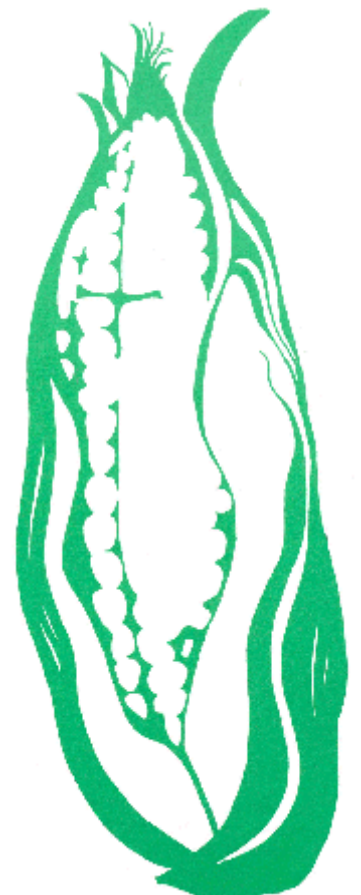
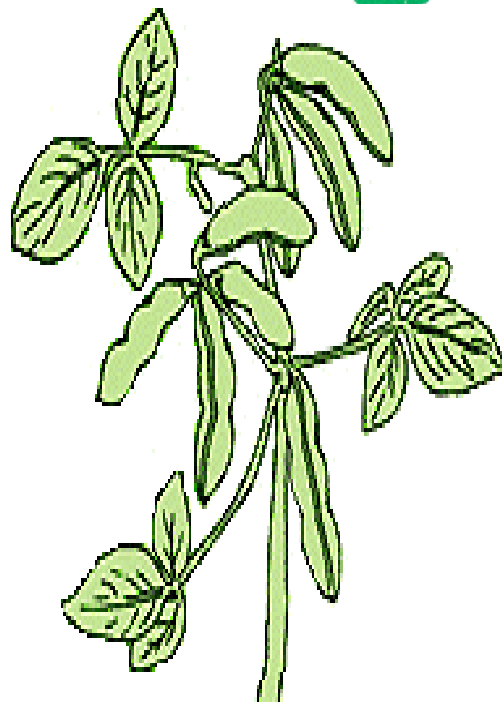


# MAKING BETTER DECISIONS

2003 Colorado Corn, Soybean, and  
Sunflower Variety Performance Trials



Agricultural Experiment Station

**Colorado  
State**  
University

*Knowledge to Go Places*

# Technical Report TR 03-10

Agricultural  
Experiment  
Station

Department of  
Soil and Crop  
Sciences

Cooperative  
Extension

December  
2003

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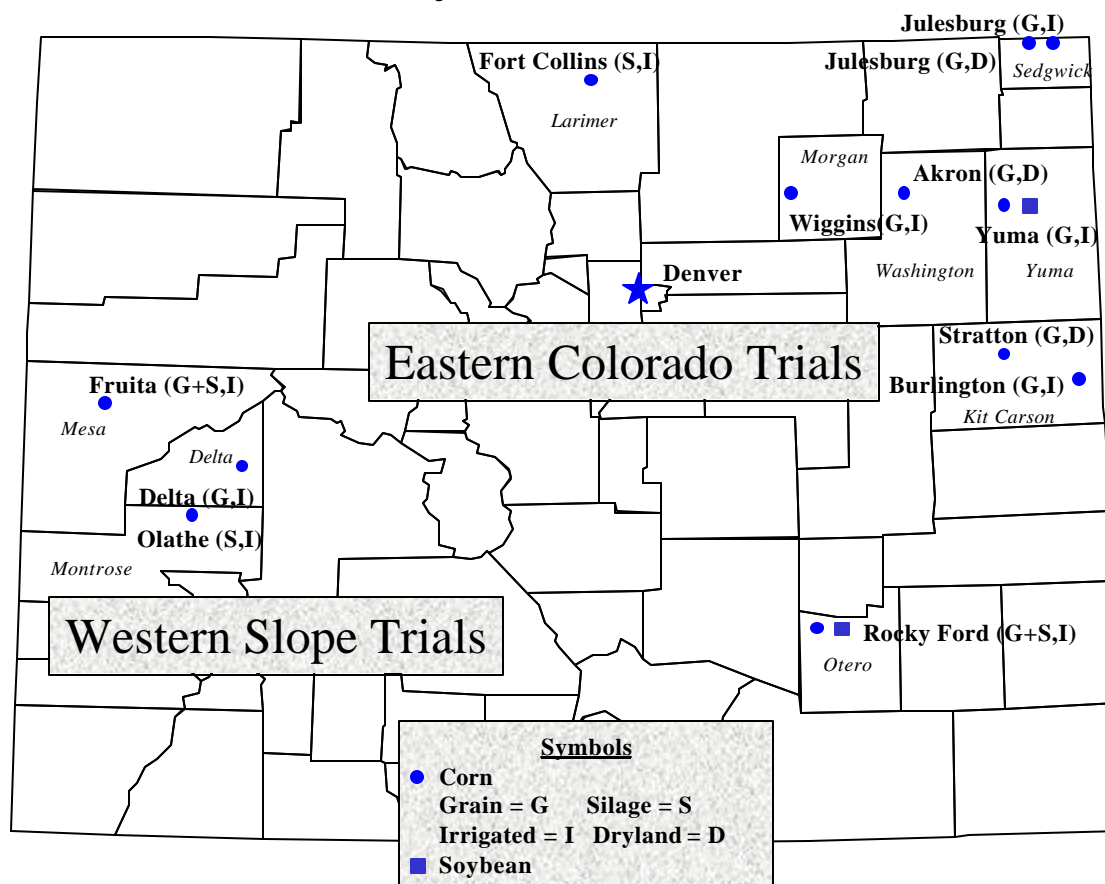
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## 2003 Colorado Corn and Soybean Variety Performance Trials



## ACKNOWLEDGMENTS

The authors express their gratitude to the Colorado farmers who generously contributed the use of their land, equipment, and time to conduct these trials for the good of all Colorado corn and soybean producers: Burlington - Don Sircy; Delta - Wayne Brew; Julesburg - Gene Bauerle; Julesburg - Josh Lechman; Olathe - Earl Seymour; Stratton - Tim and Gary Pautler; Wiggins - Rod Graves; Yuma - Larry Gardner; Yuma - Max Olsen. We also acknowledge the participation of the Agricultural Research, Development and Education Center (ARDEC) - Fort Collins; Central Great Plains Field Station - Akron; Western Colorado Research Center - Fruita; Arkansas Valley Research Center - Rocky Ford.

## 2003 COLORADO CORN HYBRID PERFORMANCE TRIALS

### Introduction

Each year 700,000 acres of irrigated corn for grain is planted in Colorado, yielding over 165 bu/acre, and producing upwards of 120 million bushels of corn with a value over \$300 million. Yuma county, the leading producer, harvested an average of 207.5 bu/acre on 200,000 acres in 2002. CSU conducts hybrid performance trials to provide unbiased and reliable information to Colorado producers so they may select the best hybrids for their farming conditions. Variable climatic conditions, innovations from biotechnology, acquisitions and mergers of seed companies, and rapid evolution of new hybrid lines means that unbiased crop performance information is increasingly important to Colorado corn producers.

Colorado State University personnel evaluated commercial corn hybrids under irrigation at five Eastern Colorado locations and three Western Slope locations. A randomized complete block field design with three replicates was used at all Eastern Colorado irrigated trials. Target plant populations for the trials were 32,000 and 15,000 seeds/ac for irrigated and dryland trials, respectively, while Western Slope trials were planted at 33,500 seeds/ac. All grain yields are reported in bu/ac and adjusted to 15.5% moisture content.

An important climatic factor determining irrigated corn yields is growing degree days. Growing degree days (GDD) calculations are accumulated from May 1 to September 30 based on daily temperatures as the average daily high and low temperature minus 50° F. For calculating the mean daily temperature, a minimum temperature below 50° F is counted as 50° F, and a maximum above 86° F is counted as 86° F. GDD's in 2003 were near the long term average GDD at all locations.

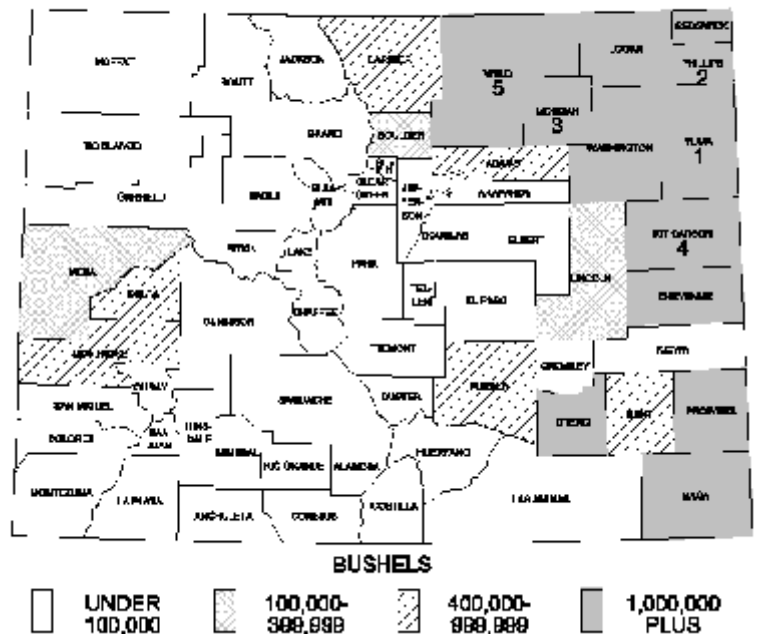
### Eastern Colorado Irrigated Grain Corn Performance Data

The 2003 corn cropping season in eastern Colorado was again influenced by drought and availability of irrigation water in some wells. In general, corn grown with adequate irrigation and good management yielded well in 2003. Some of

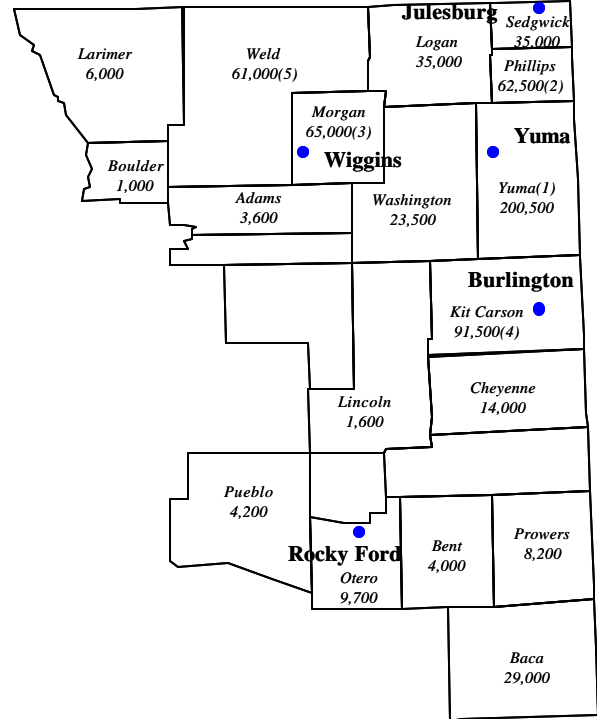
the corn grown under limited irrigation was able to make it into mid-season due to above average May-June precipitation in parts of eastern Colorado but did not have enough moisture to finish the crop. Insecticide was applied at all but one trial location to control corn rootworm beetles, spider mites, and western bean cutworm. In general, European corn borer pressure was low due to dry 2002 conditions. Overall rootworm activity was low to moderate and western bean cutworm pressure was moderate. Below is a short synopsis of each irrigated trial:

- Burlington yields ranged from 183 to 215 bu/ac at target populations but lodging was noted as high as 48%.
- Julesburg yields ranged from 191 to 219 bu/ac at target populations and lodging of a few lines was over 10% was seen.
- Rocky Ford yields ranged from 231 to 257 bu/ac at 31,000 plants/ac and no lodging occurred.
- Wiggins (first year cooperator) yields ranged from 162 to 191 bu/ac at 30,000 plants/ac and no lodging but was injured by hail (three events).
- Yuma yields ranged from 242 to 270 bu/ac at target populations and some lodging occurred. This was a great trial.

