



## Case Study Milligan Biotech

### **About Milligan Biotech**

Milligan Biotech was formed in the mid-1990s by a group of growers and business associated with Canola farming industry in Saskatchewan, Canada. Working with governments and university researchers, the group discovered that off-grade and heated Canola (distressed canola seed) could be converted into very quality biodiesel fuel that is more efficient than regular diesel. Since then, Milligan has grown to become a major producer of Canola-based, non-food products for the Industrial Market place.

### **Issue**

Canola is one of Canada's most important crops and industries. Canada's 60,000 canola farmers produce an average of 6.2 million tonnes of canola seed per year for both domestic use and for export, contributing over \$6 billion annually to the Canadian economy. Canola, however, is a very delicate crop that can be 'stressed' or damaged by flood, drought, or unusual temperature variances during the germination period. Stressed seed cannot be used to make canola oil - its most important agrifood application - so a stressed crop could represent a serious, if not fatal, loss to a farmer, particularly younger farmers who are just starting out in the business.

Using the stressed seeds to produce biodiesel fuel is a case of using one problem to solve another. Biodiesel fuels are renewable, non-fossil fuels, are cleaner-burning than petroleum-based and reduce greenhouse gas emissions from the diesel engines. The work to develop the fuel was painstaking. The researchers developed an innovative technology using low energy crushing without solvents to separate the oil from the seeds and then separate the Biodiesel in the oil from the glycerine (which becomes a by-product) and new value added products are being tested. They also had to develop technologies to deal safely with the mash (seed residue).

### **Action**

Since the operation is a cooperative effort involving farmers, researchers, and government agri-agencies, Milligan had a great deal of trouble securing financing for their project, and most importantly for the product trials. Enviro-Access helped them strategically to arrange financing for each of separate technological advancements they were working on. As well, Enviro-Access worked with them on feasibility studies and market research, and helped manage the difficult task of co-ordinating the efforts of the group that had to look at all options with different views.

The team is now working on plans to integrate all the various stages and operations of the process into a better workflow, and are working new test projects.



## Results

Since 2001, Milligan Bio Tech has nearly doubled its sales every year. The company is now in expansion mode to meet the growing demand for biodiesel. From 2002 - 2005, they participated in a Saskatoon Transit study of the use of biodiesel in their busses. That study showed that biodiesel had a positive impact on fuel consumption, engine wear, and longevity of the bus engines. In 2006 a crushing plant was built in Foam Lake to produce the oil that is used for producing biodiesel and the co-products.

Since 2001, Milligan has introduced three new canola-based products into the market: a Diesel Fuel Conditioner that improves the performance of low-sulphur, petroleum-based diesel fuel; BioTec, a penetrating lubricant; and a Road Dust Suppressant.

## Next Steps

Milligan has just brought a new spray formulation of the BioTec product to market, and are in the process of signing new distribution contracts for their products. Work is continuing to integrate the production processes of collecting, crushing, separating, and refining the product.



"We are very satisfied with the services Enviro-Access offers because their team is able to support our company in various ways since 2004: market research, feasibility studies, financial and strategic council, and environmental impact assessment. With their help, we were able to access financing for our scale-up plant to demonstrate the viability of our innovative technology, converting distressed canola seeds into very high quality biodiesel fuel." - **Zenneth Faye, Executive Manager, Milligan Bio-Tech Inc.**



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