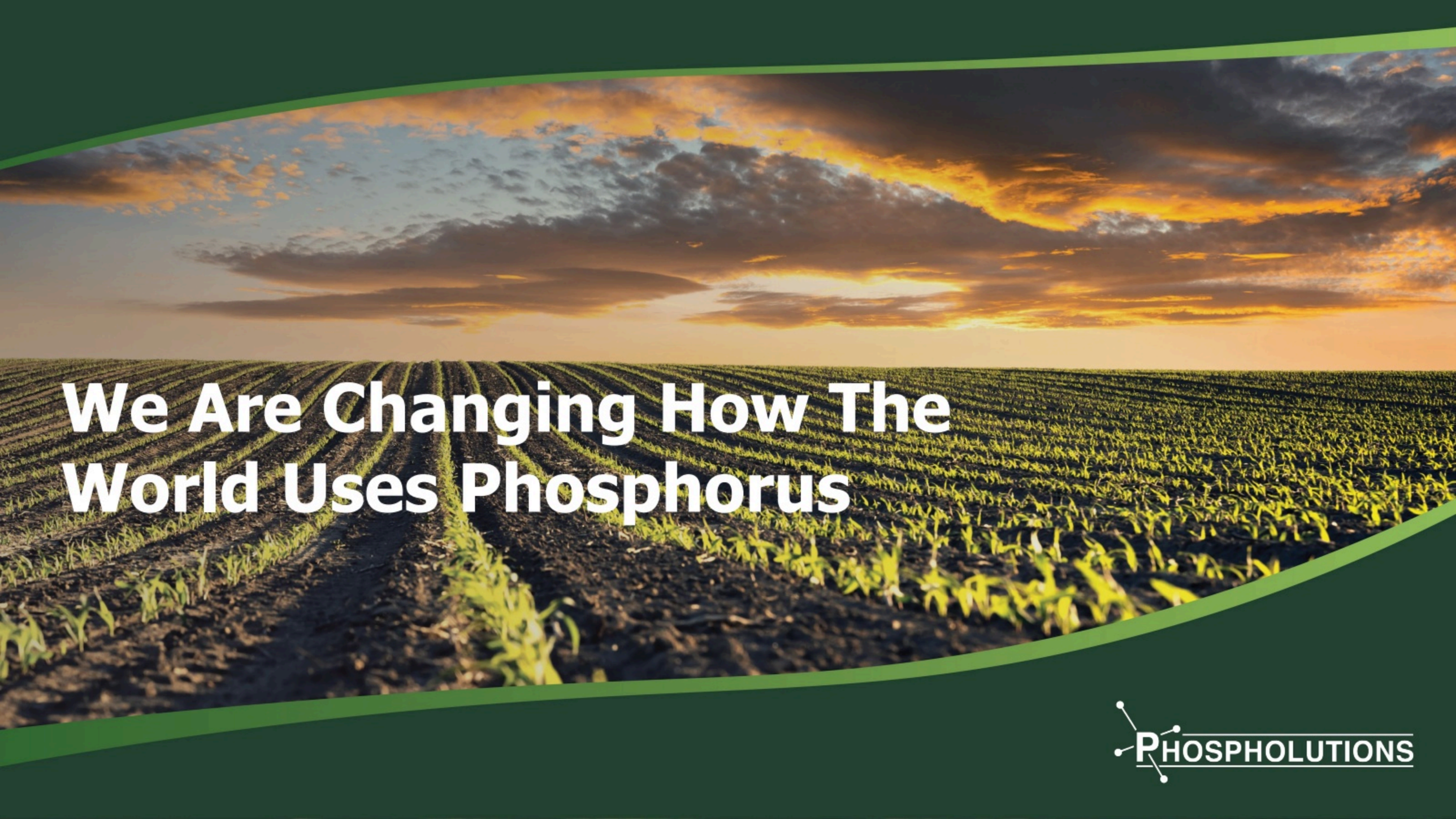

We Are Changing How The World Uses Phosphorus
PHOSPHOLUTIONS

Global P Use is Inefficient & Unsustainable

Inefficient Use

As much as 90% of conventional P fertilizer is wasted, lowering profitability for farmers and contributing to runoff

