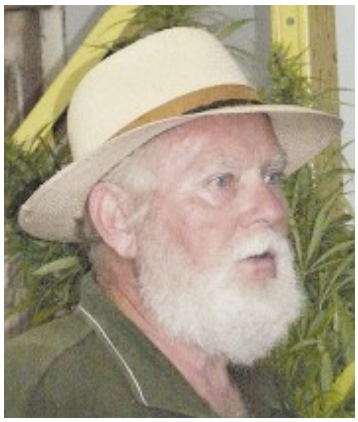
The Ontario Hemp Report
Fall 2006

Message from the OHA President

In the summer of 1997, Noble Villeneuve, former Ontario Minister of Agriculture, described the reappearance of industrial hemp in Canada as an agricultural *"Rip Van Winkle. He is waking up! It is time to wake up to industrial hemp and its potential within the agricultural and food industry."*



Industrial hemp production has experienced a global "renaissance". This renaissance has been largely due to the increased demand for biodegradable products, the rapidly increasing global demand for annual renewable fibre, the rapidly increasing cost of non-renewable natural resources for energy, high quality health food products and an indescribable romance with hemp.

Industrial hemp is a most unique plant that God has created for mankind. Hemp produces several types of high quality bast fibres as well as grain with very high nutritional value. Hemp seed is sometimes touted as 'nature's most completely balanced plant oil" and is packed with essential fatty and amino acids necessary for human health

No other agricultural crop in recent history has sparked such a level of romantic attention and controversy as industrial hemp. A new industry is emerging as the "Rip Van Winkle is waking up" to a complete new millennium.

I was first introduced to industrial hemp by Mr. Joe Strobel in the fall of 1994 when he gave a professional presentation to my class of college students at Ridgetown College.
In the spring of 1995, the vision for this plant as a viable crop and industry for Ontario was painted for me by Mr. Claude Pinsonneault, founder of Kenex Ltd. I was motivated by Claude's enthusiastic vision to obtain a research license in 1995 and thus begin my professional journey with this exciting plant.

Industrial hemp has taken me to Vancouver, Ottawa, Chicago, China, several times to Germany and to Romania. I have become a faithful user of hemp oil and other food products and it has a strong presence in our family's wardrobe. I am an original member of the OHA and have maintained my membership since it's founding. It is still the central focus of my professional career and personal life. I envision the successful establishment of industrial hemp in Ontario as an integral part of the commercial crop rotation and a prosperous viable hemp fibre and grain industry to Ontario. I am not prepared to give up until this vision is fulfilled. My cup continues to remain "half full".

Those of us who have journeyed with industrial hemp in Ontario, have experienced an incredible roller coaster ride and have learned many valuable lessons along the way. We have had great losses and many painful discouragements. Today we have realistic expectations that hemp will be reintroduced to Ontario as successful a new crop. For Ontario growers, we finally have availability of Ontario-adapted hemp fibre and grain varieties, which will perform competitively with other commercial crops. Processing industries for grain and fibre are emerging with commercial scale capacities and markets which will demand a strong stable acreage of several thousand acres production per year. Industrial hemp is "waking up" to a whole new generation of markets not conceived 65 years ago. Ontario has the quality producers, production capacity, processing technologies, industry and marketing experts to establish a state of the art industry demonstrating to the global audience ....**"It can be done!"**

INSIDE:

The Ontario Hemp Propagation Agency (OHPA) Report

by Gordon Scheifele

This project is under contract with the University of Guelph/Ridgetown Campus (UG/RC) and 50% funding from Can Adapt and 50% from in kind and industry partners.

Gunhild Scheifele inspecting commercial Anka south of Aylmer, Ontario on June 25/06.

