



YIELD AND POPULATION TRENDS IN CORN

TRIAL OVERVIEW

- One of the most important decisions during the planning process for the upcoming planting and growing season is the choice of corn products and the planting population that provides the highest yields and/or profit.
- For the past two seasons, the Huxley Learning Center has conducted field trials with 120 corn products to understand the impact of seeding rate on yield. A summary of the data is presented in this report.

RESEARCH OBJECTIVE

To provide an overview of corn yield and population trends over the past two years.

Location	Soil	Previous Crop	Tillage Type	Planting Date	Harvest Date	Potential Yield/Acre	Planting Rate/Acre
Huxley, IA	Clay Loam	Soybean	Conventional	4/26/2016	10/17/2016	250 bu/acre	32,000 36,000 40,000
Huxley, IA	Clay Loam	Soybean	Conventional	5/10/2017	10/19/2017	250 bu/acre	32,000 36,000 40,000

SITE NOTES:

- In the 2016 and 2017 growing years, corn products ranging from 99 RM to 117 RM were planted in 30-inch row spacing in 200 ft. long strips. Each year, 60 corn products were planted at 32,000, 36,000 and 40,000 seeds/acre. The data presented in this report is the combined yield response of the 120 corn products over the 3 planting populations.

UNDERSTANDING THE RESULTS

- Corn yield increased as planting populations increased.
- There was about 8 bu/acre yield increase from 32,000 to 36,000 seeds/acre, and another 8 bu/acre increase from 36,000 to 40,000 seeds/acre (Fig. 1).
- Increased seeding rates results in increased seed cost per acre. A general rule of thumb is that a 1-1.25 bu/acre yield increase is required for every 1,000 seeds/acre increase in seeding rate. Thus, in this summary, increasing seeding rate by 4,000 seeds/acre resulted in 3-4 bu/acre in net returns.
- The research site is a 250 bu/acre yield environment. The data indicates that increasing seeding rate is a good risk management strategy. At 32,000 seeds/acre, 71% of the products yielded below 250 bu/acre. The risk decreased to 1 in 2 products at 36,000 seeds/acre. At 40,000 seeds/acre, about 2 in 3 products yielded above 250 bu/acre (Fig. 1).
- During tough economic times, growers may want to decrease seed cost by reducing seeding rate. However, the data indicates that this may not be a safe strategy. Instead, seeding rate should be increased to minimize the down side risk.

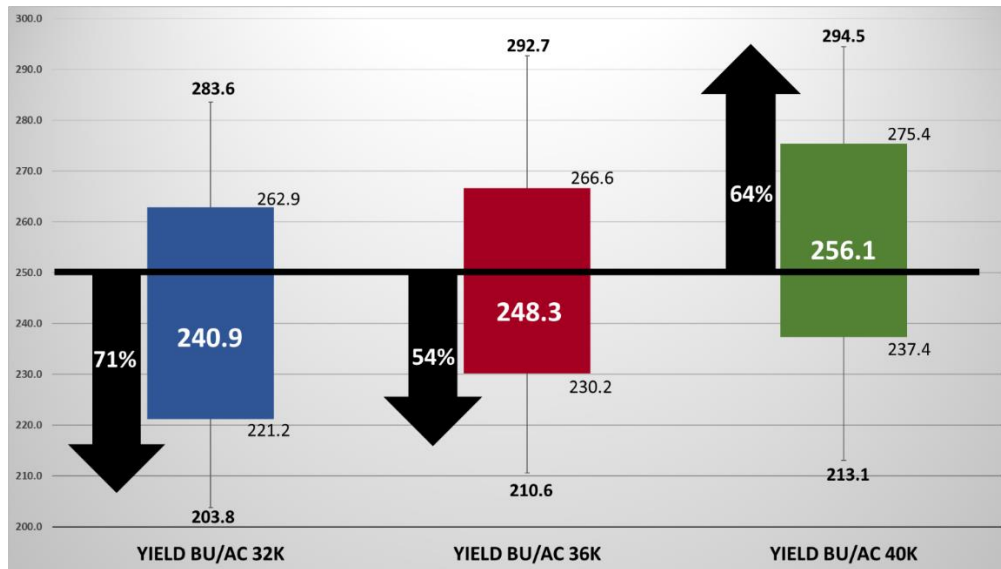


Figure 1. A Box & Whisker chart depicting a 2-year trend of average corn yield in response of planting population. The boxes represent where 75% of the data lie and the error bars represent the outlying 25% of the data. The horizontal black line marks 250 bu/acre which is the yield environment of the research site. The black arrows are risk factors that show the percentage of corn products that yield below or above the 250 bu/acre mark.

