



Dual Column Trial Report

North Dakota - Cavalier

Tracking Name: OFGC16088504_0041 **Exp Type:** Genetic
Business Partner: Paulson; Mike **County:** Cavalier
State: North Dakota **Planting Date:** 5/10/2016
Harvest Date: 11/17/2016

Entry #	Brand	Hybrid/Brand	Yield (bu/a 56#)	Factor (s)	Mst (%)	AGI	Yield Rank	YM Verified Yld	YM Verified Mst (%)	YM AGI	YM Yield Rank
1	Pioneer	P7632AM	166.7		22.2	\$452	6				0
2	Pioneer	P7958AM	166.2		20.4	\$463	7				0
3	Pioneer	P7332R	162.2		20.1	\$454	8				0
4	Pioneer	P7632AM	180.8		22.2	\$490	2				0
5	Pioneer	P7958AM	172.9		20.9	\$478	4				0
6	Pioneer	P8210HR	189.7		22.8	\$510	1				0
7	Pioneer	P8542AM	178.0		22.0	\$484	3				0
8	Pioneer	P8673R	168.0		22.2	\$456	5				0

North Dakota - Pembina

Tracking Name: OFGC15075199_0006 **Exp Type:** Genetic
Business Partner: Smith; Joel **County:** Pembina
State: North Dakota **Planting Date:** 4/30/2015
Harvest Date: 10/19/2015

Entry #	Brand	Hybrid/Brand	Yield (bu/a 56#)	Factor (s)	Mst (%)	AGI	Yield Rank	YM Verified Yld	YM Verified Mst (%)	YM AGI	YM Yield Rank
1	Pioneer	P8673R	194.7		19.5	\$549	1				0
2	DeKalb	DKC32-92RIB	181.2		17.8	\$523	5				0
3	DeKalb	DKC33-78RIB	194.4		20.6	\$540	2				0
4	Pioneer	P8210R	175.5		18.3	\$503	6				0
5	Pioneer	P7332R	172.0		15.4	\$513	7				0
6	Pioneer	P7632AM	182.6		18.8	\$520	4				0
7	Pioneer	P7958AM	182.8		17.7	\$529	3				0

North Dakota - Pembina

Tracking Name: OFGC15075199_0003 **Exp Type:** Genetic
Business Partner: B & B Farms **County:** Pembina
State: North Dakota **Planting Date:** 4/25/2015
Harvest Date: 10/20/2015

Entry #	Brand	Hybrid/Brand	Yield (bu/a 56#)	Factor (s)	Mst (%)	AGI	Yield Rank	YM Verified Yld	YM Verified Mst (%)	YM AGI	YM Yield Rank
1	DeKalb	DKC31-10RIB	142.5		14.0	\$428	4				0
2	Pioneer	P7332R	155.1		14.6	\$465	1				0
3	Pioneer	P7632AM	144.0		14.5	\$432	3				0
4	Pioneer	P7958AM	147.2		14.9	\$442	2				0

North Dakota - Pembina

Tracking Name: OFGC15075200_0002 **Exp Type:** Genetic
Business Partner: B & B Farms **County:** Pembina
State: North Dakota **Planting Date:** 4/25/2015
Harvest Date: 10/20/2015

Entry #	Brand	Hybrid/Brand	Yield (bu/a 56#)	Factor (s)	Mst (%)	AGI	Yield Rank	YM Verified Yld	YM Verified Mst (%)	YM AGI	YM Yield Rank
1	Pioneer	P8210HR	146.3		16.7	\$429	4				0
2	Pioneer	P8542AM X	151.2		17.9	\$436	2				0
3	Pioneer	P8673R	147.4		16.4	\$434	3				0
4	Pioneer	P8673AM	141.5		20.6	\$393	5				0
5	Pioneer	P8639AM	155.8		18.9	\$443	1				0

North Dakota - Pembina

Tracking Name: OFGC16088504_0012 Exp Type: Genetic
 Business Partner: Smith; Joel County: Pembina
 State: North Dakota Planting Date: 4/30/2016
 Harvest Date: 10/19/2016

Entry #	Brand	Hybrid/Brand	Yield (bu/a 56#)	Factor (s)	Mst (%)	AGI	Yield Rank	YM Verified Yld	YM Verified Mst (%)	YM AGI	YM Yield Rank
2	DeKalb	DKC30-19RIB	174.7		22.5	\$472	5				0
3	Pioneer	P7332R	167.6		21.0	\$463	7				0
4	Pioneer	P7632AM	189.2		21.8	\$516	2				0
5	Pioneer	P7958AM	160.6		21.2	\$442	8				0
6	Pioneer	P8210HR	191.7		23.0	\$514	1				0
7	Pioneer	P8542AM	186.3		22.6	\$502	3				0
8	Pioneer	P8673R	171.5		21.6	\$469	6				0
9	DeKalb	DKC31-10RIB	180.4		21.6	\$494	4				0

