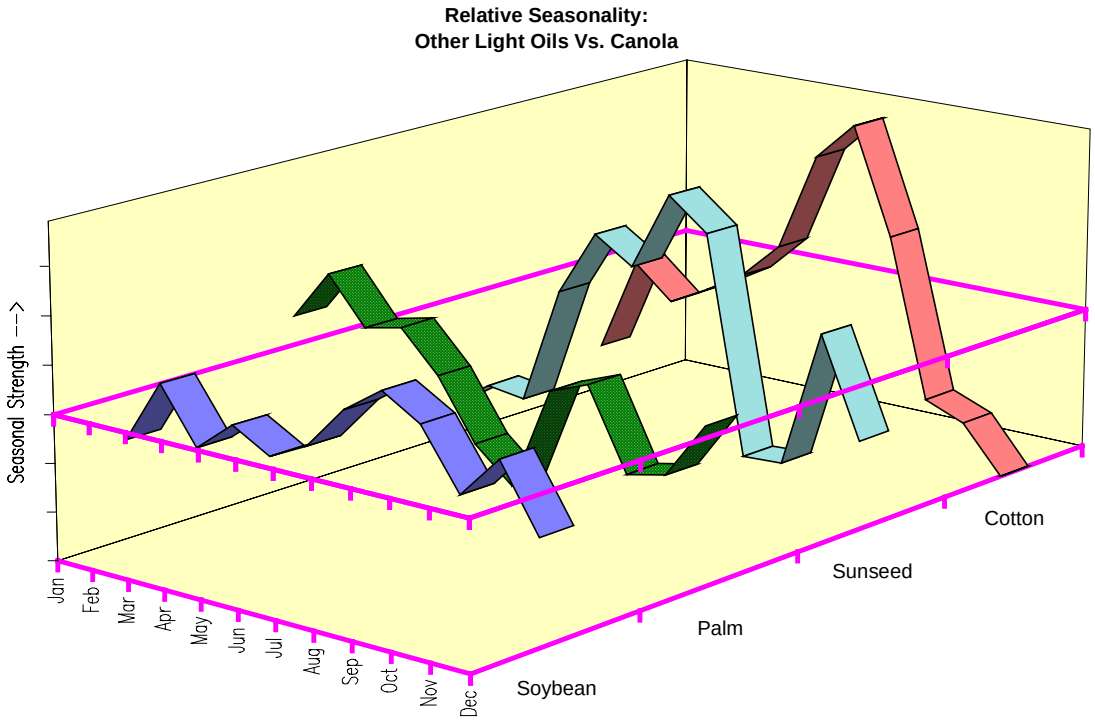
## Canadian Content

Has the line “I’m a big player in the global fats and oils market” ever been used successfully in any singles bar across the land? One hopes not. But as time advances and youthful dreams fade, it is these Lords Of Lipids who enjoy the last laugh.

Canola, a genetically-altered form of rapeseed, has made significant inroads into world markets for polyunsaturated vegetable oils in recent years. However, like most things Canadian, it has remained largely hidden from American eyes, even though it has emerged as the flagship contract of the Winnipeg Commodity Exchange. This is unfortunate, for canola provides a number of excellent spread-trading opportunities for futures traders, particularly against the CBOT soy complex.

