



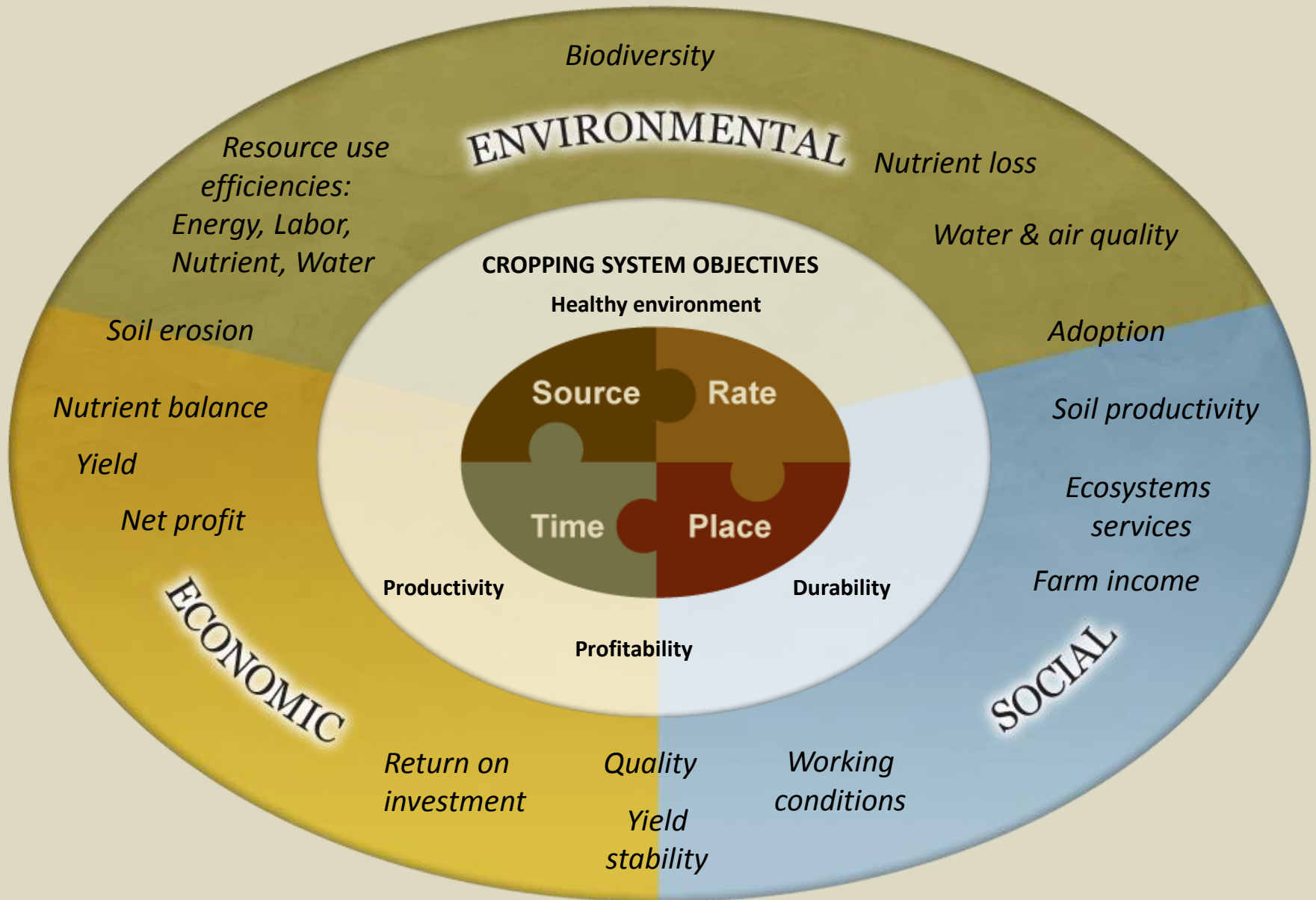
IFCA's Mission Statement: To assist and represent the crop production supply and service industry while promoting the sound stewardship and utilization of agricultural inputs

1,100+ members statewide

- Ag Retailers
- Fertilizer & Pesticide Manufacturers and Distributors
- Equipment Suppliers
- Input Transporters



4Rs of Nutrient Stewardship



Research is Feeding the INLRS



Crop Sciences

College of Agricultural, Consumer, and Environmental Sciences
University of Illinois at Urbana-Champaign



N MANAGEMENT SYSTEMS

4Rs: Source, Rate, Time, Place

What happened during the fall, winter and early spring?



