♦ **Citrus:** Sample the most recently fully expanded leaves 4-6 months old from non-fruiting terminals.

♦ **Mango:** Sample the 5th leaf from the base of the newly developed branches (current flush).

♦ **Passion fruit:** Sample the last fully expanded leaf from strong vines; sample before new growth or flush.

♦ **Pineapple:** Sample the most recently fully developed leaf, white basal part at 9 or 15 months old (Smooth Cayenne) or at 22 months old (Red Spanis).

♦ **Cotton:** Sample the leaf next to fully developed flower, or the top mature leaf.

♦ **Coffee:** Sample the 3rd or 4th pair of leaves from the tip of fruit–bearing branches around the mid-height section of the fruit-bearing part of the tree. Obtain at least 40 leaves from 10 or more representative trees, at the end of the rain season.

♦ **Tea:** Sample the most recently fully developed leaves from young shoots.

♦ **Mulberry:** Sample the upper young leaves or the middle (medium aged) leaves.

Sample handling

- Keep plant samples in paper bags.
- Send samples to Kawanda (address below) for analysis.
- In case you cannot send samples immediately, keep bags open but avoid contamination [e.g. dust, smoke, ashes, etc.].
- Do not attempt to dry the samples.
- Analysis costs Shs. 7000/= per sample; allow 2-3 weeks then collect results from Kawanda.

Remember,
Timely plant sampling and analysis can minimise risks of crop yield losses related to nutrition problems.

For more information, contact:

Kawanda Agricultural Research Institute,
13 km Bombo Road,
The Soils and Soil Fertility Management Programme,
P. O. Box 7065, Kampala,
Tel.: 041-567696 or 567507 or 567649
Fax: 041-567226 or 567649

Email: landuse@infocom.co.ug

NARO

PLANT SAMPLING

for

CROP NUTRITION EVALUATION



Soils Brochure Series 3
NATIONAL AGRICULTURAL RESEARCH ORGANISATION
2000

INTRODUCTION

Plant analysis is an important tool for assessing soil fertility and plant growth. It complements soil analysis in identifying nutrient deficiencies, toxicities or imbalances. Plant analysis also serves to confirm symptoms that may be observed in the field, which may resemble pest damage. Further, where deficiency symptoms of one nutrient resemble those of another, plant analysis removes the uncertainty. Plant analysis can also be used to monitor soil fertility.

Nutrients move and change depending on the stage of growth of the plant, hence for each crop there is a best stage and a best part to sample.

General guidelines on plant sampling

- Sample the healthy plants differently from those with symptoms of nutrient disorder.
- Label the samples clearly indicating: name of farmer, date of sampling, location (village, parish, sub-county, county, district).
- Obtain about 100g of a representative sample.

CROP SAMPLING PROCEDURES:

♦ **Maize:** Sample the first leaf opposite and below the primary (top) ear shoot (cob) taken at silking.

♦ **Common beans:** Sample the most recently fully expanded leaf (3 leaflets, without the stalk) at the start of flowering.

♦ **Soy beans:** Sample the most recently fully developed leaf at the start of flowering stage.

♦ **Ground nuts:** Sample the most recently fully developed leaves at the start of flowering.

♦ **Bananas:** Remove 10 by 20 cm strips from both sides of the midrib on the 3rd most recently fully expanded leaf of flowering plants.

♦ **Cassava:** Sample the most recently fully expanded leaf blades without leaf stalk (4th to 5th leaf from top) at 3 to 4 months after planting.

♦ **Irish potatoes:** Sample the leaf stalk of the 4th leaf from the growing tip, taken at tuber set.

♦ **Onions:** Sample the most recently fully developed leaf at mid season.

♦ **Carrots:** Sample the most recently fully developed leaf 6 weeks after planting.

♦ **Cabbage:** Sample the wrapper leaf at head formation stage.

♦ **Lettuce:** Sample the most recently fully developed leaf from the head.

♦ **Tomatoes:** Sample the most recently fully developed leaf at half fruit stage.

♦ **Pepper:** Sample the most recently fully developed leaf at the start of fruiting.

♦ **Egg plant:** Sample the 5th leaf at 60 days after transplanting.

♦ **Cucumber:** Sample the most recently fully developed leaf at fruit set.

♦ **Sunflower:** Sample the 5th and 6th leaves under the head at the start of flowering.

♦ **Oil palm:** Sample the center part of the 1st leaf from the top (pinnae, without midrib) for plants less than 1 year-old, 3rd leaf for 1-2 year-old plants, 9th leaf for 2-3 year-old plants, and 17th leaf for older trees.

♦ **Sugar cane:** Take samples from either side of the midrib from the 3rd leaf at the stage of rapid growth (samples being taken at 3, 4.5 and 5-6 months for first crop cane and at 3-4 and 5-6 months for ratoons).