**Corn for Grain: Production by County, Colorado, 2002  
with Ranking of First Five Counties**



**Five eastern Colorado irrigated corn trial locations in 2003 with 2002 acreage harvested in eighteen important corn producing counties of Colorado.**



Trial Location	Weather Station	2003 GDD	Long Term Average GDD
Burlington	Burlington	2695	2673
Julesburg	Julesburg	2762	2752
Rocky Ford	Rocky Ford	2854	2837
Wiggins	Fort Morgan	2578	2667
Yuma	Yuma	2567	2615

**Table 1. Irrigated corn cultural conditions in 2003.**

	Burlington	Julesburg	Rocky Ford	Wiggins	Yuma
Soil Type	Keith Silt Loam	Keith, Goshen Kuma Silt Loam	Silty Clay Loam	Bijon Loamy Sand	Manter Loamy Sand
Previous Crop	Corn	Corn	Alfalfa	Corn	Corn
Fertilization					
N acre <sup>-1</sup>	150	186	111	227	250
P <sub>2</sub> O <sub>5</sub> acre <sup>-1</sup>	25	33	52	9	45
K <sub>2</sub> O acre <sup>-1</sup>	7	0	0	27	15
Zn acre <sup>-1</sup>	3	.25	0	0	0
S acre <sup>-1</sup>	5	3	0	18	10
Herbicide	Marksman Dual	Epic Define	Dual II Magnum Clarity	Bowa Guardsman Max	Steadfast Distinct
Insecticide	Pencap	Pencap	Acaricide Capture	None	Pounce
Irrigation	Sprinkler	Sprinkler	Furrow	Sprinkler	Sprinkler

**Table 2. Irrigated corn variety performance trial at Burlington<sup>1</sup> in 2003.**

Hybrid	Grain		Test	Plant		Ldg.
	Yield	Moist.	Wt.	Ht.	Density	
	bu/ac	%	lb/bu	in	plants/c	%
HYTEST HT7710 (BT/LL)	215	16.8	57.6	85	34671	12
Foundation Pilot HCS0113	209	14.2	57.9	79	35807	26
DEKALB DKC57-01	203	14.9	59.5	77	36231	21
Foundation Pilot HCS0112	203	16.3	58.2	77	33063	41
DEKALB DKC60-17 (RR)	202	15.2	58.5	72	35642	15
ASGROW RX752 (YGCB)	201	15.3	59.0	79	32325	48
Mycogen 2E705 (YG/BT)	197	16.1	57.9	82	36321	22
Farmer Check*	196	16.8	59.9	81	35384	36
DEKALB DKC58-78 (YGCB)	195	14.6	58.5	75	35302	22
NK Brand N72-J5	193	16.4	57.8	85	35367	25
DEKALB DKC52-45 (YGCB)	189	12.9	59.4	69	35393	10
Fontanelle 5282	189	15.6	58.3	81	35295	43
NK Brand N67-T4 (BT/LL)	188	15.5	59.5	80	36209	22
Foundation Pilot HCS0113 (YGCB)	187	15.5	58.2	78	32484	42
Foundation Pilot HCS0111(RR/YGCB)	187	16.2	60.3	81	35857	29
Triumph 3421 (RR)	186	14.3	60.3	81	35771	7
DEKALB DKC57-84 (YGCB)	185	14.3	59.9	77	34531	19
DEKALB DKC60-19 (RR/YGCB)	184	15.2	59.4	73	35996	10
NK Brand N70-F1 (BT/LL)	183	15.3	57.5	75	33867	16
DEKALB DKC51-43	183	13.3	59.5	73	35483	5
Fontanelle HC7638 (BT)	183	14.4	58.8	78	33272	47
Fontanelle 5234	182	15.3	58.1	81	35901	24
LG Seeds LG 2585	182	15.1	59.0	78	34796	28
HYTEST HT7727	181	16.3	58.3	80	34391	16
Mycogen 2P682	179	14.6	57.6	77	35622	25
Grand Valley GVX0312	177	13.7	59.0	73	33689	10
Mycogen 2G768 (HX/BT)	173	14.2	59.0	83	34397	22
Grand Valley GVX0378 (YGCB)	173	14.6	58.3	80	33423	39
LG Seeds LG 2533 (BT)	173	14.0	57.7	80	35846	14
NK Brand N65-M7	170	14.9	58.2	80	35483	33
Foundation Pilot HCS0112 (YGCB)	169	16.2	58.9	83	33578	39
Foundation Pilot HCS0111 (RR)	168	16.1	60.9	84	36814	11
DEKALB DKC50-18 (YGCB)	168	12.6	59.5	73	35846	10
NK Brand N70-T9 (BT/LL/CL)	167	15.3	58.8	80	34969	40
Kaystar KX-8550 (RR)	157	13.5	58.2	81	34879	41
Triumph 1120 (BT) (RR)	146	15.8	58.3	79	31909	32
DEKALB DKC58-24 (RR/YGCB)	146	14.4	58.9	77	35021	21
<b>Average</b>	<b>183</b>	<b>15.0</b>	<b>58.8</b>	<b>79</b>	<b>34887</b>	<b>25</b>
LSD <sub>(0.30)</sub>	23					

<sup>1</sup>Trial conducted on the Don Sircy farm; seeded 4/28 and harvested 10/17.

\*Farmer check was Pioneer 33B50.

\*\*Ear drop was insignificant.

**Table 3. 2-yr average irrigated corn variety performance at Burlington in 2002-03.**

Hybrid	Grain		Test
	Yield	Moist.	Wt.
	bu/ac	%	lb/bu
NK Brand N72-J5	203	14.0	58.3
Fontanelle 5282	196	13.6	58.1
DEKALB DKC60-19(RR/YGCB)	193	13.4	59.5
NK Brand N67-T4 (BT/LL)	193	13.7	59.5
Fontanelle HC7638 (BT)	192	12.9	58.4
Kaystar KX-8550 (RR)	181	12.6	59.7
Triumph 1120 (BT) (RR)	165	14.4	58.5
<b>Average</b>	<b>189</b>	<b>13.5</b>	<b>58.8</b>

**Table 4. Irrigated corn variety performance trial at Julesburg<sup>1</sup> in 2003.**

Hybrid	Yield	Grain	Test	Plant	Density	Ldg.
		Moist.	Wt.	Ht.		
	bu/ac	%	lb/bu	in	plants/a	%
DEKALB DKC60-19 (RR/YGCB)	219	15.7	58.3	73	34937	4
DEKALB DKC57-01	203	14.3	58.0	77	35403	2
DEKALB DKC57-84 (YGCB)	203	15.1	58.4	74	35485	6
Fontanelle 5234	203	14.3	58.1	75	36794	5
Mycogen 2G626 (YG/BT)	201	14.8	59.3	71	35856	7
Fontanelle 5282	201	15.7	56.9	77	36872	12
DEKALB DKC52-45 (YGCB)	200	12.5	58.0	71	35355	3
DEKALB DKC51-43	198	13.1	58.9	71	35108	2
Grand Valley G VX0312	198	15.4	58.6	70	34746	3
Grand Valley SX1260	196	14.0	59.2	77	36639	3
Mycogen 2E705 (YG/BT)	196	15.9	57.5	74	35964	6
DEKALB DKC50-18 (YGCB)	193	13.2	59.6	71	35986	1
Mycogen 2P682	192	15.3	55.8	73	37020	4
Farmer Check*	192	17.2	58.9	77	36890	2
DEKALB DKC58-78 (YGCB)	191	15.7	57.6	75	35764	1
DEKALB DKC58-24 (RR/YGCB)	190	15.5	59.4	74	36996	4
Grand Valley G VX3559	188	14.7	58.9	75	35719	1
Foundation Pilot HCS0101(YGCB)	187	15.1	59.2	73	36209	3
Fontanelle HC7638 (BT)	187	15.4	57.5	79	35603	15
NK Brand N43-C4 (BT/LL)	184	12.8	59.9	73	35400	0
Foundation Pilot HCS0101	181	14.8	59.1	70	36272	3
Grand Valley G VX5989 (RR)	179	14.6	59.2	73	34210	2
NK Brand N59-Q9	175	15.4	58.2	79	36058	5
Grand Valley G VX4480	166	13.7	57.0	80	37248	2
Triumph 3421 (RR)	159	13.8	60.1	77	35938	1
<b>Average</b>	<b>191</b>	<b>14.7</b>	<b>58.5</b>	<b>74</b>	<b>35939</b>	<b>4</b>
LSD <sub>(0.30)</sub>	13					

<sup>1</sup>Trial conducted on the Gene Bauerle farm; seeded 5/7 and harvested 10/23.

\*Farmer check was Pioneer 33B51.

\*\*No ear drop.

**Table 5. 2-yr average irrigated corn variety performance at Julesburg in 2002-03.**

Hybrid	Grain Test		
	Yield	Moist.	Wt.
	bu/ac	%	lb/bu
DEKALB DKC51-43	205	13.7	58.8
DEKALB DKC58-24 (RR/YGCB)	183	15.7	59.1
Fontanelle 5282	182	17.0	56.1
Fontanelle HC7638 (BT)	180	16.7	56.6
<b>Average</b>	<b>187</b>	<b>15.8</b>	<b>57.6</b>

