



# flaxfocus

## New flax ingredient shines through

WINNIPEG, MANITOBA – Research has shone some light on the benefits of flax to improving the appearance of your hair!

A study, funded by FC2015 Inc., a subsidiary of the Flax Council of Canada, indicates that the consumption of a flax enriched nutrition bar from Glanbia Nutritionals will increase the lustre, shine and overall condition of your hair.



“The Flax Council of Canada is excited to support innovative research like this that could lead to the development of markets for Canadian flax,” said Barry Hall, the Council’s President.

Glanbia Nutritionals is a nutritional ingredient company, with a flax

processing facility in Angusville, Manitoba. It produces a range of health-promoting food ingredients, and is a division of Glanbia, a \$5 billion international cheese and nutritional ingredients group, headquartered in Kilkenny, Ireland.

In the study, a nutrition bar containing enriched flax was consumed by 33 women aged 45-55 during a four-week period. During that time, licensed professional research cosmologists measured various attributes of the women’s hair. They found that softness, smooth feel, lustre, shine, dryness, oiliness, as well as ease of combing and brushing, all improved significantly.

The prototype flax nutrition bar is not currently available to consumers. However, the company is hoping to

commercialize the bar as well as the enriched flax ingredient. It has let companies who are interested in developing products with flax for the hair know that this clinical research has been done on the product.

Glanbia describes the prototype as a “beauty from within” bar which refers to the practise of eating certain foods to improve your outward appearance and your health. It’s a trend which seems to be gaining popularity in the UK and the U.S., especially among both male and female boomers. The concept has been around for centuries among people in ancient Egypt and those in Asian and Indian cultures.

Flax has long been thought to contribute positively toward hair quality. Farmers in Europe and the United Kingdom have a tradition of feeding flax to prize-winning show cattle to make their coats shiny. Similarly, many manufacturers include milled flax in their premium pet food products because the flax appears to promote healthy skin and coat in pets. ■



# Manitoba's fresh flax oil company gets new owner

The Manitoba company, Shape Foods Inc., is under new ownership and directorship, as of July, 2009, and the new owners see international potential for the fresh flax oil the company produces.

"We're excited to turn out a quality omega-3 product for the world," says Jim Downey, the new CEO of Shape Foods Inc.

Shape Foods Inc. owns and operates a 1 1/2 year old, 70,000-square-foot manufacturing facility in Brandon, Manitoba that extracts and bottles flax oil from locally grown flax seeds. The plant started operating in 2007, and sold its first product in January 2008. The company was sold in July 2009, with the new owners retaining the name Shape Foods Inc.

"When fully functioning, we can process 50 tonnes of whole flax a day," said Downey.

The company produces specialty flax oil that is tailored to the needs of today's food industry: Shape Foods' Heart Shape flax oil is special because it has a shelf life of two years on a grocery shelf, without refrigeration, Downey says. The oil has undergone rigorous tests at the Richardson Centre for Nutraceuticals and Functional Foods in Winnipeg, Manitoba to determine its freshness over time.

"We're turning out the champagne of flax oil, one that keeps fresh for two years," Downey said.

A farmer and long time advocate of flax, Jim Downey explains flax oil has both positive and negative qualities: on the positive side, flax oil contains a high percentage of alpha-linolenic fatty acid (ALA) compared to other plant oils. ALA is a valued omega-3 fat. On the other hand, the food industry struggles with this high ALA content of the oil. High ALA content can cause flax to develop an off-flavour or taste if it is exposed to too much heat, light or oxygen. Protecting the oil from these conditions is the key to maintaining its quality, says Downey.

Shape Foods uses a special technique to produce its Heart Shape oil, using machinery imported from Germany and a process developed by Bill Vincent, one of the company's founders. The oil's freshness is

further maintained by the dark-coloured, heat-sealed bottle in which it is sold, says Downey. Like many other foods, it's only after opening the bottle that the Heart Shape oil needs to be refrigerated.

The purchase of Shape Foods at this time is a positive move that supports the growth of the Canadian flax industry, says Barry Hall, President of the Flax Council of Canada. "We need companies processing and adding value to the flax we grow."



The 15-employee facility sits close to flax fields, where flax is grown in ideal conditions, characteristic of the region. It's well accepted that the more northerly flax fields of Canada produce a higher oil and ALA content than others, says Hall.

Downey expects Heart Shape oil to be attractive to supermarkets and health food stores, where its fresh quality will gain it first-time shelf space in the salad dressing aisles. The oil is useful for salad dressings, dips and sauces.

Predicting flax oil is going "mainstream," Downey makes the comparison between flax and multi-grain bread. Twenty years ago, multi-grain bread was hard to find in grocery stores, he says. Today, it is common.



