

## Appendix B

Entire Plot Representation Soil Sampling Protocol for Smallholder Farms (Sieglinde Snapp, pers. comm.)

The purpose of this protocol is to obtain a composite (bulk sample) representative of farm plots soil.

Supplies:

- 10 liter pail or bucket (basin also works) **CLEAN PAIL BETWEEN FIELDS**
- Soil auger OR trowel
- Sample bags to store soil (e.g., strong plastic bags)

Procedure:

- 1) Familiarize yourself with the plot dimensions
  - a. Know where field boundaries are
- 2) Take sub-samples of soil following a zig-zag path (See below sample diagrams)
- 3) Collect sub - samples from the ridge **NOT** in the fallow
- 4) Starting at one corner of the plot go to the 2nd ridge in from the edge, take the first sample
- 5) Collect 8 sub-samples in each plot, each sample is collected to about 8 in depth and placed in the pail
- 6) Sub - samples should be taken according to the following: Choose process based on which tool you have for sampling.
  - a. Soil auger
    - i. Remove all top residues from sampling site (such as leaves and plant materials)
    - ii. Insert the auger directly into the soil (20 cm = 8 inches) in a **vertical (up and down)** position
    - iii. Carefully remove the auger (avoid any spillage of sample). If soil is dry at sampling time, slightly tilt the auger back to avoid it spilling from tube
    - iv. Place the sample in the pail and move on to the next
  - b. Trowel
    - i. Remove residues (such as leaves and plant materials, brush off)
    - ii. Insert the trowel **vertically (up and down)** into the soil (20 cm = 8 inches)
    - iii. Gently push back on the handle and remove the soil (ensuring that you obtain the soil at insertion depth)
    - iv. Place the sub - sample in the pail and move on to the next
- 7) After all 8 of the samples are collected mix up the soil very well and use this soil to fill a bag
  - a. Remove any large stones sticks or roots from the sample
  - b. Break up any soil clods with your hand
  - c. Mix by hand very well for at least a minute until all the soil is homogenized
  - d. Collect about one-quarter of the sample to put in a bag (remaining soil should be returned to field)

- 8) Label the sample bag with the following: Provide an example labeled bag
  - a. Date
  - b. Sample ID
  - c. Farmer name or number (if number check that the number is correct based on the list)
  - d. Location (EPA, or GPS coordinates)
  - e. Treatment (optional) (crops planted prior?)
- 9) Place a small piece of paper with the following information written in pencil into the sample bag:
  - a. Date
  - b. Sample ID
  - c. Farmer name or number
  - d. Location
  - e. Treatment (optional)
- 10) Usually we collect about one-quarter of the soil sample (about half a liter of soil) - place the desired portion of soil into the sturdy labelled sample bag
- 11) Securely twist and tie the plastic bag with the sample and store for transport

**\*Choose a set number of subsamples to be taken and keep it consistent throughout all sampling. Recommended Sampling** NOTE: The sampling must represent the entire plot regardless of shape.

