

# HEMP REPORT 2021



Nevada Department  
of Agriculture

# 2021 Hemp Report

## Division of Plant Health and Compliance



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### Introduction

The following report details the data collected by the Nevada Department of Agriculture (NDA) Hemp Program throughout the 2021 production year. The 2021 production year proved to be challenging for Nevada’s hemp growers as the hemp industry was recovering from a flooded market in 2019, the onset of COVID-19 in 2020, and impacts from COVID-19 leading to labor shortages in 2021. Additionally, hemp regulation in Nevada has undergone frequent changes since the [2014 Farm Bill](#) initiated the NDA hemp pilot program. In 2020, per the requirements of the USDA’s [Interim Final Rule](#) and subsequent [Final Hemp Rule](#) (7 C.F.R.990), the NDA submitted Nevada’s state hemp plan to the USDA on four different occasions to participate in discussion and revision. The USDA formally approved Nevada’s state hemp plan on May 28, 2021. A copy of the USDA approved Nevada state hemp plan can be located on the [USDA’s hemp website](#). To ensure Nevada’s regulations reflected the USDA approved state plan and requirements listed in the Final Hemp Rule, revisions to Nevada Administrative Code (NAC) 557 were adopted via [LCB file R011-21P](#). These regulation changes were formally adopted on Oct. 22, 2021. This report provides details on the specific regulation changes from [LCB file R011-21P](#) and how these changes were initiated in 2021.

### Methodology: Sampling

In 2021, the NDA hemp sampling method changed to accommodate the USDA required sampling and testing requirements listed in 7 C.F.R. 990. Nevada’s state hemp plan, approved by the USDA on May 28, 2021, changed the NDA sampling method in the following ways:

- **Extended harvest window:** The hemp harvest window extended from 15 days post NDA inspection to 30 days post NDA inspection. All hemp crops were required to be harvested within 30 days of the sample collection date. Growers were responsible for notifying the NDA of the need for inspection with ample time for inspection scheduling 30 days prior to harvest.
- **Registrant/permitted staff presence required:** Per 7 C.F.R. 990, the registrant or a permitted staff member were now required to be present during the NDA hemp sampling inspection.
- **Sample clipping frequency:** Sample clipping frequency was determined by production size for hemp lots greater than 10 acres. In 2019 and 2020, 10 sample clippings were collected per variety for each lot, unless the variety consisted of less than 50 plants. If less than 50 plants were present, the inspector would collect clippings from only 20% of the variety. In 2021, this same clipping frequency was applied unless the hemp lot was greater than 10 acres. Lots greater than 10 acres were subject to clipping frequency as recommended by the [USDA Sampling Guidelines](#).
- **Sample clipping placement and size:** Samples were collected randomly from throughout the plant and were 5 to 8 inches from the “main stem” per 7 C.F.R. 990. Samples were no longer collected exclusively from the apex of the plant and the clipping size changed from 6 inches to the range of 5 to 8 inches.

- **USDA rejected sample separation:** Samples were no longer separated to create a 1:1 ratio of stem and leaf material to bud material as this method was rejected by the USDA. All material collected during sampling was analyzed.

Per [NRS 557.270](#), all hemp crops were subject to sampling prior to harvest. Crops harvested prior to NDA sampling were subject to an automatic testing failure and were detained, seized or embargoed by the Department.

### **Methodology: Testing methods**

Per NRS 557.270, hemp samples must be analyzed to determine whether tetrahydrocannabinol (THC) concentrations exceed the 0.3% THC concentrations established by federal law. The 2018 Federal Farm Bill defines hemp in the following way: “(1) HEMP. — The term “hemp” means the plant *Cannabis sativa L.* and any part of that plant, including the seeds thereof and all derivatives, extracts, cannabinoids, isomers, acids, salts, and salts of isomers, whether growing or not, with a delta-9 tetrahydrocannabinol concentration of not more than 0.3 percent on a dry weight basis.”

