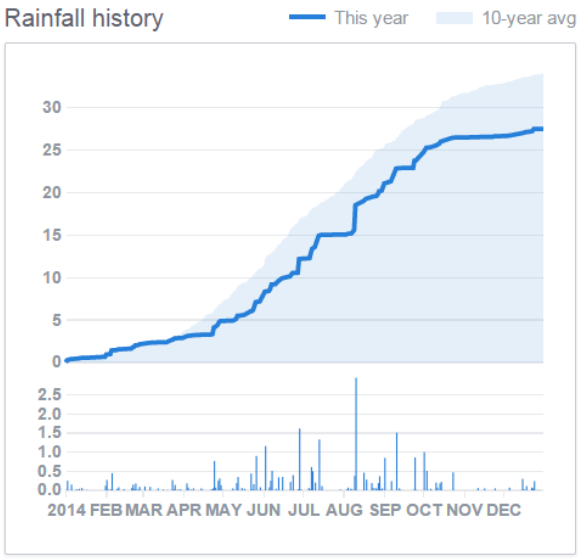
Nebraska On-Farm Research Network

Rainfed Corn Population Study – Variable Rate Seeding

Study ID: 003095201401
County: Jefferson
Soil Type: Crete, Morrill, Morrill-Jansen Silt Loam
Planting Date: 4/24/2014
Harvest Date: unknown
Row Spacing: 30”
Hybrid: Channel 213-40
Reps: 7
Previous Crop: Soybean
Tillage: No-till
Herbicides:
Pre: Glyphosate and 10 oz/ac 2,4-D LV6 on 4/12/14
Insecticides/Fungicides: Acceleron 250 seed treatment
Fertilizer:
105# N/ac as anhydrous ammonia on 11/5/13
5 gal 10-34-0 and 1 pt/ac Zinc chelate in furrow



Introduction: Four years of yield data (Figure 1) were used to create management zones for variable-rate seeding (Figure 2). Four seeding rates were used in the variable rate prescription map: 17,000, 21,000, 24,000, and 27,000 seeds/acre. In order to evaluate the result of the variable-rate seeding, strips of a flat seeding rate of 23,500 seeds/acre were placed throughout the field. The acreage for each population level is shown below. This 2014 on-farm research study attempted to determine if developing production regions in the field and subsequently planting variable rate corn populations in those regions was more profitable than planting a standard seeding rate per acre.

	Population	% of study area	Acres
Flat Rate	23,500	50%	8.5
Variable Rate	17,000	5%	0.92
	21,000	10%	64.2
	24,000	24%	73.3
	27,000	11%	82.5

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Figure 1. Yield maps for 2008, 2009, 2010, and 2013 which were used to create management zones for planting.

