

2018 Corn Management Yield Potential - Preliminary Yields

Eric T. Winans and Fred E. Below

Crop Physiology Laboratory – Department of Crop Sciences
University of Illinois at Urbana-Champaign

Six treatments used in the evaluation of commercial corn hybrids for their yield responses to nitrogen fertilization, plant density, and row spacing at Yorkville, Champaign, and Harrisburg, IL in 2018. N was applied as Urea at the V3 growth stage and protected with Limus.

Treatment	Row Spacing	Plant Density	Nitrogen
	inches	plants/acre	lbs N/acre
Check	30	32,000	0
Low N	30	32,000	60
High N	30	32,000	280
Intermediate Pop	30	38,000	280
High Pop	30	44,000	280
Narrow Rows	20	44,000	280

Planting, nitrogen application, and harvest dates at Yorkville, Champaign, and Harrisburg, IL.

Location	Planting	N Application	Harvest
Yorkville, IL	5/17/2018	6/5/2018	10/12/2018
Champaign, IL	4/27/2018	5/16/2018	9/18/2018
Harrisburg, IL	5/1/2018	5/23/2018	9/13/2018

Soil test values for the Yorkville, Champaign, and Harrisburg, IL field sites sampled prior to planting at a depth of 1 to 6 inches and extracted using Mehlich III.

Location	OM†	pH	CEC	P	K	Ca	Mg
	%	units	meq 100g ⁻¹	----- ppm -----			
Yorkville	5.6	6.4	22.7	185	213	2938	606
Champaign	3.3	6.3	17.9	39	145	2272	453
Harrisburg	2.5	6.3	17.1	32	154	2482	231

†OM, Organic Matter; CEC, Cation Exchange Capacity

Precipitation and temperature during the production season at Yorkville, Champaign, and Harrisburg, IL in 2018 compared to the climate normals from 1981-2010. Values were obtained from the Illinois State Water Survey (“Water and Atmospheric Resources Monitoring Program”).

Month	Precipitation (in)		Temperature (°F)	
	2018	Normal	2018	Normal
Yorkville, IL				
April	1.0	4.0	40	50
May	6.5	4.1	67	61
June	7.1	4.3	71	70
July	1.9	4.7	72	74
August	2.8	4.1	71	72
September	2.4	3.1	66	65
Champaign, IL				
April	2.5	3.8	46	52
May	4.1	4.6	72	63
June	7.6	4.2	75	72
July	3.2	4.3	75	74
August	4.0	3.6	75	72
September	4.6	3.3	71	66
Harrisburg, IL				
April	5.3	4.4	50	57
May	5.1	5.1	73	66
June	6.0	4.5	78	75
July	3.1	3.8	78	78
August	5.0	3.0	76	77
September	7.8	3.1	72	69

The distribution of 56 hybrids evaluated in 2018 at Yorkville, Champaign, and Harrisburg, IL. Hybrids are sorted by their company, brand, and comparative relative maturity (CRM).

