

## Canola Crushes And Spreads

Those disturbed by genetically modified organisms (GMO) need to consider nature has been doing this by accident forever and human beings by design for as long as anyone can determine. A cornfield is as much of a technological achievement as a computer chip; maize itself seems to have been developed by Mesoamerican plant breeders from native *teosinte* stock. Canola, a genetically modified form of rapeseed, is a contractive trade-name standing for Canadian Oil, Low Acid. The reduced erucic acid and glucosinolate content of canola made the product fit for human and livestock consumption; previously rapeseed oil could be used only as an industrial lubricant.

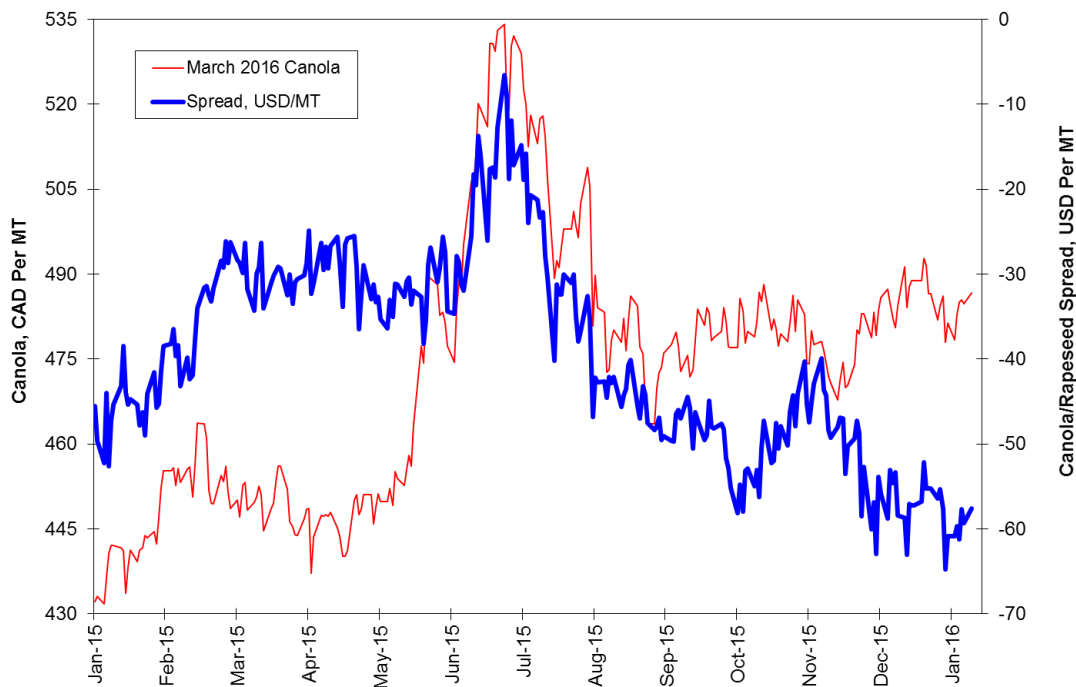
While the canola plant's pretty yellow flowers can be seen stretching across the Canadian prairies, the European Union and China both produce more canola than does Canada. The EU also continues to produce rapeseed in large quantities and this supports a futures contract priced in euros trading on Euronext. Canola futures are priced in Canadian dollars and trade on ICE Futures Canada. The spread between these two contracts involves issues of substitution, currency translation and both harvest and expiration cycles.

Let's take a representative spread quoted in U.S. dollars between March 2016 canola and May 2016 rapeseed. This is calculated as:

$$\text{Canola} * \frac{\text{USD}}{\text{CAD}} - \text{Rapeseed} * \frac{\text{USD}}{\text{EUR}}$$

Once canola prices declined during the 2015 growing season, the spread between canola and rapeseed turned lower and remained confined within a narrow range into the winter of 2015-2016. This can be interpreted economically as canola bidding for global oilseed market share via lower prices.

