Industrial Hemp: Canada Exports, United States Imports

Courtney Moran*
INDUSTRIAL HEMP:
CANADA EXPORTS, UNITED STATES IMPORTS

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There are 35 industrial western countries that permit the growing of hemp. We have taken a careful look at this in the North American Industrial Hemp Council. We cannot find one that has had a problem in distinguishing industrial hemp from marijuana. Canada, our next door neighbor, with this policy now for a decade plus, doesn’t have a problem distinguishing industrial hemp from marijuana.

- R. James Woolsey, Former Director of the CIA

Hemp is grown in other countries. Countries such as China and Thailand, and the country closest to us that is most often mentioned in discussion, Canada, reports no injuries in marijuana whatsoever, in the production of industrial hemp. None.

- James Comer, Kentucky Commissioner of Agriculture

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I. INTRODUCTION

Human beings around the world have cultivated and used industrial hemp for thousands of years. Unlike its cousin marijuana, which is grown to yield a high delta 9 - tetrahydrocannabinol ("THC") content in its flowers, industrial hemp is a low-THC variety of Cannabis sativa L. ("C. sativa"), which is an agricultural commodity that is grown to process the seeds, fiber, and stalk into a variety of commercial products. Some countries have never outlawed


production of industrial hemp, while others have banned production.\(^4\) Approximately thirty countries currently permit farmers to cultivate industrial hemp as an agricultural commodity.\(^5\)

In Canada, farmers cultivated industrial hemp until the enactment of the Opium and Narcotic Drug Act, which ended commercial production of industrial hemp in Canada in 1938.\(^6\) In the early 1990s, the Canadian Government issued research licenses for industrial hemp.\(^7\) The research convinced the Canadian Government to legalize and license commercial industrial hemp production.\(^8\) The Canadian Industrial Hemp Regulations came into effect on March 12, 1998.\(^9\) Canada has effectively regulated hemp cultivation and shown that hemp and marijuana are distinguishable.\(^10\) Today, Canada exports industrial hemp and industrial hemp products to countries around the world, including to the United States.\(^11\)

In the U.S., farmers cultivated industrial hemp throughout the country until the enactment of the 1937 Marihuana Tax Act.\(^12\) Since 1937, the U.S. Government has strictly regulated \textit{C. sativa}, and today it is still illegal under federal law to cultivate industrial hemp for commercial purposes without a Drug Enforcement Administration

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The DEA claims that it is difficult to distinguish hemp and marijuana and that it will be difficult to effectively regulate hemp cultivation. As a result, the DEA continues to enforce the federal prohibition on industrial hemp cultivation. The U.S. is the only industrialized nation that prohibits the cultivation of industrial hemp. However, the U.S. imports industrial hemp and industrial hemp products from countries all over the world. Ironically, the U.S. is the largest importer of hemp products in the world. Despite the federal prohibition on industrial hemp cultivation, retail sales of industrial hemp products in the U.S. total more than half a billion dollars annually. Activists throughout the U.S. are currently urging the U.S. Government to end the prohibition on cultivating industrial hemp. Since 1999, several states have taken action and legalized the cultivation of industrial hemp. Since March 2014, at least twelve states have legalized some form of industrial hemp cultivation.

13. Id. at 13.
16. See id.
17. Id. at 6.
22. Id.
This article will make a comparative analysis of Canadian and U.S. industrial hemp laws, focusing on the history and current state of the laws, Canada’s exportation, and U.S. importation of industrial hemp. Section two describes what industrial hemp is and how it is used. Section three explores Canadian law and government support for the cultivation of industrial hemp. Section four looks at how U.S. law around industrial hemp has changed and how states are taking action to end the prohibition of industrial hemp cultivation in the U.S. This article concludes that the U.S. should affirmatively remove industrial hemp from the Controlled Substances Act (“CSA”) and end the prohibition on the cultivation of industrial hemp.

II. WHAT IS INDUSTRIAL HEMP AND WHAT ARE ITS USES?

Industrial hemp is an environmentally friendly crop that can replenish soil and grows well in rotation with other crops. It is an agricultural variety of *C. sativa* that is produced into a variety of commercial products, unlike marijuana which is grown to produce the psychoactive drug THC. Industrial hemp products fall within nine commercial submarkets: agriculture, textiles, recycling, automotive, furniture, food/nutrition/beverages, paper, construction materials, and personal care.

A. Industrial Hemp is Distinct from Marijuana

*Cannabis sativa* L. is the Latin name for the industrial hemp plant. *C. sativa* is a member of the Cannabaceae family. The hemp plant is distinct from the marijuana plant, another variety of *C.*
Scientists have identified fixed genetic differences between marijuana and non-psychoactive hemp. Typically, marijuana contains THC concentrations of 3 to 15 percent or higher on a dry-weight basis. Industrial hemp, on the other hand, typically contains less than one percent THC. Canadian regulations, the U.S. Agricultural Act of 2014, and some state legislation in the U.S. limit THC concentration in industrial hemp to 0.3 percent. THC is the main cannabinoid found in *C. sativa* that has a psychotropic effect.

*C. sativa* contains at least sixty cannabinoids. Cannabinoids are terpenophenolic substances, or plant metabolites, that accumulate mainly in the glandular trichomes, or hairs on the flowers, of the plant. THC and cannabidiol ("CBD") are the most abundant cannabinoids. The difference between *C. sativa* classified as industrial hemp (low-THC) and as marijuana (high-THC) is the cannabinoid profile, or the ratio of THC and CBD. Hemp has a low THC:CBD ratio compared to marijuana. High-CBD or low-THC

28. Id. at 1.
31. Id.; see also JOHNSON, supra note 3, at 1-2.
34. Id.
36. Id.
38. Id.; see also, Hillig & Mahlberg, supra note 35, at 967 ([Scientists have] recognized two chemotypes: a THC/CBD ratio >1.0 characteristic of "drug-type" plants, and a THC/CBD ratio <1.0 characteristic of "fiber-type" plants).
C. sativa cultivars (hemp) will produce similarly high-CBD or low-THC cultivars when self-pollinated, whereas high-THC C. sativa strains (marijuana) will produce similarly high-THC strains when self-pollinated. If a high-CBD or low-THC cultivar (hemp) is cross-pollinated with a high-THC strain (marijuana), the progeny plant’s cannabinoid profile would depend on the plant’s specific genetic background, but would result in a mixed CBD-THC content. If this heterozygous progeny (one parent high-CBD (hemp) cultivar and one parent high-THC (marijuana) strain) was self-pollinated, the balance of THC to CBD would remain fixed. Industrial hemp and marijuana are distinct varieties of C. sativa, and each “individual plant invariably belongs to its distinct chemical group throughout its life cycle.”

B. Characteristics of the Industrial Hemp Plant

The industrial hemp plant is dioecious, meaning there are male and female flowers on separate plants. Hemp is a wind-pollinated

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39. de Meijer et. al., supra note 33, at 339 (If the clone originally used to produce the S2 was of a pure CBD or THC chemotype, this chemotype is preserved throughout all the subsequent inbred generations, although the absolute amount of the dominant cannabinoid still shows considerable variation, as demonstrated by the standard deviations found); see also id. at 336; Yotoriyama et al. (1980) analyzed the F2 from F1 hybrids containing both CBD and THC in similar amounts and found segregation of the chemotypes with pure CBD, mixed CBD-THC, and pure THC profiles in a 1:2:1 ratio. The subsequent generations of the pure CBD plants were further investigated and they showed a fixed CBD chemotype.

40. Id. at 344. When two homozygous parents are crossed, one with a certain isoform of CBD synthase, the other with a certain isoform of THC synthase, the CBD/THC ratio in the F1’s will depend on the balance between the efficiencies of the two synthases and will remain fixed in any further heterozygous descendant obtained through self-fertilization. Id.

41. Id.

42. Id. at 336; see also id. at 344 (Some heritable factor seems to affect the balance between CBD and THC synthase in their competition to convert the CBG precursor); Hillig & Mahlberg, supra note 35, at 967.

plant. Industrial hemp is tall and leafy, with a strong fibrous stalk. The interior of the hemp stalk contains woody fibers called hurds, while the exterior portion of the stalk contains long bast fibers. Hemp seeds are smooth and about one eighth to one fourth of an inch long. Cultivators plant hemp densely to discourage branching and flowering. The growing season, from seed to harvest, ranges from 70 to 140 days depending on the purpose, cultivar or variety, and climate conditions. The crop usually reaches between 6 and 15 feet in height.

Industrial hemp grows well as a rotational crop. Hemp requires few, if any, fertilizers and pesticides. Hemp also does not require the use of herbicides because after the initial growth phase, hemp quickly overshadows the soil and thereby suppresses weed growth. Similarly, hemp can rebuild and condition soils “by replacing organic matter and providing aeration through its extensive root system.” Industrial hemp is one of the most environmentally friendly crops.

44. JOHNSON, supra note 3, at 2.
45. HEALTH CANADA, supra note 8.
46. JOHNSON, supra note 3, at 4.
47. Id.
48. Id. at 3 (The cultivation of industrial hemp is unlike the cultivation of marijuana. Marijuana growers encourage branching and flowering of marijuana plants).
49. Id.
50. Id.
51. Annndrea Hermann, Or. State Univ. Industrial Hemp Course WSE 266, Lecture 8: Hemp Agronomy (Apr. 2013) (Hemp is good in rotation with soybeans, potatoes, perennial grasses, legumes, and barley).
52. Moxley et. al., Efficient Sugar Release By the Cellulose Solvent-Based Lignocellulose Fractionation Technology and Enzymatic Cellulose Hydrolysis, 56 J. AGRIC. FOOD CHEM. 7885, 7885 (2008).
54. U.S. DEP’T OF AGRIC., STATE STUDY FINDINGS, supra note 23.
55. Moxley et. al., supra note 52, at 7885.
C. How is Industrial Hemp Used?

Cultivators can grow industrial hemp as a seed, fiber, or dual-purpose crop. Hemp yields range for different climates, soil conditions, plant varieties, plant population, and timing of harvest. An estimate for average yields from one acre in Canada is between 600 and 800 pounds of grain and 5,300 pounds of straw. A processor can press a yield of 700 pounds of grain into approximately 530 pounds of meal and 50 gallons of oil. A yield of 5,300 pounds of straw can yield approximately 1,300 pounds of fiber.

Manufacturers can process industrial hemp into more than 25,000 products. Examples of products produced from hemp stalk or hemp fiber are construction materials (e.g., insulation, fiberboard and hempcrete), animal bedding, paper, rope, furniture, textiles (e.g., carpets and upholstery), clothing, and ethanol. In addition, producers can use hemp seeds for food and beverages, in personal care items (e.g., soaps, shampoos, conditioners, lotions, and lip balm), and as biodiesel.

Industrial hemp is a viable agricultural commodity grown in over thirty industrialized nations. Canada has focused its cultivation of industrial hemp on seed production. As a result, Canada has become one of the largest exporters of industrial hemp seed in the world.

56. JOHNSON, supra note 3, at 4.
58. Id.
59. JOHNSON, supra note 3, at 3.
60. Laate, supra note 57.
61. JOHNSON, supra note 3, at 4.
62. Id. at 5.
63. Id.
64. Id. at 1.
65. Id. at 6.
66. See id. at 6, 10.
III. CANADA

Although Canada outlawed industrial hemp cultivation for almost sixty years, research studies in the 1990s led to the re-legalization of industrial hemp cultivation in Canada.\(^\text{67}\) Today, industrial hemp is not only cultivated throughout Canada, but the Canadian Government now supports and invests in the industrial hemp industry.\(^\text{68}\)

\textit{A. History}

Farmers cultivated industrial hemp in Canada until 1938.\(^\text{69}\) As part of the “international battle against the abuse of THC and other controlled substances,” Canada prohibited hemp production in 1938 under the Opium and Narcotic Drug Act.\(^\text{70}\) During World War II, prohibition was relaxed to provide fiber for the war effort.\(^\text{71}\) Following the war, hemp production was again prohibited.\(^\text{72}\) However, since 1961, Health Canada has allowed limited production of industrial hemp for scientific research purposes.\(^\text{73}\)

\textit{B. Research Resulted in Changing Policy}

As a potential source for new jobs, specifically in the agricultural and industrial sectors, and with a need to develop an alternative source of fiber, there was an increased interest in the cultivation of industrial hemp in the 1980s and 1990s.\(^\text{74}\) In 1994, Health Canada granted research licenses to determine the viability of commercial industrial hemp production in Canada.\(^\text{75}\) The research showed that industrial hemp could successfully be grown as a separate and distinct crop from marijuana.\(^\text{76}\) As a result of the research findings

\begin{flushright}
\begin{footnotesize}
\begin{enumerate}
\item Id. at 10.
\item See Latte, supra note 57.
\item Health Canada, supra note 8.
\item Id.
\item Id.
\item Id.
\item Id.
\item Id.
\item Id.
\item Latte, supra note 57; see also Hemp is Federally Regulated, Canadian Hemp Trade Alliance, http://www.hemptrade.ca/ (last visited July 23, 2014), archived at http://perma.cc/LFY5-PBXP.
\item Health Canada, supra note 8.
\end{enumerate}
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and a growing demand, Health Canada authorized agricultural and industrial sectors to grow and exploit industrial hemp for commercial production on March 12, 1998. Health Canada issued the first license to cultivate industrial hemp for commercial production in May 1998.