Global Impact

Inefficient use degrades our waterways and is a large contributor of GHG emissions at ~1.7MT CO2 eq./ MT P_2O_5

Limited Resource

P rock is mined in only a few select regions globally, limiting availability and contributing to food insecurity

Growers need more reliable solutions to increase phosphorus fertilizer efficiency

Global P Market Opportunity & Growth

Today

Conventional sources are not efficient

Short Term

Phosphorus fertilizer prices are volatile

Long Term

Resources are finite

Global P Market Expected to Reach **$70B+** by 2025

Global resources located in only a few select regions

- 70%+ of the world's supply is in Morocco; US has less than 40 years left
- Lack of phosphorus fertilizer leads to yield loss
- Unequal access of affordable fertilizer exaggerated by geopolitical factors
- Inefficient use and lack of availability of fertilizer is destabilizing fragile food systems
- P fertilizer prices were up 4x from 2019 to 2022

Phospholutions Commercial Opportunity

Market Need

Farmers are seeking reliable phosphate efficiency solutions; P has fewer alternative solutions than N available

Business Model

Profit sharing model with fertilizer producers to manufacture and sell through established Ag retail channels, increasing scalability and reducing commercial launch risk

Commercial Status

Actively selling RhizoSorb® to US row crop market; Not exclusive with any producer, but working with most major input companies

Partnerships

Partnering with raw material suppliers and large fertilizer manufacturers to create more sustainable fertilizers

RhizoSorb® – The Future of Phosphorus

Scalable & Easy to Use

Breakthrough tech to improve efficiency and only patented fertilizer additive embedded into granules during production

Sustainable Solution

Reduces GHG emissions for fertilizer use by 51% per acre and reduce runoff potential by 58%

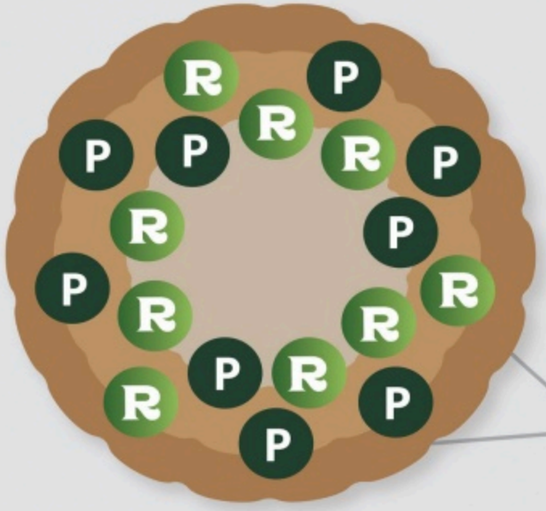
Higher Profitability

Decrease cost of production and increase sales price to improve P manufacture margins per ton

Preserved Yields

Growers use 50% less phosphorus per acre while preserving yield and cutting P fertilizer costs by 10% or up to $20 in savings per acre

Ensuring Fertilizer is Available When Needed



Plant-Based Release

RhizoSorb® releases P based on plant dependent factors rather than environmental conditions allowing the plant to utilize more applied nutrients during the growing season.

P_2O_5

Soil Chemistry Approach

Majority of applied phosphates are quickly tied up in the soil making them unavailable for plant uptake. RhizoSorb® acts a reversible reservoir avoiding tie up while decreasing nutrient leaching.

Anionic Exchange Capacity

RhizoSorb® is the first technology that increases Anionic Exchange Capacity to promote more efficient nutrient exchange around the root zone.

