

Industrial Hemp (*Cannabis sativa* L): The Geography of a Controversial Plant

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Until the early 1900s industrial hemp was a valuable crop used all over the world for its strong fibers and oil seeds. Today, however, the common perception of the industrial hemp plant is generally negative and associated with the drug marijuana. This perception is the legacy of a century of powerful influences constructing hemp as a dangerous drug, even though it is not a drug and it has the potential to be a profitable alternative crop. In the United States, the public's perception of hemp as marijuana has blocked hemp from becoming a useful crop and product. This paper begins with a history of hemp use and then describes how hemp was constructed as a dangerous crop in the U.S. The paper then discusses the potential of hemp as an alternative crop.

A Brief Hemp History

Industrial hemp has been used for at least twelve thousand years. It is believed that the plant was first utilized in modern day Asia and diffused from there (Rosenthal 1994; 195). By the 1600s hemp was a necessary crop for producing items such as cloth, food, oil, paper, as well as canvas and rope ship riggings. The word canvas is Dutch, derived from the Arabic *kannabis* (Herer 1993; 5). Until the late 1800s Russia and China were the world leaders of hemp production. The Russians could process hemp so well that the cloth was as fine as flax linen (Crosby 1965). Other countries, such as England, used their colonies to increase their stores of hemp. In the Americas, all English colonists were required to grow at least one acre of hemp on their property for the English navy or face a fine (Herer 1993; 1). Because of the early exposure to growing hemp, by the 1800s the United States had a sizable hemp industry. However, the quality was not as good as the Russian hemp, due to inexperienced production techniques (Crosby 1965).

Through the early industrial revolution, hemp was one of the main fibers in textiles along with flax and kenaf (Crosby 1965; 21). Hemp declined however, in the late 1800s with the advent of the cotton gin. Until the invention of the cotton gin, hemp was superior because it was cheaper to harvest and process, while cotton required more labor and expense (Herer 1993; 10). The first denim blue jeans were worn by sail-

ors and made of hemp. A hemp shirt would sell for fifty cents, while a cotton shirt would sell for one hundred dollars (Herer 1993; 10). Also, hemp is much more durable than cotton, as can be seen in the length of time rope, clothes, and paper last. The cotton gin reduced the costs to produce cotton to less than that of hemp, making cotton more popular (Herer 1993; 10).

As an answer to cotton's new technology, George Schlichten invented the decorator in the early 1900s. It made harvesting hemp mechanized like cotton. Schlichten took his machine to investors who initially seemed supportive. Just before all of the details were settled between Schlichten and the investors, they all pulled out, leaving him confused and the hemp industry in trouble (Herer 1993; 13).

THE NEGATIVE CONSTRUCTION OF HEMP

Hemp became a 'bad' plant in the early 1900s and, except for a brief period during World War II, it never regained a neutral or positive status for several reasons. One reason is economic. Hemp was unable to compete with industry rivals that surfaced in the 1920s and 1930s. The other reason is perception. Influential people and companies such as Randolph Hearst and DuPont not only created economic competition, but also used media to construct hemp as a plant to be feared. This media campaign is another reason for the permanent decline of hemp in the United States. To understand this perception it is helpful to deconstruct the causes of the perception. This media campaign can be deconstructed by revealing the contradictions and assumptions within its text (Rosenau 1992; xi). Among the contractions within the United States anti hemp movement are the outlawing of the plant in the 1930s, its decriminalization in the 1940s, and the final re-criminalization in the late 1940s.

According to Herer (1993) Randolph Hearst played a role in the pullout of the investors in the decorator and the beginning of the media campaign. Hearst had taken an economic interest in hemp. He owned several newspapers across the country and he had friends who worked for DuPont. Both groups were threatened by hemp because it dominated markets in which they wanted to profit. World War I had just ended, and DuPont had received the German patents to petrochemical and synthetic technology. Hemp oil was used to make plastics, carpet backing, and construction materials until that time. With the possibilities of using petrochemicals, DuPont wanted the decorator stopped so that they would have a chance at the market with their new products.

Similarly, the tree pulp industry had just reached a firm establishment,

especially in the Pacific Northwest. Hearst held stock in the tree paper companies, and the thought of hemp paper out-producing tree paper scared him and the paper industry (Herer 1993; 24). With all of these groups against the mechanization of hemp, Hearst began a smear campaign in his newspapers. These articles are where our current constructions of industrial hemp are derived from.