C. 1998 Industrial Hemp Regulation Program

Health Canada issues licenses and regulates industrial hemp production in Canada. Anyone engaged in the "cultivation, distribution, importation, exportation, and processing of industrial hemp" is subject to licensing, permitting, and authorizations by Health Canada. Licenses are valid for one calendar year and expire on December 31 immediately following the issuance of the license or the authorization, unless otherwise specified. License holders must reapply each year. Licenses are for crops of four hectares (ten acres) or more for fiber or grain and not less than one hectare for seed. For plant breeding, there is no minimum plot size. In addition to holding a license, an importer or exporter is required to hold an import or export permit for each shipment of industrial hemp. Permits are valid for three months.

Applicants for a license must send in a detailed application, with original signatures on all documents, which includes: original criminal record check(s); for those cultivating, Global Positioning System coordinates; appropriate schedules with the industrial hemp license application; and all supporting documents from the Canadian Seed Growers' Association or Canadian Food Inspection Agency, if required. If an applicant submits an application with false or

77. Id.; see also Laate, supra note 57.
78. Laate, supra note 57.
79. HEALTH CANADA, supra note 8.
80. Id.
81. Id.
83. Id.
84. SOR/98-156(5)(2).
85. HEALTH CANADA, supra note 8.
86. Id.; see also, SOR/98-156(8).
misleading information or with false or falsified documents, Health Canada will not issue a license or will revoke a license that was already issued.\textsuperscript{87} Health Canada will deny applications and revoke licenses if the applicant has a criminal record in any country that includes a designated drug offense in the past ten years.\textsuperscript{88} Health Canada will also deny applications if in the previous five years the applicant had a license revoked under the Controlled Drugs and Substances Act.\textsuperscript{89} In addition, Health Canada can revoke an authorization or license “where it is necessary to protect the security, safety or health of the public, if the Minister has reasonable grounds to believe” that the license or authorization holder has failed to comply with any condition of the license or authorization or any provision of the Regulations.\textsuperscript{90}

Anyone who holds a license to cultivate industrial hemp in Canada shall not cultivate it in any public place usually frequented by persons under eighteen years of age or within one kilometer of any school grounds.\textsuperscript{91} As a security measure, every license and authorization holder shall keep the industrial hemp that they store either on premises to which only authorized persons have access or in a locked container or a locked location.\textsuperscript{92} License holders are required to keep detailed records, such as the quantity, form, and variety of the industrial hemp cultivated, imported, purchased, or sold.\textsuperscript{93}

Health Canada regulates the “importation, production, processing, possession, sale, transportation, delivery and offering for sale of industrial hemp.”\textsuperscript{94} The leaves and flowering parts of all industrial hemp grown, processed, and sold in Canada must have 0.3 percent or less THC concentration.\textsuperscript{95} This 0.3 percent concentration limit serves as a threshold determination between industrial hemp and

\textsuperscript{87} SOR/98-156(9)(2)(e).
\textsuperscript{88} SOR/98-156(9)(2)(g), (13)(2)(b).
\textsuperscript{89} SOR/98-156(9)(2)(f), (13)(2)(b).
\textsuperscript{90} SOR/98-156(13)(3).
\textsuperscript{91} SOR/98-156(36).
\textsuperscript{92} SOR/98-156(37).
\textsuperscript{93} SOR/98-156(38).
\textsuperscript{94} Laate, \textit{supra} note 57.
\textsuperscript{95} \textsc{Health Canada}, \textit{supra} note 8.
marijuana. There is a maximum level of 10 parts per million for THC residues in products derived from hemp grain.

To confirm the THC concentration in a hemp crop is less than 0.3 percent, anyone who holds a license to cultivate industrial hemp shall have samples of the industrial hemp collected and tested at a competent laboratory using procedures set out in the Industrial Hemp Technical Manual. Within 15 days after testing, the results of the laboratory test and the name of the approved cultivar tested shall be submitted to the Minister. Any license holder who is required to have the THC concentration of their hemp crop tested, or is required to maintain records of the testing, shall keep a representative sample of the industrial hemp tested for a minimum of two years. The Industrial Hemp Regulations specify that, “in the case of the wholesale sale of a derivative, the package containing the derivative is labeled, ‘Contains 10 μg/g THC or less — Contient au plus 10 μg/g de THC.’” In the case of importation or exportation, the Regulations require that, “the shipment is accompanied by a certificate from a competent laboratory in the country of origin of the derivative or product that sets out the concentration of THC in the samples.”

Health Canada only allows cultivation of commercial industrial hemp from certified seed varieties. Health Canada provides a list of approved cultivars. These approved cultivars are tested and certified to have less than 0.3 percent THC concentration. Under the licensed program, there have been no violations of the THC concentration limit. In Canada, licensed industrial hemp producers have effectively cultivated industrial hemp separately and distinct

96. Laate, supra note 57.
97. Id.
98. SOR/98-156(16)(1)(a),(b).
99. SOR/98-156(16)(2).
100. SOR/98-156(33).
101. SOR/98-156(3)(1)(d).
102. SOR/98-156(3)(1)(c).
103. Laate, supra note 57; see also, SOR/98-156(39).
104. Id.
105. HEALTH CANADA, supra note 8.
106. Telephone Interview with Rebecca Ng, Industrial Hemp Section Officer, Health Canada, (Sept. 30, 2014).
from marijuana. Health Canada has no reported violations of marijuana being cultivated by a licensed industrial hemp producer.

D. Yields, Value, and Products

1. Yields

Annual production yields have increased extensively since Canada began issuing industrial hemp cultivation licenses. During the first year of licensing in 1998, Health Canada issued about 241 licenses. These 241 licensees grew approximately 2,400 hectares (5,927 acres) of industrial hemp. (See Appendix A.) By 1999, the number of licenses more than doubled to 545. In 1999, approximately 14,205 hectares (35,086 acres) of industrial hemp were grown. In the early 2000s, there was a decline in production due to breach of contract issues with a California company, Consolidated Growers and Processors Inc. The breach of contract left hemp producers with a large surplus of hemp seed and fiber, which did not all get sold, and the hemp producers had to absorb the losses. By 2005, approximately 9,725 hectares (24,021 acres) of industrial hemp were grown. In 2011, farmers cultivated 15,720 hectares (38,828 acres) of industrial hemp in Canada. Over 80 percent of the acres were cultivated for seed production in 2011. In 2013, Health Canada licensed 66,671 acres for industrial hemp

107. See id.
108. Id.
109. Laate, supra note 57.
110. Id.
111. Id.; see infra APPENDIX A.
112. Id.
113. Id.
114. Id. Consolidated Growers and Processors Inc. ("CGP") had contracted approximately 40 percent of the total industrial hemp licensed in Canada in 1999. CGP went into receivership after failing to meet its contractual obligations. The hemp seed and fiber surplus was stored in warehouses awaiting a bankruptcy settlement.
115. Id.
116. Id.
117. Id.
118. Id.
cultivation. The Prairie Provinces (Alberta, Saskatchewan and Manitoba) have led Canada in hemp production area.

2. Value

Hemp seed market information is not readily available. In Alberta, the sales price for hemp seed was approximately 90 cents to $1.00 per pound in 2011. A yield estimate for hemp seed is approximately 1,100 pounds per acre (500 kg per acre). Approximately 15,513 tons of hemp seed were produced in 2011. This estimate translates into a gross revenue between $30.75 million and $34.17 million ($990 to $1,100 per acre).

3. Products

Canadian companies produce a wide variety of products from industrial hemp. Some examples of products made from hemp seeds produced in Canada are “snack foods, hemp meal and flour, edible oil, shampoo and conditioners, moisturizers, commercial oil paints, beer, and aromatherapy and cosmetic products” as well as pastas, salad dressings, and frozen desserts. Examples of products from hemp fibers include hemp pellets, animal bedding, and insulation. Canadian farmers and producers are reporting good growth and have had success due to industrial hemp’s many nutritional benefits. Approximately one third of Canadian hemp seed production is certified organic.

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119. CANADIAN HEMP TRADE ALLIANCE, supra note 75.
120. Laate, supra note 57.
121. Id.
122. Id.
123. Id.
124. Id.
125. Id.
126. Id.
127. Id.
128. Id.
129. Id.
E. Exports

Canada exports industrial hemp in the form of fiber, hemp seeds, oil, and oil-cake. An application for a permit to export industrial hemp shall include “a statement certifying that the package and the contents do not contravene any known requirement of the laws of the country to which the industrial hemp is or is about to be consigned, or any country of transit or transshipment.” Health Canada will revoke a permit to export if the Minister has reasonable grounds to believe that the contents of a shipment of industrial hemp contravene any requirement of the laws of the country to which the shipment will be exported, or any country of transit or transshipment. An exporter shall provide to the Minister, within 20 days after exportation, a declaration that includes: the exporter’s name, license number and permit number, the date of exportation, and the quantity of industrial hemp exported.

From 2007 to 2010, Agriculture and Agri-Food Canada reported that exports to Canada’s top ten hemp markets increased by 200.7 percent. In 2007, 59 percent of Canada’s industrial hemp exports went to the U.S. From 2007 to 2010, exports to the U.S. increased by 170.2 percent. In 2010, Canada exported more than $10 million worth of hemp seed and hemp products. Again, most exports went to the U.S. (See Appendix B).

130. Id.
131. SOR/98-156(26)(1)(g).
132. SOR/98-156(30)(d).
133. SOR/98-156(29).
135. Industrial Hemp Statistics, AGRIC. AND AGRI-FOOD CANADA, supra note 11.
136. Canadian Hemp, AGRIC. AND AGRI-FOOD CANADA, supra note 134.
137. Laate, supra note 57.
138. Id.
139. Industrial Hemp Statistics, AGRIC. AND AGRI-FOOD CANADA, supra note 11; Canadian Hemp, AGRIC. AND AGRI-FOOD CANADA, supra note 134.
F. Growing Market and Government Support

The processing of hemp is steadily increasing and since 2008 hemp cultivation in Canada has also been increasing. Many small businesses that develop new hemp products and that market hemp products for sale are starting up. The Canadian Government shows its support through investments in the industry. In 2010, the Canadian Government announced an investment of $728,000 to increase production capacity in the hemp industry and to “make new inroads into the U.S. market.” In November 2011, through the AgriMarketing Program, the Canadian Government announced an investment of more than $55,000 to the Canadian Hemp Trade Alliance. This investment was “to promote the high quality of Canadian hemp to international markets.”

Canada has seen the true potential of industrial hemp cultivation. The Canadian Government supports industrial hemp cultivation Canadian farmers are profiting from their cultivation of hemp. The U.S. Government should look to Canada’s successful industrial hemp regulatory framework as a guideline for ending the prohibition of industrial hemp cultivation in the U.S.

IV. United States

The U.S. has a long history embedded with the cultivation and use of industrial hemp. It was not until the early 1900s that public opinion regarding industrial hemp became negative. Currently, the U.S. Government has a strict prohibition on the cultivation of industrial hemp, granting cultivation registrations in only rare circumstances. Most recently, the DEA has issued registrations for

140. See Laate, supra note 57.
141. Id.
142. Id.
143. Id.
144. Id.
145. Id.
146. Id.
Activists throughout the U.S. are urging the U.S. Government to end industrial hemp cultivation prohibition and to return to farmers the right to plant industrial hemp that they once had.

