MyFloraDNA

Pathogen Shield & GrowSight™ 360

SAMPLE COLLECTION

STANDARD OPERATING PROCEDURE

Version 1.0

Effective April 2026

Prepared by MyFloraDNA Inc.

DOCUMENT INFORMATION

Document Title	GrowSight™ 360 — Sample Collection Standard Operating Procedure
Version	1.0
Effective Date	April 2026
Prepared By	MyFloraDNA Inc.
Applies To	Pathogen Shield · Nutritional Tissue Analysis
Intended User	Growers, facility managers, and cultivation staff

⚠ **WARNING ·** Read this document in full before collecting samples. Improper collection may compromise results.

Overview

This Standard Operating Procedure (SOP) describes how to correctly collect plant tissue samples for submission to MyFloraDNA Inc. for two types of analysis: genomic pathogen detection and nutritional tissue analysis. Following this protocol precisely ensures sample integrity, prevents cross-contamination between plants, and guarantees the accuracy of your results.

MyFloraDNA provides all required collection materials in your sampling kit. Do not substitute with other containers or tubes, as the materials provided are pre-treated and validated for our laboratory protocols.

Analysis Type	Sample Material	Container	Quantity
Pathogen Detection	Leaf fragments + root tip	Eppendorf tube (2 mL)	5 leaf pieces + small root tip per tube
Nutritional Analysis	Whole leaves	Paper Bag	20 whole leaves per tube

SECTION 1

Before You Start — Materials & Preparation

1.1 What MyFloraDNA Provides

- **Eppendorf tubes (2 mL)** — labeled, one per plant — for pathogen detection samples
- **Paper Bags** — labeled, one per plant — for nutritional analysis samples
- **Pre-printed sample ID labels**
- **Submission form and shipping instructions**

1.2 What You Need to Provide

- **Sterilized scissors, scalpel, or blade** for leaf/root collection
- **Disposable gloves** (nitrile recommended)
- **70% isopropyl alcohol** or **10% bleach solution** for decontamination
- **Paper towels or sterile wipes**

1.3 Critical Decontamination Rules

Cross-contamination between plants is the most common cause of unreliable results. Pathogen DNA and fungal spores can transfer from an infected plant to a healthy plant via tools, gloves, or hands in a matter of seconds. Follow these rules strictly:

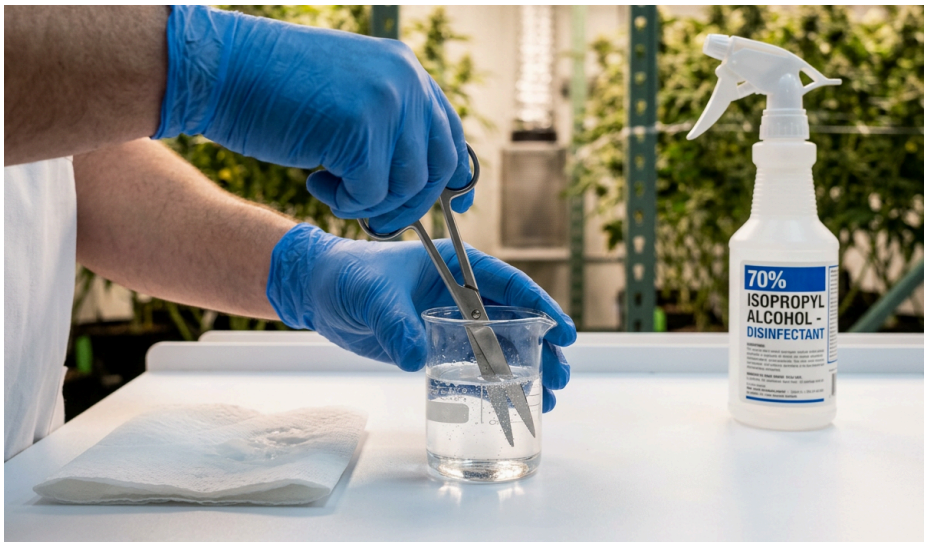

Figure: *Tool decontamination between plants — 30-second alcohol contact, wipe dry.*

WARNING · Decontaminate all cutting tools (scissors, scalpels, blades) between each plant using 70% isopropyl alcohol or 10% bleach solution. Allow contact time of **at least 30 seconds**, then wipe dry before the next cut.

