RICHARD FILLMORE
Account Manager,
Seed Treatment Team

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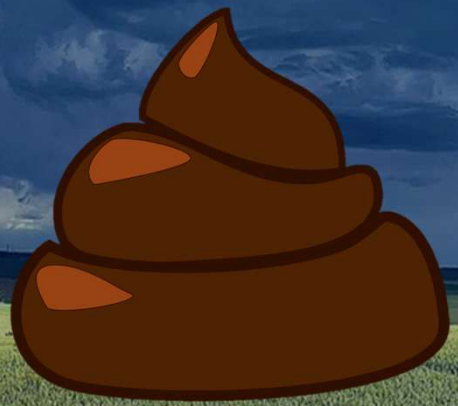
YIELD =

+



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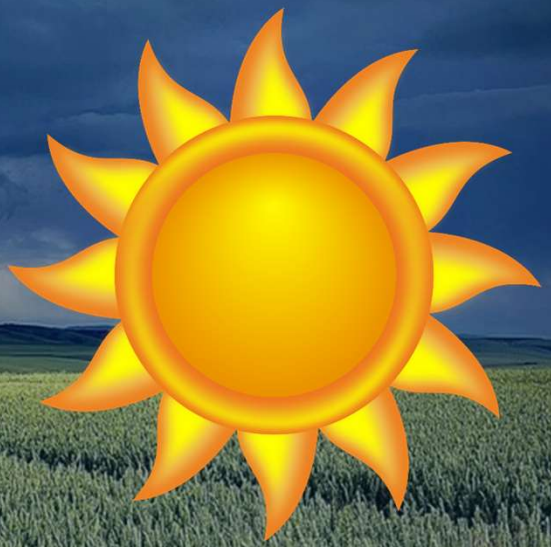

Water
Capture = 75-85%
Convert = Very Good

Minerals
Capture = 30-60%
Convert = Poor

Solar
Capture = 40-50%
Convert = Poor

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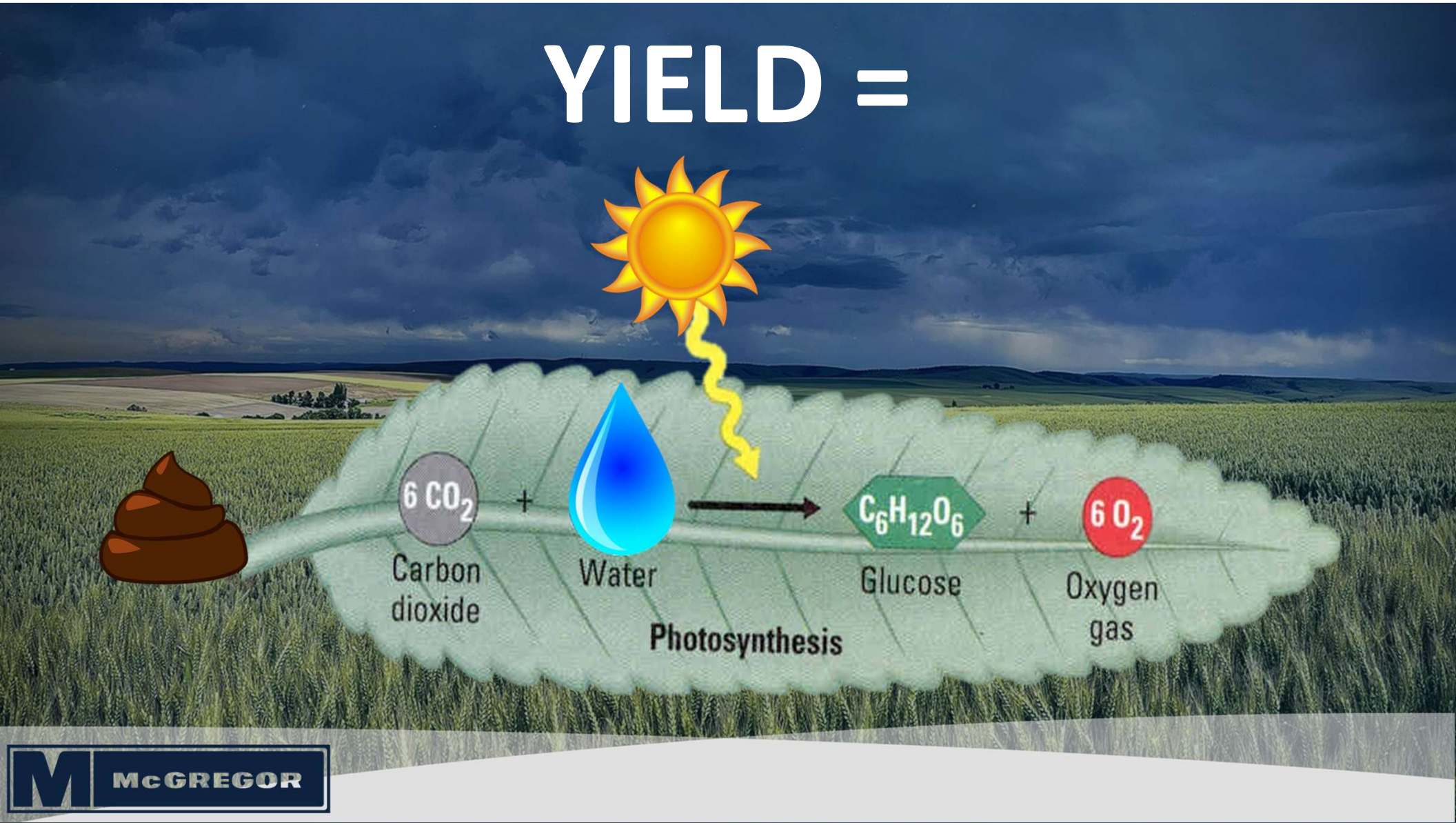
YIELD =



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What are a Your Crop's Yield Components?
Plants / Area
Beans / Pod
Fill / Pod
START.
FEED.
FINISH.
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START.
Uniform Stand Establishment
As FAST as possible
Without succumbing to
Environmental Stresses
Or Diseases and Pests
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START.

