

Industrial Hemp in the United States

Status and Market Potential

Introduction

Industrial hemp and marijuana are different varieties of the same species, *Cannabis sativa* L. In the United States, *Cannabis sativa* is classified as a Schedule I controlled substance, regardless of its narcotic content, under the Controlled Substances Act as amended. Regulatory authority is vested in the Office of the Attorney General and is carried out by the Drug Enforcement Administration (DEA). Since 1990, varieties containing very low levels of the psychoactive ingredient delta-9-tetrahydrocannabinol (THC) have been legalized in Great Britain, Germany, Austria, and Switzerland. Canada and Australia legalized hemp production in 1998. In other countries, such as China, Russia, and Hungary, hemp production was never outlawed.

With Canada now allowing production of industrial hemp, questions have been raised about the potential commercial market demand for industrial hemp products in the United States. Several companies import hemp fabrics and garments into the United States. Other firms import hemp fiber or sterile hemp seed for further processing and manufacturing into products, such as paper, nutrition bars, and beer.

Hemp cultivation has been the focus of official interest in several States. The Governor of Kentucky established a Hemp and Related Fiber Crops Task Force in 1994. Legislation passed in Vermont, Hawaii, and North Dakota in 1996 and 1997 authorized agronomic and economic feasibility studies. Published study results are available from Kentucky, Oregon, and North Dakota (McNulty, 1995; Thompson et al., 1998; Ehrensing, 1998; Kraenzel et al., 1998).

Since 1995, a total of 19 States (Arkansas, California, Colorado, Hawaii, Illinois, Iowa, Kansas, Maryland, Minnesota, Missouri, Montana, New Hampshire, New Mexico, North Dakota, Oregon, Tennessee, Vermont, Virginia, and Wisconsin) have introduced hemp legislation. In 1999, nine States (Arkansas, California, Hawaii, Illinois, Minnesota, Montana, New Mexico, North Dakota, and Virginia) passed legislation concerning the research, study, or production of industrial hemp as a crop (Nelson, 1999). The legislation in Minnesota and North Dakota permits the production of industrial hemp, provided farmers obtain licenses from DEA. Farmers are looking for alternative crops, particularly for tobacco, but also for rotation crops to break pest and disease cycles.

The first test plots of industrial hemp in the United States were planted in Hawaii in December 1999. To gain DEA approval of the project, scientists were required to enclose the plot inside a 12-foot-high fence with infrared surveillance (Welna, 1999; Associated Press, 2000). The project received \$200,000 in funding from a hair-care company that uses hemp oil in its products (Hanks, July 1999).

This report examines the similarities and differences between industrial hemp and marijuana. It then reviews hemp's history as a crop; its plant characteristics and growing requirements; and harvesting, retting, and fiber separation. This is followed by a brief review of Canadian hemp production and a discussion of U.S. hemp fiber and fabric imports. The next two sections assess hemp fiber and seed markets. The following two sections discuss some of the issues involved in potential U.S. hemp production and processing and review estimated costs and returns for hemp production from four State-sponsored studies.