2018 Penn State/PDMP Corn Silage Hybrid Performance Trial Results

Prepared by Greg W. Roth, James A. Breining, Alan R. Cook, and Jessica A. Williamson (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.

Production Details: Penn State/PDMP Corn Silage Hybrid Evaluation Trials			
Site:	Bainbridge, PA		
Cooperator	Meadow Vista Dairy		
Planting Date	May 8, 2018		
Soil Type	Lansdale loam, 3 to 8 percent slopes, UaB Ungers loam		
Herbicides pre-	2 qt Credit Extra, 3 qt Acuron		
post-	none		
Previous Crop	Corn Silage and Ryelage		
Tillage	None		
Starter Fertilizer	10.5 gal of 10-34-0		
Insecticide	Force 3G		
Manure	9000 gallons dairy		
Fertilizer	None at preplant, 80 units of N sidedressed		
Harvest Date	August 28, 2018		

Field Summary:	Bainbridge – The corn silage trials at Bainbridge were planted on May 8. Field conditions were good, however, 2 weeks of cool and wet weather 3 days after planting caused a few plots to be dropped due to low stand counts. Most plots had very good stand counts and performance was very good at this site. Harvest was completed on August 28 for the G2SC trial.

Weather Summary:	May 8th-August 28	
Month	**Precip.**	**GDD**
May	5.49	381
June	4.97	597
July	13.55	764
August	6.57	671
Seasonal Total	**30.58**	**2413**

Precip. Data:	http://www.theweathercollector.com/?gclid=Cj0KCQjw6fvdBRCbARIsABGZ-vQL2zIhMnTDKuqmXNfv18X7Hn8ZRJ-0DNorlnY8e_E0ce0WZ66HgZMaAtcVEALw_wcB
GDD data:	http://climatesmartfarming.org/tools/csf-growing-degree-day-calculator/

