QUANTITATIVE GENETICS AND MAIZE BREEDING
DEPARTMENT OF SOIL AND CROP SCIENCES

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**Final Report:** *Advancing Hybrids and Lines for Yield and Adaptation towards Commercialization*

## Investigators

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## Project Summary

Overall this summer was very successful for trial data collection, seed production, and advancing knowledge to improve corn for Texas producers. Our winter nursery suffered flood damage and our large isolation block on the Hiller Farm was lost, still we had decent seed production in our primary on-station nursery. We were also very successful in advancing our cooperation with companies and in advancing cooperative projects and student training.

We again thank the Texas Corn Producers Board for supporting this project.

### *Summer weather conditions and their impacts*

Field trial results are a result of genetic (G), environmental (E; location, weather, crop management), and importantly genetic by environmental (GxE) interactions. This year the environmental and genetic by environmental interactions were radically different from what we have seen over the last few years due to abnormal precipitation patterns. This year, constant and above average rainfall occurred during planting and at flowering in College Station and in other locations. Despite this, our first trial plots were planted only a week later than optimum, and still before most farmers in our area. Later plantings (for stress trials and for nursery) were also planted a week later than the planned times to spread work over the season, often in-between a 12 hour window before the next rain. The Brazos River flooded some fields but luckily began draining before any plant death occurred (another 6" and we would have lost fields). As a result of this abnormal weather, flowering occurred one to 1.5 weeks earlier than previous years. Overall plant health was favorable for yield trials and nursery seed production throughout the state.

Although there was substantial rainfall in all locations early in the season, and even flooding of our fields from the Brazos River, the rain stopped shortly after flowering. This led to some unique drought/heat stress situations, but kept visible signs of disease low. We expected and have since found that aflatoxin (in screening trials) and producer's farms would be low. Overall, this continues the trend of abnormal weather years for Texas corn production. We are happy to report that Texas A&M hybrids performed very favorably under the unique conditions this year, most notably Tx779 and Tx777 along with newer Greenleaf / Syngenta testers, supporting they are robust and well adapted to Texas. One exception was Tx777 performed very poorly in the high plains (while Tx779 and Tx775 performed very well), which was not completely unexpected but disappointing.

***Objective 1:*** *Produce and test the best TAMU hybrids for commercialization; test new hybrid combinations of the best lines; work with industry to develop a path towards rapid commercialization.*

Seed production was outstanding in 2014, and for the first time in recent memory, we had more of our best hybrids than we could plant. Some focus was made towards larger plot-row tests in Weslaco (four row plots) and College Station (five row plots since our combine harvests three rows at a time on 30" rows). These were used to determine if the taller height of our TAMU hybrids may bias results against commercial hybrids (a hypothesis we agreed needed to be tested), we found that neighbor shading did not have a significant effect. We planned for this to be one of the last seasons for us to test our best hybrids before evaluating the new generation of material (see Objective 2), however the excessive rain means that these tests could be less relevant to growers than the "average" year and not-relevant to drought conditions. Therefore, some hybrids with sufficient seed may be evaluated again in future years. In brief, we planted the following tests (see appendix for plot numbers and summarized yield data) under this project consisting of our best inbreds on relevant commercial traited testers for maximum relevance to Texas growers and the hybrid seed industry. **Weslaco (Rio Farms):** A 142 entry four row, two replicate test and a 66 entry two row, two replicate test were planted at Rio Farms. **Weslaco (AgriLife):** A 50 entry two row, two replicate test was planted for Dr. Xu. Additionally a 48 entry one row three replicate test of inbreds sourced from collaborators was planted and inoculated as part of an AMCOE project. **College Station:** Too many tests were planted to describe, a partial list will be given with the rest found in the appendix. From our proven and promising hybrids, a 60 entry four row, two replicate test and a 105 entry two row, two replicate test were both planted as irrigated as well as dry land tests. The dry land tests were planted three weeks after the irrigated test and fertilized with 100 less units of N to invoke stress. However, there were obviously no real dryland aspect to this test given the rain. Another 386 entries were planted in two rows and two replicates across six other tests. Additionally, graduate student projects and Objective 3 result in another 4000+ trial plots. **San Patricio County:** A 48 entry two row, two replicate test of Roundup Ready hybrids was planted on Charles Ring's Farm by Dennis Pietch. **Corpus Christi:** Two tests, primarily for stress and aflatoxin were planted by Dr. Gary Odvody. **Thrall:** A 74 entry two row two replicate test was planted on Stiles Farm in Thrall cooperatively with Dennis Pietsch. **Halfway:** A 50 entry two row two replicate test was planted by Dr. Wenwei Xu. Additionally, three US companies are growing our hybrids for evaluation. **BH Genetics**: Two tests were planted by BH genetics: 1) a 50 entry two row, two replicate test in Ganado, 2) and 10 of our best entries were planted in ten locations across the state - Some of these did extremely well (their data not shown). **Golden Acres Genetics:** 8 of our best entries (different from BH) were planted throughout Texas and Kansas – These did extremely well (their data not shown). **GreenLeaf Genetics/Syngenta:** five hybrids with Tx777 were made by Greenleaf and were tested throughout the country - Some of these did extremely well (their data not shown). In addition we sent one hybrid, TR8145RR2 x Tx777 to GreenLeaf. These are some excellent opportunities to expand commercial interest in TAMU material.

Overall many of our best Texas hybrids did far better than most of the commercial hybrids, especially in dryland locations and a number of our hybrids beat the best commercial hybrids within a location (data not shown) and a few beat the best commercial hybrid overall (see appendix). In fact, in Ganado, a test grown and managed by BH Genetics, a hybrid with Tx779 yielded nearly 20bu/ac higher (132bu/ac) than the best commercial hybrid in that test (REV28HR20 – 112bu/ac) and 30bu better than Dkb64-69 (104bu/ac). This was the most extreme example, but was consistent with Thrall, Wharton, and San Patricio county tests where many Texas

hybrids have shown to be successful over the last few years, did far better than commercial lines. We did find that those hybrids that have done very well in Central and South Texas did not do well on the high plains (notably Tx777), but we did have multiple hybrids that did very well in the high plains and in central and south Texas (notably Tx779 and Tx775).

