

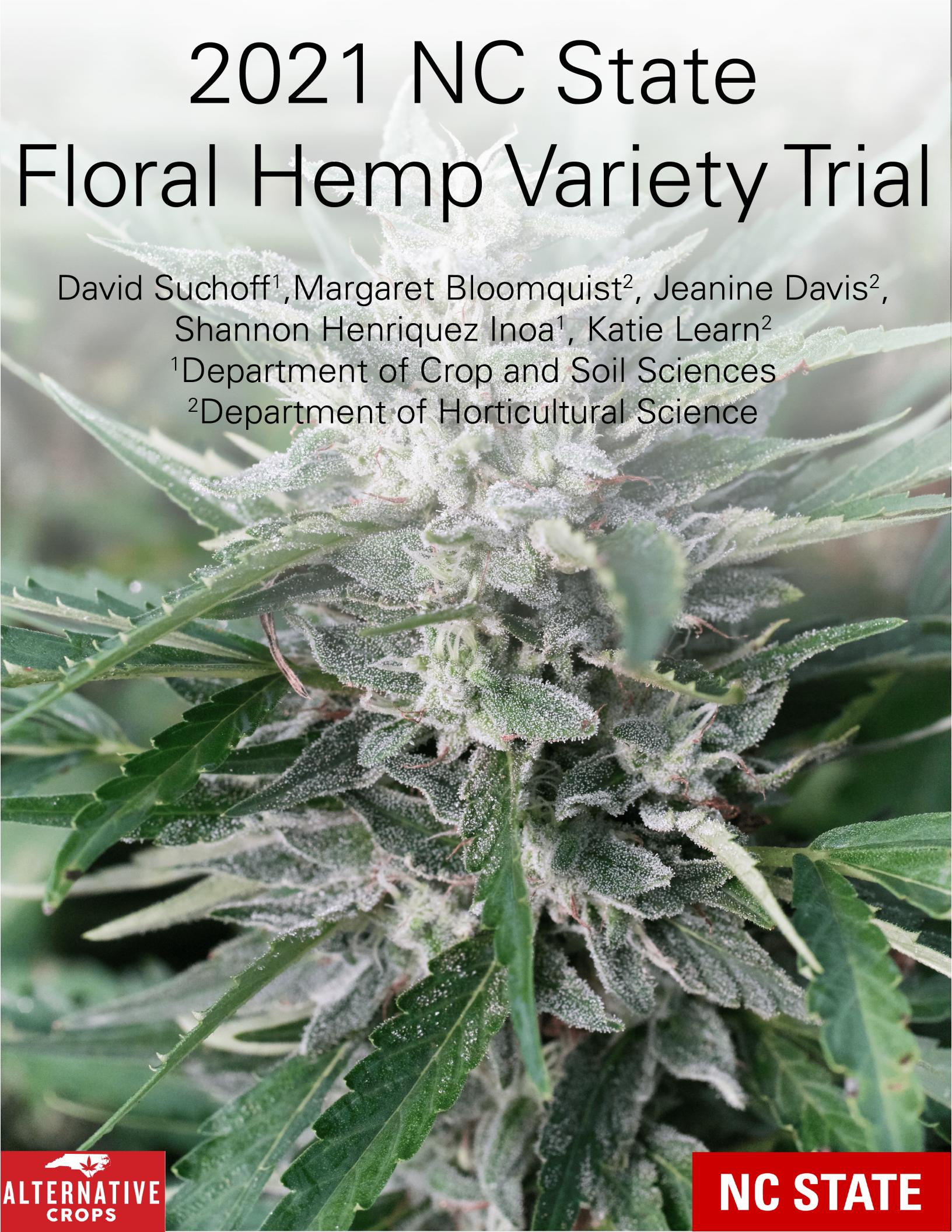
# 2021 NC State Floral Hemp Variety Trial

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The 2021 NC State floral hemp variety trials were conducted at three locations representing the three major geographic and agricultural production regions of North Carolina: Kinston (Lenoir County; Coastal Plain), Salisbury (Rowan County; Piedmont), and Mills River (Henderson County; Mountains) (Figure 1).

