Cornell Nutrient Management Spear Program
Mass Nutrient Balance Input Form Instructions
February 9, 2012

INTRODUCTION

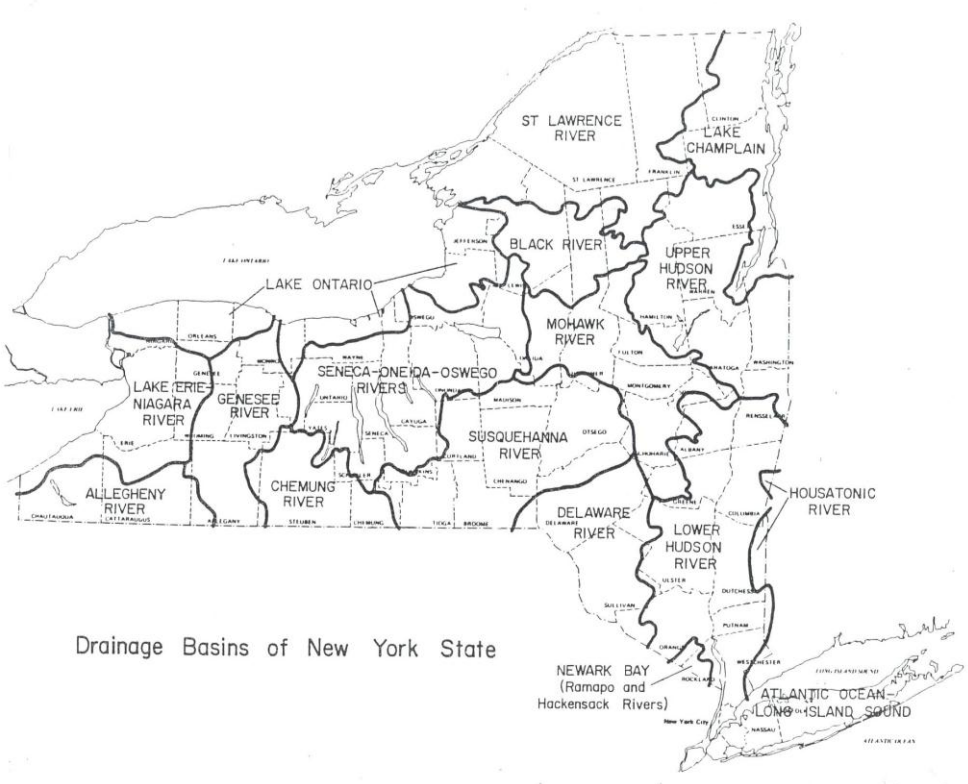
The purpose of this input form is to collect the necessary data for developing a whole farm mass nutrient balance. This form can be used to develop a mass nutrient balance for any type of livestock operation (dairy, swine, poultry, etc.), or for non-livestock farms. For non-livestock farms, ignore all questions concerning animals. Send completed from to: Caroline Rasmussen, 325 Morrison Hall, Cornell University, Ithaca NY 14853. FAX: 607 255-9829 Attn: Caroline Rasmussen. Email: cnr2@cornell.edu.

FARM CHARACTERISTICS

Producer Contact Information:
Record the producer contact information, including address, phone and email (if available).

Data Collection:
Enter the name and email address of the CCE or agency professional collecting the data (if applicable). Enter data for the calendar year January 1, 2011 to December 31, 2011.

Watershed:
Enter the watershed where most of the farm owned and rented land is located in the "Primary" box (see the map below). If the farm is in two watersheds, enter the watershed that has the smaller farm area in the "Secondary" box.



Farm Information

Total farm acres: Enter the total owned and rented farm acres (including buildings and woodlands).

All legume and non-legume tillable crop and pasture acres: Enter the total number of crop and potentially tillable pasture acres owned and rented.

Legume acres (perennial and annual) >10% legume: Enter all crop and tillable pasture acres, both annual and perennial that have more than 10% legume plant content.

Acres receiving manure (crop and pasture): Enter the total number of acres owned and rented that receive manure either by mechanical spreading and/or animal grazing.

Enter “yes” or “no” to the questions concerning the Cornell Dairy Farm Business Summary, the Farm Credit Business Summary, organic certification, intensive grazing, having a Comprehensive Nutrient Management Plan (CNMP) and having a Cornell Cropware Plan.

Animal Information

Enter the average number and weight per head of animals on the farm during the balance year. On dairy and beef farms, group all mature cows (milking and dry) on the first line. These are cows that have freshened one or more times. This information is used to calculate total animal units (AU). An animal unit is equal to 1,000 lbs live weight. The total animal units are the combined weight (lbs) of all animals divided by 1,000.

FARM CROP PRODUCTION

Record all crop and pasture production. Include crops grown for feed and for off-farm sale. Enter the percent legume in the stand. If a legume % greater than 0 is entered, check the box if manure was also spread (mechanically or by grazing livestock) on the same acreage. Enter the number of acres, the crude protein (CP), phosphorus (P) and potassium (K) content of the harvested crop (% dry matter). Select “forage”, “grain” or “Bedding” to describe the harvested crop. If you choose to enter the yield and inventory balances as dry matter, you can enter 100% in the DM% cell. If you will enter the yield per acre and inventories in as-fed tons, enter the harvested crop dry matter content as a percentage. If there is a change in the beginning and ending calendar year inventory of a crop produced for feed or sale, record the beginning and ending year inventory. Enter the average yield in tons (dry matter or as-fed, as selected in the previous column) per acre. If you enter the yield on a dry matter basis, also enter beginning and ending year inventories on a dry mater basis. If you entered the yield on an as-fed basis, enter the inventory on the same as-fed basis.

If crop production records are not available, the quantity harvested can be estimated as shown below. Keep in mind, the shrink_fraction is the percent shrink entered as a fraction. All other inputs are in tons.

Quantity harvested =

$$[\text{Beginning\_inventory} + (\text{daily\_feed\_out} * \text{days\_since\_harvest}) - \text{current\_inventory}] * [1 + \text{shrink\_fraction})$$

Harvested Yield = Quantity harvested / Acres harvested

NUTRIENT IMPORTS

Feeds Purchased:

Record the type of feed, tons purchased per year, and the percentages of dry matter, crude protein, P, and K. Select the feed type: “Grain”, “Forage” or “TMR”. The "% forage" is only entered when TMR is selected. If there is a change in the beginning and ending calendar year purchased feed inventory, record the beginning and ending year inventory in tons as-fed.

Purchased fertilizers:

Record the fertilizer type, tons purchased per year, and the percentages of N, P_2O_5, and K_2O.

Purchased animals:

Record the number of adults and young stock purchased, and the average weight per head in lbs.

Bedding and miscellaneous imports:

Record the number of tons, percent dry matter, N, P and K (% dry matter) for all bedding material purchased or other miscellaneous imports. Do not enter farm produced bedding.

NUTRIENT EXPORTS

Milk sold:

Enter the annual total amount of milk sold (in lbs) and the average percent milk protein, as reported on the milk check.

Animals exported:

Enter the number and average live weight per head of all animals sold or exported from the farm.

Crops sold:
Enter the type of crop sold, its quantity, and the percentages of dry matter, crude protein, P (% dry matter) and K (% dry matter). If a total mixed ration is sold, enter the proportion of the mix which is forage.

Manure, compost and other exports:
Record any other significant products that were sold or given away, such as manure, compost, etc. Enter the quantity, and % solids. Enter the N, P and K on a wet basis as this is the format that compost and manure analysis is commonly reported.