Federal law requires a post decarboxylation or similarly reliable method of testing; therefore, the NDA utilized analytical testing of samples for delta-9 THC concentration levels through post-decarboxylation or other similarly reliable methods.

The NDA hemp compliance testing in 2021 was conducted using High Performance Liquid Chromatography (HPLC) to detect total potential THC of the hemp crops. HPLC is a USDA approved testing method, as it meets the requirements of the [Agriculture Improvement Act of 2018](#) to account for the conversion of THC-A to THC. All hemp samples collected in 2021 were compliant if containing total potential THC less than 0.36%.

A Report of Analysis (ROA) clearly identifying the testing results was provided to the associated grower for each variety analyzed. Any hemp crops that tested above 0.36% total potential THC were immediately retested by the NDA Chemistry Laboratory to confirm the results. The failed sample was reported to NDA program staff for coordination with the grower to schedule a re-sample of the hemp variety, if the grower desired a re-sample, and the crop had not been harvested (per [Nevada Senate Bill 209](#)). Upon a second failed sample analysis, crops were scheduled for disposal or remediation.

### **Data sources**

Data for this report was obtained through 2021 hemp applications, inspections, chemistry analysis reports, and certificate holder reports such as Hemp Inspection Request/Harvest Reports.

### **Data analysis: Quantity of hemp samples per variety**

The NDA recorded 78 different hemp varieties grown in Nevada in 2021, which is a decrease from the 122 varieties grown in Nevada in 2020 and the 144 varieties grown in Nevada in 2019. The varieties produced in 2021 were identified and reported by Nevada’s hemp growers; therefore, variety names may differ from hemp varieties produced in other states. The following chart(s) demonstrate the different hemp varieties and the number of samples collected for each variety.

**Figure 1: Number of samples per variety**

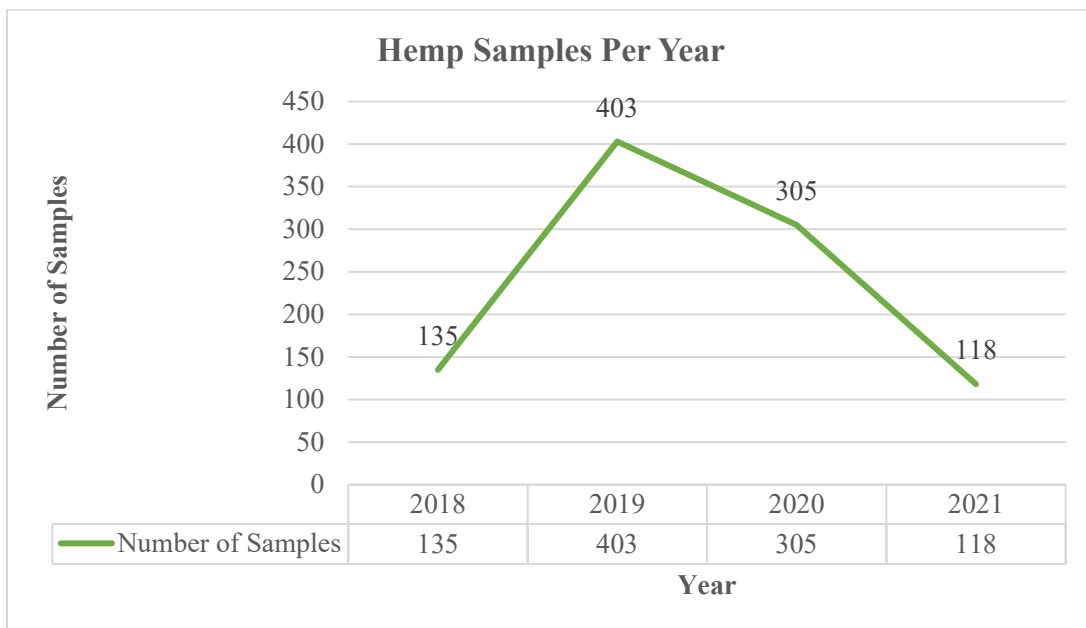
Variety	Samples per variety
Abacus	2
ACDC	2
ALTAIR	1
Autoflower	1
Autoflower Alpen Gleaux	1
Berry Blossom	4
Bialobrezekie	2
Black Label CBG - Majestic 3	1
Blue Hawaiian	2
BubbaTonic	2
Carson Cherry	1
CBG	2
Cherry Blossom	3
Cherry Cocktail	1
Cherry Wine	4
Cinderella Story	1
Dixie Red	1
Eletta Campagna	1
Fascination	1
Fedora 17	1
Felina 32	1
First Frost	1
Flower Drama	1
Gonzo	1
Grape Indica	1
Grape Soda	1
Green Dragon	1
Greenwave	1
Hawaiian	1
Hawaiian Haze	2
Henola	1
High Lonesome Gold	1
HLIANA	1
Homestead Haze	2
Hot Blonde	2
Hula Girl	1
HW	4
Joey	1
La Crème	1

