



Updated March 25, 2021 – Effective after USDA Approval on May 25, 2021

The Missouri Department of Agriculture anticipates continued regulatory changes in the coming years as state and federal rules are revised. Some of these changes may be reflected in procedures outlined in this document.

PRE-HARVEST COMPLIANCE SAMPLING

*All industrial hemp lots must be sampled within **thirty (30) days prior to harvest** by a Certified Industrial Hemp Sampler. All compliance samples must follow this Sampling Protocol.*

I. PRE-HARVEST SAMPLING EQUIPMENT & SUPPLIES

Provided by the Certified Industrial Hemp Sampler unless otherwise agreed upon

- Garden pruners, shears, or similar tool (cleaned before each sample)
- Disposable gloves (new pair per sample)
- New, unused collection bag(s)
- Security tape
- Permanent marker or pen
- Chain of custody form(s)
- GPS unit
- Ladder or similar tool, as needed

II. PRE-HARVEST SAMPLING PROCEDURES

The registered producer or an authorized representative should accompany the Certified Sampler throughout the sampling process, including through Step 5.

1. *Lot evaluation*; the Certified Sampler shall:
 - A. Review the growing area; identify boundaries of the lot and evaluate crop performance to ensure relative homogeneity within the lot.
 - B. Record GPS coordinates of the lot on the Chain of Custody form.

2. *Plant and cutting selection*; the Certified Sampler shall:
 - A. Based on lot size, identify the **required minimum quantity** from Table 1 at the end of this section. The quantity refers to both the minimum quantity *of cuttings*, and the minimum quantity *of plants* sampled. *One cutting is collected from each plant.*
 - i. The quantity collected may be more than the listed minimum, but not less. There is no maximum quantity, but laboratory requirements and storage should be considered.
 - ii. For lots that are fewer than four plants, one cutting from each plant is sufficient.
 - B. Select plants across the entire area that create an **overall pattern of “W” or “Z”**;
 - i. Avoid plants within ten (10) feet of borders, when possible, and plants that do not represent the homogeneity of the lot, such as extreme pest damage or plants located in standing water.
 - C. At each selected plant, choose **any branch (including the central stem) that is in the top one-third (1/3) of the above-ground plant material.**



- D. From that branch, take a cutting of the apical **five to eight inches** (12.7 – 20.3 centimeters). This apical cutting may also be referred to as a flowering top, terminal bud, central cola, or other equivalent terms.
 - i. Cuttings shall be placed directly into the sample collection bag and not be manipulated.
 - ii. Cuttings from separate lots shall not be commingled. Precautions, such as pre-labeling collection bags, must be taken to avoid accidental commingling if sampling for multiple lots in one visit.

- 3. *Optional duplicate sample*; if requested by the Registered Producer, the Certified Sampler shall create a duplicate sample. See *Section IV* for additional details.

- 4. *Packaging*; The Certified Sampler shall **seal** all collection bags with tamper-evident tape.
 - A. Both the Certified Sampler and the Registered Producer or the authorized representative shall **sign or initial over the edge of the tape** on each bag for additional tamper evidence.
 - B. This bag must be shipped or delivered as-is to the laboratory; additional packaging materials may be added as needed.

- 5. *Records*; The Certified Sampler shall complete all required paperwork, including the Sampling Log and Chain of Custody form(s).
 - A. Attach a complete *Chain of Custody* form to each bag. Additional copies may be made for records retention, if desired.
 - B. Identify samples with the following nomenclature, and include on the Chain of Custody form:
 - i. Registration ID – Lot ID – Month, Day & Year (MMDDYY) of Sample Collection
 Ex: 29_R19130 - A3 – 121521

Table 1. Minimum Quantity Table.