What happened in since the crop was planted?



The MRTN N Rate Calculator

- Uses all recent data (combined) to predict “best” fertilizer N rates for corn
- Converts yield responses to economic return responses, based on current prices
- Includes “most profitable ranges” usually +/- 15 lb or so of N
- Provides a “guideline” more than a recommendation”
- Is seldom exact for a given field, but we know of no other N rate “guess” likely to be better

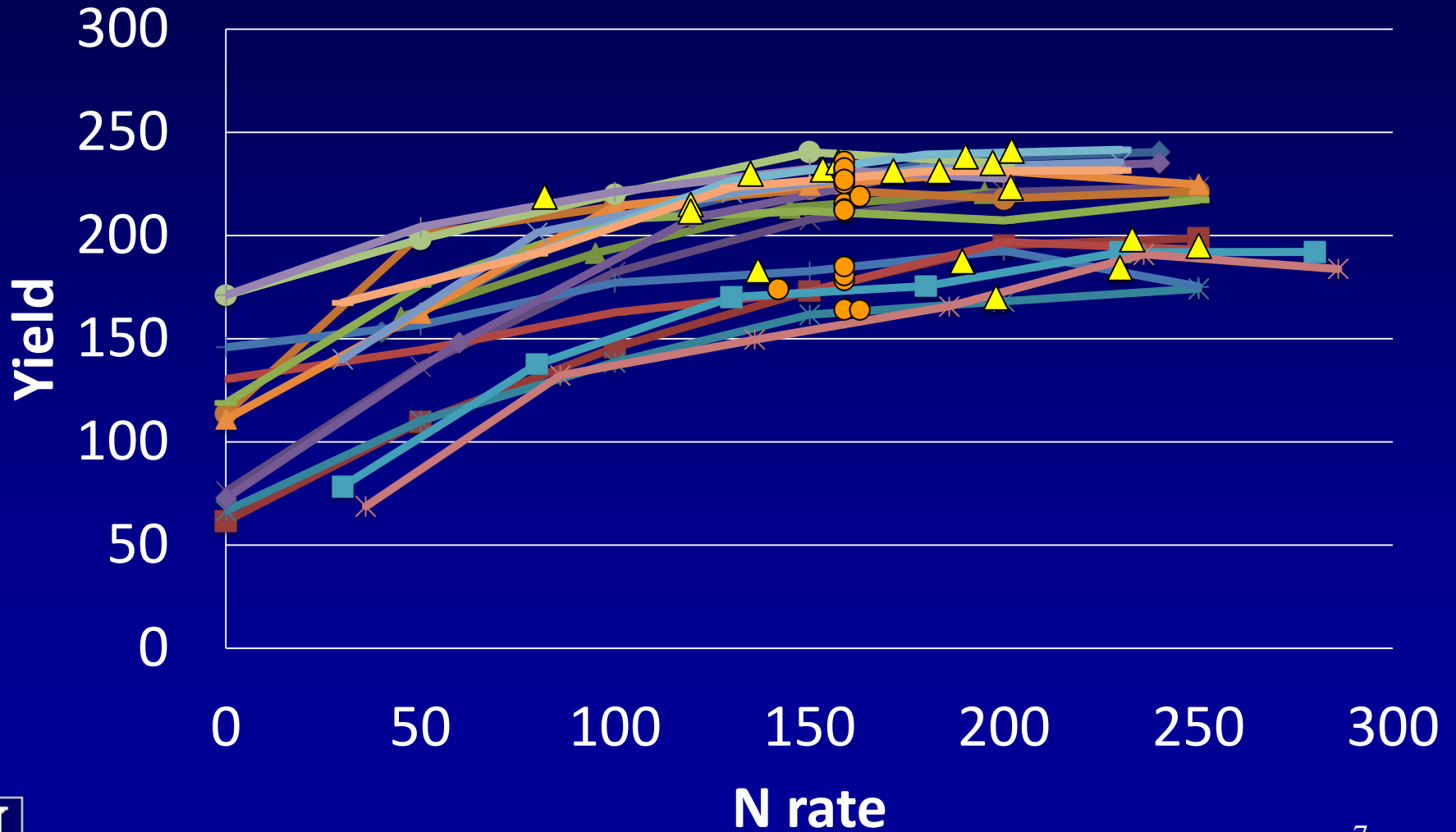




- On-Farm Nitrogen Rate Trials
- Uses Maximum Return to Nitrogen Rate Calculator
- Ag retailers, farmers and UI protocols
- 62 N Rate Trials in 2015

