

2013 Agricultural Expo Demonstration Plot

Biosolids vs. Commercial Fertilizer



<p>Crop: Corn Variety: DeKalb DKC48-12RIB Planting Date: May 20, 2013 Plant Population: 35,000 Yield Goal: 150 bu/acre Harvest Date: November 13 and 20, 2013</p>	
Fertilizer Side	Biosolids Side
<p>Soil Test Results Bray P1:35 ppm Potassium: 64 ppm Calcium:2547 ppm Magnesium: 140 ppm Zinc: 8 ppm Manganese: 60.8 ppm pH: 7.9 CEC: 14.1 meq/100g Organic Matter: 4.1%</p>	<p>Soil Test Results Bray P1: 86 ppm Potassium: 70 ppm Calcium: 2574 ppm Magnesium: 149 ppm Zinc: 15 ppm Manganese: 66.5 ppm pH: 7.9 CEC: 14.3 meq/100g Organic Matter: 5.3%</p>
<p>Fertilizer April 9, 2013: Fertilizer Applied 0-0-62: 200 #/Acre 0-46-0: 100 #/Acre 46-0-0: 200 #/Acre May 3, 2013: Fertilizer Applied 46-0-0: 100#/Acre <u>PAN² applied:138 lbs/acre</u></p>	<p>Biosolids¹ October 2, 2012: Biosolids Applied 11.18 DT/Acre Nitrogen: 91 #/Acre Phosphorus: 168 #/Acre Potassium: 11 #/Acre April 9, 2013: Fertilizer Applied 0-0-62: 200 #/Acre May 3, 2013: Biosolids Applied 6.04 DT/A Nitrogen: 52 #/Acre Phosphorus: 133 #/Acre Potassium: 8 #/Acre <u>PAN² applied:143 lbs/acre</u></p>
Yield: 177 bu/acre	Yield: 226 bu/acre
Moisture:18.9 %	Moisture: 20.8%
Test Weight: 46.45 lbs/bushel	Test Weight: 50.73 lbs/bushel

¹ Source: Delta Township Wastewater Treatment Facility

² PAN = Plant Available Nitrogen

Ag Expo Biosolids Site – 2013

Soil Test Information

		pH	Bray P1	K	Ca	Mg	Fe	Mn	Zn	CEC	O.M.
				lb/acre				ppm		meq/100g	%
East Side w/ Biosolids											
Original Site	9/27/99	7.6	33	140	2910	400	---	---	---	9.1	---
After compost	12/17/99	7.6	91	930	6380	952	---	70.6	10.0	21.1	8.8
Before Biosolids	4/20/00	8.0	124	1170	5760	333	---	73.7	14.0	17.3	---
Fall, 2004	10/13/04	7.7	168	406	6670	500	---	---	---	19.0	6.6
Spring, 2006	5/1/06	7.7	132	230	6080	478	---	60.0	11.7	17.5	4.0
Spring, 2009	4/23/09	7.9	166	274	5860	432	65.3	73.0	17.7	16.8	6.0
Spring, 2012	5/4/12	7.9	172	140	5140	298	63.2	66.5	15.0	14.3	5.3
West Side w/o Biosolids											
Original Site	9/27/99	7.7	33	150	3090	444	---	---	---	9.8	---
After compost	12/17/99	7.7	78	980	6290	895	---	62.4	9.0	20.7	7.4
Before Biosolids	4/20/00	7.9	102	690	5760	790	---	73.7	11.0	18.6	---
Fall, 2004	10/13/04	7.8	58	176	6630	406	---	---	---	18.5	4.9
Spring, 2006	5/1/06	7.6	62	194	5830	458	---	60.0	6.0	16.7	3.4
Spring, 2009	4/23/09	7.8	124	284	5340	426	34.2	70.2	8.7	15.5	4.9
Spring, 2012	5/4/12	7.9	70	128	5100	280	30.2	60.8	8.0	14.1	4.1

2013 Crop – Corn (var. DeKalb DKC48-12RIB)

Plot area was rototilled with spader in the fall of 2012. Biosolids was applied on October 1, 2012 and was supplied by Delta Township WWTP. The wheat was planted on October 3, 2012. Fertilizer was applied on April 9, 2013. Due to crop damage by vehicles it was decided that corn would be grown. On May 3, 2013, additional Biosolids and fertilizer were applied. On May 4, 2013, the plots were rototilled with spader. On May 20, 2013 corn was planted at 34,000 plants/acre. Herbicide containing glyphosate (Round-Up®) was applied at 2 quarts/acre on June 17 and July 1, 2013 for weed control.

Biosolids and Fertilizers Applied

Based on the 2012 soil test results, recommended K₂O (potash) levels were 135 and 140 lb K₂O/acre for the west and east side, respectively, so granular 0-0-62 fertilizer was broadcast on each side at a rate of 120 lb K₂O/acre. For the west side of the site where no biosolids have been applied, recommended P₂O₅ (phosphate) level for 140 bu/acre yield was 45 lbs. P₂O₅/acre, so granular 0-46-0 fertilizer was broadcast by hand. The potash and phosphate was applied on April 9, 2013. Biosolids were applied on October 1, 2012 at a rate of 11 dry tons per acre for wheat. At this rate 89 lbs. Nitrogen, 163 lbs. Phosphorus, and 11 pounds Potassium were applied per acre. On May 3, 2013, an additional 6 dry tons per acre of Biosolids were applied for corn. At this rate 52 lbs. Nitrogen, 133 lbs. Phosphorus, and 8 lbs. Potassium were applied per acre. 46-0-0 was applied at a rate of 200 lbs./acre (92 lbs. N/acre) on April 9, 2013 and an additional 100 lbs./acre (46 lbs. N/acre) was applied on May 3, 2013.