Size of Lot	Minimum Quantity	Size of Lot	Minimum Quantity
<1000 sq. ft.	4	10 - 14.99 acres	35
<0.99 acre	6	15 - 19.99 acres	40
1 - 1.99 acres	9	20 - 24.99 acres	45
2 - 2.99 acres	12	25 - 29.99 acres	50
3 - 3.99 acres	15	30 - 39.99 acres	55
4 - 4.99 acres	18	40 - 49.99 acres	60
5 - 5.99 acres	21	50 - 59.99 acres	65
6 - 6.99 acres	24	60 - 69.99 acres	70
7 - 7.99 acres	27	70 - 74.99 acres	75
8 - 8.99 acres	30	75+ acres	1 per acre
9 - 9.99 acres	33	Ex: 89 acres = 89 cuttings	



III. SHIPPING/DELIVERY PROCEDURES

The registered producer may authorize another individual, including the Certified Sampler, to ship or deliver the sample(s) to the laboratory. However, it is the *responsibility of the producer* to ensure these requirements are met.

1. Samples must arrive at the testing laboratory **within four (4) calendar days of sample collection**, regardless of holidays and weekends. However, faster delivery is recommended to retain sample quality, and may be required by the testing laboratory.
 - A. This four-day arrival window includes any time lapsed from collection to arrival at the chosen carrier. For example, if it takes three days for the producer to bring it to the local post office, they must ship it overnight. Or, if a sampler collects a sample on Monday, they can drive it to the laboratory on Thursday.
 - B. Shipping method chosen must be *guaranteed* by the carrier to arrive within the allotted four-day window. For example, a shipping method that shows 2 – 7 day delivery *may* arrive in time, but is not guaranteed to.
2. Samples not immediately shipped or delivered must be kept in a cool, dry location to maintain quality.
3. All samples in transit, including those shipped by a third-party, must include:
 - A. Copy of Producer Registration;
 - B. Chain of Custody form attached to each sample bag;
 - C. Additional information or forms required by the laboratory, if applicable.
4. All parties should review business policies prior to selecting a carrier for shipping, if applicable.
 - A. [USPS](https://about.usps.com/postal-bulletin/2019/pb22521/html/updt_002.htm) https://about.usps.com/postal-bulletin/2019/pb22521/html/updt_002.htm
 - B. [UPS](https://www.ups.com/us/en/help-center/packaging-and-supplies/special-care-shipments/hemp.page) <https://www.ups.com/us/en/help-center/packaging-and-supplies/special-care-shipments/hemp.page>
 - C. [FedEx](#) (prohibits hemp shipments as of 10/1/19)

IV. DUPLICATE SAMPLES

1. If requested by the Registered Producer, the Certified Sampler shall create a duplicate sample by:
 - A. Repeating the sample collection as described in *Section II*; or
 - B. Dividing the cuttings already collected into two even portions; cuttings must remain intact, and may not be manipulated in any way.
 - i. For example, a 6.3-acre lot requires a minimum of 24 cuttings. After dividing, the primary sample that will be sent to the laboratory will have 12 cuttings, and the duplicate sample will have the other 12 cuttings.
2. If a duplicate sample was collected, immediately place the sealed and signed bag(s) containing the duplicate sample into climate-controlled storage that will prolong the quality of the sample.
 - A. *Only the Registered Producer or a key participant of the registration may retain the duplicate sample.*
 - B. The Chain of Custody form must be updated to reflect who retains the duplicate sample.
3. This duplicate sample may be utilized if the first sample is deemed unusable by the laboratory or is lost in transit, but may not be used for retesting or remediation testing purposes.
4. If the lot is ordered for destruction, the duplicate sample must be destroyed with the rest of the lot. If the lot is remediated, the duplicate sample must be remediated with the rest of the lot.