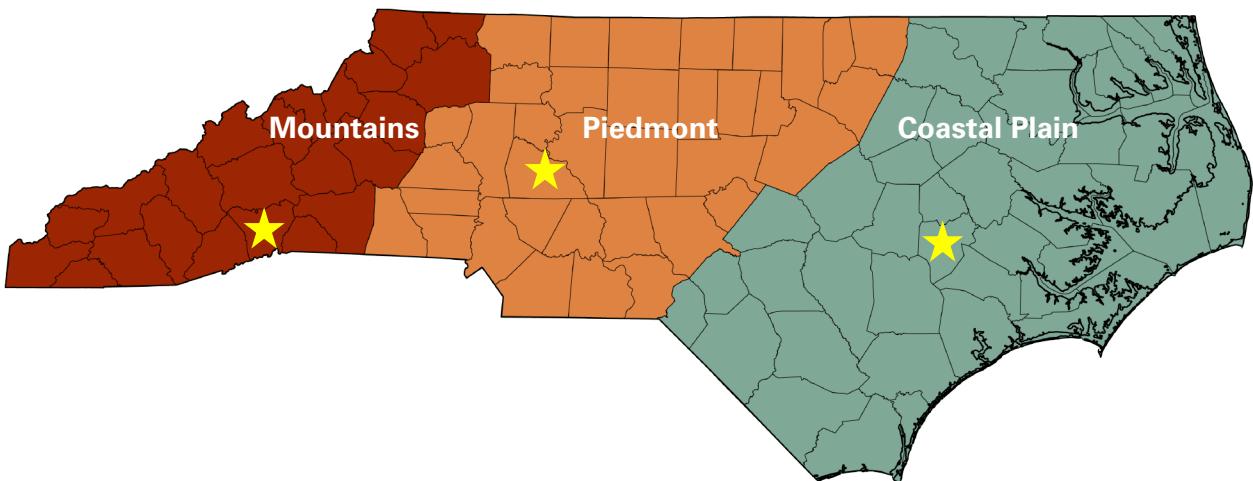


Figure 1. Locations of 2021 floral hemp variety trials

Eighteen varieties from five seed companies were investigated in Kinston and Salisbury and 20 in Mills River (Table 1). 'Cherry Wine', 'BaOx', and 'Redwood' cuttings were supplied by the breeding companies prior to transplant. All other varieties were started from seed on NC State campuses.

Table 1. 2021 Variety source and transplant origin

Variety	Source	Transplant origin	Locations*
Oregon Sweetgum	East Fork Cultivars	Seed	M,P,CS
Bubbataonic	Kayagene	Seed	M,P,CS
Cherry Wine	WNC Hemp	Clone	M,P,CS
Forbidden V Seedless	Oregon CBD	Seed	M,P,CS
Lifter	Oregon CBD	Seed	M,P,CS
Lifter Seedless	Oregon CBD	Seed	M,P,CS
Pine Walker Seedless	Oregon CBD	Seed	M,P,CS
Sour Lifter Seedless	Oregon CBD	Seed	M,P,CS
Sour Suver Haze Seedless	Oregon CBD	Seed	M,P,CS
Stem Cell CBG Seedless	Oregon CBD	Seed	M,P,CS
Suver Haze	Oregon CBD	Seed	M,P,CS
Suver Haze Seedless	Oregon CBD	Seed	M,P,CS
White CBG	Oregon CBD	Seed	M,P,CS
White CBG Seedless	Oregon CBD	Seed	M,P,CS
BaOx	Triangle Hemp	Clone	M,P,CS
Elektra	Oregon CBD	Seed	M
Redwood	WNC Hemp	Clone	M

\*M = Mountains; P = Piedmont; CS = Coastal Plain.

Production practices mirrored those commonly used by North Carolina growers. Plasticulture (white on black polyethylene mulch + irrigation drip line) was employed at each location. Transplanting occurred during the first week of June. Experimental design was a randomized complete block with three blocks per location. Plots consisted of 10 plants spaced at 5' x 5' (1,742 plants/ac).