Genetics

Seeding Rate & Date

Pre-Emerge Herbicides

Access to Phosphorus

Access to Zinc

Seed Treatments

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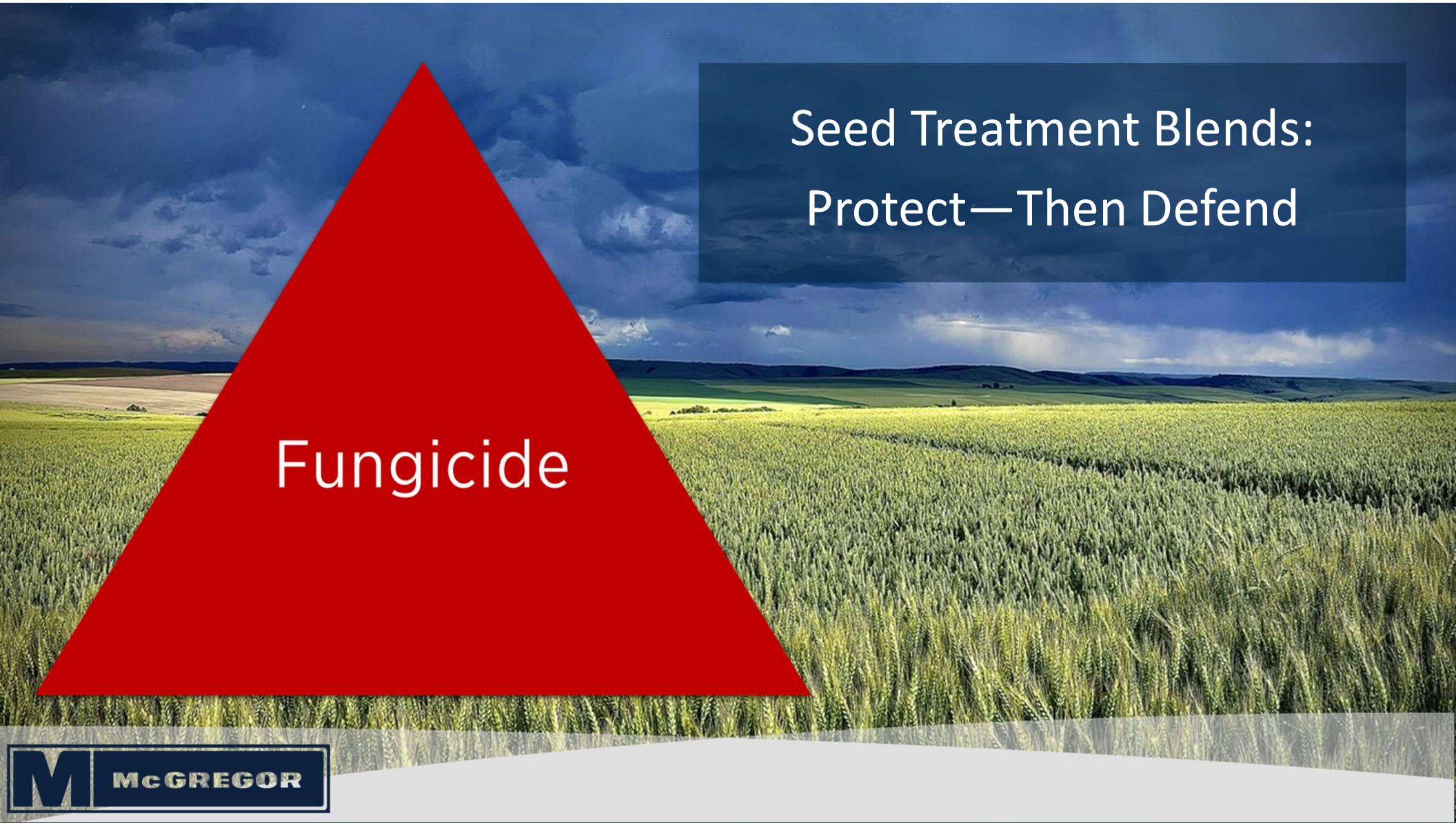
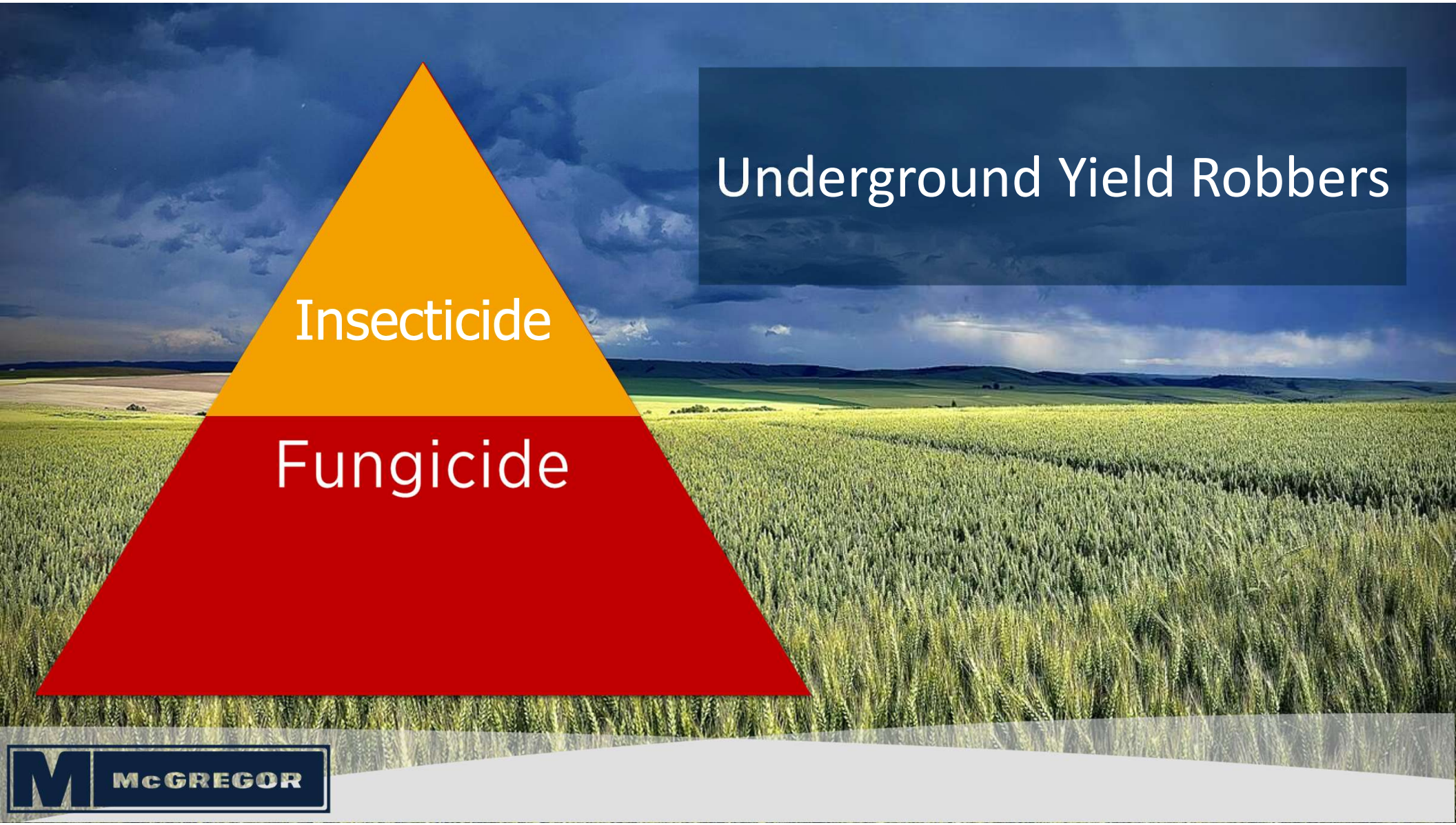
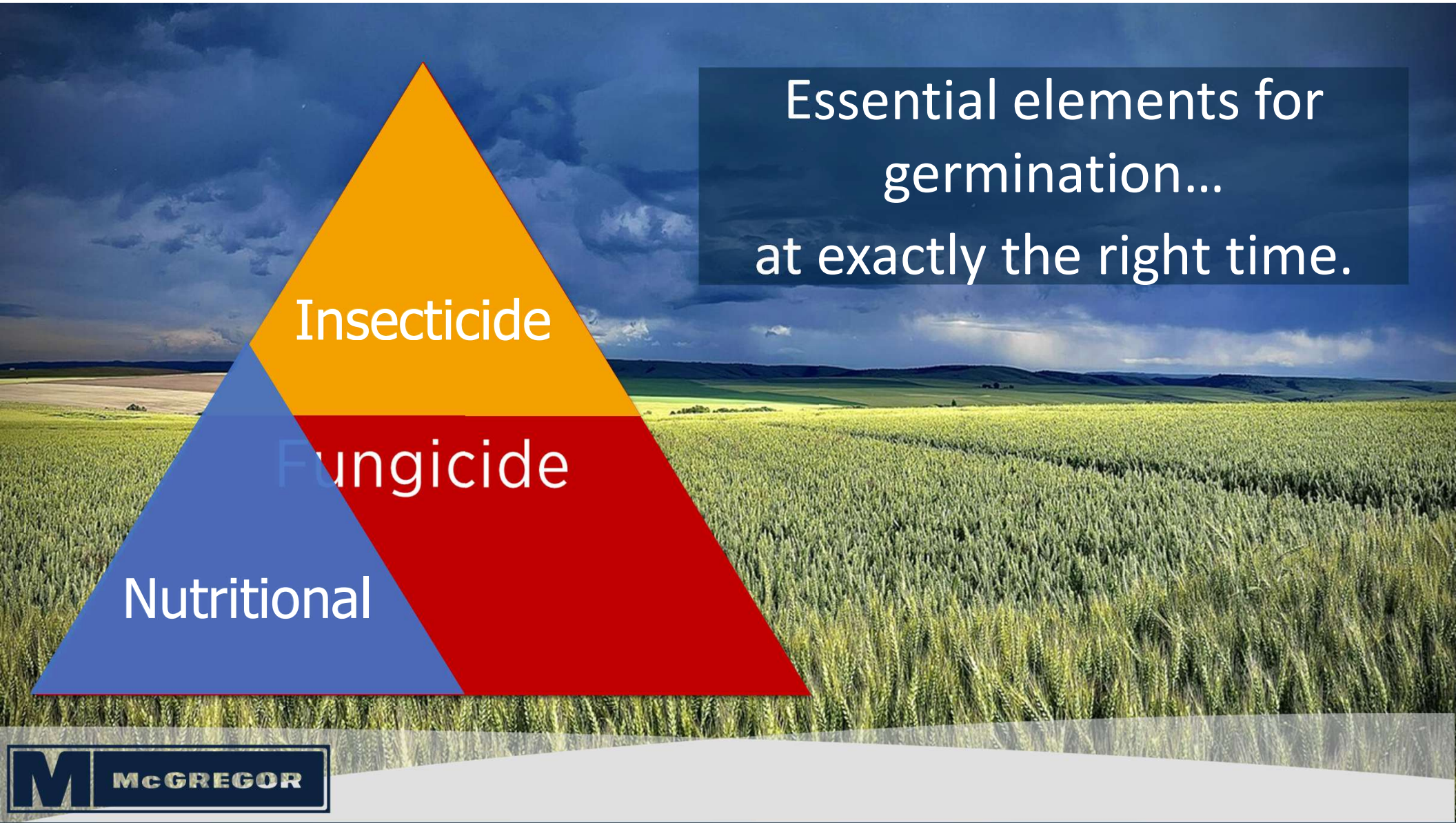
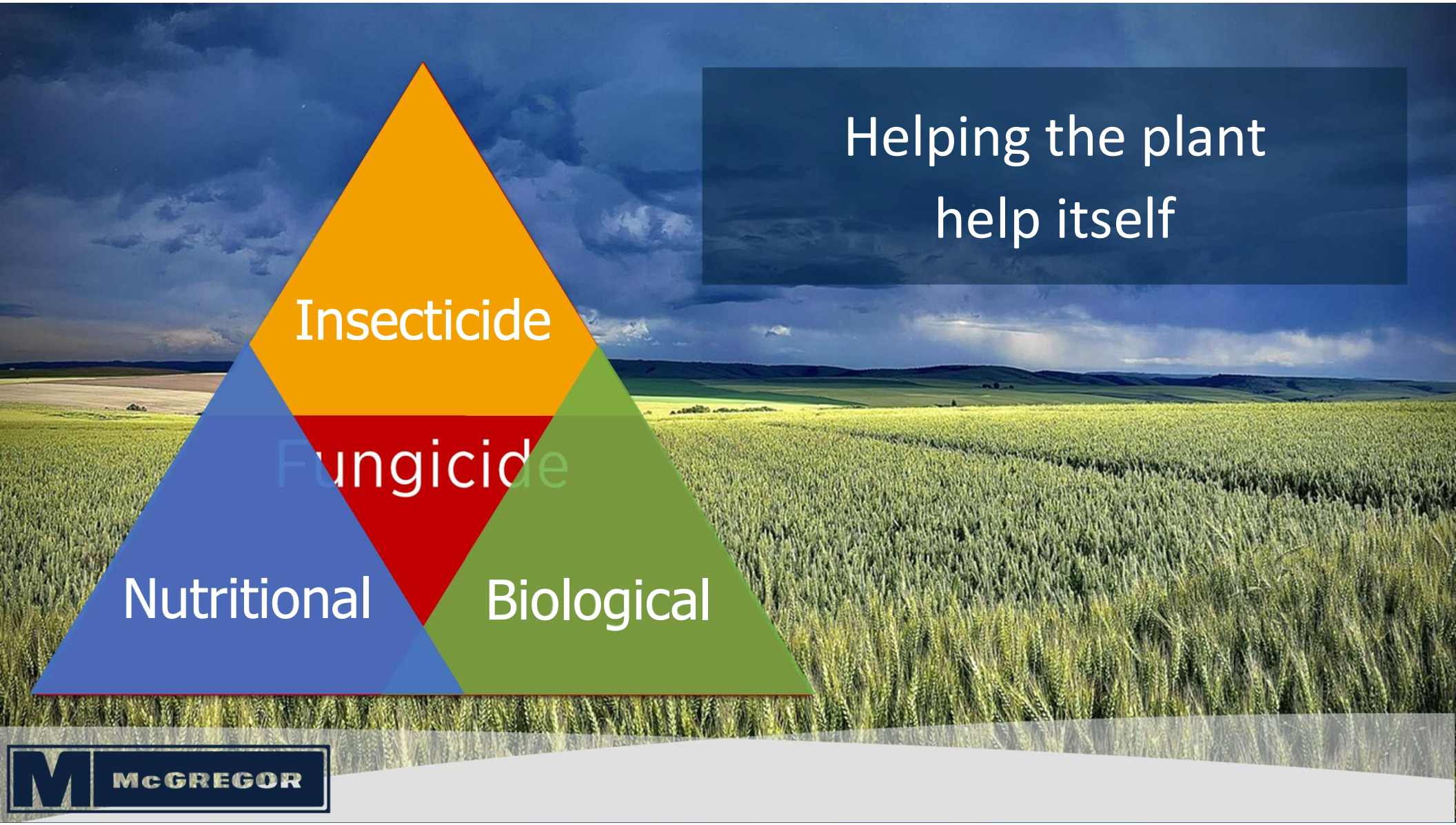

