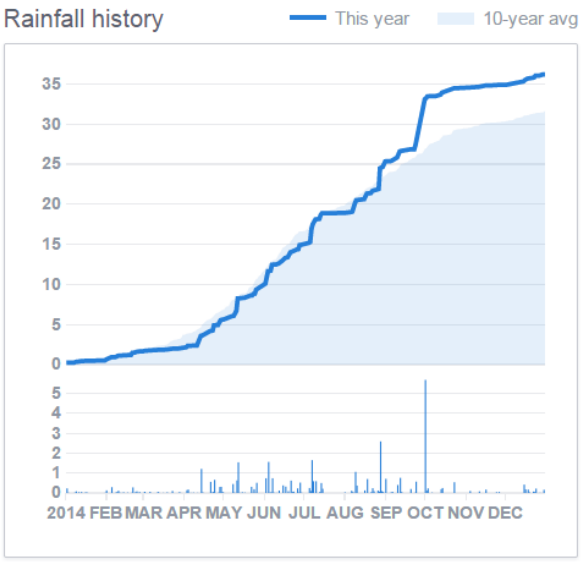
Nebraska On-Farm Research Network

Rainfed Corn Population Study – Variable Rate Seeding

Study ID: 030109201401
County: Lancaster
Soil Type: Sharpsburg silty clay loam, Judson and Kennebec silt loam
Planting Date: 4/22/2014
Harvest Date: 10/26/2014
Row Spacing: 30”
Hybrid: P1498
Reps: 8
Previous Crop: Soybeans
Tillage: No-till
Herbicides:
Pre: 2.1 qt/ac Trizmet II Herbicide broadcast
Post: 1.87 oz/ac Callisto and 24 oz/ac Roundup PowerMAX
Insecticides/Fungicides:
Poncho 1250, Raxil MD, Herculex I, Yield Gard Seed Treatments
Fertilizer: 160#/ac anhydrous ammonia, Nov. 2013



Introduction: With the capability of planters to variable-rate seed, more farmers are trying this feature out in their fields. The technology holds promise as it can help increase return on investment of seed by putting more seeds where there is more potential for increased yield. The soil map for this field is shown in Figure 1. For this study, management zones were developed by using four years of historic yield maps (Figure 2). When the composite yield maps were compared to the soil series map for this field, similarities were seen. Management zones for variable-rate seeding (Figure 3) were based off of the composite yield map. Three seeding rates were used (24,000, 28,000 and 32,000 seeds/acre) in the variable rate

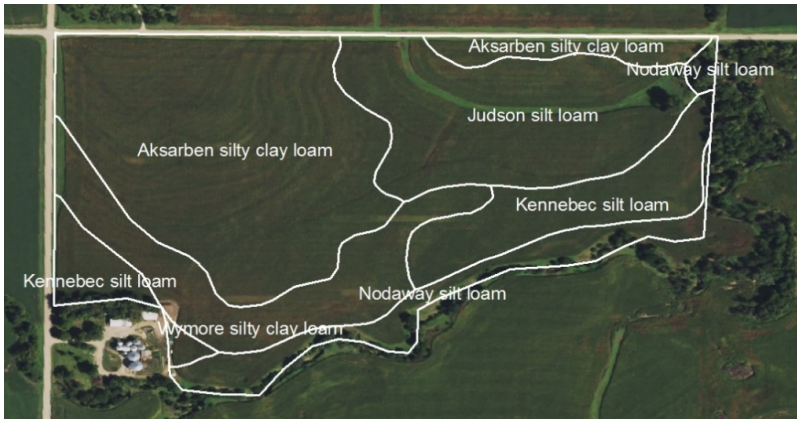


Figure 1. Soil series map for the field being studied.

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prescription map. In order to evaluate the result of the variable-rate seeding, strips of a flat seeding rate of 28,000 seeds/acre were placed throughout the field. This design allowed for comparisons to be made between the flat seeding rate and variable seeding rate. The variable-rate seeding prescription resulted in equal amounts of the 3 rates of seed being planted with an overall average of 28,000 seeds/acre for the variable-rate strips. Because the same amount of seed was used on the variable-rate seeding areas and the flat rate seeding areas, the seed cost for the single rate and variable-rate areas was the same in this case. This 2014 on-farm research study attempted to answer the question "if developing production regions in the field based on soil type and planting variable rate corn populations in those regions was more profitable than planting a standard seeding rate per acre"?

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Figure 2. Yield maps for 2010, 2011, 2012, and 2013 which were used to create a four year composite yield map.