**Table 6. Irrigated corn variety performance trial at Rocky Ford<sup>1</sup> in 2003.**

Hybrid	Grain		Test		Plant	
	Yield	Moist.	Wt.	Ht.	Density	Silking <sup>2</sup>
	bu/ac	%	lb/bu	in	plants/a	date
Producers Hybrids 7371 (BT)	257	16.1	57.7	78	30220	197
NK Brand N70-T9 (BT/LL/CL)	255	16.1	57.7	77	31445	197
ASGROW RX752 (YGCB)	255	15.7	58.5	76	30628	197
Grand Valley SX1395 (YGCB) (BT)	253	16.3	57.7	81	30220	196
HYTEST HT7806 (BT)	248	17.1	59.0	82	31309	198
HYTEST HT7710 (BT/LL)	246	16.0	57.7	79	31173	197
Mycogen 2E705 (YG/BT)	246	15.9	57.7	77	30628	197
Foundation Pilot HCS0112	245	16.0	58.2	78	31173	197
DEKALB DKC63-50 (YGCB)	245	15.3	58.2	79	31445	197
Foundation Pilot HCS0112 (YGCB)	245	16.1	57.7	79	31037	198
Grand Valley GVX0178(YGCB) (BT/RR)	245	16.0	56.1	80	30492	198
Foundation Pilot HCS0113 (YGCB)	243	15.8	57.7	77	28722	197
NK Brand N70-F1 (BT/LL)	240	15.7	57.7	73	30764	198
Grand Valley GVX8978 (YGCB) (BT)	239	15.8	58.5	78	30492	198
DEKALB DKC60-17 (RR)	238	15.4	58.1	70	29948	196
DEKALB DKC64-10 (RR)	238	14.9	58.7	80	31445	197
Mycogen 2A812 (HX/BT)	237	16.7	57.2	87	32942	196
Mycogen 2R773 (YG/BT)	237	16.0	59.8	80	31853	197
NK Brand N65-M7	236	15.7	58.2	80	31445	196
Producers Hybrids 7290 (BT)	232	16.0	58.7	80	30084	196
Triumph 1120 (BT) (RR)	230	14.8	59.1	80	31989	196
DEKALB DKC63-79 (YGCB)	230	16.2	59.3	76	30356	198
DEKALB DKC64-11 (RR/YGCB)	230	15.5	59.3	83	32398	198
Foundation Pilot HCS0113	227	15.1	57.8	74	28450	197
Grand Valley SX1298 (YGCB) (BT/RR)	226	14.5	58.7	78	31037	198
DEKALB DKC60-19 (RR/YGCB)	224	15.6	58.8	72	31173	197
NK Brand N67-T4 (BT/LL)	222	15.7	58.5	77	30900	197
Foundation Pilot HCS0111 (RR)	219	15.8	61.2	81	31309	197
Foundation Pilot HCS0111 (RR/YGCB)	218	15.6	60.8	80	30220	197
NK Brand N72-J5	217	15.7	57.9	79	30084	198
Grand Valley SX1300 (YGCB)	214	15.2	59.7	77	29539	197
Triumph 1302Rw (YGRW)	211	15.2	58.1	73	31445	198
HYTEST HT7778 (BT)	210	15.4	58.3	79	31037	198
DEKALB DKC53-34 (RR/YGCB)	193	13.5	58.8	65	32534	195
DEKALB DKC53-33 (RR)	186	13.2	58.6	76	31309	195
Grand Valley GVX3378 (YGCB) (BT)	183	11.5	58.1	75	31853	196
<b>Average</b>	<b>231</b>	<b>15.4</b>	<b>58.4</b>	<b>78</b>	<b>30919</b>	<b>197</b>
LSD <sub>(0.30)</sub>	13					

<sup>1</sup>Trial conducted at the Arkansas Valley Research Center; seeded 5/5 and harvested 10/16.

<sup>2</sup>Julian date.

\*No significant ear drop or lodging.

**Table 7. 2-yr irrigated corn variety performance at Rocky Ford in 2002-03.**

Hybrid	Grain		Test
	Yield	Moist.	Wt.
	lb/ac	%	lb/bu
HYTEST HT7806 (BT)	224	16.2	59.1
Producers Hybrids 7290 (BT)	221	14.6	56.8
DEKALB DKC60-19(RR/YGCB)	211	14.7	59.1
NK Brand N72-J5	204	15.3	58.4
Triumph 1120 (BT) (RR)	199	13.4	58.6
NK Brand N67-T4 (BT/LL)	196	14.5	58.8
<b>Average</b>	<b>209</b>	<b>14.8</b>	<b>58.5</b>

**Table 8. Irrigated corn variety performance trial at Wiggins<sup>1</sup> in 2003.**

Hybrid	Grain		Test	Plant	Density	Ldg.
	Yield	Moist.	Wt.	Ht.		
	bu/ac	%	lb/bu	in	plants/a	%
DEKALB DKC57-84 (YGCB)	191	13.9	56.8	80	32035	0
NK Brand N43-C4 (BT/LL)	183	12.2	56.5	76	31458	0
Mycogen 2E705 (YG/BT)	179	15.2	54.5	82	32080	0
Mycogen 2P682	176	14.1	54.2	79	31046	0
DEKALB DKC52-45 (YGCB)	176	10.9	56.2	72	31451	0
LG Seeds LG 2533	175	13.7	54.6	76	29904	0
Farmer Check*	172	15.7	58.1	78	29640	0
Grand Valley SX1212 (YGCB) (BT)	168	11.9	57.2	77	30855	1
NK Brand N59-Q9	163	15.2	56.6	79	28987	0
Mycogen 2M527	162	13.1	56.4	75	31616	0
Mycogen 2G626 (YG/BT)	161	13.2	57.0	75	29018	0
Triumph 1120 (BT) (RR)	161	17.1	52.5	82	30451	0
NK Brand N3030 (BT/LL)	158	12.2	58.8	74	30129	0
Grand Valley SX1229	158	12.7	56.9	74	29514	0
Foundation Pilot HCS0101	155	14.6	57.2	72	30608	1
Foundation Pilot HCS0101(YGCB)	154	15.2	57.6	72	29934	1
DEKALB DKC58-78 (YGCB)	152	13.5	55.7	76	31637	0
DEKALB DKC53-33 (RR)	150	12.3	57.8	77	29416	1
Foundation Pilot HCS0110 (YGCB)	150	14.0	57.0	74	29618	0
Foundation Pilot HCS0110	149	14.5	56.7	73	28732	0
DEKALB DKC53-34 (RR/YGCB)	148	12.6	56.8	77	31793	0
DEKALB DKC58-24 (RR/YGCB)	147	14.5	55.7	77	30492	1
Triumph 3421 (RR)	134	12.6	58.3	72	28705	0
<b>Average</b>	<b>162</b>	<b>13.7</b>	<b>56.5</b>	<b>76</b>	<b>30396</b>	<b>0</b>
LSD <sub>(0.30)</sub>	16					

<sup>1</sup>Trial conducted on the Rod Graves farm; seeded 5/14 and harvested 10/29.

\*Farmer check was Pioneer 34B97.

\*\*No ear drop.

\*\*\*Hail damage during three different events.

**Table 9. 2-yr average irrigated corn variety performance at Wiggins in 2002-03.**

Hybrid	Grain		Test
	Yield	Moist.	Wt.
	bu/ac	%	lb/bu
LG Seeds LG 2533	208	14.3	53.2
NK Brand N59-Q9	197	15.5	55.7
DEKALB DKC53-34 (RR/YGCB)	188	13.4	57.1
DEKALB DKC58-24 (RR/YGCB)	187	15.1	53.2
Grand Valley SX1229	183	13.2	56.4
<b>Average</b>	<b>193</b>	<b>14.3</b>	<b>55.1</b>

**Table 10. Irrigated corn variety performance trial at Yuma<sup>1</sup> in 2003.**

Hybrid	Grain		Test		Plant	
	Yield	Moist.	Wt.	Ht.	Density	Ldg.
	bu/ac	%	lb/bu	in	plants/a	%
Kaystar KX-890 (BT)	270	16.5	56.8	91	36006	11
ASGROW RX752 (YGCB)	259	16.6	57.6	89	35074	9
Mycogen 2P682	258	15.2	57.1	91	36293	16
Fontanelle HC7638 (BT)	254	15.4	56.9	91	34955	7
NK Brand N72-J5	254	16.0	56.7	95	35447	23
NK Brand N70-F1 (BT/LL)	252	16.7	55.6	83	35417	4
Mycogen 2E705 (YG/BT)	251	15.6	57.1	93	35489	13
Grand Valley GVX3378	248	16.0	57.8	87	34218	7
Fontanelle 5234	248	15.5	57.7	97	33850	15
NK Brand N67-T4 (BT/LL)	247	16.3	57.8	90	35311	3
DEKALB DKC57-84 (YGCB)	247	15.6	59.4	90	33310	4
DEKALB DKC60-19 (RR/YGCB)	246	15.8	59.0	91	34396	8
DEKALB DKC63-50 (YGCB)	246	17.1	56.9	93	35302	10
Blackland BG 3177	246	15.8	57.5	89	35609	3
Blackland BG 3686	245	16.4	57.3	91	34569	7
Mycogen 2A812 (HX/BT)	243	16.6	56.8	98	35709	5
Grand Valley GVX0312	241	15.7	58.3	82	35520	3
Grand Valley SX1298 (YGCB) (BT/RR)	240	16.7	56.9	92	34753	1
Grand Valley GVX0378 (YGCB)	238	16.4	57.8	93	35302	11
NK Brand N70-T9 (BT/LL/CL)	237	16.5	58.1	89	35042	23
Fontanelle 5282	237	16.9	57.0	96	34950	9
Foundation Pilot HCS0101(YGCB)	236	14.1	60.1	84	33566	3
LG Seeds LG 2585	236	15.9	57.5	88	34386	17
NK Brand N65-M7	236	15.9	57.5	91	34305	8
Grand Valley SX1273 (YGCB) (BT)	236	15.1	57.4	91	35061	8
DEKALB DKC58-78 (YGCB)	235	15.5	58.9	88	36036	2
Kaystar KX-780 (BT)	235	15.0	58.1	91	35608	4
LG Seeds LG 2540 (BT)	235	15.8	57.8	92	35665	5
DEKALB DKC57-01	233	14.3	58.9	86	35330	8
Blackland BG 3994	228	15.4	58.7	92	34942	5
Mycogen 2G626 (YG/BT)	227	14.1	59.7	85	34796	7
Farmer Check*	220	16.8	61.1	89	34822	7
Foundation Pilot HCS0101	219	13.6	60.1	88	35231	3
<b>Average</b>	<b>242</b>	<b>15.8</b>	<b>57.9</b>	<b>90</b>	<b>35038</b>	<b>8</b>
LSD <sub>(0.30)</sub>	11					

<sup>1</sup>Trial conducted on the Larry Gardner farm; seeded 5/14 and harvested 10/22.

\*Farmer check was Pioneer 34A55.

\*\*No significant ear drop.

**Table 11. 2-yr average irrigated corn variety performance at Yuma in 2002-03.**

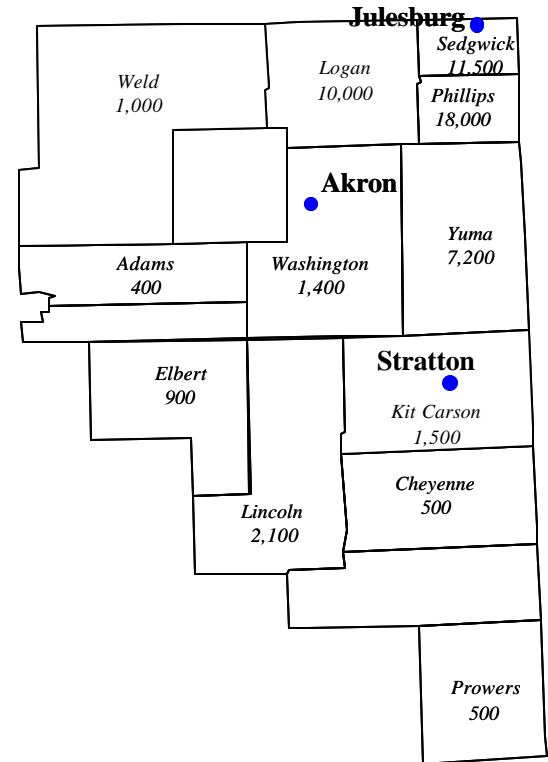
Hybrid	Grain		Test
	Yield	Moist.	Wt.
	bu/ac	%	lb/bu
Kaystar KX-890 (BT)	259	16.8	55.3
DEKALB DKC60-19 (RR/YGCB)	250	16.1	57.4
Fontanelle HC7638 (BT)	248	15.4	55.9
NK Brand N67-T4 (BT/LL)	245	16.8	57.1
NK Brand N72-J5	245	17.3	55.4
LG Seeds LG 2585	242	16.0	56.2
Fontanelle 5282	233	18.0	55.2
Grand Valley SX1273(YGCB) (BT)	230	15.7	56.1
<b>Average</b>	<b>244</b>	<b>16.5</b>	<b>56.1</b>

## Eastern Colorado Dryland Grain Corn Performance Data

Northeastern Colorado growers have been adopting more intensive dryland cropping systems as shown by increased dryland corn acreage which rose from 26,000 acres in 1990 to 340,000 acres in 2000, and 305,000 acres in 2001. The drought of 2002 severely reduced acreage and only 55,000 acres of dryland corn was harvested. Drought also affected the 2003 crop. Leading dryland corn producing counties are Phillips and Sedgwick counties.