A. History

1. Pre-1937

Farmers have cultivated industrial hemp in the U.S. since its beginning. The first colonists cultivated hemp. The Puritans grew hemp at Jamestown to comply with their 1607 contract with the Virginia Company. The first law regarding industrial hemp in the U.S. was enacted in 1619 in Jamestown, Virginia, “‘ordering’ all farmers to ‘make tryal of’ [grow] Indian hemp seed.” In 1637, the General Court at Hartford ordered all families in Connecticut to plant one teaspoonful of hemp seeds. A similar order was in place in Massachusetts in 1639. The Connecticut General Assembly repeated the order in 1640. The Chesapeake Colonies also had similar orders.

George Washington and Thomas Jefferson were strong advocates for industrial hemp and both grew industrial hemp on their plantations. George Washington instructed people to sow hemp everywhere and kept a log in his farm diary of his hemp cultivation. Thomas Jefferson wrote on how to grow hemp, noting distinctions between growing for fiber and for seed. The first two drafts of the parchment of the Declaration of Independence were

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150. Schwab, supra note 20.
152. Id. at 126.
154. ROBINSON, supra note 151, at 126.
155. Id.
156. Id.
157. HERER, supra 153, at 1.
158. ROBINSON, supra 151, at 129-30.
159. Id. at 130.
160. Id. at 132.
produced with hemp. The first flags of the U.S. were made from hemp fiber. The sails and rigging of the U.S.S. Constitution, "Old-Ironsides", which was built in 1797 and never lost a battle, were made from hemp. Widespread production of industrial hemp in the U.S. continued into the early 1900s.

The U.S. Department of Agriculture ("USDA") produces yearly reports called Yearbooks. Several USDA Yearbooks from the late-1800s to early 1900s included articles on how to grow hemp, facts about hemp, and the profitability of growing hemp. One example is a 1917 USDA Yearbook article, "The Seed Supply of the Nation-Hemp" by R.A. Oakley, Agronomist in Charge of Seed Distribution, Bureau of Plant Industry. The 1917 article focused on hemp seed production, namely Kentucky supplying the majority of seed sown in the U.S. The article encouraged production of industrial hemp in the U.S. for seed, rather than importing seed.

Lyster Hoxie Dewey, a USDA botanist, studied hemp. One example of Dewey's work is Bulletin 404, from 1916, titled "Hemp Flag To Be Flown At Capitol on July 4" by Nick Wing, Huffington Post (July 2, 2013), archived at http://perma.cc/DCJ7-3SMC. This was one of the first times a hemp flag was flown over the Capitol dome since the 1930s.


Id.
Hurds As Paper-Making Material.”¹⁶⁸ USDA Bulletin 404 discussed what hemp hurds are, hemp hurd yields, hemp hurd uses, the present supply, and costs.¹⁶⁹ USDA Bulletin 404 reported that hemp hurds can produce four times more paper pulp per acre than trees.¹⁷⁰

2. 1937

In the early 1900s, views surrounding C. sativa began to change. Industrial hemp became confused with marijuana. In 1913, California passed the first legislation prohibiting “hemp,” with the 1913 Poison Act.¹⁷¹ By 1931, 29 states had passed legislation outlawing marijuana or C. sativa.¹⁷²

In an effort to restrict production of marijuana, Congress passed the 1937 Marihuana Tax Act (“Tax Act”) (50 Stat. 551) placing all C. sativa under control of the U.S. Treasury Department.¹⁷³ Congress designed the Tax Act to permit legitimate industrial, medical, and scientific uses.¹⁷⁴ The Tax Act “applied to anyone who imports, manufactures, produces, compounds, sells, deals in, dispenses, prescribes, administers, or gives away marihuana.”¹⁷⁵ The Tax Act required all C. sativa growers to undergo registration and licensing with the Federal Government.¹⁷⁶ Through the purchase of a

¹⁶⁹. Id.
¹⁷⁰. Id. at 24.
¹⁷². Busted: America’s War on Marijuana, Marijuana Timeline, supra note 147.
¹⁷⁶. INDUSTRIAL HEMP IN THE UNITED STATES: STATUS AND MARKET POTENTIAL, HISTORY, supra note 173.
marihuana stamp, the Act levied a one-dollar tax on activities dealing in *C. sativa*.\(^7\) Under the Tax Act,

> [a]ll producers of cannabis sativa and certain legitimate users (e.g., doctors) were subject to a small tax, ($1 per year). . . but no tax was applied to transfers of the mature stalk of the plant, which is useful only for industrial use. . . and which was specifically excluded from the definition of “marijuana”.\(^8\)

Hemp farmers were subject to a tax of one dollar per year.\(^9\) For a violation of the Tax Act, penalties were a maximum fine of $2000 and/or up to five years imprisonment.\(^0\)

The definition of marihuana under the Tax Act exempted the parts of the *C. sativa* plant particularly used for industrial purposes:

> [t]he term ‘marihuana’ means all parts of the plant *Cannabis sativa* L., whether growing or not; the seeds thereof; the resin extracted from any part of such plant; and every compound, manufacture, salt, derivative, mixture, or preparation of such plant, its seeds, or resin; *but shall not include the mature stalks of such plant, fiber produced from such stalks, oil or cake made from the seeds of such plant, any other compound, manufacture, salt, derivative, mixture, or preparation of such mature stalks (except the resin extracted therefrom), fiber, oil, or cake, or the sterilized seed of such plant which is incapable of germination.\(^1\)

As portions of the plant used for industrial purposes were exempt, the registration and taxation requirements were not “to be applied to millers or other businesspeople who obtained stalks, seeds, and other

\(^{7}\) Brady, *supra* note 175, at 88.
\(^{8}\) N.H. Hemp Council Inc. v. U.S.A. Drug Enforcement, 203 F.3d 1, 7 (1st Cir. 1999).
\(^{9}\) Kolosov, *supra* note 174, at 245.
\(^{0}\) Brady, *supra* note 175, at 89.
\(^{1}\) Kolosov, *supra* note 174, at 245 (emphasis added).
derivatives from producers.” Nevertheless, the 1937 Marihuana Tax Act effectively limited expansion of the production of hemp.

3. World War II

Despite the 1937 Marihuana Tax Act, the USDA produced a film in 1942 to promote production of industrial hemp for the war effort, known as the “Hemp for Victory” Campaign. The campaign was to provide for “products spun from American grown-hemp.” The “Hemp for Victory” film informs that the U.S. military used hemp fiber for
twine of various kinds for tying, winding armatures, and upholsterers work; rope for marine rigging and towing; for hay forks, derricks, and heavy duty tackle; light-duty fire hose; thread for shoes for millions of American soldiers; and parachute webbing for our paratroopers. As for the United States Navy, every battleship requires 34,000 feet of rope.

As a result of the campaign, 36,000 acres of hemp were planted in 1942. Throughout the remainder of the war “thousands of farmers grew hundreds of thousands of acres of hemp for wartime needs.” By the end of the war, the U.S. Government reasserted prohibition.

There was a total ban by 1958.

182. Id.
183. JOHNSON, supra note 3, at 12.
184. Brady, supra note 175, at 90.
185. JOHNSON, supra note 3, at 12.
187. Brady, supra note 175, at 90.
188. Id. (internal quotation marks omitted).
189. INDUSTRIAL HEMP IN THE UNITED STATES: STATUS AND MARKET POTENTIAL, HISTORY, supra note 173.
190. Id. The last commercial hemp crop in the U.S. was cultivated in 1957 by Matt Rens in Wisconsin. See also, Dennis Rens, America’s Hemp King (1995), http://newheadnews.com/hemp/Rens.hempstory.Wis/ (last visited Aug. 19, 2014), archived at http://perma.cc/Q9ZJ-DPCZ (The processing of the last hemp crop was completed in 1958).
4. Controlled Substances Act and Post-1970

In 1970, Congress passed the CSA (21 U.S.C. §§ 801-904), providing a framework for listing and classifying controlled substances based on several criteria, such as potential for abuse and medical use. The DEA regulates the CSA. The CSA makes it unlawful, except as authorized by the Act, to “manufacture, distribute, or dispense” any controlled substance.\(^{191}\) Under the CSA, marihuana is a Schedule I controlled substance.\(^ {192}\) Schedule I controlled substances are "drugs with no currently accepted medical use and a high potential for abuse."\(^{193}\) A registration must be obtained to manufacture a Schedule I controlled substance.\(^{194}\)

The CSA defines marihuana as follows:

> The term “marihuana” means all parts of the plant Cannabis sativa L., whether growing or not; the seeds thereof; the resin extracted from any part of such plant; and every compound, manufacture, salt, derivative, mixture, or preparation of such plant, its seeds or resin. Such term does not include the mature stalks of such plant, fiber produced from such stalks, oil or cake made from the seeds of such plant, any other compound, manufacture, salt, derivative, mixture, or preparation of such mature stalks (except the resin extracted therefrom), fiber, oil, or cake, or the sterilized seed of such plant which is incapable of germination.\(^ {195}\)

This definition of marihuana is the same definition as in the 1937 Marihuana Tax Act. The definition does not distinguish between low and high THC concentration varieties, and therefore includes all varieties of the C. sativa plant.\(^ {196}\) Opponents to prohibition argue

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196. JOHNSON, supra note 3, at 13.
that the definition of marihuana under the CSA exempts industrial hemp, as the stalks, fibers, oil or cake, and seeds are not included within the definition. The DEA disputes this interpretation. The DEA argues that the CSA definition of marihuana “includes all Cannabis sativa L.”

Growing hemp is not illegal under the CSA, but requires prospective growers to obtain a registration from the DEA. Only a few registrations have ever been issued. In 1999, the DEA issued one permit for research of the growth of one quarter-acre of industrial hemp in Hawaii. The DEA required strict security measures, including a “chain link fence with razor blade barbed wire and a twenty-four hour infrared security system surrounding the industrial hemp plots.” This permit expired in 2003. Since 2002, George Weiblen, Ph.D., at the University of Minnesota has held a DEA permit for the study of cannabis genetics. In 2007, the DEA issued a permit for a research plot at North Dakota State University. On May 22, 2014, the DEA issued a registration to the Kentucky Department of Agriculture authorizing the importation of 250 pounds of industrial hemp seed to be used for research purposes.

197. Id.
198. Id.
201. See Johnson, supra note 3; see also U.S. Dep’t. of Justice, Drug Enforcement Admin., supra note 15, at 5 (As of January 2013, [t]here are 125 researchers registered with DEA to perform studies with marijuana, marijuana extracts, and non-tetrahydrocannabinol marijuana derivatives that exist in the plant, such as cannabidiol and cannabino1.).
203. Brady, supra note 175, at 91.
204. Kolosov, supra note 174, at 247.
206. Id.
DEA granted a second registration to the Kentucky Department of Agriculture in July 2014 for a second shipment of imported industrial hemp seeds. On January 28, 2015, Harry Ako, Ph.D., at the University of Hawaii received a DEA import permit for the importation of industrial hemp seed for variety trial research.

The DEA continues to assert strict regulatory control over industrial hemp, even though attitudes and laws surrounding industrial hemp throughout the U.S. continue to change to realize the value of industrial hemp as an agricultural commodity.

B. Present Day

Without a DEA registration, it is currently illegal to cultivate industrial hemp in the U.S. Even if a cultivator has a state-issued license or permit, they still need to get a registration from the DEA to grow industrial hemp or have an established relationship with a state department of agriculture or an institution of higher education. If not, the cultivator may face federal charges or property confiscation. At this time, there are no active federal licenses allowing commercial cultivation of industrial hemp. All commercial hemp products sold in the U.S. are imported or manufactured from imported hemp materials.


211. See JOHNSON, supra note 3, at 13; see also Agricultural Act of 2014, H.R. 2642, 113th Cong. § 7606 (2014) (enacted). However, industrial hemp was cultivated in Colorado in the summer of 2013 without a DEA permit. JOHNSON, supra note 3, at 14.

212. Id.; JOHNSON, supra note 3, at 14.

213. Id.

214. Id.
1. The U.S. Courts and the DEA

i. Ninth Circuit: Non-Psychoactive Hemp Products With Naturally-occurring THC Are Not Regulated Under the CSA

On October 9, 2001, the DEA issued an “Interpretive Rule” which stated that, “all products containing any amount of THC are Schedule I controlled substances.” Manufacturers, distributors, and other sellers of hemp seed, hemp oil, and hemp seed oilcake appealed the issuance of the regulation. This regulation would have banned the possession and sale of these manufacturers’, distributors’, and sellers’ products. In Hemp Industries Ass’n v. Drug Enforcement Admin., 333 F.3d 1082 (9th Cir. 2003) (“Hemp”), the Ninth Circuit concluded that, “THC naturally-occurring within non-psychoactive hemp products did not fall under the DEA’s regulation” and abstained from considering the merits of the case until DEA issued Final Rules.

