New Broad-spectrum fungicide/insecticide seed treatment

featuring Lumisena® fungicide seed treatment

Outline

1. 30 second elevator - Benefits to the retail dealer
2. Introduce the new recipe
   - Focus on Lumisena® fungicide seed treatment
   - Identify the other actives
3. The technical story
4. WinField United go-to-market strategy

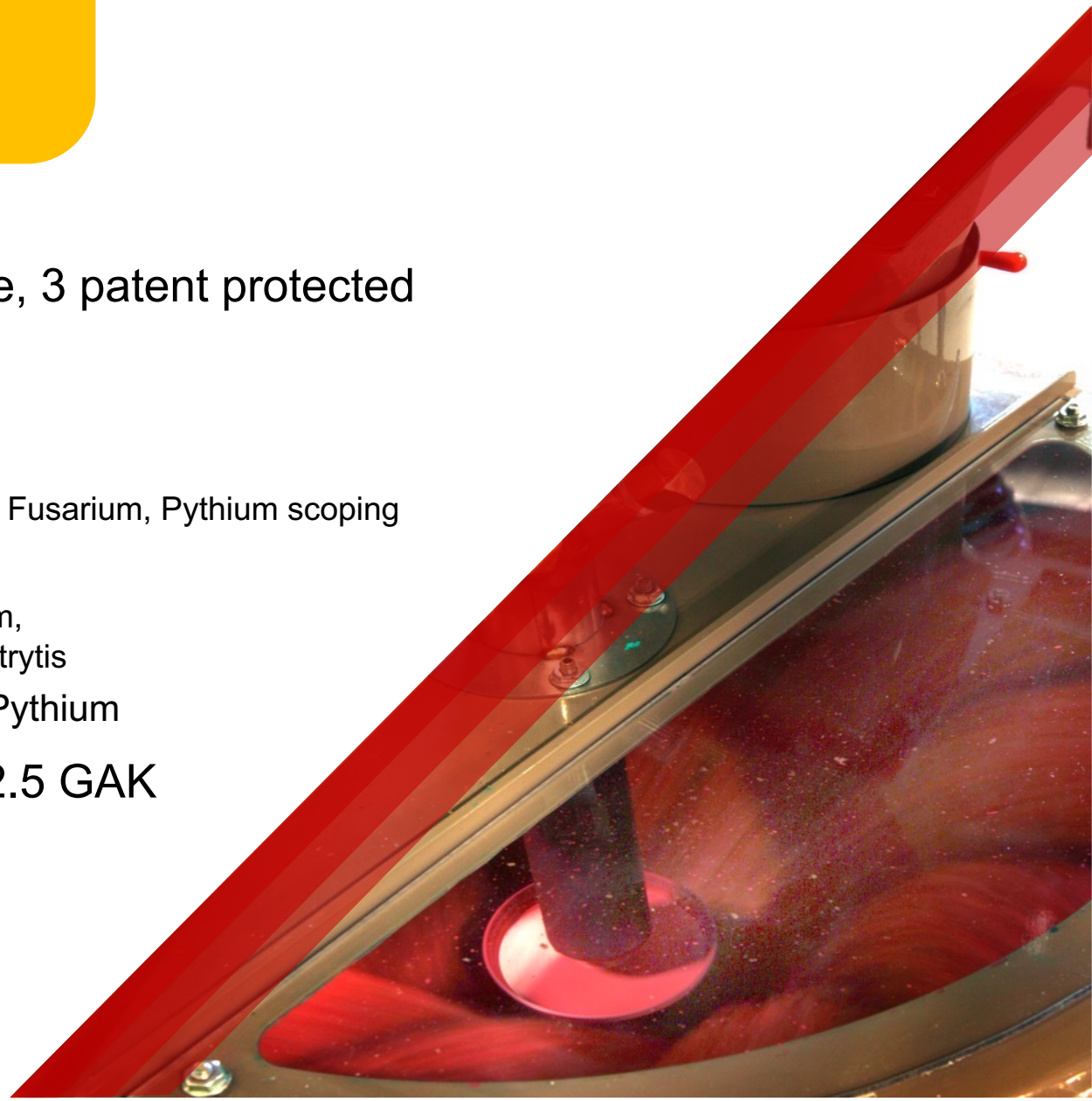
New broad-spectrum fungicide/insecticide seed treatment

featuring Lumisena® fungicide seed treatment

- A unique, premium seed treatment recipe delivering seedling protection confidence & improved yield potential
- Featuring Lumisena® fungicide seed treatment the most advanced seed-applied technology to control Phytophthora since the introduction of metalaxyl 41 years ago
- Easy application in a one-container solution & compatible with additional offerings