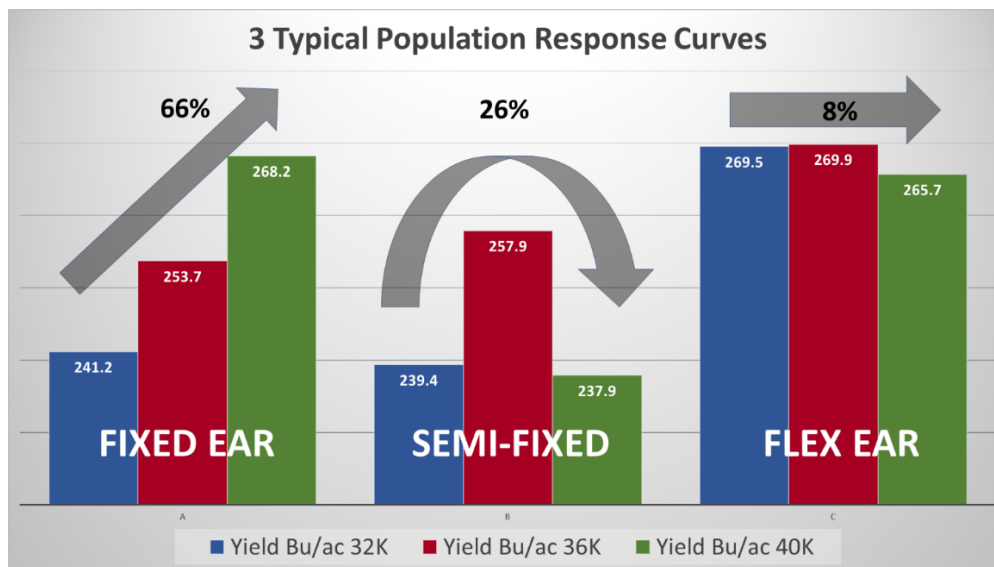


Figure 2. Three typical average corn yield response curves to planting population. Each corn product falls in one of these categories and knowing the response curve helps with seeding rate decisions.

- The 120 corn products followed the typical yield response curves as influenced by seeding rates (Fig. 2 and Fig. 3).
- Products with fixed ears typically show increased yields with increased seeding rate, whereas flex ear products maintain nearly the same yields at increasing populations. With semi-fixed ears, yields typically peak at the median population.
- More than two-thirds of the products tested had fixed ear responses, with 26% and 8% in the semi-fixed and flex ear responses, respectively.
- It is important to know the fix/flex characteristics of a corn product to know how it will respond to different seeding rates. It also provides an insight into how they will respond to stress during the growing season.



Figure 3. Examples of corn products with fixed and flex ear population response curves.

WHAT DOES THIS MEAN FOR YOUR FARM?

- Every growing season is different and has a significant impact on the performance of corn products.
- 40,000 seeds/acre may not be the optimum seeding rate for every corn product, and not every field is suited for 40,000 seeds/acre in every environment. As such, it is important that growers have a good discussion with their trusted local seed representatives on how well a corn product of interest performs under different growing conditions and management practices.
- Growers are encouraged to invest in tools that help with product and seeding rate decisions. Climate FieldView™ advanced scripting options help optimize seeding rates by providing recommendations best suited for the field and yield environment (Fig. 4). This helps minimize risk by spreading planting population across the different environments in the field.

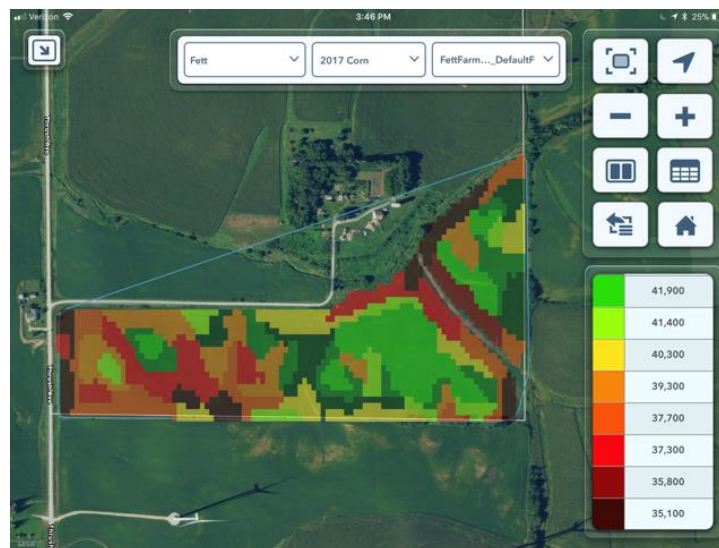


Figure 4. A seeding rate prescription for a corn field using the advanced scripting options from Climate FieldView™ Pro. The tool helps minimize risk by tailoring seeding rates to suite the yield environment.

Legal Statement

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

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