The DEA proposed two rules, also on October 9, 2001, that became final when published in the Federal Register on March 21, 2003. Final Rule DEA-205F amended 21 C.F.R. § 1308.11(d)(27) to include natural THC, along with synthetic THC, within the THC listing in Schedule I. Final Rule DEA-206F exempted from control non-psychoactive hemp products that contain trace amounts of THC that are not intended to enter the human body.

On February 6, 2004, the Ninth Circuit issued its opinion in Hemp Industries Ass’n v. Drug Enforcement Admin., 357 F.3d 1012 (9th Cir. 2004) (“Hemp II”). Considering the merits of the case, the Ninth Circuit concluded that “under the Chevron standards . . . Congress did not regulate non-psychoactive hemp in Schedule I.” The court then looked to whether the DEA followed appropriate procedures to schedule non-psychoactive hemp as a controlled

216. Hemp Industries Ass’n v. Drug Enforcement Admin., 357 F.3d 1012, 1014 (9th Cir. 2004).
217. Id.
218. Id.
219. Id.
220. Id.
221. Id. at 1015.
substance. The Ninth Circuit held that “[t]he DEA’s action is not a mere classification of its THC regulations; it improperly renders naturally-occurring non-psychoactive hemp illegal for the first time.” The court noted, “[w]e find unambiguous Congress’ intent with regard to the regulation of non-psychoactive hemp.” The Ninth Circuit concluded that the DEA “cannot regulate naturally-occurring THC not contained within or derived from marijuana—i.e., non-psychoactive hemp products—because non-psychoactive hemp is not included in Schedule I.” When the DEA did not appeal the decision to the U.S. Supreme Court by the September 28, 2004 deadline, industrial hemp activists saw this as a victory.

**ii. Hemp Cultivation, Without a Federal Registration, is Prohibited Under Federal Law**

a. First Circuit

In *N.H. Hemp Council Inc. v. U.S.A. Drug Enforcement*, 203 F.3d 1 (1st Cir., 1999), Representative Derek Owen brought suit against the DEA Administrator seeking a declaration that Congress had not criminalized the growth of non-psychoactive *C. sativa* (industrial hemp) in defining marihuana under the CSA. Owen had co-sponsored a bill to legalize and regulate the cultivation of industrial hemp. Among many witnesses that testified on Owen’s bill before a New Hampshire house subcommittee, a representative of the DEA testified that absent federal licensing, the DEA views the cultivation of *C. sativa* as the manufacture of marijuana and is illegal under

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222. *Id.*
223. *Id.* at 1017.
224. *Id.* at 1018.
225. *Id.* (emphasis in original).
227. *N.H. Hemp Council Inc. v. U.S.A. Drug Enforcement*, 203 F.3d 1, 3 (1st Cir., 1999); see also *id.* at 4 (Owen also sought an injunction to prevent the DEA from prosecuting hemp producers).
228. *Id.*
federal law.\textsuperscript{229} Owen’s bill was defeated on a close vote in the house committee.\textsuperscript{230}

Owen filed suit against the DEA Administrator.\textsuperscript{231} The district court determined that Owen did not have standing, but also determined that the federal definition of marihuana does include \textit{C. sativa} plants, even if grown solely for the production of industrial products.\textsuperscript{232} Owen appealed.\textsuperscript{233}

On appeal, the First Circuit looked at the issues of standing and statutory interpretation.\textsuperscript{234} The First Circuit held that on a literal reading of the definition of marihuana under the CSA, industrial hemp is within the statute’s ban and the statute does not distinguish among varieties of \textit{C. sativa}.\textsuperscript{235} The court concluded, “we find no indication that Congress in 1970 gave any thought to how its new statutory scheme would affect [industrial] production.”\textsuperscript{236}

The First Circuit holding made clear that industrial hemp cultivation is prohibited under the CSA, absent federal registration.\textsuperscript{237} The Eighth Circuit has similarly concluded that the growth of all varieties of \textit{C. sativa}, including industrial hemp, is prohibited under the CSA absent compliance with the registration requirement.\textsuperscript{238}

\textbf{b. Eighth Circuit}

In 2007, North Dakota issued the first industrial hemp cultivation license to Representative David Monson. The North Dakota Commissioner of Agriculture (“Commissioner”) also granted Wayne Hauge an industrial hemp cultivation permit. The DEA previously denied a request by the Commissioner to waive the CSA registration

\begin{flushleft}
\textsuperscript{229} Id.
\textsuperscript{230} Id.
\textsuperscript{231} Id.
\textsuperscript{232} Id. at 4.
\textsuperscript{233} Id.
\textsuperscript{234} Id. at 4-6.
\textsuperscript{235} Id. at 7; \textit{see also} id. at 8 ([W]here cannabis sativa plants are grown for industrial use, the statute’s coverage is supported alike by literal language, enforcement concerns and the broad application of the definition under the 1937 tax statute).
\textsuperscript{236} Id. at 8.
\textsuperscript{237} Monson \textit{v.} Drug Enforcement Admin., 589 F.3d 952, 957 (8th Cir. 2009).
\end{flushleft}
In February 2007, the Commissioner submitted applications to the DEA “for registration on behalf of Monson and Hauge for their proposed industrial hemp cultivation.” The Commissioner sought DEA action on the applications by April 1, 2007, but the DEA responded that the deadline was unrealistic. The North Dakota Legislative Assembly subsequently amended the state statute, “eliminating the DEA-registration requirement.”

Rather than beginning cultivation immediately, Monson and Hauge filed a lawsuit in the District of North Dakota, Monson v. Drug Enforcement Admin., 522 F.Supp.2d 1188 (D. ND 2007), “seeking a declaration that the CSA does not apply to persons seeking to cultivate industrial hemp pursuant to North Dakota law.” Monson and Hauge argued that pursuant to the licenses they obtained from the Commissioner, the CSA did not apply to their planned cultivation of C. sativa. The District Court dismissed their case, by granting the DEA and Department of Justice’s (“DOJ”) motion to dismiss. Monson and Hauge appealed.

In Monson v. Drug Enforcement Admin., 589. F.3d 952 (8th Cir. 2009), the Eighth Circuit concluded that, “[u]nder the CSA, marijuana is defined to include all Cannabis sativa L. plants, regardless of THC concentration . . . [t]he CSA likewise makes no distinction between cannabis grown for drug use and that grown for industrial use.” The court continued, “‘the language of the CSA unambiguously bans the growing of marijuana, regardless of its use’ . . . ‘the CSA regulates the farming of hemp.’” In footnote 4, the Eighth Circuit noted, “the statutory definition of marijuana excludes certain parts of the Cannabis sativa L. plant not relevant to

239. Id. at 957.
240. Id.
241. Id.
242. Id.
244. Monson v. Drug Enforcement Admin., 589 F.3d 952, 957 (8th Cir. 2009).
245. Id. at 956, 962.
246. Id. at 955.
247. Id. at 961 (emphasis in original).
248. Id. at 962 (citing U.S. v. White Plume, 447 F.3d 1067, 1072-73 (8th Cir. 2006)).
The court further stated that, "we found 'no evidence that Congress intended otherwise' than to ban the growth of all varieties of the *Cannabis sativa* L. plant absent compliance with the registration requirements of the CSA." The Eighth Circuit affirmed the conclusions of the District Court that, "industrial hemp as defined by the North Dakota statute is marijuana for purposes of the CSA."

The courts have been consistent in upholding the DEA’s interpretation of the definition of marihuana under the CSA. Industrial hemp cultivation is prohibited under federal law, absent a federal registration.

As it stands, non-psychoactive hemp products that contain naturally-occurring THC are not included in Schedule I. However, the classification of *all C. sativa* as marihuana in Schedule I under the CSA bans the growth of all varieties of *C. sativa*, including industrial hemp, absent compliance with the CSA registration requirement. The DEA continues to enforce strict compliance with the registration requirement.

iii. Position of the DEA and Law Enforcement

One main reason the DEA and law enforcement are opposed to hemp cultivation is because they claim hemp and marijuana are difficult to distinguish, and that it will be difficult to regulate effectively. Rodney Brewer, Kentucky State Police Commissioner, testifying in opposition to Senate Bill 50, "AN ACT relating to industrial hemp", stated his opposition is "because of the similarities between hemp and marijuana. They are identical in

249. *Id.* at 961 n.4.

250. *Id.* at 962 (emphasis in original) (citing White Plume, 447 F.3d at 1072).

251. *Id.* at 962.

252. See N.H. Hemp Council Inc. v. U.S.A. Drug Enforcement, 203 F.3d 1, 6 (1st Cir. 1999); see also Monson v. Drug Enforcement Admin., 589 F.3d 952, 957 (8th Cir. 2009).


254. See Hemp Industries Ass’n. v. Drug Enforcement Admin., 357 F.3d 1012, 1019 (9th Cir. 2004).

255. See *N.H. Hemp Council Inc.*, 203 F.3d at 6; see also Monson, 589 F.3d at 962.

appearance when it comes to the naked eye.\textsuperscript{257} However, \textit{C. sativa} is wind pollinated and can cross-pollinate easily.\textsuperscript{258} Marijuana growers cultivating for THC content in their crop would not want hemp located anywhere near their marijuana operation.\textsuperscript{259} The marijuana grower would risk cross-pollination.\textsuperscript{260} R. James Woolsey, former CIA Director and member of North American Industrial Hemp Council, responded, “[t]he marijuana growers are about the last people who want industrial hemp.”\textsuperscript{261} Cross-pollination between marijuana and hemp could result in a seeded marijuana crop significantly reducing the value of the marijuana and could also reduce the THC content of the next generation marijuana crop.\textsuperscript{262} In addition, with state licensing and permitting programs, law enforcement would know where and who is cultivating industrial hemp.\textsuperscript{263} Thus, it would be extremely difficult for a marijuana grower to pass off his operation as an industrial hemp operation. If authorities suspected marijuana was being grown, they could easily verify compliance with the grower’s license and permit.

The DEA remains firm on their position that industrial hemp is regulated as a Schedule I controlled substance under the CSA. Despite DEA’s position, legislation continues to be passed and signed into law on both the state and federal levels recognizing industrial hemp as an agricultural commodity.

2. Executive Orders

On June 3, 1994, President Bill Clinton signed Executive Order 12919, National Defense Industrial Resources Preparedness, which addressed national defense industrial resource policies and programs

\textsuperscript{257} Id.
\textsuperscript{258} JOHNSON, supra note 3, at 2.
\textsuperscript{259} Reyes, supra note 14.
\textsuperscript{260} Id.
\textsuperscript{261} Id.
\textsuperscript{263} E.g., OR. REV. STAT. § 571.305(3) (2013).
under the Defense Production Act of 1950. Under the general provisions of Executive Order 12919, hemp was listed as a food resource, among other specifically listed foods. The food resources section, 901(e), specifically states, “‘food resources’ also means... hemp... but does not mean any such material after it loses its identity as an agricultural commodity or agricultural product.”

On March 16, 2012, President Barak Obama signed Executive Order 13603, National Defense Resources Preparedness, which also addressed national defense resource policies and programs under the Defense Production Act of 1950 and amended part of President Clinton’s National Defense Industrial Resources Preparedness Order. Again, hemp was listed as a food resource. The language remained the same, “‘food resources’ also means... hemp... but does not mean any such material after it loses its identity as an agricultural commodity or agricultural product.”

These executive orders do not affect the federal status of industrial hemp in the U.S. The last section of both Executive Order 12919 and Executive Order 13603 states that the Order is not intended to create any right or benefit enforceable at law by a party against the U.S.

Regardless of the lack of effect on federal legal status, it is important to note that through these executive orders Presidents Clinton and Obama have recognized the use of hemp as a food source and agricultural commodity. Legislation on both the federal and state levels continues to recognize the agricultural potential of industrial hemp.