WARNING · Change gloves between each plant, or decontaminate gloved hands with 70% isopropyl alcohol between samples. **Never touch the inside of a tube or the tube cap** with bare or contaminated hands.

PRO TIP · *Prepare a small container of alcohol or bleach solution before you start. Dip tools, swirl for 30 seconds, wipe with a clean paper towel, and proceed to the next plant.*

SECTION 2

Pathogen Detection — Sample Collection

Pathogen detection by **RT-qPCR** requires only a small amount of plant material. The goal is to collect tissue from multiple locations on the same plant to maximize the chance of detecting pathogens that may be unevenly distributed in the plant's vascular system.

2.1 What to Collect

- **5 small leaf fragments** — taken from different parts of the plant (top, middle, lower canopy, and from different branches)
- **1 small root tip** — taken from a root tip without soil attached

Each Eppendorf tube provided corresponds to one plant. All fragments from a single plant go into the same tube.

2.2 Step-by-Step Instructions

STEP 1

Label your tube

Before cutting anything, confirm the pre-printed label on the Eppendorf tube matches the plant ID on your submission form. **Never relabel or swap labels.**

STEP 2

Put on clean gloves

Put on a fresh pair of gloves. If you are collecting from multiple plants, keep additional gloves within reach.

STEP 3

Decontaminate your tool

Dip scissors or blade into 70% isopropyl alcohol, leave for **30 seconds**, and wipe dry with a clean paper towel.

STEP 4

Collect leaf fragments

Using your decontaminated scissors or blade, cut **5 small leaf fragments** — roughly **0.5 × 0.5 cm** each — from 5 different locations on the plant: one from the top, one from the middle, one from the lower canopy, and two from different branches. Mix fresh, green tissue — avoid necrotic, yellowed, or dried areas unless specifically instructed.

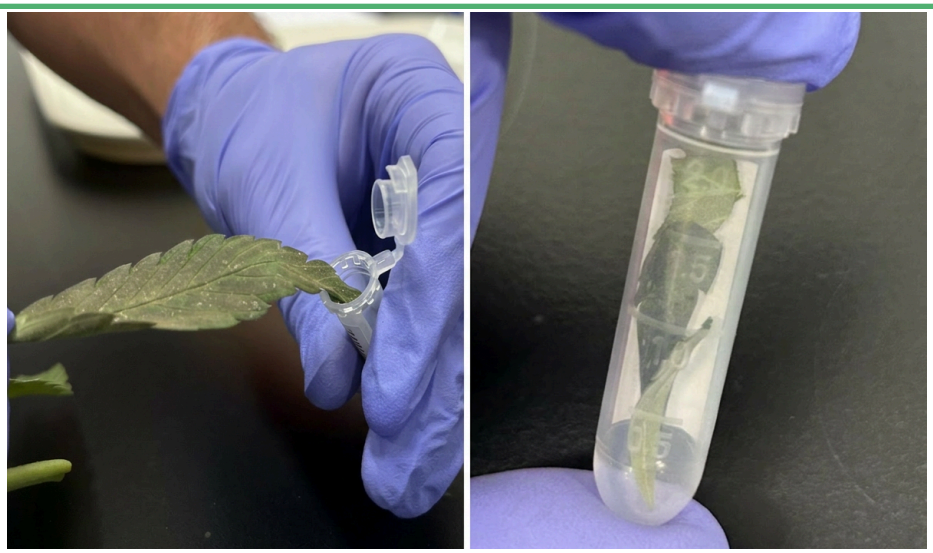

Figure: *Leaf fragments 0.5 × 0.5 cm — collected from different canopy zones.*

STEP 5

Collect the root tip

Gently pull a small root from the substrate. Shake off or wipe away any excess growing media — **do not rinse with water.** Cut a small tip (approx. **1–2 cm**) and place it in the same Eppendorf tube as the leaf fragments.