Total fertility inputs in Salisbury were 150 lbs N/ac (60 lbs N/ac applied pre-plant, the remainder applied via in-season fertigation), 60 lbs P/ac, and 120 lbs K/ac. Boron was applied at a rate of 1 lb/ac at the end of June. Field preparation also included a pre-plant burndown application of Gramoxone SL 3.0 and Devrinol 2xE. In-season weed management between rows included manual cultivation and hooded applications of Roundup PowerMax 3.

Total fertility inputs in Kinston were 120 lbs N/ac (60 lbs N/ac applied pre-plant, the remainder applied via in-season fertigation), 60 lbs P/ac, and 120 lbs K/ac. Boron was applied at a rate of 1 lb/ac. Field preparation also included a pre-bedding fumigation with Telone II, followed by an application of Dual Magnum after laying plastic. Weeds between rows were managed mechanically.

Total fertility inputs at the Mills River location were 80 lbs N/ac (50 pounds pre plant and 30 pounds fertigation), 100 lbs P/ac, and 180 lbs K/ac. Boron was applied pre-plant and as foliar spray for a total of 3 lbs B/ac. Fields also received 75 lbs Ca/ac. Pre-emergent herbicides (Satellite Hydro Cap and Paraquat Concrete), were applied prior to bedding. In-season weed management included mechanical weeding and one application of herbicide (Sandeal).

Insect and disease pests were managed through a rotation of Manzate Pro-Stick, Coragen, Yellow Jacket Sulfur, Blackhawk, and Revus Top. Xentari and Serenade Aso were also used at the Mills River location. **These products are not currently labeled for use in hemp.**

The Kinston trial showed significant botrytis damage during flowering even with an aggressive spray regimen. Though we were able to harvest a crop from this location, considerable damage and loss was observed.

A variety of Lepidoptera species, worms, were the most pressing insect pests. Heavy rains and localized flooding at the Mills River location following tropical storms and hurricanes in August and September brought challenges to the field; some plants lodged, and disease and pest pressure increased.

#### *Data collection*

Date of floral initiation was collected for all varieties and trials. One floral sample per plot was collected for THC compliance, approximately 30 days prior to harvest. Harvest occurred approximately 6 weeks after floral initiation at which point five plants were

harvested from each plot. Height, width, stem base diameter, and fresh weight were collected. Plants were dried in tobacco curing barns at up to 115 °F until stems snapped, with a target of 10-12% moisture. Floral and leaf material were bucked (destemmed), weighed, and samples submitted for final (harvest) cannabinoid analysis.

Data were analyzed in SAS v 9.4 (SAS, Cary, NC) using the GLIMMIX Procedure. Data were analyzed separately by location and block was treated as a random effect. When appropriate, the Tukey's HSD mean separation test was employed. An additional state-wide analysis was conducted in which location and block nested within location were treated as random effects.