A Canola/Rapeseed Spread



Source: Bloomberg

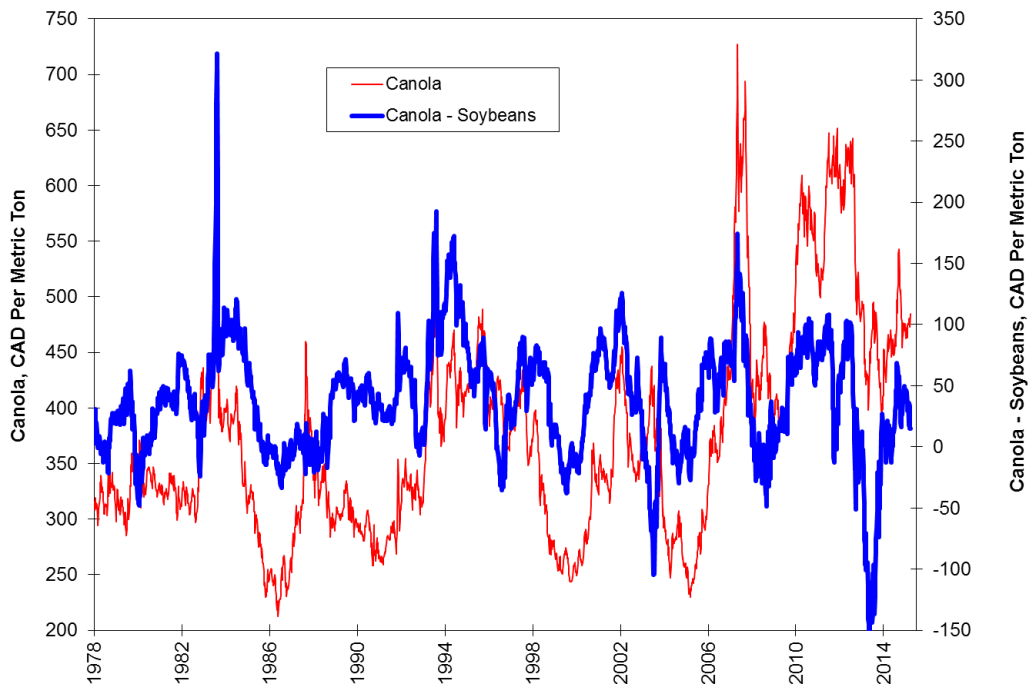
## Canola And Soy Complex

Vegetable oils compete with each other in a global market subject to a large number of engineering and recipe constraints. Canola competes with palm oil, soybean oil and sunseed oil in the edible oils market, and these oils' prices are driven by biodiesel demand as well. One of the crueler jokes of modern environmentalism is how hundreds of thousands of acres of tropical rainforest in Indonesia, Malaysia and other locales in South Asia have been destroyed for oil palm plantations so wealthy motorists can congratulate themselves on how "green" they are.

Let's put the spreads of canola against other vegetable oils aside and concentrate on its spreads against soybeans, soybean oil and a spread known as the canola crush. The canola/soybeans and canola/soybean oil spreads generally are quoted in CAD per metric ton, which involves converting soybean prices in USD cents per bushel to USD per MT using a 36.744 bushels per MT multiplier and the exchange rate expressed in CAD per USD for the soybean spread. Soybean oil prices are converted from USD cents per pound into USD per MT using 2,204.62 pounds per MT and the CAD per USD exchange rate.

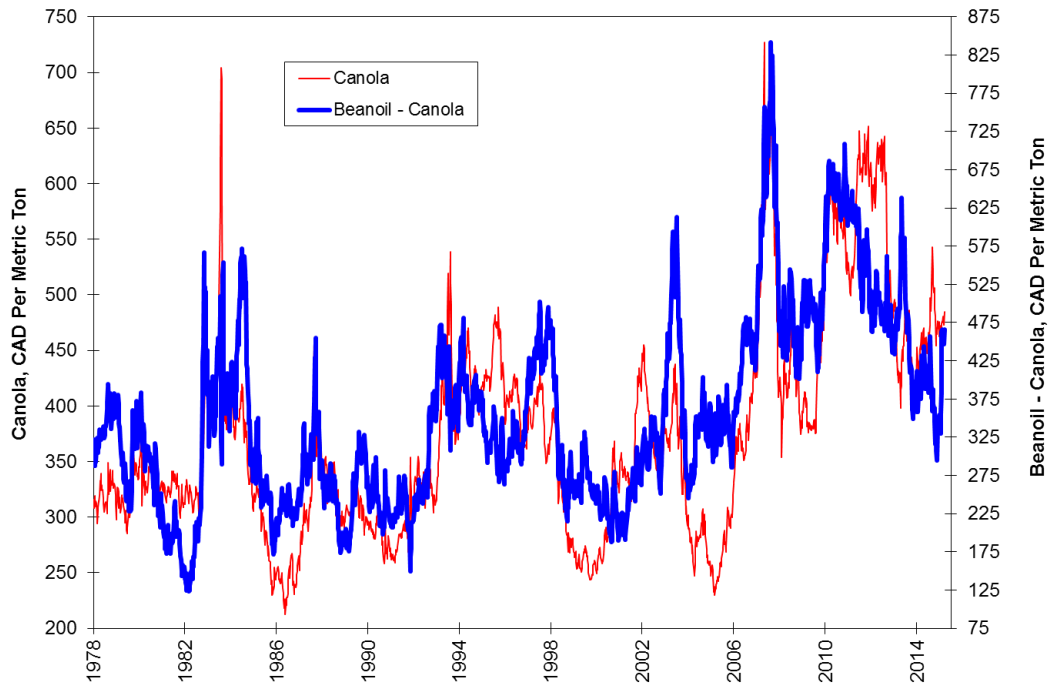
As in the case of the canola/rapeseed spread, canola's spreads against soybeans and soybean oil are driven more by the vagaries of the canola price than by either soy price. For those who have wrestled with price volatility in the soy complex over the years, the notion they have a more volatile cousin is either frightening or intriguing depending on your risk tolerance.

