

## 2006 POPULATION RESEARCH PLOT

Case No.	Variety	Plants per Acre	K/10	Oil Exp	Tenderness	Hull	Plants Harvested	Ears harvested	Ear Size	Kernel shape	Harvest Moisture	Row Weight	Yield at 14%	Lodging
1	1160	21000	54	46.0	3.8	3.4	42	72	3.7	2.5	18.3	21.34	8.318	0%
2	1160	26000	53	46.0	3.2	2.9	52	67	3.6	2.5	18.5	19.8	7.681	1%
3	1160	31000	56	48.0	3.4	3.2	62	69	3.2	2.3	18.6	21.58	8.372	15%
4	1160	35000	57	47.0	3.8	3.2	70	72	3.2	2.4	18.6	20.96	8.127	85%
1	11850	21000	52	47.0	3.2	3.2	42	48	3.2	1.2	17.9	15.6	6.074	0%
2	11850	26000	53	47.0	3.2	3.2	52	49	3.0	1.2	18.2	15.82	6.133	0%
3	11850	31000	53	46.0	3.0	2.5	62	55	2.8	1.2	17.9	14.8	5.754	0%
4	11850	35000	55	46.5	3.0	3.0	70	58	2.7	1.2	18.1	14.36	5.560	0%

### Research Plot Variables

The plot was planted May 12<sup>th</sup> with a Case 1200 vacuum driven planter. This trial was imbedded in a machine planted field, following soybeans of 56bu/acre yield, 70lbs of starter fertilizer of 8-20-0-8S was banded at planting, a preplant application of 80lbs of N was applied along with 15lbs of S in the sulfate form. A side dress was applied on the 15th of June of 45lbs of N and 8lbs of S in sulfate form. The plot was furrow irrigated and planted on 38" row width. Dual II herbicide was applied at one half field corn rate in a 10" band at planting. The plot was cultivated twice. On June 21<sup>st</sup> the plot was ditched. No late season weed pressure was noted. The plot was physically entered 6 times (after planting, one hoeing, 3times for observations, and at harvest).

### Environmental Conditions

May was 6 degrees above normal and no precipitation was recorded. June was 5 degrees above normal and 3.5 inches of rain was recorded after June 16<sup>th</sup>. July was 7 degrees above normal and 1.95 inches of rain was recorded. First irrigation July 5<sup>th</sup>, total July irrigation 6 inches. August was 7 degrees above normal and 2.1 inches of rain was recorded. Total irrigation in August was 4 inches.

### Parameters

Several controls were maintained to eliminate plant stress from all sources except population. The soil was kept at adequate moisture levels during the entire growing period. Nitrogen and sulfur were side dressed at required levels in late June so that nitrogen starvation would not be a factor at high population. Insect infestation was monitored and no infestations were detected. A Fungicide (Headline) was used so that disease pressure would not be present as the usual detrimental factor of high populations. No weeds were present in any of the replications.

With these above controls we were able to focus entirely on the population study and not the usual contributing factors that effect high or low populations. The plot was embedded within a popcorn field with no access paths.

## Results

From the chart you can see that 1160 had standability issues as the population increased and we effectively maintained the yield at every population level. The plant achieved this by double earing on almost every plant at the low population and single earing at the high population.

N11850 at high populations had several barren stalks and seemed to slightly increase its yield under lower populations. N11850 maintained 100% standability at all population levels. Both hybrids showed the ability to flex their ears under lower populations.

The surprising result was that the quality did not suffer at higher populations. We believe the quality was maintained because of the controls stated above.

## Conclusion,

To achieve maximum yields it is not necessary to have a plant population of over 27,000/acre and is not detrimental to have populations as low as 21,000/acre. Zangger hybrids should have a planting drop rate of 30,000 seeds per acre or less. Fungicides should be used to maintain yield and more importantly quality.