Seed Treatment Blends:
Protect—Then Defend
Fungicide
McGREGOR


Underground Yield Robbers
Insecticide
Fungicide
McGREGOR


Essential elements for germination…
at exactly the right time.
Insecticide
Fungicide
Nutritional
McGREGOR


Helping the plant help itself
Insecticide
Fungicide
Nutritional
Biological
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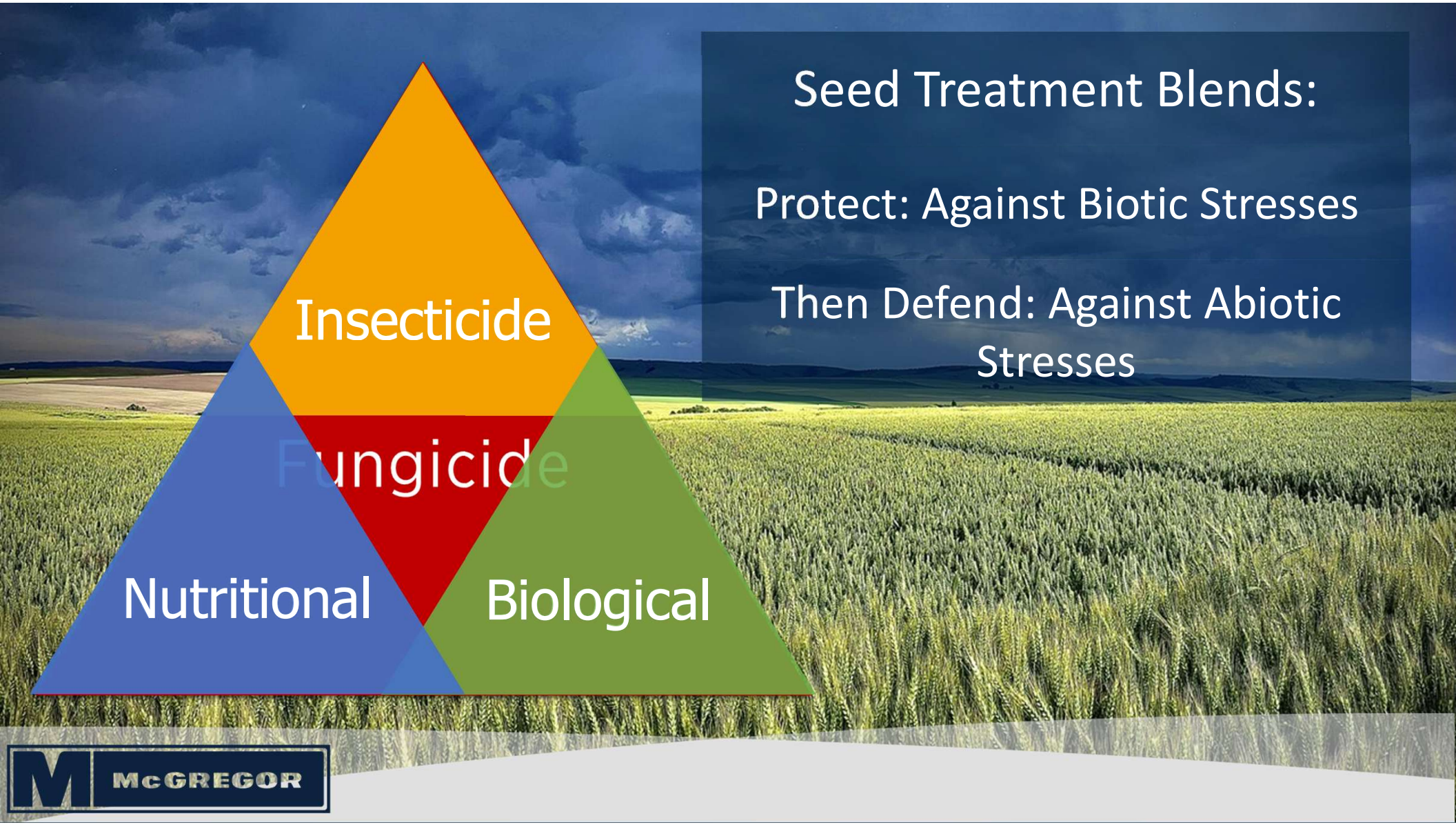
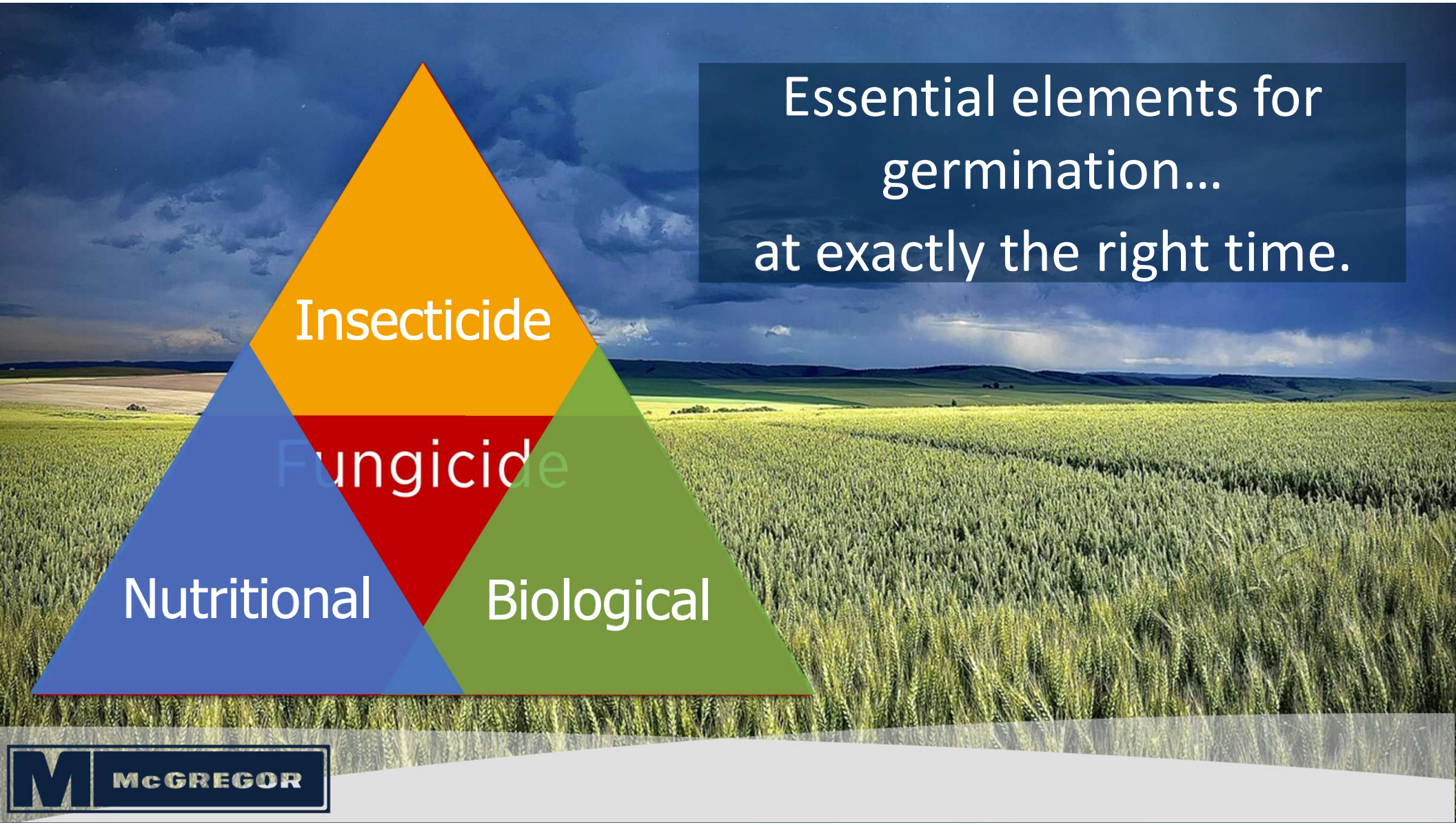

