

2007 POPULATION RESEARCH PLOT

West Plot

Case No.	Variety	Plants per Acre	K/10	Oil Exp	Tenderness /% Balls	Hull	Plants Harvested	Ears harvested	Ear Size	Kernel shape	Harvest Moisture	Row Weight	Yield at 14%	Lodging
1	15820	21000	63	48.5	3.5	3.5	44	53	2.8	2.2	13.8	14.76	6,113	14%
2	15820	26000	64	48.0	3.2	3.0	50	53	2.4	2.2	14.1	15.48	6,391	18%
3	15820	31000	69	47.5	4.0	3.2	60	62	2.0	2.3	13.4	15.12	6,304	36%
4	15820	34000	69	47.5	3.8	3.0	60	60	1.8	2.4	13.6	15.2	6,319	42%
1	11830	21000	48	35.5	3.2 / 69B	3.0	37	44	2.9	1.9	12.3	12.98	5,474	13%
2	11830	26000	57	34.5	3.2 / 79B	3.0	50	50	2.5	1.9	12.2	13.2	5,578	9%
3	11830	31000	59	37.0	2.5 / 52B	2.5	56	56	2.1	1.9	12.3	13.82	5,840	20%
4	11830	34000	65	37.5	2.5 / 45B	2.5	65	68	2.1	1.9	13.2	15.92	6,667	23%

East Plot

Case No.	Variety	Plants per Acre	K/10	Oil Exp	Tenderness /% Balls	Hull	Plants Harvested	Ears harvested	Ear Size	Kernel shape	Harvest Moisture	Row Weight	Yield at 14%	Lodging
1	15820	21000	68	49.5	4.0	3.2	42	45	3.0	2.2	13.1	12.62	5,255	15%
2	15820	26000	77	49.0	4.0	3.2	56	53	2.5	2.1	13.1	12.42	5,169	25%
3	15820	31000	74	46.0	3.6	3.2	65	61	2.2	2.1	13.7	13.16	5,439	38%
4	15820	34000	76	48.5	3.9	3.5	70	63	1.9	2.3	13.7	13.22	5,464	48%
1	11830	21000	58	36.0	3.0 / 54B	2.5	44	48	2.8	1.8	14.0	12.84	5,279	12%
2	11830	26000	60	37.5	3.5 / 65B	3.0	54	53	2.7	1.6	14.0	13.26	5,457	15%
3	11830	31000	63	35.5	2.5 / 55B	2.7	62	63	2.3	1.7	14.1	14.36	5,916	22%
4	11830	34000	68	36.5	2.5 / 50B	2.5	70	68	2.1	1.9	13.8	14.52	6,010	27%

2 Plot Average

Case No.	Variety	Plants per Acre	K/10	Oil Exp	Tenderness /% Balls	Hull	Plants Harvested	Ears harvested	Ear Size	Kernel shape	Harvest Moisture	Row Weight	Yield at 14%
1	15820	21000	65	49.0	3.8	3.3	43	49	2.9	2.2	13.5	13.69	5,684
2	15820	26000	70	48.5	3.5	3.1	53	53	2.5	2.2	13.6	13.95	5,780
3	15820	31000	71	46.7	3.8	3.3	63	62	2.1	2.2	13.5	14.14	5,871
4	15820	34000	73	48.0	3.9	3.3	65	62	1.9	2.3	13.6	14.21	5,891
1	11830	21000	53	35.8	3.2 / 61B	2.8	40	46	2.9	1.9	13.1	12.91	5,376
2	11830	26000	58	36.0	3.5 / 72B	3.0	52	52	2.6	1.7	13.0	13.23	5,517
3	11830	31000	61	36.2	2.5 / 53B	2.6	59	60	2.2	1.8	13.1	14.09	5,878
4	11830	34000	64	37.0	2.5 / 48B	2.5	68	68	2.1	1.9	13.5	15.22	6,338

Research Plot Controls

The plots were planted May 12th with a Case 1200 vacuum driven planter. This trial was imbedded in a machine planted field, following soybeans of 54bu/acre yield. 70lbs of starter fertilizer of 8-20-0-8S was banded at planting, and pre-plant application of 80lbs of N was applied along with 15lbs of S in the sulfate form. A side dress was applied the third week of June of 45lbs of N and 8lbs of S in sulfate form. The plots were planted on 38" row width. Dual II herbicide was applied at one half field corn rate in a 10" band at planting. The plots were cultivated twice. In late June the plots were ditched. No late

season weed pressure was noted. The plots were physically entered 5 times (after planting, one hoeing, two times for observations, and at harvest). The plots were furrow irrigated 4 times.

Research plot Variables

The plot experienced above average moisture during May and the first half of June. This was followed by very dry conditions through pollination until the second week of August. The plot experienced two heavy rain events in August. One of these events contained hail and heavy winds. The plot experienced 50% defoliation. July and August were more humid and had warmer nights than normal for this region. The east plot was on lower ground resulting in significant amounts of standing water in May and the middle of August.

Environmental Conditions

Months	2007 Temp	Average	2007 Precip	Average
May/ high	74.2	72	6.1"	3.62
May/ low	51.8	48		
June/ high	81.2	82	3.3"	3.74"
June/ low	59	58		
July/ high	87.8	86	1"	3.44"
July/ low	65.3	63		
Aug/ high	90.3	86	4.2"	3.02"
Aug/ low	68	63		

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 at 50% tassel 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 the 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 plots were embedded within a popcorn field with no access paths.

Results

15820's ears flexed and there was some double earring resulting in increased yield at the lower populations. 15820's yield was effectively maintained at every population level like the 1160 did last year.

As 11830's population increased the balling % decreased. The highest balling % was found around 26,000 plants per acre for both plots. 11830 responded well to higher populations with yield but not with balling ability.

Both hybrids experienced an increase in kernels per ten grams as the population increased. The popping ability of both hybrids remained consistent at all populations. As population increased lodging also increased.

Conclusions

The east plot had lower yields and more lodging issues due to water standing for a significant time period. Under stressful conditions both hybrids were able to produce a desirable product under all populations. To achieve maximum yield it is not necessary to have a plant population of over 27,000 plants per acre and is not detrimental to have populations as low as 21,000 plants per acre. Zangger hybrids should have a planting drop rate of 30,000 seeds per acre or less and a finished population of 26,000 to 28,000 to insure optimum yield with optimum kernel size. At this population the nutrient and water need is less than higher populations require. Fungicides should be used to maintain yield and more importantly quality.

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