Penn State/PDMP Corn Silage Hybrid Testing Program 2018

Early-medium maturity (99-110 RM) silage hybrids in South Central PA

Lancaster County location

Notes: SEE BACKGROUND TAB

Cooperator: Meadow Vista Dairy

Brand	Hybrid	Traits*	Dry Matter %**	Yield Tons/ Acre***	CP %	NDF %	Lignin %	Starch NIR %	Starch IVSD[2] %	Ash %	Fat[3] %	NEL Mcal/lb	NDFD 30hr %NDF	NDFD 120hr %NDF	NDFD 240hr %NDF	uNDF 240hr %NDF	Pop. plants/ac	Relative Maturity
Early (99-104 day) RM Silage Hybrids																		
Doebler's PA Hybrids	3916GRQ	3	40.0	15.2	7.8	34.0	2.6	39.0	54.8	3.0	2.9	0.78	58.0	66.2	67.7	32.3	32,833	99
Masters Choice	MCT 4934	5	38.5	15.7	7.9	36.2	2.6	36.3	50.0	3.3	2.6	0.77	59.0	68.3	69.8	30.2	31,167	99
Hubner	H6225RCSS	32	36.6	15.5	7.3	41.6	2.7	32.3	57.3	3.2	2.6	0.75	59.6	69.5	71.0	29.0	34,000	102
Doebler's PA Hybrids	4318AMXT	26	36.4	20.2	7.8	33.3	2.4	40.0	56.0	3.1	2.7	0.79	59.9	70.1	71.8	28.2	33,667	103
Hubner	H6219RCSS	32	35.7	16.0	7.5	38.0	2.9	36.7	54.3	3.3	2.9	0.77	57.4	66.7	68.2	31.8	34,000	99
Doebler's PA Hybrids	4219AM	20	35.0	18.3	7.8	35.6	2.3	38.3	58.7	3.3	2.8	0.78	62.5	72.5	74.2	25.8	33,333	102
Local Seed Co.	LC0488SSX	32	34.9	15.0	7.2	39.5	2.9	34.0	61.2	3.1	2.7	0.76	58.1	67.0	68.4	31.6	34,000	104
Doebler's PA Hybrids	4115AMXT	26	34.7	15.9	7.1	38.3	2.5	35.0	59.4	3.4	2.6	0.76	61.3	71.9	73.7	26.3	32,667	104
Masters Choice	MCT 5375	7	34.3	14.5	7.5	36.8	2.6	36.0	58.4	3.1	2.8	0.77	58.2	68.1	69.5	30.5	32,833	103
Hubner	H6257RCSS	32	33.1	17.3	7.7	36.6	2.5	35.5	64.2	3.3	3.0	0.78	60.3	68.7	70.1	29.9	32,500	104
	99-104 day means		**35.9**	**16.3**	**7.6**	**37.0**	**2.6**	**36.3**	**57.4**	**3.2**	**2.8**	**0.77**	**59.4**	**68.9**	**70.4**	**29.6**	**33,100**	
Medium (105-110 day) RM Silage Hybrids																		
Agrigold	A635-54STX	32	38.3	17.9	6.8	38.9	2.7	36.4	60.5	3.1	2.9	0.77	61.1	70.6	72.0	28.0	34,000	105
Agrigold	A636-56STXRIB	32	37.9	15.9	7.3	35.7	2.5	38.2	53.3	3.0	2.8	0.78	60.5	69.6	71.1	28.9	34,000	106
Mid-Atlantic	MA8074	30	36.9	20.7	7.8	34.5	2.2	39.5	51.3	3.0	2.8	0.79	62.6	72.0	73.7	26.3	31,500	107
Mid-Atlantic	MA9063	Conv.	36.4	16.7	7.4	35.8	2.6	39.2	59.0	2.8	2.8	0.78	59.2	67.9	69.3	30.7	31,000	106
Dupont Pioneer	P0789AMXT	26	36.3	19.9	7.8	33.7	2.3	40.0	56.6	3.0	3.0	0.79	61.7	70.5	72.1	27.9	32,667	107
Local Seed Co.	LC0877VT2P	30	36.1	17.6	7.5	35.8	2.3	38.7	55.9	2.8	2.7	0.78	62.0	70.9	72.3	27.7	32,833	108
Augusta	Augusta 2756	3	35.9	17.5	7.4	34.4	2.4	39.3	54.1	3.1	2.7	0.78	59.7	70.0	71.5	28.5	34,000	106
