

Should We Pick Morris Over Waseca?

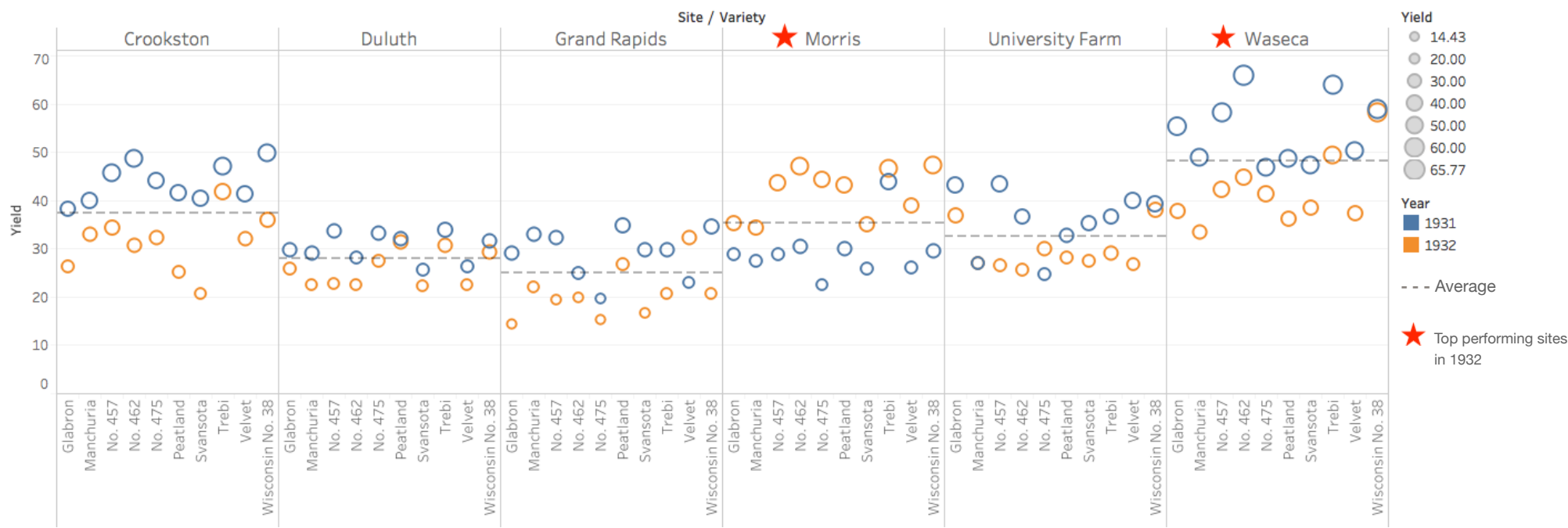


Figure 1: Scatterplot showcasing barley yield of ten different varieties at six experiment sites.

| Site | Variety | Year | |
|--------|------------------|-------|-------|
| | | 1931 | 1932 |
| Morris | Wisconsin No. 38 | 29.47 | 47.17 |
| | No. 462 | 30.37 | 47.00 |
| | Trebi | 43.77 | 46.63 |
| | No. 475 | 22.60 | 44.23 |
| | No. 457 | 28.70 | 43.53 |
| | Peatland | 29.87 | 43.20 |
| | Velvet | 26.13 | 38.83 |
| | Glabron | 28.77 | 35.13 |
| | Svansota | 25.77 | 35.03 |
| | Manchuria | 27.43 | 34.37 |

↑ +42%

| Site | Variety | Year | |
|--------|------------------|-------|-------|
| | | 1931 | 1932 |
| Waseca | Wisconsin No. 38 | 58.80 | 58.17 |
| | Trebi | 63.83 | 49.23 |
| | No. 462 | 65.77 | 44.70 |
| | No. 457 | 58.10 | 42.20 |
| | No. 475 | 46.77 | 41.27 |
| | Svansota | 47.33 | 38.50 |
| | Glabron | 55.20 | 37.73 |
| | Velvet | 50.23 | 37.40 |
| | Peatland | 48.57 | 36.03 |
| | Manchuria | 48.87 | 33.47 |

↓ -23%

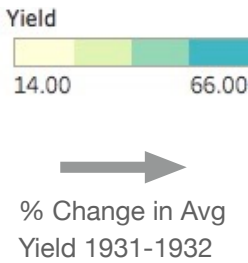


Figure 2: Color Coded table view of the yield of the varieties of barley at Morris and Waseca. The arrows indicate the Overall Percentage Change of Average Barley Yield from 1931 and 1932.

Purpose of Visualization:

I wanted to find by Visualizing the Minnesota barley experiment data the most productive site for farming barley. I thought this would be valuable information especially since the experiment was conducted during the Depression Era. But after creating the scatterplot (figure1), I found an intriguing phenomenon at the test site Morris:

Insight: Through the scatterplot, I noticed that except at Morris, the rest of the sites had higher barley yield in 1931 than in 1932. Even though the overall average yield of barley at Waseca was higher than the other sites, Waseca's Percentage Change in Average Yield between 1931 and 1932 had gone down by 23% while Morris's had increased significantly by 43%. The question remains: What change occurred at Morris that led to the higher yields in 1932?

With the given data, my Visualizations inform the experimenters that with the rate of increase in productivity, **Morris** will be a better choice over Waseca for future barley production.

Tools:

I used *Tableau* to create the Visualizations for this Assignment.

Data Transformation:

I sorted the *barley data* into yield per year of barley varieties at each site. That way I could notice an increase or decrease in yield per site between the two years.

Design Decisions:

Figure 1: Scatter Plot

I used a scatter plot to graph a comparative chart of the data: I selected the range of the yield *scale* to be [0,70] as the *min* of the yield data is 14.43 and *max* 65.77; the *position* of the circles on the plot represent the quantitative values of yield of each variety at the sites; the size of the circles map to breakdown of yield values into seven steps (as shown in the legend); the *color* of the circles indicate the two years of the experiment-I purposely chose contrasting colors for ease of differentiation and selected orange for 1932 to make it striking; the *dotted line* indicates the overall average of the barley yield per site; and the red stars next to Morris and Waseca are meant to focus the eyes on those particular panels on the plot.

Figure 2: Color Coded View

Initially, this visualization was vertically aligned and included the data from all sites. I broke it down to only showcase Morris and Waseca as those are the two sites I am interested in comparing. The main purpose of this visualization is to highlight how Morris had much higher yields in 1932 compared to 1931 and saw a 43% increase in the Percentage Change in Average Yield (indicated by the green upward arrow). While Percentage Change in Average Yield at Waseca decreased by 23% (indicated by the red downward arrow), making Morris the better choice for future barley production. The color palette used is Blue-Green Sequential. I wanted the higher yield color to be more notable and the color is divided into four steps with a range from 14 to 66.