Dairy One
Soil Laboratory

Taking a Soil Sample

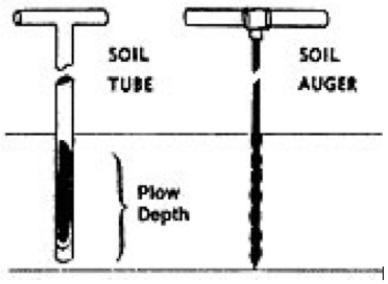
Establish a Sampling Schedule

Most soils should be sampled every 2 – 3 years; more often for sandy soils, high value crops or problem areas.

To avoid seasonal variation, try to sample at the same time every year for a given field or garden. Fall is generally considered to be the most reliable time to pull samples, especially when it comes to pH. Soil pH fluctuates and tends to be lower in the summer when temperatures are higher and soils are dryer. When soils dry out, salt concentrations increase allowing Ca++, Mg++, K+ to replace H+ and Al+++ on the soil surface. The extra H+ and Al+++ in the soil solution will temporarily decrease soil pH hence pH determination is more reliable in the Fall when soil moisture is a bit higher.

Use the Right Tool

Use tools that are clean and free of rust. Avoid brass or galvanized tools or containers that can contaminate samples with zinc or copper. Stainless steel probes or augers are best because they collect a continuous core through the entire sampling depth with a minimum disturbance of the soil. Avoid shovels or trowels.



Collect samples in a clean plastic bucket or plastic bag. Avoid collecting or shipping wet samples in plain commercial paper bags or boxes that are often treated with a product containing boron. Wet samples can leach boron out of the paper and contaminate the sample. If possible, send air dried samples in a sample box.

Sample at the Proper Depth Based on Tillage

- **Moldboard plow** – surface to tillage depth (usually 6-7 inches)
- **Chisel plow and offset disk** – sample before tillage to ¾ of the tillage depth.
- **Reduced tillage systems** – No Till, Ridge till, Zone Till etc.

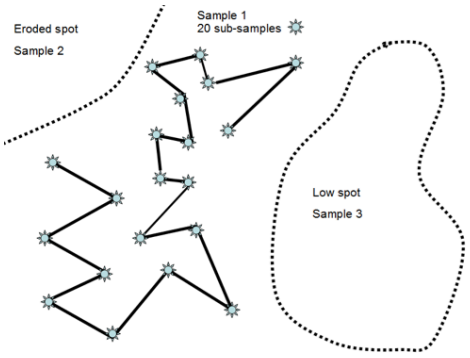
  Two Samples may be required. Sample between rows to avoid disturbed soil or fertilizer band.

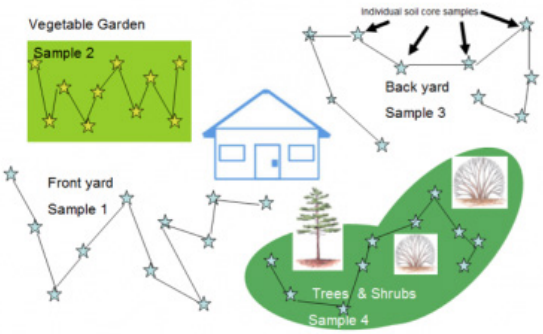
  - Sample to 6-inch depth for pH and nutrient content.
  - Take a second sample to a 1-inch depth to determine if surface applied N has resulted in an acid layer that can reduce the effectiveness of triazine herbicides.

Commercial Field Samples

Follow the guidelines shown below for taking a single composite soil sample per field. Contact your crop adviser if you plan to implement site specific or "precision" sampling on your farm.

- Take 15-20 plow depth core sub-samples using a zig-zag pattern in a management area representing < 20 acres (see Figure 2.).
- Avoid unusual areas such as dead furrows, old hedge rows, fence lines, old manure piles, lime piles or burn piles. Avoid wet areas or severely eroded areas.
- Take separate samples from areas within the field that vary widely from the rest of the field in color, slope, soil texture, drainage, productivity or crop history.
- Sample each contour strip separately if it is > 5 acres.
- Mix the 15-20 subsamples completely in a clean plastic bag or plastic bucket.
- Avoid sampling under extremely wet soil conditions. Wet samples usually leak in transit and some nutrients in very wet soils may undergo rapid biological transformations.



Home Landscape Samples

- Each sample should represent only one area – for example, a lawn, vegetable garden or perennial landscaped area (Figure 3).
- For each unique area take at least 10 – 12 cores.
- Submit samples from healthy and unhealthy areas separately.
- Sample lawns to a depth of 4 inches.
- Sample shrubbery & perennial beds to a depth of 4 – 6 inches taking care to avoid zones where lime or fertilizer has been applied recently.
- Sample annual vegetable and flower beds to the depth that you plan to incorporate lime or fertilizer, usually about 4 – 6 inches.
- Place all cores for one unique area in a clean plastic bucket and mix well. Fill the soil sample box about 2/3rd full (about 2 cups).