North Dakota - Pembina

Tracking Name: OFGC16090740_0001 Exp Type: Genetic
 Business Partner: Fitzsimonds; Ryan County: Pembina
 State: North Dakota Planting Date: 5/20/2016
 Harvest Date: 6/3/2016

Entry #	Brand	Hybrid/Brand	Yield (bu/a 56#)	Factor (s)	Mst (%)	AGI	Yield Rank	YM Verified Yld	YM Verified Mst (%)	YM AGI	YM Yield Rank
1	Pioneer	P7632AM	196.2		19.2	\$556	1				0
2	Pioneer	P7632AM	181.0		19.0	\$514	8				0
3	Pioneer	P7958AM	160.3		17.4	\$466	9				0
4	Pioneer	P7958AM	153.8		17.3	\$447	10				0
5	Pioneer	P8210HR	186.2		18.6	\$532	5				0
6	Pioneer	P8210HR	181.9		18.4	\$521	7				0
7	Pioneer	P8542AM	191.6		19.0	\$544	4				0
8	Pioneer	P8542AM	196.1		18.6	\$560	2				0
9	Pioneer	P8761AM	185.4		20.0	\$519	6				0
10	Pioneer	P8761AM	194.4		19.6	\$547	3				0

North Dakota - Pembina

Tracking Name: OFGC16090739_0001 Exp Type: Genetic
 Business Partner: B & B Farms County: Pembina
 State: North Dakota Planting Date: 4/30/2016
 Harvest Date: 11/17/2016

Entry #	Brand	Hybrid/Brand	Yield (bu/a 56#)	Factor (s)	Mst (%)	AGI	Yield Rank	YM Verified Yld	YM Verified Mst (%)	YM AGI	YM Yield Rank
1	Pioneer	P7332R	184.1		16.3	\$543	4				0
2	Pioneer	P7632AM	160.5		16.0	\$475	9				0
3	Pioneer	P7958AM	172.1		16.1	\$509	7				0
4	Pioneer	P8210HR	173.7		17.3	\$505	6				0
5	Pioneer	P8542AM	189.8		17.4	\$551	2				0
6	Pioneer	P8673R	185.3		17.3	\$539	3				0
7	Pioneer	P8761AM	216.6		18.6	\$619	1				0
8	Pioneer	P7958AM	182.7		16.6	\$536	5				0
9	Pioneer	P7632AM	165.7		17.2	\$483	8				0

North Dakota - Pembina

Tracking Name: OFGC16090744_0001 Exp Type: Genetic
 Business Partner: B & B Farms County: Pembina
 State: North Dakota Planting Date: 4/30/2016
 Harvest Date: 11/16/2016

Entry #	Brand	Hybrid/Brand	Yield (bu/a 56#)	Factor (s)	Mst (%)	AGI	Yield Rank	YM Verified Yld	YM Verified Mst (%)	YM AGI	YM Yield Rank
1	DeKalb	DKC32-12RIB	221.3		16.3	\$652	2				0
2	DeKalb	DKC27-55	190.5		16.8	\$558	9				0
3	Pioneer	P8761AM	221.4		18.3	\$635	1				0
4	Pioneer	P8673R	193.0		16.9	\$564	8				0
5	Pioneer	P8542AM	207.6		17.9	\$599	5				0
6	Pioneer	P8210HR	208.1		17.7	\$602	4				0
7	Pioneer	P7958AM	179.7		16.1	\$531	11				0
8	Pioneer	P7632AM	177.8		17.3	\$517	12				0
9	Pioneer	P7332R	198.7		16.8	\$582	7				0
10	Pioneer	P8761AM	219.2		18.6	\$626	3				0
11	Pioneer	P8673R	182.3		16.8	\$534	10				0
12	Pioneer	P8542AM	203.7		17.3	\$592	6				0
13	Pioneer	P7958AM	164.4		16.5	\$483	13				0



Notes and Explanations:

(1) YIELD = (100 - MOISTURE) x (LBS. OF GRAIN) x (FACTOR) ÷ (HARVESTED LENGTH IN FEET) ÷ (HARVESTED WIDTH IN INCHES). Not applicable if weighed with Yield Monitor. Yield monitor yields are estimates of yield taken from the yield monitor data files. Yield estimate calculations are dependent on the equipment and software manufacturer. Yield estimates from a yield monitor can vary significantly from actual yields of hybrids/varieties at a single point, within areas of a field or in aggregate. Any number of factors such as inappropriate calibration, machine settings, machine dynamics, grain characteristics, temperature, slope, operator error, etc. can impact the accuracy of yield monitor yield estimates.

