"This brief is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of Land O'Lakes International Development and do not necessarily reflect the views of USAID or the United States Government."

Farmer's Own Soil Fertility Analysis

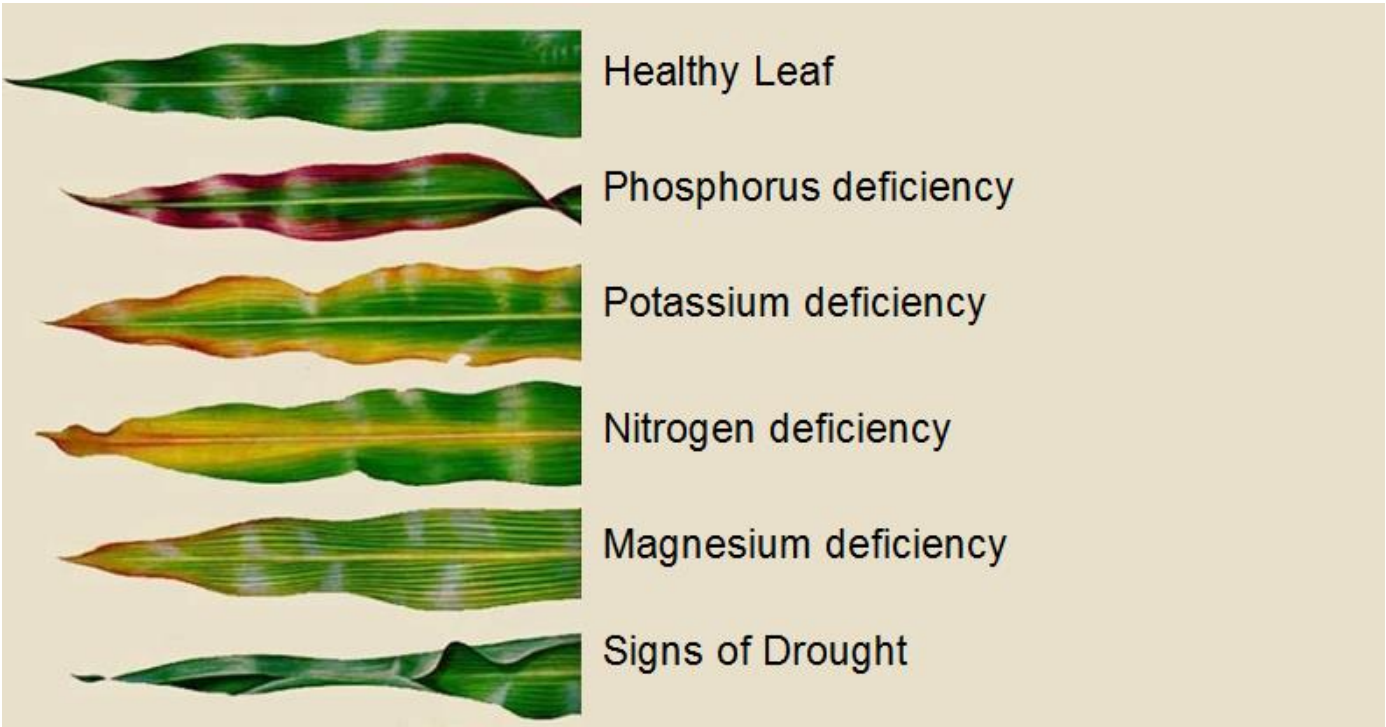
Often, we do not have access to a laboratory, nor have money to pay for our soil fertility tests at the laboratory. But there is a more direct solution within farmers reach.

The maize plant, specifically its leaves, exhibit 14 of the principal 18 soil nutritional deficiencies. We can analyze the soil fertility deficiency just by observing the maize leaves!

Four of these deficiencies are the most common, namely:

Nitrogen deficiency: The main soil deficiency found in Mozambican soils
Phosphorus deficiency
Potassium deficiency
Magnesium deficiency (a symptom of excess soil aluminum / soil acidity)

Different characteristics of maize leaves showing the signs of Soil Nutrients deficiencies



How to Overcome the Problem of Soil Nutrient Deficiency:

- The lack of nitrogen can be reduced by intercropping with legume crops, such as pigeon pea, lab-lab beans, and jack beans. Generally, the presence of living roots increases microbial activity and exchange of nutrients between soil and plants.

- Phosphorus deficiency can also be improved through the continued use of conservation agriculture and intercropping. Studies show that when a soil is healthy, microbial life in particular of fungi and bacteria increases. These studies also show that fungi play a very important role in the sharing of nutrients in the soil, in particular, phosphate, making it more available to plants.

- Lack of potassium is not as common in Mozambican soils and occurs most often in one plant or another.

- The lack of magnesium creates soil acidity and causes macronutrients such as Nitrogen, Phosphorus and Potassium to become less available to the plant. Soil acidity can be buffered by increasing soil organic matter content using live or dead cover.

Nutrient Poor Soils

- Monoculture (soil nutrient depletion crops like maize);
- Intensive Agriculture;
- Deep ploughing;
- Practice of Burning;

Fertile and nutrient rich soils

- Intercropping with legumes such as pigeon pea, lab-lab, and Jack beans;
- Crop rotation
- Minimal Tillage
- Permanent cover of soil with dead or living plant material

USAID FROM THE AMERICAN PEOPLE

LAND O'LAKES VENTURE37