



Industrial Hemp Report

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Anthony Cortilet, 651-201-6538
625 Robert St. N., St. Paul, MN
www.mda.state.mn.us

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Executive Summary

Cannabis sativa (L.), commonly referred to as hemp, industrial hemp, or marijuana, is a plant that is regarded by some as a miracle and by others as a menace. The form of *C. sativa* grown for fiber and oilseed is generally referred to as hemp and has a long history of agronomic production in the United States until the 1940s when federal and state legislation made it illegal to produce and/or possess. Marijuana, the form of *C. sativa* that is smoked or ingested for its psychoactive properties caused by the chemical Tetrahydrocannabinol (THC), is identical in appearance to hemp. Due to its increased consumption in the 1930s and 40s, all forms of *C. sativa* were outlawed in the United States and many other industrialized nations. Over the past two decades there has been a resurgence of industrial hemp production world-wide and many countries have adopted strict regulatory procedures to allow low THC varieties (less than 0.3%) to be planted for fiber, oilseed, biofuels, etc. as a replacement or addition to traditional agricultural crops. Canada is the only country in North America that currently allows the production of low THC industrial hemp varieties. Canadian officials have detailed laws regulating hemp production and strict regulatory procedures in place to ensure compliance with those laws.

The United States Controlled Substances Act (CSA), which oversees the legality of *Cannabis sativa*, does not distinguish between hemp and marijuana. Traditional industrial hemp varieties with less than 0.3% THC are not differentiated from high THC content marijuana. All *C. sativa* varieties are considered controlled substances in the United States and the Drug Enforcement Agency (DEA) must grant a permit to anyone proposing to grow or possess *C. sativa*. Over the past decade, eight states have passed industrial hemp laws allowing farmers to plant low THC hemp varieties for fiber and oilseed production. Farmers in those states can apply for state permits to plant industrial hemp, but must also obtain a DEA permit. To date, the DEA has not issued a single permit to any farmer; therefore, hemp has yet to be legally planted on U.S. soil since the adoption of the CSA. In order for this to occur, regardless of state laws, the federal government would have to change the CSA to differentiate between industrial hemp and marijuana.

The specific question to be addressed in this report is “*how law enforcement and other authorities differentiate between industrial hemp and marijuana growing in the field.*” There is currently no way for law enforcement officials to easily distinguish between high THC marijuana and low THC industrial hemp. Field tests are non-existent and detailed laboratory processes using gas chromatography are currently the only way to accurately determine THC levels in *Cannabis* vegetative parts and seeds. Canada and other countries with legalized hemp production have developed stringent laws and regulatory procedures to oversee hemp production and ensure that only low THC varieties are approved for agricultural production.

Law enforcement leaders in Canada and the U.S. remain skeptical of criminal elements using these laws and regulatory procedures to their advantage for producing, importing, and exporting illegal marijuana. Furthermore, they cite the significant costs associated with regulating this industry in an age of decreased budgets and resources. Conversely, proponents point to a burgeoning international industry full of opportunities for U.S. farmers. The plant is relatively easy to grow, requires few inputs, and can be used in producing a wide variety of products. In fact several federal legislators are currently trying to change federal law to allow industrial hemp production in the United States.

This report looks at the regulatory process developed by many European countries and adopted by Canada, to highlight the process involved with regulating industrial hemp.

Introduction

The plant species, *Cannabis sativa*, commonly referred to as hemp, has been a source of fiber and oilseed worldwide for several centuries. Today, more than 30 nations grow industrial hemp as an agricultural commodity under stringent regulatory control. In the United States, hemp production dates back to the earliest colonies. During World War II, hemp was grown throughout the Midwest to aid the war effort by producing fiber for uniforms, canvas, and rope. In fact, hemp laws and regulations pertaining to the growth of *Cannabis* as an agricultural commodity in the U.S. are found in many state and federal laws prior to the mid 1900s.

Following World War II, the federal government, in addition to several states, became concerned with the use of a psychoactive form of *Cannabis* containing high concentrations of the chemical compound Tetrahydrocannabinol (THC), commonly referred to as marijuana. Laws to regulate the use of marijuana began to appear throughout the U.S. and eventually the federal government passed the Controlled Substances act of 1970 (CSA) which placed strict controls on the growth of any form of *Cannabis* in the U.S., requiring a permit from the Drug Enforcement Agency (DEA). Since this act has been in place, DEA has only allowed one action where *Cannabis* seeds were allowed to be planted on U.S. soil. In 1999, DEA allowed the State of Hawaii to plant a test-plot of industrial hemp varieties for research purposes. That permit has since expired and no other permits have been issued since. The DEA, by authority of the CSA, does not differentiate between industrial hemp and marijuana and regulates all forms of *Cannabis* equally.