Enhanced protection in a single delivery system

- Enhanced disease protection utilizing 4 active, 3 patent protected
  - Lumisena® (oxathiapiprolin) 7.4 GAK
    - Highest intrinsic activity against Phytophthora
  - DPX-YT669 (picoxystrobin) 2.3 GAK
    - New active with strong activity against Rhizoctonia & Fusarium, Pythium scoping
  - Lumiflex® (ipconazole) 2.5 GAK
    - Outstanding protection against Rhizoctonia, Fusarium, seed-borne Sclerotinia, Phomopsis, Penicillium & Botrytis
  - Metalaxyl 6.5 GAK – Proven performance against Pythium
- Proven insect protection with imidacloprid 62.5 GAK
- High-grade polymer for improved seed flow and planting accuracy
- Red colorant



Pest protection overview

			Phytophthora	Pythium	Rhizoctonia	Fusarium	Phomopsis	
New Premium Recipe	Lumisena™	Oxathiapiprolin	●					**3 patent protected ingredients**
		Metalaxyl		●				
	Lumiflex™	Ipconazole			●	●	●	
	DPX-YT669	Picoxystrobin			●	●		
		Imidacloprid						
		Modes of Action	**1**	**1**	**2**	**2**	**1**	
Comparison 1		Mefenoxam	●	●				
		Fludioxonil			●	●	●	
		Sedaxane			●			
		Thiamethoxam						
		Modes of Action	**1**	**1**	**2**	**1**	**1**	
Comparison 2		Metalaxyl	●	●				
		Fluxapyroxad			●	●*		
		Pyraclostrobin		●*	●	●*	●*	
		Imidacloprid						
		Modes of Action	**1**	**2**	**2**	**2**	**1**	
Comparison 3		Metalaxyl	●	●				
		Fludioxonil			●	●	●	
		Imidacloprid						
		Modes of Action	**1**	**1**	**1**	**1**	**1**	

*Labeled Suppression

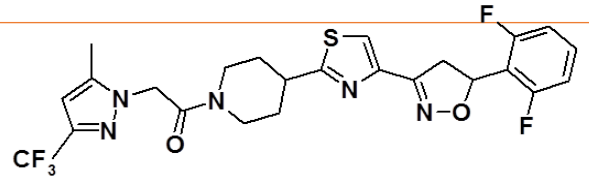
Soybean diseases

- ***Phytophthora*** and ***Rhizoctonia*** are more likely to occur when soils are warmer, >60ºF
- ***Pythium*** is more likely to occur when soil temperatures are cooler, < 60ºF
- ***Fusarium*** is a complex of different species; some prefer warm and dry soils, while others prefer cool and wet soils

Phytophthora is the #1 early-season disease reducing soybean stand and yield

- Associated with wet soil conditions
  - May occur on **any** soil saturated for more than 24 hours
  - Commonly occurs on heavy, poorly drained or compacted soils
- The ideal temperature for infection is 60 to 80º F
- Multiple phases of infection can occur
  - Seed rot
  - Seedling rot, damping-off
  - Root & stem rot

