

2019 Penn State/PDMP Corn Silage Hybrid Performance Trial Results

Prepared by James A. Breining, Alan R. Cook, and Corey Dillon (Department of Plant Science).

Produced in cooperation with the Professional Dairy Managers of Pennsylvania (PDMP).

Visit Penn State's College of Agricultural Sciences on the Web: www.cas.psu.edu

Penn State College of Agricultural Sciences research, extension, and resident education programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.

This publication is available in alternative media on request.

The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission, and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. It is the policy of the University to maintain an academic and work environment free of discrimination, including harassment. The Pennsylvania State University prohibits discrimination and harassment against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, or veteran status. Discrimination or harassment against faculty, staff, or students will not be tolerated at The Pennsylvania State University. Direct all inquiries regarding the nondiscrimination policy to the Affirmative Action Director, The Pennsylvania State University, 328 Boucke Building, University Park, PA 16802-5901, Tel 814-865-4700/V, 814-863-1150/TTY.

Where trade names appear, no discrimination is intended, and no endorsement by Penn State Cooperative Extension is implied.

© The Pennsylvania State University 2015

Production Details: Penn State/PDMP Corn Silage Hybrid Evaluation Trials

Site:	Blair Co., PA				
Cooperator	Penn - England Farms				
Planting Date	5/22/2019				
Soil Type	HuB Hublersburg Cherty silt loam 3-8% slope				
Herbicides	pre-	1.35qt helmquat	.5qt unison	1pt.firezone	2qt/100gal. Dynamic
	post-	1.5qt medal II	5oz.explorer	1pt.grounded	2oz.sultrus
Previous Crop	Silage, rye cover crop				
Tillage	None				
Starter Fertilizer	10.5 gal - 10-34-0				
Insecticide	Force 3G				
Manure	6,000 gallons/ac				
Fertilizer	12 gallons of 10-30-0 with a total of 40 gallon of 32% nitrogen				
	25Gal.of 32%nitrogen				
Harvest Date	9/17/2019				

Field Summary: Stand performance was good. Weed control was adequate; had some grassy weed escapes. Looks like it ran out of N due to lack of depth on kernels. We think the microbes might have immobilized the available N as they broke down the carbon from the previous rye crop. Rainfall was adequate during pollination time.

Weather Summary:

Month	Precip.	GDD
May 22-June 1st	3.09	167
June 1st-July 1st	2.85	469
July 1st-August 1st	3.96	704
August 1st-Sept. 17	3.82	835
Seasonal Total	13.72	2175

Precip. Data: <https://www.accuweather.com/>
 GDD data: <http://climatesmartfarming.org/tools/csf-growing-degree-day-calculator/>