To understand the effectiveness of the negative hemp campaign, it is important to understand the distinction between hemp and marijuana. Hemp is known as *Cannabis sativa L*, marijuana as *Cannabis sativa*. While the two plants look incredibly alike, there are major differences between them. Hemp has a fibrous stalk that can be processed into a fine fabric. Marijuana's stalk makes such a coarse fiber no one uses it (Herer 1993; 79). Hemp contains less than 1% THC, or tetrahydrocannabinols, the psychoactive property in marijuana. In other words, smoking hemp cannot create a 'high'.

Despite these differences, in 1916 Hearst began his campaign by erasing the difference between hemp and marijuana. He used stories about marijuana smoking Mexicans and African-Americans who would rape and disrespect whites. He claimed marijuana was the force behind the "voodoo-satanic" music called jazz (Herer 1993; 27). He wrote marijuana will make a person violent and it was a threat to all of America. The marijuana campaign reached its climax in the mid 1930s as other forms of media became involved. The movie *Reefer Madness*, directed by Gassier, was released in 1936. This movie depicts how marijuana destroyed the lives of a group of high school students. The movie begins with a scroll of writing which reads, "There is a new drug menace destroying the youth of America. It is a violent narcotic." After listing the evil consequences of getting high, it ends with, "Something must be done to wipe out this ghastly menace." As the plot advances, the school principal tells parents, "Marijuana is more dangerous than heroin and opium." The principal pleads with a federal agent for help, and the agent replies, "Marijuana grows wild in all states. You must arouse education to get a law against it because marijuana is not interstate commerce. The government can not be involved." The movie proceeds to show the effects of this new drug, marijuana, including, "violent laughter", murder, rape, and ultimately criminal insanity from being addicted to the drug.

The actions of the media created a panic among the American public. Newspaper articles and movies like *Reefer Madness* created this panic with images of drug crazed criminals running wild in the streets. The public, led by the media, demanded that Congress act. In 1937, Congress passed the Marijuana Tax Act, which put all varieties of cannabis under

regulation by the United States Treasury Department who turned monitoring over to the Drug Enforcement Agency (DEA) (USDA 2000; 3). The DEA banned all forms of cannabis through their regulatory actions, as did the rest of the Americas and a few countries in Europe (Table 1) (Roulac 1997; 51). This law removed the obstacle of interstate commerce, and gave the DEA full control over enforcement.

Table 1:

Country	Year Banned	Year Legalized
Brazil	No Data	1960
South Africa	No Data	1995
Australia	No Data	1998
United Kingdom	1928	1993
United States	1937	NA
Canada	1938	1998
Japan	1948	NA
Germany	1982	1996

Information on Canada: Cauchon, Dennis. "Canadian Hemp Isn't Going to Pot." *USA Today*. 7 Oct. 1998. Online. WestHemp Canada. Available: www.westhemp.com. 24 June 1999.
 Japan: Roenthal, Ed. Editor. *Hemp Today*. Oakland: Quick American Archives, 1994
 Brazil, South Africa, Australia, UK, US, Germany: Roulac, John W. *Hemp Horizons*. White River Junction, VT.: Chelsa Green Publishing Company, 1997.

The fear of hemp was constructed through language. The people with power manipulated the word choice to construct a reality where hemp did not exist and marijuana was a new threat. Hearst and the others did a wonderful job constructing their texts. The word hemp was never used in the smear campaign. Hemp farmers read these stories and never realized what was happening because the word marijuana was new (Herer 1995; 28). In the movie, the federal agent states, "in 1930 there were few records on marijuana, and by 1936 there were thousands of them." (Gasnier 1936). While the movie is fiction, it illustrates just how new marijuana was at the time.

The media had the power and scope to construct a uniform reality for enough people to push the federal government to act. Kentucky was the largest hemp-growing state in the union in the 1930s. After the bill passed, making all forms of Cannabis a type one narcotic, there were hundreds of scared and angry farmers who, without realizing how, lost one of their main crops (Herer 1995; 28). Ironically, with the persecution of tobacco, Kentucky farmers are demanding the legalization of hemp once again (Cauchon 1998). Laws in the United States have not regained the difference between marijuana and hemp even though the distinction is recognized in the United Nations 1961 Single Convention on

Narcotic Drugs, the North American Free Trade Agreement, and the General Agreement on Tariffs and Trade (Roth-Li 1996). The United States remains the only major economic power with hemp still illegal (Table 1).

