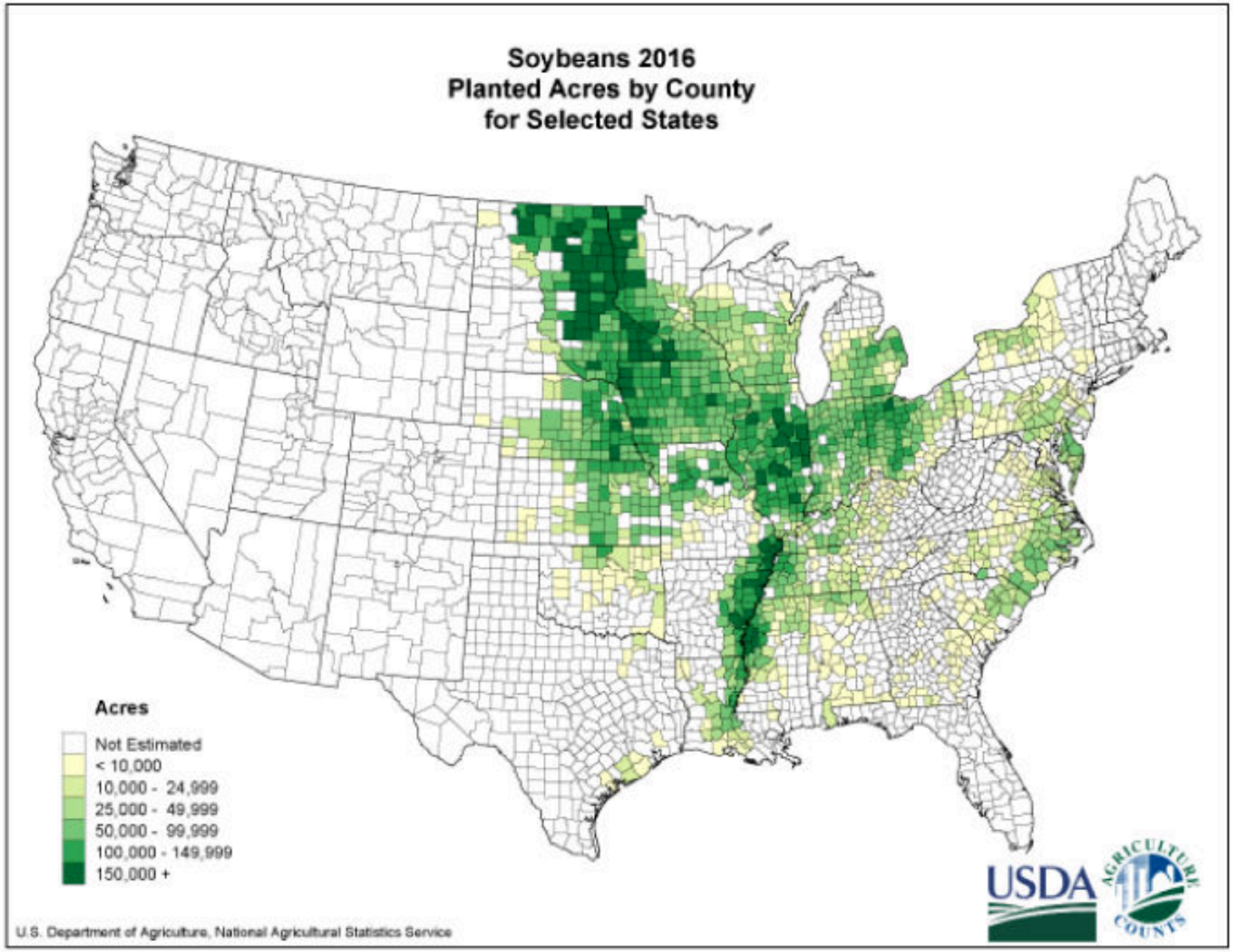
AGROLIQUID

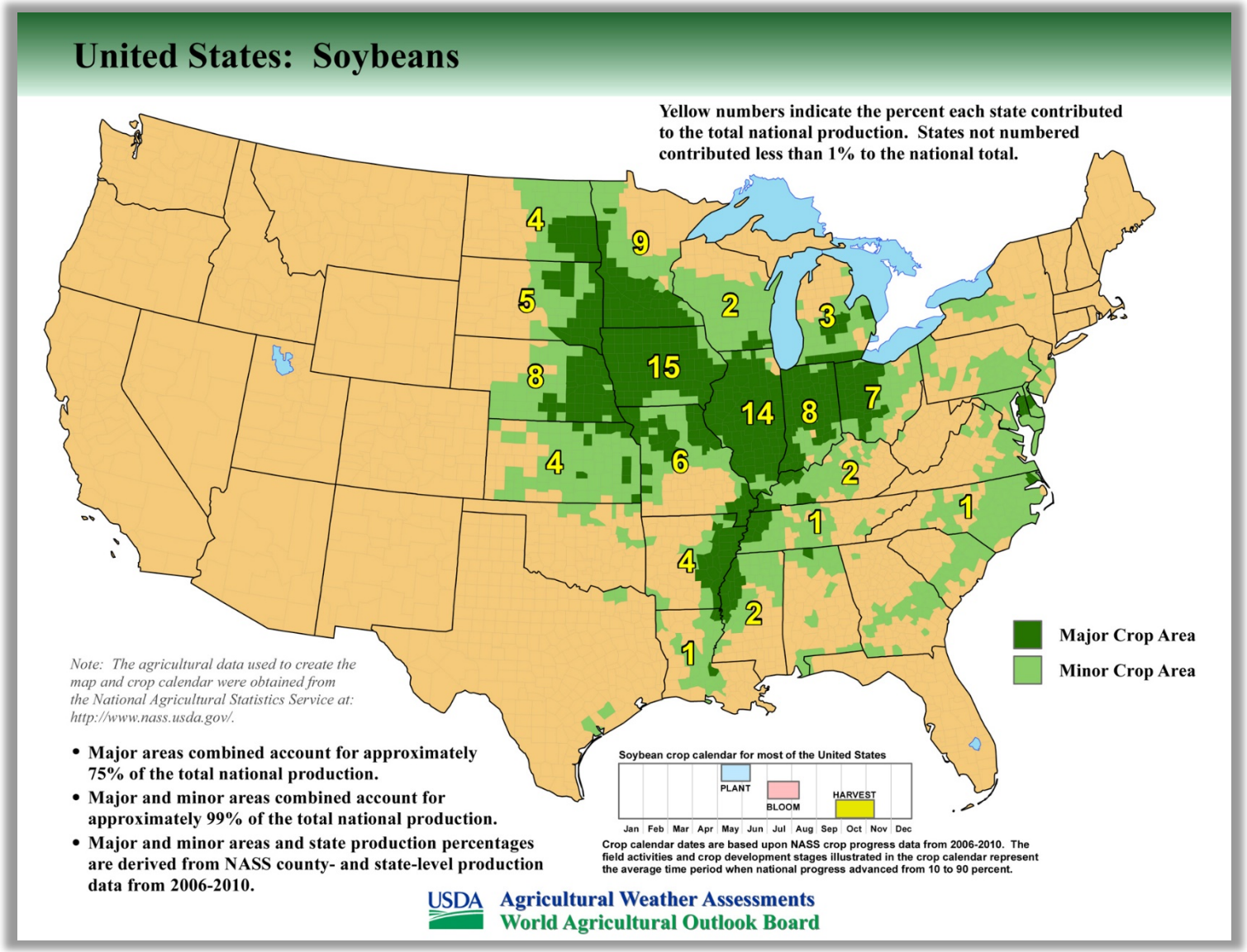
For The Soil | For The Plant | For the Future

