Leaf Tissue Sampling for Floral Hemp

Monitor in-season fertility by testing leaf samples for nutrient analysis

June 2020

Foliar nutrient analysis is an excellent tool to monitor in-season fertility and to troubleshoot plant growth problems (such as identifying a specific nutrient imbalance or ruling out fertility as the source of the problem). It is **KEY** to collect a representative sample of the most recently matured leaves (MRML) at the correct growth stage to compare with survey ranges that correspond to nutrient concentrations found within MRMLs. If the incorrect leaf is sampled, comparison of analytical results to the survey ranges has little to no meaning and can result in both incorrect interpretations and poor nutrient application recommendations.

A representative hemp sample consists of 20-30 MRMLs (1 leaf per plant) collected during the vegetative growth stage from plants with similar appearance and growing environment. The MRML is the 3rd to 5th leaf from the growing point (**Figure 1**). If there is a good area and a bad area, collect two separate plant samples and label the samples "GOOD" and "BAD"; also collect companion soil and nematode samples. Place plant samples in a paper bag or envelope, complete the sample submission form, and send to the NCDA Agronomic Division Plant Analysis Lab. When results are completed, compare nutrients to the survey ranges in **Table 1**. These survey ranges are based on ranges published in Bryson & Mills with modifications specific to NC agriculture based on 2019 NCSU/NCDA floral hemp research and 2019 survey data.

The plant sample submission form, sample fees, and address can be found at:
http://www.ncagr.gov/agronomi/documents/PlantTissueSampleForm2017.pdf

Figure 1. The most recently mature leaf for hemp is the 3rd to 5th leaf from the growing point. Collect 20-30 leaves for each sample from plants with similar appearance and growing environment.

Table 1. Floral hemp leaf nutrient survey ranges for 2020 season in North Carolina.

Nutrient	Units	Early Vegetative Growth	Late Vegetative Growth
Nitrogen (N)	%	3.5–6.0	2.0–4.0
Phosphorus (P)	%	0.25–0.5	0.2–0.4
Potassium (K)	%	2.0–3.5	1.5–2.5
Calcium (Ca)	%	1.0–4.4	1.0–4.4
Magnesium (Mg)	%	0.4–1.0	0.4–1.0
Sulfur (S)	%	0.2–0.5	0.2–0.5
Iron (Fe)	ppm	50–150	50–150
Manganese (Mn)	ppm	40–150	40–150
Zinc (Zn)	ppm	24–70	24–70
Copper (Cu)	ppm	5–15	5–15
Boron (B)	ppm	25–100	25–100

For further assistance, contact the Regional Agronomist that serves your county (https://www.ncagr.gov/agronomi/documents/RAMAP.pdf) or The NCDA&CS Agronomic Division at 919-733-2655.

Michelle McGinnis, PhD, Agronomic Field Services Section Chief, NC Dept of Agriculture & Consumer Services
Reviewed by David Suchoff, PhD, Alternative Crops Extension Specialist, NC State University

got to be NC AGRONOMY