



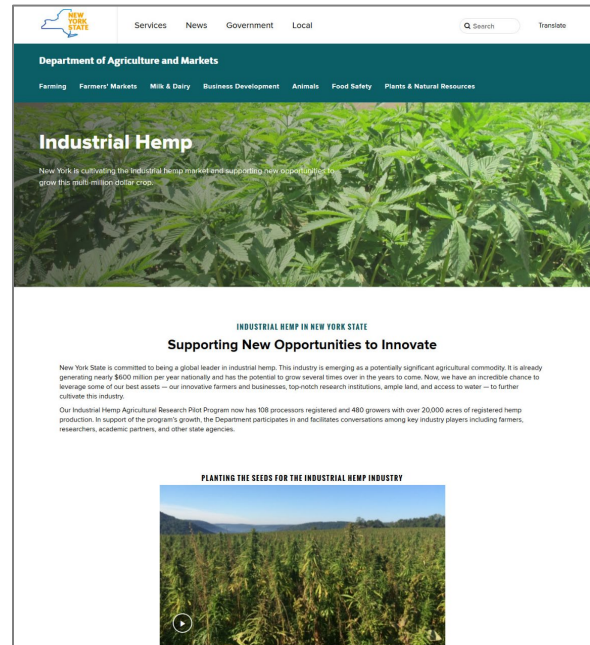
The NYS Hemp Industry – 2020 Update

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The hemp scene in NYS is a big, awkward, 4-year old. To date, the hemp industry has been a rapidly changing system of growers, processors, buyers, customers, researchers and regulatory agents – each with growing pains. As a whole, the NYS hemp industry is administered and regulated by the Plants and Natural Resources Division of Ag & Markets and they’ve done an excellent job of quickly translating dynamic political progress into order, regulations and guidance. Hemp first became a legal research crop in the US as a result of the 2014 Farm Bill. NYS changed its rules to permit hemp more widely in 2016. The 2018 Farm Bill made further improvements by removing hemp from the list of federally controlled substances and providing a framework for states to begin handling hemp as an agricultural commodity.

First, a bit about hemp, the plant. Industrial hemp (*Cannabis sativa*, L., ≤0.3% THC) is a very close relative of marijuana (≥0.3% THC). It’s an annual herbaceous flowering plant native to eastern Asia but is found worldwide. Wild types are even found in NYS. Humans have used cannabis for many purposes throughout our history – its fiber, seeds, oils, and psychoactive properties. Thousands of years of selective breeding has produced varieties with widely different traits and which are suited for widely different parts of the world and for distinct uses. Many varieties of hemp are dioecious - with distinct male and female individual plants. Other varieties are monoecious, meaning one plant has both male and female flowers. Differences between male and female plants and flowers are important - male plants are often smaller and their flowers do not produce grain. Because of this impact on growth and yield, some varieties have been developed to be ‘all female’ with just a few male plants for pollination. For high CBD yield, unpollinated, bushy, widely spaced female plants with many flowers are desired, while grain and fiber hemp crops include both male and female plants and are planted much more densely, producing tall slender plants. Pollination of a CBD crop reduces CBD yield, so attention to male plants, wild plants and neighboring crops is necessary because hemp is wind-pollinated. Seed set on grain crops is typically indeterminate, meaning that seeds continue to develop and mature over an extended period of time – resulting in both mature and immature seeds on the same seed head at time of grain harvest. Typically, hemp is a short-day plant, meaning flowering is triggered when hours of daylight shorten to a critical point regardless of plant size, though some autoflowering, or day-neutral, varieties are available.

Recommended cultivation practices for hemp production vary as widely as the preceding details, therefore the best place to start with hemp production is with a buyer contract. We always recommend starting with a contract before planting any hemp because there is not a reliable open market for hemp. Processors and buyers can specify their requirements – whether biomass for CBD extraction or partially dried stems for fiber processing, or dried grain for food uses – and the grower can then backwards-plan site selection, growing methods and sourcing seeds, equipment and correct input materials. Hemp prefers fertile, well-drained soils with pH 6.5 to 7. A good hemp crop needs high fertility, similar to wheat or corn. Seeding rates range from 1500 to 1.2 million seeds per acre. Many insect pests and pathogens cause problems for hemp. Some



common pests are armyworm, Japanese beetles, European corn borer, *Sclerotinia* white mold, *Botrytis* gray mold and *Fusarium*. Hemp also attracts unique and new pests. Currently, 86 pesticides are approved for hemp in NYS, all are unrestricted, and most are fungicides and insecticides. There ZERO selective herbicides on the list. For all types of hemp, beginning with a weed-free field is recommended, which requires good weed management for a 2-3 years prior to hemp crop. If planted in a timely manner, hemp can suppress weeds well, however weeds are often problematic for late-planted crops or in weedy fields. To look up approved products for hemp in NYS, access the NYSPAD database compiled on the NYS DEC website. Link is listed at the end of this article.