Temperature, rainfall and solar radiation are estimates based on available data from weather stations in the area. Crop growth indices for individual hybrids, including estimates of silking and maturity dates, are produced by the proprietary EnClass® crop growth model using this weather information. Though crop growth indices produced by the model are calibrated based on historical field observations of products, they may not accurately reflect the growth stage at an individual location.

Where shown, soil information is provided by Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Soil Survey Geographic (SSURGO) Database available online at <http://soildatamart.nrcs.usda.gov>.

Information and results contained herein represent the average of all comparisons across the area indicated. Results may not predict future performance and may not be complete. Testing accuracy, area variations and a limited environmental base can give misleading results. Multi-year and multi-location information is a better predictor of future performance. Please use this information as only one component of your product positioning decision.

Insecticide Seed Treatment (IST): Indicates insecticide seed treatment was purchased on the seed. Fungicide Seed Treatment (FST): Indicates fungicide seed treatment was purchased on the seed. Nematicide Seed Treatment (NST): Indicates nematicide seed treatment was purchased on the seed.

**** Since the trait/segment information is derived from each competitor's own product information, DuPont Pioneer makes no representations or warranties as to its accuracy, completeness or suitability.

All Pioneer products are hybrids unless designated with AM1, AM, AMRW, AMT, AMX and AMXT, in which case they are brands.

Segments:

HX1 - Contains the Herculex® I Insect Protection gene which provides protection against European corn borer, southwestern corn borer, black cutworm, fall armyworm, western bean cutworm, lesser corn stalk borer, southern corn stalk borer, and sugarcane borer; and suppresses corn earworm. HXRW - The Herculex® RW insect protection trait contains proteins that provide enhanced resistance against western corn rootworm, northern corn rootworm and Mexican corn rootworm. HXX - Herculex® XTRA contains the Herculex I and Herculex RW genes. YGCB - The YieldGard® Corn Borer gene offers a high level of resistance to European corn borer, southwestern corn borer and southern cornstalk borer. The gene also offers a moderate level of resistance to corn earworm and common stalk borer; and above average resistance to fall armyworm. LL - Contains the LibertyLink® gene for resistance to Liberty® herbicide. RR2 - Contains the Roundup Ready® Corn 2 trait that provides crop safety for over-the-top applications of labeled glyphosate herbicides when applied according to label directions. WX - Waxy. WH - White food corn. YFC - Yellow food corn; AQ - Optimum® AQUAmax® hybrid. BMR - Brown MidRib Corn. RW,HX1,LL,RR2 (Optimum® TRIsect®) - Contains the Herculex I gene for above-ground pests and the Agrisure® RW trait for resistance to corn rootworm. AM1 - Optimum® AcreMax® 1 Insect Protection System with an integrated corn rootworm refuge solution includes HXX, LL, RR2. Optimum AcreMax 1 products contain the LibertyLink® gene and can be sprayed with Liberty® herbicide. The required corn borer refuge can be planted up to half a mile away.

AMRW - Optimum® AcreMax® RW Rootworm Protection system with a single-bag integrated corn rootworm refuge solution includes HXRW, LL, RR2. AM - Optimum® AcreMax® Insect Protection system with YGCB, HX1, LL, RR2. Contains a single-bag integrated refuge solution for above-ground insects. In EPA-designated cotton growing counties, a 20% separate corn borer fuge must be planted with Optimum AcreMax products. AMX - Optimum® AcreMax® Xtra Insect Protection system with YGCB, HXX, LL, RR2. Contains a single-bag integrated refuge solution for above- and below-ground insects. In EPA-designated cotton growing counties, a 20% separate corn borer refuge must be planted with Optimum AcreMax Xtra products. AMXT (Optimum® AcreMax® XTreme) - Contains a single-bag integrated refuge solution for above- and below-ground insects. The major component contains the Agrisure® RW trait, the YieldGard® Corn Borer gene, and the Herculex® XTRA genes. In EPA-designated cotton growing counties, a 20% separate corn borer refuge must be planted with Optimum AcreMax XTreme products. RW,YGCB,HXX,LL,RR2 (Optimum® Intrasect® XTreme) - Contains the Agrisure® RW trait, the YieldGard Corn Borer gene, and the Herculex® XTRA genes for resistance to corn borer and corn rootworm. Optimum Intrasect XTreme will be the major component of Optimum AcreMax XTreme. AVBL,YGCB,HX1,LL,RR2 (Optimum® Leptra®) - Contains the Agrisure Viptera® trait, the YieldGard Corn Borer gene, the Herculex® I gene, the LibertyLink® gene, and the Roundup Ready® Corn 2 trait.

