



Tool Name

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Tool Version:
Last Updated:

Description:

This report provides independent and unbiased information for the evaluation of commercial corn grain and silage hybrids available in Pennsylvania. The corn hybrid evaluation program provides farmers, seed corn companies and university personnel with information on the relative performance of corn hybrids grown under Pennsylvania conditions. It should be used to supplement other sources of information, such as seed industry performance tests, other independent testing data, and on-farm performance records, when making hybrid selection decisions.

User Instructions:

The "Background" tab provides information specific to each trial location. This information is useful to evaluate selected hybrids on your farm under your growing conditions and practices. The "Table" tab contains all the data needed to make a final determination of the proper hybrids for your operation. The first factor to consider when using this report is hybrid maturity. Moisture or dry matter is a good indicator of hybrid maturity. Hybrids with lower moisture or high dry matter are generally adapted to shorter season environments. Identify hybrids in the list that you know are adapted to your area. Then, select hybrids based on the qualities you are looking for on your operation. For grain, high yielding hybrids should be selected based on moisture and maturity. Silage has many quality factors that will vary from farm to farm. Dry matter is a good place to start when selecting a silage hybrid, but working with a nutritionist will help determine what forage qualities will be best for your operation. We do not recommend using data from a single site, even if it is close to your farm, to make hybrid selection choices. It is best to use data averaged over multiple locations. The last tab "Trait Key" contains all the commercial designation of individual traits. The "Table" tab will provide the company specific nomenclature, but the "Trait Key" will give a more in depth explanation of these traits.

References:

This report is prepared by: Alex Hristov (PSU Animal Sciences), Sergio Francisco (PSU Animal Sciences), Chris Canale (Cargill), Hanna Wells(PSU Plant Science), Dayton Spackman (PSU Plant Science), Charlie White (PSU Plant Science)

Acknowledgement of Risk:

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2023

Penn State/PDMP Corn Silage Hybrid Performance Trial Results

Prepared by: Alex Hristov (PSU Animal Sciences), Sergio Francisco (PSU Animal Sciences), Chris Canale (Cargill), Hanna Wells (PSU Plant Science), Dayton Spackman (PSU Plant Science), Charlie White (PSU Plant Science)

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

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

Site:	Juniata
Cooperator	Reinford Farms
Planting Date	5/12/2023
Soil Type	
Herbicides	pre- post-
Previous Crop	
Tillage	
Starter Fertilizer	
Insecticide	
Manure	
Fertilizer	
Harvest Date	9/6/2023

Field Summary:

This was one of the better years for this location. Previous years this site has often not been used. Overall, stand counts were good, however there were some plots on the end where the field sloped off that had slightly lower stand counts. This field had good fertility and minimal pest pressure. Weed control was adequate.

Weather Summary:

Month	Precip. In.	GDD
May 12-31	0.20	160
June	4.20	517
July	10.30	772
August	5.50	661
September 1-6	2.70	141
Seasonal Total	22.90	2251

Precip. Data: <https://climate.com>

GDD data: <http://climatesmartfarming.org/tools/csf-growing-degree-day-calculator/>