3. Agency Action

On August 29, 2013, the DOJ issued a memo (“Cole Memo”) providing prosecutorial guidance for states that legalized the

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266. Id.
269. Id.
possession of marijuana.\textsuperscript{271} The Cole Memo outlines eight enforcement priorities as guidance for federal prosecutors to follow for enforcement of the CSA against marijuana-related conduct in states that have legalized the possession of marijuana.\textsuperscript{272} States such as Colorado, Kentucky, and Oregon interpreted the Cole Memo to also allow production of industrial hemp in states that legalized industrial hemp cultivation.\textsuperscript{273}


4. Congressional Action

274. In January 2015, companion Senate and House bills for the Industrial Hemp Farming Act of 2015 were introduced with bipartisan support. On January 8, 2015, Senator Ron Wyden (D-OR) introduced S. 134 with co-sponsors Jeff Merkley (D-OR), Rand Paul (R-KY) and Senate Majority Leader Mitch McConnell (R-KY). The language of S. 134 is identical to the language of S. 359 introduced in 2013. On January 26, 2015, Representative Thomas Massie (R-KY) reintroduced the Industrial Hemp Farming Act, H.R. 525, with 47 co-sponsors. The language of H.R. 525 is identical to the language of H.R. 525 introduced in 2013. The companion bills introduced in 2013 (H.R. 525 and S.359) and the 2015 companion bills (S. 134 and H.R. 525) contain identical language under Section 2, which excludes industrial hemp from the Controlled Substances Act definition of “marihuana”:

SEC. 2. EXCLUSION OF INDUSTRIAL HEMP FROM DEFINITION OF MARIHUANA.

Section 102 of the Controlled Substances Act (21 U.S.C. 802) is amended—

(1) in paragraph (16)—

(A) by striking “(16) The” and inserting “(16)(A) The”; and

(B) by adding at the end the following:

“(B) The term ‘marihuana’ does not include industrial hemp.”; and

(2) by adding at the end the following:

“(57) The term ‘industrial hemp’ means the plant Cannabis sativa L. and any part of such plant, whether growing or not, with a delta-9 tetrahydrocannabinol concentration of not more than 0.3 percent on a dry weight basis.”


On February 4, 2014, the U.S. Congress approved the Agricultural Act of 2014 (H.R. 2642). Section 7606 of the Agricultural Act authorizes research of industrial hemp by institutions of higher education and state Departments of Agriculture in states that have legalized the cultivation or research of industrial hemp. President Obama signed the Agricultural Act of 2014 into law on February 7, 2014.

Section 7606 specifically provides:

(a) In General- Notwithstanding the Controlled Substances Act (21 U.S.C. 801 et seq.), the Safe and Drug-Free Schools and Communities Act (20 U.S.C. 7101 et seq.), chapter 81 of title 41, United States Code, or any other Federal law, an institution of higher education (as defined in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001)) or a State department of agriculture may grow or cultivate industrial hemp if--

(1) the industrial hemp is grown or cultivated for purposes of research conducted under an agricultural pilot program or other agricultural or academic research; and
(2) the growing or cultivating of industrial hemp is allowed under the laws of the State in which such institution of higher education or State department of agriculture is located and such research occurs.

(b) Definitions- In this section:

(1) AGRICULTURAL PILOT PROGRAM-
The term `agricultural pilot program' means a

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Two bills introduced into the U.S. Senate in 2012 (S. AMDT. 2220 and S. 3501) were also unsuccessful. See S. AMDT. 2220, 112th Cong. (2012); S. 3501, 112th Cong. (2012).

pilot program to study the growth, cultivation, or marketing of industrial hemp--

(A) in States that permit the growth or cultivation of industrial hemp under the laws of the State; and

(B) in a manner that--

(i) ensures that only institutions of higher education and State departments of agriculture are used to grow or cultivate industrial hemp;

(ii) requires that sites used for growing or cultivating industrial hemp in a State be certified by, and registered with, the State department of agriculture; and

(iii) authorizes State departments of agriculture to promulgate regulations to carry out the pilot program in the States in accordance with the purposes of this section.

(2) INDUSTRIAL HEMP- The term 'industrial hemp' means the plant Cannabis sativa L. and any part of such plant, whether growing or not, with a delta-9 tetrahydrocannabinol concentration of not more than 0.3 percent on a dry weight basis.

(3) STATE DEPARTMENT OF AGRICULTURE- The term 'State department of agriculture' means the agency, commission,
or department of a State government responsible for agriculture within the State.\textsuperscript{278}

The inclusion of Section 7606 in the Agricultural Act of 2014 was a landmark step forward for the industrial hemp movement in the U.S.

\textit{ii. Consolidated and Further Continuing Appropriations Act of 2015}

On December 16, 2014, President Obama signed into law the Consolidated and Further Continuing Appropriations Act of 2015, becoming Public Law No: 113-235.\textsuperscript{279} Section 539 of the Consolidated and Further Continuing Appropriations Act addresses industrial hemp research.\textsuperscript{280} Section 539 reads,

\begin{quote}
None of the funds made available by this Act may be used in contravention of section 7606 (‘‘Legitimacy of Industrial Hemp Research’’) of the Agricultural Act of 2014 (Public Law 113-79) by the Department of Justice or the Drug Enforcement Administration.\textsuperscript{281}
\end{quote}

Section 539 provides industrial hemp researchers protection from federal prosecution throughout 2015 for the cultivation of industrial hemp for research purposes conducted in states that have authorized such research in accordance with Section 7606 of the Agricultural Act of 2014.\textsuperscript{282}

The Acts approved by Congress relating to industrial hemp during the 2014 legislative session reflects the will of the numerous states that have passed legislation authorizing some form of industrial hemp cultivation.

\begin{footnotes}
\textsuperscript{278} 7 U.S.C. § 5940 (emphasis added).
\textsuperscript{280} Id.
\textsuperscript{281} Id. at § 539.
\textsuperscript{282} Id.
\end{footnotes}
5. State Action

Despite the federal prohibition of industrial hemp commercial cultivation, several states have taken action by passing bills and resolutions related to industrial hemp. In 1999, North Dakota became the first state to legalize the cultivation of industrial hemp.\textsuperscript{283} Montana\textsuperscript{284} and West Virginia\textsuperscript{285} legalized the cultivation of industrial hemp in 2002. In 2008, Vermont\textsuperscript{286} and in 2009, Maine\textsuperscript{287}

\textsuperscript{283} An Act to Authorize the Production of Industrial Hemp, N.D. Cent. Code, §§ 4-41-01-03 (1999).
\textsuperscript{284} An Act Authorizing the Production of Industrial Hemp as an Agricultural Crop, Mont. Code Ann. §§ 80-18-101-111 (2001). Note:

\begin{enumerate}
\item It is an affirmative defense to a prosecution for the possession or cultivation of marijuana under 45-9-102, 45-9-103, and 45-9-110 that:
\item the defendant had valid applicable controlled substances registrations from the United States department of justice, drug enforcement administration; and
\item the defendant fully complied with all of the conditions of the controlled substances registration.
\end{enumerate}


\textsuperscript{285} Industrial Hemp Development Act, W.Va. Code §§ 19-12E-1-9 (2002). Note:

\begin{enumerate}
\item Prior to issuing a license under the provisions of this article, the commissioner shall determine that the applicant has complied with all applicable requirements of the United States department of justice, drug enforcement administration for the production, distribution and sale of industrial hemp.
\end{enumerate}

W. Va. Code § 19-12E-5 (2014). On March 21, 2014 West Virginia Governor Tomblin approved house bill 3011, which removes §19-12E-5(d), which required applicants to meet federal requirements for the production, distribution and sale of industrial hemp. H.B. 3011, 81st Leg., 1st Sess. (W.Va. 2014) (“Removing the provision that requires an applicant to meet federal requirements concerning the production, distribution and sale of industrial hemp prior to being licensed”).


\textsuperscript{287} An Act to Promote Industrial Hemp, Me. Rev. Stat. Ann. tit. 7, § 2231 (2009). Note:
and Oregon\textsuperscript{288} legalized the cultivation of industrial hemp. In 2012, Colorado removed barriers to the production of industrial hemp.\textsuperscript{289} In 2013, Kentucky\textsuperscript{290} and California\textsuperscript{291} also legalized the cultivation of industrial hemp. In 2014, the following states legalized the cultivation and production of industrial hemp: Indiana on March 26,\textsuperscript{292} Tennessee on May 14,\textsuperscript{293} and South Carolina on June 2.\textsuperscript{294} However, as discussed above, a grower still needs to obtain a registration from the DEA to commercially grow industrial hemp, or

A license may not be issued under this section unless:
A. The United States Congress excludes industrial hemp from the definition of “marihuana” for the purpose of the Controlled Substances Act, 21 United States Code, Section 802(16); or
B. The United States Department of Justice, Drug Enforcement Administration takes affirmative steps towards issuing a permit under 21 United States Code, Chapter 13, Subchapter 1, Part C to a person holding a license issued by a state to grow industrial hemp.

\footnotesize{ME. REV. STAT. ANN. tit. 7, § 2231(8) (2009).}

\footnotesize{288. Industrial Hemp Growers and Handlers, OR. REV. STAT. §§ 571.300-571.315 (2011).}

\footnotesize{289. COLO. CONST. art. 18 § 16, (2014), available at http://tornado.state.co.us/gov_dir/leg_dir/olls/constitution.htm#ARTICLE_XVIII_Section_16., archived at http://perma.cc/5B29-5QX2.}


have an established relationship through a Memorandum of Understanding with an institution of higher education or the state Department of Agriculture to conduct research, even if the grower has a state-issued permit or license, or may face federal prosecution.295

Even with the passage of the Agricultural Act of 2014, the DEA still requires industrial hemp researchers to obtain a DEA registration.296 As discussed above, the Agricultural Act of 2014 allows for institutions of higher education and state Departments of Agriculture to conduct industrial hemp research in states that have passed legislation allowing for the cultivation or research of industrial hemp.297 Several of the states that have legalized industrial hemp cultivation have also passed bills specifically allowing for research of industrial hemp, including Colorado,298 Kentucky,299 and North Dakota.300 On March 20, 2014, Utah legalized industrial hemp research by the Utah Department of Agriculture and department-certified higher education institutions.301 On April 2, 2014, Nebraska legalized the cultivation of industrial hemp for research purposes by the Nebraska Department of Agriculture or postsecondary


300. N.D. CODE § 7-14-02-01 (2007); see also Federal Hemp Seed Collection, N.D. CENT. CODE, §§ 4-41-01-4-41-03 (1999). Another North Dakota hemp measure, Sale of Industrial Hemp Seed, N.D. CENT. CODE § 4-41-03 (2007).

institutions. On April 30, 2014, Hawaii Governor Neil Abercrombie signed an industrial hemp bill that legalizes research of industrial hemp at the University of Hawaii for two years. On July 29, 2014, Delaware legalized industrial hemp research by the Delaware Department of Agriculture or a certified higher education institution. On August 26, 2014, Illinois legalized industrial hemp research by the Illinois Department of Agriculture and any authorized institution of higher learning. On December 17, 2014, New York authorized the development of up to ten industrial hemp agricultural pilot programs conducted by the New York Department of Agriculture and Markets and/or any qualified institution of higher education in the state of New York. On January 15, 2015, Michigan legalized the cultivation of industrial hemp for purposes of research conducted under an agricultural pilot program or other research project by the Michigan Department of Agriculture and Markets.

Rural Development or any college or university. On March 16, 2015 Virginia legalized the cultivation of industrial hemp for research purposes by Virginia institutions of higher education and by individual participants in the industrial hemp research program directly managed by a public institution of higher education. In sum, the passage of Section 7606 of the Agricultural Act of 2014 has resulted in numerous states legalizing some form of industrial hemp research.

On July 14, 2014, Missouri Governor Nixon signed into law an emergency act passed by the Missouri General Assembly that authorizes the cultivation, production, and manufacture of industrial hemp for production of hemp extract for the treatment of persons suffering from intractable epilepsy. The Act only authorizes the Missouri Department of Health and Senior Services to issue two cultivation and production facility licenses at any one time. The Missouri Department of Agriculture began accepting applications to


produce hemp extract on November 3, 2014. The Act specifically requires that, “[a]ll hemp waste from the production of hemp extract shall either be destroyed, recycled by the licensee at the hemp cultivation and production facility, or donated to the department or an institution of higher education for research purposes, and shall not be used for commercial purposes.” Therefore, the Act authorizes research of the industrial hemp waste by the Missouri Department of Health and Senior Services or an institution of higher education.

Several states throughout the U.S. have passed other measures relating to industrial hemp. In 2012, Colorado defined industrial hemp as any part of the cannabis plant with a THC concentration that does not exceed 0.3 percent on a dry weight basis, and declared that industrial hemp be regulated separately from all strains of cannabis with higher THC concentrations. The following states have passed additional measures relating to industrial hemp: Arkansas, California, Hawaii, Illinois, Maryland, Minnesota, New Hampshire, New Mexico, North Carolina, and Virginia. States continue to introduce into their legislatures bills and resolutions relating to industrial hemp.


