

## **Foliar Nutrient Analysis of Urine-Fertilized Sweet Corn**

The roller pump applicator developed in this project was used to fertilize sweet corn grown at John Janizyn's farm on July 22, 2025. Corn was fertilized with either 1) urine concentrate applied with two passes (urine double pass) of the roller pump applicator (~80 lbs N/ acre), 2) urine concentrate applied with one pass (urine single pass) of the roller pump applicator (~40 lbs N/ acre), 3) urea applied with conventional equipment (~80 lbs N/ acre), or 4) left unfertilized as a control. Treatment groups consisted of a treatment area of two rows of corn ranging from 80' to 250' in length. Three treatment areas received the urine double pass and urea treatments, and two treatment areas received urine single pass and control treatments.

Foliar samples were collected from all treatments on August 27, 2025 and analyzed by Spectrum Analytic Inc. The following graphs depict levels of nutrients analyzed, all of which were within or above the normal range for all treatments, except for boron which was below the normal range for all treatment groups. ANOVA tests were performed to determine differences between treatments using R statistical software (R Core Team, 2025). No significant differences were found for any nutrient except phosphorus, where a significant difference was found between treatments ( $p = 0.038$ ), and a TukeyHSD test found a pairwise difference between Urine double pass and Urea ( $p = 0.049$ ). However, the normality condition was not met for that ANOVA (Shapiro Wilks test  $p = 0.499$ ), and more replicates are needed to perform a more robust statistical analysis.

### **Graph Key:**

1. Blue bars indicate range of sample points
2. Thick black center line indicates mean
3. Light blue shading indicates "normal range" for each nutrient as described by Spectrum Analytic Inc.