Penn State/PDMP Corn Silage Hybrid Testing Program 2023

Late maturity (110-120) day RM silage hybrids in Port Royal, PA



Notes: SEE BACKGROUND TAB

Cooperator: Reinford Farms

Brand	Hybrid	Traits ¹	Relative Maturity	Pop. Plants/ac	Dry Matter % ²	NIRS ³					FDMS ⁴			WC ⁵	Fresh Yield tons/ac ⁷	OM Yield tons/ac ⁸	DOM Yield tons/ac ⁹	OMD % ¹⁰	
						Crude Protein %DM	Lignin %DM	Ash %DM	Starch %DM	TFA %DM	NDFom %DM	uNDF 240 %DM	NDFD 30 %NDF	IVSD %Starch ⁶					
111-114 day hybrids																			
Growmark FS	FS 6306T RIB	37	113	34,000	33.8	7.4	2.7	2.1	44.5	2.6	30.3	10.5	49.6	51.2	23.4	8.0	4.4	54.4	
Kings Agriseeds	RT 61T99-D2	15	111	34,000	33.3	7.8	2.8	2.3	39.2	2.3	33.7	11.7	50.8	50.1	20.7	7.1	3.9	54.5	
Dekalb	DKC64-44RIB	32	114	34,000	33.3	7.5	2.7	2.0	42.1	2.6	32.1	11.1	51.3	49.6	22.2	7.6	4.2	54.4	
Channel	212-40VT4PRIB	46	112	34,000	33.2	7.2	2.5	2.4	43.5	2.6	30.0	10.3	52.0	49.6	23.8	8.1	4.4	54.4	
Mid-Atlantic	MA5124VIP3110	12	112	34000	33.1	7.2	3.1	2.5	41	2.6	32.5	12.7	47.7	45.7	24	8.2	4.1	50.7	
Pioneer	P14830Q	28	114	34,000	33.1	7.7	2.5	2.4	45.6	2.8	28.5	9.5	52.0	47.3	24.4	8.4	4.5	53.3	
Mid-Atlantic	MA5144D	14	114	34,005	33.1	7.7	2.7	2.7	39.3	2.5	33.2	11.6	52.3	49.4	24.4	8.3	4.5	54.6	
Seed Consultants	SC1134AM	1	113	34,000	33.0	7.8	2.6	2.5	43.2	2.7	30.0	10.5	52.0	46.3	24.7	8.4	4.5	52.9	
Revere Seed	1307 TCRIB	37	113	34,000	32.8	7.1	2.9	2.1	41.5	2.5	33.0	11.8	49.4	54.7	20.0	6.9	3.8	56.0	
Hubner	H6755RCSS	32	114	32,667	32.8	7.3	2.7	2.1	42.9	2.9	32.1	11.2	52.4	53.6	22.7	7.8	4.4	56.7	
Dekalb	DKC61-40RIB	32	111	34,000	32.2	7.6	2.6	2.4	43.7	2.7	30.3	10.6	51.2	48.9	22.2	7.6	4.1	53.9	
Growmark FS	FS 6424V RIB	43	114	34,000	32.1	7.9	3.2	2.7	36.2	2.3	35.5	13.2	49.2	46.7	22.3	7.6	4.0	52.3	
Masters Choice	MCT6367-D	15	113	32,667	31.8	7.1	2.8	2.4	41.8	2.7	28.7	11.5	50.6	50.6	19.3	6.6	3.6	54.3	
Kings Agriseeds	RT 64T39-D1	14	114	34,000	31.4	7.3	3.0	2.6	37.8	2.3	34.8	12.6	50.7	53.5	23.8	8.1	4.5	55.9	
Seed Consultants	SC1122Q	28	112	33,953	31.2	7.5	2.7	2.4	41.0	2.5	31.9	11.4	51.3	52.1	22.2	7.6	4.2	55.2	
Growmark FS	FS 6202V RIB	43	112	31,833	31.0	7.5	2.9	2.5	38.3	2.5	33.5	12.1	50.6	53.0	20.0	6.8	3.8	55.8	
Seed Consultants	SC1112AM	1	111	34,000	30.4	7.7	2.9	2.5	42.0	2.5	31.9	11.5	50.1	50.7	23.7	8.1	4.4	54.4	