Colorado State University personnel tested dryland corn hybrids at three dryland locations in Eastern Colorado in 2003. Drought affected all three trials. The Stratton trial could not be harvested and the Julesburg trial was harvested but the yields were low (23 bu/ac) and variable. Julesburg results could not be interpreted due to a planting error. Note that even Akron received less than half of expected precipitation during the critical period from July 15 through August 25. A randomized complete block field design with four replicates was used at all dryland trials. Target plant populations for the trials were 15,000 plant/ac. All grain yields are reported in bu/ac and are adjusted to 15.5% moisture content.

**Three northeastern Colorado dryland corn trial locations in 2003 with 2002 dryland acreage harvested.**



Trial Location	2003 GDD	Long Term Average GDD	2003 Precip. 7/15-8/25	% of normal 7/15-8/25
Akron	2570	2571	1.37	46

**Table 12. Dryland corn cultural conditions in 2003.**

Akron	
Soil Type	Rago & Kuma Silt Loam
Previous Crop	Wheat
Fertilization	
N acre <sup>-1</sup>	50
P <sub>2</sub> O <sub>5</sub> acre <sup>-1</sup>	0
Zn acre <sup>-1</sup>	0
S acre <sup>-1</sup>	0
Herbicide	Roundup Tuff, AAtrex Accent
Insecticide	None

**Table 13. Dryland corn variety performance trial at Akron<sup>1</sup> in 2003.**

Hybrid	Grain		Test	Ear		
	Yield	Moist.	Wt.	Ht.	Density	Ear Drop
	bu/ac	%	lb/bu	in	plants/a	%
Triumph 9066 (RR)	67	11.0	58.3	26	14316	27
DEKALB DKC51-43	67	11.2	57.3	24	19132	4
AgriPro 8888	67	11.0	56.9	30	18208	13
DEKALB DKC47-10 (RR/YGCB)	66	11.1	58.4	24	18524	5
Garst 8590 (RR)	66	14.6	57.1	29	18096	2
Farmer Check*	62	11.5	58.9	26	15994	2
DEKALB DKC42-95 (RR/YGCB)	62	10.4	56.3	25	18300	10
DEKALB DKC44-46 (RR/YGCB)	62	10.2	55.9	28	17559	8
Mycogen 2P682	61	12.9	56.3	25	18299	4
DEKALB DKC52-45 (YGCB)	61	10.9	57.0	26	18524	5
Garst 8802 RR	56	10.8	56.4	27	18343	9
NK Brand N43-C4 (BT/LL)	51	11.8	55.9	29	17506	14
Garst 8716	50	11.9	57.5	26	18090	21
Garst 8684 RR	48	14.7	59.2	29	18754	12
<b>Average</b>	<b>61</b>	<b>11.7</b>	<b>57.2</b>	<b>27</b>	<b>17832</b>	<b>10</b>
LSD <sub>(0.30)</sub>	7					

<sup>1</sup>Trial conducted at the Central Great Plains Field Station; seeded 5/6 and harvested 10/15.

\*Farmer check was Pioneer 38K06.

\*\*Dropped ears were harvested.

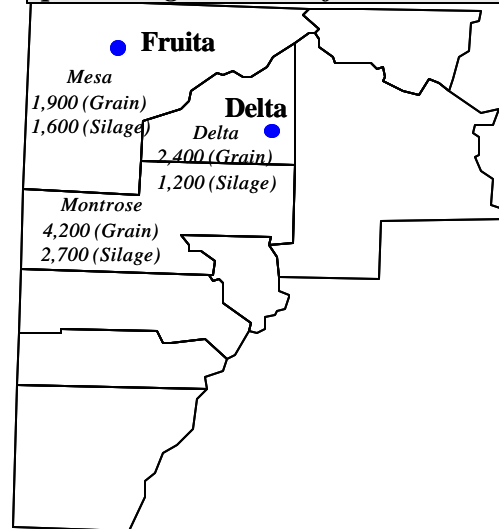
\*\*\*No significant lodging.

### Western Slope Irrigated Grain Corn Performance Data

Over 3,000,000 bushels of corn grain are produced on some 30,000 acres of irrigated farmland on the Western Slope every year, bringing in over \$8 million to local producers. Calvin Pearson of the Colorado Agricultural Experiment Station evaluates long-season and short-season corn grain hybrids to provide reliable and unbiased information to Western Slope producers.

Summer 2003 in western Colorado was very hot. For example, at Fruita there were 26 days during the summer above 100EF with 16 of those days being consecutive. On July 14, 2003 the temperature recorded at the weather station at the Fruita Research Center was 107.3EF. These hot temperatures created stress conditions for corn grown by many farmers and made it challenging for them to keep their crops irrigated adequately.

**Two Western Slope corn grain and silage trial locations in 2003 with 2002 acreage harvested in three important corn producing counties of the Western Slope.**



**Table 14. Western Slope irrigated corn cultural conditions in 2003.**

	<b>Delta</b>	<b>Fruita Long Season</b>	<b>Fruita Short Season</b>
Soil Type	Mesa Clay Loam	Youngston Clay Loam	Youngston Clay Loam
Previous Crop	Sweet corn	Alfalfa	Alfalfa
Fertilization			
N lb acre <sup>-1</sup>	182	182	182
P <sub>2</sub> O <sub>5</sub> acre <sup>-1</sup>	66	104	104
Herbicide	Lasso II 2,4-D Clarity	Lasso Buctril 2,4-D Amine Activator 90	Lasso Buctril 2,4-D Amine Activator 90
Insecticide	Comite	Dimethoate Comite	Dimethoate Comite
Irrigation	Furrow	Furrow	Furrow

<b>Trial Location</b>	<b>2003 GDD</b>	<b>Long Term Average GDD</b>
Fruita	2865	2673
Delta	2679	2590

**Table 15. Irrigated corn variety performance trial at Delta<sup>1</sup> in 2003.**

Hybrid	Yield bu/ac	Grain		Test Density plants/a	Ldg. %
		Moist. %	Wt. lb/bu		
Grand Valley GVX4480	260	13.0	58.9	29896	0
HYTEST HT4602	256	12.5	56.6	30359	1
Grand Valley GVX3559	247	12.0	58.6	25539	0
DEKALB DKC51-43	241	10.8	59.5	32538	1
Garst 8590 (RR)	236	12.5	58.2	29201	1
DEKALB DKC42-95 (RR/YGCB)	235	10.4	59.1	31843	1
Grand Valley SX1260 (YGCB) (BT)	234	11.8	59.4	29525	1
DEKALB DKC52-45 (YGCB)	231	10.2	58.5	30684	0
AgriPro 8715	220	11.7	59.2	25400	0
DEKALB DKC47-10 (RR/YGCB)	219	10.4	59.3	32167	0
Grand Valley SX1212 (YGCB) (BT)	212	10.5	58.7	30221	0
Grand Valley SX1229	210	10.9	58.1	28042	1
DEKALB DKC40-63 (RR)	193	10.1	59.9	32955	0
<b>Average</b>	<b>230</b>	<b>11.3</b>	<b>58.7</b>	<b>29874</b>	<b>0</b>
LSD <sub>(0.30)</sub>	14				

<sup>1</sup>Trial conducted on the Wayne Brew farm; seeded 4/30 and harvested 10/28.

\*No ear drop.

**Table 16. 2-yr average irrigated corn variety performance at Delta in 2002-03.**

Hybrid	Grain		Test Wt. lb/bu
	Yield bu/ac	Moist. %	
HYTEST HT4602	255	14.8	55.6
Garst 8590 (RR)	245	14.7	57.6
Grand Valley GVX3559	238	13.8	57.8
Grand Valley SX1229	214	12.9	57.3
<b>Average</b>	<b>238</b>	<b>14.1</b>	<b>57.1</b>

**Table 17. Irrigated short season corn variety performance trial at Fruita<sup>1</sup> in 2003.**

Hybrid	Yield	Grain		Density	Ldg.
		Moist.	Wt.		
	bu/ac	%	lb/bu	plants/a	%
DEKALB DKC58-78 (YGCB)	227	14.1	58.6	31218	0
DEKALB DKC63-79 (YGCB)	225	16.4	60.0	31763	2
Grand Valley SX1260 (YGCB) (BT)	221	12.0	61.1	32534	0
DEKALB DKC63-50 (YGCB)	220	16.8	58.1	32126	3
Grand Valley GVX0378 (YGCB) (BT)	220	14.0	58.1	32716	3
Grand Valley SX1298(YGCB)(BT/RR)	216	15.0	56.7	30583	2
Grand Valley GVX4480	208	14.1	58.7	32897	4
Grand Valley GVX3559	202	13.4	59.6	28995	0
DEKALB DKC64-10 (RR)	191	16.2	58.1	31854	0
Grand Valley GVX0312	191	13.1	58.5	29086	1
<b>Average</b>	<b>212</b>	<b>14.5</b>	<b>58.7</b>	<b>31377</b>	<b>1</b>
LSD <sub>(0.30)</sub>	22				

<sup>1</sup>Trial conducted at the Western Colorado Research Center; seeded 5/1 and harvested 10/22.

\*No ear drop.

**Table 18. Irrigated long season corn variety performance trial at Fruita<sup>1</sup> in 2003.**

Hybrid	Yield	Grain		Density	Ldg.
		Moist.	Wt.		
	bu/ac	%	lb/bu	plants/a	%
HYTEST HT7806 (BT)	253	20.7	56.3	30538	1
DEKALB DKC69-72 (RR)	232	20.2	56.9	33169	1
Garst 8288	213	19.2	57.5	31990	0
ASGROW RX897 (RR)	203	21.4	55.5	33305	1
Grand Valley GVX0178(YGCB)(BT/RR)	190	17.5	54.9	29948	1
Grand Valley GVX8978 (YGCB) (BT)	179	16.2	57.0	30765	2
<b>Average</b>	<b>212</b>	<b>19.2</b>	<b>56.4</b>	<b>31619</b>	<b>1</b>
LSD <sub>(0.30)</sub>	15				

<sup>1</sup>Trial conducted at the Western Colorado Research Center; seeded 5/1 and harvested 10/22.

\*No ear drop.

### Corn Silage Performance Data for Eastern Colorado and the Western Slope

Colorado farmers cut 200,000 acres of corn for silage in 2002; 130,000 acres were irrigated (average yield 24 T/ac) and 70,000 acres were non-irrigated (average yield 7 T/ac). Corn seed required for planting this crop represents annual sales exceeding \$3 million. Weld, Logan, and Yuma counties were the top three silage producing counties in the state. Colorado State University personnel evaluate commercial corn silage hybrids at multiple locations to provide Colorado

farmers with reliable and unbiased hybrid performance information.

In 2003, corn silage hybrids were evaluated at Fruita and Olathe on the Western Slope and at Fort Collins and Rocky Ford in eastern Colorado. The silage yields given below are reported in tons per acre adjusted to 70% moisture content. Trial yields in 2003 were typical for the Front Range and Olathe (20 to 30 T/ac), and very good at Rocky Ford and Fruita (30 to 40 T/ac). The moisture content at the time of harvest is also reported as an indicator of hybrid maturity at harvest.