The Canola - Soybean Spread



Source: CRB-Infotech CD-ROM, Bloomberg

### The Beanoil - Canola Spread



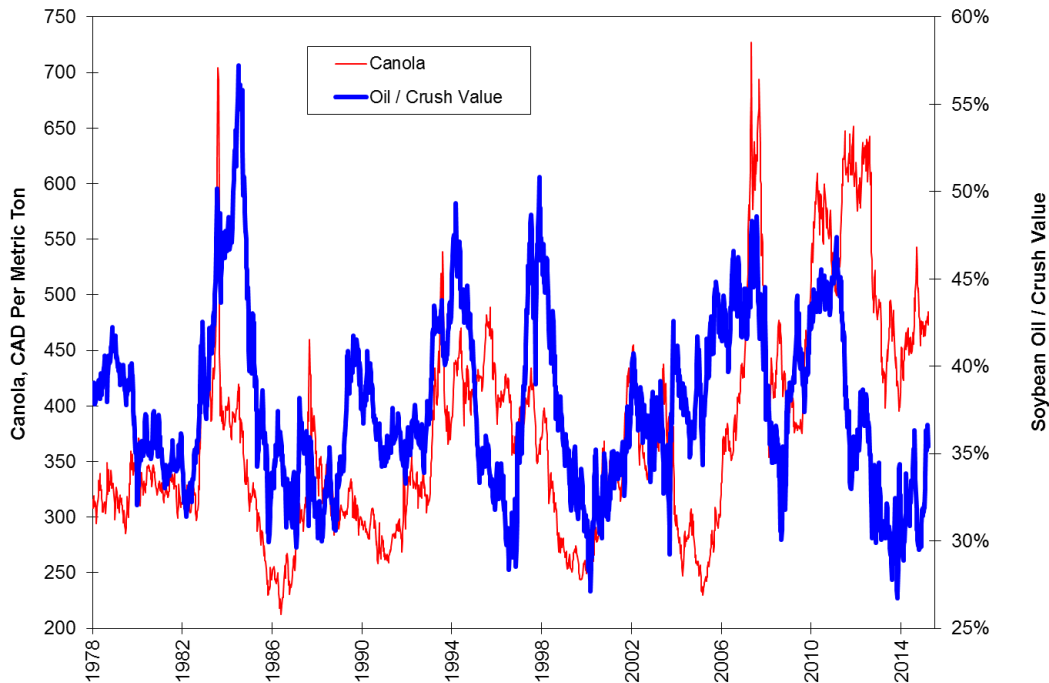
Source: CRB-Infotech CD-ROM, Bloomberg

Grain traders are very familiar with two spreads within the soy complex, the crush spread and soybean oil as a percentage of product value. The beanoil percentage is calculated as:

$$Oil\% = \frac{.11 * BO}{.11 * BO + .022 * SM}$$

As soybean oil and soymeal serve two very different final markets, this is one of the more interesting joint product spreads in the world of commodities. Soymeal is driven by demand for high-protein livestock and poultry feed, while beanoil is driven by competition from other edible vegetable oils and increasingly by biodiesel demand. As canola's chief value lies in its oil as opposed to the residual crushed seed hulls, we should expect canola prices to follow the soybean oil percentage of crush value. It does so, but not in a very statistically tight manner; the relationship is affected by too many other factors to postulate a robust model.

