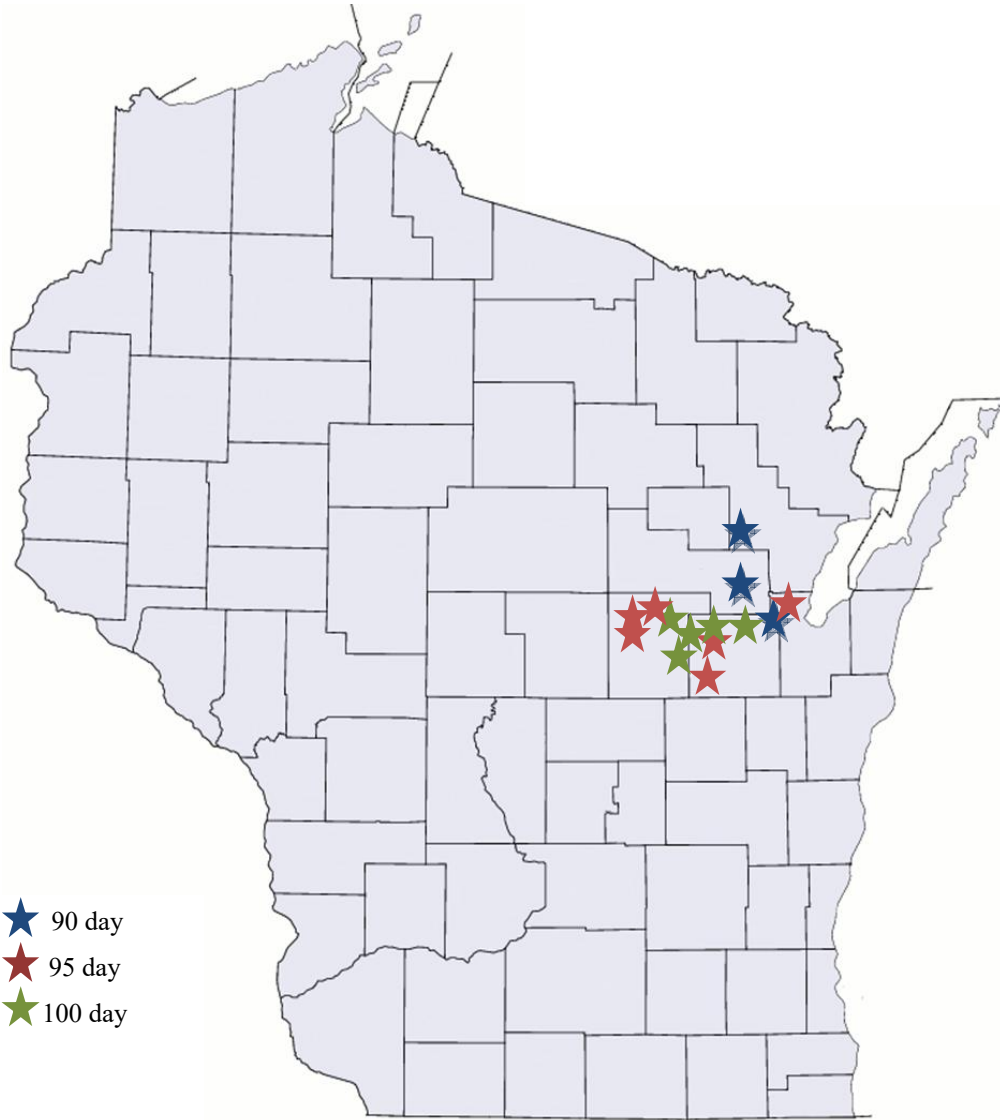


**Wisconsin On-Farm Testing
WAPAC Corn Trials
2017**



- ★ 90 day
- ★ 95 day
- ★ 100 day

Wisconsin Association of Professional Ag Consultants
University of Wisconsin – Extension
Independent, Replicated, On-Farm Research

2017 WAPAC Corn Performance Trials

2017 Data Analyzed and Compiled by Jon Baldock, PhD (Baldock Statistical Services, Oregon, WI) in cooperation with the Wisconsin Association of Professional Ag Consultants (WAPAC)

Introduction

Before the time of universities, industry research programs or crop consultants, farmers implemented changes in their production practices through a myriad of methods with some success. The process of incremental change and gradual improvements has evolved into an impressive system of research, development and production never imagined just decades ago. This production system, while impressive and productive can attribute much of its success on the recurring question asked by the farmer: "What am I going to do differently next season?"

