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**Field Corn Variety Trial Results**

Michelle Leinfelder-Miles, Farm Advisor, Delta Crops

The 2020 UCCE Delta field corn variety trial, located on Tyler Island, was planted on April 21st by air planter and consisted of three replicate blocks of seventeen varieties. The seventeen varieties included fourteen varieties submitted by seed companies and three submitted by the grower. All varieties were glyphosate tolerant. Each plot consisted of four 30-inch beds on an average row length of 1080 feet. Seed was planted approximately two inches deep and six inches apart down the row. The soil is a Rindge mucky silt loam with approximately 20 percent organic matter in the top 15 inches of soil. The Rindge series is a mucky peat soil down to about 60 inches, and approximately 55,600 acres in the Delta are described by the Rindge classification. The previous crop in the field was corn. Subsurface irrigation by "spud ditch" was employed twice. The fertilizer program consisted of pre-plant UN-32 (115 lb N/acre) and at-planting 8-24-6 with ½ percent of zinc (30 lb N/acre). Weed control was by cultivation and glyphosate herbicide program, and Onager miticide was applied. The field was harvested on September 25th.

Stand counts were made approximately two weeks after planting. The stand was assessed in the center two rows of each four-row plot, counting the plants along a 10-foot length. All varieties reached bloom during the week of June 29th (68-72 days after planting). We monitored diseases (Fig. 1) and plant lodging in mid-September. Incidence of Fusarium ear rot and head smut were similar between 2020 and 2019. A sign of Fusarium ear rot is white fungal mycelium around the kernels. The disease is usually introduced to the ears by corn earworm or by thrips that travel down the corn silks at pollination. Incidence may be reduced in varieties with longer or tighter husks that prevent insect infestations. Planting earlier in the season may also reduce incidence, as the crop may reach pollination before insect pests are prevalent. Head smut, a disease that replaces ears with dark brown spores, had low incidence this year. Common smut occurs in hot, dry conditions and was more prevalent in 2020 compared to previous years, especially for certain varieties. Common smut appears as gray galls filled with spores that replace kernels. These three diseases are generally managed by variety selection.

Table 1 presents mean values for the three replicates. The statistical method used to compare the means is called the Tukey's range test. Varieties were considered statistically different if their P value was less than 0.05, or 5 percent. What this means is that when differences between varieties exist, we are 95% certain that the two varieties are actually different; the results are not due to random chance. Differences between varieties are indicated by different letters following the mean. For example, a variety that has only the letter "a" after the mean yield value is different from a variety that is followed by only the letter "b", but it is ***not*** different from a variety whose mean value is followed by both letters ("ab"). Similarly, a variety whose mean yield is followed by

the letters “ab” is not different from a variety whose mean yield is followed by the letters “bc”. Twelve varieties have a letter “a” following their mean yield, which means that those twelve varieties all performed similarly in the trial. In other words, based on this research, we cannot attribute numerical differences to varietal differences.

In addition to yield, there were also statistical differences among varieties in Fusarium ear rot, head smut, common smut, ear height, grain moisture, and bushelweight. The CV, or coefficient of variation, is the standard deviation divided by the mean, or a measure of variability in relation to the mean. For the diseases, the variability among the three replicates was very high.

Special thanks go to the cooperating growers, Gary and Steve Mello, and the participating seed companies.


Figure 1. Diseases monitored in the UCCE Delta field corn variety trial: A) Fusarium ear rot, B) head smut, and C) common smut.