Seed Treatment Blends:
Protect: Against Biotic Stresses
Then Defend: Against Abiotic Stresses
Insecticide
Fungicide
Nutritional
Biological
McGREGOR


Essential elements for germination…
at exactly the right time.
Insecticide
Fungicide
Nutritional
Biological
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Seed-Applied Nutrition: Early Physiology + Regional Deficiencies

- Seed reserves are limited.
- Seed nutrition reflects region.
- Micronutrient uptake windows are narrow.
- Early access beats total pounds.
- Remove bottlenecks; don’t replace fertility.

Tissue Test Trends

(350 PNW Locations, Winter Wheat, 3 years)

Nutrient	Very High (20)	High (75)	Medium (75)	Low (75)	Very Low (15)
P	0.44	0.44	0.40	0.34	0.37
K	3.9	3.5	3.3	2.8	2.5
S*	0.38	0.38	0.37	0.35	0.38
Ca	0.54	0.54	0.52	0.53	0.70
Mg	0.16	0.16	0.17	0.18	0.22
B	3.4	3.1	3.1	3.2	3.3
Zn	21	19	17	15	18
Cu	5.3	5.6	5.7	6.1	6.6
Mn	170	149	148	140	152
Fe	236	219	227	244	282

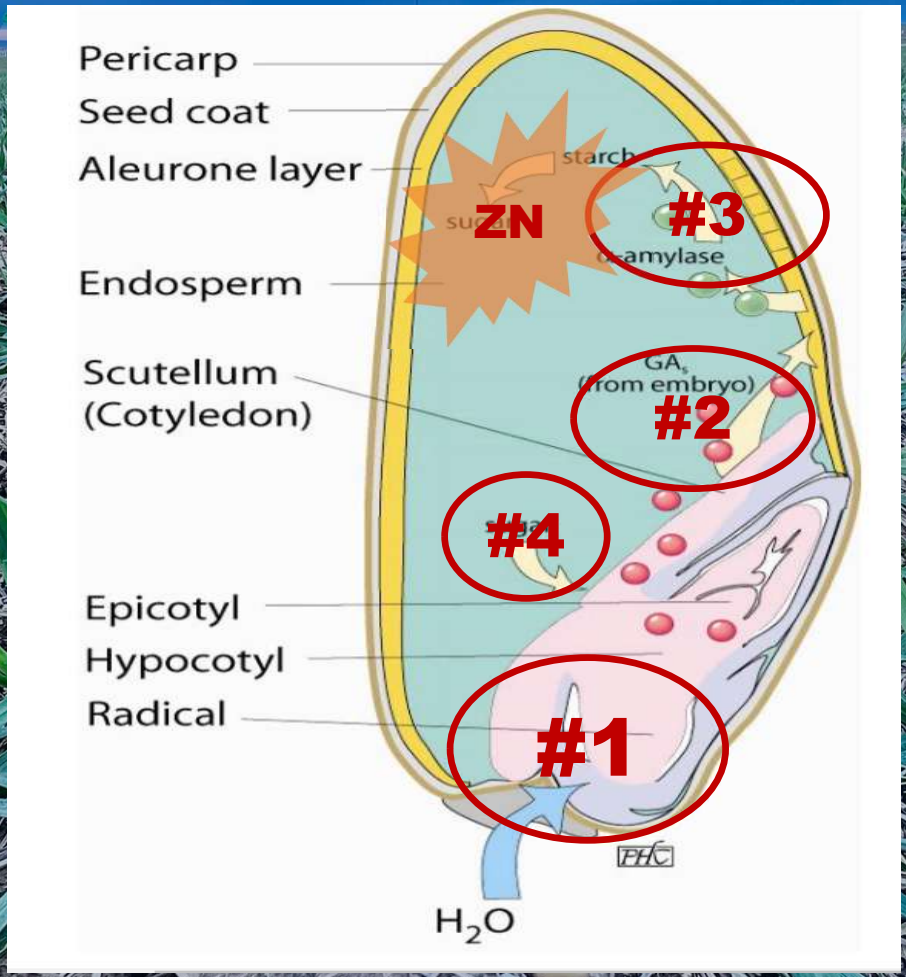
Excessive | Optimal | Responsive | Deficient