Soybeans

Where should we focus our efforts on Soybean (Yield per county)



Percent of total national production



How can AgroLiquid perform better than the rest?

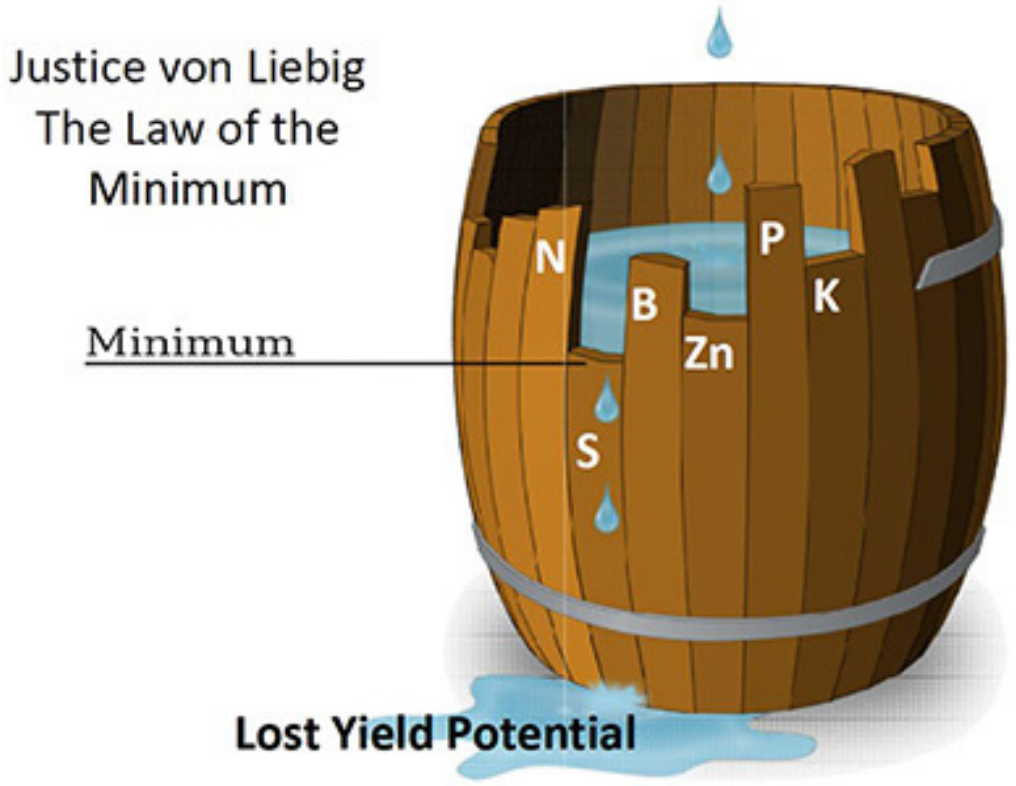
- The **Right Balance**
- The **Right Timing**
- The **Right Placement**
- The **Right Amount**
- The **Right Product** (and science)