The answer to the question hopefully results in an improvement of efficiency and profitability that is real and a result of the changes implemented. Our production system is dependent on selecting the inputs and operations that achieve a desired outcome. The process of testing a hypothesis and using the information gained in a cooperative, systematic manner has been highly successful in providing viable options for producing food, feed and fiber on the farm. However, that success has created what can be a bewildering mix of options that leave the farmer and farm advisor struggling with the answer to the question above. As a result, the Wisconsin Association of Professional Agricultural Consultants (WAPAC) and UW-Extension have worked together with farm clients across the state to develop a network for the purpose of conducting applied research trials.

This network consists of crop consultants, local and statewide extension faculty and most importantly farmers cooperating in a coordinated effort across Wisconsin. The objective of this program is to evaluate new technologies and management practices. Trials are conducted across a wide range of environments and management schemes in replicated plots using production scale equipment. This publication summarizes the results of on-farm hybrid trials conducted during 2017.

Identifying the source of variability in yield is a primary objective in any hybrid trial. The use of statistical methods including replication and means comparisons improves the reliability and confidence of results and outcome from the implemented practice. On-farm testing with field scale equipment has traditionally been used for demonstration in non-replicated trials. An overriding strength of on-farm evaluations is the credibility of the results in the eyes of the end user, the farmer by showing how the practice responds within his

production system. Often the power of these trials can be enhanced with simple modifications such as replication within locations and across multiple sites with coordinated effort. That coordination is what the membership of WAPAC and UW Extension provide in the execution of the trials. The advent of effective tools for collecting data related to crop production such as weigh wagons, on farm scales and yield monitors have removed many of the traditional barriers of on-farm trials. The increased incidence of having a trained specialist such as a crop consultant on the farm enables the coordination of multi-site evaluations that address production concerns in a real time manner. The evolution of all components of the production process will likely increase the need for more on-farm data collection and analysis as agriculture moves into the future. Collaborative efforts such as this will be necessary to utilize the wealth of information residing in the data collected at the farm.

Methodology of the On-Farm Trials

A recognized strength of field scale on-farm trials is the low coefficient of variability achieved within this type of trial as compared to smaller traditional field research trials. The coefficient of variability (CV) can be looked at as a measure of quality of the trial itself. By reducing or addressing the variability of sites or practices within a trial, one can better evaluate the treatment effects of the trait or practice being tested. The use of randomization, replication and thoughtful plot layout help improve the quality of information gleaned from the trial. The WAPAC Hybrid Trials use a minimum of 2 replications for each site and treatments (hybrids) are randomly placed within each replication. Plots are planted across sources of variability such as soil types or slopes to provide somewhat uniform representation of these sources within each replication. The plots are planted and harvested with field scale equipment. Individual plot sizes for hybrid trials are typically 6 to 12 rows wide and run distances of 500 to over 1000 feet in length. Data and observations are collected throughout the growing season and utilized in the analysis when appropriate. Information identifying plot locations, production inputs, site characteristics along with other supporting information is systematically collected and recorded in a database format to facilitate user queries and data archival.

Using the Results

Coupling the information from this publication with the UWEX Hybrid Corn Performance Trials as well as other hybrid performance trials will give the user the ability to evaluate how a particular hybrid performs in multiple environments. Predicting the performance of a hybrid in the future is done through analysis of past performance. A primary factor in the prediction is the number of locations or replications of a hybrid. This trial typically

provides 6 to 12 or more replications of a hybrid at 3 to 6 locations across the state.

The results are reported in Yield per acre and Grower return.

Gross Margin = Gross Income - drying cost - test weight dockage, where

Gross Income is the yield times \$3.04/bu, and
Drying cost is 2.0¢/bu wet corn for each point above 15%, and

Test weight dockage is
2¢/lb/bu from 53.9 to 52
3¢/bu from 51.9 to 50
5¢/bu for each lb/bu below 50 lbs/bu,
Assuming drying the grain adds 1 lb/bu to the test weight.

