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Energy As Nature Intended

About Us

We are excited to be coming out with our second newsletter. The purpose of these newsletters is to keep you updated on the developments Energrow is undertaking, along with providing related information for your enjoyment. Energrow is a Canadian company that designs and builds custom vegetable oil production systems and converts diesel engines to run off of the oil produced.

The Energrow System produces vegetable oil (a value-added product) which can then be used as a fuel for diesel-run vehicles and/or generators, a feed supplement, organic products, or for industrial applications. Energrow's focus is to help local farmers obtain the most value from their crops and save on feed, electrical, and fuel bills.

Energrow is committed to farmers and offers them an opportunity to be in the foreground of an



environmentally sustainable future.

Energrow aims to benefit farmers by:

- offering a product that is self sustaining
- allowing for production of feed meal
- providing a next best alternative to wholesale crop liquidation
- lowering electrical bills through generator conversion and support in net metering application
- lowering fuel bills through option of mobile vehicle conversion

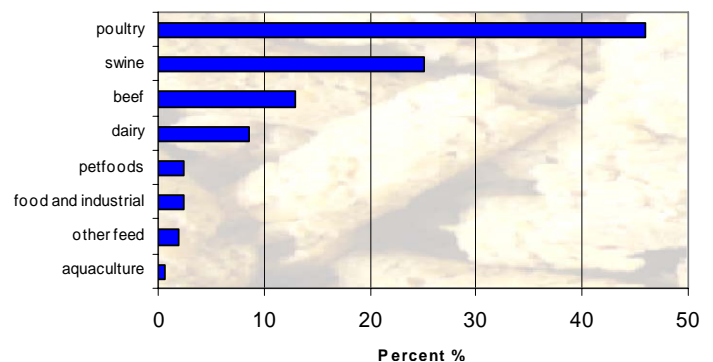
Soybean Oil Meal Use

The Energrow press is a mechanical cold-press expeller that removes about 12% of the oil from raw soybeans. At this percentage the expelled meal is called 'soybean oil meal (SBOM).' This feed supplement can either be used as an animal feed or further processed for food purposes. According to the American Soybean Association "soybean oil meal containing 42-43% crude protein (CP) and 6-7% oil can be used in cattle feed or directly fed to animals as a source of protein and energy, in place of cottonseed, rapeseed, groundnut, or linseed oil".

According to the United Soybean Board (see figure on right¹), 46% of soybean meal produced in the US is used by broilers, layers, and turkeys. Swine account for about 25%, while ruminants (beef, dairy and sheep) account for another 21%. The remaining 8% has a

variety of uses including pet foods, aquaculture, minor feed, food and industrial uses. Swine and poultry are large users of soybean meal due to price and nutrient characteristics. Also, the highly digestible protein in soybean meal provides valuable amino acids to the feed ration. For ruminants, soybean meal has long been in competition with other protein ingredients for meal

Soybean Meal Use (2002-2003)



1-Source: Dr. Keith Smith. United Soybean Board/Crops Utilization Center. <http://www.soymeal.org/pdf/processing3.pdf>

Energrow Expeller

Energrow is currently undergoing various modes of testing and improvement on its current cold-press expeller. A great focus is being placed on being able to offer you a locally produced expeller that ensures high quality and cost-effectiveness. Improvements are being made to both the material and mechanical aspects of the expeller.

The Energrow expeller will implement a warming element to heat the expelled meal. The heat generated during processing will assure the protease inhibitors present in raw soybeans are denatured, making the meal suitable for both ruminants and non-ruminants. Energrow aims to have the press in full production by



Cold-Press Expeller

late November and will be unveiling it along with its entire integrated system at its second planned open house in November. Stay tuned for the exact date and your invitation

Vegetable Oil as a Fuel?

Straight vegetable oil (SVO) has many uses, including that as a fuel in diesel run engines for both generators and mobile vehicles. The first diesel engine was developed to run off of vegetable oil and displayed at the 1900 World's Fair in France. The German inventor, Rudolf Diesel, was certainly aware of the possibility of using vegetable oil as a fuel.

Vegetable oil has many similar properties to that of diesel making it very suitable for use as a fuel. Soybean oil, for example, is an excellent lubricant, sulphur-free and has a high flash point making it a very safe and environmentally friendly fuel. Due to it maintaining shorter fluidity in colder temperatures than diesel it requires heating to be effectively run through the motor.

SVO can be used in two ways: a one or two tank system. The one-tank system is the cheaper alternative of the two, requiring only a heat exchanger and SVO filter in place of the OEM filter. This system would then allow for the SVO to be mixed in directly with the diesel. Mixing percentages are based on the outside temperature. (ie: Summer 80 SVO/20 diesel mixture and Winter a 40 SVO/60 diesel mixture).