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**Table 1. 2020 UCCE Delta field corn variety trial**

**By: Michelle Leinfelder-Miles, UCCE farm advisor**

| Entry Name | Company Name | Stand Count* (Plants/A) | Fusarium Ear Rot* (%) | Head Smut* (%) | Common Smut* (%) | Plants Lodged (%) | Ear Height* (in) | Moisture (%) | Bushel Wt.* (lbs/bu) | Yield‡ (lbs/acre) |
|---|---|---|---|---|---|---|---|---|---|---|
| INT 6533 | Grower entry | 37171 | 4 bcde | 1 abc | 2 b | 0 | 50 abc | 13.4 fghij | 60.6 ab | 15158 a |
| SX 5583VT2P | Baglietto Seeds | 37462 | 0 de | 1 abc | 0 b | 0 | 45 cdefg | 13.9 cdefg | 60.5 ab | 14543 ab |
| INT 6588VT2PRIB | Integra | 36300 | 3 bcde | 1 abc | 3 ab | 0 | 51 ab | 14.8 abc | 61.4 ab | 13642 abc |
| SX 5543RR | Baglietto Seeds | 36300 | 1 cde | 1 abc | 0 b | 0 | 39 g | 14.3 bcd | 61.8 ab | 13474 abc |
| LG 7514 | Grower entry | 36590 | 3 bcde | 0 c | 0 b | 0 | 43 defg | 14.2 bcd | 61.7 ab | 13434 abc |
| MS 1457VT2PRIB | Mission Seeds | 36010 | 2 cde | 0 c | 0 b | 0 | 42 efg | 12.8 hij | 60.5 ab | 13117 abc |
| P 1366AM | Pioneer | 36590 | 6 bcd | 2 abc | 1 b | 0 | 47 bcde | 12.7 j | 60.5 ab | 13038 abc |
| A 647-90VT2RIB | Agrigold | 36010 | 6 bc | 0 bc | 6 a | 0 | 50 abc | 14.5 abcd | 62.2 a | 12763 abc |
| CP 5678SS/RIB | Croplan | 37752 | 1 cde | 0 bc | 0 b | 0 | 40 fg | 14.1 cdef | 61.8 ab | 12544 abc |
| P 1055AM | Pioneer | 34267 | 29 a | 0 c | 0 b | 0 | 46 bcdef | 12.4 ij | 60.6 ab | 12533 abc |
| INT 6695TRE | Integra | 36300 | 3 cde | 5 ab | 0 b | 0 | 52 ab | 13.9 cdefg | 61.7 ab | 12445 abc |
| LG 67C45STX | LG Seeds | 36300 | 0 e | 1 abc | 0 b | 0 | 49 abcd | 15.3 a | 60.6 ab | 12382 abc |
| LG 61C48VT2PRO | LG Seeds | 36300 | 5 bcd | 3 ab | 1 b | 0 | 43 defg | 13.0 ghij | 60.3 ab | 12329 bc |
| P 1197 | Grower entry | 37752 | 4 bcde | 1 abc | 0 b | 0 | 50 abc | 13.6 defgh | 61.1 ab | 12300 bc |
| MS 1687VT2P | Mission Seeds | 35719 | 2 bcde | 2 abc | 1 b | 0 | 47 bcde | 12.4 efghi | 60.2 b | 11520 cd |
| NK 1694-3111 | Northrup King | 35719 | 4 bcde | 2 abc | 3 ab | 0 | 54 a | 15.0 ab | 57.9 c | 10940 cd |
| A 644-04-3110 | Agrigold | 35429 | 12 ab | 6 a | 1 b | 0 | 52 ab | 14.3 bcdef | 60.9 ab | 8962 d |
| **Average** | | **36351** | **5** | **2** | **1** | **0** | **47** | **14** | **60.8** | **12654** |
| **Coefficient of Variation (%)** | | **2** | **30** | **48** | **64** | **-** | **2** | **2** | **0.6** | **6** |
| **Significant variety effect (P value)** | | **0.4578** | **<0.0001** | **0.0001** | **0.0019** | **N/A** | **<0.0001** | **<0.0001** | **<0.0001** | **<0.0001** |

Results for each variety are expressed as the average across three replications.

* Data were transformed for analysis. Arithmetic means are presented.

‡ Yield adjusted to 15% moisture.