

2011 LTER Agronomic Protocol Kellogg Biological Station

Main Site Treatment 2: Inputs of Commercial Fertilizer/Herbicides, No-Till Management Summary Sheet

Growing Season: 2011

Rotation: Corn – Soybeans – Winter Wheat Tillage: No-Till

Tillable Acres: 13.5 Current Crop: Corn Previous Crop: Winter Wheat Yield Goal: 140 bu/A

Planting Date: May 2011 Planting Population: 28,000 seeds/A Variety: Dekalb DKC52-59 Corn Hybrid

Row Spacing: 30 inches Planting Depth: 1.50 inches Insecticide Used: none

Cover Crop: None

Harvest Date: October 2011

Tillage Operations Applied Last Year:

Wheat was harvested in July 2010 and straw was baled and removed from the plots. No tillage was conducted (No-Till). T2 plots were sprayed with Roundup + AMS in August to control weed pressure. Remaining stubble and weeds were flail mowed in September 2010.

Tillage Operations and Fertilizer Applied This Year:

Tillage: None (No-Till).

Fertilizer: Spring: Broadcast 70 lbs/A 0-0-60 (42 lbs of K₂O) before planting corn.
 Spring: Starter fertilizer apply 14 gals/A of 19-17-0 (30 lbs N, and 27 lbs P₂O₅).
 Apply 110 lbs N/A 28-0-0 (37 gal/A) approximately 1 month post-planting, knifing in fertilizer between the rows.

Cover Crop: None

Weed/Insect Control:

Burndown: Roundup + AMS.

Preemergence: LEXAR + Roundup + ammonium sulfate at label rates.

Postemergence: Scout for weeds and make herbicide application if necessary. Label rates of Roundup + AMS.

Insect control:

Soil Sample Analysis: Results from samples taken in the autumn of 2009.

pH:	<u>R1 6.2, R2 6.1, R3 5.8, R4 5.8, R5 5.9, R6 6.2</u>	Magnesium (Mg): ppm	<u>R1 151, R2 167, R3 155, R4 140, R5 154, R6 144</u>
Lime Index:	<u>R1 69, R2 69, R3 68, R4 68, R5 68, R6 69</u>	Calcium (Ca): ppm	<u>R1 869, R2 921, R3 857, R4 787, R5 857, R6 808</u>
Nitrogen (N):	_____	C.E.C.: (meq/100 g)	<u>R1 7.1, R2 7.5, R3 8.3, R4 7.8, R5 8.2, R6 6.6</u>
Phosphorus (P): ppm	<u>R1 30, R2 27, R3 33, R4 31, R5 20, R6 36</u>	% O.M.:	_____
Potassium (K): ppm	<u>R1 105, R2 104, R3 114, R4 114, R5 100, R6 78</u>	Others:	_____

Fertility -- Fertilizer Recommendation:

Lime ton/A:	<u>Avg. = 1.65: R1 1.1, R2 1.1, R3 2.2, R4 2.2, R5 2.2, R6 1.1</u>	K ₂ O lb/A:	<u>Avg. = 42.5: R1 40, R2 40, R3 40, R4 40, R5 40, R6 55</u>
Nitrogen lb/A:	<u>Avg. = 110: R1 110, R2 110, R3 110, R4 110, R5 110, R6 110</u>	Other:	_____
P ₂ O ₅ lb/A:	<u>Avg. = 43.3: R1 50 R2 50, R3 40, R4 50, R5 50, R6 20</u>		

Differences from Prior Rotations: This is a new corn variety. The LTER has never used a GMO corn variety in the past.

Comments:

On the LTER protocol soil sample analysis in prior years, up to and including 2007, was reported in lbs/acre. In 2008 and upcoming years soil sample analysis will be reported in ppm on the LTER protocol.

This is a working protocol used for planning purposes. Due to potential changes in chemicals, fertilizer, varieties planted, planting dates etc...
 please refer to the agronomic field log for actual field operations that take place during 2011.

2011 LTER Agronomic Protocol Kellogg Biological Station

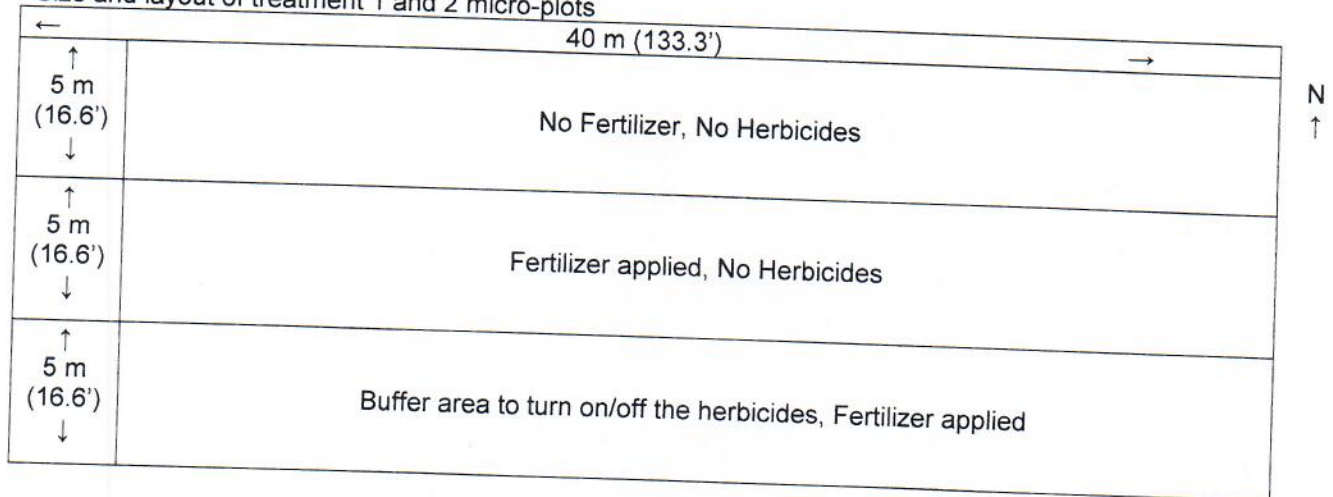
Micro-plots in Treatments 1 and 2

Since establishment of the LTER, treatments 1 and 2 have contained microplots that have been used to determine long term effects of weed populations without herbicide applications. Treatment 1 and 2 microplots contain two treatments (no herbicide, no fertilizer vs. no herbicide, with fertilizer).

Micro-plot size and location: Micro-plot area is 40 m (133.3 ft) wide from the northwest corner towards the east. From the northwest corner going south, total micro-plot area is 15m (50 ft) deep. Each treatment within the micro-plot area is 5m (16.6 ft) i.e. the no fertilizer, no herbicide area is 5m, the fertilizer, no herbicide area is 5m, and the buffer area is 5m. A buffer area was created because of the need for turning the herbicide spraying boom on and off during applications.

Crops/plants inside treatment 1 and 2 micro-plot areas are mowed/cropped before crop harvest. The weeds are usually so thick within the micro-plot areas that the crop growth is not enough to harvest. Specifically, treatment 2 micro-plot areas have such a thick grass growing in it that no crop growth occurs in these areas. Treatment 1 micro-plot area usually has a thick density of quackgrass and annual broadleaves that not much crop growth occurs. We mow the micro-plot area in treatments 1 and 2 so that we do not put all the weeds through the combine.

Size and layout of treatment 1 and 2 micro-plots



This is a working protocol used for planning purposes. Due to potential changes in chemicals, fertilizer, varieties planted, planting dates etc... please refer to the agronomic field log for actual field operations that take place during 2011.