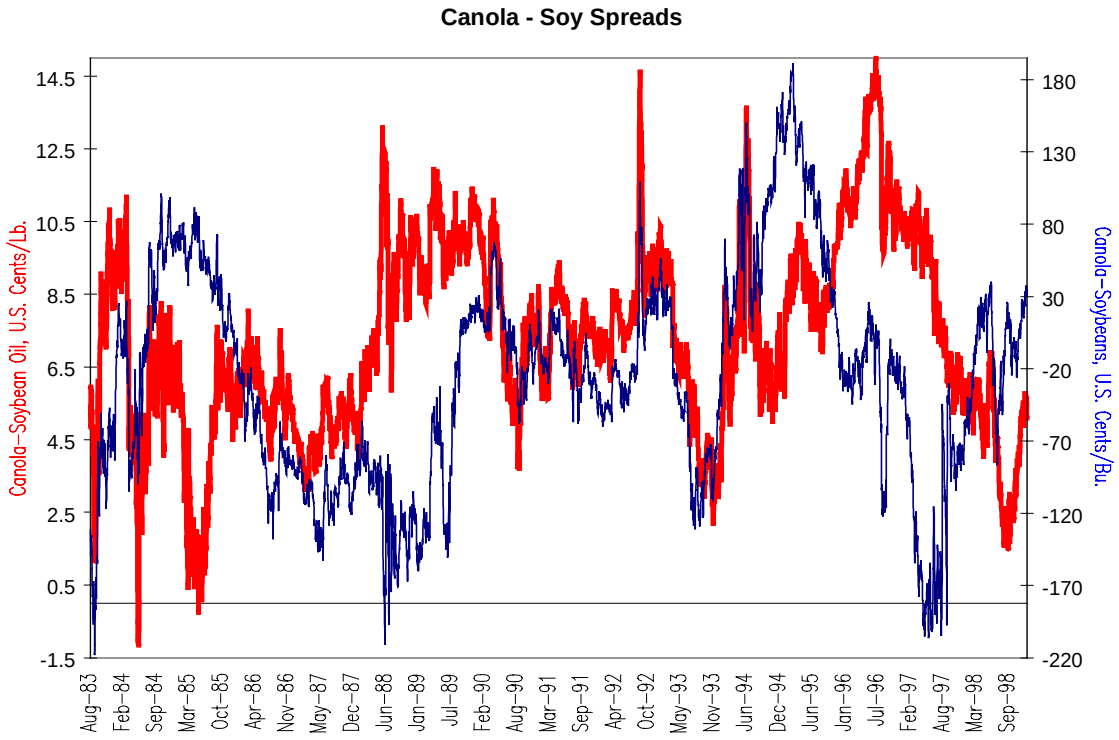
One way of confirming this relationship is to view the seasonal price factors of other light vegetable oils – cottonseed, palm, sunflower seed, and soybean oil – against those of canola oil. The flatter the relative profile, the more closely the two crop cycles are in alignment, and the more likely the spread between the two markets will reflect underlying fundamental factors as opposed to seasonal dislocations. For example, the “Relative Seasonality” chart below indicates we should expect the price movement of cottonseed oil to be stronger than that of canola in the late summer, just prior to the U.S. cotton harvest, and much weaker during the winter, just after the harvest. The price of sunflower seed oil has a similar seasonal pattern to cottonseed oil, while palm oil, produced in tropical growing conditions, has a very different seasonal pattern. Soybean oil, however, has a seasonal price pattern close to canola oil’s, with most of the deviations arising from the southern hemisphere soybean production cycle.




The spreads between canola and both soybeans and soybean oil, once adjusted for the U.S.-Canadian exchange rate, are remarkably trendy. The conversions for canola, which is priced in Canadian dollars per metric ton, are:

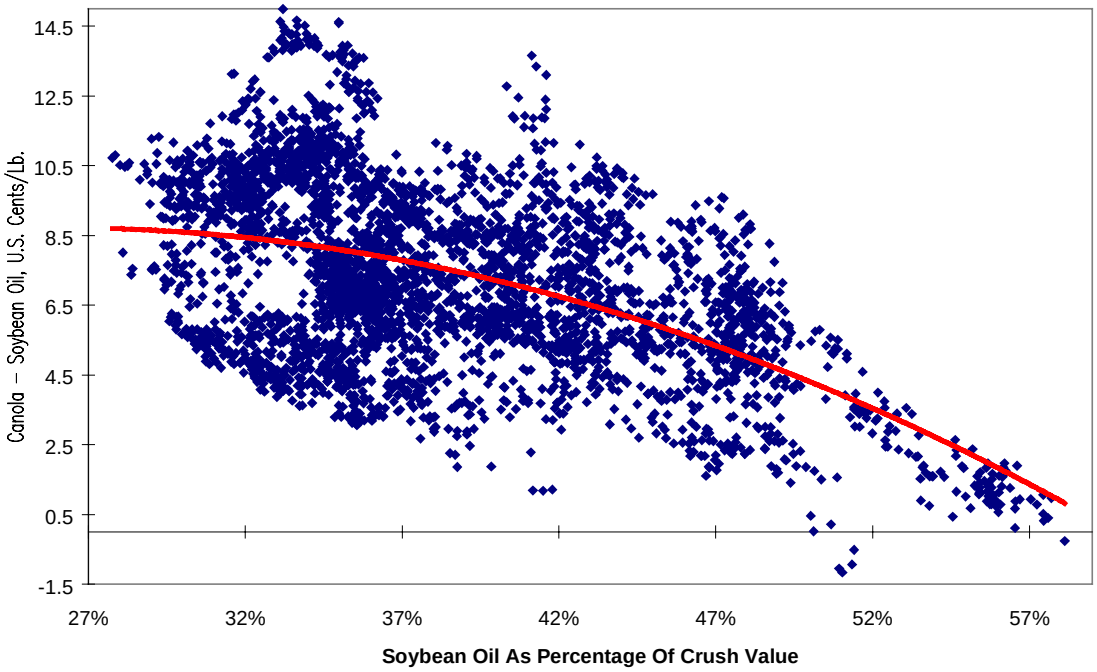
$$\left(\frac{Canola}{44.092}\right) \Big/ \left(\frac{Can\$}{U.S.\$}\right) = U.S.\$ / Bushel$$ for soybeans, and