Variety	Samples per variety
Lifter	1
Lifter - Majestic 1	1
Lifter x Suver	1
Magic Bullet	3
Merlot	1
Mountain Mango	1
Orange Crush	1
Pheno Hunt	1
Pink Panther	1
Purple Lift	1
Purple Mesa	3
Queen Dream	1
Quick Spectrum	1
Red Bordeaux	3
Rogue Seed/IgWeed	1
Santa Clara Haze	1
Shaolin	1
Skip Jack	2
Sour Apple	1
Sour Kush	2
Sour Space Candy	2
Special Sauce	1
Special Sauce CBD - Majestic 2	1
Spectrum	1
Stormy Daniels	4
Supreme	1
Suver Haze	1
Sweetened	1
T1-Estelle	3
Tahoe	1
Tahoe Kush	2
T-Cherry	1
The Wife	2
Tropical Haze	1
Trump	4
Tsunami	1
White CBG	2
Wife	1
Zeppelin	1
<b>78 total varieties grown</b>	<b>118</b>

### Data analysis: Hemp sample results

The quantity of hemp samples collected in Nevada annually has demonstrated a declining trend since 2019. The NDA collected a total of 118 hemp samples in 2021, a 61% decrease from the 305 hemp samples collected in 2020. Furthermore, the 118 hemp samples of 2021 reflect a 70.7% decrease from the 403 hemp samples collected in 2019. NDA inspectors reported complaints from Nevada’s hemp growers. Many hemp growers indicated general difficulty acquiring the necessary labor to manage their fields, challenges recovering financially from the impacts of COVID-19, and difficulty selling crop material from previous years.

Figure 2: Hemp samples per year



Of the 118 hemp samples collected in 2021, 24 samples tested above the THC compliance standard. The non-compliant samples equated to a crop failure rate of 20% of Nevada hemp crops in 2021, which is an increased failure rate from the 7.9% failure rate recorded for Nevada’s 2020 hemp crops. Figure 2 reflects samples collected by the NDA and the associated total THC results of that sample. Samples are in chronological order based on the date of the inspection.

**Figure 3: 2021 hemp inspections**

Sample statistics		Inspection statistics	
Total samples collected	118	Total inspection hours	25.75
Non-compliant samples	24	Total driving hours	148.49
Non-compliant sample rate	20%	Total miles traveled	8,825.40
Negligent samples (>1.0% THC)	8		
Negligent sample rate per non-compliant samples	33%		