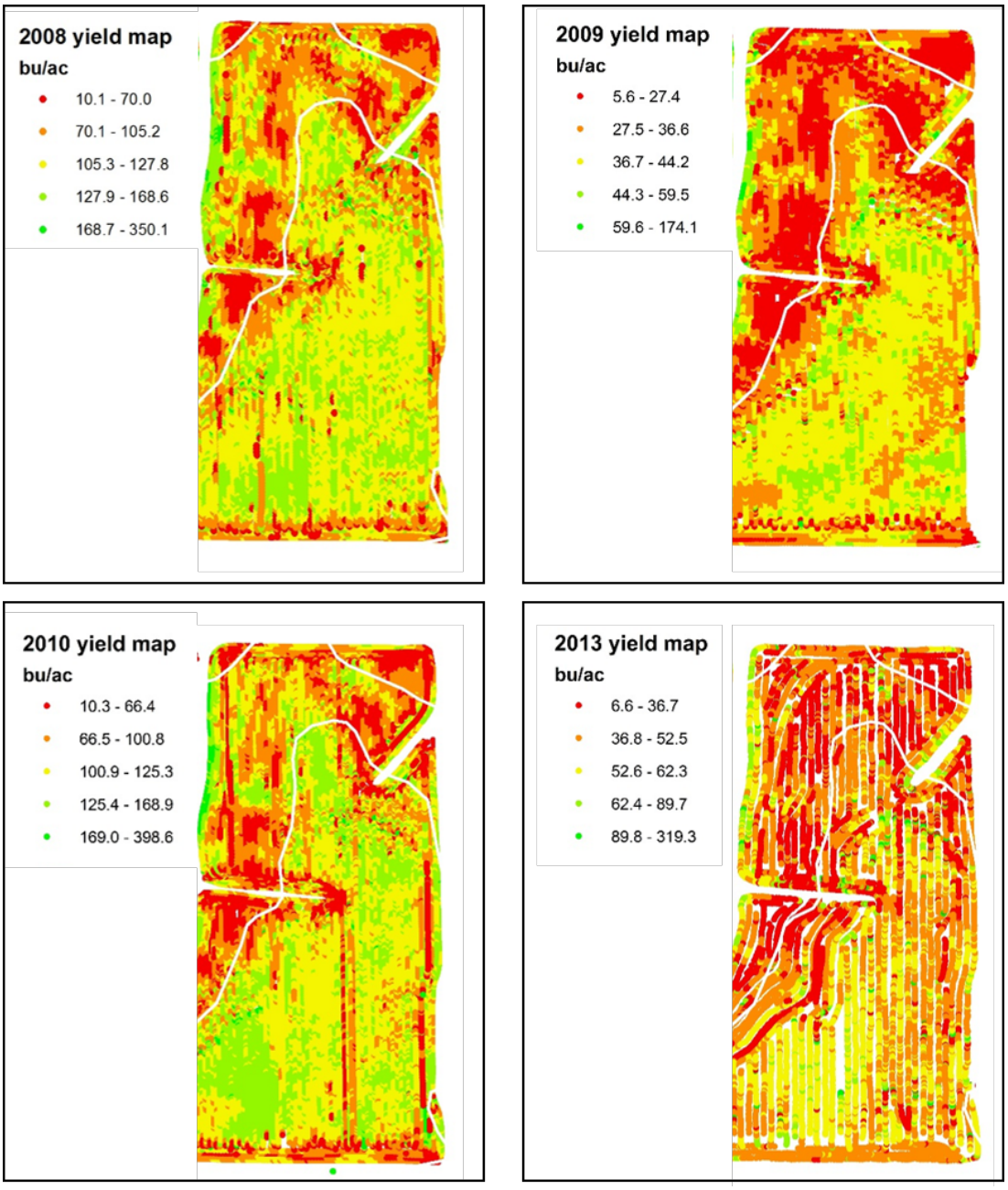

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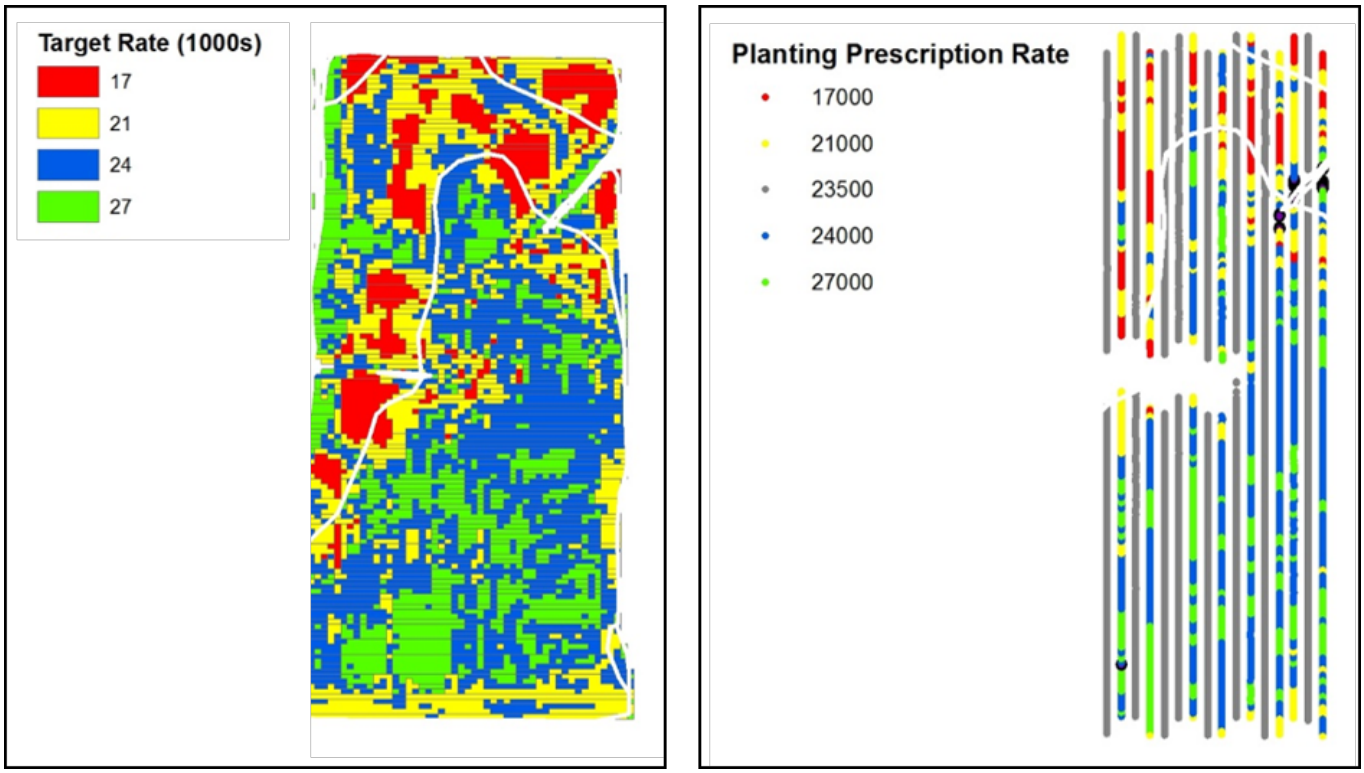
Figure 2. Prescription seeding rate based on four year composite yield (left) and as planted map showing strips of standard 23,500 seed/acre rate for evaluation (right).



Results:

	Yield† (bu/acre)	Moisture (%)	Seed Cost per acre	Net Return ‡
Flat Rate	129 A*	13.3 A	$71.81	$379.69
VR seeding	131 A	13.2 A	$71.19	$387.31
P-Value	*0.1738*	*0.2308*	--	--

†Bushels per acre corrected to 15.5% moisture.

*Values with the same letter are not significantly different at a 90% confidence level.

‡Net return based on $244.45/bag

Summary: There was no significant yield difference between the variable rate seeding and the flat rate seeding.

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