Background

Eight U.S. states have passed legislation to plant industrial hemp. Industrial hemp has been defined by Canada, the European Union, and other countries that have legalized its agricultural production as a fiber crop containing low levels of THC (less than 0.3%) that would not be expected to produce psychoactive results in the human body. To ensure that this low level of THC is maintained in industrial hemp varieties, countries such as Canada and members of the European Union, have developed detailed regulatory processes for anyone involved in the growth of industrial hemp. For the purposes of this report, Canadian regulatory procedures will be discussed. Canada's procedures are based largely on those developed by European countries with industrial hemp production.

In 1998, Canada authorized the growth of industrial hemp following 50 years of prohibition. Prior to 1998, the Canadian government authorized a three-year research period to study various aspects of industrial hemp production and varieties available for planting. Health Canada was given the primary responsibility of overseeing the regulatory program developed for industrial hemp production through their Office of Controlled Substances. The Industrial Hemp Regulations (IHR) were developed in 1998 as part of Canada's Controlled Drugs and Substances Act (CDSA) to allow for strict regulation of industrial hemp production and make a clear distinction between industrial hemp and other forms of *Cannabis*. Industrial hemp is defined in the IHR as the plants and plant parts of the genera *Cannabis*, the leaves and flowering heads, of which do not contain more than 0.3% THC. In addition to the IHR, Health Canada also developed The Industrial Hemp Technical Manual, a detailed document that sets forth clear procedures for analyzing hemp samples by regulatory officials to ensure producer compliance with the IHR. The Canadian Food Inspection Agency (CFIA), Agriculture and Agri-Food Canada, The Royal Canadian Mounted Police, Revenue Canada (now Canada Border Services Agency) and several stakeholder groups were also involved with the development of Canada's Industrial Hemp Law.

Since the adoption of the IHR in 1998, it has been estimated that more than a hundred farmers are growing industrial hemp in Canada, mostly in the central and western regions of the country. It's not a major crop at this time, but has been increasing during the past decade. It is expected that Canada could potentially become one of the largest suppliers of industrial hemp products to the United States in the next decade. Agriculture and Agri-Food Canada (AAFC) report that the U.S. receives as much as 59 percent of Canadian hemp exports resulting in a multi-million dollar industry. A brief excerpt from the AAFC website pertaining to hemp as an agronomic crop in Canada states:

Hemp's agronomic and environment attributes are remarkable: it can be grown without fungicides, herbicides and pesticides, it absorbs carbon dioxide five times more efficiently than the same acreage of forest and it matures in three to four months. Hemp can be used to create building materials, textiles, clothing, inks, and paints and has potential use in other non-food products. These advantages are in tune with the environmental and health preferences of today's North American public. The growing curiosity of consumers, the interest shown by farmers and processors, and Canada's excellent growing conditions for industrial hemp allow optimistic views for its future.

Regulatory Process for Industrial Hemp in Canada

LICENSING

The regulatory process for industrial hemp production in Canada is quite detailed and outlined within the Industrial Hemp Regulations. Anyone who wants to grow, import, export, sell, transport, or possess industrial hemp must apply to receive a valid license, permit or authorization from Health Canada. The application requires each person to submit their name, address, phone number, date of birth, the address of each place where industrial hemp is to be stored, sold or provided, the approved cultivar to be sown (from Health Canada's official list of Approved Hemp Cultivars), the number of hectares to be cultivated for seed, grain, or fiber, the number of acres cultivated for industrial hemp in the previous two years, the Global Positioning System (GPS) coordinates of cultivated sites and an accompanying map showing the site locations in terms of their legal descriptions, a statement that the applicant is the owner of the land to be used for cultivation or a statement, signed by the owner of the land, indicating that he or she consented to that use, and the address of any property where the applicant will retain records, books, electronic data or other documents required by the IHR. If the applicant is cultivating industrial hemp for seed they must provide evidence that they are a member of the Canadian Seed Growers Association and if they are producing breeder seeds, they must provide evidence that they are a sanctioned plant breeder. Addresses of all properties where any processing of industrial hemp or its seeds will be conducted must also be identified.

Laboratories that test for the variety specifications of industrial hemp must also receive a license from Health Canada. These laboratories have to show evidence that they are an accredited laboratory under the Canada Agricultural Products Act. All applicants must submit a document by a Canadian police force showing the previous 10 years of the applicant's criminal record in respect to designated drug offenses, or indicating that the applicant has no such record. Additionally, applicants must submit a statement indicating that they will meet the security measures outlined in the IHR to grow, import, export, sell, possess and/or transport industrial hemp. Applicants who meet all of the requirements, provide all requested information, and do not have criminal backgrounds, are eligible to receive a license.

