

LEGEND

Pest Management	Increased Yield	Nitrogen Utilization	Stress Tolerance	Crop Composition
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EARLY DEVELOPMENT		ADVANCED DEVELOPMENT (NEXT 5-7 YEARS)	
Insect Resistance	4 th -Generation Below-Ground Insect Protection (Monsanto)	Herbicide Tolerance	3 rd -Generation Herbicide Tolerance (Monsanto)
Insect Resistance	4 th -Generation Above-Ground Insect Protection (Monsanto)	Herbicide Tolerance	4 th -Generation Herbicide Tolerance (Monsanto)
Insect Resistance	New Modes of Action Coleopteran III (DuPont Pioneer)	Herbicide Tolerance	Enlist™: 2,4-D & FOP (Dow AgroSciences)
Insect Resistance	New Modes of Action Lepidopteran III (DuPont Pioneer)	Herbicide Tolerance	(Syngenta)
Insect Resistance	Next-Generation CRW (Syngenta)	Insect Resistance	3 rd -Generation Above-Ground Insect Protection (Monsanto)
Insect Resistance	Next-Generation Above-Ground Insect Control Traits (Syngenta)	Insect Resistance	SmartStax® PRO (Monsanto, Dow AgroSciences)
Fungal Resistance	(BASF)	Insect Resistance	Optimum® Leptra™ (DuPont Pioneer)
Nitrogen Use Efficiency (DuPont Pioneer)		Insect Resistance	Lepidopteran/Coleopteran DP 4114 (DuPont Pioneer)
Stress Tolerance	Drought Tolerance II (DuPont Pioneer)	Higher Yielding	(Monsanto, BASF)
Stress Tolerance	Yield & Stress Corn II (Monsanto, BASF)		
Stress Tolerance	Yield & Stress Corn III (Monsanto, BASF)		
Stress Tolerance	DroughtGard® Platform Expansion (Monsanto, BASF)		
Stress Tolerance	Novel Yield & Stress Traits (Syngenta)		

Updated June 2015

PEST MANAGEMENT TRAITS

CRW = Corn Rootworm

Enlist™ = Dow AgroSciences herbicide trait providing tolerance to 2,4-D and "FOP" herbicides

"Early Development" may include products in their research, discovery and proof of concept phases, as well as early product development.

"Advanced Development" products are in late stages of development and have an expected launch date within the next five to seven years, subject to regulatory approvals. Contact individual trait developers for timelines and estimated launch dates.

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Herbicide Tolerance	4 th -Generation Herbicide Tolerance (Monsanto)	Herbicide Tolerance	Roundup Ready 2 Xtend™ (Monsanto)
Insect Resistance	3 rd -Generation Insect Protection (Monsanto)	Herbicide Tolerance	3 rd -Generation Herbicide Tolerance: Roundup Ready Xtend™ Crop System + 3 rd Mode of Action (Monsanto)
Insect Resistance	Hemipteran (DuPont Pioneer)	Herbicide Tolerance	Multiple Mode (DuPont Pioneer)
Insect Resistance	Lepidopteran (DuPont Pioneer)	Herbicide Tolerance	HPPDi + Glufosinate (Syngenta, Bayer CropScience)
Nematode Resistance	SCN (Syngenta)	Herbicide Tolerance	Enlist™; 2,4-D + Glufosinate (Dow AgroSciences)
Nematode Resistance	SCN (Bayer CropScience)	Herbicide Tolerance	Enlist E3™; 2,4-D + Glyphosate + Glufosinate (Dow AgroSciences, M.S. Technologies)
Nematode Resistance	2 nd -Generation SCN Resistance (BASF, Monsanto)	Herbicide Tolerance	Balance™ GT/LL: Glyphosate + HPPDi + Glufosinate (Bayer CropScience, M.S. Technologies)
Disease Resistance	ASR (DuPont Pioneer)	Herbicide Tolerance	Balance™ GT: Glyphosate + HPPDi (Bayer CropScience, M.S. Technologies)
Disease Resistance	(Syngenta)	Herbicide Tolerance	Cultivate: Imidazolinone (BASF, Embrapa/Brazil)
Fungal Resistance	(BASF)	Herbicide Tolerance/ Insect Resistance	Enlist E3™ + Conkesta™; 2,4-D + Glyphosate + Glufosinate + 2 Bt Traits (Dow AgroSciences)
Higher Yielding	Next-Generation Higher Yielding (Monsanto, BASF)	Insect Resistance	2 nd -Generation Insect Protection (Monsanto)
Increased Soybean Oil & Improved Meal Value	(DuPont Pioneer)	SDA Omega-3	(Monsanto)
		Vistive® Gold	Low Saturated, Zero Trans-Fat Oil (Monsanto)