For The Soil | For The Plant | For the Future

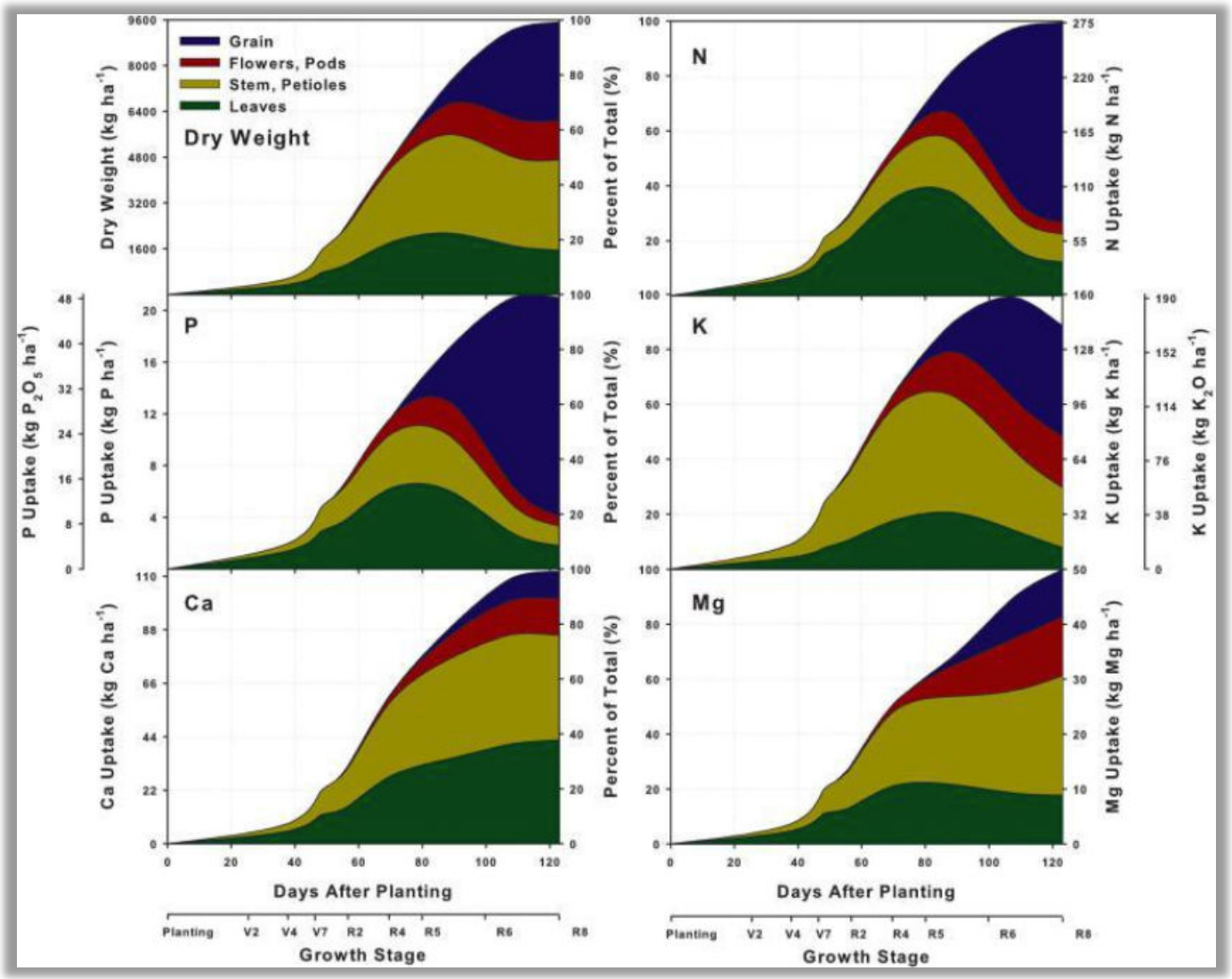
AGROLIQUID

The Right Balance

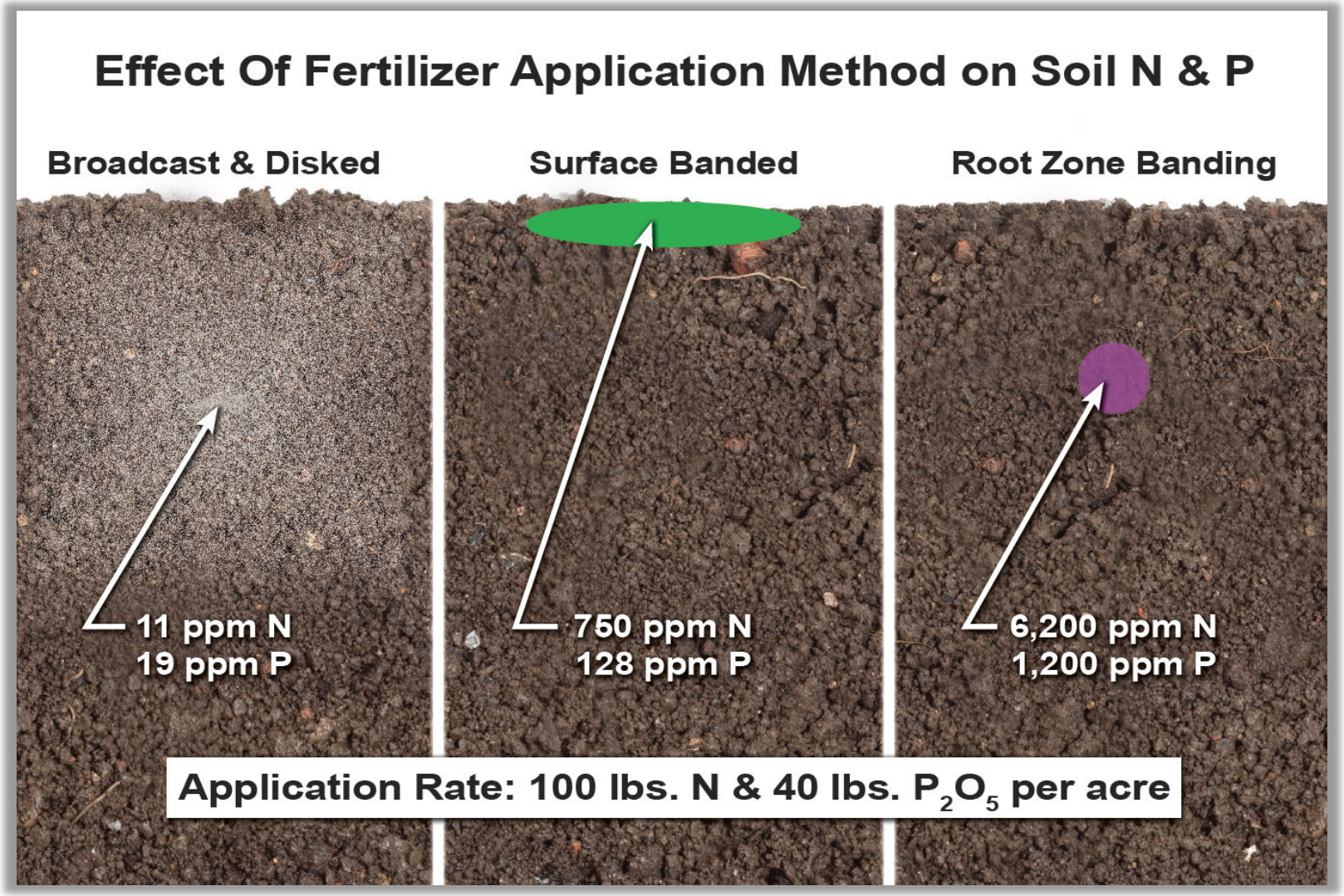
- **NUTRIENT BALANCE** is a major factor in a proper fertility program
- A crop's yield potential is determined by the "most limiting nutrient"



