

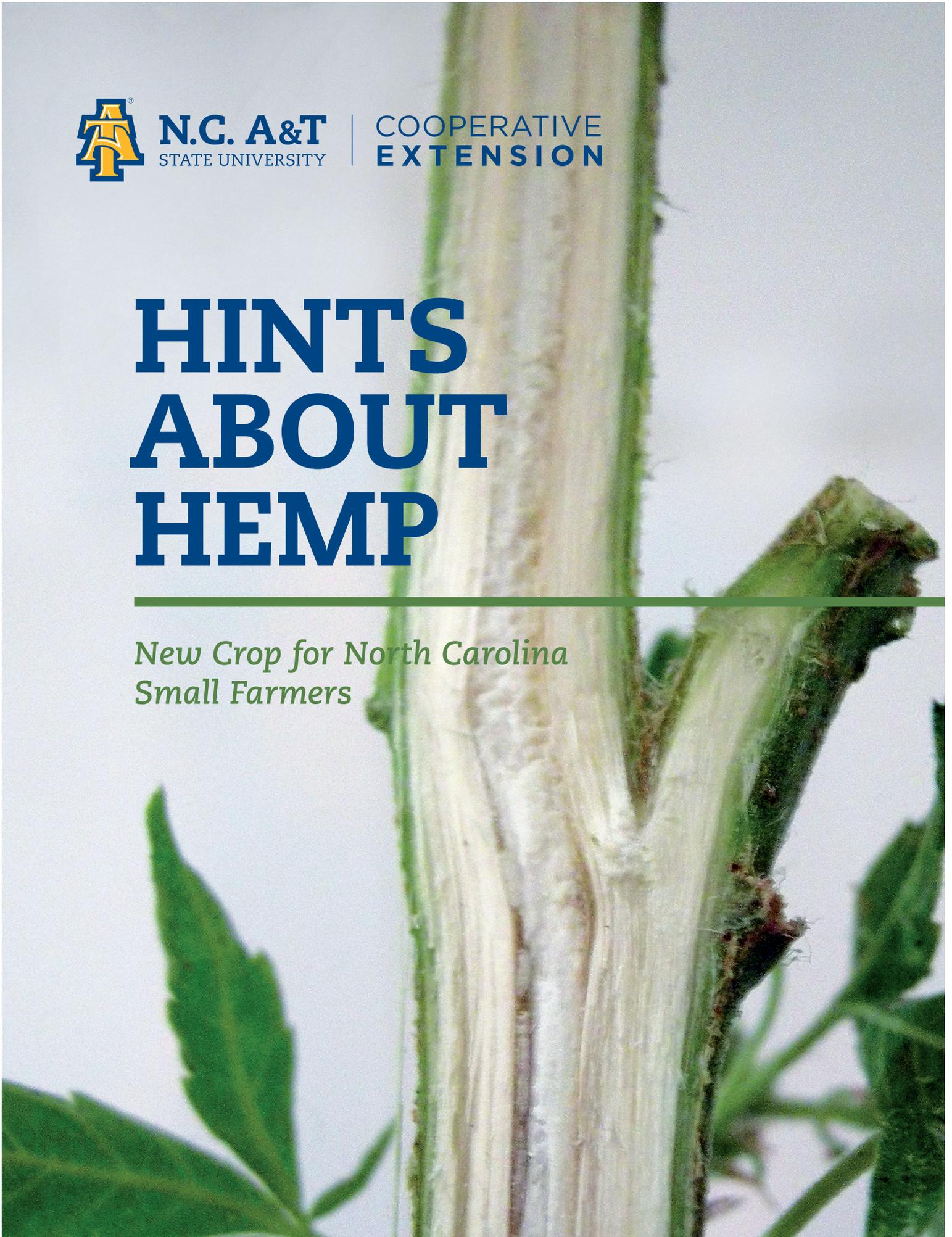


N.C. A&T
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COOPERATIVE
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HINTS ABOUT HEMP

*New Crop for North Carolina
Small Farmers*



What is Industrial Hemp?

Hemp is one of the world's oldest crops and is grown as an agricultural commodity in 30 countries. Hemp is high in fiber, its seeds are considered a superfood and more importantly, hemp doesn't contain the same amount of active ingredients (delta-9 tetrahydrocannabinol (THC), less than 0.3 percent) that make marijuana a controlled substance.

Instead, industrial hemp is grown for its seeds, stalks, CBD oil (cannabidiol) and its ability to enrich the soil and remove toxins. There are approximately 25,000 uses for industrial hemp. The stalks and leaves, which are high in fiber, are used in textiles like making newspaper or packing materials or can be used to create a fiber capable of replacing insulation, drywall or cement. Because hemp is a durable fiber, it can be used as a fabric, like cotton. But hemp fabric is softer than cotton and won't mildew.

The seeds can be used whole or crushed and added to bread, granola, milk, ice-cream or protein powder. The seeds can also be ground into an oil and used for cooking, salad dressing and cosmetics. Hemp seeds also contain omega-3 and omega-6 fatty acids, iron, vitamin E and all the essential amino acids making it a superfood for the skin. Hemp is also being considered as a biodiesel alternative. No doubt that from plastics to paper, industrial hemp is versatile.