Date sample taken	Variety	Potential total THC
1/7/2021	Lifter - Majestic 1	0.343
1/7/2021	Special Sauce CBD - Majestic 2	0.244
1/7/2021	Black Label CBG - Majestic 3	0.181
3/22/2021	Gonzo	0.141
3/22/2021	Pink Panther	0.172
3/22/2021	Shaolin	0.131
6/21/2021	Tsunami	0.186
7/1/2021	Magic Bullet	0.155
7/1/2021	Wife	0.223
7/8/2021	Abacus	0.057
7/8/2021	Trump	0.295
7/7/2021	T-Cherry	0.099
7/7/2021	Abacus	0.165
8/11/2021	Bialobrezekie	0.018
8/11/2021	Joey	0.068
8/9/2021	Autoflower	0.139
8/9/2021	La Crème	0.013
8/9/2021	First Frost	0.035
8/9/2021	Santa Clara Haze	0.095
8/11/2021	Sour Space Candy	0.123
8/11/2021	Lifter	0.12
8/11/2021	White CBG	0.02
8/18/2021	Henola	0.042
8/18/2021	Bialobrzekie	0.029
8/25/2021	HW	0.664
8/25/2021	HW	0.112
9/8/2021	HW	0.236
9/8/2021	HW	0.21
9/3/2021	Trump	0.205
9/3/2021	Autoflower Alpen Gleaux	0.299
9/3/2021	Purple Mesa	0.422
9/3/2021	Skip Jack	0.22
9/9/2021	Cherry Blossom #4	0.098

9/9/2021	Dixie Red	0.201
9/9/2021	Flower Drama	0.202
9/9/2021	Fascination	0.207
9/14/2021	Quick Spectrum	0.326
9/16/2021	Magic Bullet	0.183
9/16/2021	The Wife	0.14
9/16/2021	Tahoe Kush	0.071
9/16/2021	Magic Bullet	0.094
9/15/2021	T1-Estelle	0.18
9/15/2021	T1-Estelle	0.183
9/15/2021	T1-Estelle	0.16
9/21/2021	Special Sauce	0.361
9/21/2021	Hawaiian	0.402
9/21/2021	CBG	0.356
9/22/2021	Rogue Seed/IgWeed	0.158
9/22/2021	Cherry Blossom	0.107
9/22/2021	Grape Indica	0.096
9/22/2021	Trump	0.441
9/21/2021	Stormy Daniels	0.185
9/21/2021	Stormy Daniels	0.417
9/21/2021	BubbaTonic	0.251
9/21/2021	Berry Blossom	0.101
9/21/2021	Sour Kush	0.166
9/21/2021	Berry Blossom	0.177
9/21/2021	Sour Kush	0.18
9/21/2021	BubbaTonic	0.147
9/21/2021	Lifter x Suver	0.153
9/21/2021	Homestead Haze	0.474
9/21/2021	Carson Cherry	0.301
9/21/2021	Greenwave	0.172
9/21/2021	CBG	0.129
9/21/2021	Cherry Wine	0.879
9/21/2021	ACDC	0.069
9/21/2021	Blue Hawaiian	0.084
9/21/2021	Hot Blonde	0.245
9/21/2021	Eletta Campagna	0.057
9/21/2021	Felina 32	0.048
9/21/2021	Fedora 17	0.033
9/28/2021	Tahoe Kush	0.095
9/28/2021	Cherry Wine	0.12
9/28/2021	Hawaiian Haze	0.094
9/28/2021	Pheno Hunt	0.188
9/28/2021	Cherry Cocktail	0.083

9/28/2021	The Wife	0.188
9/27/2021	Skip Jack	0.306
9/27/2021	Purple Mesa	0.212
9/27/2021	Purple Mesa	0.567
9/30/2021	Red Bordeaux	0.093
9/30/2021	ALTAIR	0.025
9/30/2021	HLIANA	0.015
10/5/2021	White CBG	0.126
9/30/2021	High Lonesome Gold	0.202
10/5/2021	Homestead Haze	0.713
10/5/2021	Berry Blossom	0.277
10/5/2021	Red Bordeaux	0.292
10/5/2021	Tahoe	0.353
10/6/2021	Trump	0.58
10/7/2021	Queen Dream	0.298
10/7/2021	Cinderella Story	0.455
10/7/2021	Cherry Blossom	0.347
10/7/2021	Stormy Daniels	1.225
10/1/2021	Stormy Daniels	0.499
10/13/2021	Red Bordeaux	0.34
10/13/2021	Berry Blossom	0.421
10/22/2021	Mountain Mango	0.304
11/2/2021	Blue Hawaiian	0.332
11/2/2021	Hot Blonde	1.532
11/2/2021	ACDC	0.317
11/2/2021	Cherry Wine	3.015
11/8/2021	Hawaiian Haze	0.138
11/8/2021	Sour Space Candy	0.298
11/18/2021	Supreme	1.832
11/18/2021	Zeppelin	1.437
11/18/2021	Hula Girl	2.174
11/18/2021	Tropical Haze	0.206
11/18/2021	Orange Crush	0.804
11/18/2021	Sweetened	0.72
11/18/2021	Green Dragon	0.729
11/18/2021	Purple Lift	1.447
11/18/2021	Spectrum	0.146
11/18/2021	Sour Apple	1.008
11/23/2021	Grape Soda	0.132
12/7/2021	Suver Haze	0.165
12/9/2021	Cherry Wine	0.2
12/9/2021	Merlot	0.246