We met with a number of companies and opened up additional commercialization opportunities for the coming year. Those who visited our fields were extremely impressed with our best inbred lines and hybrids. We have progressed furthest with Syngenta who are evaluating Tx777 hybrids they made across the country this year, are using Tx779 as an inbred in hybrid crosses for next year, and are interested in testing additional lines. We are working on an agreement with AgReliant who recently purchased Golden Acres but has no southern germplasm, and BH Genetics also appears to have some interest in further cooperation. Texas A&M has been meeting internally and often to better formulate a plan for licensing, since there appears to be strong commercial interest with companies have tested and seen our material, but there has been uncertainty if licensing terms will be acceptable. The most important thing is to get our Texas adapted lines into hybrids commercially available to Texas growers.

It is also worth mentioning that the Tx777 isolation block was extremely successful including some public lines (from SERAT cooperators) and produced substantial amounts of seed for wider testing next year.

***Objective* 2:** *Advance and test improved $F_4$:$F_5$ lines for increased yield, earliness, and genetic loci (QTL) that condition these traits.*

Unfortunately, as described in our final report for 2014, much of the Weslaco winter nursery isolation failed due to excessive rain at the seedling stage. This unfortunately occurred again in 2015, where the isolation was flooded out, but the main hand-crossing nursery was acceptable. Because of our limitations with WE14 isolation, only a subset of this material (the three populations that were in the hand pollination nursery) made it into yield trials this summer. The three populations were in two yield trials (irrigated and dryland [late planting and low fertilizer since there was no dryland possibilities given our rainfall]), one inbred trial, and a nursery for line advancement and hand pollination of testcross seed for next season. These three populations total over 550 distinct lines and have been confirmed to each segregate for two or three DNA markers for yield (5 to 8 bu/ac each). Five of the additional six populations were planted in an isolation block with LH195 this summer and were very successful in producing hybrid seed for next year (about 700 hybrids, most with far more seed than we could ever plant). The sixth population is a Stiff Stalk so hand pollinations were made with three traited industry testers. The seed from these lines will be used in 2016 yield trials. Many of the lines looked superior to any current line that we have seen.

Three QTL loci initially found using genome wide association mapping, were tested in new populations as proposed. Although these have a substantial increase in yield (5-8 bu/ac each), an analysis of yield data to confirm these loci showed that 2015 data were very noisy from field variation due to flooding in the fields they were planted. However, this analysis still suggested two of these loci will be confirmed in the largest population. We have also performed substantial analysis for plant height (which we collected earlier in the season) and found both the inbreds and hybrids do have a very small but significant increase in height for two of the three loci in two of the three populations. Although height is not our target, it is highly positively

correlated with yield in College Station, it has less field variation and measurement error. These results were encouraging but not definitive and so we plan to repeat the experiment in 2016. In addition AgReliant Genetics is currently genotyping these populations with approximately 17,000 markers, which will help us confirm the major QTL (genes) and identify additional loci (genes) for use in breeding.

***Objective 3:*** *Continue a leadership role with and participation in the 2015 Genomes to Field (G2F) initiative project.*

We again contributed extensively to the GxE project of Genotypes to Field (G2F - initiated by many of the public corn researchers across the country and the Iowa Corn Board, but importantly it is supported by many corn boards throughout the country) through growing trial plots, producing seed for others, and in organization of the experiment and experimental design for investigators throughout the country; we participated in these decisions through regular teleconferences. This year the College Station trials were a 525 plot two row, one to two rep test (depending on entry). Also there were inbred trials including a 32 entry one row, two rep, two treatment (dryland and irrigated) test of ex-PVP inbred lines, planted for information on inbred adaptation across the country. We included 75 GEM doubled haploid lines and another ~50 public lines into our LH195 isolation block to produce seed for next year's G2F test; we produced so much seed of the 350 lines the previous years that we did not need to put these into isolation again. We met with the G2F project in December in Chicago and are finalizing plans for publications, release of data and future year's plans.

***Objective 4:*** *Train students and participate in cooperative tests.*

In spring there were 11 graduate students, and three undergraduates for planting and preparation. Over summer there were eight graduate students, five undergraduates and one high school student worker (see appendix). In the fall we had eight graduate students, three undergraduate students. In addition we hosted four visiting scholars. Multiple cooperative tests and/or nurseries were planted in College Station, Weslaco and Halfway mostly for yield and/or adaption. These include a GEM test (Krakowsky), a doubled-haploid test (Lubberstedt), nurseries for three other investigators and AMCOE and USDA-NIFA objectives. All cooperative tests were successfully harvested, and most data has already been sent out.