18 On-Farm N Trials Soy-Corn 2014

▲ Opt ● MRTN



MRTN Calculator | 2014 Plan

Single Application

Source	Anhydrous Ammonia (82%)	Price of product	\$650.00 / Ton
Application fees	\$9.00 / Acre	Calculated N price per lb	\$0.40 N / lb
Additives	N-Serve	Price per acre of additive	\$13.00 / Acre
Location/rotation	Central Corn after Soybean	Corn per bushel	\$4.25
N price to corn price ratio (R)	0.09	Calculated MRTN value	Low 161, Optimum 175, High 193
Cost per acre	\$91.30	Chosen rate	175

Split Applications

	Split 1	Split 2	Split 3
Timing	Fall	Pre-Plant	Post-Emergence
Source	Anhydrous Ammonia (82%)	UAN (28%)	Super-U (46%)
Amount of Nitrogen to apply	50% (88 #/A)	25% (44 #/A)	25% (44 #/A)
Amount of product	107.32 Lbs / Acre	157.14 Lbs / Acre	95.65 Lbs / Acre
Amount of product		14.55 Gallon / Acre	
Price of product	\$650.00 / Ton	\$360.00 / Ton	\$600.00 / Ton
Price of N	\$34.88 / Acre	\$28.29 / Acre	\$28.70 / Acre
Application fee	\$9.00 / Acre	\$6.50 / Acre	\$5.50 / Acre
Additive	N-Serve	Agrotain Ultra (UAN)	
Price of additive	\$13.00 / Acre	\$6.50 / Acre	\$0.00 / Acre
Cost for split	\$56.88 / Acre	\$41.29 / Acre	\$34.20 / Acre

Comparison of Cost

Single application total	\$91.30	Split application total	\$132.37
Cost difference in dollars	\$41.07	Cost difference in bushels	9.7 bu

Nitrogen

- N Sales average 2,293,812,952 lbs per year
- 45% Target Reduction is 225,000,000 pounds; **this equates to \$112 million in lost nutrient value and 10% of total N sales.**
- To achieve a 15% reduction in N loss by 2025, must reduce N losses by 33,750,000 lbs (2 % of total N sales)

ILNRS Estimates to Move all Nitrogen to Spring is \$18.00 per/acre

IFCA Estimates Costs are Much Higher



ISU Study: **\$1,994,777,682** for additional equipment and increased UAN storage.

Does not account for manufacturing costs, transportation (barge, rail, truck) and **carrying product inventory for 10-11 months.**



Does not account for **human resources** needed for **transportation and application** and the safety risks associated with a compressed season.





Template



Image Source: Noland Farms, Inc.

Fall N-Serve/No Serve

Test Taken May 10, 2014

Fall NH3 No N-Serve

AVAILABLE N	0-12
Nitrate ppm	20.3
Ammonium ppm	11.0
N as Nitrate:	65%
N as Ammonium:	35%

Fall NH3 **With N-Serve**

AVAILABLE N	0-12"
Nitrate ppm	12.3
Ammonium ppm	24.5
N as Nitrate	33%
N as Ammonium:	67%