Penn State/PDMP Corn Silage Hybrid Testing Program 2019

Medium maturity (100-111 day RM) silage hybrids in Central PA

Blair County location

Notes: SEE BACKGROUND TAB
Cooperator: Penn England Farm

Brand	Hybrid	Traits*	Dry Yield									NDFD				uNDF 240 %DM	Pop. plants/ac	Relative Maturity
			Matter %**	Tons/ Acre***	CP %DM	NDF %DM	Lignin %DM	Starch %DM	Ash %DM	Fat ² %DM	NEL Mcal/lb	12hr	30hr	120hr	240hr			
Early (100-104) RM Silage Hybrids																		
Syngenta	NK0472-3120	6	48.7	19.8	6.3	35.5	2.9	43.3	2.8	3.0	0.78	30.7	55.0	63.9	66.9	11.7	34,000	104
Chemgro Seeds	6295RDP	31	45.7	18.9	5.9	32.3	2.4	45.7	2.8	2.7	0.80	33.2	58.3	70.8	73.9	8.5	32,333	102
Growmark FS	FS 53R85SS	34	43.9	20.8	6.2	32.7	2.4	44.9	2.7	2.8	0.80	33.1	59.6	70.3	73.3	8.7	34,000	103
Local Seeds	LC0488 S5XRIB	34	42.8	21.3	5.5	31.6	2.3	46.6	2.2	2.9	0.81	33.7	57.9	67.9	70.8	9.2	33,977	104
Seed Consultants, Inc.	SCS 1018YHR	16	41.9	19.7	5.8	33.9	2.3	43.9	2.8	2.6	0.79	33.3	61.3	73.9	77.0	9.4	34,000	101
Blue River Organic Seed	51T59	Conv.	41.4	19.0	5.7	36.8	2.7	41.3	2.8	2.6	0.78	32.3	55.2	66.4	69.2	11.3	34,000	103
LG Seeds	LG51C48VT2PRO	31	40.8	19.4	6.1	36.2	2.7	40.9	2.7	2.6	0.78	31.3	56.1	66.0	68.9	11.3	34,000	101
Syngenta	NK0440-3122	7	40.6	19.8	6.0	36.1	2.6	42.1	2.7	2.5	0.78	32.4	57.1	67.0	69.9	10.9	33,667	104
Seed Consultants, Inc.	EX-SC 105YHR	21	40.0	20.0	6.0	34.0	2.4	43.3	2.8	2.6	0.79	32.8	58.3	70.2	73.2	9.2	32,667	104
100-104 day means			42.9	19.9	5.9	34.3	2.5	43.6	2.7	2.7	0.79	32.5	57.6	68.5	71.5	10.0	33,627	
Medium (105-111) RM Silage Hybrids																		
Local Seeds	LC0657 S5XRIB	34	44.1	17.6	6.2	33.8	2.6	45.3	2.5	2.6	0.79	31.7	55.7	65.6	68.4	10.7	34,000	106
Dekalb	DKC55-37RIB	34	42.5	18.6	6.2	37.3	2.8	38.3	3.1	2.5	0.77	30.7	56.4	66.1	68.9	11.0	33,919	105
LG Seeds	LG5525VT2RIB	31	42.3	18.8	5.6	36.5	2.7	41.6	2.7	2.7	0.78	32.0	57.6	68.0	70.9	10.7	34,000	105
Seedway LLC	SW5440 GENSS (RIB)	34	42.2	19.3	6.1	34.2	2.5	42.1	2.9	2.8	0.79	32.2	58.7	68.3	71.2	9.8	34,000	105
Local Seeds	ZS1098 3330EZ	9	41.9	21.8	5.9	35.0	2.7	42.8	2.6	2.6	0.79	32.2	57.2	66.4	69.2	10.8	33,979	110
Local Seeds	LC0877 VT2PRIB	31	41.4	20.0	6.0	35.7	2.5	41.4	2.8	2.5	0.78	33.3	58.7	69.2	72.2	9.9	34,000	108
Syngenta	NK0968-3000GT	3	41.4	20.1	6.1	35.8	2.8	41.3	2.8	2.5	0.78	30.6	56.6	65.3	68.2	11.4	33,563	109
Prairie Hybrids	5787	Conv.	41.3	20.6	5.5	34.5	2.7	42.5	2.8	2.5	0.78	30.7	56.0	66.5	69.3	10.6	34,000	108
Prairie Hybrids	5200	Conv.	41.1	19.9	5.9	32.5	2.2	44.5	2.6	2.5	0.80	33.8	59.8	71.0	74.1	8.5	33,667	108
Chemgro Seeds	6859V3	5	41.0	19.6	5.6	36.3	2.5	40.7	2.6	2.5	0.78	33.5	57.8	68.3	71.2	10.5	33,500	108