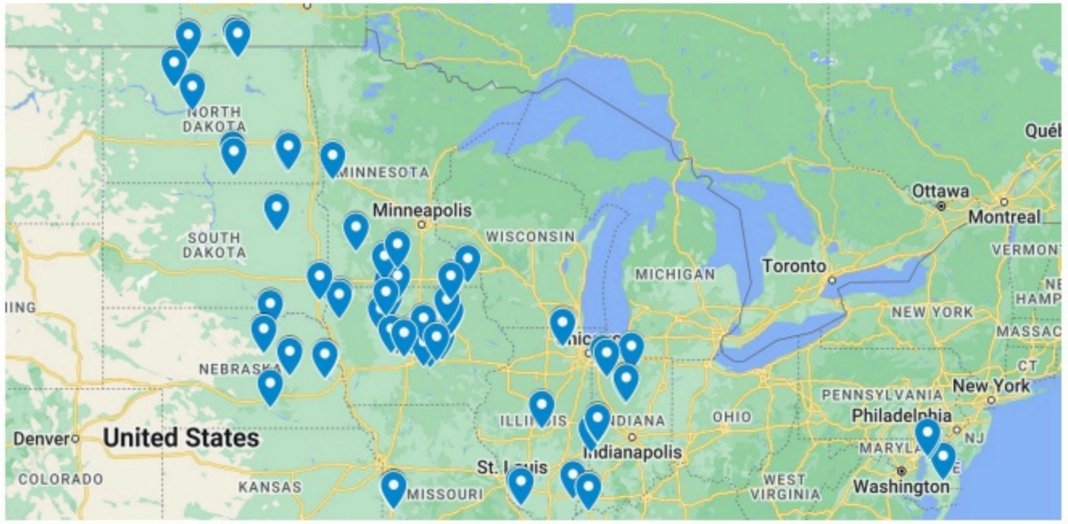
Proven to Preserve Yield Using 50% Less Phosphorus Fertilizer

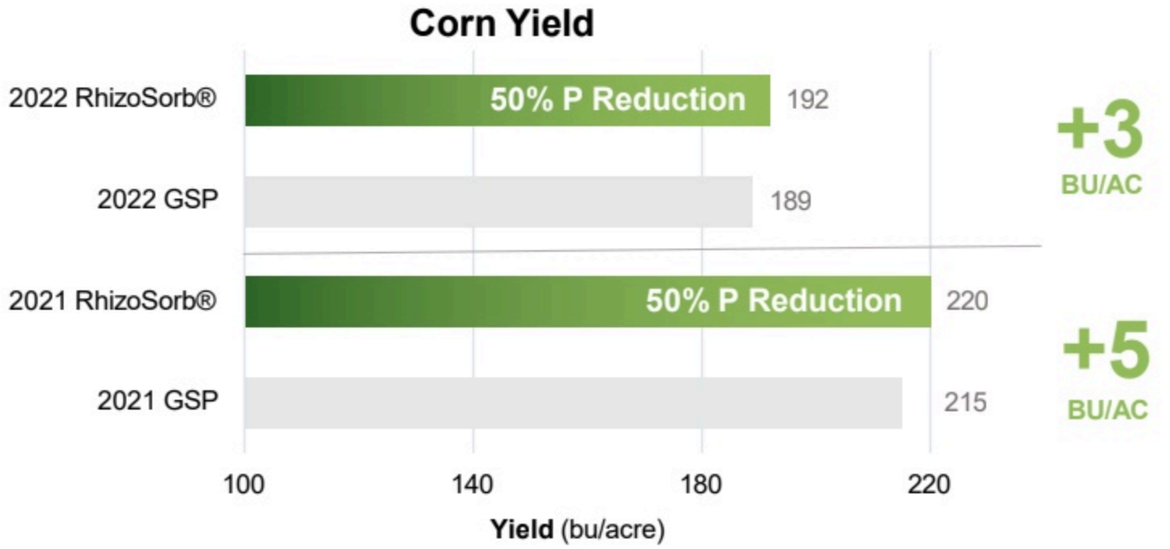
RhizoSorb® has been tested across 200 trial locations across 14 states demonstrating increased yields using 50% less phosphorus per acre.