REMEDIATION COMPLIANCE SAMPLING

V. REMEDIATION SAMPLING EQUIPMENT & SUPPLIES

Provided by the Certified Industrial Hemp Sampler unless otherwise agreed upon

- Long-handled scoop, corer, probe, or similar tool, where applicable (cleaned before and after each sample)
- Garden pruners, shears, or similar tool, where applicable (cleaned before and after each sample)
- Disposable gloves (new pair per sample)
- New, unused collection bag(s)
- Security tape
- Permanent marker or pen
- Chain of custody form(s)
- GPS unit

VI. REMEDIATION SAMPLING

The registered producer or an authorized representative should accompany the Certified Sampler throughout the remediation sampling process. **Remediation sampling must occur within sixty (60) calendar days after the pre-harvest sample was collected.**

1. *Evaluation*; the Certified Sampler shall:

- A. Identify the entirety of harvested materials for the lot.
 - i. If applicable, ensure all containment devices (totes, bales, tubs, and similar) are accounted for and accessible. If containment devices are stacked, tightly packaged, or otherwise not easily or equally accessible, Registered Producers or their representatives must rearrange them prior to sampling.
- B. Record GPS coordinates of the lot (harvested materials) on the Chain of Custody form.

2. *Sample collection*;

- A. For material that is being remediated by homogenization:
 - i. The Certified Sampler shall collect plant material from a **minimum of 20%** of containers (totes, bales, tubs, and similar).
 - a. If there are fewer than ten containers, at least two containers must be collected from to form a composite sample.
 - b. The containers should be selected in a randomized manner.
 - c. If possible, avoid containers that do not represent the homogeneity of the lot, such as those stored by a heater or exterior door, with rodent holes chewed through the bag, etc.
 - ii. At each selected container, utilize the scoop, probe, or similar tool to collect a portion of the homogenized material. Every effort must be made to collect a representative portion of the container selected, such as to provide equal opportunity to collect material from the center, sides, top, or bottom of the container – no matter the density of the material.
 - iii. The total amount collected to form the composite sample from all selected containers should, at a minimum, be **750 mL, or approximately three (3) cups**. More may be collected if desired or required by the laboratory.
- B. For harvested material that is being remediated by destroying the floral material, *and* the remaining non-floral material has *remained in the field*, the Certified Sampler shall:
 - i. Collect a minimum of **six (6) cuttings** from lots that are **less than 10 acres**, and a minimum of twelve (12) cuttings from lots that are greater than 10 acres.



- a. Select plant material across the entire area that creates an overall pattern of “W” or “Z”;
 - b. Avoid plant material within ten (10) feet of borders, when possible, and plants that do not represent the homogeneity of the lot, such as extreme pest damage or areas of standing water.
 - ii. At each selected plant or stalk, take a cutting of **five to eight inches** (12.7 – 20.3 centimeters). Where identifiable, utilize the apical end of the stalk.
 - a. Cuttings shall be placed directly into the sample collection bag and not be manipulated.
 - b. Cuttings from separate lots shall not be commingled. Precautions, such as pre-labeling collection bags, must be taken to avoid accidental commingling if sampling for multiple lots in one visit.
 - C. For harvested material that is being remediated by destroying the floral material, and the remaining non-floral is *not in the field*, the Certified Sampler shall choose either of the sampling methods described in 2A or 2B that is most similar to the given storage arrangement (in totes, baled, or loosely piled or hung), and sample as similarly as possible.
3. *Packaging*; The Certified Sampler shall **seal** all collection bags with tamper-evident tape.
- A. Both the Certified Sampler and the Registered Producer or the authorized representative shall **sign or initial over the edge of the tape** on each bag for additional tamper evidence.
 - B. This bag must be shipped or delivered as-is to the laboratory; additional packaging materials may be added as needed.
4. *Records*; The Certified Sampler shall complete all required paperwork, including the Sampling Log and Chain of Custody form(s).
- A. Attach a complete *Chain of Custody* form to each bag. Additional copies may be made for records retention, if desired.
 - B. Identify samples with the following nomenclature:
 - i. Registration ID – Lot ID – Month, Day & Year (MMDDYY) of Sample Collection
Ex: 29_R19130 - A3 – 122921

Please contact program staff at hempprogram@mda.mo.gov or (573) 522-0351 for questions regarding this document.

Any reporting submissions should be directed to reporting.hemp@mda.mo.gov.