Table 2. 2021 Cannabinoid results – Mills River, NC

Variety	Compliance Total THC <sup>a</sup> (%)	Harvest Total THC <sup>b</sup> (%)	Harvest Total CBD (%)	Harvest Total CBG (%)	Harvest Total CBDV (%)	Harvest Total THCV (%)
Bubbatonic	0.17 ab <sup>c</sup>	0.37 bcd	8.26 bcd	0.29 c	0.06 c	ND <sup>d</sup>
BaOx	0.07 bc	0.71 a	15.70 a	0.79 c	0.17 c	ND
Cherry Wine	0.15 ab	0.64 a	12.85 ab	0.46 c	0.07 c	ND
Elektra	0.10 abc	0.55 ab	12.37 ab	0.52 c	0.08 c	ND
Forbidden V Seedless	0.01 c	0.24 d	5.16 de	0.39 c	4.26 a	ND
Lifter	0.20 a	0.61 a	13.20 ab	0.45 c	0.13 c	ND
Lifter Seedless	0.11 abc	0.59 ab	13.67 a	0.53 c	0.09 c	ND
Oregon Sweetgum	0.14 ab	0.54 ab	12.86 ab	0.90 c	0.21 c	ND
Pine Walker Seedless	0.01 c	0.25 cd	5.94 cd	0.39 c	3.45 b	ND
Redwood	0.11 abc	0.48 abc	11.80 ab	0.40 c	0.10 c	ND
Sour Suver Haze Seedless	0.08 abc	0.53 ab	11.85 ab	0.42 c	0.06 c	ND
Sour Lifer Seedless	0.09 abc	0.67 a	14.33 a	0.60 c	0.13 c	ND
Stem Cell CBG Seedless	0.07 bc	0.18 d	0.14 e	13.12 a	0.02 c	ND
Suver Haze	0.10 abc	0.58 ab	12.90 ab	0.55 c	0.09 c	ND
Suver Haze Seedless	0.10 abc	0.51 ab	10.75 abc	0.43 c	0.11 c	ND
White CBG	0.0 c	0.14 d	0.15 e	9.47 b	0.00 c	ND
White CBG Seedless	0.0 c	0.17 d	0.12 e	11.82 ab	0.00 c	ND
p-value	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	-

Significant p-values ( $\alpha<0.05$ ) in bold.

<sup>a</sup>Compliance samples were collected ~30 days before harvest.

<sup>b</sup>Harvest samples were collected following drying and bucking.

<sup>c</sup>Means within a cannabinoid followed the same letter are not significantly different ( $\alpha>0.05$ ).

<sup>d</sup>None detected.

Total THC calculated as % $\Delta$ 9-THC + 0.877\*%THCA.

Total CBD calculated as %CBD + 0.877\*%CBDA.

Total CBG calculated as %CBG + 0.878\*%CBGA.

Total CBDV calculated as %CBDV + 0.877\*CBDVA.

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Table 3. 2021 Cannabinoid results - Kinston, NC

Variety	Compliance Total THC <sup>a</sup> (%)	Harvest Total THC <sup>b</sup> (%)	Harvest Total CBD (%)	Harvest Total CBG (%)	Harvest Total CBDV (%)	Harvest Total THCV (%)
Bubbatonic	0.30 ab <sup>c</sup>	0.31 ab	6.15 abc	0.15 c	0.00 b	ND <sup>d</sup>
BaOx	0.23 abc	0.40 a	7.82 ab	0.62 c	0.72 b	ND
Cherry Wine	0.19 abc	0.50 a	9.29 a	0.26 c	0.00 b	ND
Forbidden V Seedless	0.02 abc	0.17 bc	2.99 cd	0.16 c	3.37 a	ND
Lifter	0.35 a	0.44 a	7.78 ab	0.28 c	0.07 b	ND
Lifter Seedless	0.35 a	0.50 a	9.04 ab	0.35 c	0.05 b	ND
Oregon Sweetgum	0.15 abc	0.31 ab	5.46 bc	0.21 c	0.12 b	ND
Pine Walker Seedless	0.04 c	0.10 bc	2.06 cd	0.20 c	3.06 a	ND
Sour Suver Haze Seedless	0.30 abc	0.48 a	9.01 ab	0.32 c	0.03 b	ND
Sour Lifer Seedless	0.22 bc	0.43 a	7.87 ab	0.36 c	0.07 b	ND
Stem Cell CBG Seedless	0.02 c	0.00 c	0.10 d	6.69 b	0.00 b	ND
Suver Haze	0.20 abc	0.44 a	8.14 ab	0.29 c	0.04 b	ND
Suver Haze Seedless	0.16 abc	0.51 a	8.70 ab	0.33 c	0.09 b	ND
White CBG	0.00 c	0.02 c	0.04 d	9.99 a	0.00 b	ND
White CBG Seedless	0.00 c	0.06 bc	.01 d	11.25 a	0.00 b	ND
p-value	<b>0.0091</b>	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	-

Significant p-values ( $\alpha<0.05$ ) in bold.