"The use of vegetable oils for engine fuels may seem insignificant today. But such oil may become in the course of time as important as petroleum and the coal tar products of the present time." —Rudolf Diesel

The two tank system requires that an extra fuel tank be incorporated for holding the vegetable oil. Initial startup is with diesel, but once the vegetable oil lines are warm, the system can be switched over to run off of 100% vegetable oil, creating a noticeable savings in fuel for those who put on a lot of mileage or use on their engines.

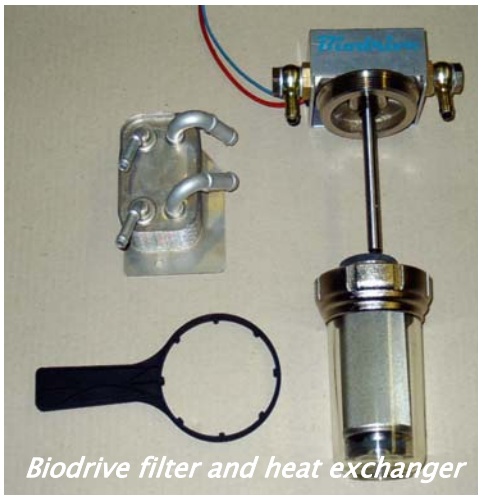


Straight Vegetable Oil (svo)

Vegetable Oil as a Fuel? (Cont'd)

Energrow is in close partnership with the Swiss company Biodrive Ltd. Biodrive is a manufacturer of conversion kits and parts for diesel-run motors for both one and two-tank systems. Having been in the industry for over 6 years, Biodrive has proved the quality of its products and services not only in Switzerland, but in many other countries throughout Europe.

The vegetable oil filters, for example, are constructed with a built in heating element to ensure the oil is kept up to temperature and a stainless steel filter cartridge to ensure easy cleaning and long term use. A glass housing also allows the user to see when cleaning of the filter is necessary and is designed for trouble-free access.



Biodrive filter and heat exchanger

Funding for this project was provided in part by Agriculture and Agri-Food Canada through the Agricultural Adaptation Council's Biofuels Opportunities for Producers Initiative (BOPI) Program, Perth Community Futures Development Corporation (CFDC), as well as the University of Waterloo.

www.energrow.ca

Our website will soon be updated with a new look. Please check back soon!!

Biodrive



Two-tank tractor conversion

Thank you Readers!

Thank you for your support and interest as Energrow is growing. We want to ensure that both our current and future products and services suit the needs of the farmer. We believe strongly in providing the farmer with the means to add value to his own crops. If you have any suggestions, ideas, or comments we would very much appreciate hearing from you. Please contact us using any of the following means:

email: info@energrow.ca

phone: 519.595.4798/519.595.8967

fax: 519.595.8299

To view the system please reserve a time.

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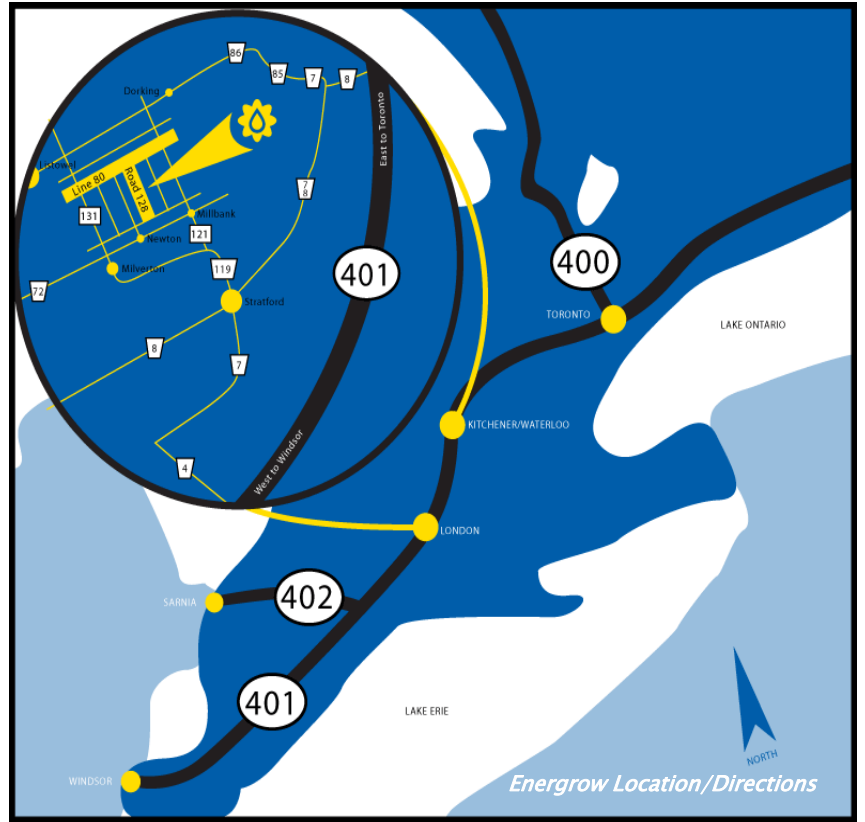
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We're on the Web!

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