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# AVRIO INSIGHT

Avrio Ventures is a venture capital firm that supports the development of Canadian commercialization and growth stage industrial bioproducts, nutraceutical ingredients and food technology companies into world-class organizations.

## WHAT’S NEW AT AVRIO

To comment on this edition, please contact the editor at [support@avrioventures.com](mailto:support@avrioventures.com). For the French version, [click here](#).

### We've moved!

The Calgary office of Avrio Ventures has moved to our new location at:

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Calgary AB, T3G 0B4

All other contact info will remain unchanged.

To download updated v-cards, [click here](#).

July, 31, 2009

**SemBioSys** announces agreement with Avrio Ventures Limited Partnership and Botaneco. [full story...](#)

## FEATURE ARTICLE

### The case for omega-3 sustainability

The booming omega-3 space has led many to wonder whether marine based sources of the EFA will be able to supply the growing interest in this nutraceutical. Despite the appearance of many controversial articles in the media, omega-3s from marine, plant and microbial sources are proving to be more sustainable than ever.

#### Sustainability of production

A study published in the March 2009 issue of the [Canadian Medical Association Journal](#) questioned the sustainability of producing omega-3 supplements from fish stocks due to worldwide decline in populations.

Author David Jenkins wrote, “The dire status of fisheries resources is largely unrecognized by the public, who are both encouraged to eat more fish and are misled into believing that we still sail in the sea of plenty.” He suggests that if current trends continue, the fishing industry will collapse by 2050.

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**Impact on fish stocks is negligible**

Industry critics argue that the actual amount of fish stock (primarily herring, mackerel, anchovies and sardines) used to produce fish oil is so small as to have no effect on the fishery industry. Only 6-10 percent of the total 1 million tons of crude fish oil produced per year is refined to produce omega-3 oils for human consumption, according to the [Global Organization for EPA and DHA \(GOED\)](#).



Marc St. Onge, President of Nova-Scotia-based [Ascenta Health Ltd](#) who produces omega-3 supplements from marine sources, agrees. He states that they are constantly prospecting for new potential sources of oil from certified species of fish, and that, even with the increase in demand, there are still plenty of options.

But there will always be those who prefer to get their omega-3s from plant-based sources. To satisfy this sector, [Ascenta](#) is developing a new supplement derived from *Echium* and a DHA-based algal source.

***Echium* – A plant-based alternative**

Oils produced from *Echium* seed are natural sources for stearidonic acid (SDA), which is a precursor to EPA that is converted at a rate 5 times faster than ALA. Although the SDA content is quite low, research has shown that there may be a synergistic effect owing to the combination of SDA with g-linolenic acid (GLA – a metabolite of omega-6 fatty acids), which reportedly elevates EPA levels more efficiently than SDA alone.

“The real challenge with *Echium* is its instability,” says St. Onge, and adds that [Ascenta](#) has been able to overcome this issue and should have a stable version of *Echium* on store shelves within the next year.

**Omega-3s from Microbes**

German firm, [InterMed Discovery](#), recently acquired novel DHA and EPA-producing strains of bacteria from the University of Saarland. “These microbial strains offer not only a new sustainable and reliable source of Omega-3, but also give us the capability to develop products with outstanding quality at competitive pricing,” said Bernard Becker, Managing Director of InterMed Discovery.



Another sustainable vegetarian source of omega-3s is making inroads in the EFA space. Hemp oil offers an alternative source of SDA and GLA, but it is the ratio of these fatty acids that sets hemp apart. The [World Health Organization](#) has recommended that the ratio of omega-6 to omega-3 should be about 4:1 for optimum health – almost the exact ratio found in hemp seed oil.

### **Optimal EFA Ratio**

While many would argue that we already ingest too much omega-6 fatty acids, Mike Fata of [Manitoba Harvest](#), suggests that the quality of those fats is typically poor, having been bleached, deodorized or converted to trans fats by high heat. He suggests that the optimal ratio found in hemp oil provides a high-quality source of omega-6s that the body can readily use.

### **Sustainability of production**

Hemp offers numerous advantages as an agricultural crop. Not only is it naturally pest resistant, it grows rapidly and closely-spaced, eliminating the need for herbicides. It can be grown easily as a completely organic crop, and will never need to be genetically modified. As Fata notes, hemp is becoming lower in cost to produce while omega-3s produced from marine sources will cost more and more as the market scale grows.

### **ALA Conversion to DHA**

Plant-based sources of EFA are great sources for ALA but lack the much-touted EPA and DHA, so many scientists claim that they have little benefit on cardiovascular health. While many studies focus on the low conversion rates of ALA to EPA and DHA, research has shown that the conversion rates are largely influenced by individual genetics and gender, and can range from 0.5% to 13%.