The Right Time



The Right Placement



The Right Amount

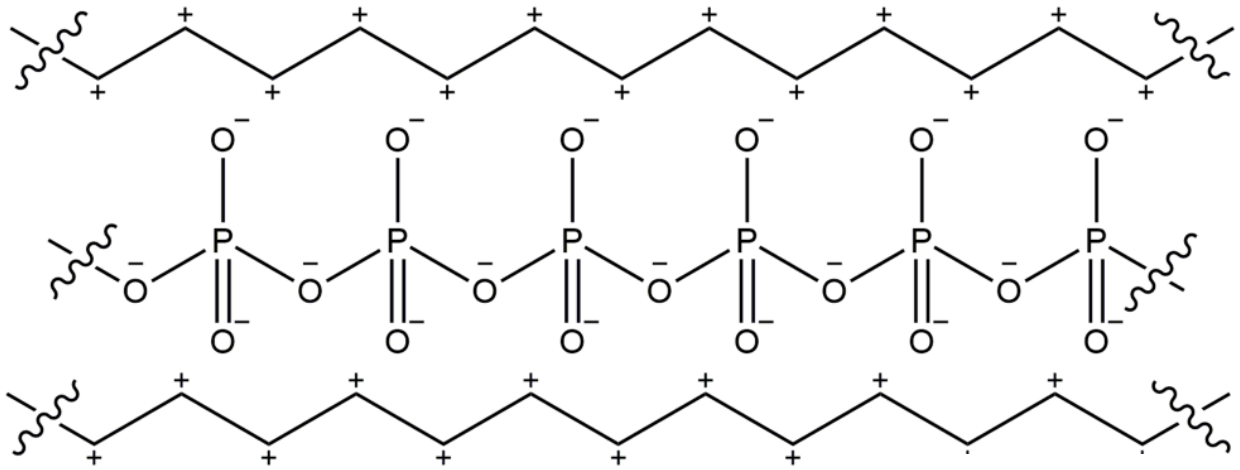
- Soil and Tissue Testing
- 30+ years of research across multiple cropping conditions and geographies
- **AgroLiquid provides a talented staff of agronomists, researchers, salesmen, and retailers to help bring together all components of your fertility program!**

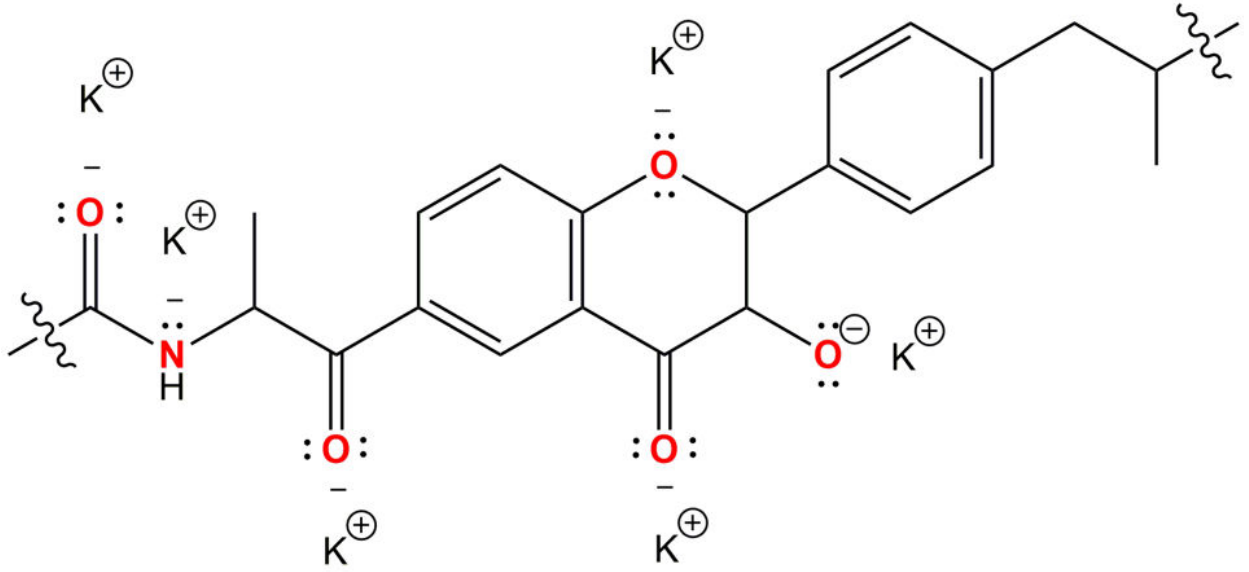
The Right Products: What to Look For

- Consistent manufacturing
- Quality raw materials
- Clean, easy to use, and less corrosive
- Low potential for plant injury
- Research proven technology

- With many products hitting the market with these qualities, what separates AgroLiquid?

Flavonol Polymer Technology





The Right Products!

For The Soil | For The Plant | For the Future

AGROLIQUID

Phosphorus in Soybeans

Need to know:

- Yield goal
- Crop nutrient needs - crop removal is 0.9 lb/bu
- Soil pH, presence of other cations (ex. aluminum)
- Available phosphorus from soil

ProGerminator®

10 – 13 lb P_2O_5/gal equiv.

PRIMAGRO TECHNOLOGY

10 – 13 lb P_2O_5 + 0.5 lb S/gal equiv.

For The Soil | For The Plant | For the Future

AGROLIQUID

Potassium in Soybeans

Kalibrate™ Precision Potassium

10 – 13 lb K_2O/gal equiv.
2 lb S/gal equiv.

Need to know:

- Yield Goal
- Crop nutrient needs – crop removal is 2.6 lb/bu
- Available potassium from soil
  - Additional Kalibrate or Sure-K may be required in low K base saturation soils – especially lower CEC soils

Sure-K®

10 – 13 lb K_2O/gal equiv.

For The Soil | For The Plant | For the Future

AGROLIQUID

Calcium in Soybeans

- Integral to nutrient uptake in plants
- Stimulates root growth and development of growing points and flowers
- Do not confuse AgroLiquid products with lime ($CaCO_3$)

LIBERATE*Ca*™

8 lb Ca/gal equiv.

S-Calate™

For The Soil | For The Plant | For the Future

AGROLIQUID

Micronutrients in Soybeans

- Soybeans respond to applications of Manganese and Iron
- Boron important for pollination and pod set