"Zinc deficiencies are widespread in most our growing regions"

(University of Idaho Extension publication CIS 1088, "Essential Plant Micronutrients: Zinc in Idaho)

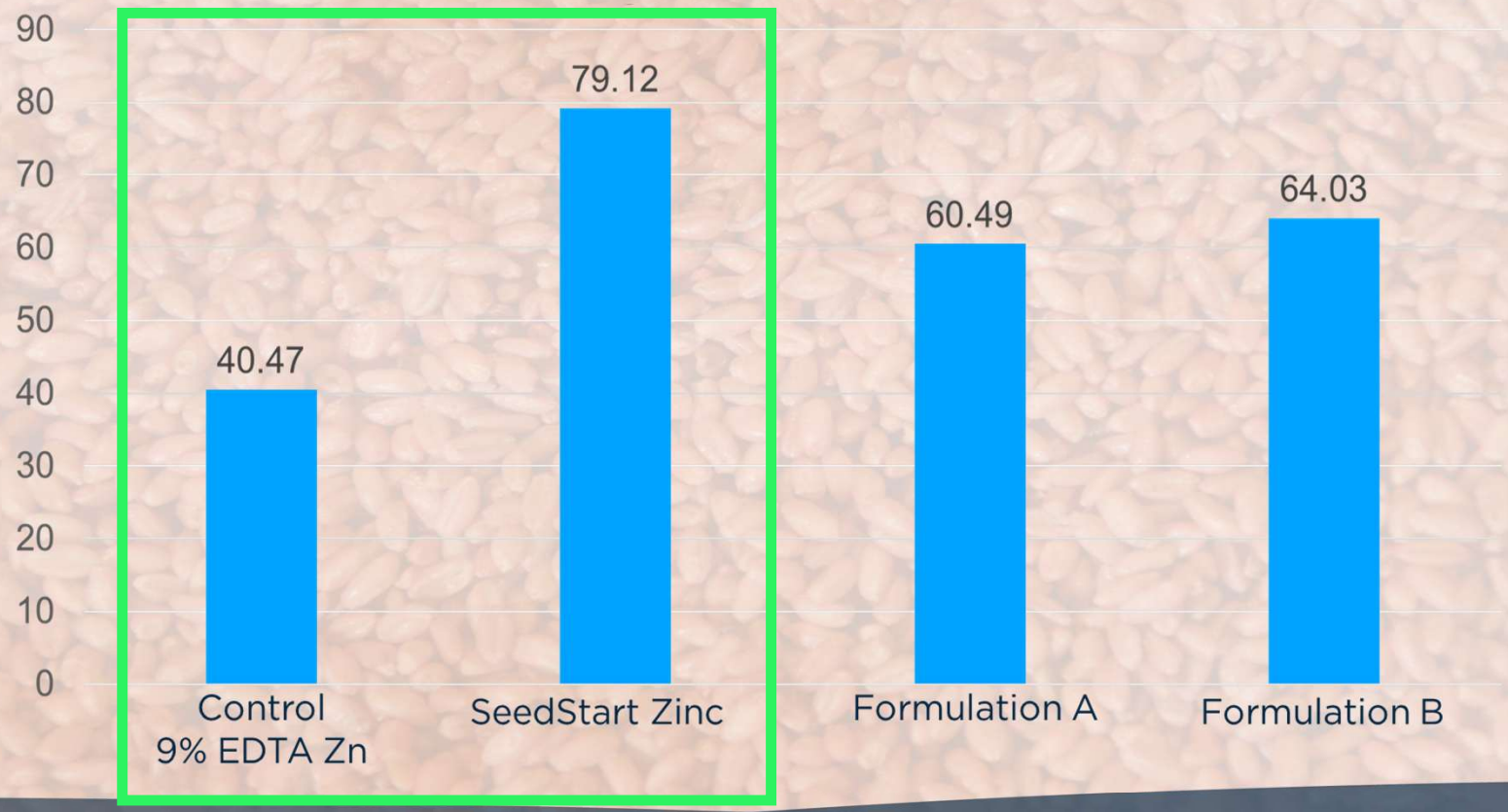
What is Zinc's Role in Seed Germination

1. Imbibition starts metabolism.
2. GA → α-amylase mobilizes reserves.
3. P supplies ATP to run it.
4. Zn enables growth signals (auxin) and functional metabolism/transport—faster, more uniform emergence



Zinc Availability in Leaves

Samples taken 14 Days After Emergence



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microFuze TECHNOLOGY

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Spring Wheat Seed Treatment Trial | Colfax, WA

SWS Tekoa planted 4/15/23 @ 900K mil seed/acre | photo taken 14 DAP

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Spring Malting Barley Seed Treatment Trial | Jerome, ID

Voyager planted 4/17/2024 @ 1.1 mil seed/acre | photo taken 14 DAP

Nutrients in Pinto Beans| Jerome, ID

Seed-Applied Treatments in Dry Beans | Jerome, ID
Dry Bean 'Rattler' | Planted 5/20/2025