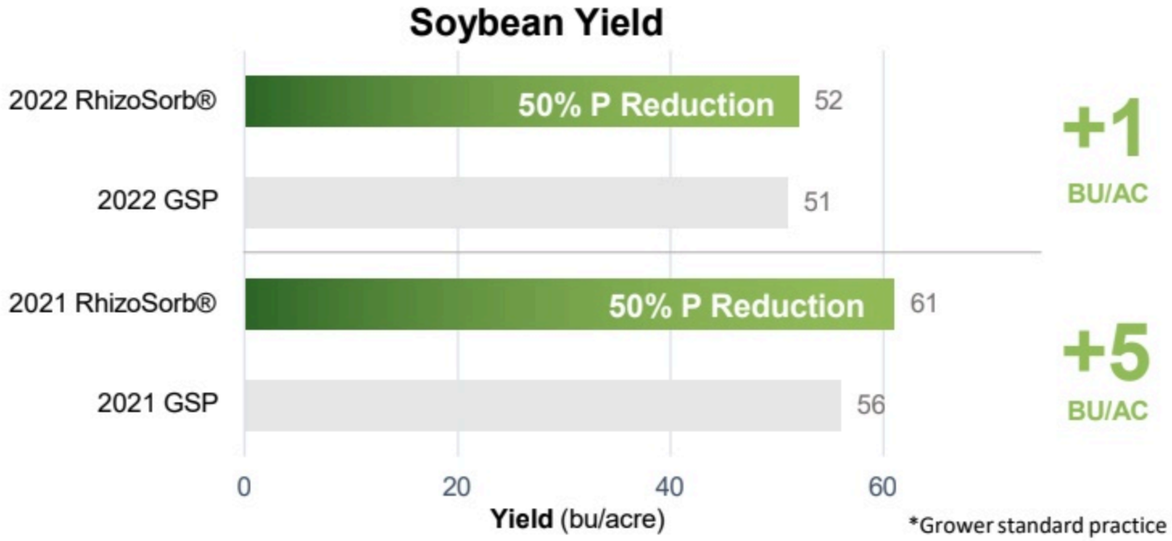
Iowa Spotlight

RhizoSorb® had a 92% success rate across 31 sites in 2022 using 50% less P.

+3.6 BU/AC







*Grower standard practice (GSP)

Global Sustainability Impact

- Reduce runoff potential by 58% and leaching by 84%[1]

  *Study conducted by New Zealand Plant and Food Research Institute

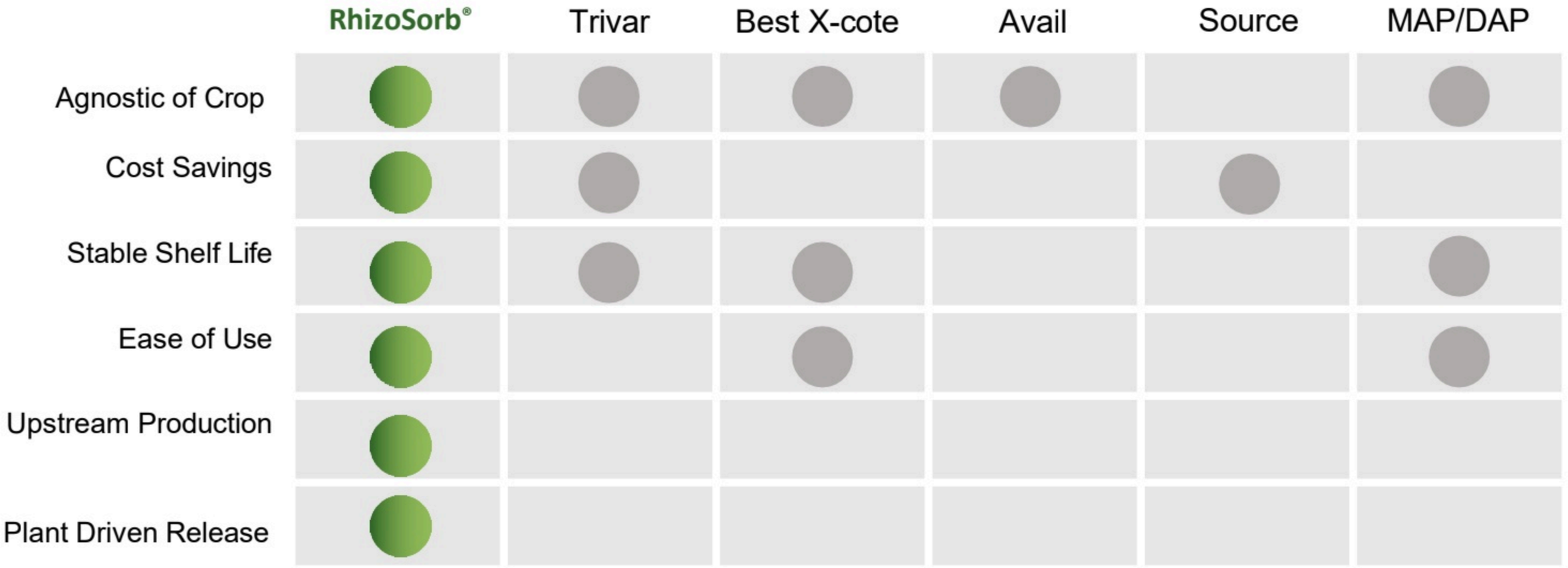
- Decrease CO_2e emissions by 51% equating to 44 million MT CO_2e reduction annually[2]

  *Excludes additional reductions from reducing eutrophication.