### Beanoil's Percentage Of Crush Value And Canola



Source: CRB-Infotech CD-ROM, Bloomberg

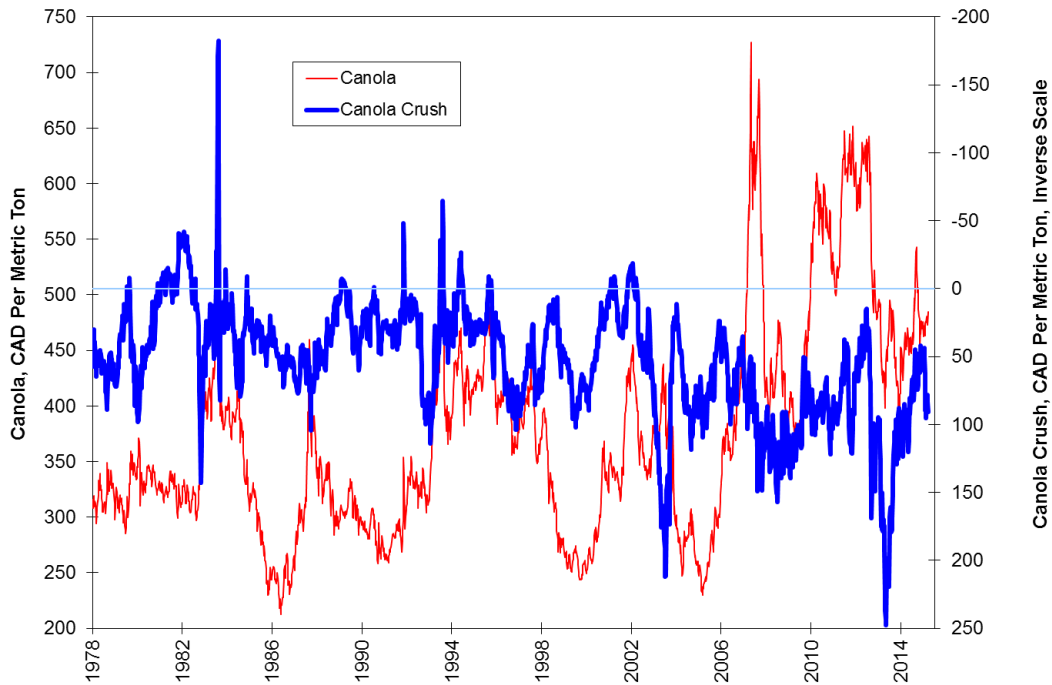
Now let's substitute canola for soybeans in the crush spread equation to create the canola crush spread. This spread can be calculated in CAD per MT as:

$$CanCrush = \frac{CAD}{USD} * [22.0462 * BO * .4 + 1.1023 * SM * .6 * .75] - RS$$

The constants of 0.4 and 0.6 for soybean oil and soymeal reflect a constant soybean oil percentage of crush value of 40 percent. The 0.75 adjustment for soymeal reflects canola meal's lower protein content; 'RS' is the common ticker symbol for canola futures.

This spread is a very indirect indicator for canola's relative price vis-à-vis soybeans; no matter how hard you try, you cannot crush a canola seed and get either soybean oil or soymeal. It simply tells us whether canola is priced low enough to remain competitive with soy products and by extension with the other edible vegetable oils and feed-mix ingredients competing with soy products. As the canola crush, plotted inversely below, has remained positive for nearly all of the past 37 years, we can conclude the smaller canola market is being driven by its larger soybean competitor. This adjustment process also produces the higher canola volatility seen above.

### The Canola Crush Spread



Source: CRB-Infotech CD-ROM, Bloomberg

Canola's high relative price volatility should not be surprising given its smaller size, large number of competitors serving different final markets, its large Southern Hemisphere competition for palm and sunseed oils and from the Southern Hemisphere soybean crop and from its European rapeseed progenitor. Currency volatility, ranging from the Malaysian ringgit and Indonesian rupiah to the euro, yuan U.S. dollar and Argentine peso enters the equation as well. The amazing part of all of this is the canola market has been characterized by some very long-running trends in both directions. Whether this quality was inserted by the plant-breeders who created it is lost to history.