

NuLin[®] Flax

A new flax/linseed from the Viterra breeding program with enhanced OMEGA-3 (linolenic) levels beyond anything currently available.

Viterra's NuLin also contains high levels of oil and protein content, as well as dietary fibre, phytochemicals (phenols), vitamins and minerals.

Key Features:

- NuLin provides enhanced omega-3 levels and decreased saturates
- NuLin provides consumers with one of the most powerful nutritional and disease preventing packages from plant sources for food uses
- For industrial applications, NuLin oil has the potential to enhance process efficiency and product quality
- NuLin meal or cake is a valuable protein and oil source for ruminants and horses
- NuLin oil provides opportunity to enrich food products with increased omega-3 levels
- Whole seed NuLin for enhanced omega-3 levels in human food and animal feeds

Table 1. Fatty Acid Content (%) and Iodine Value – Regular Flax Compared with NuLin[®].

	CDC Bethune ¹ Regular Brown Flaxseed	NuLin 50 ² Yellow Seeded
<i>C16:0 (Palmitic)</i>	4.79	4.89
<i>C18:0 (Stearic)</i>	3.05	2.23
<i>C18:1 (Oleic)</i>	18.15	9.54
<i>C18:2 (Omega-6)</i>	16.09	12.75
<i>C18:3 (Omega-3)</i>	56.23	69.08
<i>Total Saturates</i>	8.23	7.46
<i>Iodine Value</i>	190	211

Data based on representative seed sample from 6 field test locations across Canadian Prairies in 2009. All analyses conducted by POS Bio-Sciences of Saskatoon, Saskatchewan, Canada. Total saturates include myristic, palmitic, margaric, stearic, arachidic, behenic and lignoceric fatty acids.

1 Data of check variety is CDC Bethune – Note that commercial flax would be a mix of many varieties.

2 Data from high omega-3 variety, Nulin[®] 50.



Table 2. Whole Seed Analysis of Regular Flax versus NuLin (dry basis)

	CDC Bethune	NuLin 50
<i>Oil</i>	43.2 %	44.7 %
<i>Protein</i>	21.2 %	22.9 %
<i>Total Dietary Fibre*</i>	21.2 %	19.9 %
<i>Total Phenols</i>	174 mg/100g	166 mg/100g
<i>Ash</i>	2.77 %	2.92 %

*The ratio of soluble to insoluble fibre is approximately 30:70 (equivalent to 6.0g soluble and 13.9g insoluble fibre per 100g whole seed NuLin. Data based on a representative seed sample from six field test locations across the Canadian Prairies in 2009. All analyses conducted by POS Bio-Sciences of Saskatoon, Saskatchewan, Canada.

Utilization of NuLin

Food Oil

- Expeller crush to produce high quality oil
- Food enrichment with omega-3 – margarine, yogurt, etc

Whole Seed

- Broad based nutrition: oil, protein, soluble and insoluble fibre, phytochemicals (lignans, antioxidants), vitamins, minerals
- Bakery: toppings, multi-grain, ground into “flour”
- Pet food: valuable source of omega-3
- Chicken feeds: as a feed ingredient for production of omega-3 in eggs



Meal (3% residual oil) or Cake (8% residual oil)

- Livestock industry, mainly ruminant feeds: high protein, residual oil and energy
- Extraction of protein for high nutritional value protein isolates
- Extraction of lignans – natural source plant estrogen

Industrial Oil

- Linoleum floor coverings
- Polymerized oil producing variable viscosity for applications in printing inks, paints, chemicals
- Boiled oil for wood preservatives

Product Supply (Seed)

- Fully identity preserved from Viterra breeding program to commercial co-operator & end use customer
- ISO/HACCP Viterra handling system
- Bulk container, truck, rail or ocean vessel

For more information on NuLin® Flax from Viterra , please contact Michael Rogers, Oilseed Merchant at 1-306-569-5124 or Jenelle Ottenbreit, Market Development - VT Genetics at 1-306-569-4450