Fata feels that much of the research regarding the low conversion rates of ALA to DHA have been misleading, in that most of the studies gave limited initial amounts of ALA, which are too low for the body to convert efficiently. He challenges the public to take the “30 day challenge” to prove that ingesting 1-2 tablespoons of hemp oil per day will result in significant improvements to skin, hair, nails and overall health.

### **Lack of substantiation hinders ALA marketing**

The biggest limitation in bringing plant-based EFA to market is the lack of substantiation. For years, research has focused on marine-derived oils, while studies on plant oils have been much smaller in scope. Large-scale clinical trials using human subjects are required before ALA gains acceptance in the omega-3 market.

“Although the data available today is not conclusive, the continual appearance of new studies and professional opinions of scientists from around the world support the ever-growing body of research that ALA has cardioprotective effects in its own right,” states authors [Stark, Crawford and Reifen](#) in a review of ALA published last year.

### **40,000 people can't be wrong**

However you choose to get your omega-3s, the consensus in the scientific community is that some is better than none. In fact, a state-of-the-art review published in August by the [Journal of the American College of Cardiology](#), revealed substantial cardiovascular improvements for omega-3 supplementation among the nearly 40,000 participants.

The evidence is compelling; research over the last 20-30 years has repeatedly shown that there are significant health rewards to be gained by increasing the amount of essential fatty acids in our diets, either from plant- or marine-based sources. With demand escalating at a rapid pace, it's nice to know that there are so many sustainable options from which to choose.

## COMPANY PROFILE – MANITOBA HARVEST

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Established in 1998, Winnipeg-based [Manitoba Harvest](#) is the largest farmer-owned vertically integrated hemp food manufacturer in the world. They own and operate a 20,000 Sq Ft. state-of-the-art, kosher certified and organic certified facility that is licensed and registered by Health Canada and the US Food & Drug Administration (FDA).

### PRODUCTS

[Manitoba Harvest](#) produces a full line of hemp products, including hemp seed oil, butter, milk, flour, protein powder and shelled seed. They have just launched the world's first water-soluble hemp protein concentrate.

All products are free of preservatives and additives, and are tested by a third-party laboratory to insure quality and freshness. [Manitoba Harvest](#) hemp seeds are original source and contain no genetically-modified organisms.

### COMMITTED TO SUSTAINABILITY

[Manitoba Harvest](#) is committed to sustainable practices, from the field to the final product. By producing herbicide- and pesticide-free organic products, they support farming methods that safeguard soil and water resources.

Their sustainable business practices include packaging all products in recyclable or reusable containers, printing all promotional materials on recycled paper with vegetable based inks, and using biodegradable sample cups at shows and events. Their office is an energy-efficient green facility that runs on 100% recycled paper products.

## BUSINESS BRIEFS

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September 3, 2009

**Frost & Sullivan** release new report on growth in bone and joint health ingredients market. [full story...](#)

August 31, 2009

Government of Canada invests in Saskatchewan biofuels company **NorAmera BioEnergy Corp.** [full story...](#)

August 21, 2009

**Gene Smart Wellness** introduces first at-home "finger stick" test to determine omega-3 levels in the blood. [full story...](#)

August 21, 2009

**Health Canada** begins monitoring of acrylamide content in foodstuffs. [full story...](#)

## UPCOMING EVENTS

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September 23-24, 2009

**BioPort Atlantic: The Value Proposition**, featuring keynote speaker Steve Burrill, will be

held in Halifax, NS. Aki Georgacacos from Avrio Ventures will also be presenting.

[More information](#)

September 23-26, 2009

**Natural Products Expo East** will be held in Boston, MA.

[More information](#)

October 1-2, 2009

**Banff Venture Forum 2009** will showcase early and growth stage companies in three streams: Information Technology, Energy Technology and Life Sciences Technology. Aki Georgacacos from Avrio Ventures will be presenting.

[More information](#)

October 10-14, 2009

**ANUGA 2009**, the world's most important trade fair for food & beverage will be held in Cologne, Germany.

[More information](#)

October 21, 2009

**Nutrition Capital Network** presents the Fall 2009 Investors Meeting in San Francisco, CA.

[More information](#)

November 1-4, 2009

The 2009 Annual Conference of the **International Society for Nutraceuticals and Functional Foods** will be held in San Francisco, CA.

[More information](#)

November 3-4, 2009

The 11th Annual Conference of the Western Canadian Functional Food and Natural Health Product Network entitled **Healthy Business - Growth and Opportunity**, will be held in Edmonton, AB.

[More information](#)

November 17-19, 2009

**Natural Ingredients 2009** will be held in conjunction with Food Ingredients Europe in Frankfurt, Germany.

[More information](#)

November 24-25, 2009

**InnoWest 2009: Value Creation Through Innovation**, How Canada can prosper in the international innovation system will be presented in Edmonton, AB.

[More information](#)