Dekalb	DKC61-80RIB	32	111	34,000	30.1	7.2	3.2	2.3	37.4	2.4	36.1	13.5	49.9	55.7	20.0	6.9	3.9	56.4	
Brevant	B12F08Q	28	112	34,000	30.1	8.3	2.8	2.5	39.4	2.6	32.5	11.7	51.6	48.7	22.7	7.7	4.2	54.3	
					111-114 day means	32.2	7.5	2.8	2.4	41.1	2.6	32.1	11.5	50.8	50.4	22.4	7.7	4.2	54.4
115-118 day hybrids																			
Growmark FS	FS 6595V RIB	43	115	34,000	33.8	7.9	2.7	2.2	40.1	2.5	32.3	11.0	52.1	49.7	25.0	8.6	4.7	54.9	
Revere Seed	1839 TCRIB	37	118	34,000	32.7	7.4	3.2	2.4	39.8	2.6	35.2	13.1	48.9	52.7	21.3	7.3	4.0	54.8	
Revere Seed	1524 DV	15	115	34,000	32.6	7.1	2.8	2.2	41.9	2.3	32.8	11.9	48.9	53.2	20.9	7.1	3.9	54.8	
Dekalb	DKC115-81RIB	33	115	34,000	32.3	7.7	2.8	2.6	40.7	2.4	33.0	11.5	50.9	47.0	23.9	8.2	4.3	52.8	
Chemgro	7539D4Z	14	115	34,000	31.6	7.3	2.9	2.3	39.2	2.4	34.6	12.1	51.5	54.9	23.2	7.9	4.5	56.9	
Chemgro	7789RSX	32	117	34,000	31.5	7.4	3.1	2.2	36.5	2.5	37.1	13.1	52.8	53.3	22.0	7.5	4.3	56.6	
Seed Consultants	SC1183AM	1	118	32,667	31.5	7.4	2.7	2.3	40.2	2.6	32.1	10.9	52.5	48.8	22.3	7.6	4.2	54.5	
Mid-Atlantic	MA5161DV	14	116	34,000	31.3	7.6	2.8	2.4	38.6	2.2	33.8	11.4	51.1	53.9	24.1	8.2	4.7	56.4	
Pine Creek Seed	R6812GT	9	118	34,000	31.1	8.1	2.9	2.6	36.2	2.4	34.8	11.8	52.1	49.8	22.1	7.5	4.2	55.1	
Seed Consultants	SC1154AM	1	115	34,000	31.0	7.9	2.6	2.5	38.0	2.4	33.1	10.2	55.6	50.2	23.6	8.1	4.6	56.6	
Channel	215-99STXRIB	32	115	34,000	30.8	7.4	3.3	2.3	37.8	2.5	35.9	13.8	48.2	51.2	23.9	8.2	4.4	53.8	
Agrigold	A645-16	32	115	34,000	30.7	7.8	3.1	2.4	34.2	2.4	37.0	13.0	52.1	51.1	21.2	7.2	4.0	55.5	
Dekalb	DKC67-66RIB	32	117	33,333	30.3	7.7	3.2	2.5	36.3	2.4	35.4	13.7	47.2	52.4	22.9	7.8	4.2	54.1	
Pioneer	P17677Q	28	117	34,000	30.1	7.9	2.9	2.6	38.1	2.3	33.7	11.8	51.7	52.1	26.3	9.0	5.0	55.9	
Channel	215-15SSPRIB	35	115	34,000	29.3	7.5	3.2	3.0	35.4	2.4	36.1	13.2	50.7	53.2	23.0	7.8	4.4	56.0	
Agrigold	A647-35	15	117	34,000	28.4	8.0	2.9	3.0	37.4	2.4	33.2	11.9	52.0	49.2	21.5	7.3	4.0	54.7	
					115-118 day means	31.2	7.6	2.9	2.5	38.2	2.4	34.4	12.2	51.1	51.4	23.0	7.8	4.3	55.2
					Overall Mean	31.7	7.6	2.9	2.4	39.7	2.5	33.2	11.8	50.9	50.9	22.7	7.7	4.2	54.8
					LSD(0.1)	2.1	0.4	0.4	0.4	4.2	0.2	3.2	1.8	2.1	4.6	3.0	1.0	0.5	2.5
					CV%	4.8	4.1	10.4	12.7	7.7	6.0	6.8	11.3	3.0	6.6	9.6	9.7	9.2	3.3