<sup>a</sup>Compliance samples were collected ~30 days before harvest.

<sup>b</sup>Harvest samples were collected following drying and bucking.

<sup>c</sup>Means within a cannabinoid followed the same letter are not significantly different ( $\alpha>0.05$ ).

<sup>d</sup>None detected.

Total THC calculated as % $\Delta$ 9-THC + 0.877\*%THCA.

Total CBD calculated as %CBD + 0.877\*%CBDA.

Total CBG calculated as %CBG + 0.878\*%CBGA.

Total CBDV calculated as %CBDV + 0.877\*CBDVA.

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Table 4. 2021 Cannabinoid results - Salisbury, NC

Variety	Compliance Total THC <sup>a</sup> (%)	Harvest Total THC <sup>b</sup> (%)	Harvest Total CBD (%)	Harvest Total CBG (%)	Harvest Total CBDV (%)	Harvest Total THCV (%)
Bubbatonic	0.29 <sup>a</sup>	0.19 cd	5.39 c	0.46 b	0.00 c	ND <sup>d</sup>
BaOx	0.19 abc <sup>c</sup>	0.46 a	9.99 ab	0.90 b	0.11 c	ND
Cherry Wine	0.20 abc	0.54 a	11.85 a	0.38 b	0.00 c	ND
Forbidden V Seedless	0.03 bc	0.14 cd	3.55 c	0.25 b	3.16 b	ND
Lifter						ND
Lifter Seedless	0.14 abc	0.49 a	10.75 ab	0.35 b	0.03 c	ND
Oregon Sweetgum	0.18 abc	0.41 a	8.29 b	0.39 b	0.15 c	ND
Pine Walker Seedless	0.03 b	0.13 cd	3.03 cd	0.28 b	4.00 a	ND
Sour Suver Haze Seedless	0.24 ab	0.38 ab	8.35 b	0.44 b	0.00 c	ND
Sour Lifer Seedless	0.31 a	0.40 a	8.61 b	0.39 b	0.07 c	ND
Stem Cell CBG Seedless	0.11 abc	0.03 d	0.10 de	10.42 a	0.01 c	ND
Suver Haze	0.14 abc	0.24 bc	5.26 c	0.31 b	0.00 c	ND
Suver Haze Seedless	0.28 a	0.43 a	9.17 ab	0.31 b	0.07 c	ND
White CBG	0.08 abc	0.07 d	0.02 e	10.93 a	0.00 c	ND
White CBG Seedless	0.00 c	0.09 cd	0.02 e	9.64 a	0.00 c	ND
p-value	<b>0.0003</b>	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	-

Significant p-values ( $\alpha<0.05$ ) in bold.

<sup>a</sup>Compliance samples were collected ~30 days before harvest.

<sup>b</sup>Harvest samples were collected following drying and bucking.

<sup>c</sup>Means within a cannabinoid followed the same letter are not significantly different ( $\alpha>0.05$ ).

<sup>d</sup>None detected.

Total THC calculated as % $\Delta$ 9-THC + 0.877\*%THCA.

Total CBD calculated as %CBD + 0.877\*%CBDA.

Total CBG calculated as %CBG + 0.878\*%CBGA.

Total CBDV calculated as %CBDV + 0.877\*CBDVA.

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Table 5. 2021 Cannabinoid results - state average\*

