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RE-EXPERIMENTING WITH HEMP IN QUEBEC

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At last, after 60 years of hemp prohibition, Canadian farmers have recently been allowed to grow industrial hemp on a commercial basis. The farming community is eager to experiment with this "new" crop and the industrial sector is preparing itself for the advent of a unique raw material in the near future. Building a reliable hemp production base and a working relationship between hemp farming communities and potential investors has become the primary challenge.

Four years after Geoff Kime and Joe Strobel of Hempline succeeded in obtaining a research permit for growing 4 hectares of hemp on their farm in Tillsonburg, Ontario, nearly 2200 ha of hemp were grown throughout Canada in 1998. The amount of acreage on which hemp is grown is slowly but steadily increasing throughout the various farming regions in Canada, mostly by means of trial and error, to eventually determine which areas are most suited to commercial hemp production. In the Estrie region of Quebec, a group of local farmers and entrepreneurs, know as "ChanvrEstrie", decided to work in collaboration with Resource Efficient Agricultural Production (REAP)- Canada to spearhead the development of hemp in the province, and to stake out the most suitable growing areas for the crop. This led to 10 hectares of hemp for fibre and seed to be planted in the summer of 1998, in the Estrie Region, with the financial support of the Quebec Adaptation Council (CDAQ). After an eventful and much anticipated growing season, both groups have emerged from this experience with a lot of knowledge gained on this versatile crop.

Establishing Hemp for Commercial Purposes

Hemp has several desirable attributes, the most important being its high productivity; the minimum weed control requirements; and the production of high quality fibre; as well as seed with high nutritional value. From a farmer's perspective, hemp is a crop that can easily fit into a rotation with other crops, reducing the reliance on monoculture and diversifying the farm income. By all means, the odds are in favour of growing hemp. For the industry, hemp is an extremely versatile crop. Its use as cordage, sails and cloth dates back to the middle ages (especially due to it’s unique property of being resistant to fungal

attack), and in today's fast paced industry hemp fits in the cosmetic, oil, paint, paper and composite fibre niche markets, to mention but a few.

Nonetheless, even in countries where the production of hemp has remained legal over the past 6 decades, the crop has generally remained a specialty crop, occupying a relatively small share of the agricultural landbase. The labour requirements involved in traditional hemp production practices were often identified as being the main culprit to the smaller scale of production. As well, on the world market, subsidies provided to crops such as cotton have been destructive when trying to establish a fair level playing field for similar crop types (i.e. fibre).

The renewed interest in hemp is vested primarily on the increased mechanization of the production process, as well as the increasing demand for environmentally friendly products. A reduction in the costs of production and the potential increased rates of return from producing hemp in a niche market are expected to provide the proper economic conditions to reintroduce hemp to the market, today.

Since hemp has been absent from Canadian agriculture for 60 years, the first step to reintroducing the crop is to re-establish hemp production guidelines. This knowledge has unfortunately been lost over the course of time. During the summer of 1998, REAP-Canada and ChanvrEstrie evaluated three hemp varieties on a total of 10 hectares. Two of the varieties, Fedora 19 and Zolotonosha 11, were grown as dual-purpose crops (i.e. the seed was harvested at maturity and the fibre was harvested at the same time). In the case of textile production, the crop would have been cut during the flowering period, since fibre quality decreases as seeds set in. A seed variety developed in Finland which is well adapted to cooler regions was also evaluated; Finola-314 is recognised for its improved seed production potential and high seed nutritional value.

The research took place at a longitude of 71.9^{o} east and latitude of 45.4^{o} north. Typical weather for the Estrie Region is summarized in Table 1.

Table 1. 1998 Monthly Meteorological Data for Sherbrooke

	Mean Temperature ^{o}C	Normal Temperature ^{o}C	Total Precipitation mm	Normal Precipitation mm	Total CHU per month
May	14.4	10.8	70.5	94.2	453.4
June	16.5	15.5	114.0	100.5	560.4
July	18.3	18.0	117.5	116.7	673.0
August	18.0	16.6	116.5	130.5	656.9

September	13.7	12.0	65.5	98.6	428.6
October	7.3	6.4	62.0	91.4	90.0
May-October	**14.7**	**13.2**	**546.0**	**631.9**	**2862.3**

Environment Canada, 1998

The experienced gathered by the research team gained insight into the agronomy of the crop. No serious pests were observed at any time during the season. The hemp generally had a dense canopy and far out-stretched leafs, which causes light to be virtually impenetrable to the soil layer and therefore minimized weed infestations. *Sclerotinia sclerotiorium*, a disease responsible for making stems vulnerable to snapping, was observed on some of the hemp, however the actual damage caused to final yields did not appear to be significant. The average stalk yield was approximated 7 dry tonnes per hectare, similar to that obtained in other regions of Canada. The seed harvest averaged 1.2 dry tonnes per hectare, which was higher than expected, given the relatively late planting date, in June!

The results obtained on the 10 hectares of hemp grown in the Estrie region of Quebec indicated the crop to be as productive as in most other regions of Canada. Furthermore, hemp research conducted by Agriculture and AgriFood Canada in the 1920's pointed to the Estrie region as being one of the most promising for hemp cultivation. Improvements in variety selection, for both fibre and seed production, and in the cropping techniques, such as improving planting densities and fertilisation regimes, will enable the full potential of the hemp in the Estrie region to be realized. To this effect, a management guide (due in the spring of 1999) portraying the research experience gained in 1998 by REAP-Canada and ChanvrEstrie, along with other experiences gained elsewhere in Canada and in Europe, will be made available to help farmers manage hemp more efficiently in 1999.

Potential Market Development Strategies

Hemp is unique in terms of the wide range of markets that can be targeted from the different components of its harvest. Farmers will need to adapt to different cropping techniques and harvesting strategies in order to meet the requirements of the variety of markets, which research in the upcoming years will identify. To move from small hemp acreage to a hemp crop that is widely grown on a commercial scale will nonetheless require the founding of mutually profitable contracting arrangements between hemp producers and processors. The single, most important issue to be resolved for secondary producers is the ensuing of mechanisms which will ensure hemp of a specific grade and quality to be made available in sufficient quantities, over several years, to entice processing companies to invest in hemp conversion facilities.

In the short-term, hemp could take advantage of its versatile nature and identify existing local industries that could use hemp in their current raw material blend, should it prove to be feasible. In this way, investment requirements and risks, perceived or real, would be minimized while a production base would be established.

Hemp offers the textile industry the opportunity to develop high value products in the future and to take advantage of the growing interest of consumers for natural fibres. Developing partnerships with the farm community at the onset will be the key to avoiding costly commercialization bottlenecks.

Home Page