General Information

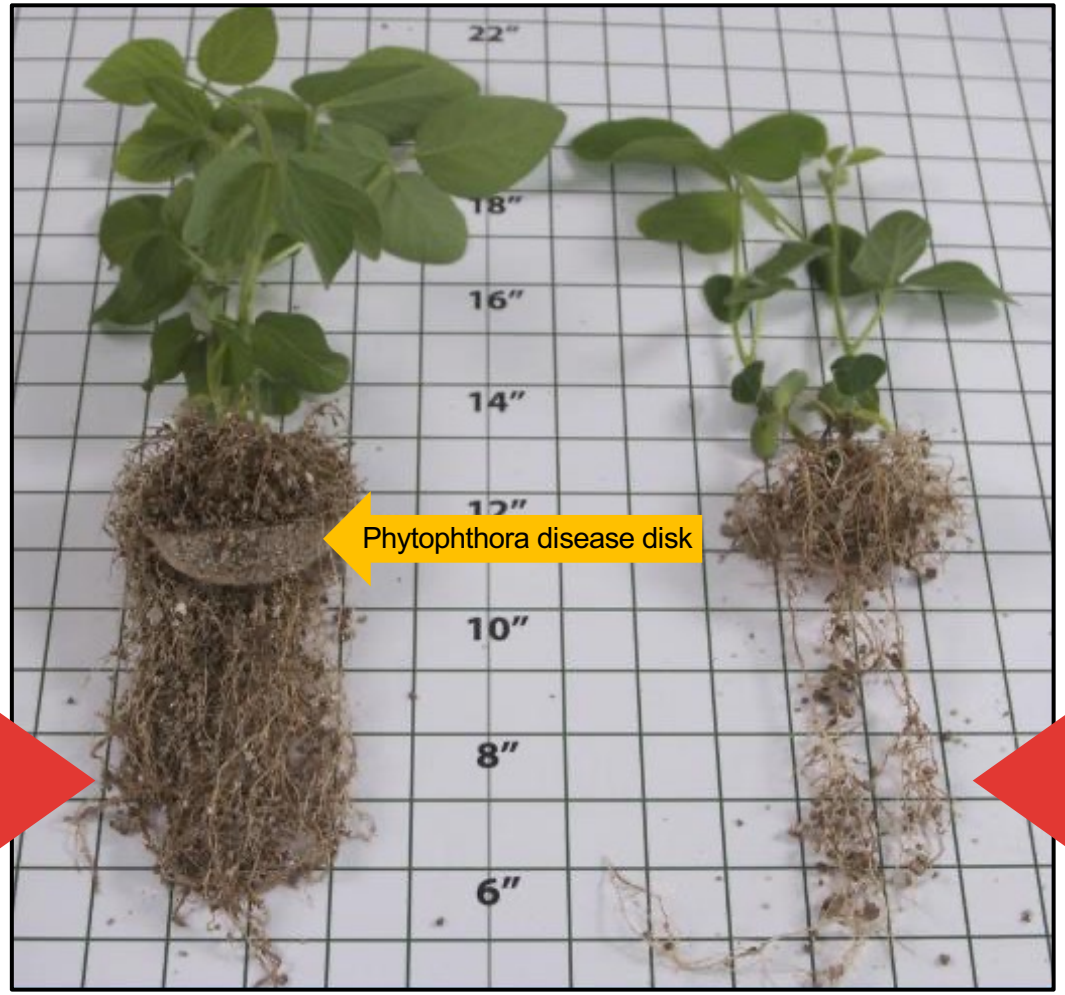
Trade name	Lumisena® fungicide seed treatment
Chemical class	piperidinyl thiazole isoxazoline
Common chemical name	oxathiapiprolin
Binding site	Oxysterol Binding Protein (OSBP) domain
Molecular formula	$C_{24}H_{22}F_5N_5O_2S$
Chemical structure	
CAS number	1003318-67-9
Disease spectrum	Controls diseases caused by oomycete pathogens

Lumisena® is the most advanced seed-applied technology

to control Phytophthora since the introduction of metalaxyl 41 years ago

- Highest intrinsic activity against ***Phytophthora***
- Systemic protection from ***Phytophthora*** improves root and plant health
- Durable protection between soil and in-plant movement through V5
- Increased emergence and healthier stand establishment helps maximize genetic potential

Lumisena® best-in-class protection against Phytophthora



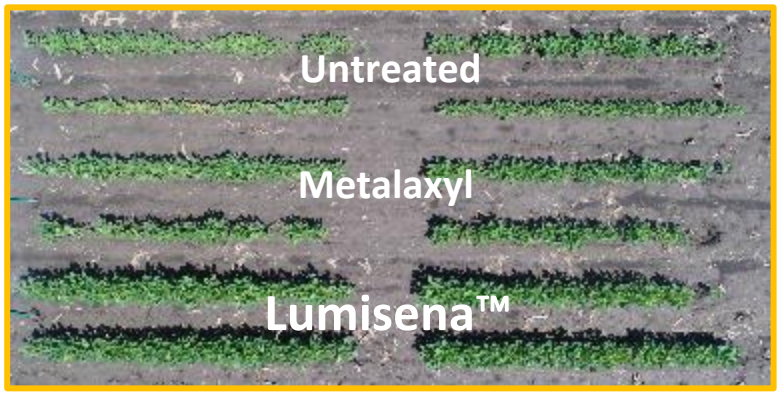
Roots protected by Lumisena® drive through the diseased disk and remain healthy

Roots protected by metalaxyl die or are severely injured upon contact with diseased disk

Best-in-Class protection against Phytophthora

Lumisena® fungicide seed treatment provided visual appeal and greater biomass throughout the growing season

47 Days After Planting



53 Days After Planting

60 Days After Planting

67 Days After Planting

74 Days After Planting

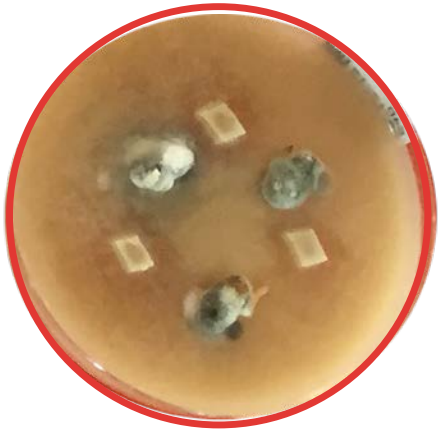
Lumisena® protection against Phytophthora vs Metalaxyl & UTC