The U.S. government was able to make hemp illegal for the United States citizens because it was constructed as a threat to society. This threat was overlooked as the advent of World War II created a problem for the U.S. industrial fiber supplies. The U.S. knew it would quickly use up the hemp stores it had along with the abaca and jute, other industrial strength fibers imported from the Philippines and Asia (USDA 2000; 3). This shortage was critical because imports from the South Pacific, necessary for maintaining the armed forces, were no longer available. In this context the federal government was forced to contradict the laws against the threat of hemp, and thus began a campaign to make hemp patriotic. They realized the only way to get strong fibers for defense, cloth, rope, and gear was to grow it domestically. Thus began the federal government's Hemp for Victory campaign to help farmers to grow hemp once more. By creating a guaranteed market for the hemp and using educational campaigns farmers were encouraged to grow hemp.

The peak of the Hemp for Victory campaign was in 1943 and 1944. Estimates of the tonnage of hemp grown in those two years are about 75,000 tons in 1943 and 150,000 tons in 1944 (Armagnac 1943; 1). In 1943 there was a wealth of articles written about growing hemp. Some showed a concern about growing marijuana. One expressed this fear by stating, "What can be done to keep these enormous (75,000 tons) new supplies, from which there almost inevitably will be 'leaks', out of their (depraved addicted creatures) twitching hands?" (Armagnac 1943; 1). The government conveniently reconstructed hemp in order to calm these masses, which were afraid because of the 1920s construction of hemp. The United States Department of Agriculture (USDA) said that it created a strain of "drugless hemp" through breeding techniques (Armagnac 1943; 1). At this point the government began a thorough contradiction of its hemp policies.

As part of the new campaign, the USDA issued the movie *Hemp for Victory* in 1942 to tell of the advantages of growing hemp for the war effort. Although this movie, along with other forms of government documentation of the campaign, has been removed from public view, a few pieces can be found. In fact, the transcript of the movie is available on the internet (USDA 1942). In the movie the USDA states that the decline of hemp was due to an increase in imports: "then came cheaper imported fibers for cordage, like jute sisal and Manila hemp, and the culture of hemp in America declined." (USDA 1942). In this movie there is no mention of marijuana. They conveniently separate them and create hemp

into a harmless plant once more. In fact, hemp becomes a symbol of patriotism. The movie concludes with this imagery:

When it [the Manila hemp reserve] is gone, American hemp will go on duty again: hemp for mooring ships; hemp for tow lines; hemp for tackle and gear; hemp for countless naval uses both on ship and shore. Just as in the days when Old Ironsides sailed the seas victorious with her hempen shrouds and hempen sails. Hemp for Victory. (USDA 1942)

Perhaps the most telling aspect of the reversal of the Hemp for Victory campaign is the education given to children of farmers. There were 4-H programs in place encouraging students to grow hemp. "Growing hemp gives 4-H members a real opportunity to serve their country in wartime... Labor requirements do not interfere with school work." (University of Kentucky 1943; 1). The plant was safe enough for America's children to grow as a 4-H project when in a bind. There was no mention of careful handling, and no warning that they would be growing a dangerous plant. There was an outline of a typical growing season and a "hemp seed record" to keep track of the plants and quantities harvested (University of Kentucky 1943; 4).

The government heavily encouraged farmers to grow hemp. They were paid \$30 to \$50 a ton for the hemp fibers. The only rule was that a row of some other crop should surround the hemp field so that no one could access the hemp easily (Mowers 1943; 1). Through all of the favorable publicity for hemp there were some warnings of things to come. There was a mentality created that only poor countries grow hemp, which is why U.S. farmers would no longer need to grow hemp after the war. "Although hemp is a very favorable crop now- in all probability after the war, we will find that it will again lose some of its importance. We cannot compete with the cheap labor of the East, and the hand separated hemp is superior [to mechanically separated hemp]." (Mowers 1943; 2).