- Increase in root biomass and reduction in synthetic fertilizer use leads to better soil health, organic matter, and increased biodiversity

1. USGS and USEPA estimated 6% loss of P fertilizer from farms.
2. LCA estimate based on industry LCA data and reduction of input needs.

Establishing a New Industry Standard



Value Proposition to Grower and Channel

Farmer Value Proposition: Reduce costs by ~10% per acre and preserve yield

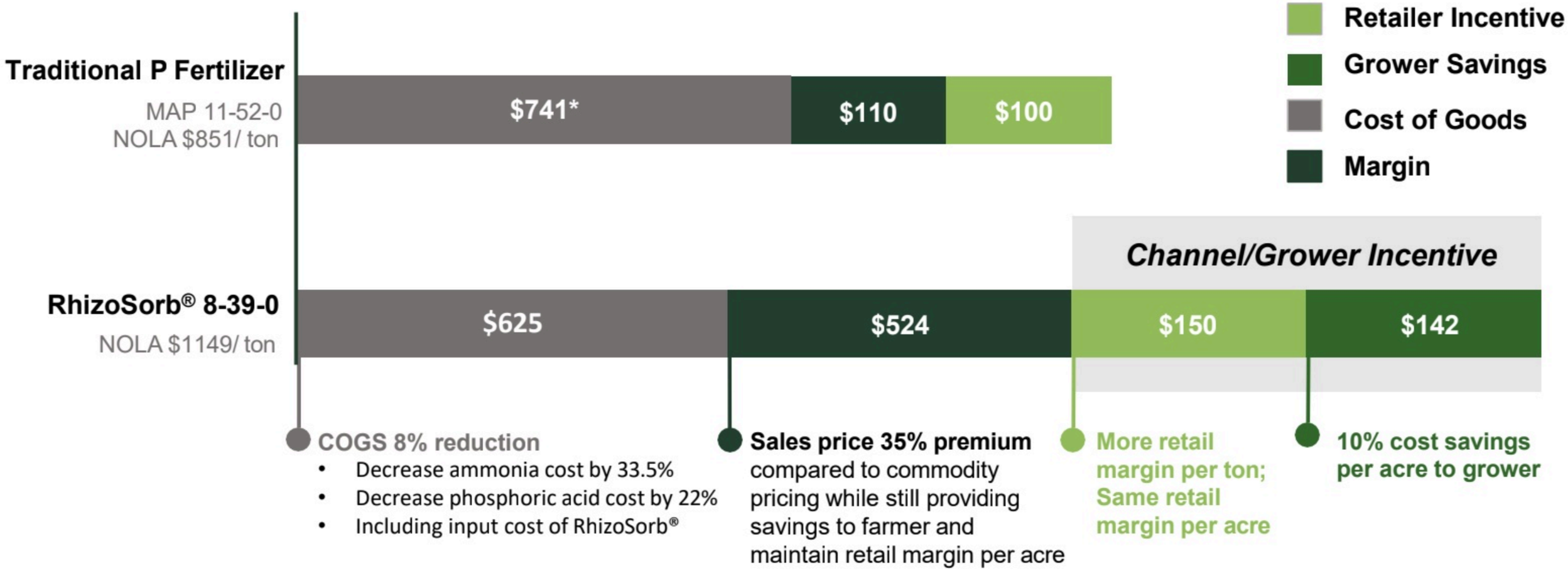
	MAP	RhizoSorb®
Cost per ton	$951	$1299
Use rate per acre	154lbs	103lbs
Cost per acre	$73.23	$66.90

Retailer Value Proposition: Make more margin per ton, move 33% less product per acre