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PEST MANAGEMENT TRAITS

SCN = Soybean Cyst Nematode

Bt = *Bacillus thuringiensis*

ASR = Asian Soybean Rust

RR = Roundup Ready®

LL = LibertyLink®, tolerant to glufosinate herbicides

HPPDi = Hydroxyphenylpyruvate deoxygenase inhibitor, family of herbicides

Enlist™ = Dow AgroSciences herbicide trait providing tolerance to glyphosate, 2,4-D, glufosinate

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Herbicide Tolerance	Next-Generation Herbicide Tolerance (Bayer CropScience)	Herbicide Tolerance	Enlist™ (Dow AgroSciences)
Herbicide Tolerance	4 th -Generation Herbicide Tolerance (Monsanto)	Herbicide Tolerance/ Insect Resistance	GlyTol® TwinLink™ Plus: Glufosinate + Glyphosate + Expanded Insect Resistance (Bayer CropScience)
Insect Resistance	4 th -Generation Bollgard® (Monsanto)	Insect Resistance	Bollgard® III (Monsanto)
		Insect Resistance	Lygus Control (Monsanto)

PEST MANAGEMENT TRAITS

GlyTol® = Glyphosate Tolerant, tolerant to glyphosate herbicides

Enlist™ = Dow AgroSciences herbicide trait providing tolerance to 2,4-D and glufosinate

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EARLY DEVELOPMENT		ADVANCED DEVELOPMENT (NEXT 5-7 YEARS)	
Insect Resistance	Dual Mode of Action Lepidopteran Protection (DuPont Pioneer)	Golden Rice 1	Beta-carotene Content (IRRI/Philippines)
Higher Yielding	(BASF)	Golden Rice 2	Beta-carotene Content (IRRI/Philippines)
Increased Yield	Hybrid Rice Technology II (DuPont Pioneer)		

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Herbicide Tolerance	Dicamba Tolerance (Monsanto)	Herbicide Tolerance	TruFlex™ Roundup Ready® (Monsanto)
Healthy Fatty Acids	(BASF, Cargill)	Herbicide Tolerance	Optimum® GLY (DuPont Pioneer)
Oil Quality	(Bayer CropScience)	Herbicide Tolerance	LL (DuPont Pioneer)
		Herbicide Tolerance	Optimum® GLY + LL (DuPont Pioneer)
		Herbicide Tolerance	LL (Monsanto, Bayer CropScience)
		Herbicide Tolerance	RR + LL (Bayer CropScience)
		Herbicide Tolerance	TruFlex RR DEKALB® + LL (Bayer CropScience, Monsanto)
		Increased Protein, Higher Nutrient Density for Feed	ProPound™ Advanced Canola Meal (Dow AgroSciences)

PEST MANAGEMENT TRAITS

RR = Roundup Ready®

LL = LibertyLink®, tolerant to glufosinate herbicides

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Alfalfa

Herbicide Tolerance	2 nd -Generation Herbicide Tolerance (Monsanto, Forage Genetics International)	Reduced Lignin	HarvXtra™ (Monsanto, Forage Genetics International)
Higher Yielding	(Monsanto, Forage Genetics International)		

Bean

		Virus Resistance	Geminivirus (Embrapa/Brazil)
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Eggplant

		Insect Resistance	Bt Brinjal (Maharashtra Hybrid Seeds Company)
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Potatoes

		Virus Resistance	Potato Virus Y (Tecnoplant/Argentina)
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Sugarbeet

Higher Yielding	(BASF, KWS)		
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Sugarcane

Insect Resistance/ Herbicide Tolerance	Insect-Protected + Roundup Ready® (Monsanto)		
Insect Resistance/ Herbicide Tolerance	2 nd -Generation Herbicide Tolerance + Insect-Protected (Monsanto)		
Higher Yielding	(BASF, CTC)		

Sunflower

		Reduced Saturate	Omega-9 Sunflower (Dow AgroSciences)
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Wheat

Herbicide Tolerance I	(Monsanto)		
Herbicide Tolerance II	(Monsanto)		
Increased Yield	Hybrid Wheat Technology (DuPont Pioneer)		
Yield & Stress	(Monsanto, BASF)		

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