Winter Cover Crops in New York State:

2014 Double Crop N Rate Study Harvest Protocol

(Revised March 5, 2014)

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Nutrient Management Spear Program
http://nmsp.cals.cornell.edu/NYOnFarmResearchPartnership/DoubleCrops.html

Overview

Cover crops have received increasing interest from farmers in recent years. The reasons vary from erosion control and nutrient uptake to improved soil quality, increasing organic matter and field trafficability. Due to the drought in 2012, more farmers are interested in growing winter cereals as double crop, benefiting from the protection offered by cover crops and harvesting the cereal as forage in May to increase per acre crop yields. Properly managed, these crops can supply 2-4 tons of dry matter per acre, and in some fields in 2012 we measured up to 5 tons of dry matter of high quality forage from winter cereals planted after corn silage, even with little growth in the fall. The goal of this project is to determine the optimal nitrogen rate needed for winter cereals (cereal rye, triticale, and winter wheat) seeded after corn silage and harvested for forage prior to corn planting in May. In the first year of the project, 65 by 80 ft. trial sites were set up in homogenous looking areas of fields seeded to winter cereals after corn silage in fall 2012. These sites all had 4 replications of 5 different N rates: 0, 30, 60, 90, and 120 lbs N/acre applied at time of green-up (see attached field map). At green-up, soil samples were taken prior to fertilizer application to determine starting fertility of each plot and overall field. In May, above ground biomass was harvested from each plot in order to determine forage quantity and quality in relation to N application rate. The same protocol will be repeated at new sites in 2014.

Supplies:

20 paper grocery bags (1/6 barrel 57#)
2 large paper lawn and garden bags (30 gallon)
2 sampling frames (8" by 38.5")
3 hand held grass clippers
Gloves
GPS (only to take GPS coordinates if they haven't been taken already)
Camera

Prior to Harvest:

1) Give Greg a call so we know when you will be harvesting and can possibly have one of us there with you.
2) Take pictures of entire field, entire site, each rep within a site, and any significant differences among the plots.
3) Take GPS coordinates if not taken at setup time.

Harvesting:

1) Lay properly labeled bag at each plot in the site.
2) Next take the sampling frame and place it down perpendicular to crop rows within plot with the 4" feet facing downwards. Avoid unrepresentative areas within the plot. ***Count and record the number of rows included in the frame and estimated row spacing.***

Figure 1: Sampling frame placement for harvest.

3) Next, clip all plant biomass within the sampling frame **at a 4 inch height** with hand clippers and put into properly labeled bag. Use gloves to reduce the risk of clipping fingers!
4) Repeat steps #2 and #3 another 2 time within a plot in order to obtain a total of 3 frames per plot, all put together in the same paper bag (so one bag per plot, with one bag containing the biomass of three frames).
5) Repeat steps #2-4 for all 20 plots at the site.
6) Then place all sample bags into the large paper lawn and garden bags for transport.
7) Give Greg a call to arrange for pickup of the samples and supplies if you harvested on your own.

Finishing Harvest:

1) After samples have been harvested, remove all flags, driveway markers, and posts.
2) Complete the field activity sheets with notes on harvest date, harvest stage, significant differences among plots, abnormalities, and participants.
3) Arrange for pick up and transportation of samples back, if we are not out in the field with you. If samples cannot be transported back that same day, please place them in a cool dark area.

