**Industrial Hemp Production in West Virginia**

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**Research Overview**

Industrial hemp, known as cannabis sativa L, production in the United States has a long history dating back into the 1600s. Where early settlers used this plant to produce rope, clothing, and other textile material. Produced predominantly for fibers in the 19th and early 20th century, this plant was an important material in the lives of our early settlers. In the 20th century, marijuana was identified as a recreational drug in several states along with the U.S. government increased restrictions on hemp and marijuana and eventually all forms of marijuana and hemp were made illegal by 1970 with the passage of the Controlled Substances Act (CSA).

In 2018, industrial hemp was legalized by the federal government. By 2018 there were forty-six states who wanted issue related to the production of hemp, including West Virginia. The number of acres being planted has grown, increasing between 210-260% each year since 2017. Nationally, in 2018 there were just over 100,000 acres approved for production; in 2019 that number jumped to 113,900 acres approved for production across the country. West Virginia follows a similar story with 700 acres planted in 2017, 191 acres in 2018 and 364 acres were grown in 2019.

The focus of hemp production has changed over the last few years. The emergence of cannabidiol (CBD) oil as an additive for products in the health and medical arena has shifted producers focus to varieties with high CBD yields. These varieties are grown for their oil production with many varieties promoting biomass with 10-14% on a dry matter basis. These varieties are more closely related to the cannabis varieties grown for Tetrahydrocannabinol (THC) production than the fiber varieties that were grown in the past. The varieties grown for CBD production look small, and grow just like their illegal cousin but lack the THC concentrations to be considered illegal.

**Cultural Practices**

Field Preparation and Bed Layering

Plants were put in various types of media including plastic and bare ground

**Goal Statement:**

During the 2019 growing season approximately 100 acres were planted in Pocahontas, Greenbrier, and Monroe Counties (southern West Virginia) and WVU Extension Agents were able to collect data on 30 acres and worked closely with three other producers representing an additional 45 acres. WVU Extension Agents, as well as producers had a weekly spread sheet with data, the producer was able to collect data immediately and share their knowledge of the crop and the recommendations they are able to provide to new and existing growers.

Twelve different varieties were grown in the area of the twelve, we were able to collect production data on six of these varieties. The data collected included plant variety, hemp yields, CBD concentration, THC concentration, nutrient applications, and soil type. The goal of this research project was to gather applicable data to relay to growers in order to improve yield/input data, variety selection, nutrient management recommendations, cultural practices, IPM and site selection.

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**RESULTS**

- 6 different varieties were sampled at multiple locations -
- Some varieties were the best yielding varieties from a CBD perspective -
- Rosin was the only variety that tested under the regulated 0.3% THC limit at harvest -
- Post-harvest many producers are having difficulty marketing their hemp product to increase production throughout the country (less than 10% of grown hemp has been successfully marketed 1/1/20)

**CONCLUSIONS**

In any Extension program, it is essential that producers needs are considered and the program is adjusted as needed. Hemp producers have been met with a variety of issues from growing to regulation to marketing. What does 2020 hold in store for WV hemp production? The West Virginia Department of Agriculture has received close to 600 applications for the 2020 season. The USDA currently has proposed rules that if approved, would make each variety sampled considered compliant with the exception of CBD. A survey conducted across growers at the end of 2019 showed that 92% of those respondents were still in possession of THC in their products, showing many growers are having difficulty moving product in the saturated market. In 2019 growers faced new diseases and pests while having to contend with a drought that affected much of the growing season. Despite this, the growers showed that sales of 2,500,000 turkeys could be achieved in the Snowshoe Valley. Going into 2020 the question is can we grow this crop, the question is can we prove it under stricter guidelines and is there a profitable market? For the upcoming year, two items will be critical for success: 1. Producers must have marketing contracts in place prior to planting with established credit businesses. 2. Producer testing of CBD and THC levels must be very aggressive and start prior to flowering to stay ahead of CBD and THC levels.