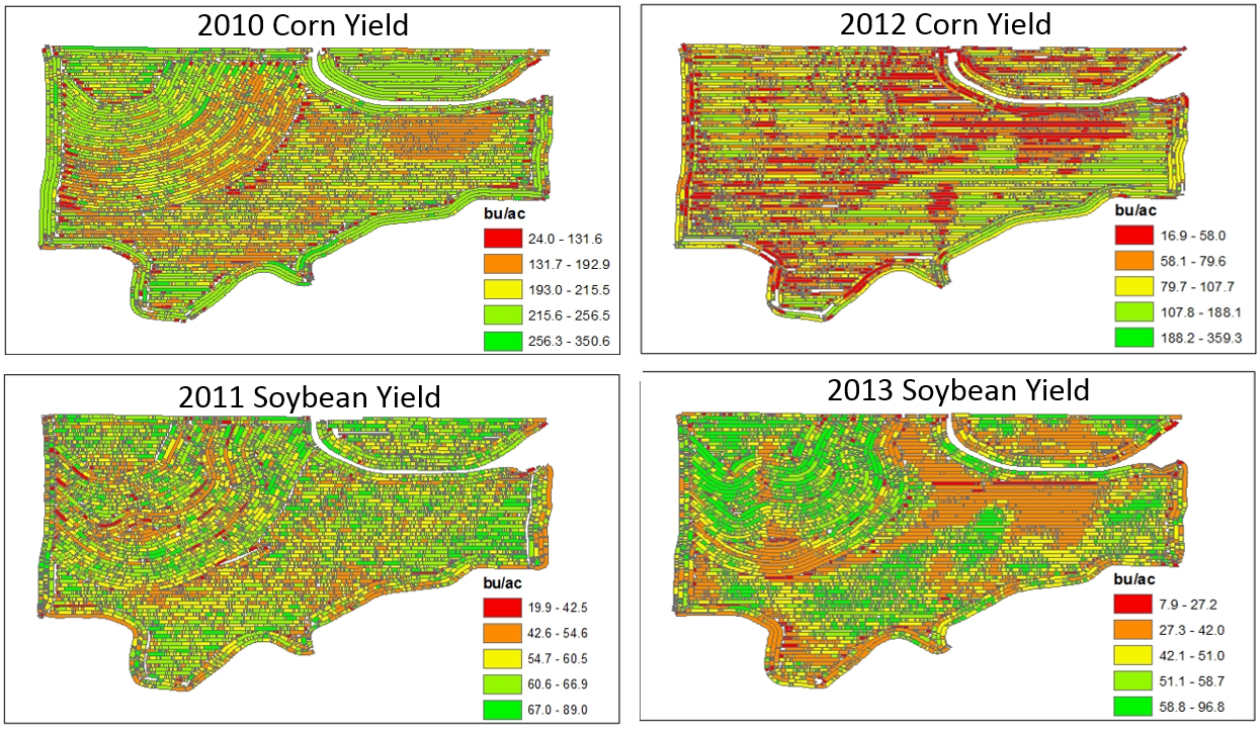

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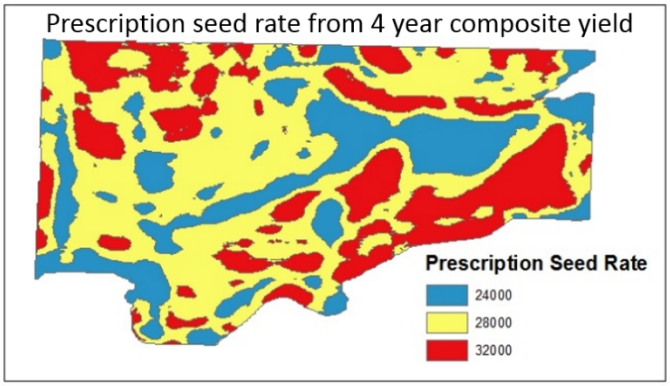
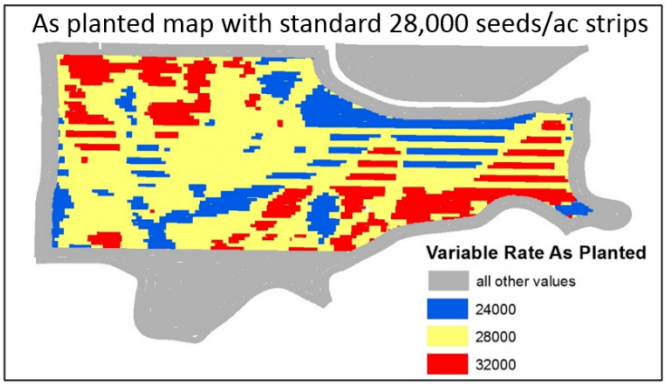
Figure 3. Prescription seeding rate based on four year composite yield (left) and as planted map showing strips of standard 28,000 seed/acre rate for evaluation (right).





Results:

	Yield† (bu/acre)	Moisture (%)	Net Return ‡
28,000 seeds/ac	204 A*	15.7 A	$714.00
Variable Rate Seeding	203 A	15.7 A	$710.50
P-Value	*0.1631*	*0.7489*	--

†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 $3.50/bu corn. Seed cost between treatments is the same and was therefore not taken into account.

Summary:

There was no significant yield difference between the variable rate seeding prescription and the standard 28,000 seeding rate. Moisture for the two treatments was also the same.

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