After World War II ended, the anti-hemp constructions resurfaced. Hemp cultivation was no longer allowed without permits, special taxes, and DEA initiated intervention once more. Hemp was no longer patriotic, but a threat. People returned to either viewing hemp as the dangerous marijuana or as a crop only developing countries, such as the Philippines, should grow. Wisconsin was the only exception to the rule. Until 1958 they continued to grow hemp, despite strong federal opposition (USDA 2000; 3). So even the federal government had to contradict its own law to use hemp. There was no other substitute for the crop in a time of war. Hemp is a good plant when it saves the country, but a bad plant in peacetime.

The Hemp for Victory campaign left a legacy that can still be seen today. The seeds from the plants that were grown in the 1940s have spread throughout the Midwest, making ditchweed, or wild hemp, a common sight. That ditchweed has been the fuel for current debates over the federal government's insistence that hemp is a dangerous and useless crop, as can be seen in current literature on hemp. A new group of hemp proponents have surfaced during the 1980s and 1990s. These groups are composed of environmentalist, farmers, and even unions and business groups who use or wish to use hemp products in manufacturing. These U.S. groups frequently remind the federal government that the plant was so harmless and vital in U.S. history that the law was ignored for the duration of the Second World War.

The Economics Of Hemp Cultivation

Much as the right factors came together in the 1930s to ban the plant, the right factors came together in the 1990s to re-legalize the plant (Table 1). First was the new interest in the environment and concerns with logging (Roulac 1997; 9). As people cried, "Save the trees!", some people began to explore alternatives to paper products. With environmental and economic concerns growing, the benefits of hemp have resurfaced. People discovered that the first books, bibles, and drafts of the Declaration of Independence were written on hemp paper. One acre of hemp can produce as much paper as three acres of trees and will last up to 150 years before crumbling. If the paper is torn or wet, all one needs to do is set the damp pieces the way they should be and let them dry. The tear disappears with no warping or fading (Herer 1993; 7). Since 1937 the world has lost much of its native forests, which the hemp movement attributes to the loss of hemp as a paper source (Canadian Auto Workers 1997).

The hemp movement quickly spread from environmentalists to farmers because of several environmental and economic benefits. Environmentally, farmers are under scrutiny with the EPA because of the chemicals used as fertilizers, herbicides, and pesticides. Hemp helps reduce some of farming's negative environmental impacts several ways. First, the roots of the hemp plant protrude deeply into the soil, thus allowing for better percolation and nutrient cycling. The dense growth of hemp eliminates other weeds. This coupled with the plant's few insect pests reduces the need for both herbicides and pesticides (Roulac 1997; 146). If hemp is planted the rotation before soybeans it acts as a pesticide by reducing up to 80% the damaging nematode cyst that kills soybeans. This saves on chemical use and money while increasing soybean yields (Rosenthal 1994; 210).

The agricultural economy is another good reason to look at alternative crops, such as hemp. Dan Glickman, Secretary of Agriculture of the USDA projected that United States farm income will decrease by over twelve billion dollars between 1999 and 2001 (The Toledo Blade, Feb. 24, 2000). In light of these declining agriculture incomes, the USDA is looking at European agriculture policy, which includes using alternative crops (The Toledo Blade, Feb 2000). European countries are looking at the viability of alternative crops, including hemp, and most have changed their hemp laws to allow for this alternative crop. Now, most countries, other than the United States, follow the United Nation's guidelines on Cannabis varieties (Roth-Li 1996). As Erwin Sholts from the Wisconsin Department of Agriculture said, "The United States is an island of close-mindedness in a sea of acceptance." (Roulac 1997; 79). Hemp has potential in most countries because it can be used in products including plaster, concrete, insulation, plastics, cloth, paper, animal bedding, beer, food, oil, and fuel (Roulac 1997; 163).

There are a few obstacles, however, that could stop the legalization and use of hemp, one of the largest being the social perception of the plant. While Europe and Asia accept hemp, the U.S. fears hemp because of its resemblance to marijuana. A greater obstacle comes from the DEA, who has successfully continued a negative construction of hemp to the public. Several states have passed hemp bills making hemp legal in their states. Hawaiian State Representative Cynthia Thielen, who was instrumental in passing the Hawaiian hemp bill said, "Opposition (to legalizing hemp) was from law enforcement types. 97% of the DEA's multi-billion dollar budget goes toward eradicating 'ditchweed', according to the DEA's own statistics. It (ditchweed) is not hallucinogenic." (Thielen 1999). This practice has been called "a great fraud being perpetrated on the American people" by Vermont legislator Fred Maslack (Conrad 1999).

