



Recommendation Sheet No. 36  
(February 1986)

## LEAF SAMPLING FOR FOLIAR DIAGNOSIS

The most critical operation in Foliar Diagnosis is the sampling and preparation of leaves. For this reason, the necessity of exercising the utmost possible control over the sampling and preparation techniques must be repeatedly emphasized.

### Rules for proper leaf sampling

Before leaf sampling is carried out, it is important to ensure that plant growth is not limited by any factor other than nutritional. The following are to be considered :

#### 1. DROUGHT

Spindle moisture \* determined two weeks before leaf sampling should be  $\geq 77\%$ .

#### 2. CYCLONIC DAMAGE

Shredded leaves should not be sampled. The field should have fully recuperated before sampling.

#### 3. DRAINAGE

A field suffering from impeded drainage should not be sampled.

---

#### \* SPINDLE MOISTURE DETERMINATION

The spindle is cut off with secateurs at the level of the first visible dewlap. The spindle together with the partly unrolled leaf (first leaf) will come off but only the spindle is taken and placed in a tared plastic bag (40 cm x 15 cm) sealed at one end. Ten spindles are taken per bag, the bag being kept tied at the open end throughout to avoid loss of moisture.

After the bag has been weighed to obtain the fresh weight of the spindles, they are taken out and dried to constant weight in an oven already brought to 90°C.

The sampling is carried out in the same way as for the third leaf.

$$\text{Moisture \% spindle} = \frac{\text{wet wt of spindle} - \text{dry wt of spindle}}{\text{wet wt of spindle}} \times 100$$

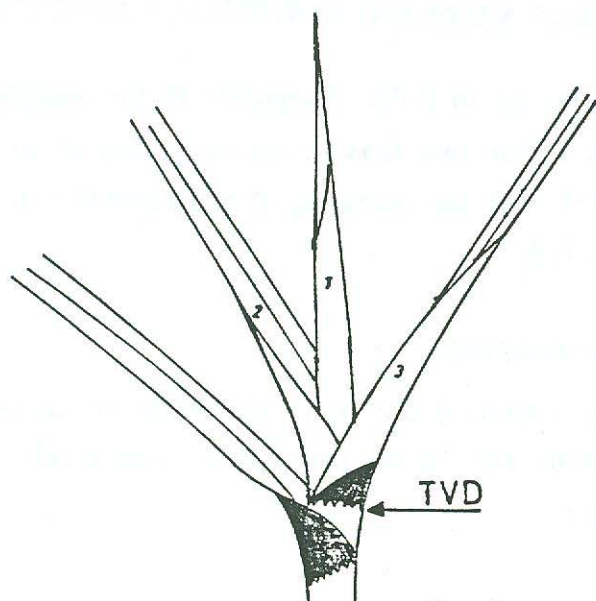
2.

### When to sample ?

1. In summer : January to April - prior to arrowing.
2. Early in the morning : the sampling operation should have ended before 8.00 a.m.

### What to sample ?

1. The leaf attached to the top visible dewlap (TVD) from primary stalks.

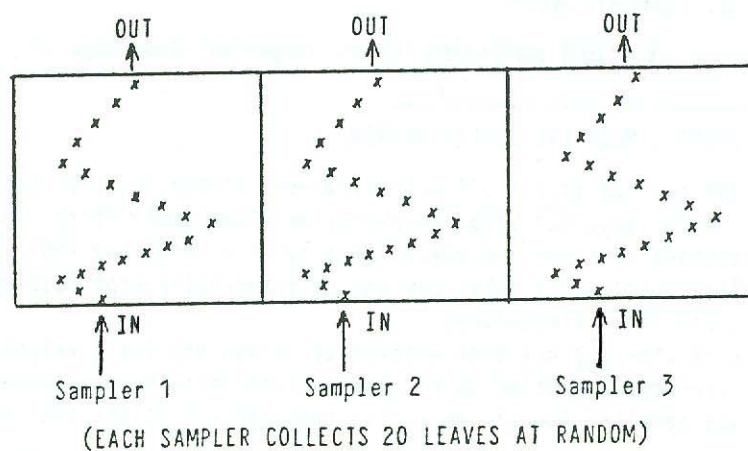


2. Ratoon canes aged 3 to 7 months (ideally 5)

### How to sample ?

To obtain representative samples :

1. Proceed across field (Permanent Sampling Unit - PSU) as shown in diagram.

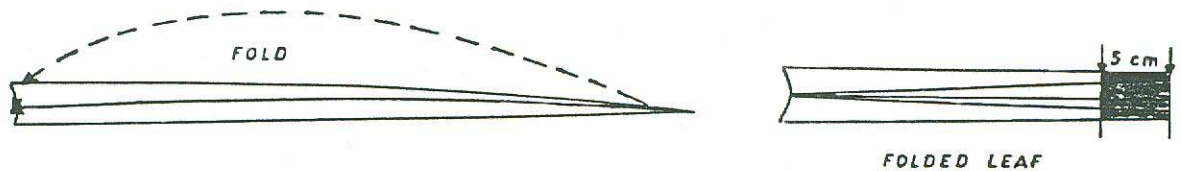


2. Sixty leaves for each PSU ( $\geq 10$  ha)
3. Two samplings at one month interval.

### Preparation of leaf samples

The leaf sample preparation consists of two important steps.

1. Take the true central portion of the leaf (10 cm) and carefully eliminate the mid-rib.



Place in mosquito bag.

2. Place in a forced draft electric oven **previously** brought to 90 °C. Maintain this temperature until complete desiccation (12 to 24 hours).

#### N.B.

The sample should still have its green colour at the end of the drying operation.

*This question of RAPID and PROPER drying is very important; unless carried out well, the nitrogen content of the leaves may show low values invalidating the diagnosis as far as this most vital nutrient is concerned. (P. HALAIS)*