| | Inb/ Hyb | TEST | Plots | Entries | Reps | Rows | ft. | Aflatoxin | YLD |
|---|---|---|---|---|---|---|---|---|---|
| 2 | **CS15 AFLATOXIN & YIELD TRIALS - LATE** | | **954** | **288** | | | | | |
| 3 | Inbred | CS15-SCIN | 144 | 48 | 3 | 1 | 25 | KERNEL | HAND |
| 4 | Inbred | CS15-KRAK | 75 | 25 | 3 | 1 | 25 | KERNEL | HAND |
| 5 | Inbred | CS15-INLOX | 48 | 24 | 2 | 1 | 25 | SILK CHANNEL | HAND |
| 6 | Hybrid | CS15-IBDD | 224 | 28 | 8 | 2 | 25 | KERNEL | SUB-SAMPLE AND COMBINE |
| 7 | Hybrid | CS15-IBDI | 224 | 28 | 8 | 2 | 25 | KERNEL | SUB-SAMPLE AND COMBINE |
| 8 | Hybrid | CS15-SERAT | 120 | 40 | 3 | 2 | 25 | SILK CHANNEL | HAND AND COMBINE |
| 9 | Hybrid | CS15-LOXT | 87 | 87 | 1 | 1 | 25 | SILK CHANNEL | HAND AND COMBINE |
| 10 | Inbred | CS15-NANCY | 32 | 8 | 4 | 1 | | s. ndle & slk chn | HAND |
| 11 | **CS15 YIELD TRIALS - EARLY PLANTING** | | **4899** | **2599** | | | | | |
| 12 | Hybrid | CS15-2A2B | 210 | 105 | 2 | 2 | 25 | | COMBINE |
| 13 | Hybrid | CS15-TAM2 | 254 | 127 | 2 | 2 | 25 | | COMBINE |
| 14 | Hybrid | CS15-5M3S | 180 | 60 | 3 | 5 | 25 | | COMBINE |
| 15 | Hybrid | CS15-NEW2 | 108 | 54 | 2 | 2 | 25 | | COMBINE |
| 16 | populatior | CS15-OOPS | 48 | 24 | 2 | 3 | 25 | | HAND OR COMBINE |
| 17 | Hybrid | CS15-G2FH | 525 | 300 | 1.75 | 2 | 25 | | COMBINE |
| 18 | Hybrid | CS15-CTP | 288 | 72 | 4 | 2 | 25 | | COMBINE |
| 19 | populatior | CS15-OOPS2 | 136 | 26 | 1.3 | 4 | 25 | | HAND OR COMBINE |
| 20 | Hybrid | CS15-BMS | 62 | 31 | 2 | 2 | 25 | | COMBINE |
| 21 | Hybrid | CS15-2WHT | 136 | 68 | 2 | 2 | 25 | | COMBINE |
| 22 | Hybrid | CS15-Yuan Hybrid Irr | 882 | 400 | 2.2 | 1 | 25 | | COMBINE |
| 23 | Inbred | CS15-IG2F | 64 | 32 | 2 | 1 | 25 | | HAND |
| 24 | Inbred | CS15-STEVE | 2006 | 1300 | 1.5 | 1 | 12.5 | | HAND OR COMBINE |
| 25 | **CS15 YIELD TRIALS - MID PLANTING** | | **2194** | **1147** | | | | | |
| 26 | Inbred | CS15-NILAS | 1568 | 784 | 2 | 1 | 25 | | HAND |
| 27 | Hybrid | CS15-DTAM | 152 | 76 | 2 | 2 | 25 | | COMBINE |
| 28 | Hybrid | CS15-2DRY | 264 | 132 | 2 | 2 | 25 | | COMBINE |
| 29 | Hybrid | CS15-5D2X | 110 | 55 | 2 | 5 | 25 | | COMBINE |
| 30 | Inbred | CS15-OWEN | 100 | 100 | 1 | 1 | 10 | | HAND |
| 31 | **CS15 YIELD TRIALS - LATE PLANTING** | | **2330** | **1220** | | | | | |
| 32 | Hybrid | CS15-AFCS | 200 | 100 | 2 | 2 | 25 | | SUB-SAMPLE AND COMBINE |
| 33 | Hybrid | CS15-WWXU | 100 | 50 | 2 | 2 | 25 | | COMBINE |
| 34 | Hybrid | CS15-CLRD | 33 | 33 | 1 | 1 | 25 | | COMBINE |
| 35 | Hybrid | CS15-DSWM | 24 | 24 | 1 | 2 | | | COMBINE |
| 36 | Hybrid | CS15-ISWM | 24 | 24 | 1 | 2 | | | COMBINE |
| 37 | Hybrid | CS15-LSWM | 24 | 24 | 1 | 2 | | | COMBINE |
| 38 | Inbred | CS15-DG2F | 64 | 32 | 2 | 1 | 25 | | HAND |
| 39 | Sorghum | CS15-TLI | 120 | 60 | 2 | 1 | | | COMBINE |
| 40 | Inbred | CS15-Yuan Inbred Trial | 1084 | 542 | 2 | 1 | 25 | | HAND OR COMBINE |
| 41 | Hybrid | CS15-Yuan Hybrid Dry | 564 | 300 | 1.9 | 1 | 25 | | COMBINE |
| 42 | Inbred | CS15-GERALD | 93 | 31 | 3 | 2 | 25 | | Observation |
| 43 | **WE15 Weslaco Trials** | | **604** | **278** | | | | | |
| 44 | Hybrid | WE15-2RF2 | 224 | 112 | 2 | 2 | 30 | | COMBINE |
| 45 | Hybrid | WE15-2RF4 | 136 | 68 | 2 | 4 | 30 | | COMBINE |
| 46 | Hybrid | WE15-SCIN | 144 | 48 | 3 | 1 | 30 | SILK CHANNEL | HAND |
| 47 | Hybrid | WE15-WWXU | 100 | 50 | 2 | 2 | 30 | | COMBINE |
| 48 | **TH15 Thrall Trials** | | **148** | **74** | | | | | |
| 49 | Hybrid | TH15-STLE | 148 | 74 | 2 | 2 | 26 | | COMBINE |
| 50 | **WH15 Wharton Trials** | | **96** | **48** | | | | | |
| 51 | Hybrid | WH15-2M2H | 96 | 48 | 2 | 2 | 26 | | COMBINE |
| 52 | **GA15 Ganado Trials** | | **100** | **50** | | | | | |

| 1 | Inb/ Hyb | TEST | Plots | Entries | Reps | Rows | ft. | Aflatoxin | YLD |
|---|---|---|---|---|---|---|---|---|---|
| 53 | Hybrid | GA15-2S2G | 100 | 50 | 2 | 2 | 20.5 | | COMBINE |
| 54 | **SP15 San Patricio Trials** | | **96** | **48** | | | | | |
| 55 | Hybrid | SP15-2C2R | 96 | 48 | 2 | 2 | 26 | | COMBINE |
| 56 | **CC15 Corpus Christi Aflatoxin Trials** | | **580** | **199** | | | | | |
| 57 | Hybrid | CC15-GOAF | 40 | 120 | 3 | 1 | 26 | KERNEL | Hand? |
| 58 | Hybrid | CC15-IBDI | 224 | 28 | 8 | 2 | 26 | KERNEL | Hand? |
| 59 | Hybrid | CC15-IBDD | 224 | 28 | 8 | 2 | 26 | KERNEL | Hand? |
| 60 | Hybrid | CC15-YDGO | 92 | 23 | 4 | 1 | 26 | ? | Hand? |
| 61 | **HA15 Halfway Trials** | | **114** | **57** | | | | | |
| 62 | Hybrid | HA15-WXUL | 114 | 57 | 2 | 2 | 20 | | COMBINE |
| 63 | | | | | | | | | |
| 64 | **CS15 Breeding Nursery** | | **4960** | | | | | | |
| 65 | Inbred | CS15-OTH | 312 | 312 | 1 | 1 | 20 | | HAND |
| 66 | Inbred | CS15-EOTH | 80 | 80 | 1 | 1 | 20 | | HAND |
| 67 | Inbred | CS15-DOTH | 78 | 78 | 1 | 1 | 20 | | HAND |
| 68 | Inbred | CS15-INC | 208 | 208 | 1 | 1 | 20 | | HAND |
| 69 | Inbred | CS15-BMS | 56 | 56 | 1 | 1 | 20 | | HAND |
| 70 | Inbred | CS15-RAUL | 28 | 28 | 1 | 1 | 20 | | HAND |
| 71 | Inbred | CS15-TRVS | 20 | 20 | 1 | 1 | 20 | | HAND |
| 72 | Inbred | CS15-SFCB | 144 | 76 | 1 | 1 | 20 | | HAND |
| 73 | Inbred | CS15-PSCB | 208 | 89 | 1 | 1 | 20 | | HAND |
| 74 | Inbred | CS15-YCB | 192 | 23 | 1 | 1 | 20 | | HAND |
| 75 | populatio | CS15-SWOP | 64 | 64 | 1 | 1 | 20 | | HAND |
| 76 | Inbred | CS15-HUGO | 56 | 56 | 1 | 1 | 10 | | HAND |
| 77 | Inbred | CS15-SINC | 256 | 256 | 1 | 1 | 10 | | HAND |
| 78 | Inbred | CS15-STEVE | 100 | 100 | 1 | 1 | 10 | | HAND |
| 79 | Inbred | CS15-YUAN | 992 | 992 | 1 | 1 | 10 | | HAND |
| 80 | Inbred | CS15-Kolomiets | 800 | 800 | 1 | 1 | 20 | | HAND |
| 81 | Inbred | CS15-PERN | 40 | 40 | 1 | 1 | 20 | | HAND |
| 82 | Inbred | CS15-PTLI | 120 | 60 | 2 | 1 | 20 | | HAND |
| 83 | Inbred | CS15-PERN2 | 160 | 160 | 1 | 1 | 20 | | HAND |
| 84 | Inbred | CS15-HONGBIN | 182 | 182 | 1 | 1 | 20 | | HAND |
| 85 | Populatio | CS15-RJW PSGE | 200 | 25 | 8 | 1 | 12.5 | | HAND |
| 86 | Populatio | CS15-AF4W | 598 | 598 | 1 | 1 | 25 | | HAND |
| 87 | Populatio | CS15-8WAF | 66 | 6 | 11 | 1 | 25 | | HAND |
| 88 | **LH195 Isolation Block** | | **1672** | **760** | | | | | |
| 89 | Inbred | CS15-I195 | 1672 | 760 | 1 | 1 | 19 | | HAND |
| 90 | **NSS Isolation Block** | | **480** | **144** | | | | | |
| 91 | Inbred | CS15-BISO | 480 | 144 | 1 | 1 | 22 | | HAND |