The data tables contain the number labeled "LSD" which stands for least significant difference. LSD's at the 10% level of probability are shown. Where the difference between two selected treatments within a column is equal to or greater than the LSD value at the bottom of the column, you can be sure that in nine out of ten chances that there is a real difference between the two treatment averages. If the difference is less than the LSD value, the difference may still be real, but the experiment has produced no evidence of real differences.

Statistics are a tool to help prevent us from deceiving others and ourselves. Growing conditions in any particular year can have large effects on certain practices. Two years of replicated data are a minimum for supporting most practices. On-farm testing is not a quick cure for anything, but it should greatly accelerate innovation and adoption of new practices by providing reliable, quantitative answers that apply directly to a producer's situation. Treatments frequently differ in performance and these differences may vary with management practices, weather patterns, soil conditions, and other environmental and management practices. Replicated trials that take into account field variability are more reliable than non-replicated trials and improve the confidence of implementing of new practices for profitable crop production.

(Written by Bill Stangel and Joe Lauer, WAPAC Executive Council Members, December 2003. Corn price and drying cost updated for 2017)

WAPAC Trial Information: 90 day

Location	tri_id		Planting Date		Fall and	Soil test	Fertilizer (lb/a)			Weed		
Cooperator	Soil series	Previous	Row width	Harvest Date	Spring Tillage	pH	P	K	N	P	K	Control
Consultant	Soil texture	crop	Population		Cultivation	---ppm---	Micro + Manure					
Bonduel, WI	901	Wheat	5/13/2017	11/7/2017	Disk Chisel	6.8	24	89	169	43	89	Harness 1qt
Paul McClone	Onaway		30		Field							Triple Flex 1qt
Phil Stern			33,500		Cultivator 2X							
Gillett, WI	902	Wheat	5/11/2017	11/21/2017	No Till	7.3	73	87	118	33	0	Glyphosate 1 qt
Tim Fifield	Menominee		30									Warrant 1 qt
Bill Schaumberg	Loamy Sand		30,000									Laudis 3 fl oz
Pulaski, WI	903	Wheat	5/27/2017	11/16/2017	Fall Chisel	7.7	22	81	126	67	160	SureStart 1.5 qt
Phil Ullmer	Yahara		30		Spring Disk							Clear Out 1 qt
Nate Nysse	Silt Loam		33,000		Field Cultivator							

WAPAC 2017 Corn Trials: 90-day Relative Maturity Data.

Brand	Hybrid	Stand, No./A†	Lodged, %†	Test Weight, lbs/bu†	Grain Moisture, %†	Yield, Bu/A @ 15%†	Gross Margin, \$/A†,‡
Great Lakes	4250 VT2PRIB&	30668 *	2.5	55.5	19.2 *	183 *	574 *
Munson	5016 VT2PRIB	30458 *	2.0 *	54.5	19.8 *	183 *	560 *
Pioneer	P9188AM	31000 *	2.0 *	54.9	20.2	180 *	560 *
NK	N27F-3110-A	30667 *	1.5 *	56.6 *	20.0	177 *	537 *
Renk	RK 433 RR	30708 *	1.2 *	55.7	19.7 *	176 *	526 *
PIP	4693 VIP3110	29250	3.0	56.2 *	20.3	164	499
Dekalb	DKC 40-77 STXRIB	30417 *	0.3 *	56.6 *	19.6 *	159	481
Number of locations		3	3	2	3	3	3
Total number of replications		6	6	4	6	6	6
Mean		30470	1.8	55.7	19.8	176	534
LSD(10%)		959	1.9	0.7	0.6	14	59

† Means followed by a star are not significantly different than the "best" at the 10% level of significance. The "best" is the maximum value for all measures except lodged and moisture, where the "best" value is the minimum value.

‡ Gross Margin = Gross Income - drying cost - test weight dockage, where
 Gross Income is the yield times \$3.04/bu,
 drying cost is 2¢/bu wet corn for each half-point above 15%, and
 test weight dockage is 2¢/lb/bu from 53.9 to 52; 3¢/lb/bu from 51.9 to 50; and 5¢/lb/bu below 50 lb/bu.

& No data for one block at the Ullmer location for this hybrid.

WAPAC 2017 Corn Trials: 90-day Relative Maturity Yields by Location.