Seed Consultants, Inc.	EX-SC 110YHR	21	40.9	18.7	6.3	33.5	2.4	42.8	2.9	2.6	0.79	32.7	59.0	69.6	72.6	9.2	31,894	108
Syngenta	NK0886-3110	6	40.7	18.5	5.9	33.4	2.6	42.5	2.9	2.6	0.78	30.3	57.2	65.6	68.4	9.9	34,000	108
Dekalb	DKC55-85RIB	31	40.4	17.1	5.8	32.7	2.3	45.1	2.6	2.8	0.80	34.1	59.0	69.4	72.3	9.1	34,000	105
Dekalb	DKC59-07RIB	34	40.4	20.2	5.8	34.5	2.5	41.9	2.4	2.6	0.79	31.8	58.5	67.9	70.9	10.1	34,000	109
Growmark FS	FS 5699X RIB	34	40.2	18.6	6.2	36.2	2.7	39.6	2.7	2.7	0.78	31.2	56.4	65.9	68.7	11.3	32,333	105
Dekalb	DKC59-82RIB	31	40.1	21.0	5.8	34.4	2.7	43.0	2.7	2.6	0.79	30.6	56.8	66.6	69.4	10.6	34,000	109
Channel	209-15STXRIB	34	39.6	19.7	6.1	32.0	2.3	46.0	2.4	2.6	0.80	34.8	59.8	69.8	72.8	9.2	34,000	109
Channel	211-44STXRIB	34	39.5	20.1	6.0	35.3	2.7	42.1	2.5	2.7	0.79	31.9	57.2	65.8	68.6	11.1	34,000	111
Local Seeds	LCX07-90	Conv.	39.4	19.9	6.3	35.0	2.8	40.9	2.6	2.7	0.79	29.3	55.1	64.1	66.8	11.6	33,833	107
Seedway LLC	SW6540 GENVT2P (RIB)	31	39.4	19.7	6.4	34.2	2.5	42.1	2.7	2.6	0.79	33.1	59.7	69.5	72.5	9.4	34,000	107
Pioneer	P0843AM	21	39.4	19.4	6.1	33.8	2.3	42.8	2.5	2.6	0.80	34.4	59.1	69.5	72.4	9.3	34,000	108
Nutrien Ag Solutions/Dyna-Gro	D495S70	34	39.2	19.2	6.2	33.9	2.6	42.8	2.6	2.8	0.79	31.4	57.7	66.4	69.3	10.4	33,500	109
Pioneer	P0789AMXT	27	39.0	18.3	5.9	35.7	2.6	40.6	2.8	2.6	0.78	32.6	57.7	67.9	70.8	10.4	34,000	107
Growmark FS	FS 6199X RIB	34	38.9	17.8	5.9	35.7	2.6	40.6	2.7	2.6	0.78	32.1	58.5	67.1	69.9	10.7	34,000	110
Pioneer	P1089AMXT	27	38.8	20.1	6.4	34.7	2.4	40.4	2.9	2.5	0.79	33.3	59.2	69.5	72.5	9.5	34,000	110
Mycogen	2098Q	36	38.6	20.3	6.5	35.5	2.5	40.3	2.8	2.5	0.79	33.5	58.0	70.4	73.3	9.5	34,000	110
Prairie Hybrids	5447	Conv.	38.2	19.3	6.6	36.0	2.7	39.1	2.9	2.7	0.78	31.7	57.2	66.5	69.4	11.1	34,000	109
Blue River Organic Seed	62G22	Conv.	37.8	21.0	6.1	34.9	2.6	40.8	2.6	2.8	0.79	32.0	56.2	65.4	68.2	11.1	34,000	110
Channel	210-98STXRIB	34	37.0	18.0	5.7	36.5	2.6	39.7	2.7	2.6	0.78	32.5	59.2	68.4	71.3	10.5	33,333	110
Masters Choice	MCT5790	Conv.	36.9	19.6	6.6	35.4	2.5	39.3	3.0	2.6	0.79	32.8	58.4	68.3	71.3	10.2	34,000	107
Seed Consultants, Inc.	SCS 1069YHR	16	36.7	18.2	6.4	33.9	2.4	42.2	2.9	2.6	0.79	32.9	58.0	69.1	72.1	9.5	34,000	106
Seed Consultants, Inc.	SCS 1087YHR	16	36.2	20.6	5.9	36.2	2.4	40.6	2.6	2.4	0.78	33.8	59.3	70.1	73.0	9.8	34,000	108
Mycogen	TMF2H708	34	35.2	18.0	6.0	41.8	3.0	33.0	3.0	2.0	0.74	31.9	56.5	67.4	70.2	12.5	33,000	109
105-111 day means			39.7	19.4	6.1	35.1	2.6	41.5	2.7	2.6	0.79	32.3	57.8	67.7	70.6	10.3	33,773	
Overall Mean			40.4	19.5	6.0	34.9	2.6	41.9	2.7	2.6	0.79	32.3	57.8	67.9	70.8	10.2		
LSD(0.1)			2.3	1.9	0.4	2.8	0.3	3.5	NS¹	0.2	0.02	2.0	2.1	2.6	2.7	1.5		
CV%			4.3	7.0	5.4	5.8	7.9	6.2	10.6	5.8	1.84	4.6	2.7	2.9	2.8	10.9		