Variety	Compliance Total THC <sup>a</sup> (%)	Harvest Total THC <sup>b</sup> (%)	Harvest Total CBD (%)	Harvest Total CBG (%)	Harvest Total CBDV (%)	Harvest Total THCV (%)
Bubbatonic	0.25 a <sup>c</sup>	0.29 cd	6.60 bc	0.30 b	0.02 b	ND <sup>d</sup>
BaOx	0.16 ab	0.52 ab	11.17 a	0.77 b	0.33 b	ND
Cherry Wine	0.18 ab	0.56 a	11.33 a	0.34 b	0.02 b	ND
Forbidden V Seedless	0.02 c	0.18 de	3.90 c	0.27 b	3.60 a	ND
Lifter	0.29 a	0.50 ab	10.10 a	0.37 b	0.10 b	ND
Lifter Seedless	0.21 a	0.53 ab	11.15 a	0.41 b	0.06 b	ND
Oregon Sweetgum	0.16 ab	0.42 b	8.87 ab	0.50 b	0.16 b	ND
Pine Walker Seedless	0.03 c	0.16 de	3.81 c	0.18 b	3.63 a	ND
Sour Suver Haze Seedless	0.20 a	0.47 ab	9.74 a	0.40 b	0.03 b	ND
Sour Lifer Seedless	0.17 ab	0.50 ab	10.45 a	0.41 b	0.09 b	ND
Stem Cell CBG Seedless	0.07 bc	0.07 e	0.03 d	10.04 a	0.00 b	ND
Suver Haze	0.15 abc	0.42 bc	8.77 ab	0.38 b	0.04 b	ND
Suver Haze Seedless	0.18 ab	0.48 ab	9.54 a	0.36 b	0.09 b	ND
White CBG	0.03 c	0.08 e	0.07 d	10.13 a	0.00 b	ND
White CBG Seedless	0.00 c	0.11 e	0.00 d	10.74 a	0.00 b	ND
p-value	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	-

Significant p-values ( $\alpha<0.05$ ) in bold.

\*All three locations were added and treated as a random effect.

<sup>a</sup>Compliance samples were collected ~30 days before harvest.

<sup>b</sup>Harvest samples were collected following drying and bucking.

<sup>c</sup>Means within a cannabinoid followed the same letter are not significantly different ( $\alpha>0.05$ ).

<sup>d</sup>None detected.

Total THC calculated as % $\Delta$ 9-THC + 0.877\*%THCA.

Total CBD calculated as %CBD + 0.877\*%CBDA.

Total CBG calculated as %CBG + 0.878\*%CBGA.

Total CBDV calculated as %CBDV + 0.877\*CBDVA.

Table 6. 2021 Yield results - Hendersonville, NC

Variety	Floral Initiation Date	Harvest Date	Height (ft)	Width (ft)	Stem Base Diameter (in)	Fresh Weight (lb/plant)	Bucked Dry Weight <sup>a</sup> (lb/plant)
Bubbatonic	7/13 - 7/26 <sup>c</sup>	8/26	4.00 efg <sup>b</sup>	4.41	1.44 d	7.81	1.20
BaOx	8/9	9/30	3.53 gh	4.98	1.91 bc	9.91	1.35
Cherry Wine	8/9	9/30	3.96 efg	4.09	2.05 ab	10.59	1.20
Elektra	7/26	9/7	4.48 cdef	4.47	1.76 bcd	9.24	1.27
Forbidden V Seedless	7/26 - 8/9	9/15	5.37 a	5.06	1.66 bcd	6.84	0.93
Lifter	7/13 - 7/26	9/7	3.89 fg	3.97	1.43 d	6.89	1.00
Lifter Seedless	8/9	9/10	4.67 bcd	4.37	1.57 cd	8.53	1.15
Oregon Sweetgum	7/26	9/15	4.09 abc	3.73	1.38 d	6.17	0.89
Pine Walker Seedless	7/26 - 8/9	9/20	5.15 ab	4.61	1.73 bcd	8.91	0.92
Redwood	6/29 - 7/20	9/20	4.36 def	4.33	1.66 bcd	8.20	1.09
Sour Suver Haze Seedless	8/9	9/10	4.77 abcd	4.33	1.66 bcd	8.60	1.33
Sour Lifer Seedless	7/26	9/10	4.49 cdef	3.70	1.54 cd	6.89	0.93
Stem Cell CBG Seedless	8/9	9/15	4.14 defg	3.98	1.77 bcd	6.52	0.87
Suver Haze	7/26	9/7	4.58 bcde	4.38	1.71 bcd	8.97	0.98
Suver Haze Seedless	8/9	9/7	4.54 bcde	4.42	1.67 bcd	10.38	1.32
White CBG	6/24 – 7/8	8.26	3.07 h	4.35	1.62 bcd	7.56	1.09
White CBG Seedless	8/9	9/7	4.55 bcde	4.27	2.34 a	9.20	0.99
p-value	-	-	<b>&lt;0.0001</b>	0.1823	<b>&lt;0.0001</b>	0.3034	0.7675

