



Cover Crop Quick Guide

Biomass Sample Collection

To determine aboveground biomass, measure both fresh weight and the sampled area.

- Collect at least four representative samples per acre.
- Cut all aboveground biomass 1 inch above the soil surface.
- Weigh the combined samples.
- Record the total fresh weight (lbs) and the total sampled area (ft²).
- Mix samples thoroughly and place one 1-gallon subsample into a paper bag for NCDA&CS Waste Analysis Lab submission.
- Do not submit more than 1 gallon and do not use plastic bags.

Weighing Tip

An easy method for weighing biomass in the field is to use a tarp, S hooks, and a luggage scale.

Example:

1. A 1 ft × 1 ft frame is used to cut 8 samples with a combined fresh weight of 5.4 lb. Total sampled area = 8 ft².

Biomass density is calculated as:

$$\frac{\text{Biomass, lb}}{\text{ft}^2} = \frac{5.4 \text{ lb}}{8 \text{ ft}^2} = \mathbf{0.68 \text{ lb/ft}^2}$$



2. A 1-gal subsample is submitted to the lab using the [NCDA&CS Waste/Compost Sample Submission Form](#) and waste code **NCC**.

Using Different Frame Sizes and Shapes

Example for a Round Frame:

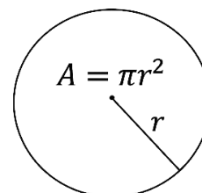
Radius (r) of frame = 1.5 ft

Steps:

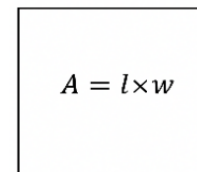
1. Calculate r²:
 $r^2 = 1.5 \times 1.5 = 2.25$
2. Multiply by π:
 $A = 3.14 \times 2.25$

Answer:

$$A = 7.07 \text{ ft}^2$$



Area (A) of circle



Area (A) of a square or rectangle

Cover Crop Nutrient Calculation

The NCDA&CS Waste Report shows that the biomass contains **8.61 lb N** per ton:

Estimate of Nutrients Available for First Year (lb/ton)										
N	P ₂ O ₅	K ₂ O	Ca	Mg	S	Fe	Mn	Zn	Cu	B
8.61	3.05	15.7	0.99	0.72	0.82	0.17	0.02	0.02	0.01	0.00

To calculate nitrogen in the cover crop biomass per acre, multiply:

Lab N value x Biomass density x Conversion factor (22)

Example:

$$\frac{8.61 \text{ lb N}}{\text{ton biomass}} \times \frac{0.68 \text{ lb biomass}}{\text{ft}^2} \times 22 = 129 \text{ lb N/acre}$$

Why 22?

$$\frac{43,560 \text{ ft}^2}{\text{acre}} * \frac{1 \text{ ton}}{2000 \text{ lb}} = 21.8$$

Key Points

- Ensure samples represent field variability, especially in mixed stands.
- Smaller frames require more samples; larger frames require fewer.
- Determine total cover crop fresh weight in the field before lab submission.
- Submit samples with waste code **NCC**.
- Send sample to the lab as soon as possible to prevent decay. Do not submit in plastic bags.
- Do not allow the subsample to dry. The lab measures fresh and dry weight of the subsample to calculate dry matter %. This value is critical in calculating the nutrients in lb/ton.
- The “Estimate of Available Nutrients” section reports total nutrients. Actual availability is variable and depends on incorporation method, crop species, and age of crop at incorporation.
- Use lb/ton values from the waste report for nutrient calculations (not mg/kg dry-weight values).

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