Penn State/PDMP Corn Silage Hybrid Testing Program 2023

Late maturity (110-120) day RM silage hybrids in Port Royal, PA



PennState Extension
College of Agricultural Sciences



Notes: SEE BACKGROUND TAB

Cooperator: Reinford Farms

Brand	Hybrid	Traits ¹	Relative Maturity	Pop. Plants/ac	Dry Matter % ²	NIRS ³					FDMS ⁴			WC ⁵	Fresh Yield tons/ac ⁷	OM Yield tons/ac ⁸	DOM Yield tons/ac ⁹	OMD % ¹⁰
						Crude Protein %DM	Lignin %DM	Ash %DM	Starch %DM	TFA %DM	uNDF 240 %DM	NDFD 30 %NDF	IVSD %Starch ⁶					

¹ Traits: See tab " Trait Key" for individual trait designation.

² Dry Matter: Tables are sorted by dry matter. Avoid making comparisons with hybrids that differ significantly in dry matter.

³ NIRS: Near Infrared Spectroscopy

⁴ FDMS: In 2022 Cumberland Valley Analytical Services introduced a new in vitro fiber digestibility system, called Feed Degradation Modeling System (FDMS), to predict NDFD for all major forage classes, including fresh corn silage.

⁵ WC: Wet Chemistry

⁶ IVSD: Starch digestibility (% of starch) is analyzed by an in vitro wet chemistry method on samples ground through a 1-mm screen and incubated for 4 hours (IVSD).

⁷ Fresh Yield: Silage yields are expressed on a 35 percent DM basis; all other parameters are expressed on a dry matter basis.

⁸ OM Yield: Silage yield (tons/ac) expressed on an organic matter (OM) basis.

⁹ DOM Yield: Yield of digestible organic matter.

¹⁰ OMD: Organic Matter Digestibility - Please see "OMD Story" tab for information on how to use this column

NS = Not Significant

Prepared by: Alex Hristov (PSU Animal Sciences), Sergio Francisco (PSU Animal Sciences), Chris Canale (Cargill), Hanna Wells(PSU Plant Science), Dayton Spackman (PSU Plant Science), Charlie White (PSU Plant Science)

Handy BT Trait Table - https://www.texasinsects.org/uploads/4/9/3/0/49304017/bttraittable_feb_2023.pdf