Spring Applied N

Test Taken May 26, 2015

Spring no Stabilizer

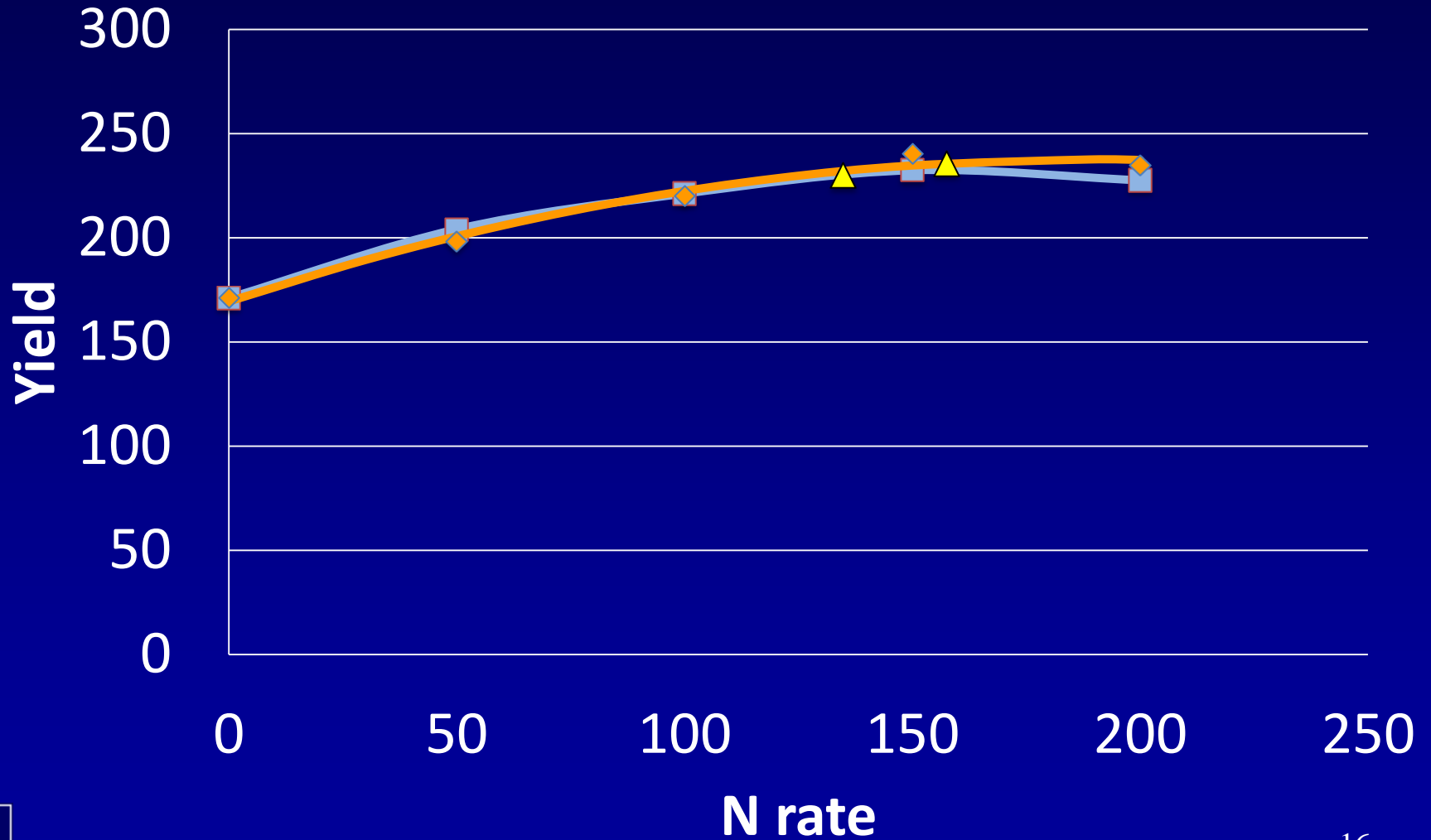
AVAILABLE N	0-12
Nitrate ppm	25
Ammonium ppm	3
N as Nitrate:	90%
N as Ammonium:	10%

