

## SAMPLE SUBMISSION PROCEDURE

- 1) Before sending samples, please communicate by email ([felipe.balocchi@up.ac.za](mailto:felipe.balocchi@up.ac.za)) about the pest/disease problem encountered - include photos if possible.
- 2) Fill form <Sample submission form> - on-screen (Word fillable form) or printed (PDF blank) and send along with physical sample.
- 3) Collect samples following [directions provided below](#).
- 4) Send samples by preferred local courier to:

SANBI FABI project (Postdoc): Monitoring tree health at sentinel sites: botanical gardens and arboreta'		SANBI  FABI South African National Biodiversity Institute	
Sample name:	Click or tap here to enter text.	Date sent:	Click or tap to enter a date.
<b>Collector</b>			
Name:	Click or tap here to enter text.		
Email:	Click or tap here to enter text.		
Cell phone:	Click or tap here to enter text.		
Bot. Garden / Affiliation:	Click or tap here to enter text.		
<b>Plant</b>			
Species:	Click or tap here to enter text.	Abundance in garden:	Choose an item.
Place:	Click or tap here to enter text.		
Coordinates:	X: Click or tap here to enter text.	Y: Click or tap here to enter text.	Other: Click or tap here to enter text.
Condition:	Choose an item. <input type="checkbox"/> Specialized collection: Click or tap here to enter text.		
Symptoms:	Overall: Choose an item. Crown: Choose an item. Leaves: Choose an item. Branches: Choose an item. Trunk: Choose an item. Stem/collar: Choose an item. Roots: Choose an item.	Symptom prevalence:	Choose an item.
Other: (symptoms or observations)	Click or tap here to enter text.		
<b>Sample</b>			
Type and amount:	<input type="checkbox"/> Soil: n: <input type="checkbox"/> Fine Roots: n: <input type="checkbox"/> Roots: n: <input type="checkbox"/> Collar: n: <input type="checkbox"/> Seedlings: n: <input type="checkbox"/> Stem segments: n:	<input type="checkbox"/> Trunk pieces: n: <input type="checkbox"/> Branches: n: <input type="checkbox"/> Leaves: n: <input type="checkbox"/> Flowers: n: <input type="checkbox"/> Insects: n: <input type="checkbox"/> Other: Click or tap here to enter text. n:	
Date collected:	Click or tap to enter a date.		
Observations:	Click or tap here to enter text.		

Download: [Word \(fillable form\)](#) – [PDF \(Blank\)](#)

### Postal Address:

Forestry and Agricultural Biotechnology  
Institute (FABI)  
University of Pretoria  
Lunnon Road Entrance  
Hatfield  
0083  
Pretoria, South Africa

### Contact details:

Felipe Balocchi  
[felipe.balocchi@up.ac.za](mailto:felipe.balocchi@up.ac.za)  
072 821 6847

## SAMPLE PACKAGING AND LABELLING

- 1) **What to use?** - Samples may be collected in [plastic bags](#), [paper bags](#), [paper envelopes](#), [plastic containers](#), or [vials](#). This will depend on the type of sample (specified below), its size and condition, and the estimated time that it will take to be shipped.

**Samples can rot or can dry out** – both interfere with processing. Paper bags usually decrease moisture, while plastic bags can do the opposite – to reduce this effect, keep samples in a cool place with no direct sunlight.



Paper bag



Plastic bags



Paper envelopes



Plastic vials



Carton box

- 2) **Labelling** - All samples and subsamples must be **labelled** so these are recognizable (matching the information provided in the [sample sheet](#)). Labels should include: <collectors initials-date (mmdd)-sample number>, e.g., **FB0405-1**.
- 3) One sample can be composed of a **group of subsamples** ( $n$  plants of a same species with similar symptoms), however, these need to be **packaged and labelled individually** (e.g., **FB0405-1a**, **FB0405-1b**...). Avoid mixing materials that originate from/contain:
  - a. different **plant species**
  - b. different **symptoms**
  - c. different **locations**
- 4) **How many?** This is usually given by the context of each sample (e.g., the number of 'diseased' plants/trees observed). Where possible, sending material from **3-10 plants** showing similar symptoms improves the chances of accurate diagnosis.
- 5) **Shipping:** Use preferably **carton boxes**. Delicate plant parts should be wrapped in extra paper to immobilize inside the box to reduce damage during transport.

## SAMPLE TYPES

### PLANT AERIALS

above ground organs

- a. **What to collect?** – The samples need most crucially to include the plant parts **where tissues transition from being healthy to diseased**, most often evident by changes in their colour. Samples can include:
- Seedlings:** Can be sent complete (including some soil) – if too large, make sure to send the relevant parts of the plant. Ideally each seedling should be packaged and labelled individually in plastic bags. If sending a large number of seedlings, these can be grouped in subsamples of 2–3 plants/bag.
  - Stem/branch segments or trunk pieces:** Young stems/branches can be cut using secateurs/handsaw, or trunk pieces can be shaved with a pocket knife or removed with a chisel and hammer. These can be placed into paper or plastic bags.
  - Leaves:** These can be collected in paper bags or paper envelopes. Leaves tend to rot easily when transported in plastic bags. For small-leafed plants whole twigs can be sent. Larger leaf pieces may be cut with secateurs.
- b. **Dead plants or plant parts are often undesirable** – only include (as a separate subsample) if there is a limited amount of living symptomatic tissues. Dead tissues are colonized by numerous decomposing microorganisms that often interfere with sample processing.



Stem/Trunk pieces

Complete seedlings

Leaves: Full or pieces

### ROOTS AND SOIL

below ground including soil

- a- **What to collect?** **250–400 g of soil** should suffice for most purposes. Remove the top 5–10 cm of soil and collect underneath using a spade/shovel. For diagnosis purposes, soil must be collected from underneath the symptomatic tree, and **should include fine roots**.
- b- **Collect samples in plastic bags or containers.** Paper bags break easily resulting in cross contamination.



Remove top 5–10 cm before collection

Include roots

### INSECTS FOR IDENTIFICATION

**Insects** may be sent in the form these are encountered (e.g., adults, larvae, attached to leaves). The inclusion of adults should be prioritized, as larvae and pupae are in many cases insufficient for identification purposes.

**Loose insects** should be stored in **ethanol 70%** or similar (**commercial hand sanitiser** is recommended), and sent in closed containers (tubes, vials, flasks).

For **Leaf samples**, these can be sent in plastic or paper bags.



Vials with 70% ethanol

Leaf samples