		Location Yield, bu/a @ 15% moisture		
Brand	Hybrid	901 Bonduel	902 Gillett	903 Pulaski
Dekalb	DKC 40-77 STXRIB	194	204	79
Great Lakes	4250 VT2RIB†	230	210	117
Munson	5016 VT2PRIB	232	221	95
NK	N27F-3110-A	226	218	87
Pioneer	P9188AM	216	219	106
PIP	4693 VIP3110	200	205	87
Renk	RK 433 RR	231	219	77
Mean		214	219	93
Reps		2	2	2

† No data for one block at the Ullmer location for this hybrid.

WAPAC Trial Information: 95 day

Location	tri_id		Planting Date		Fall and	Soil test			Fertilizer (lb/a)			Weed
Cooperator	Soil series	Previous	Row width	Harvest Date	Spring Tillage	pH	P	K	N	P	K	Control
Consultant	Soil texture	crop	Population		Cultivation	---ppm---			Micro + Manure			
Black Creek, WI Roger & Joan Seitz Bill Schaumberg	951 Hortonville Silt Loam	Alfalfa	5/19/2017 30 32,500	11/14/2017	Spring Field Cultivator 2X	7.4	10	115	171	24	106	Parralel 1 pt Hornet WDG 2 oz Atrazine 1/4 lb Rup Pmax 22 oz
Clintonville, WI Paul Kirchner Mike Kiddy	952 Hortonville	Soybeans	5/15/2017 30 32,000	11/30/2017	Turbo Till (2X)	6.4	12	100	168	55	100	Staunch 2 pt Credit Extra 1 qt Dicamba 2oz AMS 3 Lbs Aatrex 4L 1.5 pt
Greenville, WI Jeff Kearns Paul Knutzen	953 Hortonville	Soybeans	5/7/2017 30 34,000	11/11/2017	Fall Chisel Spring Field Cultivate	7.1	46	122	167	19	60	SureStart 1qt VolleyLite 1qt
Howard, WI Stuart Sorenson Phil Stern	954 Onaway	Soybeans	5/6/2017 30 33,100		Deep Rip Vertical Till	6.5	23	59	131	55	93	Lumax 2.5 qt
Manawa, WI Dairy-Licious Farms Nathen Nysse	955 Symco Silt Loam	Alfalfa	6/2/2017 30 35,500	12/20/2017	No Till	6.5	19	81	217	12	0	Glyphosate 1 qt AMS 2.5 #
Manawa, WI Fietzer Dairy Farms Nathen Nysse	956 Hortonville Silt Loam	Alfalfa/ Winter Rye	6/5/2017 30 35,000	11/13/2017	Spring Vertical Till Tillage	7	131	191	143	0	0	Capreno 3 oz Parallel 1 1/3 pt Atrazine 3/4#

WAPAC 2017 Corn Trials: 95-day Relative Maturity Data: Six hybrids at five sites.

Brand	Hybrid	Stand, No./A†,&	Test Weight, lbs/bu†	Grain Moisture, %†	Yield, Bu/A @ 15%†	Gross Margin, \$/A†,‡
Renk	RK566SSTX	31375 *	53.9	20.4 *	204 *	518 *
Dekalb	47-47STXRIB	32187.5 *	53.0	22.2	204 *	507 *
Great Lakes	4548 VT2RIB	30750 *	54.7 *	19.6 *	194	498 *
NK	N35T-3110	31687.5 *	54.1 *	21.5	199 *	494 *
Munson	5581 VT3P	28437.5	53.7	21.0	192	481
PIP	4595GTCBLL	30687.5 *	54.9 *	22.2	192	469
Number of locations		4	5	5	5	5
Total number of replications§		7	9	9	9	9
Mean		30911	54.3	21.4	198	494
LSD(10%)		1732	1.0	1.3	10	30

† Means followed by a star are not significantly different than the "best" at the 10% level of significance. The "best" is the maximum value for all measures except lodged and moisture, where the "best" value is the minimum value.

‡ Gross Margin = Gross Income - drying cost - test weight dockage, where
 Gross Income is the yield times \$3.04/bu,
 drying cost is 2¢/bu wet corn for each half-point above 15%, and
 test weight dockage is 2¢/lb/bu from 53.9 to 52; 3¢/lb/bu from 51.9 to 50; and 5¢/lb/bu below 50 lb/bu.

& Fixed effects model used because random effects model did not converge.

§ Two replications at three sites and one at one site for stand; all others two replications at four sites and one at one site.