Spring w/Stabilizer

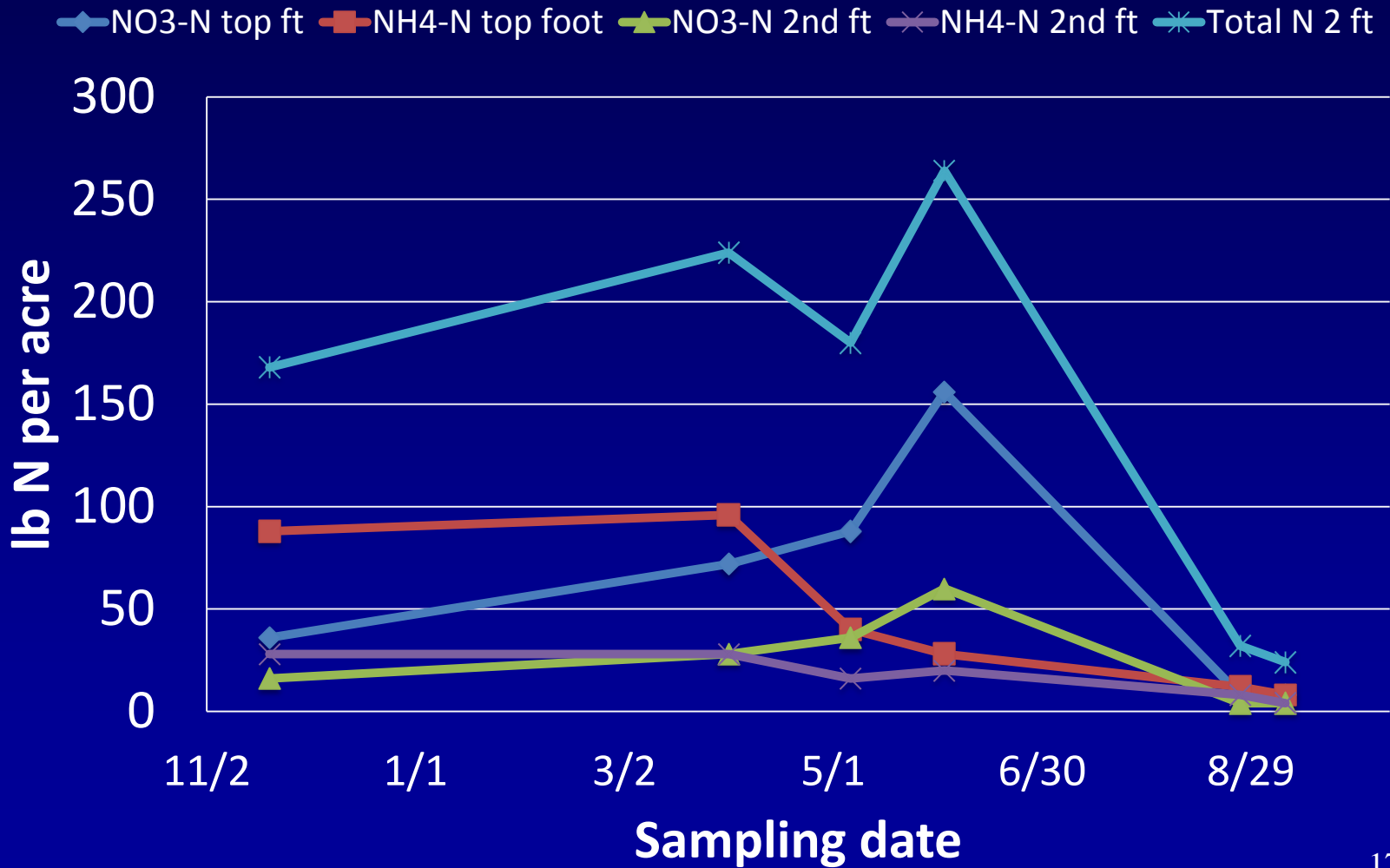
AVAILABLE N%	0-12"
Nitrate ppm	22
Ammonium ppm	25
N as Nitrate	47%
N as Ammonium:	53%