313. Id.

314. COLO. CONST. art. 18 § 16 (1)(c), (2)(d). Washington defines marijuana as any part of the cannabis plant with a THC concentration greater than 0.3 percent, see WA REV. CODE ANN. § 69.50.101(t) (2013). The definition of marijuana in Washington does not include the mature stalks of the plant, fiber produced from the stalks, oil or cake made from the seeds of the plant, any other compound, manufacture, salt, derivative, mixture, or preparation of the mature stalks (except the resin extracted therefrom), fiber, oil, or cake, or the sterilized seed of the plant which is incapable of germination.

315. JOHNSON, supra note 3, at 18-19.

316. As of August 27, 2014, 28 states and Puerto Rico have introduced or carried over industrial hemp legislation:
C. State Response to the 2013 Cole Memo, the Agricultural Act of 2014, and 2014 Plantings

Despite the requirement to have a registration from the DEA to cultivate industrial hemp for commercial purposes, several states, such as Colorado, Kentucky, and Oregon, have interpreted the Cole Memo to allow production of industrial hemp in states that legalized industrial hemp cultivation.317 Colorado and Kentucky issued licenses to farmers and researchers, and licensees in both states planted industrial hemp in May 2014.318 Vermont also registered farmers and allowed industrial hemp cultivation during the 2014 production season.319

1. Colorado

Colorado removed barriers to production of industrial hemp with passage of Amendment 64, The Regulate Marijuana Like Alcohol Act of 2012.320 The 2012 constitutional amendment required that the Colorado General Assembly enact legislation no later than July 1, 2014 “governing the cultivation, processing and sale of industrial

Alabama, Arizona, California, Colorado, Connecticut, Delaware, Hawaii, Illinois (carried over from 2013), Indiana, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Hampshire (carried over from 2013), New Jersey (carried over from 2013), and new bill introduction as well, New York, Oklahoma, South Carolina, South Dakota, Tennessee, Utah, Washington (two bills were carried over from 2013), West Virginia, and Wisconsin. The New Jersey bills from 2013 were passed in January of 2014, but were pocket vetoed by Governor Christie.


320. COLO. CONST. art 18 § 16.
hemp.”

On May 28, 2013, Colorado created an Industrial Hemp Regulatory Program within the Colorado Department of Agriculture.

Although rules were not yet in place, some report that as many as two dozen Colorado farmers planted hemp in the spring of 2013. One Colorado farmer, Ryan Loflin, planted 55 acres of industrial hemp in Baca County, Colorado during the summer of 2013. This crop was the first commercial harvest of industrial hemp in the U.S. in 56 years.

Following issuance of the Cole Memo on August 29, 2013, the Colorado Department of Agriculture drafted and finalized rules for commercial cultivation and research and development of industrial hemp in Colorado. The rules provide application requirements, required reporting, how inspections and sampling will occur, waiver from inspections, and disciplinary sanctions and civil penalties for violations.

Colorado began accepting registration applications from farmers and businesses for both commercial cultivation and research and development of industrial hemp. The rules provide application requirements, required reporting, how inspections and sampling will occur, waiver from inspections, and disciplinary sanctions and civil penalties for violations.

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development of industrial hemp on March 1, 2014. Colorado has not faced any interference by the DEA. Registrants can apply for both indoor and outdoor industrial hemp cultivation. The Colorado Department of Agriculture registered 197 fields in 2014. Colorado approved registrations for both individuals and businesses. In 2014, only one institution of higher education, Colorado State University, registered with the Colorado Department of Agriculture to conduct research of industrial hemp. The 2014 application forms, for both commercial and research and development registrations, provided six clauses that applicants were required to initial. These clauses functionally served as a Memorandum of Understanding between the applicant and the


329. Telephone Interview with Brian Allen, Colo. Dep’t of Agric. (July 2, 2014).


331. Id.

332. Id.

333. Id.; see also Telephone Interview with Duane Sinning, Colo. Dep’t of Agric. (Oct. 22, 2014) (The University of Colorado has also registered with the Colorado Department of Agriculture).

334. See COLO. DEP’T OF AGRIC., Commercial Industrial Hemp Registration Application, supra note 328; COLO. DEP’T OF AGRIC., Research and Development Industrial Hemp Registration Application, supra note 328.
Colorado Department of Agriculture providing that the applicant was serving as an extension of the Department for purposes of industrial hemp cultivation to maintain compliance with Section 7606 of the Agricultural Act of 2014. 335

So far in 2015, there have been over 400 applications for registrations for both research and commercial cultivation. 336 Revised regulations were issued on March 30, 2015 establishing a new registration process. 337 The new regulations provide for only commercial cultivation registrations for individuals, but applicants may conduct research under these registrations. 338 The Colorado Department of Agriculture will not be issuing Memorandums of Understanding to individual registrants as the Department is specifically authorizing registrations for commercial cultivation. 339 In 2015, both Colorado State University and the University of Colorado are expected to conduct industrial hemp research with approved registrations. 340

The Colorado Department of Agriculture has followed a “don’t ask, don’t tell” policy on where individual farmers procure seeds from. 341 The idea behind the “don’t ask, don’t tell” policy is that the Colorado Department of Agriculture does not ask farmers where they get their wheat or corn seed from, so why would they ask farmers where their industrial hemp seed is from. 342 Although the application form provides an area for the applicant to list the varieties that the farmer will plant in each field or building, the Department does not require that this area be completed. 343 The Colorado Department of Agriculture has received criteria from the DEA that must be met for the Department to purchase and import seed into the state for research purposes. 344 The Colorado Department of Agriculture met

335. Telephone interview with Brian Allen, supra note 327.
336. E-mail from Sharon Farr, Colo. Dep’t of Agric., Div. of Plant Industry, to author (Mar. 27, 2014 10:46am) (on file with author).
337. 8 COLO. CODE REGS. § 1203-23 (2015).
338. Id. at 1.2, 1.11.
340. Id.
341. Telephone interview with Brian Allen, supra note 327.
342. Id.
343. Id.
344. Id.
the criteria and is registered with the DEA, but has not purchased or imported any industrial hemp seed to date. The Colorado Department of Agriculture will not purchase or import seeds for individual registrants. However, the Colorado Department of Agriculture has applied for a DEA import permit to import viable industrial hemp seeds for Colorado State University and the University of Colorado to conduct research. Even by following this “don’t ask, don’t tell” policy on where individual farmers have procured seeds from, the Colorado Department of Agriculture has not had any interference by the DEA with the industrial hemp program in Colorado.

Colorado has implemented a successful industrial hemp program authorizing cultivation for both commercial and research purposes without DEA interference. Although Kentucky faced initial interference by the DEA, Kentucky also implemented a successful industrial hemp research program.

2. Kentucky

On April 7, 2013, Kentucky enacted legislation that authorizes industrial hemp cultivation. Following issuance of the Cole Memo, the Kentucky Department of Agriculture began implementing Ky. Rev. Stat. §§ 260.850-260.869. Following the passage of the Agricultural Act of 2014, industrial hemp seeds were purchased by the Kentucky Industrial Hemp Commission from Italy that were certified with a THC concentration of not more than 0.3 percent, with the intention that the Kentucky Department of Agriculture would conduct industrial hemp research studies with Kentucky institutions of higher education in compliance with Section 7606. At the time

345. Id.; see also Telephone interview with Duane Sinning, supra note 331.
346. Telephone interview with Duane Sinning, supra note 337.
347. Id.
348. Telephone interview with Brian Allen, supra note 327.
351. Telephone interview with Adam Watson, Ky. Dep’t of Agric. (July 1, 2014).
of purchase and import, the Kentucky Department of Agriculture had not submitted an application for a registration from the DEA or an import permit.\textsuperscript{352} As a result, the DEA seized the seed, requiring the approval of a registration and an import permit before the DEA would release the seeds.\textsuperscript{353} Although a legal dispute between the Kentucky Department of Agriculture and the DEA, DOJ, U.S. Customs and Border Protection, and Attorney General Eric Holder ensued, the result was the granting of a DEA registration and an import permit to the Kentucky Department of Agriculture.\textsuperscript{354} The DEA expedited the approval of the registration and import permit so that Kentucky could plant industrial hemp for research purposes in May 2014.\textsuperscript{355}

During 2014, a DEA registration and three import permits were issued to the Kentucky Department of Agriculture.\textsuperscript{356} The DEA issued the second permit within ten days.\textsuperscript{357} The imported hemp seeds were issued directly to the Kentucky Department of Agriculture.\textsuperscript{358} The DEA has been cooperative.\textsuperscript{359} The Kentucky Department of Agriculture and the DEA “finalized an agreement on a formal process for importing industrial hemp seed.”\textsuperscript{360} As a result, on August 16, 2014 the Kentucky Department of Agriculture

\textsuperscript{352} Id.


\textsuperscript{354} See Vanderhoff, supra note 295.

\textsuperscript{355} See Janet Patton, \textit{Kentucky Gets Permit to Import Hemp Seed, Which is Expected to be Released Friday Morning}, \textsc{Kentucky.com} (May 22, 2013), http://www.kentucky.com/2014/05/22/3254816/kentucky-gets-permit-to-import.html, \textit{archived at} http://perma.cc/XT33-7SRW.

\textsuperscript{356} Letter from Joseph Rannazzisi, Deputy Assistant Adm’r, Office of Diversion Control, to Luke Morgan, Counsel, Ky. Dep’t of Agric. (Aug. 13, 2014) (on file with author) (regarding importation of viable cannabis seeds, MoUs, and distribution of seed).

\textsuperscript{357} Telephone interview with Adam Watson, \textit{supra} note 349.

\textsuperscript{358} Id.

\textsuperscript{359} Id.

dismissed the lawsuit it filed against the DEA and the U.S. Government in May 2014.\textsuperscript{361}

The Kentucky Department of Agriculture distributed hemp seed to those institutions and individuals whose applications had been approved.\textsuperscript{362} Kentucky successfully launched seven agricultural pilot programs with Kentucky institutions of higher education in 2014.\textsuperscript{363} The test plots cultivated in Kentucky “have shown the crop to be hardy and fast growing”, that hemp “will grow well in Kentucky” and “yields a lot per acre.”\textsuperscript{364}

In addition to the pilot programs with Kentucky institutions of higher education, the Kentucky Department of Agriculture also established relationships with at least five private farmers to conduct industrial hemp research studies in 2014.\textsuperscript{365} Through a written Memorandum of Understanding, these private farmers acted as extensions of the Kentucky Department of Agriculture. Individual applicants were required to submit an application and background check.\textsuperscript{366} Although institutions of higher education and State departments of agriculture are the only two entities permitted to conduct industrial hemp research studies under Section 7606 of the Agricultural Act of 2014, by acting as extensions of the Kentucky Department of Agriculture under a Memorandum of Understanding, these private farmers were lawfully conducting industrial hemp research under Section 7606.

The Kentucky Department of Agriculture drafted regulations for the industrial hemp research agricultural pilot programs in Kentucky.\textsuperscript{367} These regulations provide who may apply, application requirements, production and handling requirements, reporting requirements, and the effect of noncompliance with the rules and

\textsuperscript{361} Id.
\textsuperscript{362} Telephone interview with Adam Watson, \textit{supra} note 349.
\textsuperscript{364} Schreiner, \textit{Hemp Homecoming: Rebirth Sprouts in Kentucky, supra} note 149.
\textsuperscript{365} Telephone interview with Adam Watson, \textit{supra} note 349.
\textsuperscript{366} Id.
\textsuperscript{367} 302 Ky. Admin. Reg. 50:010.
prohibited activity. The Kentucky Department of Agriculture does not require any fee for pilot program applications.368

So far in 2015, the Kentucky Department of Agriculture has received over 100 applications from both cultivators and processors, including a few out of state processors.369 Memorandums of Understanding have been issued to individual research cultivators and to processors, including the out of state processors.370 The Kentucky Department of Agriculture applied for a DEA import permit the week of March 23, 2015 and remains optimistic that DEA will expedite the permit process and approve the permit in time to import viable industrial hemp seeds for the 2015 production season.371 After the 2015 production season harvest, the Kentucky Department of Agriculture plans to allow some sales of the industrial hemp grown in the state to conduct market research pursuant to Section 7606.372

Kentucky has developed a successful industrial hemp research program. Like in Kentucky and Colorado, registrants in Vermont also cultivated industrial hemp during the 2014 production season and will cultivate again during the 2015 production season.