Harvesting methods are also specific to the type of crop grown and its intended use. Specifically tuned or designed grain combines, mowers, chopping heads, balers, grain dryers and other equipment is commonly used. And CBD crops are often manually cut, transported and dried in open sheds or by large fans. Harvesting methods and timing as well as storage and drying requirements and methods may be specified by processors or buyers and should be very carefully researched before planting a hemp crop. Many hemp buyers will gladly provide guidance and advice to contracted growers for all these details.

Before buying seed or planting any hemp in NYS, a permit application must be submitted to and approved by NYS Ag & Markets Plants and Natural Resources Division. A link to this application information is included at the end of this article. This Ag & Markets website is also the best access to up-to-date changes to the NYS Industrial Hemp program, which has changed frequently as the federal laws and application submission rates have changed. Currently, applications are being accepted for growing hemp for any purpose. The application and agreement is called a 'Research Partner Agreement' under the present system. Once your application is submitted, along with \$500, and approved, your permit allows hemp production, per the details in your agreement, for 3 years. Your agreement will list background checks, inspection, testing, auditing and reporting requirements. Provisions for sub-contracting may or may not be available. A list of 617 already-permitted growers and processors is also available on the Ag & Markets Industrial Hemp website and is also linked below. This list may be a good way to start to find a potential buyer for any planned hemp crop.

The NYS hemp industry is a rapidly growing network of growers, processors, manufacturers and market. Like any new and not-yet-matured industry, it is unstable, unbalanced and beset with risks. In 2017 and 2018, processors competed aggressively to purchase raw hemp materials from growers. In 2019, raw hemp production far outpaced processing capacity and many Northeast growers are still left with unsold biomass. Many fields were not even harvested in 2019. The hemp industry surely offers opportunity for NY farmers and entrepreneurs, but be aware and cautious. Attend some of the many conferences and workshops offered on hemp methods and regulations around the state and learn everything you can. Line up a buyer contract and apply for a permit before any farming begins. Lastly, Cornell is actively researching many aspects of all types of hemp production and processing and shares results on a website listed below. Among the info available at the Cornell website are variety trial results, economic and cost-of-production analyses for different types of hemp, hemp industry news and upcoming events around the state.

Additional resources:

1. Smart, L. and M. Ullrich. 2019. Beginning Hemp? Keys to Successful Production in New York State. <https://cpb-us-e1.wpmucdn.com/blogs.cornell.edu/dist/a/7491/files/2019/08/Beginning-hemp.pdf>
2. NYS DEC Bureau of Pesticides Management Information Portal <http://www.dec.ny.gov/nyspad/products?2> Click the 'Advanced Search' button then select 'Hemp (Industrial)' on the list under Pesticide Use and click 'Search' button.
3. New York State Department of Agriculture and Markets, Plants & Natural Resources Division, Industrial Hemp website. <https://agriculture.ny.gov/industrial-hemp>

4. New York State Department of Agriculture and Markets, Plants & Natural Resources Division, List of Authorized Research Partner Growers, Processors and Grower-Processors.
https://agriculture.ny.gov/system/files/documents/2020/02/authorized_research_partners.pdf
5. Cornell University Hemp Research Projects, Results, News and Events.
<https://hemp.cals.cornell.edu/resources/our-research/>

For more information about field crop and soil management, contact your local Cornell Cooperative Extension office or NNY Cornell University Cooperative Extension Regional Field Crops and Soils Specialists, Mike Hunter and Kitty O’Neil.

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“The North Country Regional Ag Team aims to improve the productivity and viability of agricultural industries, people and communities in Jefferson, Lewis, St. Lawrence, Franklin, Clinton and Essex Counties by promoting productive, safe, economically and environmentally sustainable management practices and by providing assistance to industry, government, and other agencies in evaluating the impact of public policies affecting the industry.”



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