**Not just good, essential.**

Shape Foods Inc. also sells wholesale flax meal and flax butter to other food manufacturers. Flax butter can be a replacement for peanut butter, and is also sold as an ingredient in some cosmetics. In time, the company will develop blended oils of flax and sunflower, and flax, sunflower and olive oils, says Downey. ■



# Making sure kids make good food choices

At home, you may serve foods that meet the nutritional needs of your family like carrot sticks and veggie dip snacks, but when your children routinely spend 8 to 10 hours away from home at a day care, recreation centre, or school, are they still eating “healthy?” Alberta’s Health and Wellness sets out to improve children’s eating habits by providing extensive nutrition information to managers of day care, camp or school cafeterias, and challenging such facilities to offer healthy food choices to the children in their care. The Flax Council has contributed five flax recipes to the initiative.

The Alberta Nutrition Guidelines for Children and Youth: A Childcare, School and Recreation/Community Centre Resource Manual distributed in June 2008 provides extensive nutritional information to managers of day care centres, school cafeterias and recreation facilities – all places where children regularly eat outside of the home. Stressing the importance of good food choices, the Guidelines state two important benefits of proper foods for children and youth: 1) better health and, 2) better grades. Citing research by Zemel (2004, 2005) the Guidelines state “(children’s) poor eating habits and low nutrient intakes” are linked to increases in heart disease, cancer, diabetes and other chronic diseases. Another study by Whalley (2004) linked students’ eating habits with their academic performance and their levels of self-esteem.

The Guidelines rate foods as Choose Most Often, Choose Sometimes, or Choose Least Often, and they follow Canada’s Food Guide. Recipes from the Flax Council for Flax Blueberry Loaf, Flax Banana Bread, Flax Oatmeal cookies, Flax Orange Cranberry Muffins and Flax Orzo Soup each falls into one of the first two ratings.

## Choose whole grains Most Often

In the “Choose Most Often” group are foods which include whole grains and add dietary fibre to the diet. Dietary fibre isn’t broken down by digestive juices so it can help move food through the digestive system,

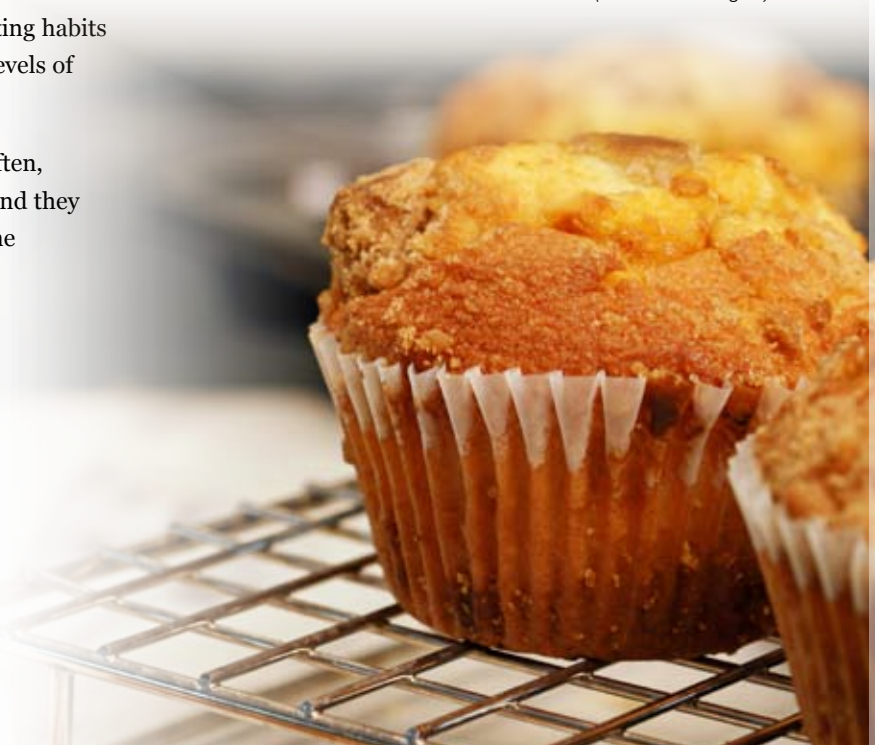
promoting laxation and in some cases controlling LDL-cholesterol. Foods with plenty of dietary fibre can be a factor in children and adults maintaining an appropriate weight because they can help make you feel full for a longer time. The Alberta Nutrition Guidelines’ suggested servings of grain products for children and youth follow.

### Alberta Nutrition Guidelines’ suggested servings of grain for children and youth

2-4 years:	3 servings/day
4-8 years:	4 servings/day
9-13 years:	6 servings/day
14-18 years:	6 servings/day for girls and 7 servings/day for boys.