**Total (not including fill, border, or sweet corn)**

| | | |
|---|---|---|
| **Yield Trials College Station** | **10,345 plots** | **19.67 acres** |
| **Trials Not College Station** | **1,738 plots** | **6.8 acres** |
| **Nursery and Isolations** | **7,112 plots** | **7.42 acres** |

## Current Team in the Texas A&M Maize Breeding and Quantitative Genetics Program

### Technical Support

**Jacob Pekar** – Research Associate & Ph.D. Student – Ph.D. Projects: Inbred aflatoxin SCIN test, Aflatoxin 4 Way and 8 Way population breeding and testcrosses.
B.S. Texas Tech; M.S. University of Kingsville; Started July. 2013 in the maize program.

**Justine Christman** – Research Assistant & M.S. Student – M.S. Projects: Identifying low phosphorus grain and developing NIRS calibrations. Leading and supported by USDA-NIFA Climate Change Project (PI: Randy Wisser)
B.S. University of Wyoming; Started Jan. 2014 in the maize program.

### Graduate Students

**Steven Anderson** – Graduate Research Assistant, M.S. - M.S. Projects: Cycling of gametes in vitro and mapping quantitative traits in the four parent maize population (1200+ lines)
B.S. University of Central Florida; Started Jan. 2014 in the maize program.

**Yuanyuan Chen** – Graduate Research Assistant, PhD - PhD Projects: Validating three SNPs for yield in new breeding populations; Confirmation of the aflatoxin resistance of LOX genes in isogenic hybrids.
B.S.Henan Agriculture University, M.S. China Agriculture University; Started Jan. 2014 in the maize program.

**Zoran Ilievski** – Graduate Research Assistant, PhD - PhD Projects: High throughput phenotyping in the field.
M.S. Colorado State University. Started Jan. 2014 in the maize program.

**Nancy Wahl** – Graduate Research Assistant, PhD - PhD Projects: Meta-Analysis of the SERAT projects. RNA expression in aflatoxin resistant and susceptible lines after inoculation.
B.S. Concordia College; M.S. Human Genetics, U. of Pittsburgh GSPH, Started Jan. 2014 in the maize program.

**Fabian Echeverria** – Graduate Research Assistant, PhD - PhD Projects: RNA gene expression in coffee rust resistance and fungicides.
B.S. Institute of Technology of Costa Rica; M.S. University of Costa Rica; Started Jan. 2015 in the maize program.

### Student Workers

**Amee Bumguardner** - B.S. Soil and Crop Sciences, Expected graduation date: May 2016; Started May 2013 in the maize program. From: Palacios, TX

**Jeremy Garrett** – B.S. Soil and Crop Sciences, Expected graduation date: Dec. 2016; Started Jan. 2014 in the maize program. From: Crowell, TX.

**Travis Rooney** - B.S. Soil and Crop Sciences, Expected graduation date: May 2018; Started 2011 in the maize program.

**Brett Wheeler –** B.S. Ag. Science, Expected graduation date: May 2016 Started Jan. 2015 in the maize program.

**Malik Williams –** High School student at College Station; Started June 2015 in the maize program. From: Houston/ College Station, TX.

### Visiting Scientists

**Dr. Amin Al Hakimi** – Visiting Professor, University of Sana'a, Yemen – Research on Coffee genetic diversity and physiology. January 2014 to December 2015.

**Dr. Dongyan Zhang** – Visiting Scholar, China – Research on Remote Sensing. Visiting from March 2014 to December 2015.

**Gustavo Hugo** – Visiting PhD Student, São Paulo Brazil – Research on using near infrared spectroscopy in popcorn breeding. Visiting from Feb, 2015 to Dec. 2015.