3 Phytophthora plugs per petri dish

Lumisena®

Metalaxyl

Untreated



Lumisena® fungicide seed treatment

yield advantage vs. metalaxyl across the top 10 soybean-growing states

Head-to-head comparisons across 212 locations (high pressure responsive locations)

4.0 bu/A YIELD ADVANTAGE

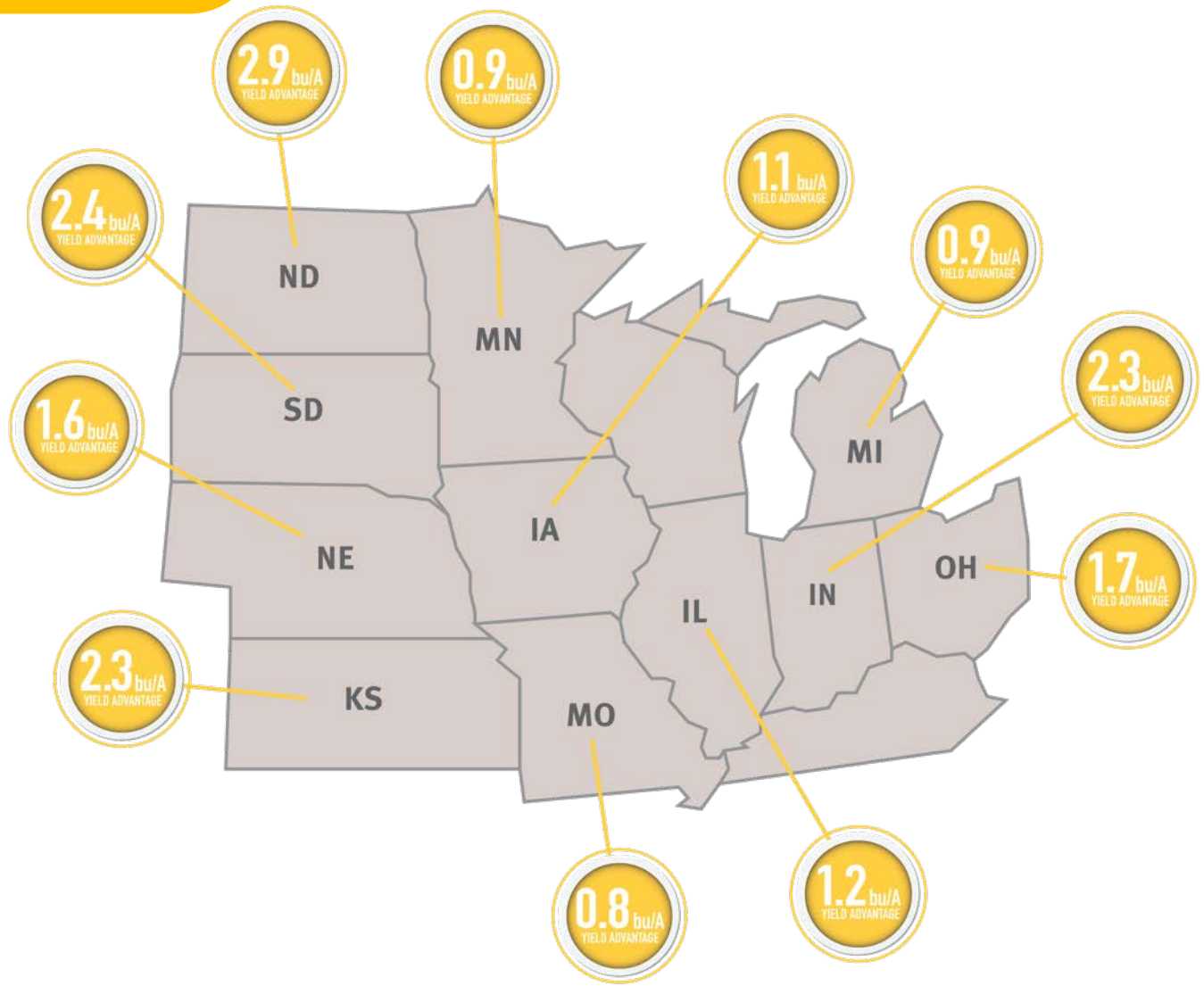
Based on **638 head-to-head comparisons** in the top soybean-producing states