WAPAC 2017 Corn Trials: 95-day Relative Maturity Data: Five hybrids at six sites.

Brand	Hybrid	Stand, No./A†	Test Weight, lbs/bu†	Grain Moisture, %†	Yield, Bu/A @ 15%†	Gross Margin, \$/A†,‡
Renk	RK566SSTX	31586	53.2 *	21.5 *	206 *	520 *
Great Lakes	4548 VT2RIB	31280	54.0 *	20.1 *	200 *	513 *
Dekalb	47-47STXRIB	33104 *	52.2	23.5	204 *	500 *
NK	N35T-3110	32215 *	53.5 *	22.1	200 *	495 *
PIP	4595GTCBLL	30604	54.0 *	23.2	192	465
Number of locations		5	6	6	6	6
Total number of replications§		9	11	11	11	11
Mean		31719	53.5	22.3	201	498
LSD(10%)		1296	0.9	1.4	11	33

† Means followed by a star are not significantly different than the "best" at the 10% level of significance. The "best" is the maximum value for all measures except lodged and moisture, where the "best" value is the minimum value.

‡ Gross Margin = Gross Income - drying cost - test weight dockage, where

Gross Income is the yield times \$3.04/bu,

drying cost is 2¢/bu wet corn for each half-point above 15%, and

test weight dockage is 2¢/lb/bu from 53.9 to 52; 3¢/lb/bu from 51.9 to 50; and 5¢/lb/bu below 50 lb/bu.

§ Two replications at four sites and one at one site for stand; all others two replications at five sites and one at one site.

WAPAC 2017 Corn Trials: 95-day Relative Maturity Yields by Location.

		Location Yield, bu/a @ 15% moisture					
Brand	Hybrid	951 Black Creek	952 Clintonville	953 Greenville	954 Howard	955 Manawa	956 Manawa
Dekalb	47-47STXRIB	190	205	209	228	177	204
Great Lakes	4548 VT2RIB	188	193	197	205	180	229
Munson	5581 VT3P†	188	190	199	200	172	
NK	N35T-3110	173	197	211	204	220	203
PIP	4595GTCBLL	174	187	203	199	202	190
Renk	RK566SSTX	189	200	220	203	211	218
Mean		184	195	207	207	193	209
Reps		2	2	2	2	1	2

† No data for this hybrid at the Fietzer location.

WAPAC Trial Information: 100 day

Location	tri_id	Planting Date	Fall and	Soil test	Fertilizer (lb/a)	Weed	
Cooperator	Soil series	Previous	Row width	Harvest Date	Spring Tillage	pH P K N P K	Control
Consultant	Soil texture	crop	Population		Cultivation	---ppm---	Micro + Manure
Black Creek, WI Roger & Joan Seitz Bill Schaumberg	1001 Hortonville Silt Loam	Alfalfa	5/19/2017 30 32,500	11/14/2017	Spring Field Cultivator 2X	7.4 10 115 171 24 106	Parralel 1.3 pt Hornet WDG 3 oz Atrazine 1/2 lb Glyphosate 1 qt
Fremont, WI Larry Danke Paul Knutzen	1002 Hortonville	Corn	5/6/2017 30 31,000	11/11/2017	Field Cultivator	7.8 114 65 166 9 125 21 S	Lumax 1 3/4 qt AMS 3 #
Manawa, WI Fietzer Dairy Farms Nathen Nysse	1003 Hortonville Silt Loam	Alfalfa/ Winter Rye	6/5/2017 30 35,000	11/13/2017	Spring Vertical Till Tillage	7 131 191 143 0 0 24S	Capreno 3 oz Parallel 1 1/3 pt Atrazine 3/4#
New London, WI Madden Farms Mike Kiddy	1004 Hortonville	Alfalfa	5/22/2017 30 34,000	11/8/2017	Field Cultivator 2X	7 9 53 170 86 157	Parallel 1.5 pt Aatrex 4L 1.5 pt AMS 2.5 # (2X) Mesotryone 5 oz Credit Extra 1 qt
Seymour, WI Pat & Karen Van Lanen Jeff Polenske	1005 Hortonville	Alfalfa	5/12/2017 30 35,700	10/12/2017	Fall Chisel Spring Field Cultivator 2X	7.7 66 70 203 8 2	Aceron 1.75qt

WAPAC 2017 Corn Trials: 100-day Relative Maturity Data: Six hybrids at three or four sites.