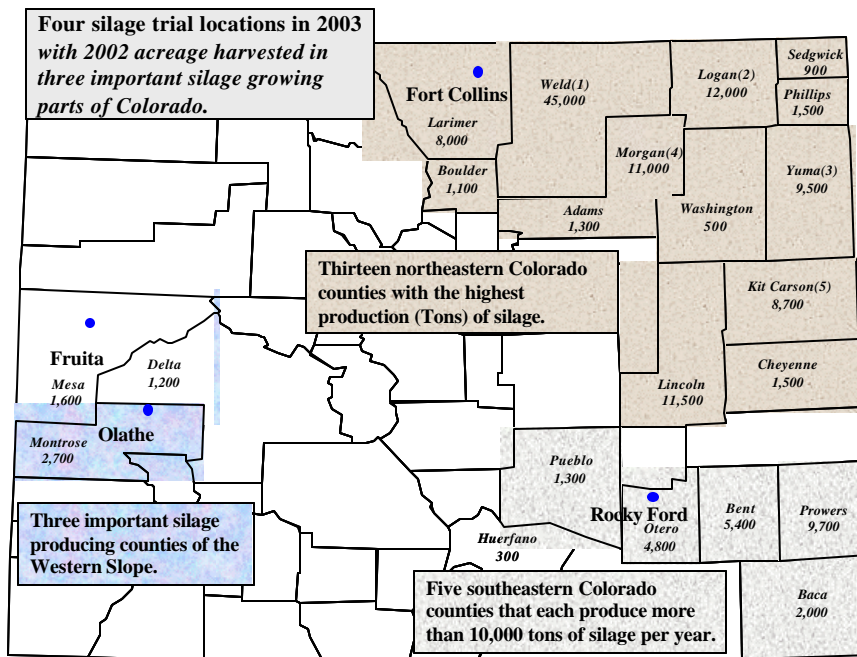
**Table 19. 2-yr average irrigated long season corn variety performance at Fruita in 2002-03.**

Hybrid	Yield	Grain	
		Moist.	Wt.
	bu/ac	%	lb/bu
HYTEST HT7806 (BT)	271	22.1	55.1
ASGROW RX897 (RR)	224	22.5	54.8
<b>Average</b>	<b>247</b>	<b>22.3</b>	<b>54.9</b>

Trial Location	2003 GDD	Long Term Average GDD
Fruita	2760	2673
Delta (Olathe)	2587	2590
Fort Collins	2534	2335
Rocky Ford	2854	2837

**Table 20. Corn silage trial cultural conditions in 2003.**

	Fort Collins	Fruita	Olathe	Rocky Ford
Soil Type	Nunn Fort Collins Clay Loam	Billings Silty Clay Loam	Sandy Loam	Silty Clay Loam
Previous Crop	Wheat	Dry Beans	Grain Corn	Alfalfa
Fertilization				
N lb acre <sup>-1</sup>	120	182	117	111
P <sub>2</sub> O <sub>5</sub> lb acre <sup>-1</sup>	40	104	99	52
Herbicide	Frontier Prowl	Lasso Buctril 2,4-D Amine Activator 90	Harness Banvel	Dual II Magnum Clarity
Insecticide	None	Dimethoate Comite	Dimethoate Comite	Acaricide Capture
Irrigated	Furrow	Furrow	Furrow	Furrow



**Table 21. Corn silage variety performance trial at Fort Collins<sup>1</sup> in 2003.**

Hybrid	Yield	Moist.	Density	Plant Ht.
	t/ac	%	plants/a	in
Mycogen TMF108	30.1	66.0	28257	81
Triumph 1866 (BT)	28.4	73.1	31935	93
Mycogen 2888IMI	26.4	76.4	31186	94
Grand Valley SX1256	26.1	71.9	30254	85
Grand Valley SX1450	26.0	75.2	31935	94
Garst 8578 (IT)	25.8	71.7	30335	85
NK Brand N48-V8	25.2	70.3	25999	98
Garst 7850	25.2	74.0	28889	87
Grand Valley SX1273	24.7	73.0	29563	81
Blackland BG 2442	24.5	73.9	28700	86
Mycogen TMF 2C648 (CL)	24.0	72.5	30111	81
Mycogen 2D601 (RR)	23.8	74.5	28344	94
Mycogen 7512	23.7	75.2	28769	81
Blackland BG 1187	21.1	75.6	28721	85
<b>Average</b>	<b>25.4</b>	<b>73.1</b>	<b>29500</b>	<b>87</b>
LSD <sub>(0.30)</sub>	2.5			

<sup>1</sup>Trial conducted at the Agricultural Research, Development and Educational Center; seeded 5/15 and harvested 9/18.

**Table 23. Corn silage variety performance trial at Fruita<sup>1</sup> in 2003.**

Hybrid	Yield	Moist.	Density	Plant Ht.	Ear Ht.
	t/ac	%	plants/a	ft	ft
HYTEST HT7820	38.0	64.3	34199	11.5	5.8
Garst 8285 (RR)	35.4	60.7	35126	10.1	4.9
Grand Valley SX1545M	34.9	59.2	34014	10.4	5.2
HYTEST HT7930 (BT)	34.9	62.4	33736	10.5	4.9
Grand Valley SX1602	33.2	65.3	33226	11.0	5.3
DEKALB DKC69-72 (RR)	32.4	57.3	35404	10.3	4.7
Grand Valley SX1601	32.3	63.7	33643	10.3	4.7
HYTEST TNT-119	31.2	65.0	32392	10.6	4.3
ASGROW RX897 (RR)	31.2	65.6	36099	10.1	4.7
Garst 8315 IT	30.3	60.2	34107	10.3	5.4
<b>Average</b>	<b>33.4</b>	<b>62.4</b>	<b>34194</b>	<b>10.5</b>	<b>5.0</b>
LSD <sub>(0.30)</sub>	2.9				

<sup>1</sup>Trial conducted at the Western Colorado Research Center; seeded 5/06 and harvested 9/18.

**Table 22. 2-yr corn silage variety performance at Fort Collins in 2002-03.**

Hybrid	Yield	Moist.
	t/ac	%
Mycogen 2888IMI	29.1	74.7
Grand Valley SX1450	27.7	73.0
Grand Valley SX1256	27.6	69.0
Garst 7850	26.3	71.7
<b>Average</b>	<b>27.7</b>	<b>72.1</b>

**Table 24. 2-yr average corn silage variety performance at Fruita in 2002-03.**

Hybrid	Yield	Moist.
	t/ac	%
HYTEST HT7820	37.7	67.2
Grand Valley SX1545M	35.4	63.8
Grand Valley SX1602	33.7	67.2
ASGROW RX897 (RR)	32.0	67.9
<b>Average</b>	<b>34.7</b>	<b>66.5</b>

**Table 25. Corn silage variety performance trial at Olathe<sup>1</sup> in 2003.**

Hybrid	Yield	Moist.	Density	Ear	Plant
				Ht.	Ht.
	t/ac	%	plants/a	ft	ft
Grand Valley SX1450	29.4	67.6	32067	3.8	8.4
Grand Valley SX1601	28.2	70.2	32855	3.7	8.6
Garst 7850	27.2	63.8	31836	3.3	7.8
Grand Valley SX1545M	26.1	69.3	30307	4.0	8.7
Garst 8315 IT	25.5	71.7	30862	4.0	8.1
Grand Valley SX1445	24.1	67.3	28916	3.3	7.9
Grand Valley GVX1395(YGCB)(BT)	24.1	65.8	28129	3.1	7.5
<b>Average</b>	<b>26.3</b>	<b>67.9</b>	<b>30710</b>	<b>3.6</b>	<b>8.1</b>
LSD <sub>(0.30)</sub>	2.8				

<sup>1</sup>Trial conducted on the Earl Seymour farm; seeded 4/30 and harvested 9/17.

**Table 27. Corn silage variety performance trial at Rocky Ford<sup>1</sup> in 2003.**

Hybrid	Yield	Moist.	Density	Plant	
				Ht.	Silking <sup>2</sup>
	t/ac	%	plants/a	in	date
HYTEST HT7815 (RR)	40.8	60.1	30855	87	203
Grand Valley SX1610	39.2	56.7	27970	89	202
Grand Valley SX1602	38.0	55.0	31218	87	201
AgriPro 9646	37.9	57.1	30129	93	202
DEKALB DKC69-72 (RR)	37.4	55.9	32126	88	204
Grand Valley SX1606	36.2	56.5	30085	86	201
HYTEST HT7930 (BT)	35.6	56.2	30855	90	199
ASGROW RX897 (RR)	35.0	58.7	30946	89	202
HYTEST TNT-119	34.9	54.4	31309	86	198
NK Brand N83-N5	34.6	56.7	29913	86	202
FX419	33.3	53.7	30304	92	199
Mycogen 2888IMI	31.7	56.1	31309	89	202
Triumph 1866 (BT)	31.6	53.2	31763	85	201
Garst 8315 IT	31.2	59.8	30401	85	202
<b>Average</b>	<b>35.5</b>	<b>56.4</b>	<b>30656</b>	<b>88</b>	<b>201</b>
LSD <sub>(0.30)</sub>	2.9				

<sup>1</sup>Trial conducted at the Arkansas Valley Research Center; seeded 5/5 and harvested 9/17.

<sup>2</sup>Julian date.

**Table 26. 2-yr average corn silage variety performance at Olathe in 2002-03.**

Hybrid	Yield	Moist.
	t/ac	%
Grand Valley SX1450	27.2	67.9
Grand Valley SX1545M	26.4	69.3
Garst 7850	25.8	64.9
<b>Average</b>	<b>26.5</b>	<b>67.3</b>

**Table 28 2-yr average corn silage variety performance at Rocky Ford in 2002-03.**

Hybrid	Yield	Moist.
	t/ac	%
HYTEST HT7815 (RR)	37.7	58.3
Grand Valley SX1610	35.7	57.4
ASGROW RX897 (RR)	35.4	55.6
Grand Valley SX1606	35.3	55.6
AgriPro 9646	34.7	54.6
Grand Valley SX1602	34.4	54.3
Mycogen 2888IMI	33.1	54.8
Garst 8315 IT	31.4	56.1
FX419	30.4	52.5
<b>Average</b>	<b>34.2</b>	<b>55.5</b>

## 2003 COLORADO SOYBEAN PERFORMANCE TRIALS

Growing demand for soybean production information gave rise to soybean variety testing on a statewide basis in 2001. Colorado State University's Crop Testing team began testing soybean varieties to provide unbiased and reliable variety information to Colorado soybean producers to help them make better variety decisions.

2003 was our third and best year of testing soybean varieties at Yuma. The 2001 trial was severely compromised by hail. Our second attempt at soybean variety testing at Yuma was more successful, without hail and with vigorous vegetative growth, but yields were depressed by high temperatures and mediocre seed set. This sprinkler -irrigated trial included only Roundup Resistant varieties. Yuma has a relatively long growing season (average 2615 corn growing degree days) and appropriate for Group 2 maturity varieties.

Rocky Ford, site of soybean variety trials for several years, has a longer growing season (2837 corn growing degree days) and can produce late Group 3 or early Group 4 maturity soybeans. We are extremely pleased with high yields in 2003 at Yuma and the

Arkansas Valley Research Center at Rocky Ford. The Rocky Ford trial was furrow irrigated and both conventional and Roundup Resistant varieties were included where conventional herbicides were used. Plots in both trials consisted of four rows, each 36 ft long. Yields are expressed at 13% grain moisture as bu/ac (60 lbs per bushel).