On-Farm Soy-Corn 2014

◆ Fall ■ Spring ▲ Opts



N-Watch Site, 2014 Growing Season

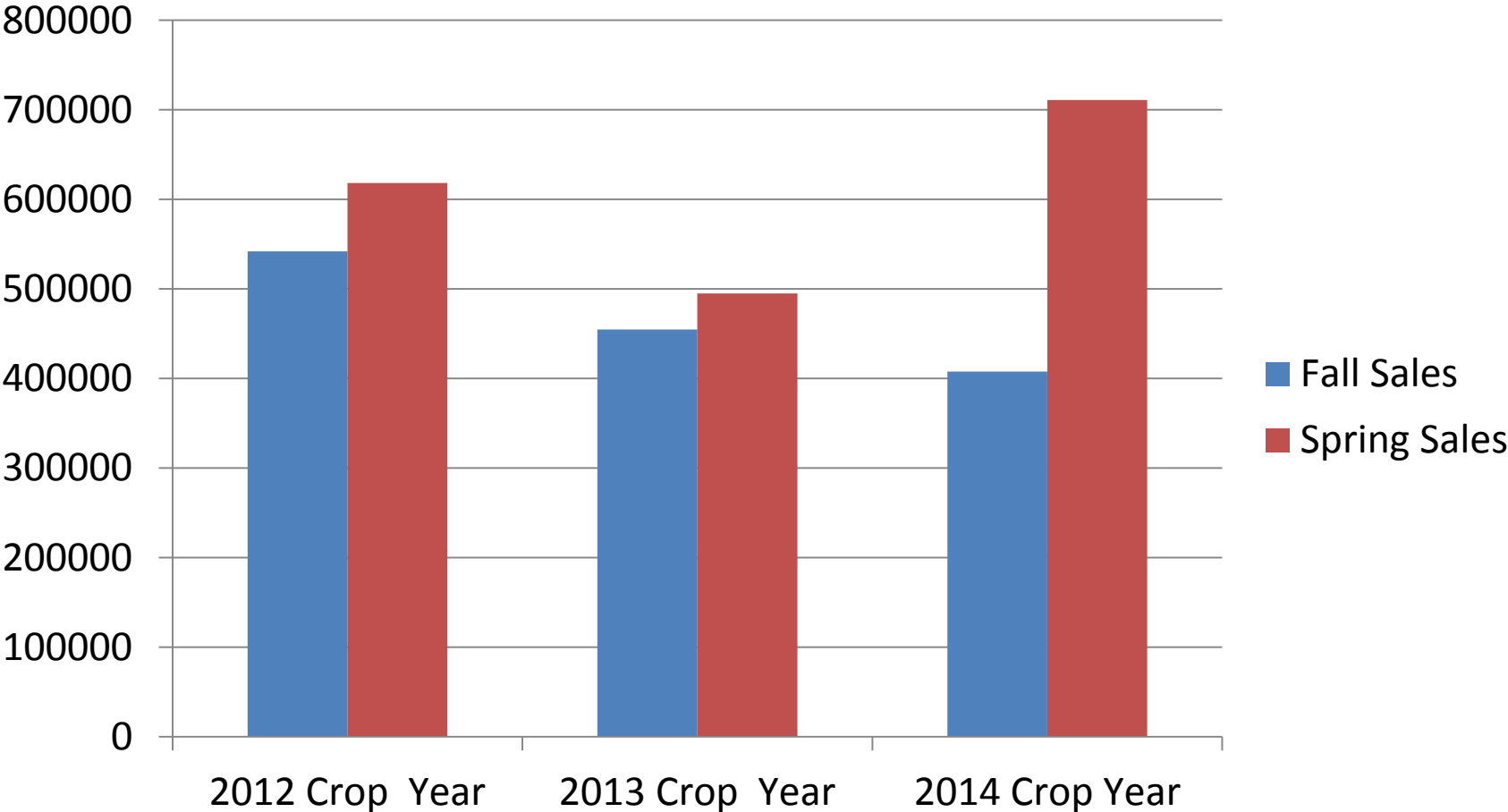


UI: Conclusions from Year 1

- Getting the “right” N rate, timing, form, and placement is possible, but the end result is and will remain inexact
 - The list of N practices that belong on (or can’t yet be taken off) the 4R list might be longer than we might think
- We can’t assume loss of early-applied N, (but should be ready to respond after loss)
- We can’t assume an advantage to late-applied N
- Common sense says: start with the MRTN rate and build a “safe” N system – one without big dangers of deficiency or loss