Micro 500™

Manganese

Iron

Boron

For The Soil | For The Plant | For the Future

AGROLIQUID

Using Soil Tests to Understand Relationships Between Nutrients

LAB NUMBER *240*	SAMPLE IDENTIFICATION	ORGANIC MATTER L.O.I. percent	RATE	PHOSPHORUS P_1 (WEAK BRAY) 1:7 ppm	RATE	PHOSPHORUS P_2 (STRONG BRAY) 1:7 ppm	RATE	OLSEN BICARBONATE P ppm	RATE	NEUTRAL AMMONIUM ACETATE (EXCHANGEABLE) POTASSIUM K ppm	RATE	MAGNESIUM Mg ppm	RATE	CALCIUM Ca ppm	RATE	SODIUM Na ppm	RATE	pH SOIL pH 1:1	BUFFER INDEX	CATION EXCHANGE CAPACITY C.E.C. meq/100g	PERCENT BASE SATURATION (COMPUTED) % K	% Mg	% Ca	% H	% Na
53650	HEADRICK	1.6	L	18	M	38	M			369	VH	436	VH	2078	M	23		6.0	6.7	17.8	5.3	20.4	58.4	15.3	0.6
53651	WARREN	1.2	VL	27	H	41	H			301	VH	364	VH	1396	L	22		5.1	6.7	17.6	4.4	17.2	39.7	38.2	0.5
53652	W ELDORADO	1.7	L	5	VL	40	H	7	L	430	VH	321	VH	4127	VH	21		8.4		24.5	4.5	10.9	84.2	0.0	0.4
53653	E DOUGHTY	1.0	VL	23	H	61	VH			339	VH	229	VH	1134	M	14		6.0	6.8	10.0	8.7	19.1	56.7	14.9	0.6
53654	TOWNSEND	0.5	VL	26	H	32	M			172	VH	123	M	484	VL	21		4.5	6.8	9.5	4.6	10.8	25.5	58.1	1.0
53655	N TEMPLER	0.6	VL	37	VH	44	H			166	VH	101	M	500	L	16		4.7	6.8	7.7	5.5	10.9	32.5	50.2	0.9
53656	MARTHA	0.6	VL	32	VH	58	H			288	VH	210	VH	1008	M	19		5.5	6.7	10.3	7.2	17.0	48.9	26.1	0.8
53657	RIVER	0.7	VL	5	VL	58	H	7	L	228	VH	120	L	2600	VH	20		8.2		14.7	4.0	6.8	88.6	0.0	0.6
53658	IKEN	0.6	VL	25	H	31	M			157	H	128	M	701	L	18		4.8	6.8	9.6	4.2	11.1	36.5	47.4	0.8
53659	DUKE	1.6	L	19	M	110	VH	12	M	608	VH	424	VH	3744	H	17		7.5		23.9	6.5	14.8	78.4	0.0	0.3

LAB NUMBER *240*	NITRATE-N (FIA) SURFACE ppm	SURFACE lbs/A	SURFACE depth (in)	SUBSOIL 1 ppm	SUBSOIL 1 lbs/A	SUBSOIL 1 depth (in)	SUBSOIL 2 ppm	SUBSOIL 2 lbs/A	SUBSOIL 2 depth (in)	Total lbs/A	SULFUR S ICAP ppm	RATE	ZINC Zn DTPA ppm	RATE	MANGANESE Mn DTPA ppm	RATE	IRON Fe DTPA ppm	RATE	COPPER Cu DTPA ppm	RATE	BORON B SORB. DTPA ppm	RATE	EXCESS LIME RATE	SOLUBLE SALTS 1:1 mmhos/cm	RATE
53650	16	29	0-6							29	18	M	0.6	L	30	VH	29	VH	1.0	M	0.6	L	L	0.3	L
53651	25	45	0-6							45	19	H	0.4	VL	49	VH	39	VH	1.0	M	0.5	L	L	0.2	L
53652	5	9	0-6							9	12	L	0.3	VL	8	L	10	L	1.0	M	1.0	M	M	0.3	L
										50	12	L	0.4	VL	14	H	16	M	1.0	M	0.5	L	L	0.2	L
										29	15	M	0.6	L	20	H	39	VH	0.5	L	0.5	L	L	0.2	L
										49	18	M	0.8	L	17	H	48	VH	0.5	L	0.6	L	L	0.2	L
										50	14	M	0.8	L	25	H	32	VH	1.0	M	0.5	L	L	0.2	L
										49	17	M	0.2	VL	4	VL	7	L	0.5	L	0.9	M	M	0.2	L
										41	18	M	0.4	VL	11	M	26	VH	0.4	L	0.4	VL	L	0.2	L
										95	26	VH	0.6	L	10	M	11	M	1.2	M	1.2	M	L	0.5	L

REV. 12/03

Manganese (Mn)

Iron (Fe)