### Data analysis: 2021 non-compliant and negligent hemp varieties

Figure 4 reflects Nevada’s different hemp varieties in 2021 that produced samples exceeding the compliance standard of 0.36% total potential THC, the number of samples collected for each variety, and the number of samples that were compliant and non-compliant of each variety. Samples exceeding 0.36% total potential THC are considered non-compliant. Samples exceeding 1.0% total potential THC are considered negligent violations.

**Figure 4: 2021 hemp varieties with non-compliant samples**

Varieties with non-compliant samples	Total samples collected per variety	Total compliant samples per variety	Total non-compliant samples per variety	Total negligent samples per variety
HW	4	3	1	0
Berry Blossom	4	3	1	0
Cherry Wine	4	2	2	1
Cinderella Story	1	0	1	0
Green Dragon	1	0	1	0
Hawaiian	1	0	1	0
Homestead Haze	2	0	2	0
Hot Blonde	2	1	1	1
Hula Girl	1	0	1	1
Orange Crush	1	0	1	0
Purple Lift	1	0	1	1
Purple Mesa	3	1	2	0
Sour Apple	1	0	1	1
Stormy Daniels	4	1	3	1
Supreme	1	0	1	1
Sweetened	1	0	1	0
Trump	4	2	2	0
Zeppelin	1	0	1	1

The USDA Final Rule required state and tribal hemp plans to adopt criteria for negligent violations. Nevada’s USDA-approved state hemp plan and the adopted changes to [NAC 557](#) established the definition of a negligent violation to reflect the definition listed in [7 C.F.R. 990](#). Within [7 C.F.R. 990](#) the USDA specifies “that hemp producers do not commit a negligent violation if they produce plants that exceed the acceptable hemp THC level and use reasonable efforts to grow hemp and the plant does not have a THC concentration of more than 1.0 percent on a dry weight basis.” Crops with confirmed total potential THC concentrations greater than 1.0% incurred a negligent violation, which requires a minimum of two years reporting to the NDA. The year 2021 was the first hemp production year that negligent violations were imposed. Of the 24 non-compliant hemp samples a total of 8 samples exceeded 1.0% total potential THC and warranted the issuance of a negligent violation. The rate of negligent violations was 33% of all non-compliant samples.

Listed in the chart below, varieties Cherry Wine, Hot Blonde, Hula Girl, Purple Lift, Sour Apple, Stormy Daniels, Supreme, and Zeppelin had one sample that exceeded 1.0% total potential THC.

**Figure 5: 2021 hemp varieties with negligent samples**

Negligent variety	Total potential THC
Stormy Daniels	1.225
Hot Blonde	1.532
Cherry Wine	3.015
Supreme	1.832
Zeppelin	1.437
Hula Girl	2.174
Purple Lift	1.447
Sour Apple	1.008

**Closing Remarks**

The content of this report is informational to assist producers with making informed decisions for their operation. NDA data may be useful when growers are making hemp variety selections and scheduling sampling inspections. Throughout each production year, the NDA collects this data to provide general information on hemp production in Nevada. An annual report is released each year to summarize data from the previous production year. Questions on the Nevada hemp program or this report can be directed to any [NDA hemp program staff](#).