Even though growers don’t get paid directly for canola oil, it’s still an important topic. And most growers, when given the choice, would choose to maximize oil content. Three factors affect canola oil: the environment, biology (or genetics), and agronomic practices. This Agronomic Spotlight discusses these factors.

**Biology**

Just like we inherit traits from our parents, oil content is an inherited trait in canola; so percent oil will naturally vary between different hybrids (Figure 1). Canola breeding programs screen for oil content and purposely select specific hybrids in order to meet minimum oil standards. And while oil content might vary from year to year according to environmental conditions, relative differences between seed products tend to remain the same.

**Environment**

The environment has a huge effect on oil; even more than the canola’s genetics. Of the various environmental factors, moisture generally has more of an influence on oil than temperature. In years with abundant moisture, canola tends to handle heat stress better, so oil content is generally higher in wet years. Drought stress, particularly during bolting and flowering, can lead to lower yield, higher protein, and lower oil content.

Just like oil is favored by wetter years, it also benefits from cooler years. Canola performs best in relatively cooler temperatures (13-22 ºC), particularly during flowering.

**Agronomy**

The following agronomic factors can affect oil content:

- **Variety selection** – Growers should aim to plant quality seed with a proven record of higher relative oil content.
- **Seeding date** – Early seeded crops benefit from spring moisture and, as a result, can become more competitive against weeds. Early seeding also means that the crop is generally advanced enough to escape the intense summer heat during the critical flowering period. Because of these reasons, early seeding can promote higher oil content (Figure 2).

Did you know?

Research suggests that heterosis - the same genetic phenomenon also known as hybrid vigor – not only increases yield, but can also produce more oil.1

Figure 1. Relative oil content of various canola hybrids.

Hybrid 1, n=54; Hybrid 2, n=15; Hybrid 3, n=11; Hybrid 4, n=6; Hybrid 5, n=11; Hybrid 6, n=130; Hybrid 7, n=39; Hybrid 8, n=6, Hybrid 9, n=35.


Figure 2. Seeding date effect on oil content.

**Nitrogen fertility**

As a general rule, more available nitrogen will increase protein and yield, but can decrease oil content (Figure 3). But, with more available nitrogen and subsequent yield gains, total oil per acre increases because of higher seed yield (Figure 4). Maintaining adequate nitrogen fertility and a balanced nutrient program are really important to yield and oil content. Nutrient management decisions should be based on a proper soil testing program.

**Swath timing**

Generally, later swathing or straight combining results in higher oil content. Data from the Canola Council of Canada show an increase of over 1% oil when canola is swathed at 60 to 70% seed color change compared to 30 to 40%. Swathing on hot days should be avoided to prevent shatter and pod drop loss.

**Summary**

Biology, the environment, and agronomy all influence canola’s oil content. Some of the influential factors are within control, some are not. To help improve oil content, follow these tips: choose a hybrid with the genetic potential for high oil content, optimize soil fertility, seed early, and swath at 60 to 70% seed color change or straight cut as late as possible. These management practices will all help to produce the highest oil content possible.

**References**


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Figure 3. The effect of available nitrogen on oil content.  
Source: 2006-2007 Monsanto FACT Advancement data.

Figure 4. The effect of available nitrogen on total oil.  
Source: 2006-2008 Monsanto FACT Advancement data.