**N Mineralization Calculations**

For both the in situ field and lab incubations:

1. For each sample, calculate the mass of water in the soil that was extracted (fresh weight – dry weight) in grams. Convert to liters.
2. Add the volume of water (L) to the volume of extract used in the extraction (e.g., .05 L) to get the total extract volume for each sample.
3. Multiple the total extract volume (L) by the blan-corrected concentration of N measured in the extract (mg/L, same as ppm) to determine the mass of NH4-N, NO3-N, and (NH4+NO3)-N in the soil (mg N).
4. Convert the fresh soil mass of each sample to a dry soil equivalent, by multiplying by the dry/fresh weight ratio of the soil moisture sample: (Dry Wtmoist/ Fresh Wtmoist) x Fresh Wtsample
5. For each N species (and the total), divide the mass of N (mg) by the extracted dry soil mass (g) to convert to mg N/g soil.
6. Repeat 1-4 for both the initial samples and the final samples.
7. Subtract the initial mg N/g soil from the final mg N/g soil and divide by the total number days of incubation. Do this separately for NH4-N to determine the net ammonification rate; for NO3-N to determine the net nitrification rate; and for (NH4+NO3)-N to determine the net mineralization rate in mg N g soil -1 d-1.

Further calculations to convert in situ field rates to per unit area rates:

This will require having plot-level estimates of bulk density. Can you check with Troy to determine whether they have measured bulk density recently? If not, we should consider doing that this summer.

1. For each sample, multiply the net rate of ammonification, nitrification, or mineralization of a per soil mass basis (mg N g soil-1 d-1) x bulk density (g/cm3) x depth of the core (cm) x 10,000 cm2/m2 to convert the rates on a per ground area basis (mg N m-2 d-1).