

VALUE ADDED

Today's global economy requires innovation and being one step ahead to stay economically viable and competitive. No longer is it enough to produce a grain or raw product. Today's economy requires alternative and viable uses for a single base unit.

Flax: Vital for Human and Animal Health



Flax had its stronghold in North Dakota in the 1950's when 3.7 million acres were planted. It was refined as linseed oil for the paint market but synthetic alternatives have decreased demand. In 1996 only 86,000 acres were planted. Currently, flax is grown on 600,000 acres in ND, and 10 percent of the flax grown is used for human consumption and an increasing amount for animal food. A major interest for research is in human health benefits. North Dakota is positioned to take advantage of its lead in research on flax. In the United States, North Dakota produces 95 percent of flax and NDSU is the only university in the U.S. with a flax breeder/geneticist.

HUMAN HEALTH BENEFITS

Cancer and Heart Disease Flaxseed is one of the leading sources of omega-3 fatty acid, which is essential to human health. The lignans in the hull of the flaxseed show promise in the treatment of breast and prostate cancer and heart disease.



Dehulling and Milling Processes Refined NDAES researchers have refined the dehulling process developed in Canada to make it a continuous, simplified process. Several ND businesses, including Skandia Mills and North Dakota Innovations, have developed product or run process trials using NDSU facilities and have developed products containing milled flax or flaxseed hulls now commercially available.

Flaxseed Oil Stabilized Researchers have found that the addition of Vitamin E stabilizes flaxseed oil and enhances shelf life of the product.

Creating Foods Using Flaxseed NDAES researchers are investigating ways to incorporate flaxseed into food products for the "food on the go" American society. At present, ground flax is available to sprinkle on salads and breakfast foods. NDAES researchers are investigating ways to make the product more accessible and easier to use. Investigations have shown that the hull has a major amount of the lignans and reduced oil. Using the hull has the benefit of making the product acceptable to the "fat/oil" intake conscious consumer. Incorporating the oil into foods such as yogurt can provide consumers with a means to meet the recommended daily intake for omega-3 fatty acids.



Bison Flaxseed Cookie Invented Several NDSU Graduate students from the Department of Cereal Sciences have created a low carbohydrate flaxseed cookie in the shape of a bison that won second prize in the Product Development Competition sponsored by the American Association of Cereal Chemists.

Roasting Process Refined The roasting process of the seed has been refined to make it an enjoyable snack that can be eaten like sunflower seeds.

Breakfast and Health Bars An excellent way of incorporating flaxseed into the diet of Americans would be to add it to these items. North Dakota is the perfect place for research and development of this sort of product.

ANIMAL HEALTH USES

Flax as a Stress Reducer A calf weaned from its mother suffers stress which lowers the immune system and increasing susceptibility to disease. Feeding flax for a short period following weaning enhances the immune system and decreases morbidity (by as much as 2 percent) and sickness rates, creating greater profit for the producer.

Higher Meat Grade in Flax-Fed Beef NDAES trials add support to other trials showing that flax fed to beef increases the marbling score, giving higher grades of meat which result in a greater return to the producer.

Higher Omega-3 in Flax-fed Beef and Fish Flax-fed beef and flax-fed farmed fish show higher omega-3 fatty acids in the meat. Humans do not obtain enough of these omega-3 fats in their diets and having extra omega-3 in meat and fish is a benefit. Animals and fish obtain omega-3 from their diet. In the case of farmed fish, this means costly oil from sea water fish - flaxseed oil provides an alternative omega-3 source for fish diets.



Wheat Straw By-Product Used as a Substitute for Fiberglass

A Michigan-based company discovered a technique to use wheat straw cellulose in automotive body parts. North Dakota, being the largest producer of wheat, is the obvious choice to undertake trials. Joint investigative studies are being undertaken. Motor vehicle manufacturers are interested; however, more research and trials are needed prior to adoption. There is enormous potential for North Dakota to become involved in an innovative product with a world market.

