2017 Industrial Hemp Agronomic Report Summary

The Tennessee Department of Agriculture (TDA) issued 79 Industrial Hemp Growers Licenses for the 2017 growing season. Twenty five (25) growers did not plant, leaving 54 growers to plant 130 acres across 75 fields in Tennessee (see Figure 1). This was 17.5% of the intended acreage approved by the Department. TDA purchased 12,870 lbs of industrial hemp seed. To prevent a late seed delivery as in previous years, an early seed order was placed for the individuals who had submitted their applications prior to January 15, 2017. This year, the only available seed from Canada was Delores. However, we were able to obtain several varieties from Europe: Futura75, Fedora17, Felina32, Ferimon12 and Santhica27. Tennessee received its first Serbian variety, Helena. Growers also grew seed left over from the previous years. According to growers, these seeds had very poor germination rates. Copperhead Seeds, working in cooperation with Tennessee Crop Improvement, had its first crop of Tennessee Certified seed available this year. It was an Italian variety, Carmagnola Selezionata. This year, Copperhead Seeds produced two other certified varieties (Carmagnola and Elleta Compana) which will be available for the 2018 growing season.

Each grower is required to submit an agronomic report to the Tennessee Department of Agriculture for each crop grown. Not all participants have met this obligation at this time. Of the reporting farmers, 34% have an occupation in the field of agriculture and average 26.5 years of experience. Twenty (20) percent of the reporting growers had no agricultural experience before entering the pilot program. Most of the hemp that was grown was for the production of hemp oil (see Table. 1). Twenty six growers reported harvesting a total of 25 acres, but not all growers reported yields for seed, flower or whole plants. No significant correlations between planting conditions and yields could be determined.

The three greatest seed yields were reported by three individual growers: 30 lbs of Fedora17, 12 lbs of Canda and 10 lbs of Futura75. The three greatest fiber yields reported are 500lbs of Delores and Joey, 250 lbs of Futura75 and Carmagnola Selezionata and 140.5 lbs of Futura75. The fiber yields were from 3 different growers with varying growing methods. Thirteen growing locations harvested flower material. One grower produced the three greatest yields of flower material: 8175 lbs of Delores, 1950 lbs of Felina32 and 1710 lbs of Fedora17. All three fields were planted outdoors in tilled clay/loam soil with irrigation throughout the growing season. The three fields were planted in mid-May using a broadcast technique of 70lbs/acre following rain. Whole plants yield were reported at 2619lbs. Eight (8) growers reported harvesting the whole plant. The greatest yields were 800 lbs of Futura75, 520 lbs Fibranova and 500 lbs of Futura75 from another grower (see Table 2.). All hemp was harvested by hand, with the exception of one grower who used a baler.

There are currently no herbicides registered by EPA for use in hemp, so all weed control was accomplished by mechanical means. Pests of concern for growers include: insects (fungus gnats, stink bugs, cutworms, Japanese Beetles, flea beetles, cabbage worms and aphids) and wildlife (deer and doves). There was no report of any disease issues for 2017 and no samples were submitted.

The agronomic reports received show that the growers spent approximately $2612.09/acre grown this year and $4298/grower. The four top expenses were land, equipment, seed and labor. Growers spent the least on interest, irrigation and inspections. Only a very few growers reported selling the industrial hemp grown. The largest market appears to be in hemp oil high in cannabinoids. At this point in our program, two growers claim that their sole occupations are growing and producing industrial hemp in Tennessee. Both of these growers have a start to finish product line. One grower in particular reports selling over $128,000.00 worth of hemp material in 2017. While most growers are interested in selling a product, many Tennessee participants just enjoy growing the plants for making hemp smoothies at home or other personal consumption needs. Tennessee hemp growers are working on finding different markets for the product. A few growers seemed to be interested in researching industrial hemp as a livestock feed additive (see Table 3.).

