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BEYOND MOOSE AND MOUNTAINS: BUILDING CANADA'S BIO-BASED ECONOMY.



Growing Oil: A Golden Opportunity for Canada

Linnaeus Plant Science Inc., Saskatoon, SK

One day, in the not-too-distant future, a Canadian farmer will look out into his fields and see hectares of nylon and hydraulic fluid happily growing in the sunshine. Maybe not the *actual* nylon and hydraulic fluid, but oilseed crops containing castor oil as part of their composition, which is precisely what industry needs to manufacture these products. At least that's the aim of the researchers at Linnaeus Plant Sciences Inc., a biotech company headquartered in Saskatoon and growing crops in Saskatchewan.

While most people accept vegetable oils as foods especially in the forms of canola, corn and olive oils, the idea of using plant oils as industrial chemicals is quickly becoming a reality in North America. The biggest star up to now is the castor bean, which produces the aptly named castor oil.

Improving on castor is Linnaeus' goal. They're doing it by developing a high-value Canadian non-food oilseed crop that is ideal for industrial chemistry. It also happens to be biodegradable, renewable, reduces CO₂ emissions and is superior to the castor crop, says Jack Grushcow, president and CEO of Linnaeus.

For Linnaeus, the potential of certain plants to produce this valuable "industrial" vegetable oil is worth the millions of dollars it is investing into the technology. Its mission is to develop a plant that can learn how to make the right kind of oils that can substitute for a variety of petroleum products. This, of course, means less dependence on foreign oil, pollutants and greenhouse gases that go along with petroleum, says Grushcow.

What the biotechnology company does is create crop plants that have the same "slippery" gene as the castor bean, but without any of the castor plant's drawbacks, says Grushcow. The oil from these genetically modified plants are an easy alternative source of castor oil, as well as substituting for many petrochemicals currently on the market.

Canada is already a world leader in ordinary oilseed agriculture but as prices drop for this type of oilseed, farmers aren't motivated to grow it. But Linnaeus' extraordinary oilseed plants, with their enhanced oil output, are high-value crops for farmers and that means increased profits at the farm's gate.



For Linnaeus, creating a new and better oilseed crop, one that contains high quantities of the right kind of "slippery" oil, is a golden opportunity for the company and farmers, because industries worldwide are looking for a steady supplier of bio-friendly vegetable oils in order to manufacture lubricants, plastics, nylon and greases.

With the oilseed products too valuable to be used as a bio-fuel alternative, Grushcow's plan is to get into the lucrative business of manufacturing the bio-oil into lubricants such as hydraulic fluids and motor oils. Already the company is beginning a pilot project with Toronto Community Housing to use vegetable-based hydraulic fluids instead of the petrochemical-based product they use now.

"If you look at oil seeds, all you need is sunshine and water and you can synthesize all sorts of industrial chemicals," says Grushcow. "Oil seed crops are like the old concept of the alchemist who wanted to make whatever into gold."