**Table 29. Soybean cultural conditions in 2003.**

	Rocky Ford	Yuma
Soil Type	Silty Clay Loam	Ascalon Fine Sandy Loam
Previous Crop	Corn	Sunflowers
Fertilization		
N lb acre <sup>-1</sup>	11	0
P <sub>2</sub> O <sub>5</sub> lb acre <sup>-1</sup>	52	0
Herbicide	Dual II Magnum Gramoxone Extra Basagran Blazer Poast Crop Oil	Roundup
Insecticide	None	None
Irrigation	Furrow	Sprinkler

**Table 30. Soybean variety performance trial at Rocky Ford<sup>1</sup> in 2003.**

Variety	Yield	Moist.	Test Wt.	Plant Ht.	Leaf Drop <sup>2</sup>
	bu/ac	%	lb/bu	in	date
DG 37R39	66	7.1	55.7	33	259
DG 34P38	63	7.0	56.1	31	258
Triumph TR3752 (RR)	62	7.0	56.0	36	257
Garst 3824 RR/N	61	7.0	55.6	35	258
DG 3399 + RR	61	6.9	55.2	34	260
Garst 3135 (RR)	57	7.0	55.8	30	252
<b>Average</b>	<b>62</b>	<b>7.0</b>	<b>55.7</b>	<b>33</b>	<b>257</b>
LSD <sub>(0.30)</sub>	4				

<sup>1</sup>Trial conducted at the Arkansas Valley Research Center; seeded 5/13 and harvested 9/29.

<sup>2</sup>Julian Date - 50% leaf drop.

**Table 31. 2-yr average soybean variety performance at Rocky Ford in 2002-03.**

Variety	Yield	Moist.	Test Wt.
	bu/ac	%	lb/bu
DG 3399 + RR	75	7.7	54.8
Triumph TR3752 (RR)	71	7.9	55.8
Garst 3135 (RR)	70	7.7	55.7
<b>Average</b>	<b>72</b>	<b>7.8</b>	<b>55.4</b>

**Table 32. Soybean variety performance trial at Yuma<sup>1</sup> in 2003.**

Variety	Yield bu/ac	Moist. %	Test	Plant	Ldg. <sup>2</sup> rating
			Wt. lb/bu	Ht. in	
ASGROW AG2403	69	9.0	55.0	31	1
DEKALB DKB25-51	66	10.1	55.0	38	1
DG 31G30	64	11.1	55.4	32	1
Garst 2018 (RR)	61	9.9	55.8	35	1
Triumph TRX2J28 (RR)	61	9.7	55.5	39	1
DEKALB DKB28-52	61	10.8	55.1	36	1
ASGROW AG2703	60	11.1	55.6	38	1
Garst 2677 (RR)	60	9.6	56.6	33	1
DG 38K28	59	10.2	55.8	38	2
Farmer Check*	55	9.7	56.6	37	1
DG 35R27	52	11.7	56.0	34	1
ASGROW AG3005	50	12.4	54.6	39	1
<b>Average</b>	<b>60</b>	<b>10.4</b>	<b>55.6</b>	<b>36</b>	<b>1</b>
LSD <sub>(0.30)</sub>	7				

<sup>1</sup>Trial conducted on the Max Olsen farm; seeded 5/21 and harvested 10/02.

<sup>2</sup>Lodging rating scale 1-5, 1 = Best.

\*Farmer check was NK 528-W2.

**Table 33. 2-yr average soybean variety performance at Yuma in 2002-03.**

Variety	Yield bu/ac	Moist. %	Test
			Wt. lb/bu
ASGROW AG2703	51.4	9.7	54.7
Garst 2677 (RR)	49.6	8.5	56.6
<b>Average</b>	<b>50.5</b>	<b>9.1</b>	<b>55.7</b>

**Seed Company Entrants in the 2003 Colorado Corn and Soybean Performance Trials**

Entrant	Brand/Hybrid	Address	Telephone
Blackland Genetics	Blackland Genetics	P.O. Box 34, Camden, IN 46917	(765) 210-4765
Fontanelle Hybrids	Fontanelle	10981 8 <sup>th</sup> Street, Fontanelle, NE 68044	(402) 721-1410
Garst Seed Co.	Garst	1101 Mansfield Drive, Fort Collins, CO 80525	(970) 223-3638
Grand Valley Hybrids	Grand Valley	840 23 Road, Grand Junction, CO 81505	(970) 243-3115
HYTEST Seeds	HYTEST	1404 Colorado Street, Suite 124, Boulder City, NV 89005	(702) 293-3046
Kaystar Seed	Kaystar	702 3 <sup>rd</sup> Street SW, P.O. Box 947, Huron, SD 57350	(605) 352-8791
Lfy, L.L.C.	Lfy	1281 Fourth Street, Monterey, CA 93940	(831) 657-9002
LG Seeds	LG	1620 Hwy 10, Gibbon, NE 68840	(308) 234-4800
Monsanto	DEKALB/ASGROW	800 N. Lindbergh Blvd., St. Louis, MO 63167	(314) 694-1000
Mycogen Seeds	Mycogen	9330 Zionsville Road, Indianapolis, IN 46268	(317) 337-7569
Producers Hybrids	Producers Hybrids	P.O. Box C, Battle Creek, NE 68715	(402) 675-2975
Syngenta Seeds, Inc.	NK Brand	6001 S. 58 <sup>th</sup> Street, Suite D, Lincoln, NE 68516	(402) 420-6664
Triumph Seed Co., Inc.	Triumph	P.O. Box 1050, Hwy 62 Bypass, Ralls, TX 79357	(800) 530-4789
UAP-Pueblo	DG	P.O. Box 1279, 2502 John St., Garden City, KS 67846	(620) 275-1052

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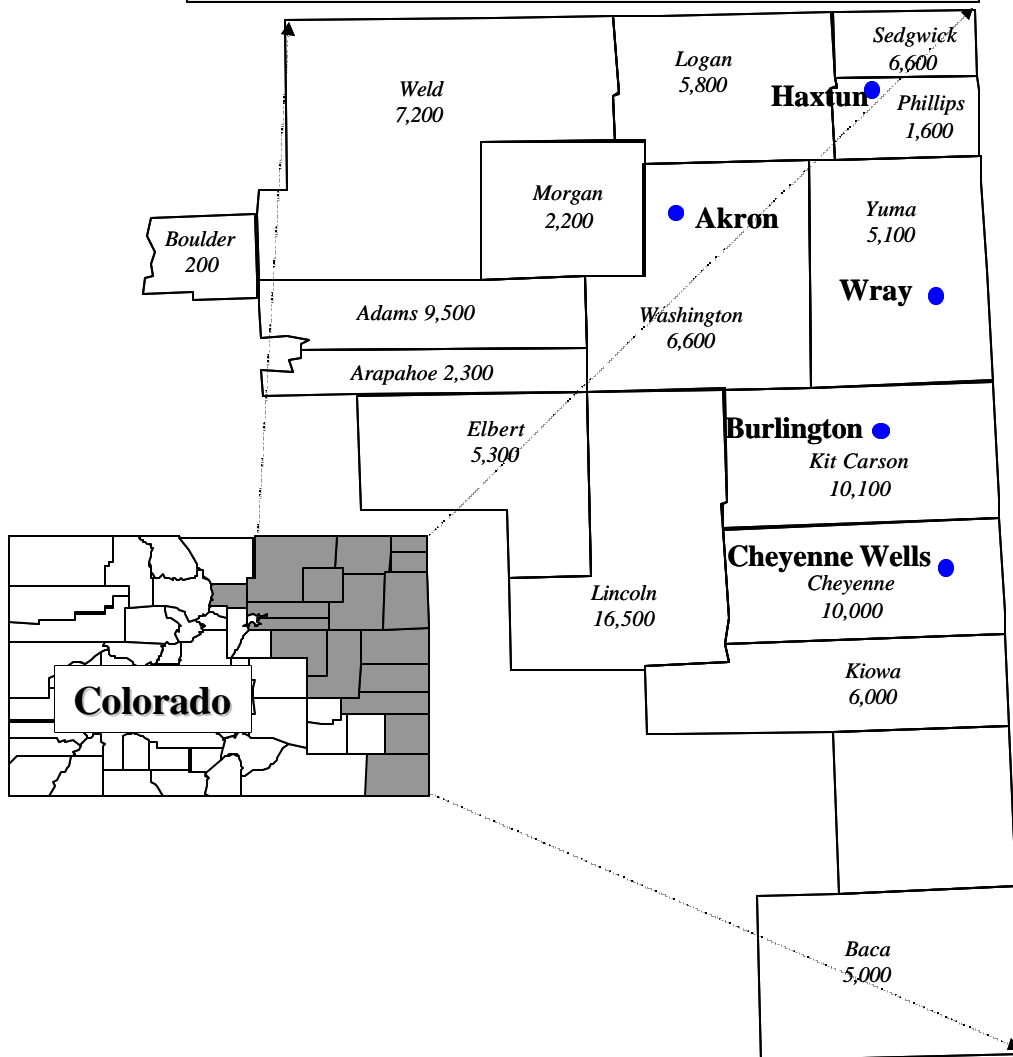
Jerry J. Johnson, Extension Crop Production (970) 491-1454 [jjj@lamar.colostate.edu](mailto:jjj@lamar.colostate.edu)

James P. Hain, Crops Testing Program (970) 554-0980

Cynthia L. Johnson, Crops Testing Program (970) 491- 1914 [cjohnson@agsci.colostate.edu](mailto:cjohnson@agsci.colostate.edu)

Ron Meyer, Golden Plains Area Extension Agronomist (719) 346-5571 [rmeyer@coop.ext.colostate.edu](mailto:rmeyer@coop.ext.colostate.edu)

### • Five Colorado sunflower trial locations in 2003 with 2002 acreage harvested



## ACKNOWLEDGMENTS

The authors wish to express their gratitude to the Colorado farmers who generously contributed the use of their land, equipment, and time to conduct these trials for the good of all Colorado sunflower producers and dealers: Akron - Jason Shook; Burlington - Dennis Towns; Cheyenne Wells - Dennis Campbell; Haxtun - Richard Fryrear; Wray - Jim Roberts. We also gratefully acknowledge Triumph Seed Co., Inc. (P.O. Box 1050, Ralls, TX 79357) for oil analyses and Red River Commodities, Inc. (1320 East College Drive, Colby, KS 67701) for seed-sizing analyses.

## 2003 COLORADO SUNFLOWER PERFORMANCE TRIALS

### Introduction

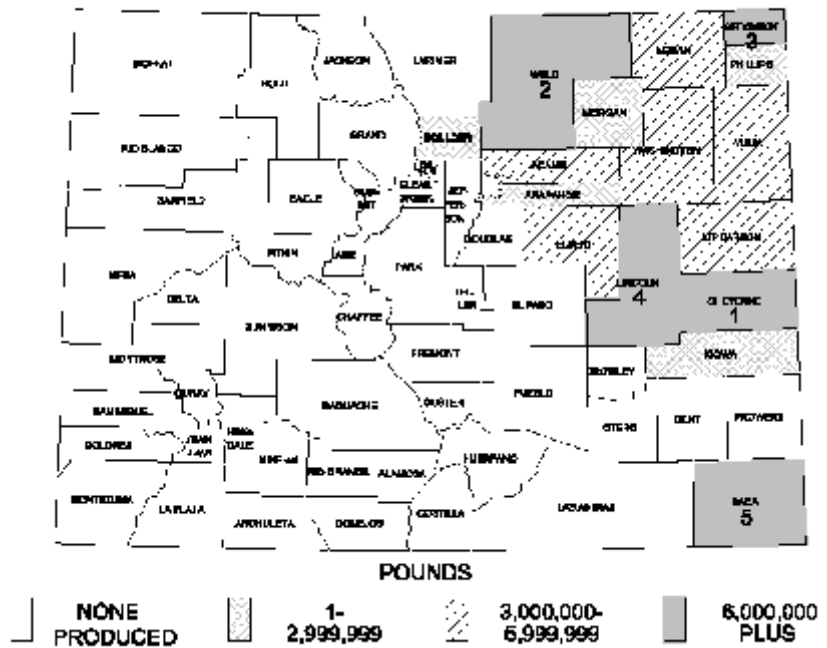
Due to the drought in 2002, Colorado dropped from 4<sup>th</sup> to the 5<sup>th</sup> largest producer of sunflowers in the U.S., producing 63 million pounds of seed on 105,000 harvested acres. To assist Colorado sunflower producers to make the best hybrid sunflower seed decision, CSU's Crops Testing personnel evaluate commercial oil and confection sunflower hybrids at four different dryland locations and at one irrigated location in eastern Colorado.