In January 2000 the USDA issued a report entitled: Industrial Hemp in the United States: Status and Market Potential. This report detailed the federal government's stance toward industrial hemp. Predictably, the USDA took a primarily negative stance by saying hemp imports are at all time highs, yet if US farms were to grow the same quantity it would only be enough to keep a few United States farms occupied (USDA 2000; iv). Also, in terms of quantity the recent addition of Canadian hemp has oversupplied the market. However, the USDA contradicts itself throughout the report by acknowledging that the growth in the hemp industry will not occur until hemp is legalized (USDA 2000). The report adds that currently hemp can compete price-wise with other fibers such as flax and if legalized has the potential to be a viable non-wood fiber in wood fiber markets. They also point out that hemp is a good option for reducing weeds and improving soil qualities without

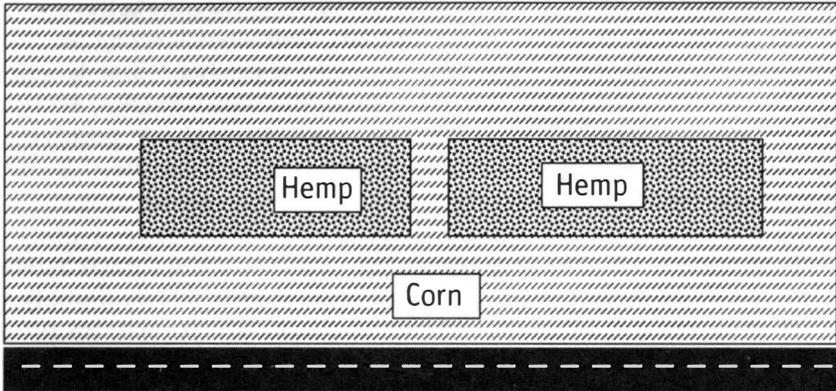
herbicides (USDA 2000; 4). Despite the fact that there were more positive facts cited than negative ones in the report, the paper had a clearly negative bias, with most sections concluding that the market is weak and will likely stay that way, even though their own laws cause the small market. This report leaves the states in a catch-22. The federal government will not legalize hemp until all fifty states legalize hemp, and most states will not try until the federal government acts positively towards hemp (Kahn 1999). Currently four states have legalized hemp and twelve others are considering it.

The USDA report is correct to question the viability of the United States suddenly growing large quantities of hemp all at once. While there is a good deal of production infrastructure in place, which includes production and retail of all possible hemp products, this does not mean that the United States will be successful as a large supplier in the hemp industry. The ban has kept the retail market from growing as large as it could be and large quantities would flood the market.

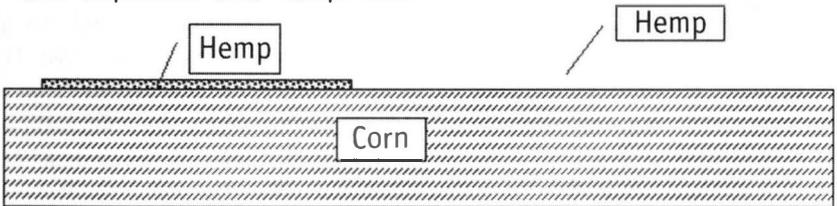
Judging by the Canadian experience the U.S. may have little to fear from legalizing hemp. Canada has had legalized hemp since 1998. They have strict regulations in place, and have had no problems to date. The main government argument against hemp is the difficulty telling it apart from marijuana. The Canadian policies guard against marijuana growth by requiring that hemp farmers purchase a permit from the Provincial Department of Health Canada. Every field is randomly checked for THC levels during the growing season. Farmers are also required to keep their fields from public view (Van Dusen 1998). The best growing technique for hemp, planting 300 to 500 plants per square meter, also helps authorities easily tell the hemp from marijuana, which is a plant that is less densely cultivated (Roulac 1997; 149).

This planting technique effectively hides hemp from public view, thus avoiding public interaction with hemp, which is another governmental fear. This can be seen at farms such as the Kenex Limited farm in Pain Court, Ontario, Canada, one of Canada's first hemp farms. Despite resistance to showing hemp fields to the public, the fields can be seen if one knows what to look for. Near the Kenex headquarters there was a cornfield with uniform, tall, green patches in the middle (Figure 1) (Field Notes 1999). There was no visible access to those patches. The only way to see hemp in Southwestern Ontario is if you know exactly where it is at and how to get there.