AMT - Optimum® AcreMax® TRIsect® Insect Protection System with RW,YGCB,HX1,LL,RR2. Contains a single-bag refuge solution for above and below ground insects. The major component contains the Agrisure® RW trait, the YieldGard® Corn Borer gene, and the Herculex® I genes. In EPA-designated cotton growing counties, a 20% separate corn borer refuge must be planted with Optimum AcreMax TRIsect products.

VT2P - Genuity VT Double PRO - Contains the Genuity VT PRO genes and the Roundup Ready® Corn 2 trait. Provides resistance to corn borers and tolerance to glyphosate herbicides. SSTX ζ Genuity SmartStax ζ contains the Genuity VT Triple PRO traits, Herculex XTRA traits, the LibertyLink gene, and the Roundup Ready Corn 2 trait. Provides resistance to corn borers, corn rootworms, tolerance to glyphosate herbicides, and resistance to Liberty herbicide. AV-3110 - Agrisure Viptera®^A 3110 trait stack - Contains the Agrisure Viptera®, Agrisure® CB, and Agrisure® GT traits. AV-3111 - Agrisure Viptera® 3111 trait stack - Contains the Agrisure Viptera®, Agrisure® CB, Agrisure® RW, and Agrisure® GT traits. YGCB,HX1,LL,RR2 (Optimum® Intrasect®) - Contains the YieldGard® Corn Borer gene and Herculex® I gene for resistance to corn borer. YGCB,HXX,LL,RR2 (Optimum® Intrasect® XTRA) - Contains the YieldGard® Corn Borer gene and the Herculex XTRA genes for resistance to corn borer and corn rootworm. VT2P-RIB - Contains the Genuity® VT Double PRO RIB Complete ζ technology for above-ground insect protection.

AV-3220 - Agrisure® Viptera® 3220 trait stack - Contains the Herculex® I, Agrisure Viptera®, Agrisure® CB, and Agrisure® GT traits. AS-3122 - Agrisure® 3122 trait stack - Contains the Herculex® XTRA, Agrisure® CB, Agrisure® RW, and Agrisure® GT traits. AS-3011A or AS-4011 - Agrisure® 4011 trait stack - Contains the Agrisure 3000GT traits, and Agrisure Artesian(TM) technology. AVBL,CB,LL,GT - Contains the Agrisure Viptera® 3110 trait stack: Agrisure Viptera®, Agrisure® CB and Agrisure® GT traits. AS-3122-EZR - Contains the Agrisure® trait stack and the E-Z Refuge® technology. AS-3011 - Contains the Agrisure® 3000GT traits. ART - Syngenta traits or trait stacks followed by an A also contain the Agrisure® Artesian(TM) technology such as AS-3011A or GTA.

GT - Contains the Agrisure® GT trait that provides tolerance to glyphosate herbicides. CB - Contains the Agrisure® CB trait that provides resistance to corn borers. RW - Contains the Agrisure® RW trait that provides resistance to corn rootworms. VT - YieldGard VT Rootworm/RR2 contains both the YieldGard Rootworm gene and the Roundup Ready Corn 2 trait. VT3 - YieldGard VT Triple contains the YieldGard Rootworm gene, the YieldGard Corn Borer gene and the Roundup Ready Corn 2 trait. VT3P - Genuity VT Triple PRO contains the YieldGard VT gene YieldGard Rootworm/RR2), and the Genuity VT PRO gene. Provides resistance to corn borers, corn rootworms, and tolerance to glyphosate herbicides. SSTX-RIB - Contains either the SmartStax® RIB Complete technology or the REFUGE ADVANCED ζ powered by SmartStax® technology. DG - Contains the Genuity® DroughtGard(TM) technology. AV-3220-EZR - Contains the Agrisure Viptera® trait stack and the E-Z Refuge® technology.

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AGI Calc: Moisture Adjustment: $(\text{Moisture} - \text{Adjustment Standard}) * \text{Dry Down} * \text{Yield} = Z$, $\text{AGI} = ((\text{Market Price} + \text{Premium Adjustment}) * \text{Yield}) - Z$