Seed-Applied Treatment (All treatments seed applied, rates given in oz/cwt) (Treatments contain 1.0 oz Treat-Safe)		**Yield ^** (#/a)		**Test Wgt** (#/bu)	**Stand** **Count** (6/11/25)	**Stand** **Count**, (6/18/25)
0.28 oz Startup T-Mtyl + 0.16 oz Startup Mefen + 1.60 oz StartUP IMIDA + 0.085 oz Rancona 3.8 + 1.53 oz NIMAXXA		**3881**	a	62.6	93.4	93.8
LSV Vibrance FP CB + 1.5 SeedStart Hera		**3775**	a	63.4	89.9	86.6
0.28 oz Startup T-Mtyl + 0.16 oz Startup Mefen + 1.60 oz StartUP IMIDA + 0.085 oz Rancona 3.8		**3757**	a	61.9	93.9	93.9
LSV Vibrance FP CB + 1.0 SeedStart Root^2 + 0.5 SeedStart Hera		**3704**	a	62.3	92.9	95.9
LSV Vibrance FP CB + 0.30 oz Equento*		**3699**	a	60.2	97.5	88.5
LSV Vibrance FP CB + 2.0 SeedStart Root^2		**3690**	a	62.6	89.9	89.1
0.28 oz Startup T-Mtyl + 0.16 oz Startup Mefen + 1.60 oz StartUP IMIDA + 1.60 oz Rancona V 100		**3323**	b	61.6	94.6	96.4
LSV Vibrance FP CB (BASE) 1.28 Cruiser + 0.16 Vibrance + 0.16 Apron XL + 0.08 Maxim + 0.051 Rancona		**3270**	b	60.9	86.8	86.6
*Equento is not currently registered with the U.S EPA and is not listed for sale	Avg	3637		62.0	92.3	91.3
	CV	6.5%		2.3%	3.4%	3.7%
	SD	235		1.4	3.2	3.4

^ Groupings done using Fisher's LSD, 95% confidence level

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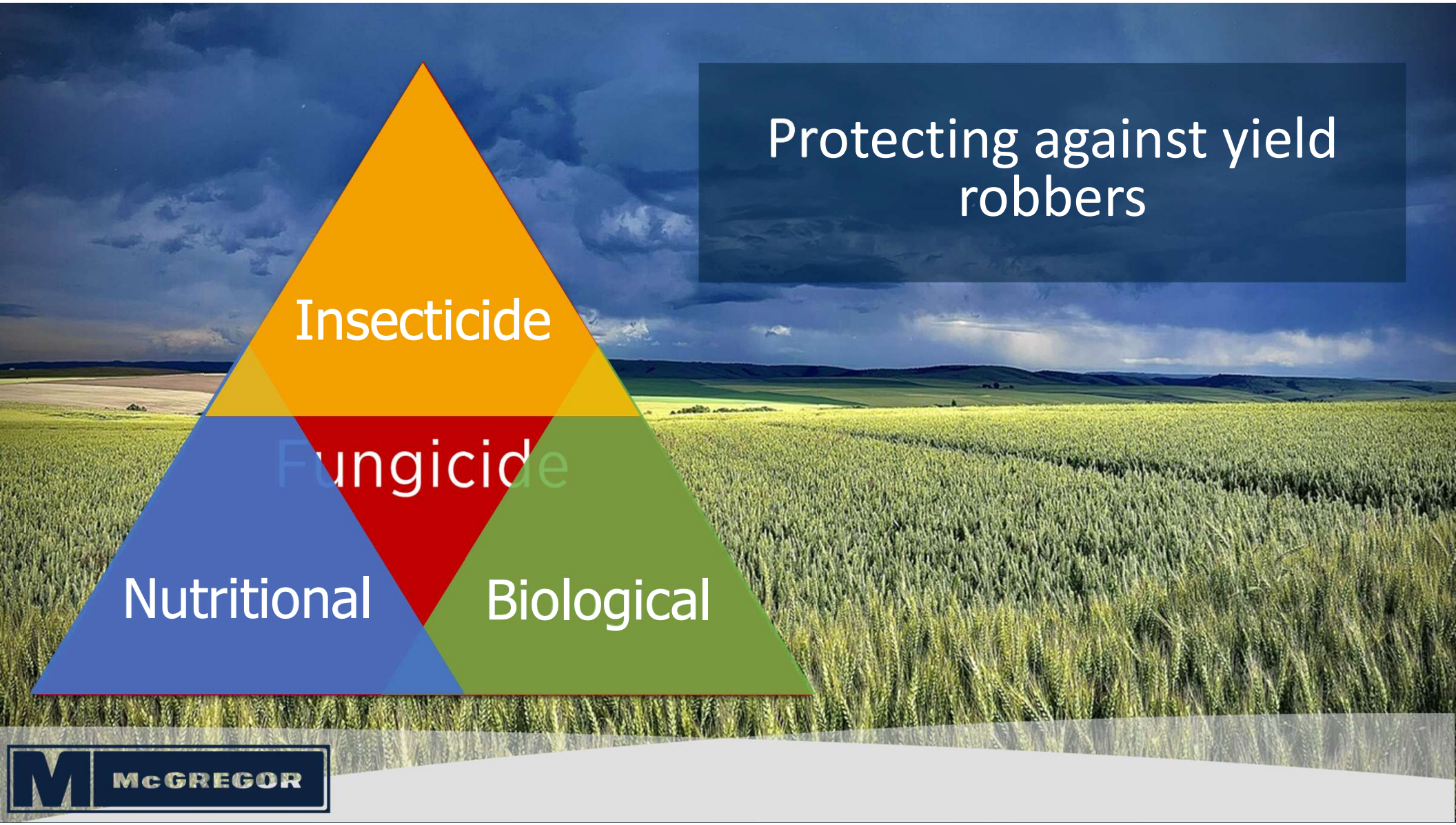
Protecting against yield robbers
Insecticide
Fungicide
Nutritional
Biological
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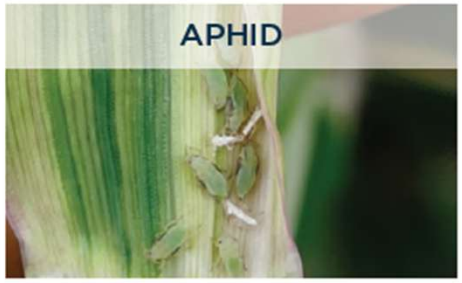
Baseline Pressure – The Pests We Always Plan For

Pest	How	Biology & Damage
Wireworms (True)	Underground root/ seed feeders	
Aphids - English grain aphid - Russian wheat aphid - Bird cherry-oat aphid - Rose-grass aphid - Greenbug	Sap-suckers	
Seed Corn Meggots		
Pea Aphid	Sap-suckers	
Pea Leaf Weevil	Nodule-destroyers	
Fall Armyworm & Cutworms	Night-feeding	



Aphids are most active in cool and moist weather, feeding on plant sap which leads to stunted growth and viral disease transmission. Barley yellow dwarf virus is an aphid-transmited virus prominent in PNW cereal crops.

Wireworms are the larval stage of click beetles. Prevalent in the PNW and largely untreated, the wireworm feeds on the crop's root system causing stunted growth, reduced plant vigor, and significant yield loss.

Armyworms are moth caterpillars with a distinct yellow, white, and brown stripe along the body. They feed on small gain crops causing damage by defoliating plants, or removing their leaves prematurely, and in some cases, by damaging seeds. Armyworms have been known to cause up to 35% yield losses in spring wheat.