Trait ID #	Trait packages, listed A-Z = former name if applicable	Bag-Tag code	Toxins in package**** Font type denotes target Caterpillar or rootworm	BCW	CEW	ECB	FAW	SB	SCB	SWCB	TAW	WBC	CRW	Resistance cases for all Bts in package	Non-Bt refuge, cornbelt	Herbicide tolerance
0	Conventional															
1	AcreMax	AM	Cry1Ab - Cry1F	x	x	x	x	x	x	x				CEW FAW WBC	5% in bag	GLY LL
2	AcreMax CRW	AMRW	Cry34Ab1 - Cry35Ab1										x	NCR WCR	10% in bag	GLY LL
3	AcreMax1	AM1	Cry1F - Cry34Ab1 - Cry35Ab1	x		x	x	x	x	x			x	ECB FAW NCR SWCB WBC WCR	10% in bag 20% ECB	GLY LL
4	AcreMax Leptra	AML	Cry1Ab - Cry1F - Vip3A	x	x	x	x	x	x	x	x	x			5% in bag	GLY LL
5	AcreMax TRIssect	AMT	Cry1Ab - Cry1F - mCry3A	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	10% in bag	GLY LL
6	AcreMax Xtra	AMX	Cry1Ab - Cry1F - Cry34Ab1 - Cry35Ab1	x	x	x	x	x	x	x			x	CEW FAW NCR WBC WCR	10% in bag	GLY LL
7	AcreMax Xtreme	AMXT	Cry1Ab - Cry1F - Cry34Ab1 - Cry35Ab1 - mCry3A	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	5% in bag	GLY LL
8	Agrisure 3010	3010	Cry1Ab		x	x				x	x			CEW	20%	GLY LL
9	Agrisure 3000 GT & 3011A	3000GT 3011A	Cry1Ab - mCry3A		x	x				x	x		x	CEW WCR	20%	GLY LL
10	Agrisure Above = Agrisure 3120EZ	AA	Cry1Ab - Cry1F	x	x	x	x	x	x	x				CEW FAW WBC	5% in bag	GLY LL - check bag
11	Agrisure Total = Agrisure 3122EZ	AT	Cry1Ab - Cry1F - Cry34Ab1 - Cry35Ab1 - mCry3A	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	5% in bag	GLY LL - check bag
12	Agrisure Viptera 3110	3110	Cry1Ab - Vip3A	x	x	x	x	x	x	x	x	x			20%	GLY LL
13	Agrisure Viptera 3111	3111	Cry1Ab - Vip3A - mCry3A	x	x	x	x	x	x	x	x	x	x	WCR	20%	GLY LL
14	Duracade = AgrisureDuracade 5122EZ	D	Cry1Ab - Cry1F - eCry3.1Ab - mCry3A	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	5% in bag	GLY LL - check bag
15	Duracade Viptera = AgrisureDuracade 5222EZ	DV	Cry1Ab - Cry1F - Vip3A - eCry3.1Ab - mCry3A	x	x	x	x	x	x	x	x	x	x	WCR	5% in bag	GLY LL - check bag
16	Duracade Viptera Z3 = AgrisureDuracade 5332EZ	DVZ	Cry1Ab - Cry1A.105 - Cry2Ab2 - Vip3A - eCry3.1Ab - mCry3A	x	x	x	x	x	x	x	x	x	x	WCR	5% in bag	GLY LL - check bag
17	Herculex I	HXI	Cry1F	x		x	x	x	x	x				ECB FAW SWCB WBC	20%	GLY LL
18	Herculex RW	HXRW	Cry34Ab1 - Cry35Ab1										x	NCR WCR	20%	GLY LL
19	Herculex XTRA	HXX	Cry1F - Cry34Ab1 - Cry35Ab1	x		x	x	x	x	x			x	ECB FAW NCR SWCB WBC WCR	20%	GLY LL
20	Intrasect	YHR	Cry1Ab - Cry1F	x	x	x	x	x	x	x				CEW FAW WBC	5%	GLY LL
21	Intrasect TRIssect	CYHR	Cry1Ab - Cry1F - mCry3A	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	20%	GLY LL
22	Intrasect Xtra	YXR	Cry1Ab - Cry1F - Cry34Ab1 - Cry35Ab1	x	x	x	x	x	x	x			x	CEW FAW NCR WBC WCR	20%	GLY LL