Send samples to:
Greg Godwin, 330 Morrison Hall, Dept. of Animal Science, Cornell University
Ithaca, NY 14853, Phone: 607-279-4627

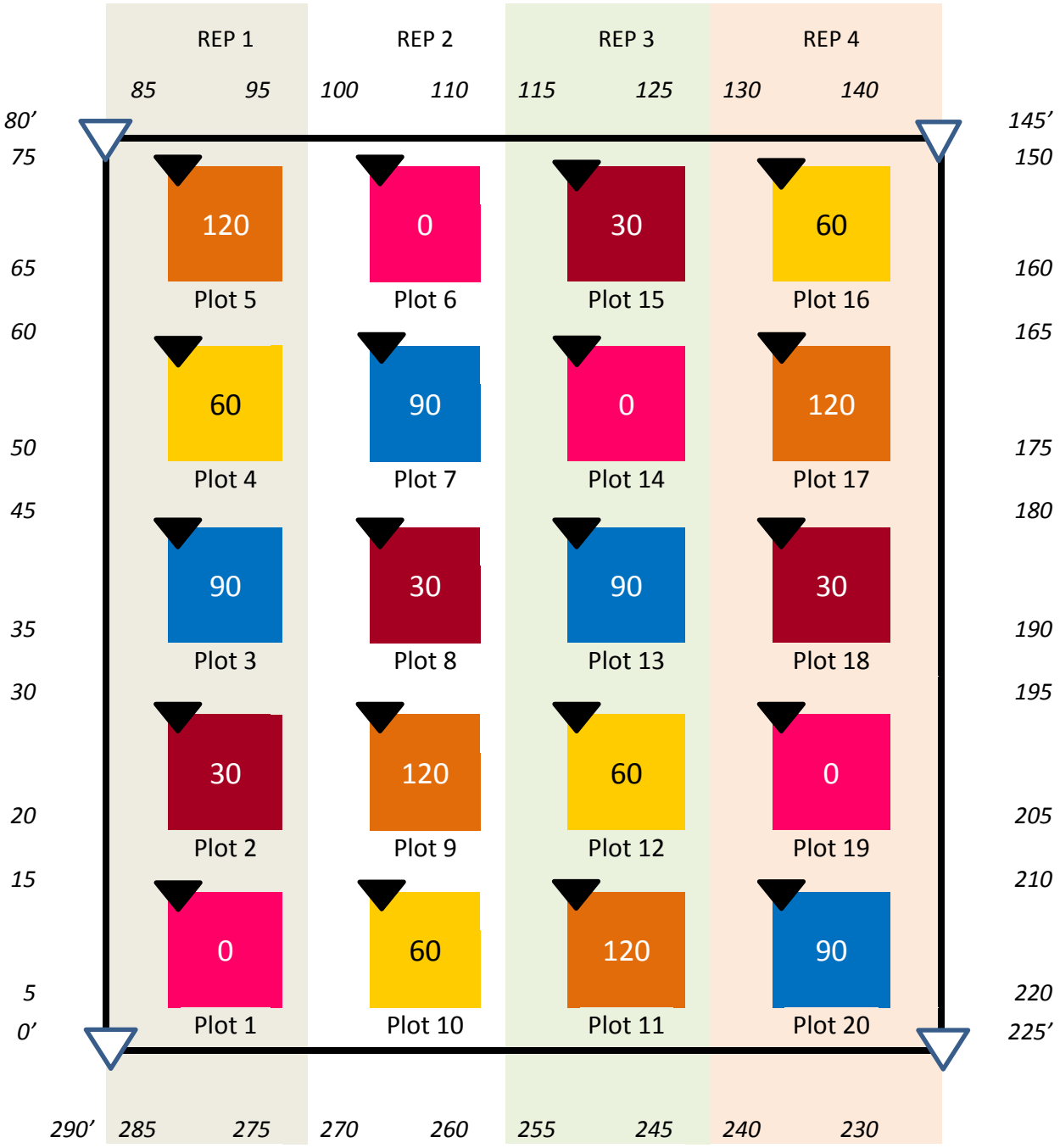

Figure 2: Plot set-up. Fertilizer rates (lbs N/acre) are noted in plots and color coded for flagging and match colored labels on bags for forage harvest.

Field Activities Record 2014

Location: _____

Experiment: 2014 Double Crop N Rate Study

Date	Activity, Participants, Observations, and Notes.
	Count and record the number of rows included in the harvest frame and estimated row spacing.