1.0 bu/A YIELD ADVANTAGE

*Data is based on 638 head-to-head comparisons between DuPont™ Lumisena® fungicide seed treatment (0.568 fl oz/cwt) and metalaxyl (0.75 fl oz/cwt) in the top 10 soybean-producing states through Dec. 12, 2017. Comparisons were made utilizing the same soybean variety. DO NOT USE THIS OR ANY OTHER DATA FROM A LIMITED NUMBER OF TRIALS AS A SIGNIFICANT FACTOR IN PRODUCT SELECTION. Refer to pioneer.com/products or contact a Pioneer sales representative or authorized dealer for the latest and complete listing of traits and scores for each Pioneer® brand product. Components under the Pioneer Premium Seed Treatment offering for soybeans are applied at a DuPont Pioneer production facility or by an independent sales representative of Pioneer. Not all sales representatives offer treatment services, and costs and other charges may vary. See your Pioneer sales representative for details. Seed treatment offering exclusive to DuPont Pioneer and its affiliates. Lumisena® fungicide seed treatment will be available commercially on Pioneer brand soybeans in the United States for the 2018 crop year. PIONEER® brand products are provided subject to the terms and conditions of purchase which are part of the labeling and purchase documents.

Lumisena® consistent performance vs. high-rate metalaxyl

Trial comparisons - Nearly 500 responsive locations with greater than 1 bu/A difference



Pythium

C-1019FI contains Metalaxyl for protection against Pythium

- Prefers wet, cold soil with temperatures < 60ºF
- High-residue fields and heavy or compacted soils are at higher risk
- Pathogen may attack seeds before or after germination
- Plants may be killed by “damping off” before or after emergence
  - On infected plants, the hypocotyl becomes narrow and is commonly “pinched off” by the disease.

Rhizoctonia

C-1019FI offers two modes of action; Lumiflex™ (ipconazole) and New strobilurin DPX-TY669 (picoxystrobin)

- Prefers moderately wet soils where germination is slow or emergence is delayed
- Prefers warmer soils > 60ºF and appears as the weather warms > 80ºF
- Infection is characterized by a shrunken, reddish-brown lesion on the hypocotyl at or near the soil line
- Infection may be superficial, causing no noticeable damage, or may girdle the stem and kill or stunt plants

Fusarium

C-1019FI offers two modes of action; Lumiflex™ (ipconazole) and New strobilurin DPX-TY669 (picoxystrobin)

- Infection is caused by a complex of different species that prefer different conditions; some prefer warm and dry soils, while others prefer cool and wet soils
- Causes light- to dark-brown lesions on soybean roots that may spread over much of the root system
- May attack the taproot and promote adventitious root growth near the soil surface, and may also degrade lateral roots, but usually does not cause seed rot

Phytophthora		**Lumisena®** (Oxathiapiprolin)
Pythium		**Metalaxyl**
Rhizoctonia		**Ipconazole & Picoxystrobin**
Fusarium		**Ipconazole & Picoxystrobin**

Our new offer is a unique premium seed treatment recipe

delivering seedling protection confidence & improved yield potential

Exceptional emergence under severe pressure

Untreated

Seed Applied technologies:

Investments to build future success

Bringing capabilities together to exceed customer expectations

- ✓ Recipe development
- ✓ Biological compatibility
- ✓ Seed flow and plantability
- ✓ Dust-off and abrasion testing
- ✓ Storage-time germination
- ✓ Environmentally controlled chamber
- ✓ Pre-commercial scale up

CSAT Lite -

Purpose: To enable basic seed applied technologies laboratory testing capability to support internal and external customer needs.

Capability:

- Individual product development and advancement
- Full recipe compatibility and finalization
- Specialized machines and process to predict customer experience

