phosphorus rate. When broadcast, phosphate prills and seed are not always close enough for timely access to the fertilizer. Higher phosphate rates will improve the average proximity and compensate for the increased reactions with soil constituents that limit availability.

- If soft soils are the motivation, growers could broadcast nitrogen, sulphur and some phosphorus, and use the drill just for seed and starter phosphorus. That way, they wouldn't have to fill the seeder tank right full, which could make it possible to get the drill through a field without getting stuck.

- ESN versus urea. An Agriculture and Agri-Food Canada study based in Lethbridge, Alta., found that controlled-release ESN nitrogen fertilizer provided a yield advantage over urea only 25 per cent of the time. But ESN may prove its worth under the wet conditions many growers face this spring. Products such as ESN that are designed to enhance nitrogen fertilizer efficiency are more likely to provide an economic benefit when the potential for nitrogen loss is high. This includes broadcasting, or applying into moist-to-wet soils with greater potential for denitrification losses.

- Be careful with seed-placed nitrogen in a single-shoot system. Toxicity and salt effect from nitrogen fertilizer can increase seedling mortality. Considering seed costs and the impor-

ance of rapid and uniform emergence, separation between seed and nitrogen is necessary.

- Nitrogen placed directly into the seed row should not exceed 10 lb./ac. for canola when using a one-inch knife on nine-inch centres in medium-textured soils, according to provincial recommendations for Saskatchewan and Alberta. (Manitoba recommendations are lower.)

- Seed-placed rates can be safely increased when soils are wet, when openers spread seed and fertilizer over more of the seedbed, and when seeding into heavy soils. For example, the safe rate is 40 lb./ac. when seeding into clay soil with a three-inch opener on nine-inch centres. Growers can further increase seed-placed rates with polymer-coated urea, such as ESN, and urease inhibitors, such as Agrotain — both of which slow the release of ammonia and ammonium from urea fertilizer. Talk to your fertilizer dealer about recommended seed-placed rates for these products.

- Different products work better under different circumstances. In the end it comes down to dollars: Which products provide the best return on investment on your farm? A canola fertility plan should provide nitrogen rates high enough to match yield targets, adequate sulphur to allow efficient use of that nitrogen, and total phosphate rates to meet the startup and removal needs of the crop.

- Fields with excessive weed and volunteer growth in 2010 will have had much of the available nutrients tied up in plant material. Those nutrients will be returned to the soil eventually, but that breakdown takes longer when nutrients are tied up in large, woody plants. A lot of those nutrients will not be available in 2011 when your canola needs them.

- Leave a check strip to test new practices. Mark the test site and then at harvest, use a combine yield monitor or weigh wagon to see if this extra investment provided a yield increase to pay for itself. Measuring yield is important as canola can often compensate for small differences in growth patterns early in the season. Growers may need to try test strips a few times to see if trends develop.

- Ensuring soil phosphorus reserves are maintained at an adequate level is a good long-term strategy. Response to phosphorus fertilizer is hit and miss. A starter rate of 10 to 20 lb./ac. may be enough for canola to reach its yield potential in any given year. But this ignores two facts about phosphorus. First, we know that one 50 bu./ac. canola crop removes 47-57 lb./ac. of phosphate. Soil reserves provide what fertilizer does not, so soil reserves are depleted when fertilizer rates are less than crop removal. This leads to the second point: Crops tend to yield highest when grown in P-rich soils.