Three lines from the 2004 project with high GLA (5%) levels were selected for the 2005 project. These *cross lines* were selected for high yield (over 2,000#/a), large seed, high GLA (over 5%) and low THC (less than 0.1%). These *cross lines* (F1) were planted in individual isolated plots the 18th of April. Two lines are being developed as monoecious for dual (grain/fibre) production and one as dioecious grain. Their heights are expected to be between 1-2 metres. Each of the F1 cross lines were rouged for plant uniformity and low THC and preferred plant types were tagged for harvest. The tagged plants were harvested and a composite seed sample obtained from each plot for another Fatty Acid (FA) and THC analysis. The 2005 harvested seed of the 3 lines are planted in 2006, in 4-5 variety performance trials with ANKA, Crag and ESTA-1 as check entries. The three lines are also planted separately in isolated plots for further selection and breeder seed production. The best performing line will be selected for promotion and registered as Variety X for the OHA. The remaining two lines remain property of the OHA and will be for sale. This seed can be planted in 2007 for Foundation Pedigreed Seed production.

ANKA and Carmen varieties were planted in 2005 under contract with the UG/RC for Breeder Seed Production. Breeder seed from each variety is planted in 2006. The OHA is producing breeder and foundation Seed of both varieties in 2006.

Mr. Dan Scheele, Ingersoll, was contracted in 2005 to grow Certified Pedigreed Seed of ANKA. 8,000 pounds of Certified seed was available for sale in the spring of 2006.

Breeder seed plot of Anka south of Tavistock, Ontario on June 25/06.

The only existing 500 pounds of Carmen Registered Pedigreed Seed from 2004 propagation was planted this spring (2006) by Grant Kime for Certified seed production. The OHPA has contracted Hempline to maintain Carmen variety and continue propagation and marketing of Carmen. The OHPA is looking for partnership with someone to contract propagation and marketing of Anka and new **grain variety.**

UPCOMING:
OHA Fall post harvest Symposium in November
Date and location to be confirmed.

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Editors: Gordon Scheifele (OHA), Arthur Hanks (CHTA)

www.ontariohempalliance.org

by Dr. Colin MacDougall, Queen's University

There has been renewed interest in using natural materials for construction in Ontario in the past decade. Much of the interest to date has focused on using baled fibre such as straw for residential construction. This form of construction uses straw bales stacked and then plastered on both sides to form the load-bearing walls of the home. There are now over 100 approved homes or buildings in Ontario using straw bale construction.

A more recent development has been the use of hemp bales in place of straw. An on-going program of research by Dr. Colin MacDougall at Queen's University Department of Civil Engineering is investigating the use of hemp as part of plastered wall construction, and extending its use for a wide variety of other applications in the construction field.

An example of this research is a test conducted by Dr. MacDougall and PhD student, Steve Vardy at Queen's University in May 2005. Well known straw bale builder Chris Magwood designed and led the *Hemp Straw Bale 4C's Food Bank Haliburton, Ontario* construction of the Haliburton, Ontario 4C's Food Bank and Thrift Store building as part of the inaugural offering of the Sustainable Building Design and Construction program at Fleming College.(see http://www.flemingc.on.ca/SustainableBuilding/projects/)

The culmination of the course was the construction of the 1800 square foot building using load-bearing walls of hemp fibre bales stacked and plastered on both sides with an earth based plaster. Because of the unusual materials used in the construction, the design needed to be approved by a professional engineer. In this case, the engineer requested a full-scale structural test of a wall similar to that proposed for the Haliburton food bank. The required capacity of the wall was 23.5 kN/m in axial compression.