**Data Table:** Yield and agronomic variance component estimates and BLUES of 2015 hybrids. The model contained all elite hybrids being tested across all tests and all locations of elite hybrids. There were a total of 1916 TAMU hybrid observations (300 hybrids subset across multiple locations) and 294 commercial check observations (14 commercial hybrids grown in every test). Only TAMU hybrids above the lowest commercial check are presented as well as all commercial checks. Bu/Acre, grain yield corrected for moisture, DTA, days to anthesis; DTS, days to silk; PHT, plant height; EHT, ear height, EHT/PHT, ear height to plant height ratio; Pop, plant population; Moist, grain moisture at harvest; TstWt, grain testweight.

| TAMU2 | Tester | Bu/Acre | DTA | DTS | PHT | EHT | Moist | TstWt |
|---|---|---|---|---|---|---|---|---|
| Tx150 | LH195RR2 | 192*** | 74 | 74 | 221 | 90 | 13.2 | 71* |
| Tx777 | SGI890 | 182** | | | | | 12.9 | 74 |
| Tx110 | 87916' | 175* | 73 | 73 | 226 | 79 | 12.2 | 73 |
| Tx780 | LH195RR2 | 169* | | | | | 16.5* | 74 |
| Tx779 | TR8145 | 165** | 72 | 73 | 225 | 89 | 13.5 | 76* |
| Tx778 | LH195 (ex-PVP) | 160*** | 75** | 75 | 230* | 87 | 12.9 | 74 |
| **GA26V21** | | 160** | | | 234* | 88 | 10.8** | 70*** |
| **Check Max** | | 160 | 73 | 73 | 239 | 103 | 12.9 | 75 |
| Tx780 | LH195 (ex-PVP) | 158*** | 73 | 74 | 218 | 79 | 15.6*** | 72** |
| **BH 8732VT** | | 158*** | 70*** | 71*** | 221* | 84 | 11.9*** | 72*** |
| Tx781 | (LAMA2002-23-3- | 157*** | 72 | 72** | 204** | 73* | 15.9*** | 72 |
| Tx953 | TR8145RR2 | 157** | 74 | 75 | 230 | 97* | 13.4 | 76* |
| Tx776 | TR8145RR2 | 156 | | | | | 14.3 | 74 |
| Tx780 | NP2643GT | 155*** | 71 | 72 | 223 | 86 | 13.5 | 72** |
| Tx780 | TR8145RR2 | 155*** | 72 | 73 | 239*** | 93* | 15** | 72* |
| **GAG7601** | | 155*** | 70*** | 70*** | 221 | 85 | 12.3** | 72*** |
| Tx777 | LH195 (ex-PVP) | 154*** | 74** | 74 | 224* | 81 | 13.3 | 73 |
| Tx780 | TR8145RR2 | 154*** | 75*** | 76*** | 249*** | 100*** | 15.2*** | 73 |
| Tx777 | NP2643GT | 153 | | | | | 14.8 | 73 |
| Tx779 | GP7169GT | 152** | 72 | 73 | 218 | 91* | 12.2* | 75 |
| Tx779 | TR8145 | 152** | 73 | 73 | 225* | 92* | 13.2 | 76*** |
| Tx1701 | TR8145 | 151** | 72 | 72* | 224 | 83 | 12.9 | 78*** |
| **GA28V81** | | 151*** | 70*** | 70*** | 224** | 86 | 11.6*** | 72*** |
| Tx149 | TR8145HXRR | 151** | 74 | 74 | 235*** | 88 | 14.9* | 74 |
| Tx785 | (LAMA2002-22-1- | 151 | 72 | 74 | 189*** | 66* | 13.1 | 75 |
| **G4678DG** | | 151*** | 70*** | 70*** | 211 | 79 | 12.3** | 71*** |
| Tx149? | TX772W-B4-B12-B | 150 | | | 210 | 83 | 15 | 72 |
| Tx780 | GP474GT | 150** | 71 | 73 | 232*** | 81 | 13.6 | 70*** |
| Tx773 | SGI890 | 150 | 75** | 75 | 230 | 78 | 13.6 | 75 |
| Tx775 | TR8145 | 150** | 71** | 72* | 217 | 81 | 12.4* | 73 |
| Tx775 | TR8145RR2 | 150** | 71 | 72 | 214 | 79 | 13 | 73 |
| Tx780 | GP7169GT | 150** | 72 | 71* | 232*** | 85 | 13.5 | 73 |
| Tx149 | TR8145 | 149 | | | | | 12.8 | 77* |
| Tx775 | LH195 (ex-PVP) | 149** | 71** | 72* | 209 | 77 | 12.2* | 72** |
| Tx775 | GP474GT | 149** | 71*** | 71*** | 201*** | 79 | 12.6 | 70*** |
| Tx778 | GP7169GT | 149 | 72 | 72 | 221 | 90 | 12.8 | 74 |
| Tx741 | SGI890 | 149** | 71* | 71*** | 232** | 93* | 14.3 | 75* |
| **REV28HR2(** | | 149*** | 73 | 73 | 239*** | 84 | 12.4** | 75* |
| Tx1703?-1 | TR8145RR2 | 148 | 73 | 75 | 236*** | 100*** | 15.5* | 77** |
| **DKB 66-9(** | | 148*** | 69*** | 69*** | 186*** | 58*** | 12.3** | 73 |
| Tx777 | NP2643GT | 148** | 72* | 72* | 223 | 80 | 12.6 | 72** |
| Tx1706 | SGI890 | 148* | 72 | 72 | 228** | 85 | 13.2 | 71*** |
| Tx148 | LH195 (ex-PVP) | 147 | 73 | 74 | 218 | 81 | 15.3* | 70*** |
| Tx775 | LAMA2002-58-3-B | 147* | 74** | 77*** | 200** | 79 | 15* | 71** |