$$\left(\frac{Canola}{.088}\right) / \left(\frac{Can\$}{U.S.\$}\right) = U.S.Cents / Gal.$$ for soybean oil.




The spread between canola and soybeans does not parallel the spread between canola and soybean oil, as seen in the graph below with canola converted to a U.S. dollar basis. The difference between the two spreads is largely a function of the percentage of soybean oil in the total crush value, which we will designate as the "Oil%." As the Oil% increases, the spread between canola and soybean oil tends to decrease, and to decrease at an accelerating rate, as shown below.

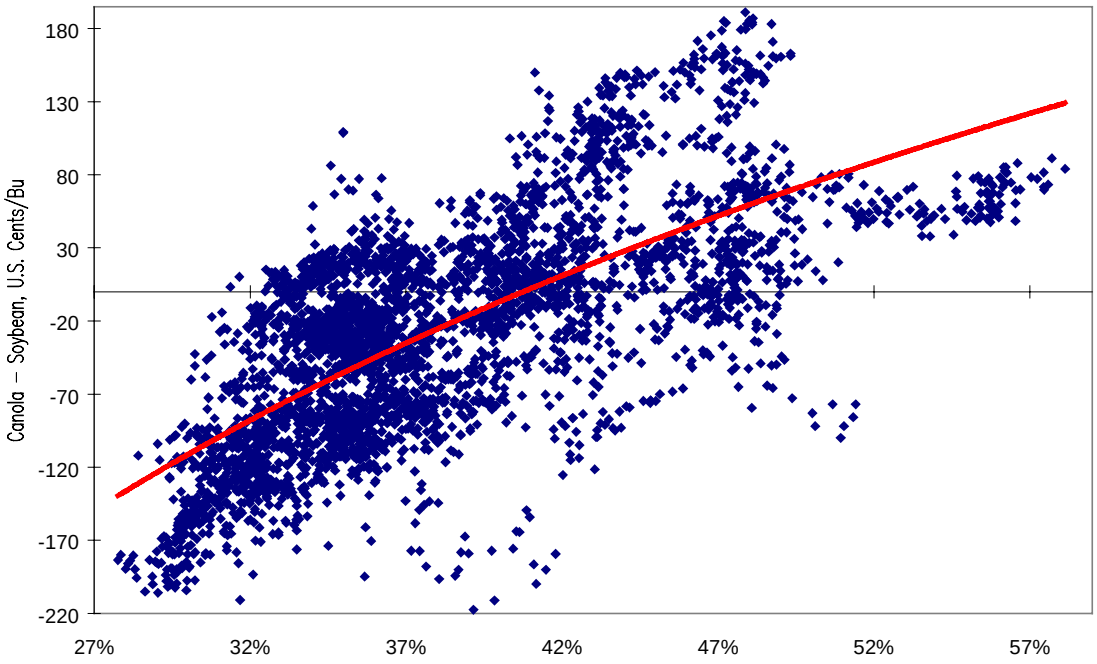
**Canola / Soybean Oil Spread As A Function Of The Oil%**




At first, this relationship may seem a little counterintuitive. While soybean oil is usually below 50% of the crush value of a soybean, canola oil is usually well over 60% of the crush value of the canola seed; canola meal has only about 70% of the protein content of soymeal, and is thus less valuable as livestock feed. One would think, therefore, that a high value for soybean oil would result in an even higher value for canola oil, and hence for canola itself. Alas, this is true for only part of the Oil% spectrum, as shown below. Canola prices increase faster than soybean prices as the Oil% increases, but then a pattern of diminishing returns appears. As the Oil% moves over 50%, the canola / soybean spread flattens.