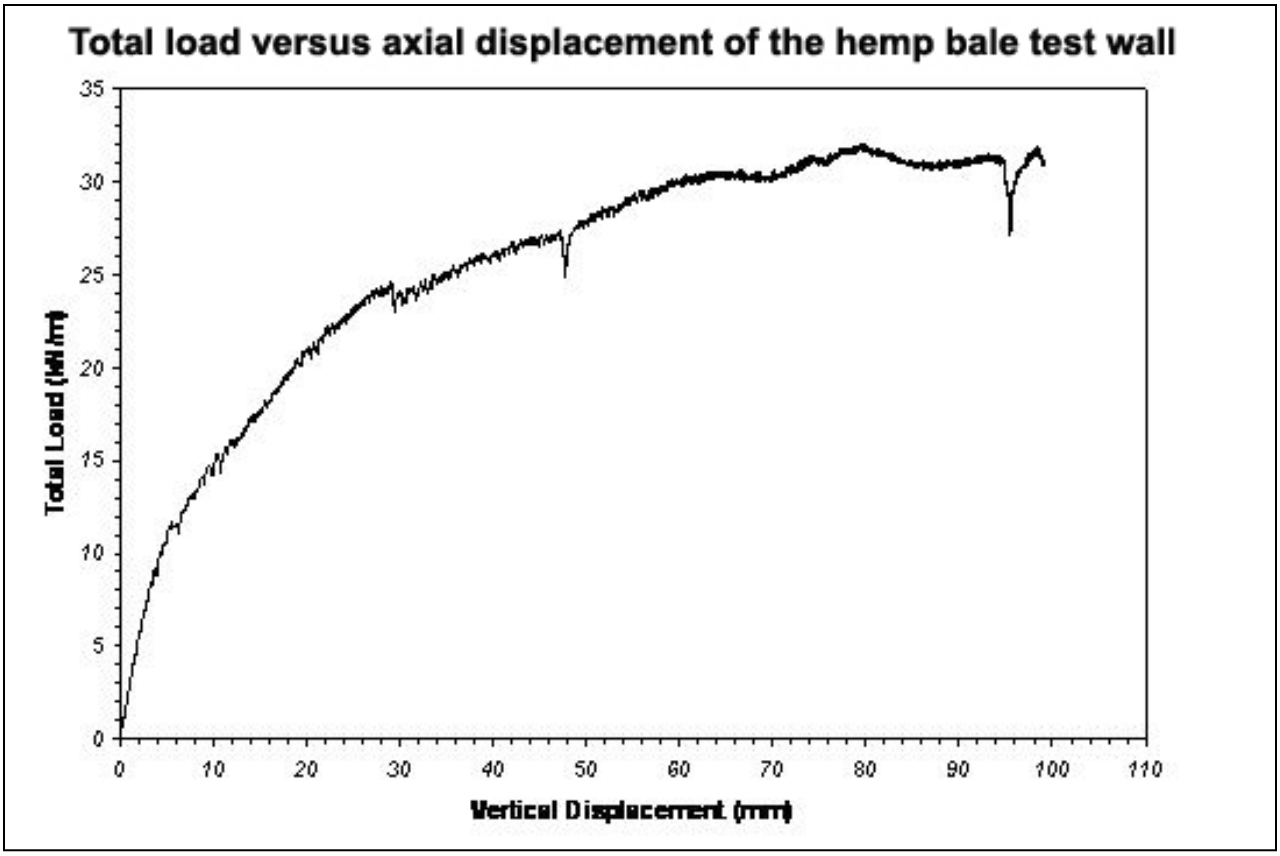
About a dozen students from Fleming College constructed the wall in the Queen's University Structures Lab.

Hemp bale test wall prior to testing.

The hemp bales for this test wall and the food bank were provided by Moorcroft Farms of Madoc, Ontario (see www.hemphomes.ca). The wall was carefully instrumented so that total applied loads and wall deflections could be measured. The picture to the left shows the wall in the loading frame. The final wall measured 2.4 metres x 2.4 metres

The Graph below shows the total applied to the wall in kN/m versus the total axial deflection.

Up to about 10 kN/m, the behaviour of the wall was relatively linear. With increased loading beyond this point, cracking in the plaster was observed. The maximum load on the wall was measured as approximately 30 kN/m, well above the required 23.5 kN/m. Little debonding between the plaster and hemp was noted. Based on these positive results, the engineer gave his approval for construction to proceed.