23	Intrasect Xtreme	CYXR	Cry1Ab - Cry1F - Cry34Ab1 - Cry35Ab1 - mCry3A	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	5%	GLY LL
24	Leptra	VYHR	Cry1Ab - Cry1F - Vip3A	x	x	x	x	x	x	x	x	x			5%	GLY LL
25	Powercore	PW	Cry1A.105 - Cry2Ab2 - Cry1F	x	x	x	x	x	x	x				CEW WBC	5%	GLY LL
26	Powercore Refuge Advanced	PWRA	Cry1A.105 - Cry2Ab2 - Cry1F	x	x	x	x	x	x	x				CEW WBC	5% in bag	GLY LL
27	Powercore Enlist Refuge Advanced	PWE	Cry1A.105 - Cry2Ab2 - Cry1F	x	x	x	x	x	x	x				CEW WBC	5% in bag	GLY LL 2,4-D fops
28	QROME	Q	Cry1Ab - Cry1F - Cry34Ab1 - Cry35Ab1 - mCry3A	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	5% in bag	GLY LL
29	SmartStax	SS, SX	Cry1A.105 - Cry2Ab2 - Cry1F - Cry3Bb1 - Cry34Ab1 - Cry35Ab1	x	x	x	x	x	x	x			x	CEW NCR WBC WCR	5%	GLY LL
30	SmartStax Refuge Advanced	SXRA	Cry1A.105 - Cry2Ab2 - Cry1F - Cry3Bb1 - Cry34Ab1 - Cry35Ab1	x	x	x	x	x	x	x			x	CEW NCR WBC WCR	5% in bag	GLY LL
31	SmartStax Enlist	SSE	Cry1A.105 - Cry2Ab2 - Cry1F - Cry3Bb1 - Cry34Ab1 - Cry35Ab1	x	x	x	x	x	x	x			x	CEW NCR WBC WCR	5% in bag	GLY LL 2,4-D fops
32	SmartStax RIB Complete	SS SSRIB	Cry1A.105 - Cry2Ab2 - Cry1F - Cry3Bb1 - Cry34Ab1 - Cry35Ab1	x	x	x	x	x	x	x			x	CEW NCR WBC WCR	5% in bag	GLY LL
33	SmartStax PRO Refuge Advanced	SSPro	Cry1A.105 - Cry2Ab2 - Cry1F - Cry3Bb1 - Cry34Ab1 - Cry35Ab1 - dvSnf7	x	x	x	x	x	x	x			x	CEW WBC	5% in bag	GLY LL
34	SmartStax PRO Enlist Refuge Advanced		Cry1A.105 - Cry2Ab2 - Cry1F - Cry3Bb1 - Cry34Ab1 - Cry35Ab1 - dvSnf7	x	x	x	x	x	x	x			x	CEW WBC	5% in bag	GLY LL 2,4-D fops
35	SmartStax PRO with RNAi Technology	SSPRORIB	Cry1A.105 - Cry2Ab2 - Cry1F - Cry3Bb1 - Cry34Ab1 - Cry35Ab1 - dvSnf7	x	x	x	x	x	x	x			x	CEW WBC	5% in bag	GLY LL
36	Trecepta	TRE,TRC	Cry1A.105 - Cry2Ab2 - Vip3A	x	x	x	x	x	x	x	x	x			5%	GLY
37	Trecepta RIB Complete	TRERIB TRCRIB	Cry1A.105 - Cry2Ab2 - Vip3A	x	x	x	x	x	x	x	x	x			5% in bag	GLY
38	TRIssect	CHR	Cry1F - mCry3A	x		x	x	x	x	x			x	ECB FAW SWCB WBC WCR	20%	GLY LL
39	Viptera = AgrisureViptera 3220EZ	V	Cry1Ab - Cry1F - Vip3A	x	x	x	x	x	x	x	x	x			5% in bag	GLY LL - check bag
40	Viptera Z3 = AgrisureViptera 3330EZ	VZ	Cry1Ab - Cry1A.105 - Cry2Ab2 - Vip3A	x	x	x	x	x	x	x	x	x			5% in bag	GLY LL - check bag
41	Vorceed Enlist	V	Cry1A.105 - Cry2Ab2 - Cry1F - Cry3Bb1 - Cry34Ab1 - Cry35Ab1 - dvSnf7	x	x	x	x	x	x	x			x	CEW NCR WBC	5% in bag	GLY LL 2,4-D fops
42	VT Double PRO	VT2P VT2PRO	Cry1A.105 - Cry2Ab2		x	x	x	x	x	x				CEW	5%	GLY
43	VT2P RIB Complete	VT2PRIB	Cry1A.105 - Cry2Ab2		x	x	x	x	x	x				CEW	5% in bag	GLY
44	VT TriplePRO	VT3P	Cry1A.105 - Cry2Ab2 - Cry3Bb1		x	x	x	x	x	x			x	CEW NCR WCR	20%	GLY
45	VT3P RIB Complete	VT3PRIB	Cry1A.105 - Cry2Ab2 - Cry3Bb1		x	x	x	x	x	x			x	CEW NCR WCR	10% in bag	GLY