* See tab "Trait Key" for individual trait designation.

**Tables are sorted by dry matter. Avoid making comparisons with hybrids that differ significantly in dry matter.

*** Silage yields are expressed on a 35 percent DM basis; all other parameters are expressed on a dry matter basis. CP=crude protein, NDF= neutral detergent fiber,

NEL=net energy for lactation, and NDFD=neutral detergent fiber digestibility.

¹ - NS = Not Significant, ² - Fat = Total Fatty Acids

Prepared by Jessica Williamson, Alan Cook, James Breining (Department of Plant Science).

Table Key #	Trait Family Product	Bt protein(s)	Marketed for control of:	Resistance to a Bt protein in the trait package has developed in :	Herbicide tolerant?
Conv.	Conventional	None	None	---	No
RR2	Roundup Ready 2	None	None	---	GT
Agrisure					
1	Agrisure GT	None	None	---	GT
2	Agrisure 3010 & 3010A	Cry1Ab	ECB SWCB	---	GT LL
3	Agrisure 3000 GT, 3011A	Cry1Ab, mCry3A	ECB SWCB RW	RW	GT LL
4	Agrisure Viptera 3110	Cry1Ab, Vip3A	BCW CEW ECB FAW SB SWCB TAW WBC	---	GT LL
5	Agrisure Viptera 3111	Cry1Ab, mCry3A, Vip3A	BCW CEW ECB FAW SB SWCB TAW WBC RW	RW	GT LL
6	Agrisure 3120 E-Z Refuge	Cry1Ab, Cry1F	BCW ECB FAW SB SWCB	FAW WBC	REFER TO BAG FOR SPECIFIC LETTER CODE: EZ0=GT ONLY EZ1= GT LL
7	Agrisure 3122 E-Z Refuge	Cry1Ab, Cry1F, mCry3A, Cry34/35Ab1	BCW ECB FAW SB SWCB RW	FAW WBC RW	
8	Agrisure Viptera 3220 E-Z Refuge	Cry1Ab, Cry1F, Vip3A	BCW CEW ECB FAW SB SWCB TAW WBC	---	
9	Agrisure Viptera 3330 E-Z Refuge	CryAb, Vip3A, Cry1A.105+CryAb2	BCW CEW ECB FAW SB SWCB TAW WBC	---	
10	Agrisure Duracade 5122 E-Z Refuge	Cry1Ab, Cry1F, mCry3A, eCry3.1Ab	BCW ECB FAW SB SWCB RW	FAW WBC RW	
11	Agrisure Duracade 5222 E-Z Refuge	Cry1Ab, Cry1F, Vip3A, mCry3A, eCry3.1Ab	BCW CEW ECB FAW SB SWCB TAW WBC RW	RW	
Herculex					
12	Herculex 1 (HX1)	Cry1F	BCW ECB FAW SB SWCB	ECB FAW SWCB WBC	LL RR2 (most)
13	Herculex RW (HXRW)	Cry34/35Ab1	RW	RW	
14	Herculex XTRA (HXX)	Cry1F, Cry34/35Ab1	BCW ECB FAW SB SWCB RW	FAW SWCB WBC RW	
Optimum					
15	TRIssect (CHR)	Cry1F, mCry3A	BCW ECB FAW SB SWCB RW	ECB FAW SWCB WBC RW	LL RR2
16	Intrasect (YHR)	Cry1F, Cry1Ab	BCW ECB FAW SB SWCB	FAW WBC	LL RR2