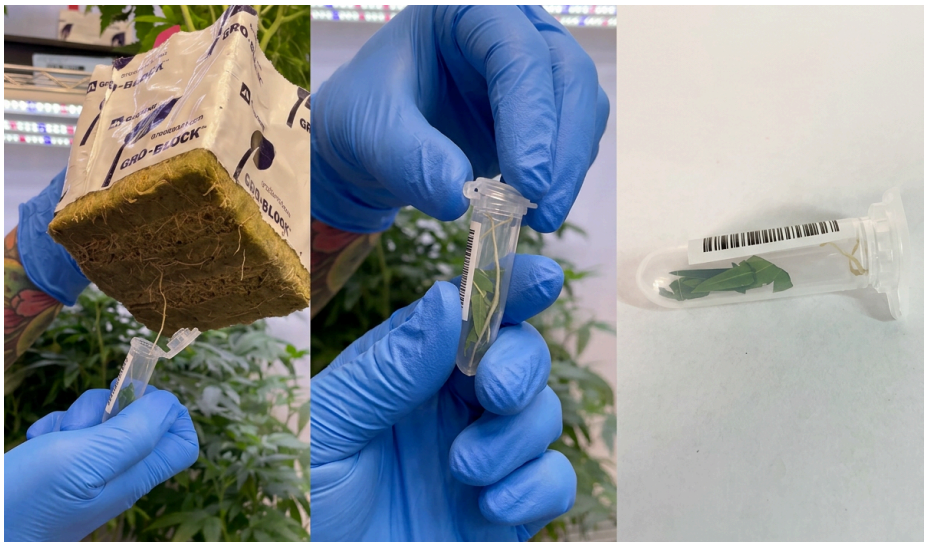

Figure: *Root tip collection — shake off media, do not rinse with water.*

STEP 6

Close the tube

Firmly close the Eppendorf tube cap. Confirm the cap is fully snapped shut. **Do not overfill** — the tube should close easily.

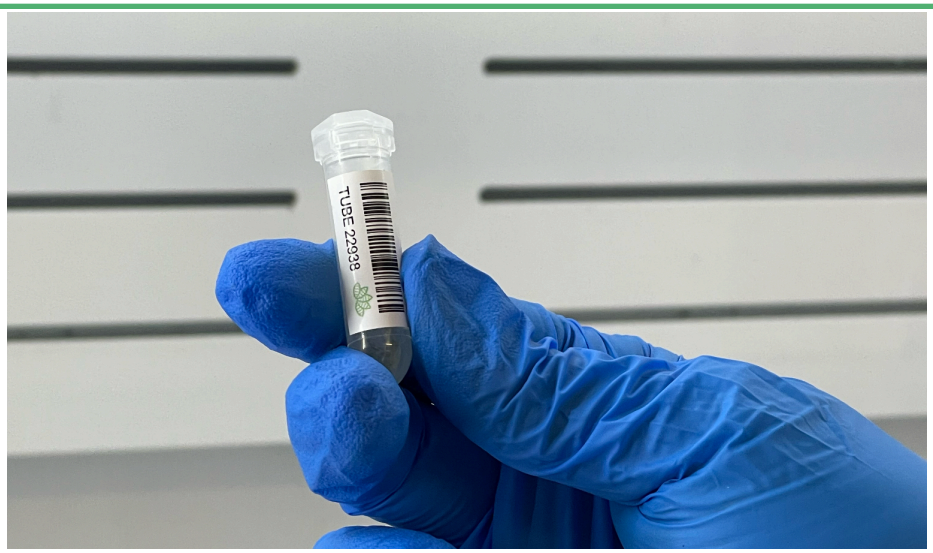

Figure: *Sealed Eppendorf tube — label visible, cap fully snapped.*

STEP 7

Decontaminate before the next plant

Before moving to the next plant: (a) change your gloves, and (b) re-decontaminate your cutting tool as described in Step 3.

WARNING · Do not collect tissue from plants that have been recently sprayed with chemical pesticides, fungicides, or foliar treatments within the last **48 hours**. This can interfere with RNA extraction. Notify MyFloraDNA if treatments were recently applied.

PRO TIP · *Collect samples in the morning before irrigation or environmental stress. Plants are most physiologically stable and tissue RNA quality is highest at this time.*

2.3 Sample Storage and Shipping

- Samples should be stored at **4°C (refrigerator)** if not shipped within 24 hours.
- **Do not leave samples at room temperature** for more than 5 hours after collection.
- Place all Eppendorf tubes in the return envelope and complete the submission form.
- Ship to MyFloraDNA facility.