Company	Brand	CRM	Hybrid	Yorkville	Champaign	Harrisburg
AgReliant	AgriGold	111	A641-78STXRIB	X	X	X
AgReliant	AgriGold	112	A642-59STXRIB	X	X	X
AgReliant	AgriGold	114	A6544STXRIB	X	X	X
Bayer	Channel	109	209-15STXRIB	X	X	X
Bayer	Channel	110	210-79STXRIB	X	X	X
Bayer	Channel	112	212-90STXRIB	X	X	X
Bayer	DEKALB	108	DKC58-34RIB	X	X	X
Bayer	DEKALB	110	DKC60-87RIB	X		
Bayer	DEKALB	112	DKC62-52RIB	X	X	
Bayer	DEKALB	112	DKC62-53RIB			X
Bayer	DEKALB	113	DKC63-21RIB	X	X	X
Bayer	DEKALB	114	DKC64-34RIB	X	X	X
Bayer	DEKALB	115	DKC65-95RIB			X
Bayer	DEKALB	117	DKC67-44RIB		X	X
Bayer	DEKALB	120	DKC70-27RIB		X	X
Bayer	Stone	108	5858SSRIB	X	X	X
Bayer	Stone	110	6072VT2PRIB	X	X	X
Bayer	Stone	114	6468SSRIB	X	X	X
DowDuPont	Pioneer	105	P0574AMXT	X		
DowDuPont	Pioneer	107	P0707AMXT	X	X	
DowDuPont	Pioneer	112	P1257AMXT	X	X	X
DowDuPont	Pioneer	113	P1311AMXT	X	X	X
DowDuPont	Pioneer	113	P1366AMXT	X	X	X
Nutrien	Dyna-Gro	112	D52VC15	X		
Nutrien	Dyna-Gro	112	D52VC63	X	X	X
Nutrien	Dyna-Gro	114	D54VC14	X	X	X
Nutrien	Dyna-Gro	114	D54VC52	X	X	X
Nutrien	Dyna-Gro	114	D54VC94	X	X	X
Nutrien	Dyna-Gro	116	D56VC46	X	X	X
Nutrien	Dyna-Gro	118	D58VC65		X	X
Syngenta	Golden Harvest	105	G05K08-3010A	X		
Syngenta	Golden Harvest	108	G08D29-3120A	X	X	X
Syngenta	Golden Harvest	109	G09A86-3000GT	X		
Syngenta	Golden Harvest	109	G09Y24-3220A	X	X	X
Syngenta	Golden Harvest	110	G10T63-3122	X	X	X
Syngenta	Golden Harvest	111	G11A33-3111	X	X	X
Syngenta	Golden Harvest	111	G11F16-3111A			X
Syngenta	Golden Harvest	112	G12W66-3000GT	X	X	X
Syngenta	Golden Harvest	113	G13T41-3010		X	X
Syngenta	Golden Harvest	113	G13Z50-3110		X	X
Syngenta	Golden Harvest	114	G14V04-3120			X
Syngenta	Golden Harvest	115	G15L32-3000GT		X	X
Syngenta	Golden Harvest	118	G18D87-3111			X
Syngenta	NK	106	NK0602-3010	X		
Syngenta	NK	106	NK0624-3220	X	X	
Syngenta	NK	107	NK0763-3010	X	X	
Syngenta	NK	112	NK1284-3220		X	
WinField	Croplan	104	4488SS/RIB	X		
WinField	Croplan	108	4895SS/RIB	X	X	X
WinField	Croplan	109	4997VT2P/RIB	X	X	X
WinField	Croplan	112	5277AS3220-EZ	X	X	X
WinField	Croplan	112	5290DGVT2P/RIB	X	X	X
WinField	Croplan	113	5370VT2P/RIB	X	X	X
WinField	Croplan	116	5678SS/RIB	X	X	X
WinField	Croplan	117	5789VT2P/RIB	X	X	X
WinField	Croplan	117	7927VT3P/RIB	X	X	X

Grain yield of 44 commercial hybrids in response to nitrogen level, plant density, and row spacing at Yorkville, Illinois in 2018. Hybrids are sorted by seed brand and relative maturity.