CSAT

Current: Johnston, Iowa (pictured) | Formosa, Brazil

Coming soon: Aussonne, France | Asia Pacific, Canada

CSAT Lite

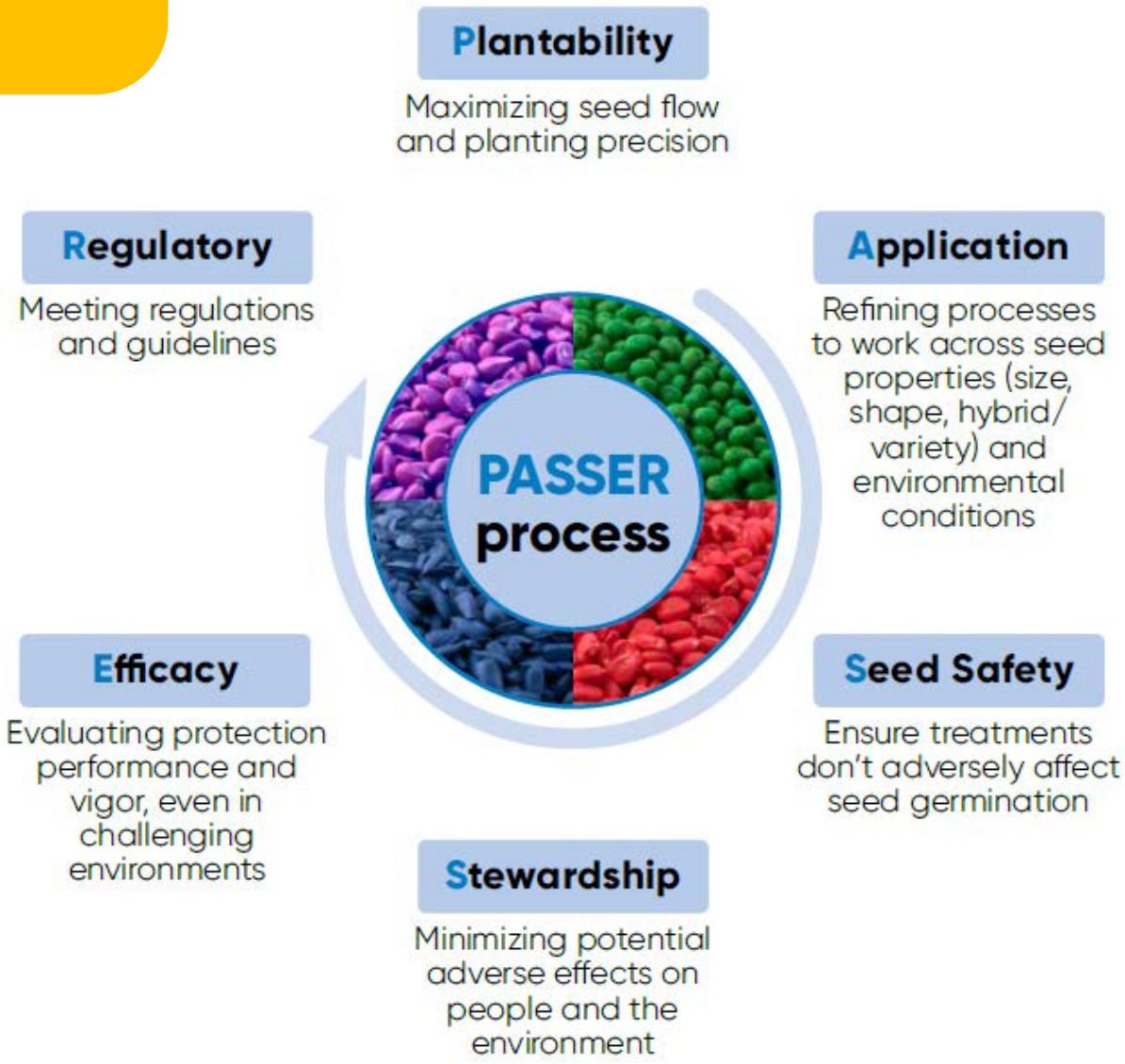
Canada, China, India, Philippines, South Africa

Assurance in product development

Formulation Science: Identifying the right balance of actives

Assurance evaluation: To determine and characterize specific agronomic benefits

Testing: In labs, greenhouses and fields to understand the complete profile of a potential product