How Can I Get Involved?

Despite its age and variety of uses, industrial hemp, which is being reintroduced to North America, is controlled by the drug enforcement agencies. The Farm Bill of 2014 made it legal to grow industrial hemp for research purposes. In North Carolina, which has passed its own hemp legislation, the Industrial Hemp Commission is responsible for developing the rules and regulations for growing hemp under the state's Hemp pilot program.

Farmers interested in participating in the Industrial Hemp Pilot Program have to follow a series of guidelines, which include proving they are a farmer and getting a license. North Carolina has two types of license—one for research only, granted to a university or government agency, and a second for research with the intent to market. A background check will be completed on farmers who apply for an industrial hemp license.

The license is good for three years with an initial \$250 fee. Annual fees are \$250 per year for less than 50 acres or \$500 for more than 50 acres plus an additional \$2 per acre of land or 1,000 square feet of greenhouse space. If you have 10 acres of hemp, your fees for the first year are \$520. The financial breakdown is below:

Annual Base Fee	\$250.00	} Year two and three
10 acres x \$2 per acre	+ \$20.00	
Annual Fee + Per Acre Fee	\$270.00	
Initial Application Fee (<i>1st Year Only</i>)	+ \$250.00	
Initial Fee + Annual Fee (<i>1st Year Only</i>)	\$520.00	

To apply for a license, contact the Industrial Hemp Pilot Program at www.ncagr.gov/hemp. The application can be done on paper or online. Detailed information about the application process can be found on the website. Interested farmers should work with their local Cooperative Extension agent in preparing an application. Because hemp is still in the pilot stages, agents may not have a lot of first-hand information or may have limited knowledge about hemp, but they do have contacts and can help direct you to the proper agencies for assistance.

How Does Hemp Grow?

If you're interested in growing hemp as part of the state's pilot program, you might want to know a little about the planting, growing and harvesting process.

PLANTING

- Hemp is fast growing, maturing in about three to four months.
- Hemp grows best in well-drained loam soils; avoid compact soils.
- The soil should have a pH of 6-7.5, be well aerated and contain high fertility and organic matter. Sandy loam soil works best, followed by clay loam.
- Plant in late April or early May. It's best to plant after the danger of a killing frost and when soil temperatures are 50° F or above.
- Ideal seeding depth is ½ - 1 inch, but no deeper than 1 inch. A standard grain drill can be used for planting conventional or no-till.
- Industrial hemp loses its yield and quality if mono-cropped. With hemp, a four-year crop rotation is highly recommended, followed by plantings of wheat and soybean, has proven to work well.
- For fiber, plantings are closer together to promote height and discourage branching and flowering.
- For seed production, flowering and branching are desirable, therefore plants are spaced further apart.

GROWING

- Hemp requires 12-15 inches of water throughout the growing season.
- Hemp is very similar to corn in its nutrient requirements. A lack of nitrogen greatly decreases mass for fiber production.
- At present there are no pesticides registered for hemp use.
- Hemp is a low-maintenance crop that grows to six to 15 feet in height.
- Hemp is also an excellent rotational crop. It suppresses weeds and decreases the outbreak of insects and diseases.
- Hemp helps to rebuild and condition the soil by replacing organic matter and providing aeration through its extensive root system.

HARVESTING

- How and when to harvest depends on the use – seeds or stalks.
- Harvesting industrial hemp for seeds can be done with a combine.
- Hemp seeds and stalks ripen at different times and thus harvesting is done at different times.
- With one acre, you can expect to harvest 700 pounds of grain, which can be pressed into 22 gallons of oil, 530 pounds of meal and 5,300 pounds of straw, which equals 1,300 pounds of fiber.

At present, there are no sites in North Carolina that sell industrial hemp seed. A farmer has to secure seed from other states and must include where the seed will be purchased on the hemp application. Seeds can range from \$35 to \$70 per pound. And because these seeds were developed for other soils and climates, it's uncertain how they might grow in North Carolina. Securing seed may require prior planning and can be expensive.





Can I Make Money if I Plant Hemp?

Industrial hemp is expected to be a \$1.8 billion business by 2020, according to the Hemp Industries Association. Approximately 32 percent of the industrial hemp grown is expected to be marketed for industrial purposes, with 25 percent used for hemp CBD (a medical compound used to treat inflammation, pain, anxiety, psychosis and seizures) and 14 percent for personal care.

While most people say that industrial hemp can be profitable, little information is available as to how much farmers can actually make. The Canadian Hemp Trade Alliance estimates that in 2013, 600 pounds of seed, about an acre, sold for \$12,784. If you consider the same acre of corn sold for \$916 and soybeans, \$648, then growing hemp can be profitable. Kentucky farmers participating in early industrial hemp research averaged \$60 to \$800 per acre for seed and \$170 to \$759 for fiber.

Because hemp is a new crop in this country, questions about production, pest management and marketing remain unanswered. As more farmers participate in the pilot program and as more information is obtained, those questions will be answered.

For additional questions, contact your local Cooperative Extension agent or visit the North Carolina Industrial Hemp Pilot Program website at www.ncagr.gov/hemp.

Developed By:  **N.C. A&T** | **COOPERATIVE EXTENSION**
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