Seed Brand Hybrid	Row Spacing					
	30 inches				20 inches	
	Plant Density (plants/acre)					
	32,000		38,000		44,000	
	Nitrogen Level (lbs N/acre)					
0	60	280	280	280	280	
bushels/acre						
AgriGold						
A641-78STXRIB	189	227	243	237	236	237
A642-59STXRIB	171	228	258	249	229	252
A6544STXRIB	175	222	241	243	235	240
Channel						
209-15STXRIB	176	238	247	236	253	248
210-79STXRIB	195	221	241	223	244	248
212-90STXRIB	176	219	219	230	243	252
Croplan						
4488SS/RIB	154	195	190	197	212	227
4895SS/RIB	189	224	227	229	228	216
4997VT2P/RIB	181	211	237	270	246	236
5277AS3220-EZ	180	205	220	235	230	222
5290DGV2P/RIB	170	197	202	216	204	230
5370VT2P/RIB	200	247	258	249	239	228
5678SS/RIB	163	218	226	235	206	245
5789VT2P/RIB	186	220	207	246	241	238
7927VT3P/RIB	168	240	268	260	241	273
DEKALB						
DKC58-34RIB	162	218	222	219	241	242
DKC60-87RIB	187	230	236	235	245	249
DKC62-52RIB	175	221	242	232	243	244
DKC63-21RIB	162	228	224	222	243	245
DKC64-34RIB	174	240	243	222	255	266
Dyna-Gro						
D52VC15	176	216	225	251	235	237
D52VC63	158	208	231	246	216	253
D54VC14	204	233	241	254	246	242
D54VC52	200	231	251	237	236	225
D54VC94	163	217	234	230	222	246
D56VC46	170	220	229	231	234	219
Golden Harvest						
G05K08-3010A	180	181	173	214	188	195
G08D29-3120A	194	213	216	225	214	247
G09A86-3000GT	183	215	235	238	214	207
G09Y24-3220A	146	206	217	221	227	230
G10T63-3122	161	226	235	244	248	261
G11A33-3111	159	211	214	231	210	220
G12W66-3000GT	199	230	255	251	244	259
NK						
NK0602-3010	183	197	200	215	196	206
NK0624-3220	184	201	216	225	199	229
NK0763-3010	160	183	196	193	183	209
Pioneer						
P0574AMXT	169	205	212	213	209	214
P0707AMXT	177	200	209	224	212	193
P1257AMXT	153	217	238	236	253	251
P1311AMXT	153	236	235	217	214	216
P1366AMXT	153	225	252	238	232	236
Stone						
5858SSRIB	163	187	204	216	215	243
6072VT2PRIB	174	201	204	233	223	235
6468SSRIB	165	220	222	221	234	248
LSD ($P \leq 0.10$)	32	32	28	28	28	28
Mean	174	217	227	232	228	235
Range	146-204	181-247	173-268	193-270	183-255	193-273

Grain yield of 44 commercial hybrids in response to nitrogen level, plant density, and row spacing at Champaign, Illinois in 2018. Hybrids are sorted by seed brand and relative maturity.

Seed Brand Hybrid	Row Spacing					
	30 inches				20 inches	
	Plant Density (plants/acre)					
	32,000		38,000		44,000	
	Nitrogen Level (lbs N/acre)					
	0	60	280	280	280	280
bushels/acre						
AgriGold						
A641-78STXRIB	131	208	261	264	281	282
A642-59STXRIB	116	196	245	264	270	291
A6544STXRIB	131	213	255	269	276	308
Channel						
209-15STXRIB	108	191	257	239	275	277
210-79STXRIB	123	197	247	244	267	270
212-90STXRIB	138	231	233	277	281	253
Croplan						
4895SS/RIB	125	195	235	266	253	233
4997VT2P/RIB	126	199	257	278	284	271
5277AS3220-EZ	117	186	240	264	265	269
5290DGV2P/RIB	128	203	274	284	292	272
5370VT2P/RIB	130	210	272	280	289	322
5678SS/RIB	134	217	285	260	278	290
5789VT2P/RIB	150	226	277	291	299	299
7927VT3P/RIB	130	222	290	310	317	286
DEKALB						
DKC58-34RIB	118	194	232	232	249	265
DKC62-52RIB	108	205	249	233	258	258
DKC63-21RIB	112	198	223	234	256	241
DKC64-34RIB	125	211	262	268	282	287
DKC67-44RIB	145	230	289	270	274	294
DKC70-27RIB	128	203	277	270	270	307
Dyna-Gro						
D52VC63	120	222	272	284	281	263
D54VC14	119	214	260	267	267	262
D54VC52	124	203	259	264	271	289
D54VC94	117	209	260	263	278	290
D56VC46	125	225	250	272	284	274
D58VC65	133	225	287	294	292	299
Golden Harvest						
G08D29-3120A	106	196	233	263	256	255
G09Y24-3220A	115	199	243	244	261	271
G10T63-3122	104	201	257	252	273	278
G11A33-3111	109	178	223	228	233	251
G12W66-3000GT	121	212	247	256	268	274
G13T41-3010	88	187	243	237	242	252
G13Z50-3110	134	227	249	248	254	258
G15L32-3000GT	95	205	269	266	266	260
NK						
NK0624-3220	125	181	208	241	237	245
NK0763-3010	105	158	195	224	207	228
NK1284-3220	132	218	239	262	273	263
Pioneer						
P0707AMXT	79	174	193	211	209	229
P1257AMXT	116	215	238	254	280	295
P1311AMXT	57	186	237	238	233	269
P1366AMXT	98	193	252	259	253	256
Stone						
5858SSRIB	119	187	254	275	261	282
6072VT2PRIB	127	215	248	278	287	248
6468SSRIB	114	203	250	250	269	261
LSD ($P \leq 0.10$)	25	25	25	29	27	27
Mean	118	204	251	260	267	271
Range	57-150	158-231	193-290	211-310	207-317	228-322