| TAMU2 | Tester | Bu/Acre | DTA | DTS | PHT | EHT | Moist | TstWt |
|---|---|---|---|---|---|---|---|---|
| **GAG5621** | | 147 | | | 210 | 77 | 11.4* | 69*** |
| Tx1706 | GP7169GT | 147* | 70** | 70*** | 236*** | 82 | 13.7 | 73 |
| Tx1706 | (LAMA2002-23-3- | 147 | 74** | 75 | 219 | 83 | 13 | 74 |
| Tx790?-2- | TR8145RR2 | 146 | 70*** | 70*** | 230 | 75 | 14 | 75 |
| Tx1709 | TR7582 | 146 | | | | | 13.2 | 73 |
| Tx777 | TR8145RR2 | 146 | | | 244*** | 83 | 15.3 | 73 |
| Tx778 | SGI890 | 146 | 73 | 73 | 237** | 81 | 13.5 | 73 |
| Tx773 | LH287RR2 | 146* | 71 | 72 | 215 | 73 | 14.4 | 73 |
| Tx741 | TR7582 | 146 | | | | | 14.9 | 72 |
| Tx779 | NP2643GT | 145** | 71* | 71* | 216 | 85 | 12.3* | 73 |
| Tx777 | TR8145 | 145* | 73 | 74 | 238*** | 89 | 13.5 | 74 |
| **Check Mean** | | 145 | 70 | 71 | 220 | 81 | 12.1* | 72 |
| Tx953 | LH195RR2 | 145** | 72 | 72 | 201** | 80 | 12.1** | 74 |
| **commercial check** | | 145** | 71*** | 71*** | 227*** | 81 | 12.3** | 69*** |
| Tx778 | TR8145 | 145 | 73 | 74 | 240** | 87 | 13.5 | 74 |
| Tx798 | TR8145RR2 | 145** | 72 | 73 | 236*** | 90 | 14.6* | 75** |
| Tx137 | LH195 (ex-PVP) | 144 | 71 | 73 | 210 | 83 | 13.9 | 74 |
| Tx740 | TR8145HXRR | 144 | | | | | 13 | 76 |
| Tx785 | LAMA2002-58-3-B | 144 | 73 | 77*** | 217 | 77 | 14.8 | 73 |
| Tx776 | GP7169GT | 144 | 71* | 71* | 214 | 86 | 12.9 | 72* |
| Tx133 | (Tx129) (Tx114 (B | 144 | 72 | 73 | 230** | 104*** | 13.1 | 71* |
| Tx953 | LH195 (ex-PVP) | 144 | 72 | 73 | 201* | 75 | 13.5 | 74 |
| **commercial check** | | 144** | 69*** | 70*** | 228*** | 85 | 12.2*** | 72*** |
| Tx1709 | (LAMA2002-23-3- | 143* | 74** | 77*** | 224 | 82 | 15.3** | 75* |
| Tx777 | GP474GT | 143** | 71*** | 71*** | 225** | 80 | 13.1 | 71*** |
| Tx779 | LH195 (ex-PVP) | 143 | 73 | 74 | 216 | 85 | 13.3 | 76* |
| Tx1701 | GP7169GT | 143 | | | | | 13.3 | 77 |
| Tx740 | (LAMA2002-23-3- | 142 | 75*** | 76** | 224 | 90 | 13.7 | 73 |
| Tx1701 | TR8145RR2 | 142* | 73 | 73 | 235*** | 91* | 14.5* | 77*** |
| Tx776 | LH195 (ex-PVP) | 142 | 72 | 73 | 199* | 83 | 13.3 | 73 |
| Tx780 | TR8145HXRR | 142 | | | | | 16.7** | 73 |
| Tx131 | (CML442-B/CML3 | 142 | 74** | 76*** | 222 | 80 | 13.3 | 70*** |
| Tx785 | (LAMA2002-12-1- | 142 | 73 | 73 | 215 | 96 | 14 | 75 |
| Tx778 | LH195RR2 | 142 | 74* | 74 | 224 | 71 | 13.1 | 74 |
| Tx775 | SGI890 | 142 | 72 | 72** | 218 | 79 | 12.2* | 72 |
| Tx780 | GP286 | 142 | 72 | 74 | 227* | 69** | 15.5*** | 72 |
| Tx773 | LH195RR2 | 142 | 75** | 75 | 217 | 82 | 14.8* | 72 |
| Tx779 | GP474GT | 142* | 72 | 72 | 211 | 86 | 13.4 | 74 |
| Tx780 | (LAMA2002-23-3- | 141* | 76*** | 78*** | 227* | 83 | 16.1*** | 72* |
| Tx741 | (LAMA2002-22-1- | 141 | 71 | 73 | 206 | 86 | 13.9 | 76* |
| Tx777 | GP7169GT | 141* | 72* | 72** | 222 | 87 | 12.1** | 75 |
| Tx777 | SGI890 | 141* | 73 | 74 | 228** | 81 | 13.4 | 74 |
| Tx790?-2- | (LAMA2002-23-3- | 141 | 70** | 72* | 197* | 62** | 14.2 | 74 |
| Tx776 | SGI890 | 141 | 72 | 72 | 220 | 83 | 13.5 | 71** |
| Tx773 | (LAMA2002-22-1- | 141 | 76*** | 77*** | 206 | 91 | 14.3 | 75 |

