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.