SECTION 3

Nutritional Tissue Analysis — Sample Collection

Nutritional tissue analysis measures the **elemental composition of plant tissue**, reflecting actual nutrient uptake at the time of sampling. Results are only meaningful if the sample is representative of the plant's current nutritional status. For this reason, it is critical to select the correct leaf type and collect a sufficient quantity.

3.1 What to Collect

- **20 whole, fully expanded leaves** — per sample (per plant or per zone, as indicated on your submission form)
- Select **recently matured leaves** — not the newest growth at the shoot tip, and not old or senescing leaves at the base
- Avoid leaves with visible **disease symptoms, pest damage, nutrient burn, or mechanical damage**

Figure: *Whole leaf selection — recently matured, undamaged, fully expanded.*

3.2 Step-by-Step Instructions

STEP 1

Label your Paper Bag

Confirm the label on the paper bag matches the sample zone or plant ID on your submission form.

STEP 2

Put on clean gloves

Put on a fresh pair of gloves. Change gloves between different plants or zones.

STEP 3

Select the right leaves

Identify recently matured leaves — typically the **3rd to 6th leaf from the top** of the main stem or branch. These leaves best represent the plant's current nutritional status.

STEP 4

Collect 20 whole leaves

Remove **20 whole leaves** by pulling or cutting at the petiole. Collect leaves from **multiple locations on the plant** — do not take all 20 from the same branch. The goal is a representative sample of the entire plant.

STEP 5

Do not wash the leaves

Place leaves directly into the paper bag. **Do not rinse or wash the leaves with water** — this can leach soluble nutrients and alter results.

Figure: *Paper bag — 20 whole leaves, unwashed, label secured.*

STEP 6

Close and label

Firmly close the Paper bag. Confirm the label is secure and legible.

WARNING · Do not include **stems or roots** in the paper bag — whole leaves only. Including non-leaf tissue will dilute the elemental readings and skew results.

WARNING · Do not collect nutritional samples immediately after fertilizer application or foliar sprays. Wait at least **48–72 hours** to allow the plant to equilibrate before sampling.

PRO TIP · *For zone-based sampling (e.g., multiple plants in a section), collect 2–3 leaves from each of 7–10 plants in that zone to compose a representative 20-leaf composite sample.*

3.3 Sample Storage and Shipping

- Nutritional samples should be kept **cool (4°C)** and shipped within 48 hours of collection.
- **Do not freeze** nutritional samples — freezing can damage cell structure and affect elemental readings.
- Place the paper bag in the return envelope and complete your submission form.
- Ship to MyFloraDNA. **Priority 2-day shipping** is best for nutritional samples.

SECTION 4

Pre-Submission Checklist

Complete this checklist before sealing and shipping your samples. Every box should be checked before submission.

4.1 Pathogen Detection Samples

- [ ] Each Eppendorf tube contains 5 leaf fragments from different parts of the plant
- [ ] Each Eppendorf tube contains a small root tip with no soil attached
- [ ] All fragments in each tube are from a single plant only
- [ ] Tools were decontaminated between every plant
- [ ] Gloves were changed or decontaminated between every plant
- [ ] Tube caps are fully closed and snapped shut
- [ ] Labels match the plant IDs on the submission form
- [ ] Samples are stored at 4°C or -20°C (not at room temperature)
- [ ] Submission form is complete

4.2 Nutritional Analysis Samples

- [ ] Each paper bag contains 20 whole, fully expanded leaves
- [ ] Leaves were collected from multiple locations on the plant (not all from one branch)
- [ ] No stems or roots are included in the tube
- [ ] Leaves were not washed or rinsed before collection
- [ ] No foliar treatments were applied in the 48–72 hours prior to sampling
- [ ] Paper bag is closed and label is secure and legible
- [ ] Labels match the zone or plant IDs on the submission form
- [ ] Samples are kept at 4°C (not frozen, not at room temperature)
- [ ] Submission form is complete

SECTION 5

Questions & Contact

If you have any questions about sample collection, shipping, or your results, please contact MyFloraDNA directly before submitting your samples. Do not submit samples if you are unsure about collection conditions — an incorrect sample cannot be re-collected after the fact.

CONTACT MYFLORADNA

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