The combination of these two relationships suggests if soybeans rally as a function of stronger soybean oil prices, and not as a function of stronger soymeal prices, as is more common, then canola prices need not rally in sympathy. On a more fundamental basis, soybean oil and canola oil are not universal substitutes, and soybean oil can increase in price considerably and still be competitive with canola.

**Canola / Soybean Spread As A Function Of The Oil%**




**Competitive Crushes**

While the CBOT has all three contracts required for your crushing – and trading – pleasure, the WCE simply has an oilseed contract. A benchmark crush spread using canola seed instead of soybeans as the feedstock is simple to construct, trade, and monitor. Data from the close of business on January 26, 1999 is presented. The crush products, soybean oil and soymeal, need to be converted to Canadian dollars per tonne, and an adjustment for the relative protein content of canola meal is applied. An average Oil% of 40%, as opposed to the 45.8% prevailing on this date, is used, as is the custom for those who follow this spread.

**Canola Crush**

Oil Revenue

| | | |
|---|---|---|
| March soybean oil: | | 22.2 |
| converted to $/tonne: | | x 22.0462 |
| converted to Can. $: | | x 1.5189 |
| percentage of crush: | | x .4 |
| | Can. $ / tonne: | 297.36 |

Meal Revenue

| | | |
|---|---|---|
| March soymeal: | | 131.5 |
| converted to tonnes: | | x 1.10231 |
| converted to Can. $: | | x 1.5189 |
| protein differential: | | x .7 |
| percentage of crush: | | x .6 |

| | | |
|---|---|---|
| | Can. $ / tonne: | 92.47 |

Canola Cost

| | | |
|---|---|---|
| Can. $ / tonne: | | 367.50 |

Canola crush margin:

| | | |
|---|---|---|
| | Can. $ / tonne: | 22.33 |

**Memo:**

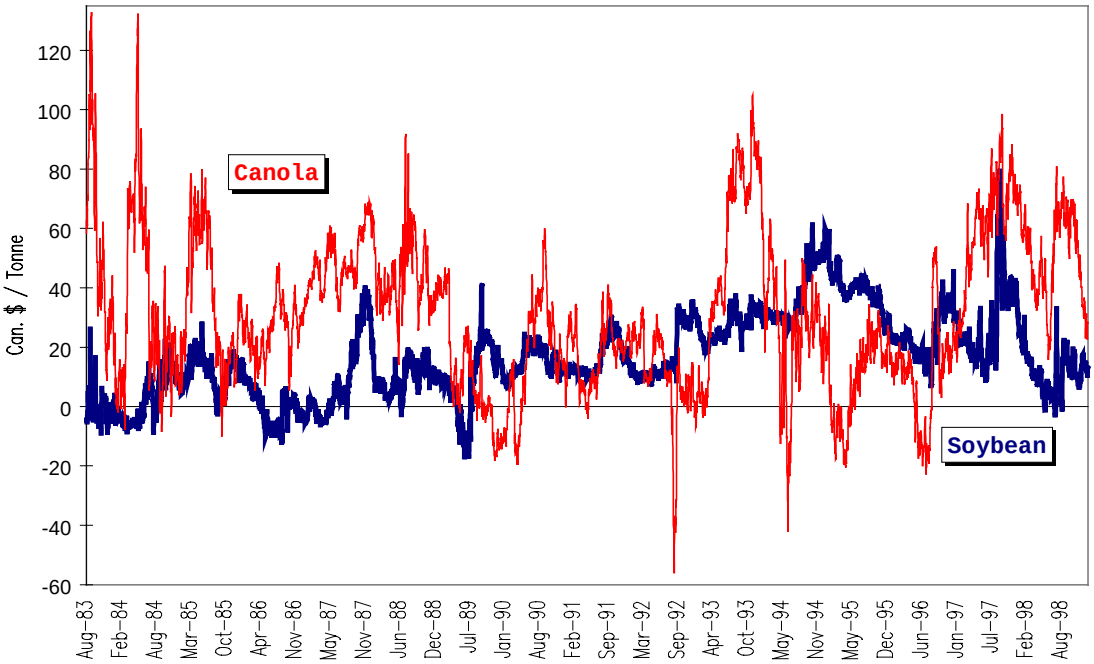
| | |
|---|---|
| March soybean crush, $/Bu: | 0.195 |
| converted to tonnes: | x 36.7437 |
| converted to Can. $: | x 1.5189 |