Significant p-values ( $\alpha<0.05$ ) in bold.<sup>a</sup>Bucked floral and leaf material.<sup>b</sup>Means within a response followed the same letter are not significantly different ( $\alpha>0.05$ ).<sup>c</sup>Varieties with a range of dates indicates non-uniform flower initiation.

Table 7. 2021 Yield results - Kinston, NC

Variety	Floral Initiation Date	Harvest Date	Height (ft)	Width (ft)	Stem Base Diameter (in)	Fresh Weight (lb/plant)	Bucked Dry Weight <sup>a</sup> (lb/plant)
Bubbataonic	7/14	8/24	4.41 bcd <sup>b</sup>	4.27 ab	1.48 abc	5.98 bc	0.88 ab
BaOx	7/27	9/7	3.26 g	4.80 a	1.59 a	8.61 abc	1.31 ab
Cherry Wine	8/16	9/27	3.45 fg	4.86 a	1.24 bc	9.67 a	1.03 ab
Forbidden V Seedless	7/28 – 8/4 <sup>c</sup>	9/14	5.53 a	4.65 a	1.24 abc	9.93 a	1.37 ab
Lifter	7/21	8/24	3.82 defg	4.13 ab	1.39 abc	7.03 abc	1.16 ab
Lifter Seedless	7/27	9/7	4.55 bc	4.62 a	1.18 bc	8.55 abc	1.33 ab
Oregon Sweetgum	7/14	8/24	4.77 ab	3.42 b	1.51 abc	5.74 c	0.74 b
Pine Walker Seedless	7/28 – 8/4	9/15	4.27 bcde	4.31 ab	1.49 abc	7.98 abc	0.85 ab
Sour Suver Haze Seedless	7/27	9/7	4.75 ab	4.72 a	1.27 abc	9.49 ab	1.38 a
Sour Lifer Seedless	7/27	9/7	4.10 bcdef	4.36 ab	1.44 abc	8.72 abc	1.04 ab
Stem Cell CBG Seedless	7/21	8/31	3.62 efg	4.75 a	1.26 abc	7.81 abc	1.05 ab
Suver Haze	7/14	8/24	3.97 cdef	4.42 ab	1.33 abc	6.64 abc	1.06 ab
Suver Haze Seedless	7/27	9/7	4.23 bcde	4.73 a	1.14 bc	9.91 a	1.29 ab
White CBG	7/7 – 7/14	8/24	3.47 fg	4.05 ab	1.52 ab	5.84 c	0.89 ab
White CBG Seedless	7/27	9/7	4.13 bcdef	4.44 ab	1.12 c	8.23 abc	1.15 ab
p-value			<0.0001	0.0020	0.0005	0.0004	0.0073

Significant p-values ( $\alpha < 0.05$ ) in bold.

<sup>a</sup>Bucked floral and leaf material.

<sup>b</sup>Means within a response followed the same letter are not significantly different ( $\alpha > 0.05$ ).

<sup>c</sup>Varieties with a range of dates indicates non-uniform flower initiation.

Table 8. 2021 Yield results - Salisbury, NC.