| TAMU2 | Tester | Bu/Acre | DTA | DTS | PHT | EHT | Moist | TstWt |
|---|---|---|---|---|---|---|---|---|
| Tx777 | GP286 | 141* | 72 | 73 | 210 | 76 | 13.5 | 75** |
| commercial check | | 141* | 70*** | 70*** | 236*** | 76** | 12.5** | 72** |
| Tx149 | LH195 (ex-PVP) | 141 | 74* | 75** | 224 | 84 | 15.8** | 73 |
| Tx956 | (LAMA2002-23-3- | 140 | 75*** | 76* | 236** | 95 | 13.5 | 73 |
| Tx779 | GP280GT | 140* | 72 | 74 | 214 | 85 | 13.2 | 75** |
| Tx137 | (CML442-B/CML3 | 140 | 72 | 74 | 206 | 85 | 13.6 | 73 |
| Tx780 | (LAMA2002-23-3- | 140 | 75*** | 76*** | 225 | 80 | 13.6 | 73 |
| Tx138 | (CML442-B/CML3 | 140 | 73 | 74 | 214 | 81 | 12.9 | 67*** |
| Tx776 | LAMA2002-58-3-B | 140 | | | | | 14.4 | 72 |
| Tx775 | NP2643GT | 140 | 71*** | 71*** | 198*** | 77 | 11.5*** | 71*** |
| Tx833 | TR8145RR2 | 140 | 71 | 72 | 232*** | 96** | 13.7 | 77*** |
| Tx798 | TR8145 | 139 | 71 | 72 | 247*** | 95 | 13.8 | 77*** |
| Tx1702 | TR8145 | 139 | 72 | 72** | 233*** | 90* | 14.4 | 77*** |
| Tx791 | SGI890 | 139 | 70** | 71** | 221 | 85 | 13.5 | 75 |
| Tx779 | TR8145RR2 | 139 | 73 | 74 | 223 | 86 | 13.2 | 76*** |
| Tx740 | GP7169GT | 139 | 71 | 71* | 229 | 97* | 12.5 | 76** |
| Tx780 | LH195RR2 | 139 | | | 222 | 78 | 13.8 | 73 |
| Tx775 | LH195RR2 | 139 | 72* | 73 | 195*** | 77 | 12.5* | 72** |
| Tx790?-2- | LH195 (ex-PVP) | 138 | 70** | 70*** | 208 | 62** | 13.4 | 74 |
| Tx779 | SGI890 | 138 | 72 | 73 | 228 | 80 | 12.6 | 76** |
| Tx785 | (LAMA2002-23-3- | 138 | 71* | 74 | 196*** | 65*** | 13.5 | 74 |
| Tx777 | GP280GT | 138 | 71* | 71*** | 229*** | 79 | 12.8 | 74 |
| Tx777 | LH195RR2 | 138 | | | 232** | 82 | 12 | 73 |
| Tx953 | TR8145 | 137 | 73 | 74 | 225 | 82 | 12.8 | 75 |
| Tx776 | TR8145 | 137 | 71 | 71* | 222 | 88 | 12.5 | 72 |
| Tx782 | (LAMA2002-22-1- | 136 | 72 | 75 | 203 | 67* | 13.6 | 75 |
| Tx1703?-1 | LAMA2002-58-3-B | 136 | 78*** | 80*** | 210 | 97* | 14 | 75 |
| Tx1701 | LH195 (ex-PVP) | 136 | 71** | 72*** | 204** | 73** | 13 | 77*** |
| Tx773 | LH195 (ex-PVP) | 136 | 76*** | 77*** | 219 | 83 | 15** | 72 |
| Tx831 | (LAMA2002-22-1- | 136 | 72 | 74 | 194** | 95 | 14.5 | 78*** |
| Tx776 | LH195RR2 | 136 | 72 | 74 | 203 | 80 | 13 | 73 |
| Tx775 | GP7169GT | 136 | 70*** | 71*** | 204** | 82 | 11.8*** | 72* |
| Tx1707 | TR8145RR2 | 136 | 72 | 73 | 232** | 96** | 12.6 | 76* |
| Tx833 | LH195 (ex-PVP) | 135 | 71* | 71* | 206 | 78 | 12.8 | 77*** |
| Tx150 | Tx110-B-B-B-B-B | 135 | 72 | 72 | 226 | 92 | 12.3 | 71** |
| Tx798 | (LAMA2002-23-3- | 135 | 73 | 75 | 224 | 87 | 15.3** | 74 |
| Tx833 | (LAMA2002-23-3- | 135 | 72 | 74 | 209 | 85 | 13.8 | 75 |
| Tx799 | (LAMA2002-23-3- | 135 | 75*** | 76* | 209 | 88 | 13.1 | 74 |
| Tx741 | TR7322 | 135 | 72 | 72* | 227* | 90 | 13.5 | 73 |
| Tx829 | (LAMA2002-23-3- | 135 | 73 | 76** | 215 | 80 | 12.9 | 73 |
| Tx775 | GP286 | 135 | | | 208 | 76 | 13.4 | 73 |
| Tx778 | LH195 | 135 | | | 228 | 87 | 12.8 | 73 |
| commercial check | | 135 | 70*** | 71*** | 223** | 79 | 11.9*** | 73 |
| Tx741 | LH195 (ex-PVP) | 134 | 71* | 71** | 213 | 86 | 13.6 | 75* |
| Tx772 | TR8145 | 134 | 73 | 73 | 226 | 93 | 13.1 | 75 |

| TAMU2 | Tester | Bu/Acre | DTA | DTS | PHT | EHT | Moist | TstWt |
|---|---|---|---|---|---|---|---|---|
| Tx131 | 87916' | 134 | 72 | 74 | 234* | 91 | 12.6 | 72 |
| Tx780 | (LAMA2002-22-1- | 134 | 75*** | 77*** | 210 | 87 | 13.9 | 74 |
| Tx780 | GP280GT | 134 | 72 | 73 | 232*** | 90* | 14.5* | 70*** |
| Tx1701 | LH195RR2 | 134 | 73 | 73 | 216 | 79 | 14 | 74 |
| Tx955 | (LAMA2002-23-3- | 134 | 70** | 71* | 229 | 87 | 13.5 | 74 |
| Tx781 | TR7582 | 134 | 69*** | 70*** | 202** | 74* | 14.1 | 69*** |
| Tx776 | SGI890 | 134 | 71 | 72 | 223 | 77 | 12.9 | 71** |
| Tx1703?-1 | LH195RR2 | 133 | 72 | 74 | 213 | 94 | 13.5 | 77** |
| Tx1708 | LH195RR2 | 133 | 71 | 72 | 229** | 86 | 12.5* | 75* |
| Tx782 | Argnetine Flinty C | 133 | 72 | 74 | 220 | 96 | 16.5*** | 74 |
| Tx740 | LH287RR2 | 133 | | | | | 14.5 | 75 |
| Tx782 | (LAMA2002-23-3- | 133 | 73 | 76** | 202* | 78 | 13.7 | 73 |
| Tx775 | GP280GT | 133 | 70*** | 71*** | 204*** | 74* | 12.4* | 72*** |
| Tx791 | LAMA2002-58-3-E | 133 | 76*** | 78*** | 202 | 79 | 14.6 | 73 |
| Tx777 | Tx772-B-B-B-B-B-E | 133 | 72 | 72 | 207 | 67* | 13.7 | 74 |
| **DKB 64-69** | | 133 | 70*** | 70*** | 194*** | 74*** | 12.5** | 73* |
| Tx781 | LH287RR2 | 132 | 69*** | 71*** | 198*** | 59*** | 13.2 | 72* |
| Tx778 | TR8145RR2 | 132 | 74 | 74 | 252*** | 92 | 13.2 | 74 |
| Tx781 | LAMA2002-58-3-E | 132 | 75*** | 76** | 215 | 81 | 16.4*** | 71* |
| Tx772 | LH195 (ex-PVP) | 132 | | | | | 12.9 | 72 |
| Tx148 | (CML442-B/CML3 | 132 | 75*** | 76*** | 222 | 92* | 13.9 | 70*** |
| (Tx114 (E | Tx110-B-B-B-B-B-E | 131 | 73 | 75 | 211 | 85 | 12.8 | 72 |
| Tx776 | (LAMA2002-23-3- | 131 | 75*** | 75 | 198* | 69 | 14.9 | 71** |
| Tx832 | TR8145 | 131 | 72 | 73 | 224 | 89 | 13.8 | 75 |
| Tx831 | SGI890 | 130 | | | | | 13 | 73 |
| Tx773? | LH195 | 130 | | | | | 14.5 | 73 |
| Tx1707 | (LAMA2002-23-3- | 129 | 72 | 73 | 203 | 74 | 12.9 | 70** |
| Tx740 | TR7582 | 129 | | | | | 14.8 | 72 |
| Tx782 | ((B104-1 x Tx714-I | 129 | 71 | 73 | 225 | 86 | 13.6 | 74 |
| Tx772WRS | (LAMA2002-22-1- | 129 | 71 | 74 | 205 | 76 | 13.3 | 75 |
| Tx791 | (LAMA2002-23-3- | 129 | 72 | 74 | 216 | 89 | 13.1 | 75 |
| Tx781 | TR7322 | 129 | 70** | 70*** | 196* | 75 | 13.1 | 71** |
| Tx790?-2- | TR8145 | 129 | 71* | 71** | 212 | 60** | 13.7 | 73 |
| Tx740 | LH195 (ex-PVP) | 129 | 73 | 74 | 220 | 80 | 13.5 | 76** |
| Tx778 | (LAMA2002-22-1- | 129 | 74* | 74 | 207 | 76 | 13.6 | 75 |
| Tx1701 | (LAMA2002-23-3- | 129 | 75*** | 76*** | 205* | 75 | 14.8* | 76*** |
| Tx785 | LH195RR2 | 129 | 71 | 71* | 202** | 73* | 13.1 | 74 |
| Tx1708 | LH195 (ex-PVP) | 128 | 72 | 72 | 217 | 80 | 12.7 | 75 |
| Tx955 | LH195RR2 | 128 | | | | | 12.6 | 73 |
| Tx781 | LAMA2002-58-3-E | 128 | 74** | 76** | 201 | 75 | 13.8 | 73 |
| Tx785 | TR8145RR2 | 128 | 71 | 72 | 220 | 82 | 13.9 | 75 |
| Tx133 | (CML442-B/CML3 | 128 | 76*** | 76*** | 239*** | 107*** | 13 | 67*** |
| Tx833 | GP7169GT | 128 | 70** | 71* | 210 | 93* | 12.1* | 76** |
| Tx132 | (Tx129) (Tx114 (B | 128 | 73 | 75 | 231** | 83 | 12.7 | 75 |
| Tx832 | SGI890 | 128 | 70*** | 71*** | 221 | 83 | 14.8* | 74 |