Cutworms are the caterpillar stage of multiple moths known to cut down young plants as they feed on stems resulting bare areas and patches of plants that appear cut or clipped. Seedlings are especially susceptible to cutworm feeding.

The Pests We Miss When We Assume Too Much

Pest	How	Biology & Damage
Grasshoppers	Surface chewers	
Winter Grain Mite & Brown Wheat Mite	Sap-suckers	
Cereal Leaf Beetle (CLB)	Leaf skeletonizers	
Hessian Fly	Leaf sheath borers	
Wheat Stem Sawfly	Leaf sheath borers	
False Wireworms	Underground root/ seed feeders Surface chewers	
True Armyworm	Crown/ stem cutters	

Insecticide Toolbox

4A Neonicotinoids

Thiamethoxam

Cruiser

Legend

Imidacloprid

Resonate

Startup IMIDA

Clothianidin

Nipsit Inside

30 Isoxazolines & Meta-diamides

Broflanilide

Teraxxa

Isocycloseram

Equento

28 Diamides

Chlorantraniliprole

Lumivia

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Equento in Pinto Beans| Jerome, ID

Seed-Applied Treatments in Dry Beans | Jerome, ID
Dry Bean 'Rattler' | Planted 5/20/2025

Seed-Applied Treatment (All treatments seed applied, rates given in oz/cwt) (Treatments contain 1.0 oz Treat-Safe)		**Yield ^** (#/a)		**Test Wgt** (#/bu)	**Stand Count** (6/11/25)	**Stand Count,** (6/18/25)
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	CV	6.5%		2.3%	3.4%	3.7%
	SD	235		1.4	3.2	3.4

^ Groupings done using Fisher's LSD, 95% confidence level

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Wireworm Seed Treatments on Winter Wheat | LaCrosse, WA

SY Assure Planted 10/10/2024 | @ 750K seed/ac | No Starter

Class	Yield^ (bu/a)		Spring Vigor (score, 1-9)
VF Base + (7.5 g Isocyclobseram + 20 g Thiamethoxam)	**68**	a	2.0
VF Base + 7.5 g Isocyclobseram + 20 g Thiamethoxam	**68**	a	2.3
Teraxxa F4 + Clothianidin	**67**	a	2.3
VF Base + 5 g Isocyclobseram + 20 g Thiamethoxam	**66**	ab	3.3
DE+V	**54**	c	3.7
	64.5 3.4% 2.22	Avg CV SD	2.6 1.00

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Dead Tiller Due to Wireworms

History of diseases or insects or weeds…

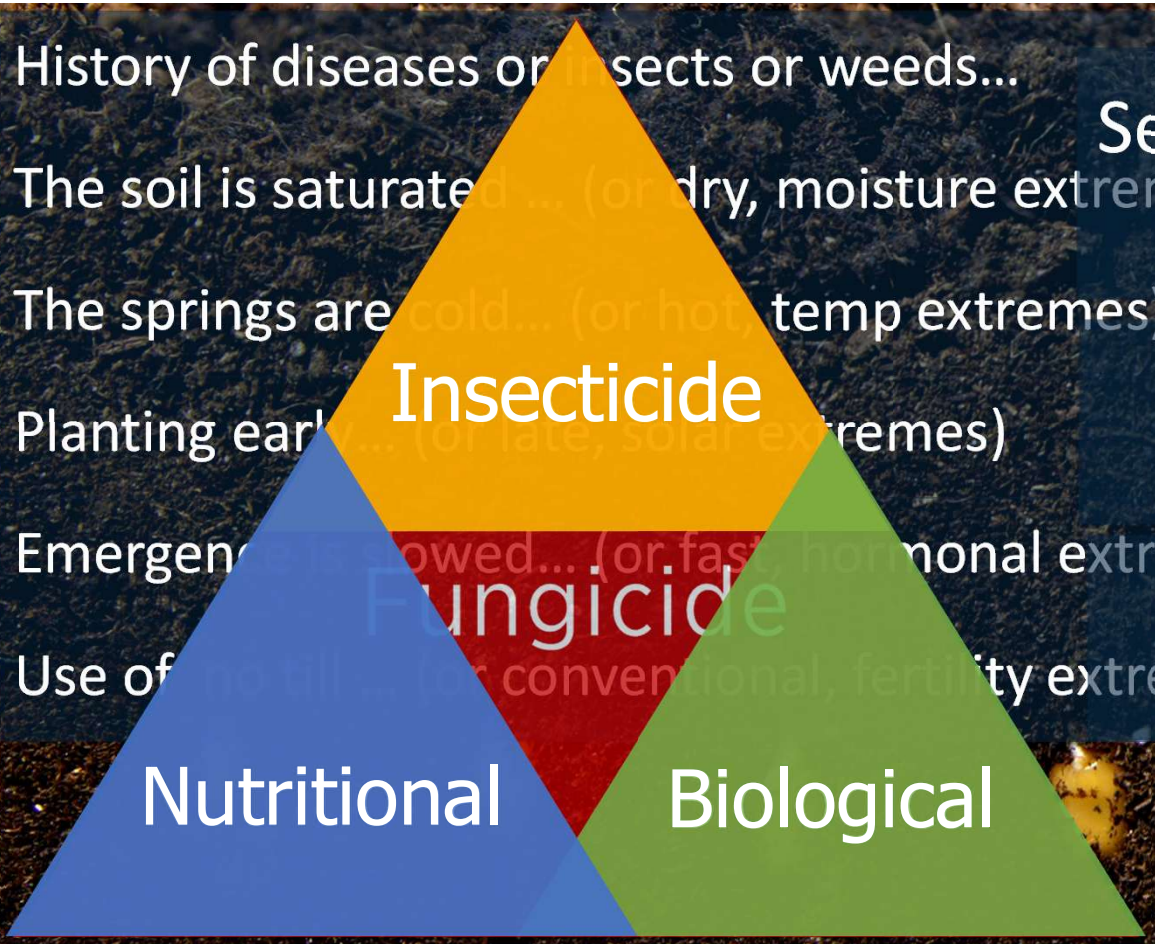
The soil is saturated … (or dry, moisture extremes)

The springs are cold… (or hot, temp extremes)

Planting early… (or late, solar extremes)

Emergence slowed… (or fast, hormonal extremes)

Use of no till … (or conventional, fertility extremes)



Seed treatments matters more than you think.

Protect: Against Biotic Stresses w/ **Multiple MOA Insecticides**

Defend: Against Abiotic Stresses w/ SeedStart

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Seed Treatment Team

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