Grain yield of 44 commercial hybrids in response to nitrogen level, plant density, and row spacing at **Harrisburg, Illinois** in 2018. Hybrids are sorted by seed brand and relative maturity.

Seed Brand Hybrid	Row Spacing					
	30 inches					20 inches
	Plant Density (plants/acre)					
	32,000		38,000		44,000	
	Nitrogen Level (lbs N/acre)					
	0	60	280	280	280	280
bushels/acre						
AgriGold						
A641-78STXRIB	93	165	227	244	245	281
A642-59STXRIB	82	163	223	229	230	237
A6544STXRIB	127	193	245	262	265	256
Channel						
209-15STXRIB	78	152	221	230	246	270
210-79STXRIB	75	181	222	245	238	260
212-90STXRIB	87	187	235	260	264	257
Croplan						
4895SS/RIB	92	165	232	241	252	261
4997VT2P/RIB	101	167	231	254	248	269
5277AS3220-EZ	89	170	212	235	233	261
5290DGV2P/RIB	67	158	222	219	227	257
5370VT2P/RIB	91	164	227	245	249	267
5678SS/RIB	102	166	212	224	226	221
5789VT2P/RIB	106	181	231	245	260	235
7927VT3P/RIB	91	157	246	264	254	289
DEKALB						
DKC58-34RIB	77	151	203	217	217	215
DKC62-53RIB	93	177	235	264	259	298
DKC63-21RIB	92	169	212	234	233	256
DKC64-34RIB	98	174	237	250	236	250
DKC65-95RIB	100	184	240	260	265	262
DKC67-44RIB	105	180	219	230	235	253
DKC70-27RIB	86	145	235	251	260	284
Dyna-Gro						
D52VC63	102	162	224	221	214	249
D54VC14	88	186	253	260	261	259
D54VC52	87	147	215	212	211	242
D54VC94	99	180	244	259	254	254
D56VC46	84	153	212	228	235	247
D58VC65	96	153	195	211	204	218
Golden Harvest						
G08D29-3120A	127	203	238	239	253	249
G09Y24-3220A	100	180	209	231	243	251
G10T63-3122	83	174	239	235	237	267
G11A33-3111	92	175	220	234	245	233
G11F16-3111A	108	184	216	225	231	237
G12W66-3000GT	101	167	229	235	228	265
G13T41-3010	87	158	227	245	244	242
G13Z50-3110	102	174	221	233	251	259
G14V04-3120	92	171	220	240	230	235
G15L32-3000GT	93	178	231	243	239	276
G18D87-3111	91	174	244	272	274	281
Pioneer						
P1257AMXT	60	156	229	247	242	256
P1311AMXT	66	184	215	224	207	229
P1366AMXT	72	164	227	229	229	235
Stone						
5858SSRIB	88	151	195	217	223	264
6072VT2PRIB	93	158	218	238	249	237
6468SSRIB	98	171	218	236	244	243
LSD ($P \leq 0.10$)	22	22	20	20	20	23
Mean	92	169	225	239	241	254
Range	60-127	145-203	195-253	211-272	204-274	215-298

Reference

Water and Atmospheric Resources Monitoring Program. Illinois Climate Network. (2018). Illinois State Water Survey, 2204 Griffith Drive, Champaign, IL 61820-7495. <http://dx.doi.org/10.13012/J8MW2F2Q>.