In the United States, Food Business News (May, 2009) sounded alarm bells about the low whole grain intake of school-aged children, reporting U.S. children 2-17 years eat 0.56 servings of whole grain per day. This level is below the recommended servings in the United States, which range from 1.5/day for toddlers to 5 servings/day for active boys.

*(Continued on Page 4)*



### Add fibre variety with flax

Other nutrition advice is to eat a variety of fibre-rich foods rather than relying on a single source. Foods with oat bran, wheat bran and whole wheat are all good choices, as are those with milled or whole flax in them (milled flax can be more easily digested and it makes the oil available by breaking the outer seed). Flax contains many of the same nutrients found in whole-grain breads and cereals, especially soluble and insoluble dietary fibre, vitamins and minerals (Sahyoun NR, et al. 2006). While the United States Food and Drug Administration's (FDA) excluded flax as a whole grain in its 2006 draft guidelines to the industry, various members of the U.S. and Canadian flax industries argue against flax's exclusion, requesting it be included in the whole grain definition. Food Business magazine (May, 2009) reports some in the flax industry maintain flax should be viewed as "pseudocereal" like quinoa and buckwheat, both of which did qualify in the U.S. as whole grains.

If your child is attending a day care facility or camp this summer, check the menu. If no flax foods are on the menu, you might share your own flax recipes with the cooks, or suggest they search the recipes section of the Flax Council, [www.flaxcouncil.ca](http://www.flaxcouncil.ca), or that of Alberta's [www.healthyalberta.com](http://www.healthyalberta.com). ■

### How much fibre is there in flax?

One tbsp of flax contains as much total dietary fibre as 1 slice of whole wheat bread, 1/2 cup of cooked brown rice, or 1/4 cup of cooked oat bran.

(USDA Nutrient Database for Standard Reference, Release 18). ■



## Flax plantings increase

For 2009-2010, producers in western Canada have increased seeded area of flax by 10%, although production is forecast to decline slightly due to lower yields. Agriculture and Agri-Food Canada's July Bulletin predicts flax planting to be to be 636,000 hectares (ha) this growing season (2009-2010).

The blue-flowered flax fields are in now bloom, providing a special treat that we on the Prairies are happy to share with you. From our fields to your homes, happy summer! ■



# Examining omega-3 nutrition

Many of you have received our email announcing the new information called Examining Omega-3 Nutrition by Dr. Diane Morris. Thanks for your positive feedback; some of it is listed below:

## Kudos on Examining omega-3 nutrition

- “We are all raving about your booklet! What a great amount of info and I love the way it is laid out – this will be tremendously helpful!”
- “This is very good information – actually may be helpful for others to see there is a benefit from the plant based omega-3’s.”
- “I thought it was very well written. Great that cost difference was included. Also, about the health of vegans and vegetarians. Some patients think that only fish are good sources. I always recommend the flax instead.”

Examining omega-3 nutrition may be found at [www.flaxcouncil.ca](http://www.flaxcouncil.ca), under the Nutrition tab, Technical.



The Council has also produced an information response kit on Omega-3 nutrition. If you find some inaccurate or incomplete information about flax and omega-3 fatty acid nutrition, please send a copy of the article or website link to the Flax Council. We'll send out a response kit to the journalist or writer. ■



# Letters

## QUESTION: Heating flax to remove water

Is it reasonable to heat raw dry flax seeds, enough to drive out the water in the seeds before processing them in a food processor, in order to reduce the risk of rancidity during storage afterwards? Does the presence of water in ground seeds (without heat treatment) facilitate rancidity over time?

I began dry heating with the seeds in a large skillet just for the toasted flavor and noticed a lot of water on the glass lid of the pan. Now I leave the lid off for most of the heating and later put the lid on but dry it now and then with paper towel or dish towel. The whole heating process takes about 10 minutes before I let it cool before processing. The ground seeds go into a glass jar in the freezer for later daily use.

Also, I wonder if heating the seeds just enough to remove water and get a little toasted changes the oil in the seeds in a significant way.

Thanks in advance.

**ANSWER:** Your question has to do with water in foods, which is called preformed water. Preformed water can affect how quickly rancidity develops in a particular food, although its effects are not always straightforward. In other words, preformed water can increase the rate of oxidation within a food, thus enhancing rancidity, or it can slow the rate of oxidation, thus delaying the onset of rancidity. The effects of preformed water on rancidity depend on several factors, including the internal structure of the food -- what food scientists call the food matrix.