CULTIVATION & SECURITY

Once a license has been issued by Health Canada to cultivate industrial hemp, a producer may cultivate only in the specified region, using an approved variety, specified on the license. Every person legally cultivating industrial hemp must submit samples of their crop to a licensed and accredited laboratory to ensure that the THC level is at or below 0.3%, according to procedures outlined in the Industrial Hemp Technical Manual. Producers must also ensure that all equipment used to sow or harvest hemp is thoroughly cleaned after each use in order to avoid the inadvertent dissemination of industrial hemp. Furthermore, at the time of harvesting, the branches, leaves, and flowering heads of industrial hemp must be destroyed in a manner that eliminates their use for any other purpose than that granted to the license holder.

License holders are prohibited from cultivating industrial hemp within one kilometer of any school grounds or any other public place frequented by persons under the age of 18. Storage of industrial hemp must be done in a locked container or locked location on a premises to which only authorized persons have access. Strict record keeping procedures must also be followed. Producers must keep records of the quantity of seed sown, the variety planted, the quantity of harvested grain or fiber, the destination of the hemp to be sold, the date of any shipment, and the results from seed variety and THC tests on all cultivated plants.

Violations

Any violation of the Canadian Industrial Hemp Regulations by an applicant or license holder may result in a loss of an existing license, denial of a submitted application, probation of future application requests, and/or investigation with potential prosecution by the Royal Mounted Canadian Police or local law enforcement agency under the Canadian Controlled Drugs and Substances Act (CDSA). Marijuana, *Cannabis sativa* containing > 3% THC, is listed as a controlled substance under Schedule II of the CDSA.

Industrial Hemp – United States Activity

In the United States, eight state legislatures have passed bills that allow for industrial hemp production or research. However, farmers in these states have yet to plant any industrial hemp seeds. This is because the federal Drug Enforcement Agency requires that anyone intending to produce, import, or export hemp, apply for a federal permit in addition to their state permit. Therefore, even though a producer living in a state that has adopted a legal process for growing industrial hemp may be granted a state license for cultivation, the same producer has to also obtain federal DEA approval. Currently the DEA has not approved any permits for industrial hemp cultivation. The DEA has stated that there is no distinction between hemp, industrial hemp, or marijuana in the federal Controlled Substances Act and that Congress would need to change the definitions so that they could issue permits. There's also the issue of building a regulatory infrastructure, potentially similar to Canada's, that would involve both state and federal coordination and finances.

Over the last decade the DEA's stance on industrial hemp production has been vigorously challenged. In particular, North Dakota passed industrial hemp production laws in the late 1990s. Two North Dakota farmers who were issued state permits for growing industrial hemp were turned down by the DEA when applying for federal permits. Several lawsuits and appeals have resulted. In each case, the United States Department of Justice has defended the DEA's position citing that it would be necessary

for Congress to clarify or make distinctions between industrial hemp and marijuana. Industrial hemp has not been planted in North Dakota since their hemp laws were enacted over a decade ago.

In June 2010, The Industrial Hemp Farming Act of 2010 (HR 1866) was introduced to the U.S. House of Representatives by Representative Ron Paul of Texas. No action has been taken on the bill at this time, however, if approved, this measure would grant state legislatures the authority to license and regulate the commercial production of hemp as an industrial and agricultural commodity. In introducing the bill Representative Paul stated:

“I first introduced the Industrial Hemp Farming Act (HR 1866) five years ago to end the federal government’s ban on American farmers growing industrial hemp. In this time, the hemp industry has grown much larger. Despite its American history, industrial hemp is the only crop that we can buy and sell but not farm in the United States. The federal government should change the law to allow American farmers to grow this profitable crop as American farmers have through most of our nation’s history”

THE COST OF REGULATION AND TESTING

One issue with legalizing the production of industrial hemp in the United States would be the cost of regulation and THC testing required by states and the federal government. When interviewed for this report, Health Canada personnel were unable to share the annual financial cost associated with their industrial hemp regulatory program. However, it is evident from the number of people, laboratories, and hours dedicated to enforcing the Canadian Industrial Hemp Regulations, that their regulatory program requires a significant financial commitment. If the Minnesota Department of Agriculture were required to develop a similar regulatory procedure and program for industrial hemp production, it would take a serious commitment by the state legislature to provide significant funds to create a program with adequate staff, laboratory facilities, and permitting infrastructure.