Local Seed Co.	LC0657 SSXRIB	32	35.7	16.3	7.7	36.9	2.7	36.3	58.6	3.2	2.6	0.77	57.2	66.7	68.0	32.0	30,833	106
Mid-Atlantic	MA9086	Conv.	35.5	19.3	7.8	37.6	2.5	35.0	52.7	3.1	2.7	0.77	61.6	68.4	69.8	30.2	34,000	108
Chemgro	Chemgro 6859V3	5	34.6	17.4	7.2	36.2	2.4	37.7	59.9	3.0	2.7	0.78	61.2	70.0	71.4	28.6	33,333	108
Doebler's PA Hybrids	4717AMX	25	34.2	16.8	7.7	35.6	2.4	37.2	60.6	3.2	3.0	0.78	62.3	69.9	71.3	28.7	31,167	107
Augusta	Augusta 4759	5	33.7	18.1	7.6	39.4	2.5	33.4	63.6	3.1	2.7	0.77	61.7	70.3	71.7	28.3	34,000	109
Agrigold	A638-94STX	32	33.6	17.5	7.7	35.6	2.5	37.7	57.2	3.2	3.0	0.78	60.3	68.5	70.0	30.0	34,000	108
Dupont Pioneer	P0843AM	20	33.6	22.5	8.0	35.8	2.3	36.2	55.6	3.3	2.7	0.78	63.3	72.9	74.6	25.4	34,000	108
Augusta	Augusta 4858	2	33.6	14.8	7.7	36.1	2.5	36.8	55.8	3.3	2.9	0.78	60.2	68.4	69.8	30.2	32,680	108
Agrigold	A640-77STXRIB	32	32.8	19.0	7.6	36.2	2.7	36.3	54.7	3.2	3.1	0.78	58.7	67.6	68.9	31.1	33,000	110
Doebler's PA Hybrids	4919AM	20	32.7	15.8	7.6	36.5	2.3	37.0	66.8	3.1	2.6	0.77	61.2	71.8	73.3	26.7	32,500	109
Mycogen	MY09B16	35	32.1	18.7	7.2	38.6	2.7	32.8	63.1	3.2	2.7	0.76	58.6	67.9	69.3	30.7	31,333	105
Mycogen	TMF2H708	34	31.7	17.8	7.6	38.6	2.7	33.9	59.6	3.4	2.8	0.76	58.1	69.0	70.4	29.6	32,500	109
Masters Choice	MC 5790	Conv.	31.7	14.4	8.0	36.4	2.5	34.5	57.5	3.4	2.8	0.77	59.5	69.1	70.7	29.3	31,833	107
Dupont Pioneer	P0977AM	20	31.2	18.2	7.8	37.3	2.7	33.3	58.0	3.7	2.6	0.76	57.6	67.9	69.7	30.3	33,333	109
Doebler's PA Hybrids	5018AM	20	30.5	17.8	7.3	39.0	2.5	33.5	67.4	3.2	2.5	0.76	61.0	70.6	72.1	27.9	34,000	110
Channel	210-98STXRIB	32	29.9	18.8	7.7	39.2	2.6	31.4	65.4	3.2	2.6	0.76	60.4	68.2	69.6	30.4	34,000	110
Augusta	Augusta 4959	4	29.3	17.5	8.0	41.6	3.0	28.8	57.6	3.7	2.9	0.75	58.1	66.7	68.1	31.9	33,876	109
Channel	209-15STXRIB	32	28.5	17.2	8.1	40.6	2.9	30.3	65.0	3.6	2.8	0.75	59.2	67.3	68.6	31.4	32,667	109
	105-110 day means		**33.7**	**17.8**	**7.6**	**37.0**	**2.5**	**35.7**	**58.8**	**3.2**	**2.8**	**0.77**	**60.3**	**69.3**	**70.8**	**29.2**	**32,922**	
	Overall Mean		**34.3**	**17.4**	**7.6**	**37.0**	**2.6**	**35.9**	**58.4**	**3.2**	**2.8**	**0.77**	**60.0**	**69.2**	**70.7**	**29.3**	**32,973**	
	LSD(0.1)		**4.2**	**3.1**	**0.5**	**4.5**	**0.4**	**6.3**	**6.2**	**0.4**	**0.3**	**0.03**	**3.4**	**3.3**	**3.4**	**3.4**	**2,041**	
	CV%		**8.9**	**13.1**	**4.6**	**9.0**	**12.4**	**12.8**	**7.7**	**10.0**	**8.4**	**2.92**	**4.1**	**3.5**	**3.5**	**8.5**	**5**	