For The Soil | For The Plant | For the Future

AGROLIQUID

Seed treatments and planter placement

For The Soil | For The Plant | For the Future

AGROLIQUID

Musgrove Grain in Lake Odessa, MI

1 oz/unit Seed Treatment

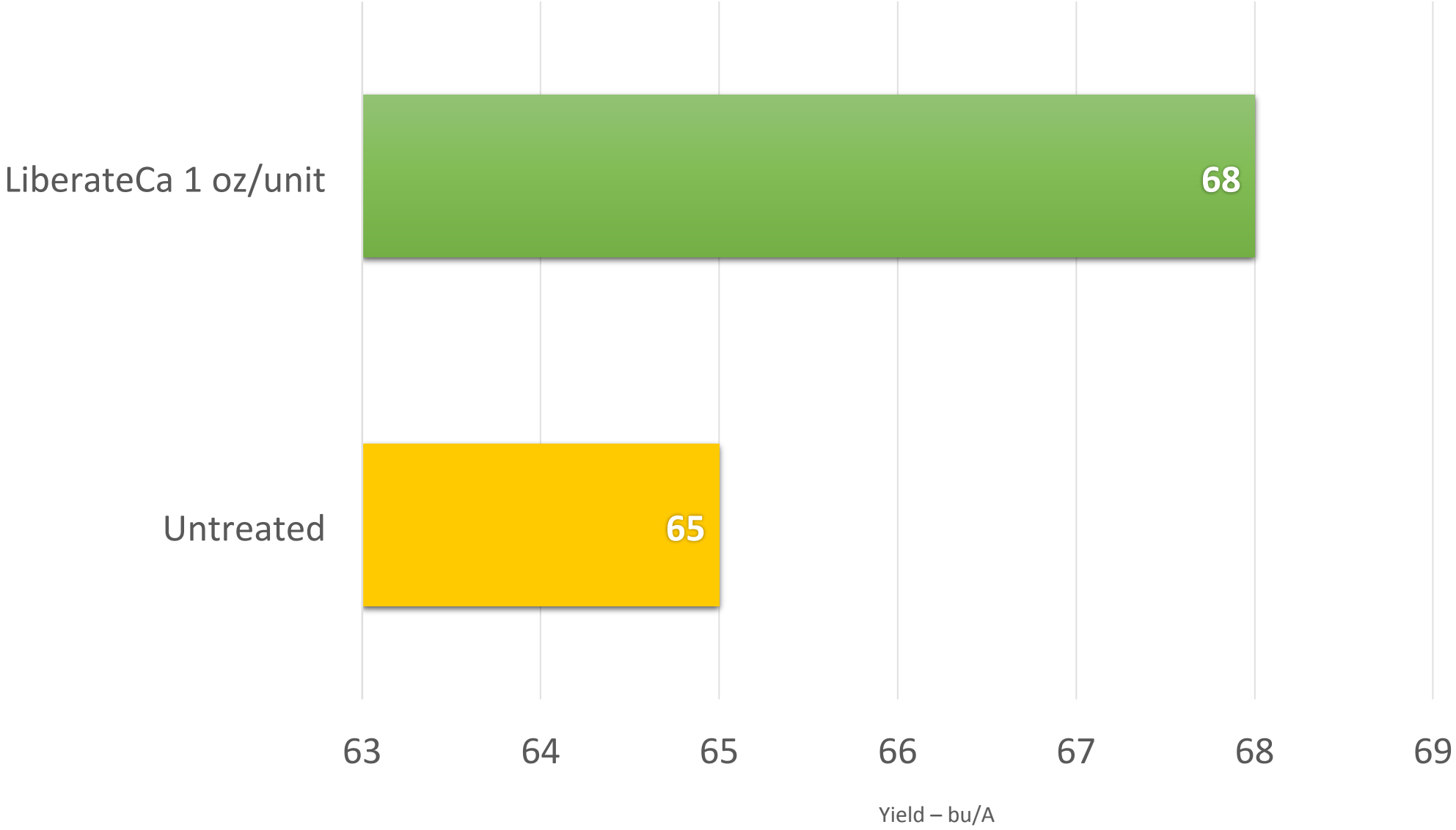
No Calcium:	63 bu/A
LiberateCa	68 bu/A

For The Soil | For The Plant | For the Future

AGROLIQUID

Yield Response of Soybean to Liberate Ca Seed Treatment

Pewamo, MI - 2016



For The Soil | For The Plant | For the Future

AGROLIQUID

In-Furrow Fertilizer on 30” Row Soybeans

Fertilizer placed in-furrow with Rebounders and Y-Not Split-It
Planted at 140,000 seeds/A