15 Gallon container setup

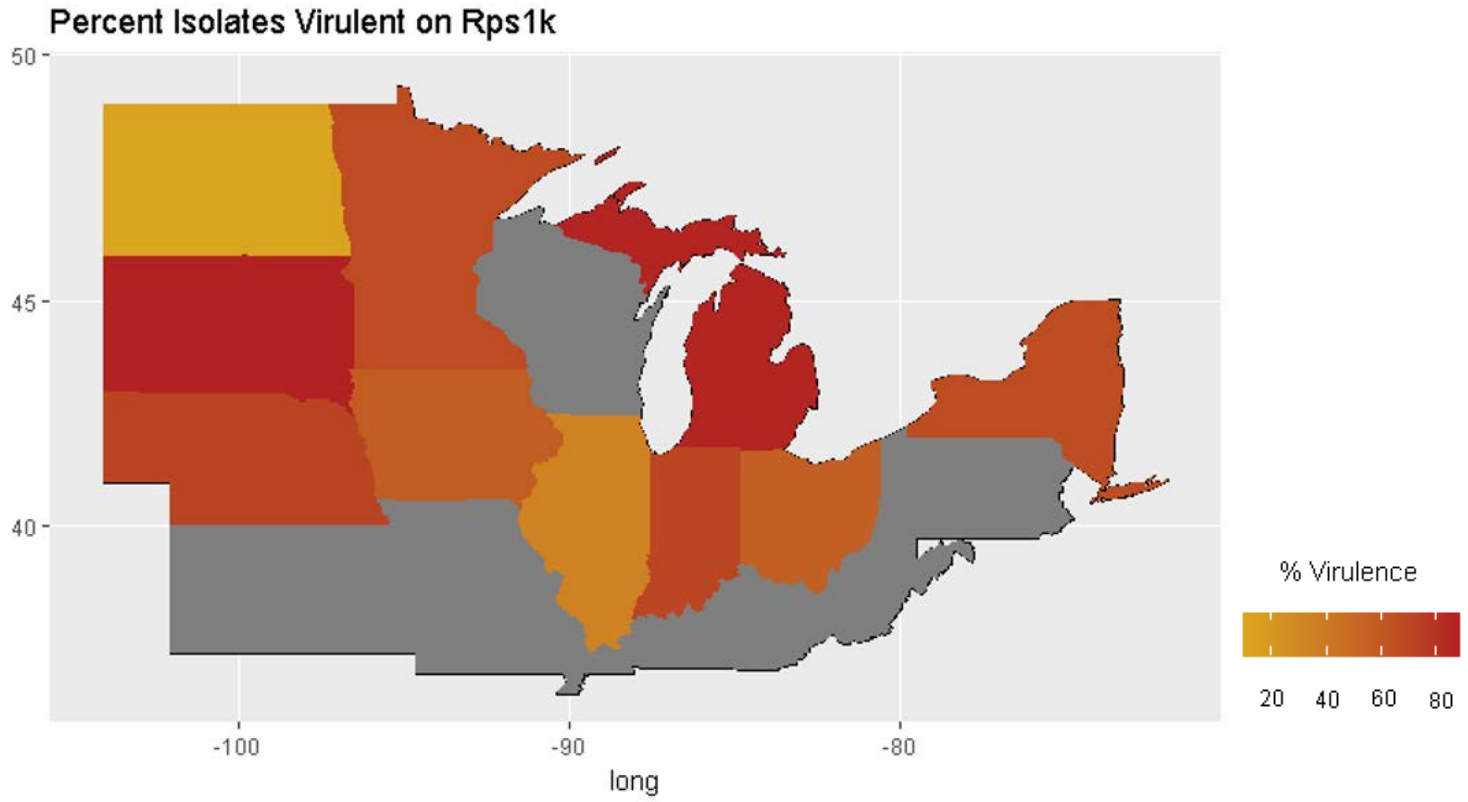
Universal micromatic system – same as Warden CX

5 containers per pallet

Phytophthora Pressure Increasing

Greater number of soybean-growing states have a high proportion of isolates with virulence to Rps 1c & 1k

A multi-pronged approach with genetics, traits & seed treatments is the best management solution



States in gray not included in survey

*Pathotypes, Distribution, and Metalaxyl Sensitivity of Phytophthora sojae from North Dakota – B.D. Nelson et al
Pathotype diversity of Phytophthora sojae in Eleven states in the United States – A.E. Darrance et al

Product Specifications

C-1320FI Featuring Lumisena®

Products	EPA Reg. No.	% By Volume	Fl oz/cwt
Resonate® 600	42750-133	42.11%	1.60 fl oz/cwt
Metalaxyl 4.0 ST	42750-219	5.26%	0.20 fl oz/cwt
DuPont™ DPX-YT669 250FS	352-888	3.68%	0.14 fl oz/cwt
Lumiflex™	400-544-352	2.21%	0.084 fl oz/cwt
Lumisena®	352-920	15.00%	0.57 fl oz/cwt
Red Colorant	N/A	19.74%	0.75 fl oz/cwt
Polymer	N/A	12.00%	0.456 fl oz/cwt
		100.00 %	

Visual of Treated Seed

CSAT Trial: Seed & Trt cold storage, brought into warm and high humid treating environment. Good results

C-1019FI has passed PASSER:

- Plantability
- Application
- Stewardship
- Seed Safety
- Efficacy
- Regulatory

Use rates for application:

