ARKANSAS CORN AND GRAIN SORGHUM PROMOTION BOARD
PROGRESS REPORT – JANUARY 2010

Title: Improving Technology Transfer for Profitable Corn and Grain Sorghum Production in Arkansas

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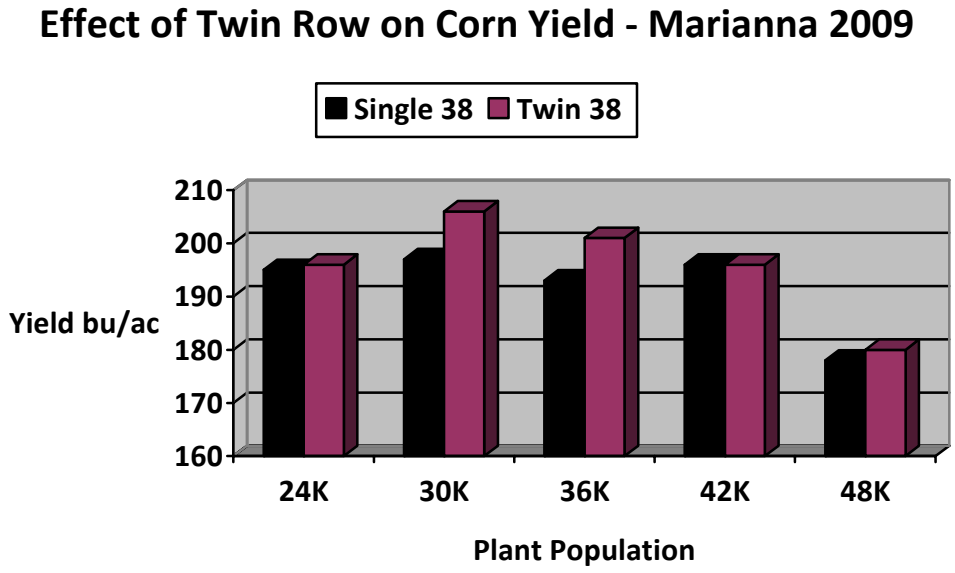
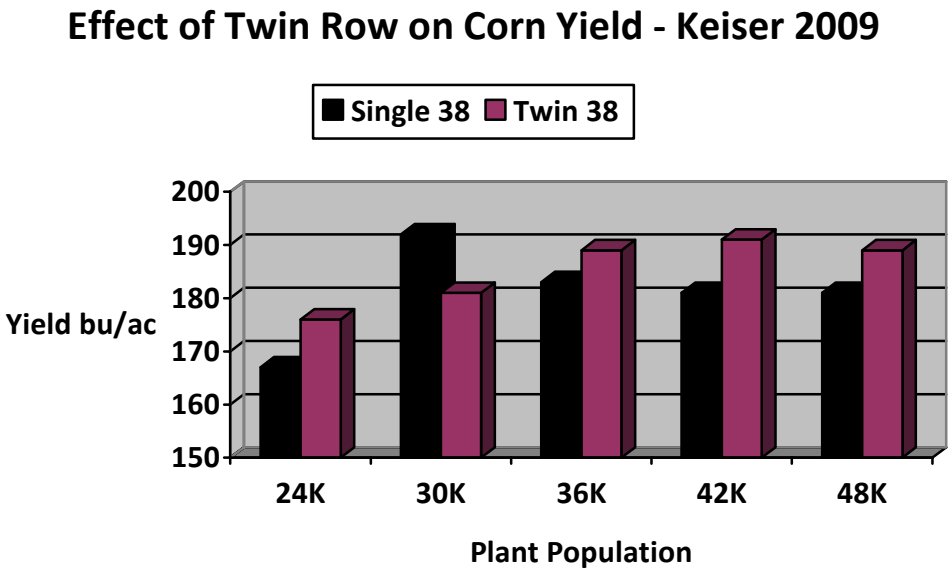
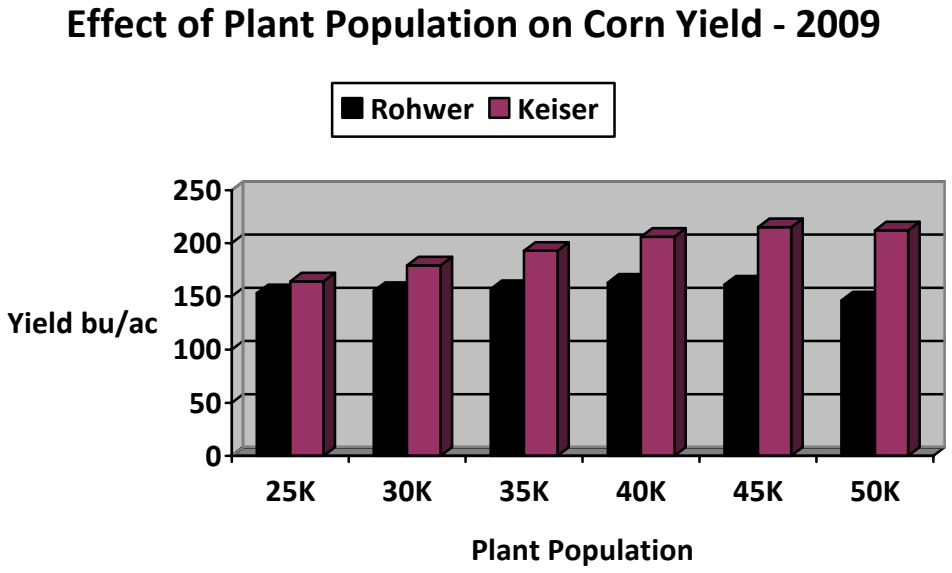
Cooperators: Various Extension and University Faculty in Soil Fertility, Entomology, Plant Pathology, Weed Science, Plant Physiology, Bio and Agricultural Engineering, Corn/Sorghum Research Verification Coordinator, County Extension Agents, and Corn and Grain Sorghum Producers