Metrics: Fall vs Spring N Sales 2012-2014

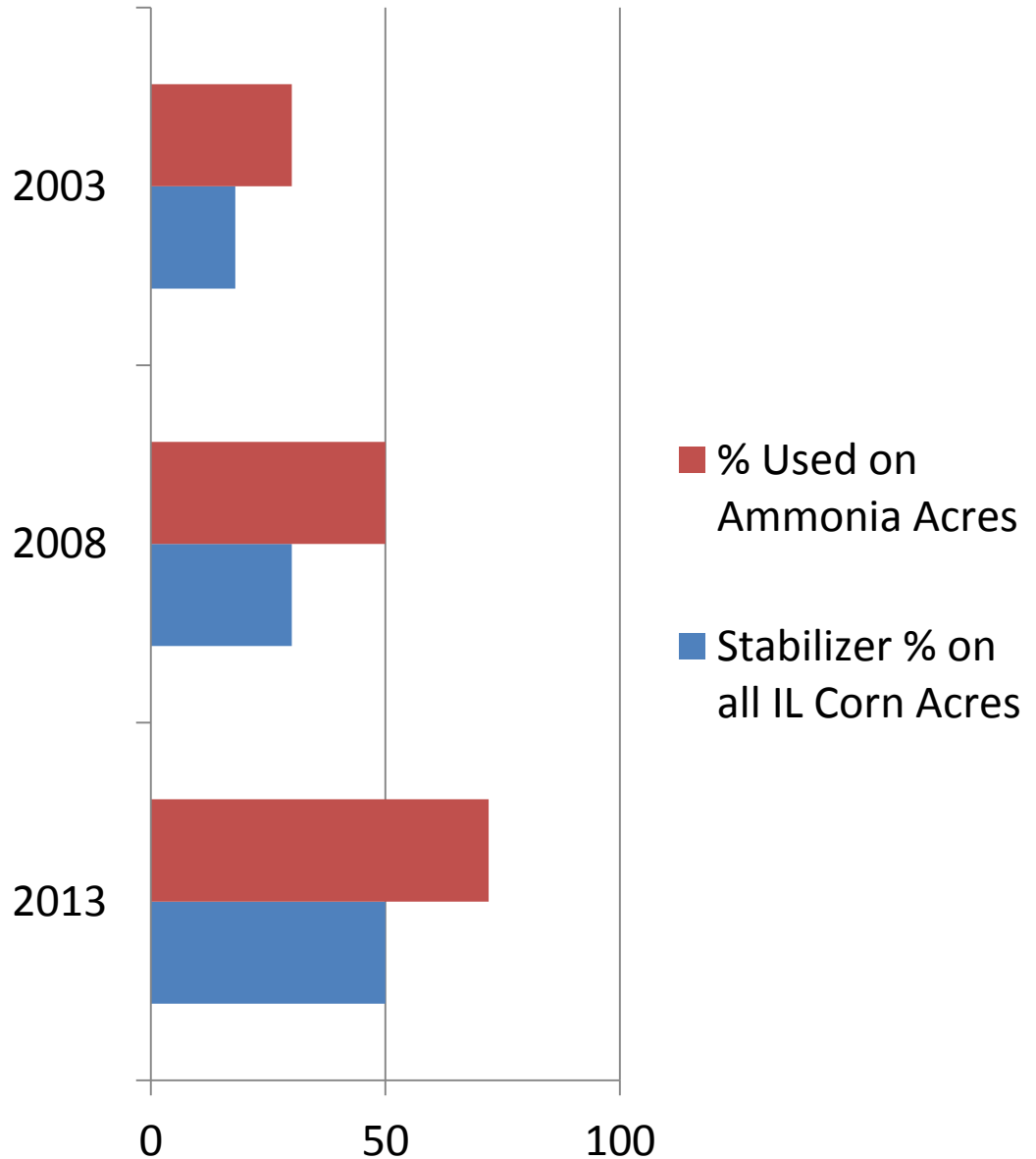


Nitrogen Stabilizer Use in Illinois

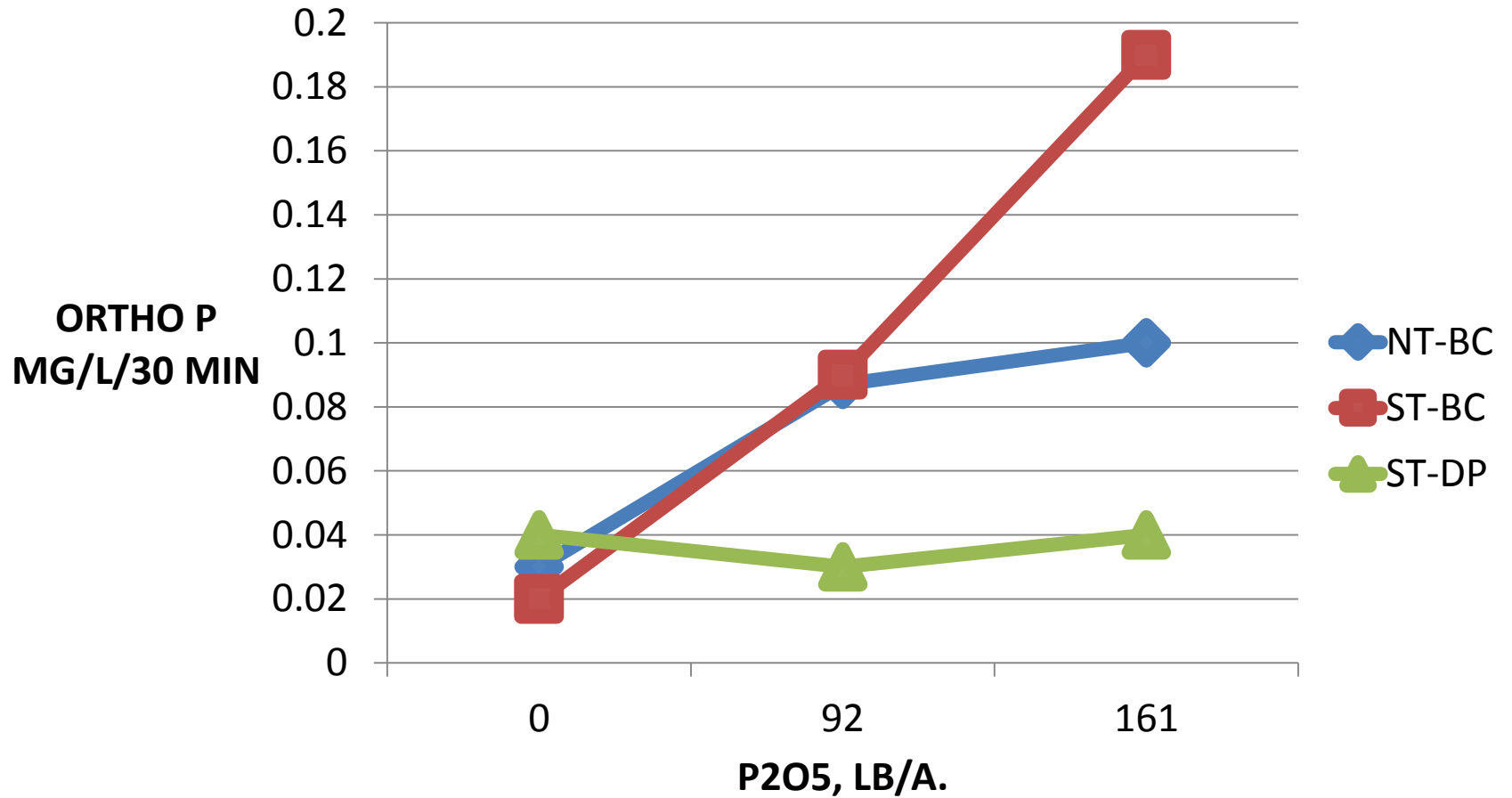
N-Serve Used in Fall & Spring; of all sales 70% is in fall, 30% in spring

% used in Fall @ 72% of all acres, up from 18% in 2003, 30% in 2008

Stabilizer use growing in Spring



EFFECT OF TILLAGE AND P RATE ON P RUNOFF- 30 MIN



Nutrient BMPs to Reduce Losses

- No Fall N Until Soil Temps Less than 50°
- Use Nitrification & Urease Inhibitors
- Use MRTN and Split the Total N Rate
- Soil Test in the Spring – to Prepare for Fall
- Variable Rate Applications
- Incorporate Dry Fertilizer – NREC Study
- No Application on Snow or Frozen Ground

Is This a BMP?

There is a Better Time to Apply Nutrients



**With NREC, On-Farm Research and BMPs,
We Can Ensure Freedom of Nutrient Choice;
The Alternative is to Invest in Lawyers**



Interested in N WATCH or N Rate Trials?



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