In 2008, the Minnesota legislature asked the MDA to provide an estimate of costs associated with the development and implementation of a regulatory program for industrial hemp. Personnel, laboratory costs, testing procedures and equipment, service contracts, and other expenditures related to program development and implementation were taken into consideration. Because there are currently no field testing procedures for law enforcement or other regulatory officials to use when distinguishing between low and high THC *Cannabis* varieties, laboratory testing procedures using gas chromatography (GC) are required. A single GC test is fairly expensive and depending on the number of industrial hemp producers statewide, MDA has estimated that it would require approximately \$300,000 annually to process hemp samples for determination of THC levels in vegetative parts and seeds. Overall, MDA estimates that roughly \$600,000 annually would be required to provide basic industrial hemp regulation and THC testing. Furthermore, long-term fiscal considerations would be highly dependent on the economic success and sustainability of industrial hemp in Minnesota. This estimate does not take into account the fiscal impact for county sheriffs, state patrol, and local law enforcement crime laboratories, many of which are currently involved in controlled substance testing within their jurisdictions.

Because nothing has been developed in the United States at this time, and no legislation exists in Minnesota to allow for production of industrial hemp, it is hard to speculate on how many hemp producers there might be within Minnesota and the scope of the regulatory structure and effort that would be required by states and the federal government.

LAW ENFORCEMENT CONCERNS

The majority of opposition to industrial hemp production in the United States stems from the concern of citizens and the law enforcement community that illegal drug users and producers will be able to disguise the psychoactive form of *Cannabis* – marijuana – in and around industrial hemp fields. There is also the fear that criminal elements will find ways to manipulate hemp legislation to benefit illegal interests.

For this report, MDA contacted the Minnesota Police and Peace Officers Association, the Minnesota Chiefs of Police Association, the Minnesota Sheriffs' Association, and the Minnesota County Attorneys Association to solicit input from these organizations regarding their views on industrial hemp production in the state. The Minnesota Police and Peace Officers Association (MPPOA) was the only organization to respond to our request (see attached letter – Appendix A). The MPPOA points out that federal law supersedes state law and that until a decision regarding industrial hemp is made at the federal level, the MPPOA would not want to be at odds with their federal counterparts with whom they work cooperatively on a daily basis. They also believe that officers would have a difficult time determining if detected or seized marijuana/hemp was greater or less than 0.3% THC. They feel that developing procedures for their crime laboratories to make those distinctions would be prohibitively costly and that their limited resources would be better used in other criminal matters.

In addition to Minnesota Law Enforcement, the Royal Mounted Canadian Police (RMCP) were interviewed for this report to give a perspective of how they have been dealing with the legalization of industrial hemp in their country since the laws were adopted in 1998. The RMCP indicated that Health Canada provides most of the daily regulatory enforcement regarding industrial hemp production in Canada. However, the RMCP are called upon occasionally for suspicious activities relating to industrial hemp fields, importation, and exportation. There is no way for RMCP to determine industrial hemp from marijuana, so in the few cases where they do get involved with an industrial hemp case, Health Canada laboratories provide the necessary distinction for the RMCP. If it is discovered that marijuana (>0.3% THC) is being cultivated, imported or exported, the RMCP can then prosecute an individual under criminal drug laws.

The RMCP did mention that industrial hemp fields are still relatively rare in Canada compared to other crops. They conduct some aerial reconnaissance to scout for potential marijuana fields annually, but because of the biological nature for hemp to contaminate marijuana plants and significantly lower the THC content, illegal marijuana growers generally avoid hemp fields altogether. Furthermore, industrial hemp is harvested much earlier than field grown marijuana, thus making it detrimental for illegal drug producers to share fields. Therefore, the RMCP does not observe significant co-production of industrial hemp and marijuana.

The RMCP offered the opinion that industrial hemp has not contributed to a rise in marijuana activity or arrests. However, they are concerned that organized criminal elements will try to find a way to use Canada's industrial hemp laws to their advantage as the popularity of hemp continues to grow. So far, it appears that any attempts by criminals to exploit industrial hemp production for other illegal purposes have not been successful, but the industry is still relatively small.

THE CASE FOR INDUSTRIAL HEMP

There are many advocates for the legalization of industrial hemp in the United States and Minnesota. The general consensus among supporters of industrial hemp production is that biologically there is little

or no concern for using low THC varieties that have no psychoactive properties. Furthermore, they argue that historically, hemp has been an extremely beneficial agricultural commodity in the United States. Supporters also point out that products created from industrial hemp have created a substantial market for agricultural producers in this country. All of the hemp-derived products in the U.S. marketplace are currently produced and manufactured in other countries. Most supporters argue that U.S. farmers could be producing hemp locally to diversify their existing cropping systems and create markets that would compete with imported hemp products from Canada and other countries.