Twin Row Corn versus Single Row Corn: Two trials were conducted to evaluate single 38 inch row spacing corn compared to twin rows (spaced 7.5 inches apart) on 38 inch wide beds. Trials are located on the Lon Mann Station at Marianna and the Northeast Research and Extension Center at Keiser. A single corn hybrid (Pioneer 33M57) at plant populations of 24K, 30K, 36K, 42K, and 48K are evaluated under single row and twin row planting configuration. A Monosem twin row planter with variable seeding rate technology was used to plant the twin row corn. A standard John Deere Vacuum planter was used to plant the single row plots. Plant populations were taken soon after emergence and where needed plots were thinned to get comparable plant populations between the single row and twin row corn. Various plant measurements such as plant height, ear height, number of kernels around and length on the cob, light interception, and lodging were taken prior to harvesting. In general twin row planting in 2009 gave slightly greater yields compared to single rows and higher yields were maintained at higher populations than single rows.





Plant Population: Plant population studies were conducted at Keiser and Rohwer evaluating 6 populations (25K, 30K, 35K, 40K, 45K, and 50K) and two or four hybrids (Pioneer 31P42, Dekalb 64-79, Belle 1844, and Dyna Gro 58V24). Yields at Rohwer responded very little to increasing population, suggesting that other factors were limiting yield potential (saturated soils), while at Keiser, yields were maximized by populations as high as 45,000 plants/ac.



Avicta Seed Treatment for Corn: Two large plot replicated trials were conducted Desha and Clay Co comparing the Avicta seed treatment for root knot nematode suppression versus no Avicta. Avicta is a nematicide that has been labeled for use in corn. Fields with a history of root knot nematodes were selected for the plots. Nematode samples were taken at mid-season, which revealed low levels of nematodes (reason is unknown). Stand counts were taken shortly after emergence which showed no difference between the treatments. Throughout the season no differences in growth could be seen between treatments. At harvest, plots were harvested using producers combine and a weigh wagon. Yields shown below did not differ between treatments.

	Clay County	Desha County
Untreated (Cruiser 250)	197.8	197.0
Avicta (Cruiser 500)	196.4	195.5
LSD (0.05)	NSD	NSD

More trials with higher root-knot nematode levels will be needed to determine usefulness of Avicta on corn.

Afla-Guard evaluation for suppression of aflatoxin in corn: Three large plot replicated corn trials were conducted in Jefferson County near Pine Bluff, Faulkner County near Conway, and Clark County near Gurdon. The trial at Conway and Gurdon were dryland and the field near Pine Bluff was furrow irrigated. All fields were late planted (mid-May to early June). Afla-Guard was applied at 0, 10, and 20 lbs/acre by airplane (Pine Bluff) or by ground application equipment 7 to 10 days prior to beginning of silking. Afla-Guard contains a form of aspergillus fungus that does not produce aflatoxin. The idea behind the product is that the "good" aspergillus fungus will displace the "bad" aspergillus fungus. At maturity, subsamples were taken from each large plot and shelled with a plot combine. Grain samples were sent to two different labs for aflatoxin analysis. Unusually cool and wet July and August resulted in low levels or non detectable levels of aflatoxin at all three sites.

	Pine Bluff		Conway		Gurdon	
	Aflatoxin Levels – Parts per Billion (PPB)					
	Lab 1	Lab 2	Lab 1	Lab 2	Lab 1	Lab 2
Untreated	1	0	0	0	39	0
10 lbs/acre Afla-Guard	1	0	0	0	7	1
20 lbs/acre Afla-Guard	1	0	0	0	8	4
LSD (0.05)	NSD	NSD	NSD	NSD	NSD	NSD

Further testing is needed to determine whether Afla-Guard can suppress aflatoxin.