* 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] -IVSD = In Vitro Starch Digestibility 4 hr incubation, 1 mm grind as a % of Starch , [3] - Fat = Total Fatty Acids

Prepared by Greg Roth, 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 GT/CB/LL,3010A	Cry1Ab	ECB SWCB	---	GT LL
3	Agrisure 3000 GT, 3011A	Cry1Ab, mCry3A	ECB SWCB	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	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	FAW WBC RW	
8	Agrisure Viptera 3220 E-Z Refuge	Cry1Ab, Cry1F, Vip3A	BCW CEW ECB FAW SB SWCB TAW WBC	---	
9	Agrisure Duracade 5122 E-Z Refuge	Cry1Ab, Cry1F, mCry3A, eCry3.1Ab	BCW ECB FAW SB SWCB	FAW WBC RW	
10	Agrisure Duracade 5222 E-Z Refuge	Cry1Ab, Cry1F, Vip3A, mCry3A, eCry3.1Ab	BCW CEW ECB FAW SB SWCB TAW WBC	RW	
Herculex					
11	Herculex 1 (HX1)	Cry1F	BCW ECB FAW SB SWCB	FAW SWCB WBC	LL RR2 (most)
12	Herculex RW (HXRW)	Cry34/35Ab1	---	RW	
13	Herculex Xtra (HXX)	Cry1F, Cry34/35Ab1	BCW ECB FAW SB SWCB	FAW SWCB WBC RW	
Optimum					
14	TRIsect (CHR)	Cry1F, mCry3A	BCW ECB FAW SB SWCB	FAW SWCB WBC RW	LL RR2
15	Intrasect (YHR)	Cry1F, Cry1Ab	BCW ECB FAW SB SWCB	FAW WBC	LL RR2
16	Intrasect TRIsect (CYHR)	Cry1Ab, Cry1F, mCry3A	BCW ECB FAW SB SWCB	FAW WBC RW	LL RR2
17	Leptra (VYHR)	Cry1F, Cry1Ab, Vip3A	BCW CEW ECB FAW SB SWCB TAW WBC	---	LL RR2
18	Intrasect Xtra (YXR)	Cry1F, Cry1Ab, Cry34/35Ab1	BCW ECB FAW SB SWCB	FAW WBC RW	LL RR2
19	Intrasect Xtreme (CYXR)	Cry1F, Cry1Ab, mCry3A, Cry34/35Ab1	BCW ECB FAW SB SWCB	FAW WBC RW	LL RR2
20	AcreMax (AM)	Cry1F, Cry1Ab	BCW ECB FAW SB SWCB	FAW WBC	LL RR2
21	AcreMax CRW (AMRW)	Cry34/35Ab1	---	RW	LL RR2
22	AcreMax1 (AM1)	Cry1F, Cry34/35Ab1	BCW ECB FAW SB SWCB	FAW SWCB WBC RW	LL RR2
23	AcreMax Leptra (AML)	Cry1Ab, Cry1F, Vip3A	BCW ECB FAW SB SWCB TAW WBC *CEW*	---	LL RR2
24	AcreMax TRIsect (AMT)	Cry1F, Cry1Ab, mCry3A	BCW ECB FAW SB SWCB	FAW WBC RW	LL RR2
25	AcreMax Xtra (AMX)	Cry1F, Cry1Ab, Cry34/35Ab1	BCW ECB FAW SB SWCB	FAW WBC RW	LL RR2
26	AcreMax Xtreme (AMXT)	Cry1F, Cry1Ab, mCry3A, Cry34/35Ab1	BCW ECB FAW SB SWCB	FAW WBC RW	LL RR2
Yieldgard/Genuity					
27	YieldGard CB (YGCB)	Cry1Ab	ECB SWCB	---	RR2
28	YieldGard VT Rootworm	Cry3Bb1	---	RW	RR2
29	YieldGard VT Triple	Cry1Ab, Cry3Bb1	ECB SWCB	RW	RR2
30	Genuity VT Double PRO (or as RIB complete)	Cry1A.105, Cry2Ab2	CEW ECB FAW SB SWCB	CEW	RR2
31	Genuity VT Triple PRO (or as RIB complete)	Cry1A.105, Cry2Ab2, Cry3Bb1	CEW ECB FAW SB SWCB	CEW RW	RR2
32	Genuity SmartStax RIB Complete	Cry1A.105, Cry2Ab2, Cry1F, Cry3Bb1, Cry34/35Ab1	BCW CEW ECB FAW SB SWCB WBC	RW	LL RR2
33	Trecepta (or RIB complete)	Cry1A.105, Cry2Ab2,Vip3A	BCW CEW ECB FAW SB SWCB TAW WBC	---	RR2
Others					
34	Smartstax (or as Refuge Advanced)	Cry1A.105, Cry2Ab2, Cry1F, Cry3Bb1, Cry34/35Ab1	BCW CEW ECB FAW SB SWCB	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