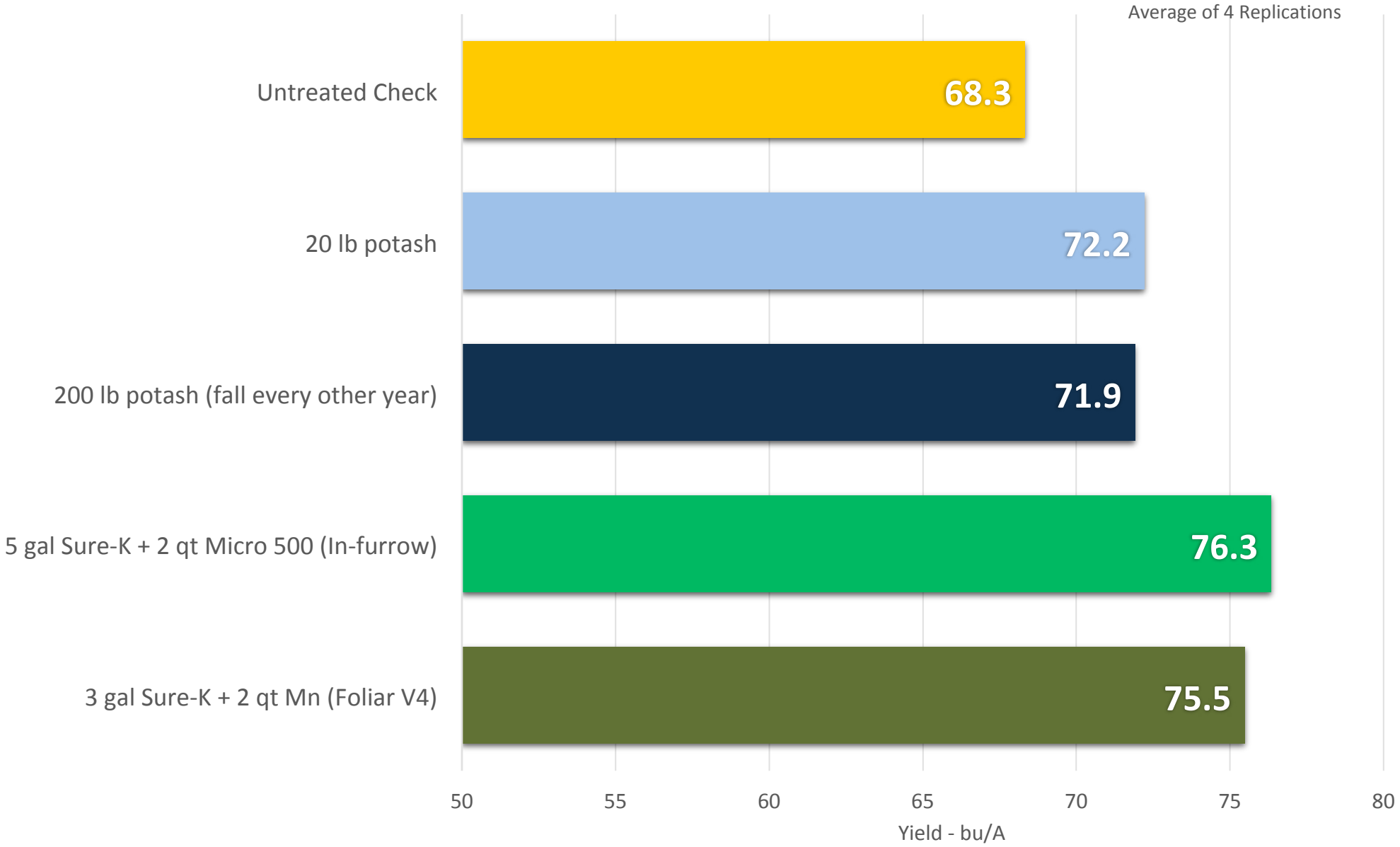
14-504

For The Soil | For The Plant | For the Future

AGROLIQUID

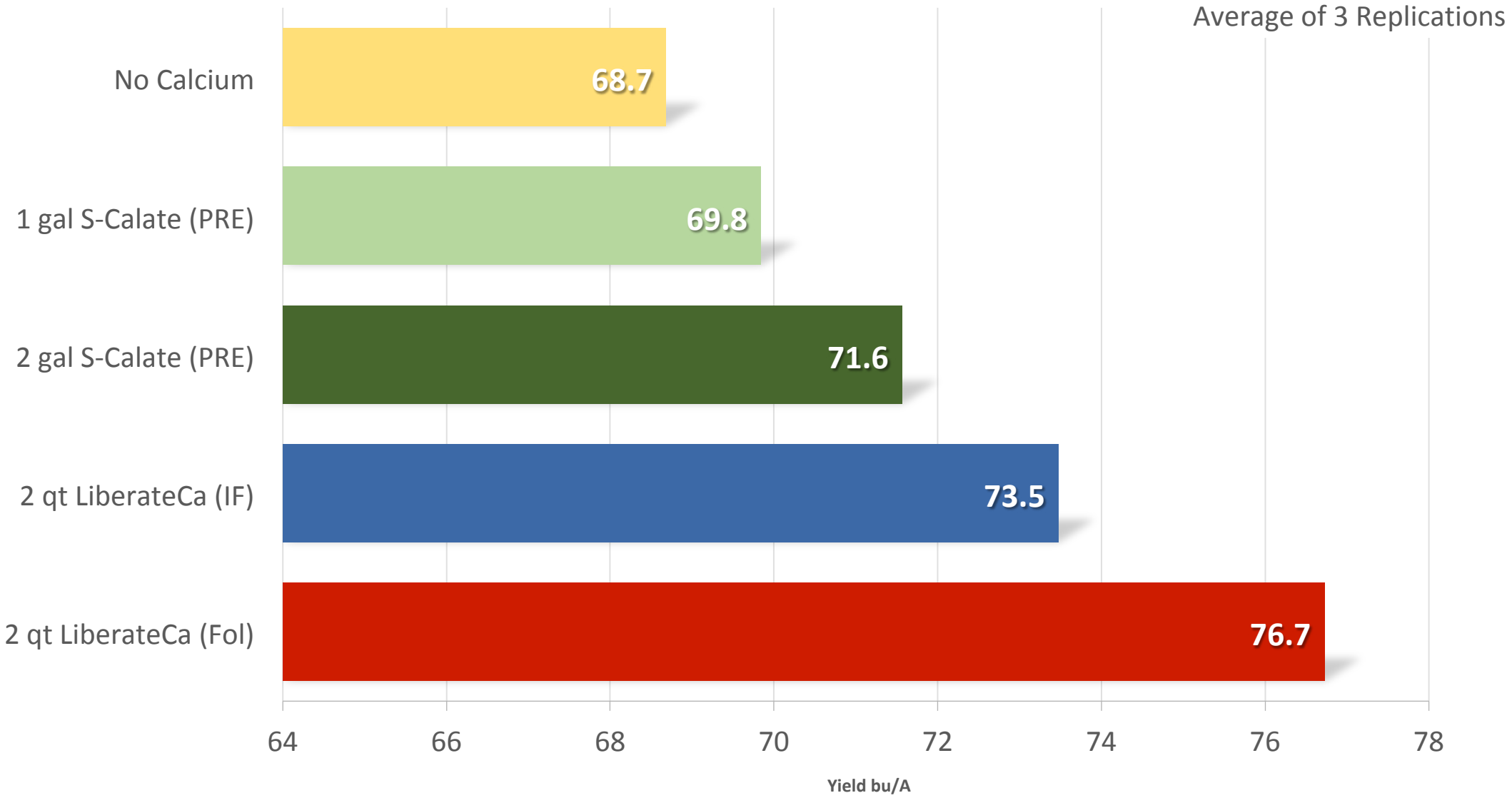
Soybean Fertilizer Programs in a Permanent Plot Rotation

North Central Research Station: 2011 - 2017



Calcium Source, Rate and Timing Comparison in 15"-Row Soybeans

North Central Research Station - 2016



All treatments included: 2.5 gal/A Pro-Germ. + 2.5 gal/A Sure-K + 2 qt/A Micro 500 (IF); 9 gal/A Sure-K (PRE).