In the case of flax seeds, I am not aware of any studies of the effects of preformed water on rancidity. Flax seeds contain about 7.7% moisture or water. Compare this figure with canned Navy beans, which are about 66% water, or cream of chicken soup, which is 85% water. So, flax seeds are dense and fairly low in water. The low water content of flax seeds might be expected to increase the rate of oxidation and rancidity in flax

seeds. However, flax seeds are very rich in lignans, which are antioxidants. Antioxidants slow the rate of oxidation and help prevent rancidity. Studies in animals show that the lignans in flax slow the rate of oxidation.

Because the flax seed matrix is complex, it is impossible to predict how the preformed water in the seeds affects the oxidation rate in quick-roasted seeds. However, there are studies showing that heating whole and milled flax to either 100 deg C or 350 deg C (212 deg F or 660 deg F) for one hour had no effect on oxidation or the fatty acid composition of flax. Also, boiling a flax-enriched spaghetti for 12 minutes also did not affect the omega-3 fat content of the product. Roasting whole flax seed at 110 deg C (230 deg F) for one hour and then grinding the seeds to produce milled flax had no effect on oxidation.

Many people enjoy the taste and convenience of dry roasted flax. In researching your question I spoke with Jane Reinhardt-Martin, a registered dietitian who is revising one of her flax cookbooks. Jane regularly roasts flax seeds. She uses a medium to medium-high temperature, adds the flax seeds, covers the pan and heats the seeds quickly -- usually less than 1 minute -- until they pop...just like popcorn. When the seeds have popped, she lets them cool briefly and then turns them out onto a plate or paper towel to dry before storing them. This method produces a popped seed that is easily added to salads and other foods, can be stored in the refrigerator for up to 2 weeks and tastes great.

The bottom line is this: We do not know how preformed water affects oxidation and rancidity in flax seeds, but studies show that quick roasting over medium to medium-high heat does not affect the nutrient content of flax seeds.

I hope this information is useful to you.

Best wishes,

Diane Morris, PhD  
Nutritionist

## **QUESTION: Restrictions on flax oil imports in France and Germany**

A North American supplier of flax oil enquired about the circumstances surrounding possible restrictions of flax oil imports by France, and Germany. It appears that a flax competitor might have circulated on the Internet information about bans on flax oil, which led some North American consumers to question the safety of flax oil.

**ANSWER:** To find the answer, we asked for the help of **Mr. Gordon Pugh, Counsellor (Agriculture), Mission of Canada to the European Union, Brussels, Belgium.** Mr Pugh sent the following responses:

### **FRANCE**

*Flax oil is authorized for food consumption in France. Any conditions placed on it reflect concerns about rancidity, not food safety. In the past, until 2005, flax oil was not considered as food grade, and totally prohibited. As such, it was only a “technical” (industry) oil. Under the pressure from several diet food companies, this position was reviewed by the proper agency, Agence française de sécurité sanitaire des aliments (AFSSA ) in 2004 and 2005, with a final opinion in 2006.*

*Flax oil is authorized for food use in France under the conditions described in the “Arrete” (Regulation) of 10 December, 2008, which states:*

- *Refined flax oil is authorized for use as an ingredient in food oil and spreadable fat products;*

- *The oil component of products described above cannot contain more than 15% alpha-linolenic acid to limit the risk of it going rancid. The quantity of flax oil included in food products must not cause a consumer to ingest (on a daily basis) more than 2 grams of alpha-linolenic acid (Editor’s note: a tablespoon of flax oil contains 8 grams of alpha-linolenic acid).*

*Mr Pugh notes these conditions make the marketing of 100% flax oil only feasible as part of a blend of oils. The 15% maximum of alpha-linolenic acid condition has to be compared with the percentage in flax oil, usually close to 50-60%.*

### **GERMANY**

**From Ms. Nora Grütters, Trade Commissioner Assistant – Agrifood, at the Canadian Consulate in Dusseldorf, who obtained her information from the German Ministry of Food, Agriculture and Consumer:**

*The Ministry stated: there are no special food law requirements for flax or linseed oil in Germany. However, there are other rules / guidelines (not compulsory) which should be adhered to with respect to marketing, labelling, characteristics, production methods.*

*With regard to flax oil, the guidelines say:*

*“...Linseed/flax oil always has to be designated as flax / linseed oil. Mixtures of flax oil and other edible oils must clearly indicate the percentage of flax oil...”* ■

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Flax Focus is an electronic publication of the Flax Council of Canada. Letters, enquiries and comments are welcomed, and may be directed to the Editor, Barbara Metrycki. Staff of the Council are: President, Barry Hall; Executive Assistant, Monika Haley; and Financial Administrator, Maureen Jordan. The Board of Directors of the Council, under Chair, Eric Fridfinnson, is listed at [www.flaxcouncil.ca](http://www.flaxcouncil.ca)

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