3. Vermont

Vermont legalized industrial hemp cultivation in 2008 with the passage of H. 267.373 However, this Act required federal authorization to become operative.374 On June 10, 2013, Governor Shumlin signed into law S.157/Act 84 which authorizes the

368. Id.
369. Telephone interview with Adam Watson, Ky. Dep’t of Agric. (Mar. 27, 2015).
370. Id.
371. Id.
374. Id. at 561 (“The intent of this act is to establish policy and procedures for growing industrial hemp in Vermont so that farmers and other businesses in the Vermont agricultural industry can take advantage of this market opportunity when federal regulations permit.”).
cultivation and production of hemp in Vermont, without Federal Government authorization.\textsuperscript{375}

Vermont began accepting registrations for industrial hemp cultivation in September 2013.\textsuperscript{376} Therefore, the Vermont Agency of Agriculture began accepting registrations before the enactment of the Agricultural Act of 2014, and was operating without federal guidance.\textsuperscript{377} In 2014, the Vermont Agency of Agriculture did not issue cultivation licenses, but collected information from farmers interested in cultivating hemp through a registration process.\textsuperscript{378} This same registration process is being used for the 2015 production season.\textsuperscript{379} The fee for registration is $25.\textsuperscript{380} The registration form asks for the farm name and address, the farm manager’s name and phone number, the field location, and the acreage the farmer intends to plant.\textsuperscript{381} A background check is not required.\textsuperscript{382} The registration form requires the farmer to certify the seeds obtained for planting do not exceed 0.3 percent THC concentration.\textsuperscript{383} It also provides three clauses for the registrant to initial stating that they are familiar with current federal law and acknowledge that cultivation and possession of hemp is “a violation of the Federal Controlled Substances Act.”\textsuperscript{384} This registration does not create a Memorandum of Understanding between the farmers and the Vermont Agency of Agriculture.\textsuperscript{385} The
farmers are operating on their own. There has not been any interference by the DEA.

Individual farmers and farmers operating as businesses have filed registrations. In 2014 fifteen registrations were filed. No institutions of higher education in Vermont conducted research trials in 2014. At this time, Vermont does not have a seed procurement policy. In 2014, the Agency of Agriculture allowed farmers to obtain seeds however they could, as long as the farmer certified on the registration form that the seeds did not exceed 0.3 percent THC concentration. The Agency of Agriculture believes that many farmers cultivated hemp in 2014 specifically to produce seed for the 2015 production season.

So far in 2015, six registrations have been filed and the Vermont Agency of Agriculture expects to receive more. The University of Vermont has also filed a registration with the Agency of Agriculture. Individual registrants and the University of Vermont are working to get DEA registrations and import permits on their own, as the Vermont Agency of Agriculture does not have the resources to file for permits on behalf of the registrants. The Agency of Agriculture has reported that there seems to be cooperation with DEA so far to move the industrial hemp program in Vermont along.

The procedures for authorizing and registering hemp cultivation in Vermont, Kentucky, and Colorado are models for other states to follow. Kentucky and Colorado are leading the U.S. in industrial hemp production for both research and commercial purposes. Vermont is cultivating hemp in a limited capacity. Overall, the

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386. Id.
387. Id.
388. Id.
389. Id.
390. Id.
391. Id.
392. Id.; see also VT. AGENCY OF AGRIC., supra note 379.
393. Id.
394. Telephone interview with Tim Schmalz, supra note 377.
395. Id.
396. Id.
397. Id.
398. Id.
DEA has been cooperative with actions taken in Kentucky, Colorado, and Vermont. Other states, such as Oregon, have slowly developed rules in hopes of cultivating hemp during the 2015 production season.

4. Oregon

The Oregon Legislature enacted legislation that was signed into law by Governor Kulongoski on August 4, 2009 authorizing “[i]ndustrial hemp production and possession, and commerce in industrial hemp commodities and products.” Following issuance of the Cole Memo, the Oregon Department of Agriculture (“ODA”) began drafting rules for the cultivation of industrial hemp in compliance with Or. Rev. Stat. 571.300 to 571.315. The ODA created an Industrial Hemp Rules Advisory Committee (“IHRAC”) comprised of eleven members that represent the ODA, the Oregon Department of Justice, the Oregon State Police, state politician offices, Oregon State University, the Oregon Farm Bureau, potential hemp farmers, potential hemp processors, and hemp handlers. The IHRAC met two times, once on December 17, 2013 and on January 399. Id.; Telephone interview with Brian Allen, supra note 327; Telephone interview with Adam Watson, supra note 349.

400. E-mail from Ronald Pence, Or. Dep’t of Agric., Commodity Inspection, to author (July 22, 2014 1:24pm) (on file with author).


Even with passage of the Agricultural Act of 2014 in February 2014, there were still delays in finalizing the rulemaking, including determining who would handle and “process the [hemp] plant from its raw state into useable products” and what the licensing fee would need to be to support the program. In addition, Oregon State University (“OSU”) was hesitant to conduct an industrial hemp research pilot program “out of fear that it could potentially jeopardize the federal funding OSU receives”, which also added to the delay in finalizing rules.

On July 2, 2014, I submitted an application to the ODA on behalf of Rick Rutherford, an eastern Oregon farmer and a member of the IHRAC, for approval of an industrial hemp research license to conduct an agricultural pilot program in Oregon in compliance with Section 7606 of the Agricultural Act of 2014 and Or. Rev. Stat. §§ 571.300 to 571.315. The ODA denied the application because it was “currently in the process of writing regulations to implement Ore. Rev. Stat. §§ 571.300-571.315 and can only issue industrial hemp licenses or permits, as defined by statute, when that process is complete.” The ODA said it is unclear whether Section 7606 “gives the state explicit authority to implement a pilot research program that is not outlined in Or. Rev. Stat. 571.” However, the ODA said it would “work with legislators to amend the state statute during this next legislative session to include a pilot research

406. Oregon State University is the state land-grant institution in Oregon. Letter from Katy Coba, Dir., Or. Dep’t of Agric., to Courtney N. Moran, LL.M. (July 17, 2014) (on file with author) (In response to an application for industrial hemp research agricultural pilot program on behalf of Rick Rutherford).
408. Coba, supra note 404.
409. Id.
program as outlined in Section 7606 if required to implement a pilot research program.410

The ODA held a third IHRAC meeting on September 30, 2014.411 The IHRAC members and other attendees discussed licensing fees, draft rules, and edits necessary before the rules were put out for public comment.412 Draft rules went out for public comment on December 1, 2014.413 The public comment period ended January 9, 2015.414 The ODA finalized rules the last week of January 2015 and began accepting applications for the 2015 to 2017 production seasons on February 2, 2015.415 As of the first week of April, 2015, seven industrial hemp licenses have been issued.416 The ODA has applied for a DEA registration, but has not yet received approval from DEA.417

410. Id.
411. E-mail from Ronald Pence, Or. Dep’t of Agric., Commodity Inspection, to author (Sept. 12, 2014 1:24pm) (on file with author).
414. Id.
416. OR. DEP’T OF AGRIC., Search Active Seed Licenses, http://oda.state.or.us/dbs/licenses/hibitslist.html?&sql=6743b0d23abf4a612b6379b6763bd6428df8ebceedb9f68d26f38e8729c65dca5de9b88b184e1340e6e3ab674e8f4dec2febc21e2b51dd94324b53c29049b43796621f739b3dec5f152edf121d34cab5f212f2297aa056f17df51f51a76ab2bd340b87efe2fdd46f8da635744af3f34bff75564a21e571eb8732cde7b0bafec3a2e2c2710261aed4732c8e3323ed114e5300fe81887b703b643d8d9c8e9569946db6e40ee6c739b8100f47b47881ab56a29db53e97537d0dce317132d09ee1fac038838a85ef931e8936507f60&license_type=Seed%20Licenses&-division=cid, archived at http://perma.cc/2W7P-DYWA.
417. E-mail from Lindsay Eng, Or. Dep’t of Agric., Market Access and Certification Programs, to author (Apr. 3, 2015 9:06pm) (on file with author).
Colorado, Kentucky, and Vermont have taken the lead by planting industrial hemp in 2014 and the DEA has been cooperative with their efforts. In 2015, pending issuance of DEA registrations and import permits for seed acquisition, other states such as North Dakota, West Virginia, Oregon, Utah, Indiana, Nebraska, and Tennessee will likely begin cultivating industrial hemp, at least for research purposes as authorized by Section 7606. Dr. Ako, Ph.D., at the University of Hawaii has received a DEA registration and import permit and received viable industrial hemp seeds from Australia and the European Union on April 2, 2015. Dr. Ako planted these viable industrial hemp seeds to conduct variety trials the week of April 6, 2015. Until the prohibition of industrial hemp cultivation has ended, the U.S. will continue to import industrial hemp to meet market demands.

D. Importation

The U.S. imports industrial hemp from around the world. China is currently the largest supplier of raw and processed hemp fiber. Other leading suppliers of hemp fiber include India, Romania, Hungary, and other European countries. Canada is the largest

418. Telephone Interview with Rachel Seifert-Spilde, N.D. Dep’t of Agric., Export Certification (Mar. 31, 2015); Telephone Interview with Chris Ferro, W. Va. Dep’t of Agric., Chief of Staff (Apr. 15, 2015); Telephone Interview with Randy Black, Or. Dep’t of Agric, Regulatory Specialist (Apr. 3, 2015); Telephone Interview with Melissa Ure, Utah Dep’t of Agric. and Food, Policy Analyst (Mar. 31, 2015); Telephone Interview with Larry Nees, Office of Indiana State Chemist, Seed Program Administrator (Apr. 3, 2015); Telephone Interview with Mitch Coffin, Neb. Dep’t of Agric., Program Manager (Apr. 3, 2015); Telephone Interview with Annie Shultz, Tenn. Dep’t of Agric. (Apr. 2, 2015).

419. Telephone interview with Harry Ako, Ph.D., supra note 209.

420. Id.

421. JOHNSON, supra note 3, at 10 (“[N]on-EU European countries with reported hemp production include Russia, Ukraine, and Switzerland. Other countries with active hemp grower and/or consumer markets are Australia, New Zealand, India, Japan, Korea, Turkey, Egypt, Chile, and Thailand.”).

422. Id. at 9.

423. Id. Other European Union producing countries include: France, Austria, Denmark, Finland, Germany, Italy, Netherlands, Poland, Portugal, Slovenia, and Spain. Id. at 9 n.36.
An argument against hemp cultivation in the U.S. is that the U.S. already imports industrial hemp from around the world, from countries such as China and Canada. However, it is important for our farmers and industry to share in that market. We have an opportunity to bring jobs to the U.S. and we need to seize every opportunity.

The value of hemp-based products imported into the U.S. is difficult to accurately estimate. The U.S. International Trade Commission has compiled some data. (See Appendix C). In 1996, approximately 435 metric tons of woven hemp fabrics, 6 metric tons of hemp yarn, and 53 metric tons of raw, processed hemp were imported into the U.S. The 1996 imports were valued at $1,416,000. By 2000, 654 metric tons of woven hemp fabrics, 60 metric tons of hemp yarn, and 620 metric tons of raw, processed hemp were imported into the U.S. Imports in 2000 were valued at $2,538,000. In 2008, 479 metric tons of woven hemp fabrics, 51 metric tons of hemp yarn, 44 metric tons of raw, processed hemp, 523 metric tons of hemp seeds, 98 metric tons of hemp oil and fractions, and 56 metric tons of hemp seed oilcake and other solids were imported into the U.S. Imports in 2008 were valued at $6,589,000. By 2011, 251 metric tons of woven hemp fabrics, 64 metric tons of hemp yarn, 16 metric tons of raw, processed hemp, 623 metric tons of hemp seeds, 137 metric tons of hemp oil and fractions, and 298 metric tons of hemp seed oilcake and other solids were imported into the U.S. Imports of industrial hemp into the U.S. in 2011 were valued at $11,494,000.