The results of our 2003 sunflower oil and confection trials are shown below. The irrigated oil and confection trials at Idalia were quite good despite hail damage suffered on July 29. All dryland sunflowers suffered from drought again in 2003, receiving only scant and sporadic rainfall from July to harvest. We were able to harvest the dryland trials at Cheyenne Wells, Akron, and Wray but, due to excessive variation in plot to plot yield, only the Akron trial could be statistically interpreted. The dryland trial at Haxtun was not harvested.

A randomized complete block design with four replicates was used for all trials. Dryland trials at Haxtun and Wray consisted of four row plots 72 feet long while dryland trials at Cheyenne Wells and Akron were of four row plots 32 feet long.

The irrigated trial at Idalia consisted of four row plots 32 feet long. Target plant population for dryland oil hybrids was 15,000 seeds per acre while the target plant population for dryland confection hybrids was 12,000 seeds per acre. The target plant population for irrigated oil hybrids was 18,000 seeds per acre while the target plant population for irrigated confection hybrids was 15,000 seeds per acre. Seed yields are reported in pounds per acre adjusted to 10% moisture content. Oil content is reported as % oil at 10% seed moisture content.

**Sunflowers, All: Production by County, Colorado, 2002**  
with Ranking of First Five Counties



**Table 1. Sunflower cultural conditions in 2003.**

	Idalia	Akron	Cheyenne Wells	Wray
Soil Type	Kuma - Keith Silt Loam	Platner Loam	Noroka Silt Loam	Kuma - Keith Silt Loam
Previous Crop	Corn	Corn	Corn	Wheat
Fertilization				
N acre <sup>-1</sup>	80	0	0	0
P <sub>2</sub> O <sub>5</sub> acre <sup>-1</sup>	19	0	0	0
Herbicide	Trifluralan	Roundup Banvel	Spartan Roundup	Roundup
Irrigation	Furrow	None	None	None

**Table 2. Irrigated oil sunflower variety performance trial at Idalia<sup>1</sup> in 2003.**

Hybrid	Test Plant					Hail		
	Yield	Moist.	Wt.	Ht.	Density	Ldg.	Damaged <sup>2</sup>	Oil
	lb/ac	%	lb/bu	in	plants/a	%	%	%
Interstate/Garst Hysun 450	2737	4.5	31.0	55	16454	0	13	39.6
Interstate/Garst IS 4049	2635	4.5	29.6	64	17016	1	5	38.7
Croplan CL380 NS	2622	4.8	31.2	62	16675	0	1	38.8
Pioneer brand 63M91	2602	4.5	31.9	60	17147	0	0	40.7
Triumph 645	2596	4.6	28.1	65	16471	1	3	41.8
Interstate/Garst Hysun 424	2565	4.5	30.5	57	17222	1	1	40.7
Triumph 658	2545	4.5	28.4	62	16175	1	2	42.0
Fontanelle 902NS	2544	4.6	27.7	64	15851	0	1	41.7
Kaystar 9501	2521	4.8	31.8	66	17016	0	17	35.5
Kaystar X3002	2499	4.5	32.1	60	16262	2	5	37.5
DEKALB EXP38-30NS	2447	4.4	30.0	60	17333	0	0	40.9
Mycogen 8488 NS	2429	4.7	31.8	62	17356	0	5	40.3
Mycogen 8N421	2398	4.5	30.9	58	17152	3	12	40.0
Mycogen SF260	2381	4.3	29.4	54	16607	0	1	41.4
Triumph 665	2336	4.7	29.6	65	17006	0	2	41.6
Interstate/Garst IS 6767	2251	4.4	31.9	57	16656	0	1	41.9
Pioneer brand 64M60	2235	4.6	27.2	61	16388	0	0	37.6
DEKALB EXP3880 CL	2220	4.6	27.9	55	17353	0	3	36.2
DEKALB DKF33-33NS	2213	4.5	30.9	55	15835	0	1	35.6
Seeds 2000 Blazer	2210	4.4	28.5	53	16022	1	5	39.7
Croplan CL385 NS	2205	4.4	31.4	51	17764	0	15	40.1
Kaystar 2020NS	2202	4.5	30.6	54	17154	1	19	38.8
Red River RRC 2011	2173	4.8	27.7	58	17557	0	7	38.3
DEKALB EXP31-22NS	2170	4.4	30.0	53	17288	0	7	41.4
Triumph 636	2160	4.4	26.7	63	16320	0	1	41.4
Croplan CL308	2094	4.4	31.3	54	17011	0	2	43.7
Interstate/Garst Hysun 454	2082	4.4	28.3	58	16743	1	11	40.1
Triumph TRX3221	2034	4.3	32.5	43	17016	2	2	41.7
Triumph 667	2004	4.4	29.3	49	17900	2	2	43.3
Red River RRC 2010	1936	4.6	28.7	58	16594	0	26	36.0
Mycogen SF270	1871	4.5	30.6	50	17628	0	3	37.8
Pioneer brand 63M80	1846	4.3	30.7	56	17288	2	2	40.1
Triumph 620CL	1843	4.4	29.5	53	16873	0	1	37.8
Croplan CL345 NS	1813	4.5	31.5	57	16811	2	9	39.7
Interstate/Garst Hysun 521	1759	4.7	32.0	53	17492	1	0	37.1
Mycogen 8377 NS	1743	4.8	31.8	57	17000	0	9	38.4
DEKALB DKF30-33NS	1738	4.6	30.1	56	17078	0	4	35.7
<b>Average</b>	<b>2234</b>	<b>4.5</b>	<b>30.1</b>	<b>57</b>	<b>16906</b>	<b>1</b>	<b>5</b>	
LSD <sub>(0.30)</sub>	340							

<sup>1</sup>Trial conducted on the Dennis Towns farm; seeded 6/17 and harvested 10/24.

<sup>2</sup>Hail damaged plants were plants where growing point was terminated or plant became deformed.

**Table 3. 2-yr average irrigated oil sunflower performance at Idalia/Burlington, 2002-03.**

Hybrid	Test	
	Yield	Wt.
	lb/ac	lb/bu
Triumph 658	3077	29.6
Interstate/Garst IS 4049	3064	30.7
Interstate/Garst Hysun 450	2991	32.0
Triumph 665	2928	31.1
Kaystar 9501	2913	32.5
Interstate/Garst Hysun 454	2890	30.0
Mycogen SF260	2864	30.5
Mycogen 8N421	2853	30.9
Pioneer brand 63M91	2844	32.3
Pioneer brand 64M60	2787	28.8
Mycogen 8488 NS	2776	32.7
Croplan CL385 NS	2754	31.4
Interstate/Garst IS 6767	2635	32.0
Pioneer brand 63M80	2519	31.7
Interstate/Garst Hysun 521	2484	33.0
DEKALB DKF33-33NS	2474	31.9
Triumph 636	2403	28.2
<b>Average</b>	<b>2780</b>	<b>31.1</b>

**Table 4. Irrigated confection sunflower variety performance trial at Idalia<sup>1</sup> in 2003 with the percent of seed by screen size.**

Hybrid	Yield lb/ac	Moist. %	Test Wt. lb/bu	Plant Ht. in	Density plants/a	Ldg. %	Hail Damaged <sup>2</sup> %	Seed Size		
								Percent above 20/64	Percent below 20/64	Jumbo Percent above 22/64
Seeds 2000 Grizzly	2441	7.2	22.3	60	13595	0	4	69.5	18.9	11.6
Sigco Sun Goliath	2120	7.6	19.8	57	13937	1	31	51.7	23.1	25.2
Seeds 2000 X3987	1966	8.1	20.8	64	13698	0	24	61.6	11.7	26.7
Triumph 777C	1939	8.1	19.5	70	13647	0	20	41.9	7.0	51.1
Triumph 757C	1845	7.9	18.6	61	12973	2	5	37.0	8.4	54.6
Red River RRC 7015	1823	8.3	19.8	64	14023	0	51	63.1	10.5	26.4
Triumph TRX2352 C	1800	8.3	19.9	61	14202	0	26	40.4	18.6	41.0
Red River RRC 2582	1796	7.7	22.7	61	15042	0	26	53.7	30.6	15.7
Royal Hybrid 118	1733	9.2	22.2	67	12924	0	59	51.8	8.2	40.0
Red River RRC 2215	1678	7.8	21.0	59	13382	0	30	63.7	9.5	26.8
Red River RRC 2213	1402	7.8	22.6	61	15178	0	40	67.9	22.6	9.5
Sigco Sun Rustler	1327	7.8	23.7	62	13631	0	41	61.5	17.6	20.9
Royal Hybrid 318	1128	10.3	20.9	62	13614	0	56	70.5	15.6	13.9
<b>Average</b>	<b>1769</b>	<b>8.2</b>	<b>21.1</b>	<b>62</b>	<b>13834</b>	<b>0</b>	<b>32</b>			
LSD <sub>(0.30)</sub>	353									

<sup>1</sup>Trial conducted on the Dennis Towns farm; seeded 6/17 and harvested 10/25.

<sup>2</sup>Hail damaged plants were plants where growing point was terminated or plant became deformed.

**Table 5. 2-yr average irrigated confection sunflower performance at Idalia/Burlington, 2002-03.**

Hybrid	Yield lb/ac	Test
		Wt. lb/bu
Seeds 2000 X3987	2419	22.6
Seeds 2000 Grizzly	2396	22.7
Sigco Sun Goliath	2366	21.7
Red River RRC 2215	2181	22.6
Triumph 777C	2150	21.1
Red River RRC 2582	2080	24.1
Triumph 757C	1935	19.9
Red River RRC 2213	1865	23.9
<b>Average</b>	<b>2174</b>	<b>22.3</b>

**Table 6. Dryland oil sunflower variety performance trial at Akron<sup>1</sup> in 2003.**

Hybrid	Yield	Moist.	Test	Plant	Density	Ldg.	Oil
			Wt.	Ht.			
	lb/ac	%	lb/bu	in	plants/a	%	%
Red River RRC 2010	1502	5.2	29.1	58	15834	0	35.5
Interstate/Garst Hysun 454	1219	4.9	30.5	47	16383	0	39.3
Red River RRC 2011	1179	5.0	28.1	51	15927	1	38.1
Mycogen SF260	1041	5.1	25.8	41	16403	0	37.2
Interstate/Garst IS 4049	1003	4.9	25.5	53	15967	0	37.7
Triumph 645	993	5.1	26.0	51	16669	2	39.5
Mycogen 8N421	953	5.0	28.6	49	17008	0	38.9
Triumph 667	949	4.9	30.4	37	17628	3	39.3
Interstate/Garst IS 6767	918	5.0	28.3	45	16732	0	38.9
Fontanelle 902NS	914	5.0	25.1	47	16441	0	39.0
Pioneer brand 63M80	894	4.9	27.5	47	16226	0	38.8
Triumph 665	892	5.0	28.8	44	15777	1	38.3
Pioneer brand 64M60	891	5.1	27.7	48	16445	1	36.6
Pioneer brand 63M91	881	5.0	27.7	46	16128	0	37.8
Mycogen 8488 NS	822	5.0	29.5	49	16740	0	38.5
Mycogen 8377 NS	804	5.1	28.2	46	16880	0	38.2
Interstate/Garst Hysun 450	804	5.3	28.8	40	16521	0	37.5
Mycogen SF270	737	5.0	29.0	40	16941	2	38.1
<b>Average</b>	<b>966</b>	<b>5.0</b>	<b>28.0</b>	<b>46</b>	<b>16481</b>	<b>1</b>	
LSD <sub>(0.30)</sub>	181						

<sup>1</sup>Trial conducted on the Jason Shook farm; seeded 6/25 and harvested 10/28.