| TAMU2 | Tester | Bu/Acre | DTA | DTS | PHT | EHT | Moist | TstWt |
|---|---|---|---|---|---|---|---|---|
| Tx140 | (CML450-B/Tx110 | 127 | 73 | 75* | 213 | 80 | 13.6 | 72 |
| Tx1702 | (LAMA2002-23-3- | 127 | 72 | 74 | 208 | 80 | 15.1* | 75 |
| Tx775 | (LAMA2002-23-3- | 127 | 73 | 74 | 186*** | 66*** | 15.1*** | 72*** |
| Tx132 | (CML442-B/CML3 | 127 | 75*** | 76*** | 235*** | 93* | 13.3 | 73 |
| Tx782 | LH195 (ex-PVP) | 127 | 72* | 73 | 212 | 77 | 13.1 | 74 |
| Tx150 | TX772W-B4-B13-B | 127 | 71* | 72* | 225 | 92 | 13.4 | 72 |
| Tx1709 | (LAMA2002-22-1- | 127 | 74** | 75 | 208 | 82 | 14.6 | 76* |
| Tx953 | (LAMA2002-23-3- | 127 | 76*** | 77*** | 192** | 79 | 13.4 | 73 |
| Tx781 | (LAMA2002-22-1- | 126 | 71 | 73 | 212 | 79 | 14.3 | 75 |
| Tx777 | (LAMA2002-22-1- | 126 | 73 | 74 | 196* | 75 | 13.3 | 74 |
| Tx1703?-1 | (LAMA2002-23-3- | 126 | 76*** | 78*** | 209 | 82 | 14 | 75* |
| Tx740 | TR7322 | 126 | 72 | 73 | 217 | 78 | 14 | 75* |
| Tx790?-2- | LAMA2002-58-3-B | 126 | 73 | 77*** | 197* | 68* | 15.2 | 76 |
| Tx772WRS | Tx110-B-B-B-B-B-B | 126 | 72 | 72 | 211 | 76 | 13.3 | 74 |
| Tx1701 | GP7169GT | 126 | 72 | 73 | 222 | 99* | 13 | 76* |
| Tx741 | LH195RR2 | 126 | | | 220 | 87 | 13.6 | 75 |
| Tx785 | LH195 (ex-PVP) | 125 | 71* | 71** | 201 | 74 | 12.7 | 76 |
| Tx148 | ((CML373/FR825), | 124 | 71** | 72** | 221 | 81 | 13.4 | 68*** |
| Tx1707 | LH195 (ex-PVP) | 124 | 71* | 71** | 215 | 78 | 12.7 | 74 |
| Tx1703?-1 | SGI890 | 124 | 73 | 74 | 230* | 92 | 15.3 | 74 |
| Tx1702?-1 | TR8145HXRR2 | 124 | 71 | 71* | 229 | 94 | 13.4 | 78*** |
| Tx772 | (LAMA2002-22-1- | 124 | 71 | 72 | 204 | 74 | 13.1 | 76 |
| Tx953 | GP7169GT | 124 | | | 208 | 83 | 12.8 | 75 |
| Tx798 | SGI890 | 124 | | | | | 12.9 | 75 |
| Tx782 | ((B104/(Tx802 x K | 123 | 71 | 73 | 205 | 81 | 13.6 | 74 |
| Tx782 | LAMA2002-58-3-B | 123 | 76*** | 78*** | 213 | 93 | 13.9 | 74 |
| Tx955 | LH195 (ex-PVP) | 123 | 71** | 72** | 240*** | 91 | 11.3*** | 78*** |
| Tx772 | GP7169GT | 123 | 70*** | 70*** | 209 | 79 | 12.8 | 75 |
| Tx777 | TR8145RR2 | 123 | | | 251*** | 83 | 12.7 | 74 |
| Tx1710 | TR7322 | 123 | 70** | 70*** | 196* | 64** | 12.9 | 69*** |
| Tx834 / | (LAMA2002-23-3- | 123 | 72 | 74 | 217 | 76 | 12.5 | 72 |
| Tx1709 | LAMA2002-58-3-B | 122 | 76*** | 78*** | 220 | 89 | 15.1* | 72 |
| Tx833 | SGI890 | 122 | 73 | 74 | 225 | 81 | 13.3 | 76*** |
| Tx150 | 87916' | 122 | 73 | 74 | 216 | 93 | 11.8 | 69*** |
| **commercial check** | | 122 | 72 | 73** | 231*** | 103*** | 12.9 | 75** |
| **Check Min** | | 122*** | 69 | 69** | 186*** | 58*** | 10.8*** | 69*** |

**An Additional 112 TAMU hybrids were less than the check minimum and are not shown**