		Stand, No./A†	Test Weight, lbs/bu†	Grain Moisture, %†	Yield, Bu/A @ 15%†	Gross Margin, \$/A†,‡
Brand	Hybrid					
Great Lakes	GL4879VT2RIB	32472 *	51.8 *	26.5 *	235 *	566 *
Dekalb	DKC 52-68 VR2PRIB	33000 *	50.7	29.1	225 *	519
Renk	RK 608DGVT2P	32208 *	50.2	27.5 *	217	516
NK	NK0142-3120-EZ	31833 *	51.8 *	25.9 *	213	509
PIP	PIP 4400GTA	30583	52.6 *	26.8 *	212	498
Pioneer	P0157AMX	31972 *	52.0 *	30.0	215	481
Number of locations		3	4	4	4	4
Total number of replications		6	8	8	8	8
Mean		32012	51.5	27.6	220	515
LSD(10%)		1795	1.8	1.6	14	37

† Means followed by a star are not significantly different than the "best" at the 10% level of significance. The "best" is the maximum value for all measures except lodged and moisture, where the "best" value is the minimum value.

‡ Gross Margin = Gross Income - drying cost - test weight dockage, where

Gross Income is the yield times \$3.04/bu,

drying cost is 2¢/bu wet corn for each half-point above 15%, and

test weight dockage is 2¢/lb/bu from 53.9 to 52; 3¢/lb/bu from 51.9 to 50; and 5¢/lb/bu below 50 lb/bu.

WAPAC 2017 Corn Trials: 100-day Relative Maturity Data: Five hybrids at four or five sites.

Brand	Hybrid	Stand, No./A†	Test Weight, lbs/bu†	Grain Moisture, %†	Yield, Bu/A @ 15%†	Gross Margin, \$/A†,‡
Great Lakes	GL4879VT2RIB	32229 *	51.6 *	27.0 *	218 *	519 *
Renk	RK 608DGVT2P	31531 *	50.4	27.4 *	207 *	489 *
Dekalb	DKC 52-68 VR2PRIB	32750 *	50.7	29.1	212 *	486 *
Pioneer	P0157AMX	31667 *	52.2 *	29.6	207 *	462
PIP	PIP 4400GTA	30375	52.3 *	27.2 *	198	460
Number of locations		4	5	5	5	5
Total number of replications		8	10	10	10	10
Mean		31710	51.4	28.1	209	483
LSD(10%)		1331	1.0	1.5	15	40

† Means followed by a star are not significantly different than the "best" at the 10% level of significance. The "best" is the maximum value for all measures except lodged and moisture, where the "best" value is the minimum value.

‡ Gross Margin = Gross Income - drying cost - test weight dockage, where

Gross Income is the yield times \$3.04/bu,

drying cost is 2¢/bu wet corn for each half-point above 15%, and

test weight dockage is 2¢/lb/bu from 53.9 to 52; 3¢/lb/bu from 51.9 to 50; and 5¢/lb/bu below 50 lb/bu.

WAPAC 2017 Corn Trials: 100-day Relative Maturity Yields by Location.

		Location Yield, bu/a @ 15% moisture				
Brand	Hybrid	1001 Black Creek	1002 Fremont	1003 Manawa	1004 New London	1005 Seymour
Dekalb	DKC 52-68 VR2PRIB	161	234	230	196	242
Great Lakes	GL4879VT2RIB	152	251	214	233	242
NK	NK0142-3120-EZ†		222	205	198	227
Pioneer	P0157AMX	175	226	204	209	219
PIP	PIP 4400GTA	144	221	219	202	206
Renk	RK 608DGVT2P	168	232	212	184	241
Mean		160	231	214	204	229
Reps		2	2	2	2	2

† No data for this hybrid at the Seitz location.

Thank you to everyone who contributed to the success of the 2017 WAPAC Corn Trials!

Data Analysis

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Munson Hybrids- Ryan Singler
NK- Syngenta- John Crispin
Partners in Production- Jack Kaltenberg
Pioneer Hybrid- Bob Berkovich
Renk Seed- Jeff Renk/Bob Wilms

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Links to the WAPAC Corn Trails are available on the WAPAC website: **www.wapac.info** under the Corn Trials tab



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