Soybean crush margin: 10.88

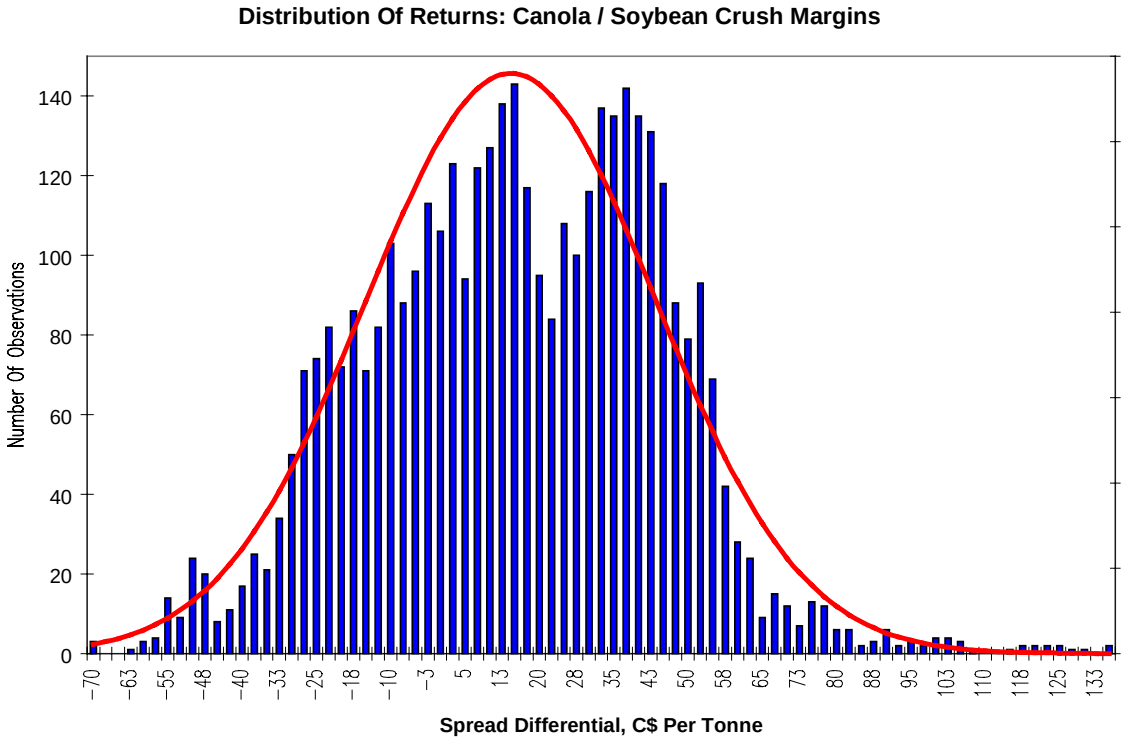
One's instinct upon viewing a canola crush margin of C$ 22.33 as opposed to a soybean crush margin of C$ 10.88 is to scream "arbitrage opportunity!" Besides being inappropriate conduct on both sides of the border, such bellowing ignores the significant engineering and long-term supply contractual constraints involved in making the switch between soybeans and canola. It also ignores the quirky final market substitution constraints in edible oils that make our bar-hopping trader in the opening paragraph such a fascinating conversationalist.

These constraints allow the relative crush margins to have a trending spread over time, as seen below. The two crush margins usually move in parallel fashion, but there are periods of strong divergence as well, such as 1985-1987 and 1994-1995.

**Soybean And Canola Crush Margins**



We should not expect the spread between the two margins to be distributed normally, and indeed it is not. A histogram of the differential with a normal distribution overlaid upon it indicates three anomalies. First, the number of observations of a large differential in favor of the soybean crush margin, large negative values on this chart, is much lower than expected. Second, the mode of the distribution, the observations clustering around a differential of C$ 14 per tonne, is underrepresented as well. Finally, the number of observations of a differential between C$ 30 and C$ 55 per tonne is significantly overrepresented.




These observations suggest a bias in favor of the canola crush increasing relative to the soybean crush, which suggests in turn a certain embedded optionality in this spread. The addition of the canola contract to a grain trading portfolio opens up a world of opportunities: The U.S. / Canadian dollar trade, two different crush spreads, a dependence upon the Oil%, embedded optionality in the spread. And, as our desperate friend in the singles bar might add, we haven't even bothered to mention the MATIF rapeseed contract, which is denominated in euros.