

2010 KBS and Arlington GLBRC Agronomic Protocol
January 1, 2010

G1: Annual grain monoculture: Continuous Corn (no crop rotation). This treatment represents a best management practice for conventional, high-intensity grain produced for biofuel, with some portion of the stover removed for cellulosic yield.	
Site	KBS
Planting	Plant Dekalb DKC52-59 in late April or early May. Variety DKC52-59 is a triple stack variety of corn Roundup Ready and Bt corn
Cover Crop	No cover crops used
Tillage	No-till
Harvest	Harvest corn in October or November. After grain harvest remove plant stover (except not in 6 west or east rows, see microplots, below)
Fertilization	Based on MSU Soil Lab MRTN recommendation (0.1 N: Corn Price Ratio) Medium Soil Productivity. 130 lb N ac ⁻¹ (146 kg N ha ⁻¹). Starter: 14 gals/A of 19-17-0 (29 lbs N acre ⁻¹ , 33 kg N ha ⁻¹) (26 lbs P acre ⁻¹ , 29 kg P ha ⁻¹) Sidedress: 33 gal/A 28% N solution (100 lbs N acre ⁻¹ , 112 kg N ha ⁻¹) Potassium (K) applied as 0-0-60 K ₂ O applied preplant: 75 lb ac ⁻¹ (84 kg ha ⁻¹) → [45 lb K ₂ O ac ⁻¹ (51 kg K ₂ O ha ⁻¹)]
Pest Cntrl	Apply appropriate herbicides to control annual weeds. Preemergence: Broadcast Lexar at 3 qts/A (Lexar is a premix of Dual II Magnum (1.36 pt/A) + Callisto (5.34 oz/A) + atrazine 4L (1.3 lb/A)). Postemergence: Apply Roundup at label rates as needed to control weeds.
Microplots	Corn Stover Retention. Leave stover on west 6 rows of each plot (except east 6 rows of Block 1 at KBS due to gas chambers). Measure yield separately for 2 center rows, and quadrat sample to determine stover remaining. Calculate % recovery (wt of machine harvested stover / [wt of machine harvested stover + weight of stover remaining on soil]).
	Arlington Plant Dekalb DKC52-59 in late April or early May. Variety DKC52-59 is a triple stack variety of corn Roundup Ready and Bt corn No cover crops used No-till Harvest corn in October or November. After grain harvest remove plant stover (*see micro-plots, below) except in W. 6 rows. Harvest (yield check) corn from the Corn Stover Retention micro-plots separately from main plot. Starter: 112 kg ha ⁻¹ (100 lb ac ⁻¹) of 5-14-42 Side-dress: 63 gal/A 28% N solution (190 lbs N acre ⁻¹ , 213 kg N ha ⁻¹), application rate based on silage usage since stover is being removed. To be modified based on pre-plant NO₃-test. No P additions necessary Potassium (K): applied pre-plant as 0-0-60 to selected plots base on UWEX recommendations. Burn-down: Roundup + 2,4-D Ester at label rates Pre-emergence: Dual II Magnum at 1.74 l ha ⁻¹ (1.5 pts/ac) Post-emergence: Roundup + Laudis at label rates as needed Corn Stover Retention. Leave stover on west 6 rows of each plot. Measure yield separately for 2 center rows (rows 3 and 4 from the West), and quadrat sample to determine stover remaining. Compare micro-plot yield to rows 3 and 4 from the East. Calculate % recovery (wt of machine harvested stover / [wt of machine harvested stover + weight of stover remaining on soil]).