16-802

For The Soil | For The Plant | For the Future

AGROLIQUID

Foliar Applications

For The Soil | For The Plant | For the Future

AGROLIQUID

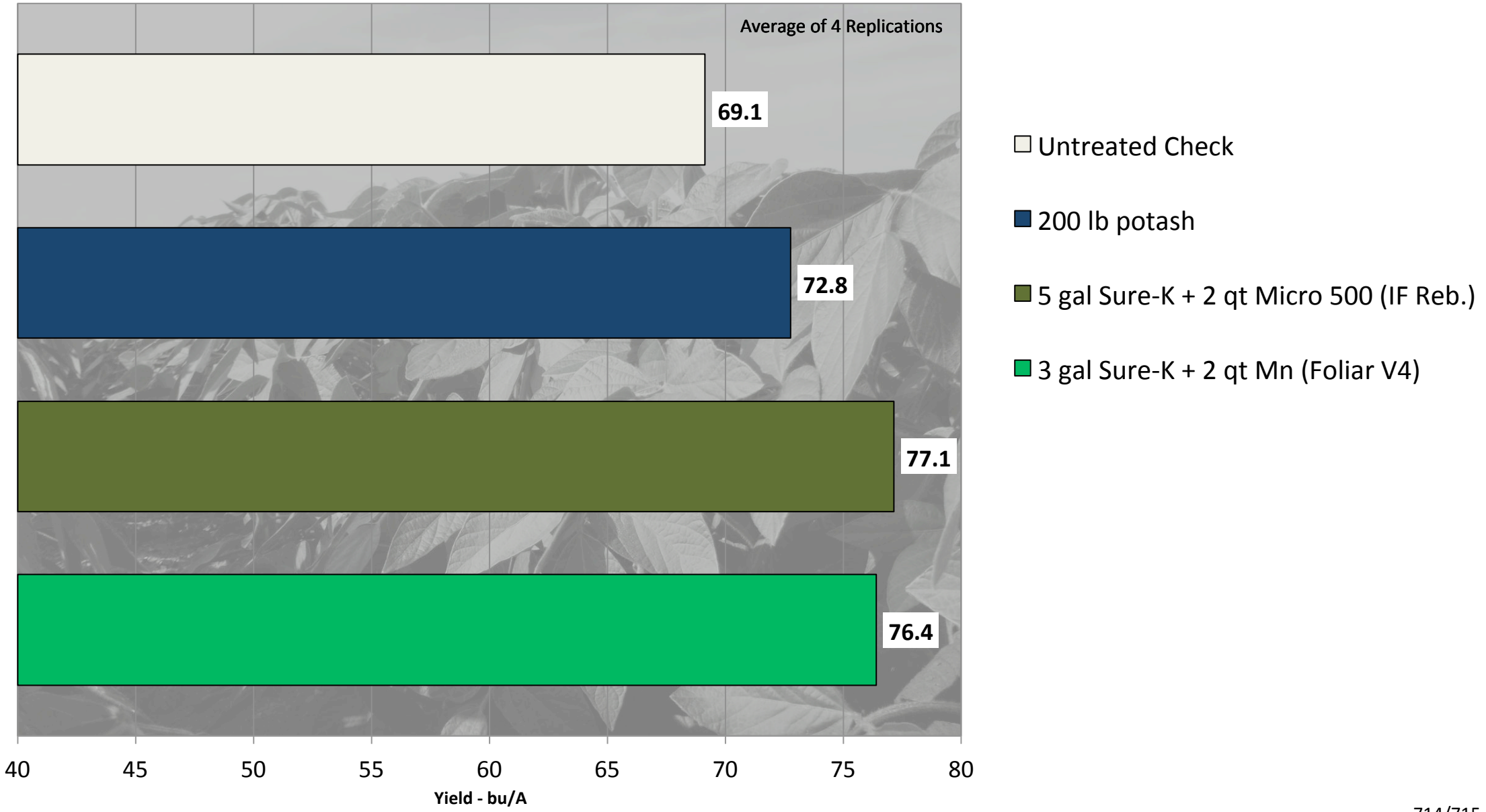
Foliar Fertilizer Applications

For The Soil | For The Plant | For the Future

AGROLIQUID

Soybean (15”-Rows) Fertilizer Programs in a Permanent Plot Rotation

North Central Research Station: 2011-2016



714/715

For The Soil | For The Plant | For the Future

AGROLIQUID

Foliar Applications on Soybeans

- Analysis 12-3-3
- Balanced Nutrition
  - Primary, Secondary and Micronutrients included
- Integrated technology that allows rapid absorption into foliage
- Low injury potential reduces risk and increases plant response
- Foliar application up to 3 gal/acre per application
- 3 – 4 lb N + 1.25 lb P_2O_5 + 5 lb K_2O/gal equivalency + micronutrients

FERTIRAIN

For The Soil | For The Plant | For the Future

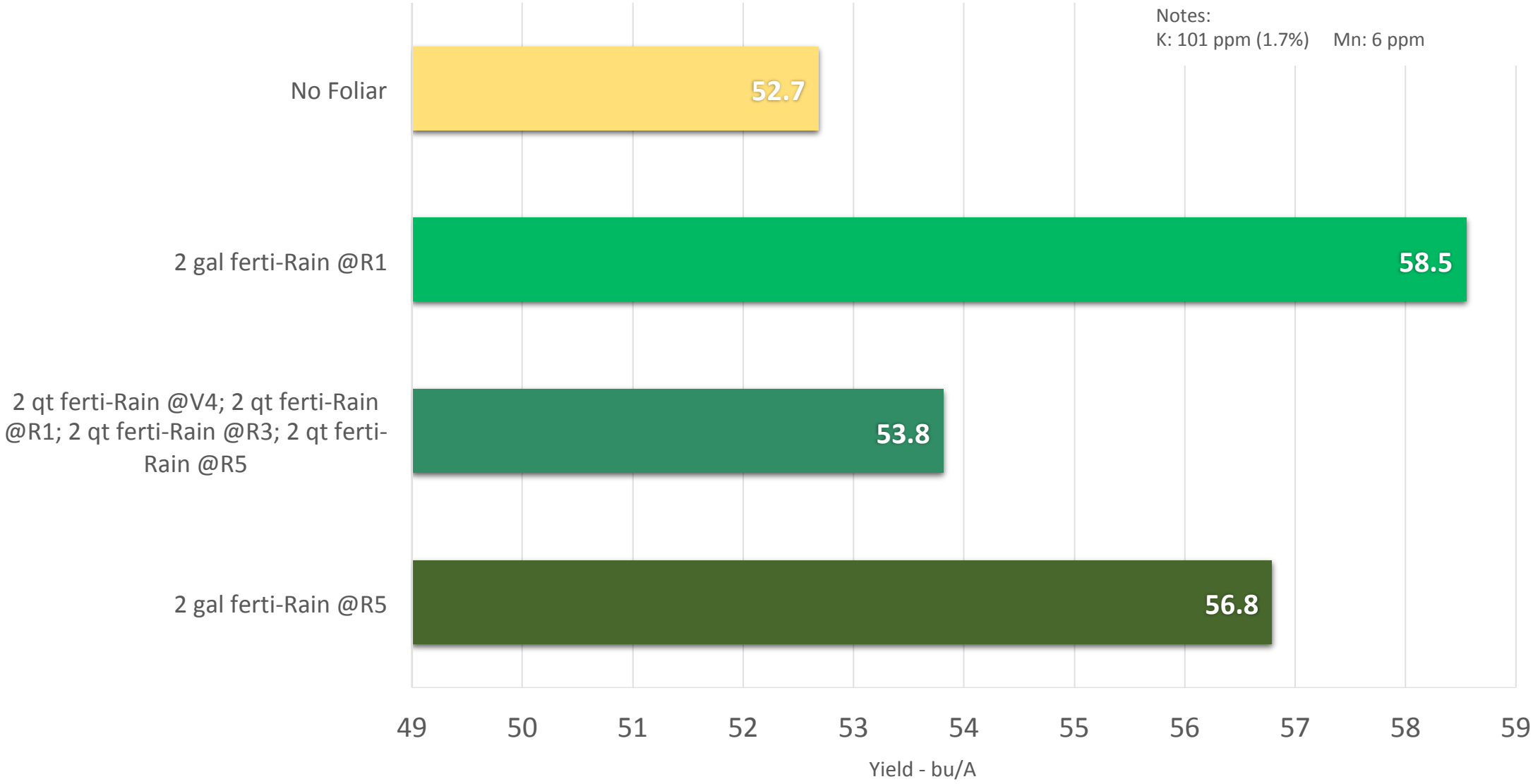
AGROLIQUID

Foliar Fertilizer Timing on 30"- Row Soybeans

North Central Research Station - 2015

Average of 4 Replications

Notes:
K: 101 ppm (1.7%) Mn: 6 ppm



15-704

For The Soil | For The Plant | For the Future

AGROLIQUID