



New market for ethanol byproduct

Saskatchewan's ethanol production facilities frequently sell their grain mash byproduct, called dry distillers grains with solubles (DDGS), to feedlots for use as a nutritious livestock feed.

The DDGS can also be used to produce synthesis gas (syngas) that can be sold to industry, converted into green diesel or used by the distillery to produce electricity. Syngas has about 50 per cent of the energy density of natural gas.

The process, called gasification, involves heating the DDGS to very high temperatures while injecting steam to provide an oxygen/nitrogen "carrier gas". At the end of gasification, nothing remains but ash, and syngas, which is a mixture of carbon monoxide, methane, carbon dioxide, hydrogen and a number of hydrocarbons.

Ground-breaking research at the University of Saskatchewan's Department of Agricultural and Bioresources Engineering, funded by the Agriculture Development Fund, has established the optimal combination of heat and time to produce high-quality syngas using both corn- and grain-based mash.

The best syngas was produced using a mash with a moisture content of 20 per cent, although more research could raise this to 60 per cent, which would allow syngas producers to use mash without drying it. Corn mash produces a slightly superior syngas compared to wheat mash, but both produce syngas with considerable heating value.

In a related project, the researchers looked at using the ash as a fertilizer and found that a mixture of ash and nitrogen had the same effect on crop yield as a urea treatment despite having only half as much nitrogen. The ash significantly increased yield similar to a mineral fertilizer treatment, and was also found to be an effective source of phosphorous for canola crops.

The results of this research will help Saskatchewan's ethanol producers develop new industrial, fertilizer and fuel markets for their DDGS byproduct.

The Agriculture Development Fund provides funding to help institutions, companies and industry organizations carry out research, development and value-added activities in the agriculture and agri-food sector. The results produce new knowledge, information and choices in technologies, techniques and varieties for farmers, ranchers, processors and input suppliers, to improve the competitiveness of Saskatchewan's agriculture sector.

In 2011, the Saskatchewan Ministry of Agriculture committed \$14.5 million in ADF research funding.

FOR MORE INFORMATION

- Visit the Saskatchewan Agriculture research reports page at www.agriculture.gov.sk.ca/ADF/Search and enter the report number (#20070128) into the search function.

VIDO-INTERVAC: TAKING VACCINE DEVELOPMENT TO THE NEXT LEVEL



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Construction of the International Vaccine Centre (InterVac), the newest facility of the Vaccine Infectious Disease Organization (VIDO), is almost complete at the University of Saskatchewan campus.

InterVac will be Canada's largest containment level 3 (CL3) agricultural facility and the most advanced of its kind in the world. InterVac will expand Canadian research capabilities into infectious diseases, including those affecting agriculture, like bovine tuberculosis, prion disease, avian and swine influenza, among others.

"Many emerging and re-emerging infectious diseases must be studied in the protected environment that only a CL3 facility provides," said Dr. Andrew Potter, Director and Chief Executive Officer of VIDO-InterVac. "The unique capabilities of InterVac will expand the range of technologies and opportunities to study a greater number of infectious diseases and, in turn, support us in leading the international fight against infectious diseases of both humans and animals."

VIDO-InterVac has always worked closely with livestock producers, animal health companies and agricultural researchers to select research projects relevant to the livestock industry. Regular meetings are held with industry technical groups, composed of producers, veterinarians, agricultural economists, nutritionists, agricultural engineers and extension agronomists with a goal of developing resources for producers that can be accessed through VIDO-InterVac's website. The organization also leads two technical groups dealing with swine and beef cattle production as an aid to the livestock industry.

VIDO was founded as a research organization of the University of Saskatchewan in 1975 with five employees and a \$100,000 budget. Today, there are about 150 staff and an operating budget of about \$12 million. Research in 1975 focused primarily on infectious diseases affecting food animals and development of livestock vaccines. Early research efforts yielded several commercial vaccines, starting with Vicogen™, the world's first vaccine against scours in calves, as well as vaccines for shipping fever in cattle, pneumonia in pigs and enteritis in turkeys.

VIDO-InterVac also helped to found the Western Canadian Vaccine Network, which facilitates the discovery, communication and commercialization of vaccine research. This collaboration greatly enhances Canada's position as a world leader in vaccine research and development.

FOR MORE INFORMATION

- Contact VIDO-InterVac in Saskatoon at (306) 966-7465 or visit www.vido.org.

ADF Funding Announced

In January, the federal and Saskatchewan governments committed nearly \$14.5 million in funding to Agriculture Development Fund research projects and operating grants.

\$7.4 million were allocated to 42 crop-related projects, including:

- weed control management in lentils;
- the genomics of clubroot disease development in canola;
- improving hard white wheat to meet changing quality requirements; and
- identifying barley varieties with fusarium head blight resistance.

A further \$3.9 million were allotted to 27 livestock- and forage-related projects, including:

- developing new vaccines against infectious diseases in swine, cattle and poultry;
- evaluating canola meal as a protein and energy source for cattle;
- evaluating strategies to more effectively use cool-season corn for livestock grazing; and
- determining optimal maturity when cutting crops for swath grazing.

In addition, \$3.15 million has been committed to renew the five-year operating grants to the Prairie Swine Centre and the Vaccine and Infectious Disease Organization.