	MAP	RhizoSorb®
Revenue per ton	$951	$1299
Cost per ton	$851*	$1149
Margin per ton	$100	$150
Margin per acre	$7.70	$7.70
Tons per acre	.077	.052

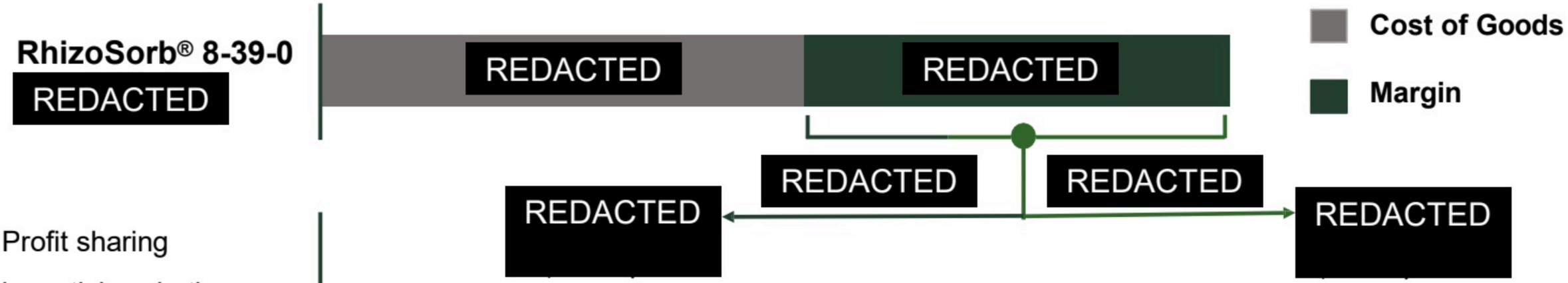
*Avg NOLA F.O.B. pricing of $851 per MAP ton in 2022

Improving Profitability for Commodity Phosphate Producers with Breakthrough Technology



*Actual costs for The Mosaic Company (MOS:NYSE) in 2022 based on CRU data

Profit-Sharing Model Improves Margin for Producers with Low-Cost Higher-Efficiency Technology



Profit sharing incentivizes both parties to **reduce cost, maintain value, and share commodity cycle impacts equally**

P Manufacturer Benefits

- Double profit margin per ton
- Increase profit margin by $5+ per acre
- Reduced handling costs by 33%
- Extend mine life by 2x
- Reduced GHG emissions by 51%

Phospholutions Contribution

- Formulation know-how
- Technology and IP protection
- Raw material supply for RhizoSorb®
- Brand value
- Commercial data
- Ag retail partnerships

Go to Market Strategy

Strategic Partnerships	Milestones	Immediate Actions
Partner with large phosphate producers to reduce cost and scale production	• Performance trials in US on row crops • Production pilot runs to define COGS at scale • Establish retail distribution partnerships for demand creation and market validation	• Provide product & trial support for performance trials • Manufacturing pilots at scale and formulation support • Establishing early market demand through retail partnerships being formed in 2023-2024
Distributing product in US directly through Ag retail partnerships	• Marketing RhizoSorb direct to grower for demand creation at retail level • Retail demo program this spring • Providing additional margin per ton to match per acre margin from conventional fertilizer • Hiring sales team to establish retail partnerships to distribute product at scale	• Building team of regional agronomists to support retail distribution • Producing 250 tons with a toll manufacturer for Spring 2023 demo program • Selling 5,000 tons (~100K acres) this fall through retail for delivery in Spring 2024
Creating grower demand through product demonstrations	• Technical sales team managing product demonstrations this spring with select growers • Providing cost-savings benefit to growers per acre • Grower direct marketing efforts	• Building brand awareness through email campaigns, media exposure, trade show attendance, and demo program

Raising Series B to Establish Retail & Manufacturing Partnerships

2019

$1.5M Seed round for research and development

2021

$10.3M Series A for product development and on-farm trials

2022

Raised $5.3M convertible note to support pre- commercial trials

2023

Raising $9M to provide runway for commercial milestones before Series B

2024

Raising an additional $30M Series B to drive revenue growth in US markets to be profitable by 2026

Short-Term Objectives

REDACTED