**Table 7. Dryland confection sunflower variety performance trial at Akron<sup>1</sup> in 2003 with the percent of seed by screen size.**

Hybrid	Yield	Moist.	Test	Plant	Density	Ldg.	Seed Size		
							Percent	Percent	Jumbo Percent
	lb/ac	%	lb/bu	in	plants/a	%	above 20/64	below 20/64	above 22/64
Triumph TRX2352 C	853	7.5	18.9	49	12342	1	31.5	62.3	6.2
Sigco Sun Rustler	848	7.3	20.9	54	13145	0	28.4	68.0	3.6
Triumph 777C	789	7.3	18.8	48	14423	0	29.2	67.9	2.9
Sigco Sun Goliath RT	720	7.2	20.9	49	13560	0	21.7	76.8	1.5
Triumph 757C	672	7.2	19.0	49	14193	0	35.3	58.1	6.6
<b>Average</b>	<b>776</b>	<b>7.3</b>	<b>19.7</b>	<b>50</b>	<b>13533</b>	<b>0</b>			
LSD <sub>(0.30)</sub>	116								

<sup>1</sup>Trial conducted on the Jason Shook farm; seeded 6/25 and harvested 10/28.

**Table 8. Dryland oil sunflower variety performance trial at Cheyenne Wells<sup>1</sup> in 2003.**

Hybrid	Yield	Moist.	Test	Plant	Density	Ldg.	Oil
			Wt.	Ht.			
	lb/ac	%	lb/bu	in	plants/a	%	%
Pioneer brand 64M60	843	6.6	27.5	48	15917	0.8	38.9
Mycogen 8N421	776	6.3	29.1	47	16594	0.8	39.7
Mycogen 8488 NS	705	6.4	29.1	47	15020	1.0	37.7
Interstate/Garst Hysun 454	687	5.8	30.0	46	15645	1.8	38.4
Pioneer brand 63M80	649	6.0	26.3	45	13970	4.8	39.4
Pioneer brand 63M91	616	5.7	28.6	44	15987	3.8	39.2
Seeds 2000 Charger	606	6.1	29.5	48	13160	4.0	37.4
Interstate/Garst IS 4049	596	5.8	29.9	48	14916	3.3	39.0
Kaystar 9501	528	6.0	29.8	46	15971	2.0	37.1
Kaystar 2020NS	502	6.0	28.7	39	15340	2.3	37.6
Mycogen 8377 NS	485	5.7	26.4	45	15898	2.7	39.1
Interstate/Garst Hysun 450	470	6.1	30.0	41	15559	0.9	37.8
Seeds 2000 Blazer	455	6.1	27.5	39	15620	4.4	38.3
Mycogen SF187	451	5.7	28.5	44	17010	1.2	36.8
Interstate/Garst IS 6767	424	6.1	29.9	41	15546	3.5	39.7
Mycogen SF270	357	5.6	26.7	39	16675	2.0	39.0
<b>Average</b>	<b>572</b>	<b>6.0</b>	<b>28.6</b>	<b>44</b>	<b>15552</b>	<b>2.5</b>	

<sup>1</sup>Trial conducted on the Dennis Campbell farm; seeded 6/16 and harvested 10/14.

\*Yields could not be interpreted statistically due to variation caused by severe late season drought.

**Table 9. Dryland confection sunflower variety performance trial at Cheyenne Wells<sup>1</sup> in 2003 with the percent of seed by screen size.**

Hybrid	Yield	Moist.	Test Weight	Plant Height	Density	Seed Size		
						Percent	Percent	Jumbo Percent
	lb/ac	%	lb/bu	in	plants/ac	above 20/64	below 20/64	above 22/64
Sigco Sun Rustler	629	8.3	25.0	46	12368	22.2	72.4	5.4
Sigco Sun Goliath RT	439	9.0	23.4	42	11969	34.4	62.8	2.8
<b>Average</b>	<b>15</b>	<b>8.6</b>	<b>24.2</b>	<b>44</b>	<b>12168</b>			

<sup>1</sup>Trial conducted on the Dennis Campbell farm; seeded 6/16 and harvested 10/14.

\*Yields could not be interpreted statistically due to variation caused by severe late season drought.

**Table 10. Dryland oil sunflower variety performance trial at Wray<sup>1</sup> in 2003.**

Hybrid	Yield	Moist.	Test	Plant	Density	Ldg.	Oil
			Wt.	Ht.			
	lb/ac	%	lb/bu	in	plants/a	%	%
Mycogen 8377 NS	540	5.3	27.4	53	13179	4.6	37.1
Kaystar 9501	532	5.1	28.0	51	13702	8.9	35.9
Kaystar 2020NS	469	5.0	26.7	46	12965	2.9	36.6
Mycogen SF187	457	5.1	27.6	44	13759	3.3	35.0
Pioneer brand 63M80	421	4.9	28.0	50	11677	1.9	35.7
Mycogen 8N421	398	5.0	27.7	49	14138	4.8	36.3
Pioneer brand 64M60	382	5.1	27.1	50	13205	6.3	36.2
Pioneer brand 63M91	357	5.0	26.3	49	13449	3.2	37.5
Mycogen SF270	338	5.0	29.3	43	14098	11.3	38.3
Mycogen 8488 NS	244	5.0	26.9	48	14392	2.7	34.1
<b>Average</b>	<b>414</b>	<b>5.0</b>	<b>27.5</b>	<b>48</b>	<b>13456</b>	<b>5.0</b>	

<sup>1</sup>Trial conducted on the Jim Roberts farm; seeded 6/5 and harvested 10/13.

\*Yields could not be interpreted statistically due to variation caused by severe late season drought.

### Seed Company Entrants in the 2003 Colorado Sunflower Performance Trials

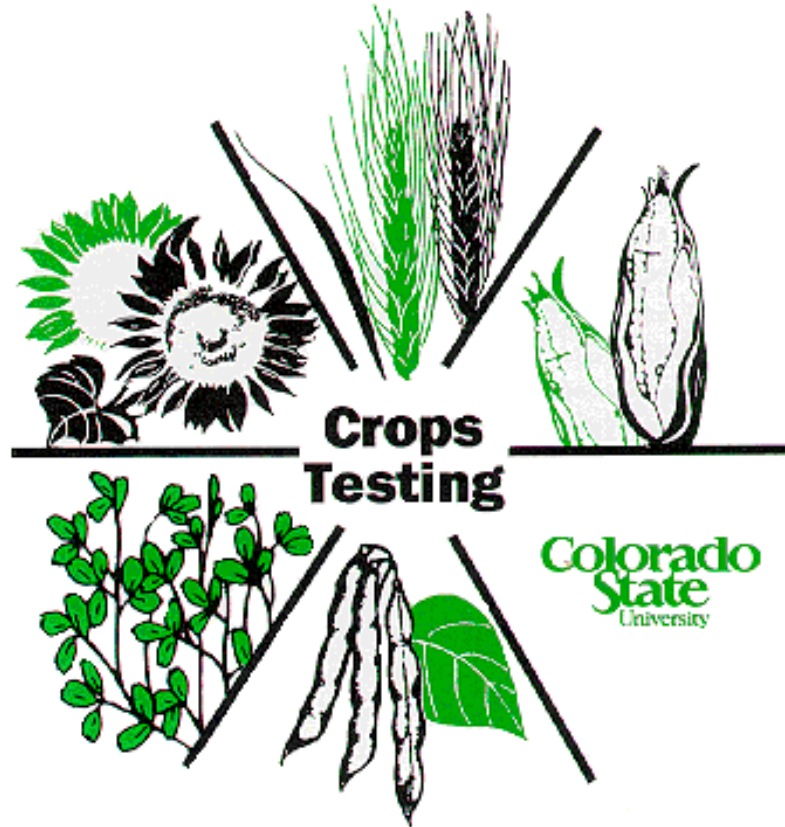
Entrant	Brand/Hybrid	Address	Telephone
Croplan Genetics	Croplan	P.O. Box 1291, Minot, ND 58702	(701) 852-3556
Fontanelle Hybrids	Fontanelle	10981 8 <sup>th</sup> Street, Fontanelle, NE 68044	(402) 721-1410
Harvest States Sunflowers	Royal Hybrids	220 Clement Avenue, Grandin, ND 58038	(701) 484-5128
Interstate Seed Co.	Interstate	P.O. Box 338, West Fargo, ND 58078	(701) 282-3373
Kaystar Seed	Kaystar	P.O. Box 947, Huron, SD 57350	(605) 352-8791
Monsanto	DEKALB	800 N. Lindbergh Blvd., St. Louis, MO 63167	(314) 694-1000
Mycogen Seeds	Mycogen	9330 Zionsville Road, Indianapolis, IN 46268	(317) 337-7569
Pioneer Hi-Bred Int'l, Inc.	Pioneer	4050 30 <sup>th</sup> Avenue South, Moorhead, MN 56560	(218) 299-8610
Red River Commodities, Inc.	Red River	212 NE Loop 239, Lubbock, TX 79403	(806) 763-9747
SEEDS 2000	SEEDS 2000	P.O. Box 200, Breckenridge, MN 56520	(218) 643-2410
SIGCO Sun Products, Inc.	SIGCO	P.O. Box 331, Breckenridge, MN 56520	(218) 643-8467
Triumph Seed Co., Inc.	Triumph	P.O. Box 1050, Ralls, TX 79357	(800) 530-4789

### Entry Forms for 2004 Trials

Entry forms for 2004 trials may be obtained from the Department of Soil and Crop Sciences, Colorado State University, Cynthia Johnson, C03 Plant Science Building, Fort Collins, CO 80523-1170; Telephone (970) 491-1914; Fax (970) 491-2758; e-mail [cjohnson@agsci.colostate.edu](mailto:cjohnson@agsci.colostate.edu) or web site <http://www.colostate.edu/Depts/SoilCrop/extension/CropVar/index.html>.



Information regarding sunflower production practices and pest control can be obtained from the following source: "High Plains Sunflower Production and IPM," Bulletin No. 556A, Colorado State University Cooperative Extension, Fort Collins, 80523. Call CERC at (970) 491-6198 to order your copy.



A handwritten signature in black ink that reads 'Jerry Johnson'.

Jerry Johnson, Extension Specialist Crop Production

COOPERATIVE EXTENSION  
DEPARTMENT OF SOIL AND CROP SCIENCES

**COLORADO STATE UNIVERSITY**  
**FORT COLLINS, COLORADO 80523-1170**

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