Some Midwestern farmers have expressed interest in diversifying existing corn and soybean rotations by adding hemp as an alternative. Hemp grows in Minnesota as a weedy species. It is currently listed as a prohibited noxious weed in the state. Much of the hemp that grows wild along railroad rights-of-ways, abandoned lots, drainage ditches, etc. are descendents of industrial hemp plants grown legally up through the 1940s, prior to hemp prohibition in the U.S.

Despite the potential benefits from a crop production standpoint, the law enforcement concerns remain intact because of the close relationship of industrial hemp varieties and marijuana. Dr. George Weiblen, an associate professor with the University of Minnesota's Department of Plant Biology, is researching ways to change the genetic structure of *Cannabis* DNA so that industrial hemp varieties can be created that are visually distinct looking plants (in form and color) from other species of *Cannabis* and contain no psychoactive properties. For more information on this work view: <http://www.youtube.com/watch?v=6zXcraaXAMo>. The goal is to create a non-THC plant that law enforcement could easily identify as an industrial hemp variety. This research is ongoing.

MINNESOTA NOXIOUS WEED

Finally, it should be noted that *Cannabis sativa* is a prohibited noxious weed in Minnesota that cannot be sold, transported, or planted and must be controlled or eradicated on all lands within the state. The decision to list hemp as a noxious weed primarily results from hemp's weedy and invasive properties. After hemp production was phased-out following World War II and farmers were returning their lands to traditional row crops, seed banks left in the soil from years of hemp production started to present serious weed issues in corn, soybeans, and small grains. Not only did hemp compete with crops for precious soil resources, but the thick stalks of mature plants were able to clog equipment and significantly delay harvest efforts. Eventually, crop production practices reduced the impacts of hemp plants in agricultural fields, and today hemp is generally not an important agronomic weed species. It does exist in road ditches (ditch weed), abandoned fields, natural areas, etc., but is easily controlled. Today, hemp is not a priority species for noxious weed enforcement in Minnesota. Occasionally, the MDA or County Agricultural Inspectors receive calls regarding hemp, but most cases are related to law enforcement issues which are passed along to the county sheriff's office. Currently, the MDA is reviewing its noxious weed laws and procedures through a newly created noxious weed advisory committee and is considering the removal of hemp from the Minnesota Noxious Weed List.

Appendix A.



MINNESOTA POLICE AND PEACE OFFICERS ASSOCIATION

327 York Avenue Saint Paul, MN 55130-4039
tel: 651.291.1119 fax: 651.291.0227 toll free: 1.800.652.9799

October 29, 2010

Anthony Cortilet
Minnesota Department of Agriculture
Noxious and Invasive Weed Unit
625 Robert Street N
Saint Paul, MN 55155

Dear Mr. Cortilet,

I want to begin by thanking you for your recent electronic message to me seeking the thoughts of our Association as it relates to the study that you are currently conducting on Industrial Hemp. We definitely have an opinion on the subject and I will attempt to share it with you through this letter.

As you are keenly aware federal law makes it illegal to grow industrial hemp in the United States. I understand there is some provision that allows the Drug Enforcement Administration (DEA) to issue a permit to grow, however I am not aware of them ever issuing such a permit. As you are further aware federal law takes precedence over state law. Therefore any law enacted in Minnesota would be trumped by federal law.

The Minnesota law enforcement community daily works with federal law enforcement agencies on a wide range of issues including drug enforcement. We would oppose any legislation that would place Minnesota's peace officers against their counterparts on the federal level.

So immediately we believe that any attempts to recognize industrial hemp as an agricultural product needs to be handled in Washington DC. Having said that we recognize industrial hemp as the same species as marijuana and while it is distinguished from marijuana by its lower levels of THC the primary component is marijuana and therefore we can not distinguish between the two. Even though a lower potency perhaps, it would still be an attraction to youth.

Additionally peace officers would have great difficulty in determining whether detected or seized marijuana/hemp was the high potency drug type or the low grade variety. There would be considerable additional resources requiring scientists at our crime laboratories that would have to be called upon to confirm the distinction. These are resources that are already strained. Resources I must add that could be better used to analyze evidence in other criminal matters.

Again thank you for giving us the opportunity to give you our position on growing industrial hemp and as you can see we stand opposed.

Sincerely,



Dennis J. Flaherty
Executive Director