fl oz/cwt	fl oz/140k	units/gal
3.814	1.907	67.121

CORTEVA™
agriscience

Services

Services Offered

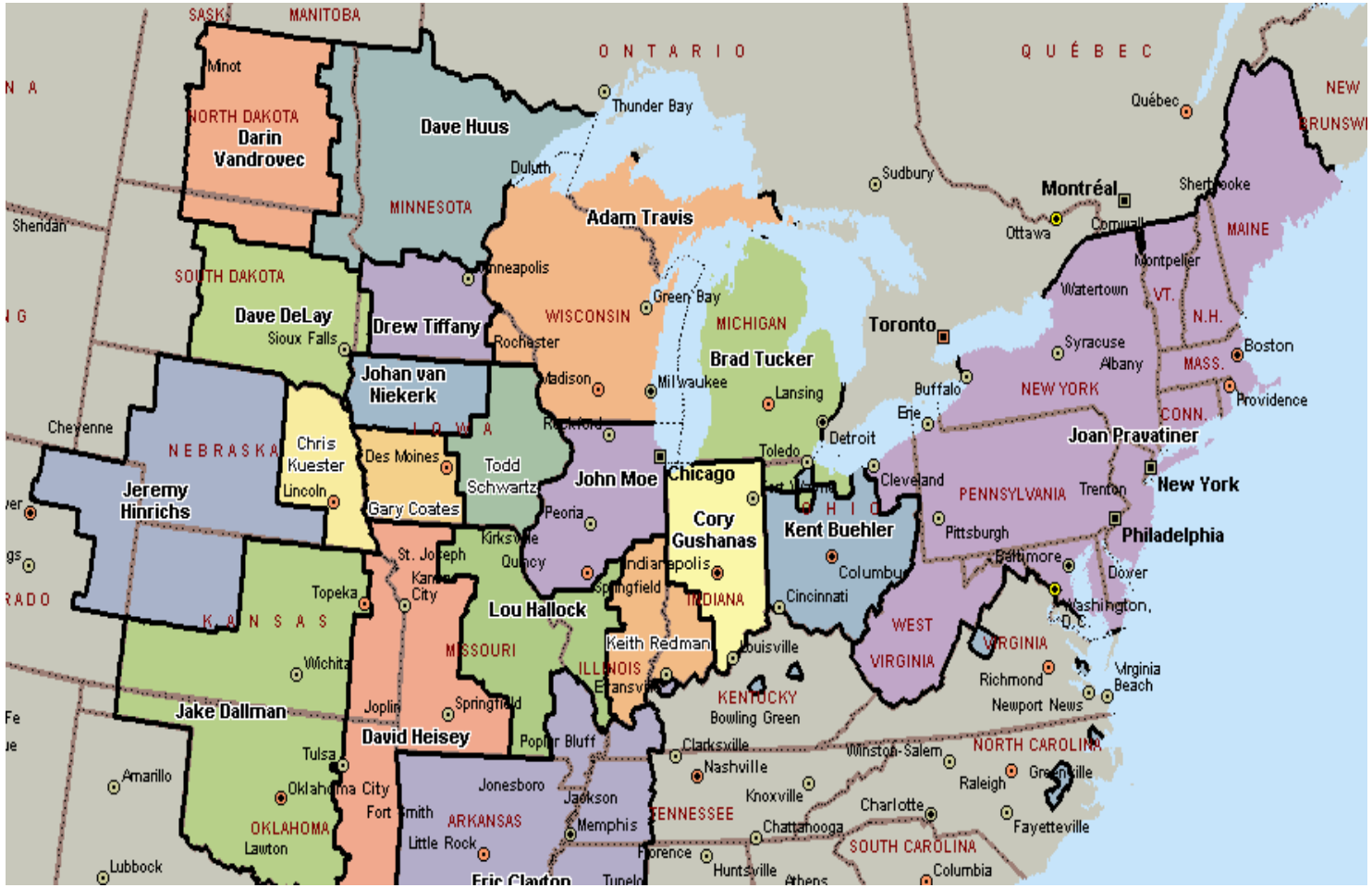
Independent Inputs

- Provides our Logistical Support
- Collects, Reviews and Submits Order Forms
- Support Start Up and Shut Down
- Troubleshoot issues
- Each treating dealer is assigned an Independent Input Specialist

CSAT

- Provide trouble shooting support
- Tours available for Dealers and Customers
- Can test carryover products if there is a concern

Independent Inputs
Seed Treatment Specialists



Western Region
Darin Vandrovec – 701-412-6937
Dave Huus – 701-866-5330
Adam Travis - 608-201-9410
Dave Delay – 605-937-3435
Drew Tiffany – 320-444-4639
Johan van Niekerk – 952-460-0551
Jeremy Hinrichs – 402-926-8837
Chris Kuester - 402-640-1703
Gary Coates – 402-740-6566
Todd Schwartz – 712-579-0634
Jake Dallman – 785-410-6351
David Heisey – 816-341-4753
Manager – Craig Samuelson
605-951-1496

Eastern Region
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John Moe – 309-489-6194
Cory Gushanas - 317-538-3068
Kent Buehler – 937-570-2122
Joan Pravatiner – 717-672-6953
Lou Hallock – 217-556-2040
Keith Redman – 618-554-2107
Eric Clayton – 870-240-3678
Manager – Barry Retherford
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