Early stages of construction are shown below.

Construction of the 4C's Food Bank

The bales are stacked

the walls after plaster has been applied.

This project is an excellent example of the use of hemp for construction applications. A longer term goal of the research at Queen's is to understand and the structural performance of various bio-fibre construction components and to provide guidance for designers on their use.

In Memorium: Peter Dragla (1943-2006)

Born November 15, 1943 in Romania. Married in 1968 Graduated from University in Romania with a MSC degree in agricultural engineering. Worked in Romania as Technical Director of large communist field crop systems. Fled Romania in 1982 arrived in Canada and in 1984 was reunited with wife Anka and daughter. Worked in Corn breeding as assistant breeder in the Chatham, ON region, as technician with Agriculture & Agri-Food Canada in Harrow and then with Ridgetown College In 1995 he began research work on industrial Hemp with Mr. Gordon Scheifele. 1997 became employed by Ridgetown College and contracted as the first Industrial Hemp breeder in Canada since 1939 by Kenex Ltd. and started Industrial Hemp SEED Development Company. Breed, developed and registered the first monoecious industrial hemp grain variety (ANKA) in North America in 1999 with Health Canada. Successfully registered: Anka, Carmen, Denny, Ida, Alisa. Created a highly valuable gene resource of breeding materials for hemp grain and fibre and resourced modern industrial hemp genetics from many eastern European and Russian hemp breeders.

Peter was a very serious and hard working person.

Died on Wednesday August 23, 2006 after 1 ½ years battle with cancer. Funeral was on Saturday August 26, 2006 at Alexander funeral Home, Chatham.

Things We Learned Combining Hemp

by Harry Biermans Chesley

We used a 9650 John Deere Combine with a 30' Head and an Air Reel. and Conventional cylinder. We have listed our results as follows:

Helps to have a high capacity Combine for hemp to prevent plugging. Unplugging straw is very difficult and time consuming.

Dan Scheele harvesting Anka in 2005 with his International rotary combine. Rotary cylinder was modified. There were no problems with intake or going thru cylinder. The small grain real knocked down taller heads. Lost considerable grain out rear with straw due to too wet straw. Should have waited another week to let the green straw and heads dry down more.

We tried to combine the hemp when the seed was just ready but the stalks were still green. This did not work. The hemp wrapped everywhere. It wouldn't flow into the Combine and the dockage was still green. When this happens you're best to wait probably one week. After giving it one week the stalks were starting to dry out and the dockage wasn't nearly as wet. It flowed into the combine much better. There is a compromise between moisture and seed maturity – the later you harvest, the more field shelling you will have, but the stalks are easier to work with. That is something you have to monitor. The Combine was set with the concave pretty much wide open. The hemp was so ripe that there was little threshing to do. The idea is to get the hemp into the Combine and out as quickly as possible so it doesn't get a chance to wrap.

The sieves are set very close to the same settings as wheat. The ground speed was approx. 2 mph. It is very important to have the same reel speed as ground speed. All the reel needs to do is just touch the crop. Be careful not to thresh the hemp on the reel. The air reel also helps to get the hemp flowing into the head. It should look like the hemp is coming into the Combine gradually without any bunching. We left stubble just below the last seed pods (approx. 2 feet). Do not put any more of the plant than you have to through the combine.

In the bin, we are able to get the sample about 1 - 1.5% Dock which was clean enough for the end user to take.
We dried the hemp right away at 90 - 100° with lots of air. It's important to dry the hemp as soon as possible.

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Canadian National Report

Arthur Hanks, Executive Director, CHTA

It's an interesting new era for Canada's hemp industry. Nine years in, companies are making money, new products continue to reach the market, and for the fifth year running, cultivated acreage is increasing.

Currently, the North American market for hempseed-derived products is calculated to be about $40 million. Some companies have been growing sales at 50% more a year.

