2012 LTER Agronomic Protocol Kellogg Biological Station

Main Site Treatment 1: Inputs of Commercial Fertilizer/Herbicides, Conventional Tilled Management Summary Sheet Growing Season: 2012 Rotation: Soybeans - Winter Wheat - Corn Tillage: Conventional Tillable Acres: 13.5 Current Crop: Soybeans Previous Crop: Corn Yield Goal: Planting Date: 45 bu/A May 2012 Planting Population: 180,000 seeds/A Variety: Pioneer 92Y30 Row Spacing: 15 inches Planting Depth: 1 inches Insecticide Used: None Cover Crop None Harvest Date: September – October 2012 Tillage Operations Applied Last Year: Plots were chisel plowed and soil finished before corn was planted. Corn was harvested in October 2011. Corn stubble was fail mowed. Tillage Operations and Fertilizer Applied This Year: Tillage: In Spring 2012, Chisel plow after March 15th. Soil finish as needed before planting soybeans. Plant soybeans anytime after May 5th. After soybean harvest soil finish and plant winter wheat, variety Pioneer 25R39. Plant winter wheat after the Hessian fly-free date, September 20th for Kalamazoo County. Fertilizer: Spring: 92 lbs/A of 0-0-60 (55 lbs/A of K_20) (before chisel plowing, if possible). Spring: 60 lbs/A of 11-52-0 (6.6 lbs/A of N, 31.2 lbs/A of P₂O₅) Winter Wheat Fertilizer: Fall 2012: After soybean harvest before soil finishing broadcast 158 lbs/A of 19-19-19 (30 lbs/A of N, P₂O₅, and K₂0) on all replications. Spring 2013: Broadcast 28-0-0 at 17 gal/A (50.78 units of N or 181.39 lbs N/A). Cover Crop: None Weed/Insect Control: Preemergence: 1.33 pts/A of Dual II Magnum (crop rotation is 4.5 months after application of Dual II Magnum before planting wheat) Postemergence: Scout for weeds and make herbicide application of Roundup OriginalMax at 22 fl oz/Acre and ammonium sulfate at 17 lbs/100 gals of water when Insect control: Scout for aphids. If needed an insecticide application can be used to control aphids. Soil Sample Analysis: Results from samples taken in the autumn of 2010. pH: R1 5.8, R2 5.8, R3 5.7, R4 5.8, R5 5.9, R6 6.0 Magnesium (Mg): ppm R1 115, R2 145, R3 136, R4 149, R5 162, R6 127 Lime Index: R1 69, R2 69, R3 67, R4 69, R5 69, R6 70 Calcium (Ca): ppm R1 678, R2 773, R3 785, R4 812, R5 871, R6 655 Nitrogen (N): C.E.C.: (meg/100 g) R1 5.8, R2 6.6, R3 9.1., R4 6.8, R5 7.1, R6 4.5 Phosphorus (P): ppm R1 27, R2 28, R3 76, R4 30, R5 26, R6 48 % O.M.: Potassium (K): ppm R1 101, R2 116, R3 154, R4 127, R5 93, R6 84 Others: Fertility -- Fertilizer Recommendation: Lime ton/A: Avg. = 2.1: R1 2.2, R2 2.2, R3 2.8, R4 2.2, R5 2.2, R6 1.1 K20 lb/A: Avg. = 44.2: R1 55, R2 55, R3 0, R4 40, R5 55, R6 60 Nitrogen Ib/A: Avg. = 0: R1 0, R2 0, R3 0, R4 0, R5 0, R6 0 Other: P2O5 lb/A: Avg. = 20: R1 30, R2 30, R3 0, R4 30, R5 30, R6 0 Differences from Prior Rotations: 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 2012.