Tennessee has 38 licensed hemp processors. Most are for the extraction of cannabidiol. Tennessee still lacks a decortication machine to make fiber production a viable option. Multiple graduate students in Tennessee are working on industrial hemp research. One project aims at using fiber for making hempcrete and another is looking for insect control and best management practices. Tennessee's industrial hemp pilot program has grown in the number of participants in 2017 but decreased in the amount of hemp produced. TDA is hoping that with opening up seed importation to domestic varieties we will see more hemp harvested in the upcoming growing season.

Disclaimer: This information was derived from the agronomic reports received and is only as accurate as the data collected from the growers

Figure 1.

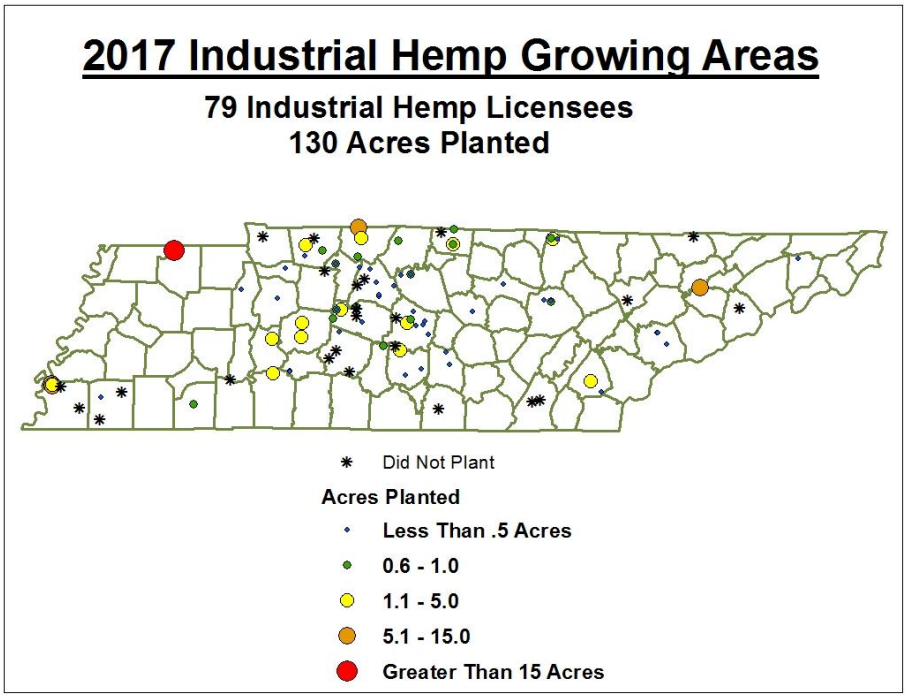

Table 1.

Intended Use	# of Licensees
Certified Seed	2
Fiber	5
Grain	1
Grain, Oil	1
Grain, Oil, Fiber	2
Grain, Personal Consumption	1
Grain/Fiber	3
Grain/Oil	1
Grain/Oil/Personal Consumption	1
None	1
Oil	20
Oil, Fiber	1
Oil, Personal Consumption	2
Personal Consumption	3
Powder	1
Unknown	1
Whole Plant	7
(blank)	24
Grand Total	77*

*two growers were universities

Table 2.

Variety	Seed Yields	Fiber Yields	Flower Yields	Whole Plant Yields
Canda	12	8		
Canda, Delores, Joey				
Carmagnola				
Carmagnola Selezionata				9.42
Combination				
Delores			8175	
Delores/Joey	5	500		
Eletta Campana				
Fedora17	39.5		1838	70
Fedora17/Futura75				
Felina32			1950	
Fibranova			400	520
Futura75	21.5	140.5	119	1390
Futura75/Carmagnola Selezionata	2	250		500
Futura75/Fedora17				130
Helena				
Grand Total	**80**	**898.5**	**12482**	**2619.42**

Table 3.

Costs	**Amount Spent**
License Fee	$19,500
Acreage Fee	$1,121
Sampling Fee	$3,761
Inspection Fee	$1,946
Seed	$33,881
Fertilizer	$6,416
Land	$189,500
Equipment	$46,159
Labor	$27,492
Water	$290
Security	$2,401
Interest	$200
Transportation	$2,782
Other	$4,124
Total	**$339,572**