Variety	Floral Initiation Date	Harvest Date	Height (ft)	Width (ft)	Stem Base Diameter (in)	Fresh Weight (lb/plant)	Bucked Dry Weight <sup>a</sup> (lb/plant)
Bubbataonic	7/13	8/25	4.49 ab <sup>b</sup>	3.86	1.19 ab	6.42	1.15
BaOx	7/26	9/6	3.14 d	4.24	0.95 ab	6.41	1.20
Cherry Wine	8/16	9/27	3.38 cd	4.22	1.01 ab	6.78	1.14
Forbidden V Seedless	7/20 - 8/2 <sup>c</sup>	9/13	4.75 a	4.24	1.00 ab	5.75	0.97
Lifter	7/20	8/25	3.79 bcd	3.69	1.05 ab	5.59	1.06
Lifter Seedless	8/2	9/13	4.34 ab	4.10	1.09 ab	6.30	1.02
Oregon Sweetgum	7/20	9/3	4.57 a	3.09	0.94 ab	4.29	0.83
Pine Walker Seedless	7/20 – 8/2	9/13	4.20 ab	3.91	0.93 b	5.11	0.84
Sour Suver Haze Seedless	7/26	9/6	4.54 a	4.48	1.30 a	8.99	1.52
Sour Lifer Seedless	7/26	9/6	4.18 ab	3.67	1.22 ab	7.06	1.18
Stem Cell CBG Seedless	7/26	9/6	3.34 cd	3.80	1.14 ab	5.51	0.93
Suver Haze	7/20	8/24	4.05 abc	4.05	1.15 ab	6.66	1.09
Suver Haze Seedless	7/26	9/6	4.23 ab	3.78	1.16 ab	6.37	1.04
White CBG	7/6 – 7/13	8/25	3.10 d	3.59	1.07 ab	4.50	0.98
White CBG Seedless	8/2	9/16	3.77 bcd	3.96	1.22 ab	7.98	1.24
p-value			<b>&lt;0.0001</b>	0.0689	<b>0.0130</b>	0.1062	0.3854

Significant p-values ( $\alpha<0.05$ ) in bold.

<sup>a</sup>Bucked floral and leaf material.

<sup>b</sup>Means within a response followed the same letter are not significantly different ( $\alpha>0.05$ ).

<sup>c</sup>Varieties with a range of dates indicates non-uniform flower initiation.

Table 9. 2021 Yield results- state average\*.

Variety	Height (ft)	Width (ft)	Stem Base Diameter (in)	Fresh Weight (lb/plant)	Bucked Dry Weight <sup>a</sup> (lb/plant)
Bubbataonic	4.30 cd <sup>b</sup>	4.18 abc	1.37	6.74 abc	1.08 abc
BaOx	3.31 hi	4.67 a	1.48	8.31 ab	1.29 ab
Cherry Wine	3.60 ghi	4.72 a	1.48	9.01 a	1.12 abc
Forbidden V Seedless	5.18 a	4.66 ab	1.31	7.22 abc	1.05 abc
Lifter	3.83 efg	3.93 bcd	1.29	6.51 abc	1.07 abc
Lifter Seedless	4.49 bcd	4.37 abc	1.28	7.79 abc	1.17 abc
Oregon Sweetgum	4.81 ab	3.42 d	1.28	5.40 c	0.82 c
Pine Walker Seedless	4.57 bcd	4.28 abc	1.37	7.27 abc	0.87 bc
Sour Suver Haze Seedless	4.69 bc	4.51 abc	1.41	9.02 a	1.41 a
Sour Lifer Seedless	4.27 cde	3.86 cd	1.40	7.43 abc	1.05 abc
Stem Cell CBG Seedless	3.70 fgh	4.18 abc	1.39	6.61 abc	0.95 bc
Suver Haze	4.20 de	4.29 abc	1.39	7.43 abc	1.05 abc
Suver Haze Seedless	4.33 cd	4.31 abc	1.40	9.08 a	1.22 abc
White CBG	3.21 i	4.00 abcd	1.40	5.97 bc	0.99 abc
White CBG Seedless	4.15 def	4.20 abc	1.62	8.51 ab	1.12 abc
p-value	<b>&lt;0.0001</b>	<b>&lt;0.0001</b>	0.0753	<b>&lt;0.0001</b>	<b>&lt;0.0010</b>

Significant p-values ( $\alpha < 0.05$ ) in bold.

\*All three locations were added and treated as a random effect.

<sup>a</sup>Bucked floral and leaf material.

<sup>b</sup>Means within a response followed the same letter are not significantly different ( $\alpha > 0.05$ ).