



# 100 YEARS OF CORN BREEDING AND AGRONOMICS

2018 marks the 100-year anniversary of Stewart Seeds™ founding by Arthur Stewart. Stewart Seeds™ has survived and flourished over the last 100 years by keeping our customers at the center of our decisions and by adopting the newest technologies to improve our products. Stewart Seeds™ was an early adopter of seed corn product in the 1930s and the newest transgenic trait stack for herbicide tolerance in soybean in 2016. Stewart Seeds™ is always looking for the next technology that will help our customers achieve their goals. To celebrate the 100-year milestone, the Stewart Seeds™ AIM Agronomy Team worked with one of our district sales managers to recreate some of the best-selling products from our past. In this study, we compared three generations of corn products under period management styles to see what the yield gain over the last century has been. Products were selected to represent the early open pollinated era (Reid's Yellow Dent), the late 1970s to early 1980s (Stewart Seeds™ SX67 Brand), and modern production (Stewart Seeds™ 10SS457 Brand Blend in 2017 and Stewart Seeds™ 09SS409 Brand Blend in 2018).

## MATERIALS AND METHODS

- Reid's Yellow Dent (RYD) was seeded at 18,000 sds/a, SX67 Brand was seeded at 22,000 sds/a, 10SS457 Brand Blend or 09SS409 Brand Blend was seeded at 34,500 sds/a on May 24, 2017 and on June 3, 2018.
- Nitrogen was applied preplant for the RYD and SX67 Brand trials and sidedressed for the 10SS457 Brand Blend at rates of 110 lbs N/a, 220 lbs N/a, and 180 lbs N/a respectively in 2017. In 2018, rainfall delayed application of nitrogen until after emergence. 130 lbs of N was applied through drop nozzles to all treatments on June 18, 2018. The SX67 Brand and 09SS409 Brand Blend treatments received side dressed nitrogen on June 28, 2018 to bring total N rates to 220 lbs and 180 lbs of N, respectively.
- Nitrogen rates were determined from period agronomic publications and the modern rate was developed utilizing the Climate Nitrogen Monitoring tool.
- The RYD treatment received preplant tillage and cultivation for weed management. The SX67 Brand treatment received an early-POST application of Harness® Xtra, and the 10SS457 Brand Blend treatment received an early-POST application of Harness® Max + Atrazine + Roundup PowerMAX®.
- Treatments were harvested with a small plot combine which weighed the center two rows of each treatment and collected moisture data. Data was analyzed through an ANOVA.

### 2 Year Results

PRODUCT	YIELD	MOISTURE
Modern Brand Blends	171.2	23.7
SX67 Brand	114.3	26.8
Reid's Yellow Dent (RYD)	67.1	27.5
LSD (Least Significant Difference)	22.2	

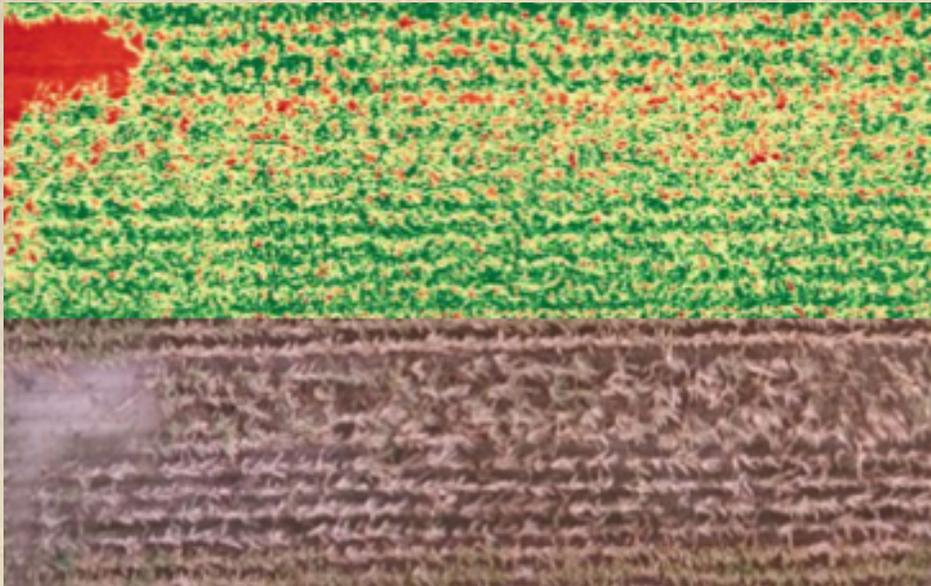


Figure 1. Plant health imagery  
 Top: Aerial capture, taken on August 31, 2018, by Phantom 4 Pro UAS drone over (1) plot displaying the (3) 2018 products. 09SS409 Brand Blend is indicated by green in this image.  
 Bottom: Aerial capture, taken on October 31, 2018 at harvest, by Mavic 1 UAS drone over the same plot displaying the (3) 2018 products. 09SS409 Brand Blend is shown to have a healthier harvest.

**2017 Results**

PRODUCT	YIELD	MOISTURE
10SS457 Brand Blends	137.4	22.8
SX67 Brand	110.7	30.5
Reid's Yellow Dent (RYD)	57.4	28.9
LSD (Least Significant Difference)	22.2	

**2018 Results**

PRODUCT	YIELD	MOISTURE
09SS409 Brand Blends	204.9	24.6
SX67 Brand	118.0	24.5
Reid's Yellow Dent (RYD)	76.7	24.4
LSD (Least Significant Difference)	22.5	

**RESULTS AND DISCUSSION**

Both the 2017 and 2018 growing seasons were stressful. Early rainfall delayed planting and caused flooding into June. Starting in Mid-July both seasons saw drought conditions that continued through August into September.

Reid's Yellow Dent and the SX67 Brand were stable over the two year's and averaged 67.1 and 114.3 bu/a. In 2018, the 09SS409 Brand Blend took advantage of late season rains to produce 204.9 bu/a. This is significantly greater than 10SS457 Brand Blend performance in 2017 and both historic corns (Table 1). High resolution aerial imagery from October 4, 2018 showed improved staygreen in the 09SS409 Brand Blend in all three reps compared to the historic products (Figure 1). This change in staygreen first became evident in plant health imagery on August 31, 2018 before it showed up in visual imagery (Figure 1).

Over the last 100 year's plant breeding has undergone many advancements. The resultant products combined with modern agronomic practices led to a 156% increase in yield in this trial. Stewart Seeds™ is proud to offer new, high yield potential products like 09SS409 Brand Blend! For more on our 100-year project visit the Stewart Seeds™ Facebook Page.