In 2006, last year's 24000 licensed acres have grown to an estimated 35000 acres. Experienced hemp farmers have increased acreage to meet processor demand. The proportion of certified organic acres continues to climb. Supplies of certified planting seed are keeping pace and new varieties are being developed across the country.

Most production remains out west, where land costs are cheapest: half of national production is in Manitoba, and Saskatchewan holds about one third. Weak prices of other commodities and strong prices for hemp are creating a lot of interest in our crop. Farm gate prices are maintaining at generally $0.45/lb conventional (Ontario $0.75/lb); organic at $0.85/lb.

As hemp grain prices are set by the free market, there is a risk that an increase in production will negatively impact prices, and over the longer term, supply stability. For a specialized industry such as hemp, it's important for farmers to secure a contract. This will help maintain prices AND allow steady supply and expansion of the market.

It's reasonable to assume that increased demand and increased supply will see farm gate prices decline over time. Thus adding value through processing fibre, turning what is now an agri-waste into another source of farm revenue stream, will become very important. .

Currently, fibre is moving slowly, but definite progress is being made. Ontario's Hempline is an emerging company in technical fibres, while out west, three companies -- Avanti Polymers, Parkland BioFibre, and Naturally Advanced Technologies (formerly Hemptown) ~ are taking the necessary steps to implement fibre processing on the prairies. This all will come.

The Canadian Hemp Trade Association (CHTA) has been working on the farm, food and fibre fronts since 2003. Since beginning with a core of about a dozen food and fibre manufacturers, the association has now grown to include a talented and creative group of 100 members ~ including researchers, farmers, marketers, processors and entrepreneurs. OHA has proven to be a particularly valuable member of CHTA

With membership's active participation, CHTA has accomplished a lot, including:
our 2003-2004-media/marketing campaign for hemp foods in the USA; our ongoing nutritional research on hempseed; hosting regional workshops and field days; and producing an unsurpassed national hemp conference (2006 CHTA Hemp Conference and AGM will be held in Winnipeg, November 17th, 2006). We have also facilitated dozens of media articles about hemp and have responded to many inquires from the public and professional spheres, ably assisted in all ways by our website (www.hemptrade.ca ; www.infochanvre.ca).

The establishment and the growth of the national association reflects the growing vigor of the national industry, and gives us a tool with which to realize the promise that hemp holds for our country. From the baby steps we took in our first, tentative years, we seem to be finally hitting our stride.

Arthur Hanks
Regina Saskatchewan

OHA Hemp Family Fun Field Day Report

Saturday, Aug 26, 2006, the farm of Dan Scheele, Ingersoll, Ontario.

Saturday, Aug 26 turned out to be a great day for the OHA's Family Fun Field Day contrary to the weather forecast.

There were 10 vendors, 2 live demonstrations (paper making and spinning), touring the hemp maze, which had 12 stations with vital information about industrial hemp and a program/harvest clinic in the afternoon.
Children and adults were given a token metal whistles at registration.

Mr. Helmut Becker and Mrs. Diny Warren attracted much attention demonstrating paper making and spinning with raw hemp fibre. We had 250 paid adults (over 16) plus many children attending. It was a very busy and fun event. The Agricultural Adaptation Council sponsored the program speakers.

Aerial View of the Hemp Maze, Scheele Farm

During the program, tribute was given to Mr. Joe Strobel (deceased May 7, 2006) and Mr. Peter Dragla (deceased Aug 23, 2006). A minute of silence was held in respect of Mr. Peter Dragla. Mr. Claude Pinsonneault was also recognized for outstanding contributions to the Hemp industry since 1995. Claude retired from the OHA directorship in spring of 2006.

Mr. John Baker (Stonehedge Phytomedicinals, Stirling, Ontario) and Gilles Gagne (Quebec) gave an excellent harvesting report from attending the Hemp Harvest Clinic, Parkland Hemp Growers, in July. The whole event far exceeded any of our expectations.~ **OHA**