

High Drama in Vegetable Oils

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In the mid-1990s, the leadership of the National Sunflower Association (NSA) gambled that trans fats would someday become a health issue in North America. Sunflower (*Helianthus annuus* L., Asteraceae) is naturally high in linoleic acid. This acid provides a pleasant taste profile but does not provide frying stability. The food industry had grown very accustomed to using partially hydrogenated (PH) soybean oil for frying. Hydrogenation is a chemical process that breaks down unstable fatty acids. The result of this process is the production of trans fatty acids. Soybean oil has always been inexpensive, being a by-product of the protein industry, and has always been available in surplus supplies. The NSA leadership recognized that high linoleic sunflower had no advantages over soybean oil since both oils are unstable when used in frying. Yet, sunflower producers needed to gain the most value from the oil since sunflower is a high oil content seed of 40% and higher.

The process to shift to an oleic based sunflower oil began with seed breeders. The first task was to convince public and private seed breeders that a stable oil would be in demand in the future. This was not an easy task given only limited public discussion about trans fatty acids. Human health research to trans consumption was underway but results were not conclusive at that time. The second task was to convince farmers, elevators, and processors that segregating this new type of sunflower seed was necessary to test the market. The third task was to begin to visit with food processors about this new oil that could deliver good frying stability without the need for hydrogenation. These were all significant challenges requiring investment in time and money.

The NSA recognized that differentiation between traditional and the new mid-oleic sunflower would be necessary for farmers and elevators to insure segregation at the first market levels. Thus the term NuSun® sunflower was developed. This identifier soon became well adopted not only among producers but the food industry as well.

The first NuSun hybrids were introduced in 1999 and 2000. Some of the hybrids did not yield as well as traditional hybrids and the oil content was generally lower. The market paid the farmer a higher price for NuSun which helped underwrite the lower yield and oil content. However, as second and third generation NuSun hybrids were introduced, the yield and oil drag disappeared. In 2005 and 2006 it is clear that NuSun hybrids are outperforming the traditional types.

Over the last several years, producers have shifted their sunflower production to NuSun. In the 2006 crop year, the NSA estimated that 85% of the oil-type sunflower acres were NuSun with most of the remainder high oleic sunflower. There is only a minimal acreage of traditional linoleic sunflower planted in the US.

IMPACT OF LABELING AND BIO-DIESEL

The National Sunflower Association's NuSun gamble paid off when the Food and Drug Administration announced its intention to require labeling of trans fatty acids in 2002. The label requirement became a reality in 2006. Prior to the labeling requirement, a number of food companies began to utilize NuSun sunflower oil in key food products. Major food companies announced their intention to eliminate trans fats in all of their products prior to the FDA requirement. Canada's Health Canada announced its trans fat labeling requirement to begin at the end of 2005. Some European countries began to move against trans as well. The soybean and canola industries announced their plans to develop a low linolenic and high oleic soybean and canola planting seed to meet new market demands. The other oils that are stable without hydrogenation include palm, corn, and cotton oils. Palm is high in saturates and many food companies prefer not to have it listed on their food product ingredient list. Corn oil is a by-product of other industries and its production is static and not likely to increase despite higher demand for stable oils. Cotton oil is a by-product of the fiber industry. Higher oil prices will not spur additional production of cotton. So there are limited choices of naturally stable oils for a market with increasing demand. The recent New York City regulation mandating the elimination of trans fats from the city's restaurants is another example of new demand.

The other part of the drama is bio-diesel. With the advent of high petroleum prices and government incentives, vegetable oil is finding significant market growth as a partial replacement of diesel. Numerous bio-diesel plants are either in construction or the planning stage. Bio-diesel demand has become a factor in the

vegetable oil market. The Chicago soybean oil futures contract often moves in sympathy with world petroleum prices. This demand is placing pressure on the bottom side of the vegetable oil market. That means that the lowest priced oil, such as soybean, is gaining market support via bio-diesel which in essence then supports all vegetable oil prices.

Vegetable oil prices have moved higher and are likely to remain higher with specific demand on the bottom and top-side of the market. In July of 2006 soybean oil represented 44% of the value of a bushel of soybeans. Traditional values are in the low 30s.

Historically, food companies have been able to buy inexpensive vegetable oil for most of their needs. This is no longer the case. Because of the dramatic changes taking place, vegetable oil users must be longer term planners in order to lock in supplies. All of this makes for a dynamic scenario for oilseeds, especially high oil content oilseeds.

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