17	Intrasect TRIssect (CYHR)	Cry1Ab, Cry1F, mCry3A	BCW ECB FAW SB SWCB RW	FAW WBC RW	LL RR2
18	Leptra (VYHR)	Cry1F, Cry1Ab, Vip3A	BCW CEW ECB FAW SB SWCB TAW WBC	---	LL RR2
19	Intrasect Xtra (YXR)	Cry1F, Cry1Ab, Cry34/35Ab1	BCW ECB FAW SB SWCB RW	FAW WBC RW	LL RR2
20	Intrasect Xtreme (CYXR)	Cry1F, Cry1Ab, mCry3A, Cry34/35Ab1	BCW ECB FAW SB SWCB RW	FAW WBC RW	LL RR2
21	AcreMax (AM)	Cry1F, Cry1Ab	BCW ECB FAW SB SWCB	FAW WBC	LL RR2
22	AcreMax CRW (AMRW)	Cry34/35Ab1	RW	RW	LL RR2
23	AcreMax1 (AM1)	Cry1F, Cry34/35Ab1	BCW ECB FAW SB SWCB RW	FAW SWCB WBC RW	LL RR2
24	AcreMax Leptra (AML)	Cry1Ab, Cry1F, Vip3A	BCW ECB FAW SB SWCB TAW WBC CEW	---	LL RR2
25	AcreMax TRIssect (AMT)	Cry1F, Cry1Ab, mCry3A	BCW ECB FAW SB SWCB RW	FAW WBC RW	LL RR2
26	AcreMax Xtra (AMX)	Cry1F, Cry1Ab, Cry34/35Ab1	BCW ECB FAW SB SWCB RW	FAW WBC RW	LL RR2
27	AcreMax Xtreme (AMXT)	Cry1F, Cry1Ab, mCry3A, Cry34/35Ab1	BCW ECB FAW SB SWCB RW	FAW WBC RW	LL RR2
Yieldgard/Genuity					
28	YieldGard CB (YGCB)	Cry1Ab	ECB SWCB	---	RR2
29	YieldGard VT Rootworm (YGRW)	Cry3Bb1	RW	RW	RR2
30	YieldGard VT Triple	Cry1Ab, Cry3Bb1	ECB SWCB RW	RW	RR2
31	VT Double PRO VT Double PRO RIB complete	Cry1A.105, Cry2Ab2	CEW ECB FAW SB SWCB	CEW	RR2
32	VT Triple PRO VT Triple PRO RIB complete	Cry1A.105, Cry2Ab2, Cry3Bb1	CEW ECB FAW SB SWCB RW	CEW RW	RR2
33	Trecepta (or RIB complete)	Cry1A.105, Cry2Ab2, Vip3A	BCW CEW ECB FAW SB SWCB TAW WBC	---	RR2
Others					
34	Smartstax Smartstax Refuge Advanced Smartstax RIB Complete	Cry1A.105, Cry2Ab2, Cry1F, Cry3Bb1, Cry34/35Ab1	BCW CEW ECB FAW SB SWCB RW	CEW WBC RW	LL RR2

35	Powercore (or Refuge Advanced)	Cry1A.105, Cry2Ab2, Cry1F	BCW ECB FAW SB SWCB CEW	CEW WBC	LL RR2
36	QROME (Q)	Cry1Ab, Cry1F, mCry3A, Cry34/35Ab1	BCW ECB FAW SB SWCB	FAW WBC RW	LL RR2
	BCW = black cutworm	SB = stalk borer	GT = glyphosate tolerant		
	CEW = corn earworm	SWCB = southern corn borer	LL = Liberty Link, glufosinate tolerant		
	ECB = European corn borer	TAW = true armyworm	RR2 = Roundup Ready 2, glyphosate tolerant		
	FAW = fall armyworm	WBC = western bean cutworm			
	RW = corn rootworm				

Source: <https://www.texasinsects.org/bt-corn-trait-table.html>