Figure 1:
An aerial depiction of how a hemp field is hidden:



A side depiction of a hemp field



Hiding hemp in cornfields protects the farmer from people who think they can slip marijuana into the field or take the hemp thinking it is marijuana. Marijuana would severely harm the quality of the crop by reducing the quality of the fibers. However, simply hiding the crop, and not educating the people as well, contributes to the public fear of the plant. For the industry to be successful there needs to be public awareness of the difference between hemp and marijuana. Hiding the hemp fields behind corn gives the message that there is something different about that crop. Hiding it marks the crop as something forbidden and bad, so without even knowing why, people will continue to think hemp is bad and squirm when they come across hemp products in stores.

Despite a still skeptical populace, there are new hemp stores and industries opening across the U.S. because of the Canadian legalization. While the Canadian outlook is good today, they fear the American entrance into the crop market. (Cauchon 1998). I was told by the Kenex farm, "We do not give tours of our plant at this time because of the confidentiality of some of our machinery and our techniques." (Kenex 1999). The Canadian push to legalize came from their desire to gain a strong market share before America legalized hemp. This way their machinery and

seeds will be superior, much like France and Russia are, from greater experience.

On August 9, 1999, Kenex and Canada received a stumbling block from the United States. The U.S. border impounded over 20 tons of Kenex's hemp seed that American companies were importing for birdseed. The U.S. went on to recall seventeen previous loads of hemp oil and seeds. This recall and stoppage of product has resulted in layoffs in United States companies (The Toledo Blade, Oct. 1999).

In October of 1999, the DEA went on to further hurt American companies by placing a ban on all hemp seeds for use in the United States. This impacted hundreds of businesses, one of which was the Kettle House Brewing Company in Missoula, Montana. They brew hemp beer with hemp seeds in addition to hops. Instead of stopping their work they switched to a hemp paste. The seeds were approved for use once again in March of 2000. The DEA then tried to ban hemp beer through claims that the beer contained THC. Repeated beer and urine tests for THC have been ordered by the DEA, and all tests have come back THC-free at the Kettle House. The DEA has had no reason to stop this particular Montana business, which has been in operation since 1996 (Kettle House, 2000). American companies express frustration over non-narcotic products being treated as such, and thus hindering their own sales.

In order for industrial hemp to be successful in the U.S., there needs to be not only more acceptance, but also technology and techniques like the Canadians are developing. But, we will have to do it on our own. Other countries guard their hemp growing techniques from one another. The way the plant is grown determines the quality of the fibers. If the plant is grown for fiber use, it will take several years for America to learn techniques to grow quality fibers. Canada has begun primarily with harvesting seeds, which is where America will most likely start as well (Cauchon 1998).

Of all the advantages and disadvantages to industrial hemp, the world market, public, and federal government's perception will be the deciding factors of whether the United States enters the hemp market as a crop grower. We have the producing infrastructure in place, which includes production and retail of all possible hemp products (FAO 1999). Unfortunately, it can be a lengthy process locating and purchasing hemp products because they are not mainstream. There are retail stores that provide hemp products including 100% hemp clothing, hats, accessories, body lotions, soaps, candles, and books. However these are specialty shops that are not located throughout the country.

SUMMARY AND CONCLUSION:

Understanding the use of hemp requires a deconstruction of its history. Despite the patriotic view of hemp in the 1940s, hemp's reputation as marijuana is holding fast in the United States. The US is years away from legalizing hemp. There is no question that the crop is useful, even the U.S. government admitted in both the 1940s and in 2000 that hemp has good uses. In favor of legalizing hemp are the facts that the agriculture economy is in the process of changing, and a new diverse crop can only help in the years ahead. Also, there are dozens of environmental benefits from this crop, especially as a substitute for other polluting materials. This crop was originally used for a number of products, and can still be used for those products as well as new ones. Even if the U.S. never legalizes the crop, the truth remains that production and retail are increasing in the U.S. The disadvantages involve the political controversy and effort to educate the population while integrating hemp so that is easily accessible to the conventional population. The education also needs to be given to authorities so that they realize that hemp is grown differently than marijuana as authorities in other countries can attest to. The best way for hemp to be profitable is to change public perception of the crop. There needs to be a social construction that correctly separates hemp from marijuana.

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