

Farm

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INDUSTRIAL HEMP COULD BE AN ALTERNATIVE CROP OF THE LOW DESERT

BY OLI BACHIE

Hemp, *Cannabis sativa* L., is a dioecious annual plant that has not been grown legally in California for many years, due to regulatory restrictions.

In recent years, the restriction has become loose and many industry groups have shown research interest with industrial hemp. A 2015 federal law removed hemp from the list of controlled substances as long as its tetrahydrocannabinol (THC) content did not exceed 0.3 percent.

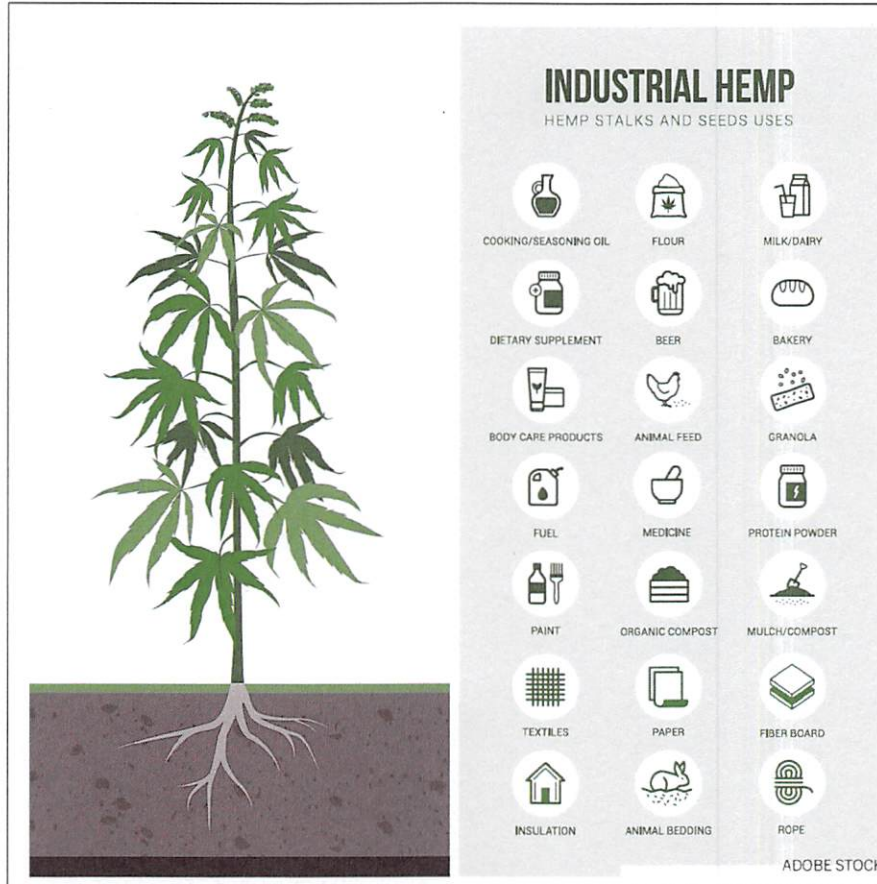
The state Senate Bill 566 (the California Industrial Hemp Farming Act), defines industrial hemp as a fiber or oilseed crop, or both, that is limited to the non-psychoactive types of the plant and the seed produced, having no more than 0.3 percent THC contained in the dried flowering tops.

The bill emphasizes that industrial hemp be grown only if it is on the list of approved seed cultivars and would require the Department of Food and Agriculture to determine the methodology and procedure by which the list of approved seed cultivars may be amended, as specified.

Industrial hemp is a versatile fiber crop and is known to produce food, fuel, feed, fiber for textiles, bio-composite plastics and other advanced manufacturing materials, oils for industrial and cosmetic purposes, and pharmaceuticals, with more than 25,000 linked products.

Hemp seeds possess a protein digestibility amino acid score that is equal to or greater than certain grains, nuts and some pulses.

In terms of resource requirements for production, at least one study suggested that it is possible to produce three times the amount of hemp fiber as cotton from the same amount of land with lower impact in terms of water, energy and the ecological footprint. Hemp is considered to consume 66 per-



cent to 76 percent less water than cotton. It is heat-tolerant and produces excellent fiber.

Although some researchers pointed out that hemp prefers a mild climate, experimental hemp is already grown in the states of Nevada (www.coloradohempproject.com) and Arizona, which have very similar weather to the low deserts of Southern California.

Some suggested that hemp may have evolved originally as a desert plant and is even referred to as xeric plant, plants that develop survival mechanisms for environments with low rainfall.

One of the adaptation mechanisms to an arid climate is the development of trichome, which helps reduce any rapid loss of water from the leaves

when there is a water deficit. Furthermore, the deep tap roots of hemp can find water sequestered in the ground with preferences to alkaline soil ranging between pH 7 to 7.5.

All the desirable characteristics and resource conservations methods of hemp makes it a potential alternative crop to be used instead of cotton in regions that have long abandoned growing cotton or as a rotation crop in the still cotton producing low desert regions, such as the Blythe and Palo Verde areas. Hemp grows faster, produces high yields and can be grown without the heavy use of pesticides. In general, it is forecasted as an emerging crop in the United States.

Although hemp charac-

teristics point out that it has great adaptability potential to the low desert, most of the currently available industrial hemp cultivars are developed for cooler environments and hence, may not be suitable for the low desert conditions.

It is known that the hemp plant is sensitive to both temperature, and its reproductive cycle commences when photoperiods are shorter than a critical length.

The University of California Cooperative Extension-Imperial County, with approval from the University of California Agriculture and Natural Resources head office, intends to conduct research on industrial hemp at the UC Desert Research and Extension Center. The objectives of our trials are

to test adaptability and potential yield of some selected cultivars. The outcome of our research will help to identify cultivars that may withstand heat, high temperatures and other environmental conditions of the low desert.

We will evaluate seed and fiber (straw) yield and productivity, strictly following the guidelines specified by the U.S. Farm Bill (Agricultural Act). According to this bill, industrial hemp must be grown or cultivated for research purposes conducted under an agriculture pilot program or academic research with a THC concentration of no more than 0.3 percent on a dry weight basis.

If levels exceed this value, the trials should be destroyed. In summary, our trial(s) will confirm if industrial hemp can withstand the dry and hot weather and be productive under mostly long photoperiod seasons of the low desert. Seasonally repeated trials will identify the best planting dates, adaptability and suitability of hemp varieties for California's low desert environment.

Note: This is not an endorsement of hemp production by growers or any other interested party in the low desert. This is to simply state that the university will soon be conducting industrial hemp adaptability and yield potential under the low desert environment. We encourage growers and the farm community to share their concerns on our intended trial(s) with the UCCE Imperial County.

For interests in producing industrial hemp, interested individuals should verify the law, permits and regulations with the county Ag Commissioner's office, the California Department of Food and Agriculture and other concerned institution(s).

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