

Cover Crop Sampling Instructions

For Use with the OSU Cover Crop Calculator

<http://smallfarms.oregonstate.edu>

N. Andrews, D. Sullivan, J. Julian and K. Pool

These instructions describe how to sample cover crops in the field and the cover crop data needed to use the OSU Cover Crop Calculator.

Step 1: Sampling frame

Make your sampling frame or quadrat. We make sampling frames from aluminum stock with 2' sides held together with corner brackets, nuts, bolts and lock washers.

Step 2: Field sample

Sample cover crops immediately before incorporation. Work the frame down to the base of the plants, making sure to only include the plants that are rooted within the frame (figure 1a and 1b). Cut the plants at soil level (figure 1c and 1d). We find it much quicker to use a harvesting knife than shears. Collect the samples in paper or plastic bags, making sure they don't wilt in the field. Select four or more representative sample areas per field or management unit. If field is non-uniform, sample only from typical areas of field. Avoid drowned-out spots, poorly seeded areas, weedy patches, or other atypical areas. Record the total area sampled in the records sheet.



Figure 1a. Placing the sampling frame.



Figure 1b. Working the frame through the canopy.



Figure 1c. Cutting plants rooted within the frame.



Figure 1d. One quadrat after sampling.

Step 3: Handling the field sample

Combine all the quadrat samples from the field on a table or tarp and remove any soil from the sample, this is your field sample. Record the field sample fresh weight in the records sheet to an accuracy of one tenth of a pound. Thoroughly mix the field sample (figure 2a) and quickly break apart the largest plants so you can easily take a representative subsample.

Step 4: Handling the subsample

Take a representative subsample that weighs about 1lb (figure 2b). Make sure the subsample represents the mixture and prevalence of species in your field sample, including weeds. Also be sure the sample is a representative mix of stems and leaves.



Figure 2a. Mixing the field sample consisting of all quadrats combined.



Figure 2b. Taking a representative subsample.

Step 5: Lab analysis

Pack the sub sample to prevent wilting during shipment. In cool spring weather a one gallon Ziploc freezer bag is sufficient. In hot weather use a large paper bag and ask the lab to pull their sample from the middle of the sample where the plants are the freshest. Sealed ice blocks can also preserve sample quality during shipment. Send samples for one or two day delivery to your analytical lab (see “A List of Analytical Labs Serving Oregon: EM8677”; <http://smallfarms.oregonstate.edu/soil-testing>). Ask the lab to analyze the sample for percent moisture and total percent nitrogen (%N) on a dry weight basis. Record the lab results on the records sheet.

Step 6: Cover Crop Calculator

Before using the Calculator complete the input records sheet. You’ll need a fertilizer recommendation, guaranteed analysis of your fertilizers (from the label), an estimate of fertilizer dry weight (from your sales representative or fertilizer manufacturer), the cost per pound of your fertilizers, and the economic information listed in the shaded area of the records sheet.

The Cover Crop Calculator includes five main worksheets. The Records Sheet lists the information needed to use the Calculator and where to enter the information in the Calculator. The Cover Crop Calculator Quick Guide shows you how to use the Calculator.