424. Id. at 10.
425. Id. at 9.
426. Id. at 6.
427. Id. at 8; see infra APPENDIX C.
428. Id.
429. Id.
430. Id.
431. Id.
432. Id.
433. Id.
434. Id.
435. Id.
Industry representatives estimate retail sales of industrial hemp products in the U.S. at more than $581 million annually.\footnote{436} Of that $581 million, it is approximated that at least $100 million accounts for the hemp clothing and textiles market, and at least $184 million for hemp-based food, nutritional supplements, and body care products.\footnote{437} The U.S. hemp retail market continues to increase.\footnote{438} In 2011, retail sales increased 7.3 percent.\footnote{439} In 2012, retail sales increased 16.5 percent.\footnote{440} In 2013, retail sales increased 24 percent.\footnote{441}

Looking at the retail sale value and the overall hemp market, some argue that the hemp market is too small. While the hemp market is not large, it is more than a half a billion-dollar industry and is growing rapidly. The market growth in Canada is a perfect example of hemp’s agricultural potential, as are the increased retail sales in the U.S. The development of a hemp market in the U.S. can be a great opportunity for small businesses. There is also an available market for research and development of hemp products. The U.S. economy is seeking to grow and a new hemp industry would provide desperately needed jobs.

\textbf{E. Future Recommended Action for the United States}

The “U.S. market for hemp-based products has a highly dedicated and growing demand base.”\footnote{442} U.S. farmers should be able to share in that market. I therefore join scholars, congressmen and congresswomen, and other observers and recommend that industrial hemp, or low-THC varieties of \textit{C. sativa}, be affirmatively removed from the CSA Schedule and registration requirements. Overall, 2014 was a year of remarkable progress for the industrial hemp movement on both the state and federal levels. The issuance of the Cole Memo and the passage of the Agricultural Act of 2014 are landmark steps that led to the cultivation of industrial hemp in Colorado, Kentucky,
and Vermont. The inclusion of Section 539 in the Consolidated and Further Continuing Appropriations Act of 2015 provides additional protection from federal prosecution for the cultivation of industrial hemp for research purposes during the 2015 production season. In 2015, there is potential for at least ten states to cultivate industrial hemp for research purposes. The next step is the removal of industrial hemp from the CSA. Removal of industrial hemp or low-THC varieties of *C. sativa* from the CSA would enable states that have industrial hemp cultivation legislation to issue licenses to farmers for the cultivation of industrial hemp, subject to state regulations, without the farmers risking federal prosecution, even for commercial cultivation. States should be allowed to regulate both research and commercial cultivation of industrial hemp within their state. If states decide to enact industrial hemp cultivation or research legislation, they should be allowed to regulate industrial hemp cultivation within the state without federal approval.

V. CONCLUSION

Since 1998, Canada has legalized the cultivation, production, possession, purchase, and sale of industrial hemp. Canada has a policy that is supported by the Federal Government, and it is a policy that is working. Through research, Canada has shown that industrial hemp can and will be cultivated separate and apart from marijuana. The industrial hemp industry in Canada is providing jobs, is profitable, and is expanding.

Canada and the U.S. have similar backgrounds regarding the history of the federal status of industrial hemp. Canada has ended its prohibition, while the U.S. is still enforcing its prohibition. However, the Agricultural Act of 2014 has provided for research of industrial hemp in the U.S. in states that have legislation authorizing cultivation or research of industrial hemp. Section 539 of the Consolidated and Further Continuing Appropriations Act of 2015 provides protection from DOJ and DEA interference with industrial hemp research conducted pursuant to Section 7606 of the Agricultural Act of 2014 during the 2015 production season. In addition, several states have taken action and legalized the cultivation

of industrial hemp within their states. While industry within the U.S. can import industrial hemp and industrial hemp products from around the world, it is still illegal to grow industrial hemp commercially without a federal, DEA registration. In 2014 several farmers cultivated industrial hemp for research purposes in Colorado and Kentucky in compliance with Section 7606 of the Agricultural Act of 2014. In 2015, farmers and researchers in at least ten states will likely cultivate industrial hemp for research purposes in compliance with Section 7606. I truly believe that the research conducted under Section 7606 will result in changed policy in the U.S. as it did in Canada in the 1990s.

There is a growing demand for industrial hemp within the U.S. and U.S. farmers should be able to meet that demand. As Canada has shown, growing hemp as distinct and separate from marijuana is feasible. Now is the time to open up the industrial hemp market to U.S. farmers. It’s time to grow.444

**Hemp Seeded Acreage in Canada, 1998 - 2011**

<table>
<thead>
<tr>
<th>Year</th>
<th>Canada</th>
<th>Hectares</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td></td>
<td>2,400</td>
<td>5,927</td>
</tr>
<tr>
<td>1999</td>
<td></td>
<td>14,205</td>
<td>35,086</td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td>5,485</td>
<td>13,549</td>
</tr>
<tr>
<td>2001</td>
<td></td>
<td>1,316</td>
<td>3,251</td>
</tr>
<tr>
<td>2002</td>
<td></td>
<td>1,530</td>
<td>3,779</td>
</tr>
<tr>
<td>2003</td>
<td></td>
<td>2,733</td>
<td>6,750</td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td>3,531</td>
<td>8,722</td>
</tr>
<tr>
<td>2005</td>
<td></td>
<td>9,725</td>
<td>24,021</td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td>19,458</td>
<td>48,060</td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td>6,132</td>
<td>15,146</td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td>3,259</td>
<td>8,050</td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td>5,602</td>
<td>13,837</td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td>10,856</td>
<td>26,814</td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td>15,720</td>
<td>38,828</td>
</tr>
</tbody>
</table>

Source: Health Canada

445. Laate, supra note 57.
### Canada: Industrial Hemp Total Exports

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantity (tonnes)</th>
<th>Value (Cdn$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>17</td>
<td>74,949</td>
</tr>
<tr>
<td>1999</td>
<td>187</td>
<td>164,183</td>
</tr>
<tr>
<td>2000</td>
<td>389</td>
<td>407,233</td>
</tr>
<tr>
<td>2001</td>
<td>212</td>
<td>238,774</td>
</tr>
<tr>
<td>2002</td>
<td>230</td>
<td>274,099</td>
</tr>
<tr>
<td>2003</td>
<td>134</td>
<td>201,821</td>
</tr>
<tr>
<td>2004</td>
<td>88</td>
<td>142,906</td>
</tr>
<tr>
<td>2005</td>
<td>124</td>
<td>188,940</td>
</tr>
<tr>
<td>2006</td>
<td>383</td>
<td>2,121,545</td>
</tr>
<tr>
<td>2007</td>
<td>876</td>
<td>3,454,149</td>
</tr>
</tbody>
</table>

### Canada’s Exports to All Countries (Quantity, KGM)

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>Growth 2007-2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil Cake (&amp; other solid residues)</td>
<td>0</td>
<td>0</td>
<td>999,526</td>
<td>2,963,382</td>
<td>-</td>
</tr>
<tr>
<td>Hemp Seeds</td>
<td>699,567</td>
<td>1,030,729</td>
<td>683,512</td>
<td>818,375</td>
<td>17.00%</td>
</tr>
<tr>
<td>Hemp Oil</td>
<td>76,704</td>
<td>91,812</td>
<td>103,965</td>
<td>178,932</td>
<td>133.30%</td>
</tr>
<tr>
<td>True Hemp Fiber, Processed Not Spun</td>
<td>69,645</td>
<td>29,177</td>
<td>30,136</td>
<td>22,374</td>
<td>-67.90%</td>
</tr>
<tr>
<td>True Hemp Fiber, Raw or Retted</td>
<td>29,651</td>
<td>26,817</td>
<td>4,425</td>
<td>4,552</td>
<td>-84.60%</td>
</tr>
</tbody>
</table>

---

447. AGRIC. AND AGRI-FOOD CANADA, *Canadian Hemp*, supra note 134.
<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>Growth 2007-2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hemp Seeds</strong></td>
<td>2,656,276</td>
<td>3,625,804</td>
<td>4,408,474</td>
<td>6,294,072</td>
<td>137.00%</td>
</tr>
<tr>
<td><strong>Oil Cake (&amp; other solid residues)</strong></td>
<td>0</td>
<td>0</td>
<td>2,758,817</td>
<td>2,957,333</td>
<td>-</td>
</tr>
<tr>
<td><strong>Hemp Oil</strong></td>
<td>695,870</td>
<td>756,341</td>
<td>864,072</td>
<td>1,107,886</td>
<td>59.20%</td>
</tr>
<tr>
<td><strong>True Hemp Fiber, Processed Not Spun</strong></td>
<td>57,342</td>
<td>44,463</td>
<td>55,233</td>
<td>21,826</td>
<td>-61.90%</td>
</tr>
<tr>
<td><strong>True Hemp Fiber, Raw or Retted</strong></td>
<td>44,661</td>
<td>24,677</td>
<td>6,632</td>
<td>5,627</td>
<td>-87.40%</td>
</tr>
</tbody>
</table>

448. *Id.*
## APPENDIX C

### Table 1. Value and Quantity of U.S. Imports of Selected Hemp Products, 1996-2011

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemp Seeds (HS 1207990220)</td>
<td>$1,000</td>
<td>—</td>
<td>271</td>
<td>2,350</td>
<td>3,111</td>
<td>3,320</td>
<td>5,154</td>
<td>6,054</td>
</tr>
<tr>
<td>Hemp Oil and Fractions (HS 1515908010)</td>
<td>$1,000</td>
<td>—</td>
<td>711</td>
<td>693</td>
<td>835</td>
<td>726</td>
<td>1,129</td>
<td>839</td>
</tr>
<tr>
<td>Hemp Seed Oilcake and Other Solids (HS 2306900130)</td>
<td>$1,000</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>460</td>
<td>1,811</td>
<td>2,369</td>
<td>2,947</td>
</tr>
<tr>
<td>True Hemp, raw/processed not spun (HS 5302)</td>
<td>$1,000</td>
<td>25</td>
<td>396</td>
<td>68</td>
<td>82</td>
<td>202</td>
<td>212</td>
<td>115</td>
</tr>
<tr>
<td>True Hemp Yarn (HS 5308200000)</td>
<td>$1,000</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>True Hemp Woven Fabrics (HS 5311004010)</td>
<td>$1,000</td>
<td>1,291</td>
<td>1,617</td>
<td>923</td>
<td>1,579</td>
<td>1,924</td>
<td>751</td>
<td>1,024</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,416</td>
<td>2,538</td>
<td>2,074</td>
<td>4,789</td>
<td>6,589</td>
<td>6,872</td>
<td>9,822</td>
<td>11,494</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemp Seeds (HS 1207990220)</td>
<td>metric ton</td>
<td>—</td>
<td>92</td>
<td>355</td>
<td>523</td>
<td>602</td>
<td>711</td>
<td>623</td>
</tr>
<tr>
<td>Hemp Oil and Fractions (HS 1515908010)</td>
<td>metric ton</td>
<td>—</td>
<td>114</td>
<td>99</td>
<td>98</td>
<td>92</td>
<td>134</td>
<td>137</td>
</tr>
<tr>
<td>Hemp Seed Oilcake and Other Solids (HS 2306900130)</td>
<td>metric ton</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>56</td>
<td>201</td>
<td>2239</td>
<td>298</td>
</tr>
<tr>
<td>True Hemp, raw/processed not spun (HS 5302)</td>
<td>metric ton</td>
<td>53</td>
<td>620</td>
<td>121</td>
<td>102</td>
<td>44</td>
<td>36</td>
<td>28</td>
</tr>
<tr>
<td>True Hemp Yarn (HS 5308200000)</td>
<td>metric ton</td>
<td>6</td>
<td>60</td>
<td>8</td>
<td>9</td>
<td>51</td>
<td>45</td>
<td>22</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>59</td>
<td>680</td>
<td>335</td>
<td>565</td>
<td>772</td>
<td>976</td>
<td>1,134</td>
<td>1,138</td>
</tr>
<tr>
<td>True Hemp Woven Fabrics (HS 5311004010)</td>
<td>m² (1000)</td>
<td>435</td>
<td>654</td>
<td>248</td>
<td>411</td>
<td>479</td>
<td>167</td>
<td>268</td>
</tr>
</tbody>
</table>

**Source:** Compiled by CRS using data from the U.S. International Trade Commission (USITC), http://dataweb.usitc.gov. Data are by Harmonized System

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(HS) code. Data shown as “—” indicate data are not available as breakout categories for some product subcategories were established only recently.

a. Data for 2007-2011 were supplemented by reported Canadian export data for hemp seeds (HS 12079910, Hemp seeds, whether or not broken) as reported by Global Trade Atlas, http://www.gtis.com/gta/. Official U.S. trade data reported no imports during these years for these HS subcategories. The Canadian export data as reported by Global Trade Atlas also differ for hemp seed oilcake (15159020, Hemp oil and its fractions, whether or not refined but not chemically modified) but were not similarly substituted since other countries exported product to the United States.