46	VT4Pro w/RNAi Tech.	VT4PRO	Cry1A.105 - Cry2Ab2 - Vip3A - Cry3Bb1 - <i>dvSnf7</i>	x	x	x	x	x	x	x	x	x	x		5% in bag	GLY
47	YieldGard Corn Borer	YGCB	Cry1Ab		x	x			x	x				CEW	20%	GLY
48	YieldGard Rootworm	YGRW	Cry3Bb1										x	NCR WCR	20%	GLY
49	YieldGard VT Triple	VT3	Cry1Ab - Cry3Bb1		x	x			x	x			x	CEW NCR WCR	20%	GLY

The OMD Index

The digestibility of nutrients in corn silage is paramount when determining nutritional value. Starch and NDF are responsible for much of the digestible energy in corn silage. In order to give dairy producers and nutritionist a tool to evaluate corn silage hybrids, we developed a new digestibility index, called the Organic Matter Digestibility Index (OMDI or just OMD), and is based on digestibility of protein, fat, NDF, and starch. The sum of which makes up approximately 86-88% of the organic matter in corn silage.

The OMD index represents the digestible portion of silage organic matter and is based on chemical analyses only. It does not predict dry matter intake or milk production, although numerous studies clearly show that digestibility of forage organic matter is directly related to lactation performance of dairy cows. The OMD index does not represent the absolute digestibility of silage organic matter, as this can be reliably determined only in experiments with live animals. But, OMD is representative of the potentially digestible organic matter of the whole plant and can be used to compare silage hybrids. Furthermore, simulation analyses using the Cornell Net Carbohydrate and Protein System (CNCPS v. 6.55; Cornell University, Ithaca, NY) show that OMD correlates reasonably well with model-predicted milk production of dairy cows fed a standard diet containing approx. 40% corn silage (dry matter basis).

How is the OMD Index Used?

Feeding value of corn silage is mostly associated with digestibility of NDF or starch. A long-standing goal of PDMP is to create a single measure of silage nutritive value using several variables associated with digestibility. Traditional variables, crude protein (accounted for fiber-bound nitrogen), NDF, starch, lignin, and fat, are combined with digestibility determinations for NDF (FDMS NDFD30*) and starch (IVSD; 4-hour, 1-mm grind). Once combined, these digestibility coefficients sum to predict OMD.

* FDMS: In 2022 Cumberland Valley Analytical Services introduced a new in vitro fiber digestibility system, called Feed Degradation Modeling System (FDMS), to predict NDFD for all major forage classes, including fresh corn silage. We determined the relationship between FDMS NDFD30 and wet chemistry NDFD30 was strong enough to use FDMS NDFD30, and avoid the extra charge for wet chemistry NDFD30. Hence, FDMS NDFD30 will be used to calculate OMD. Hence, FDMS NDFD30 = 100

The OMD Index is calculated using the following equation: $OMDI (\%) = \frac{\{[(\text{crude protein} - \text{NDFCP}) \times 0.89] + (\text{total fatty acids} \times 0.75) + (\text{starch} \times \text{IVSD} \div 100) + [(\text{FDMS NDFom} - \text{lignin}) \times \text{FDMS NDFD30} \div 100]\}}{[(\text{crude protein} - \text{NDFCP}) + \text{total fatty acids} + \text{starch} + (\text{aNDFom} - \text{lignin})]} \times 100$.

Where: OMDI (%) is Organic Matter Digestibility Index; crude protein, total fatty acids, starch, NDFCP (NDF-bound crude protein), aNDFom (ash-free basis, amylase-treated NDF), and lignin (ash-free) are expressed as % of corn silage dry matter; 0.89 is assumed (based on literature data) coefficient of digestibility of silage crude protein; 0.75 is assumed (based on literature data) coefficient of digestibility of silage total fatty acids; IVSD is starch digestibility (by wet chemistry at 4-hour and sample ground through a 1-mm sieve) expressed as % of starch; and FDMS NDFD30.

Use of OMDI: The OMD index is intended to represent the digestible portion of silage dry matter and is based on chemical analyses. OMD does not represent the absolute digestibility of silage organic matter, but it is representative of the potentially digestible organic matter and can be used when comparing silage hybrids.

Simply put, the higher the OMD value, the higher the overall expected digestibility of the silage. OMD reflects the digestibility of key nutrients within the entire plant. Producers without carryover of silage should consider the interaction of OMD and DOM (digestible organic matter yield per acre) as yield of digestible organic matter will be equally as relevant as OMD.

Conclusion

Organic matter digestibility is not a new measure. For years, researchers and nutritionists have used digestibility estimates to formulate rations for dairy cattle. Today, integrating these data is a useful practice to gauge silage value and match hybrid to farm needs. Put simply, OMD measures whole plant digestibility. Emphasis is on digestibility of all main nutrients. In the end, we hope OMD serves to facilitate discussion among producer, seed consultant, and dairy nutritionist as to which hybrids offer the best nutrient value for dairy cows.