



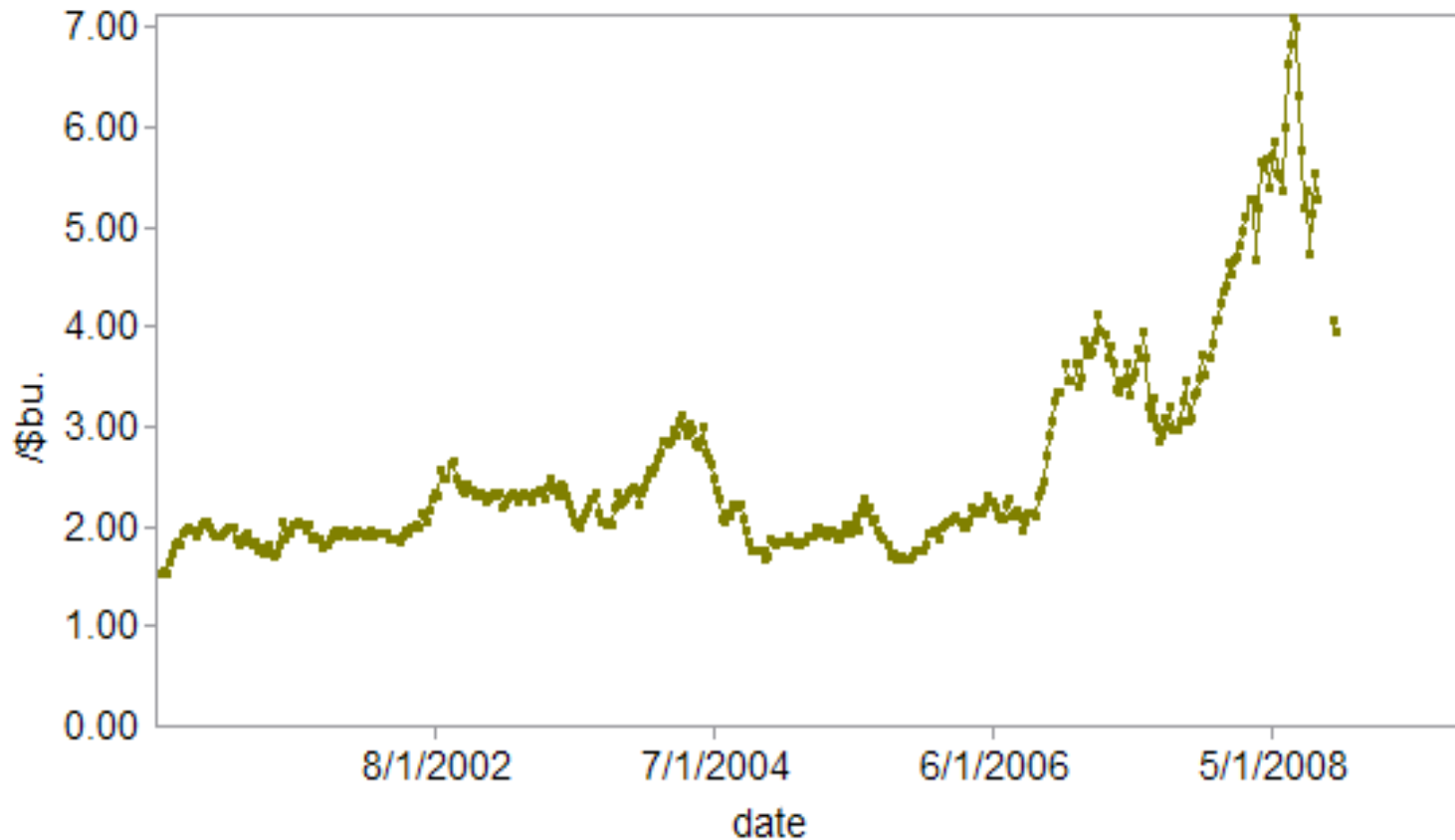
IPNI
INTERNATIONAL
PLANT NUTRITION
INSTITUTE

Information Resources For 21st Century Crop Production Decisions



Illinois Corn Prices – 2000-2008

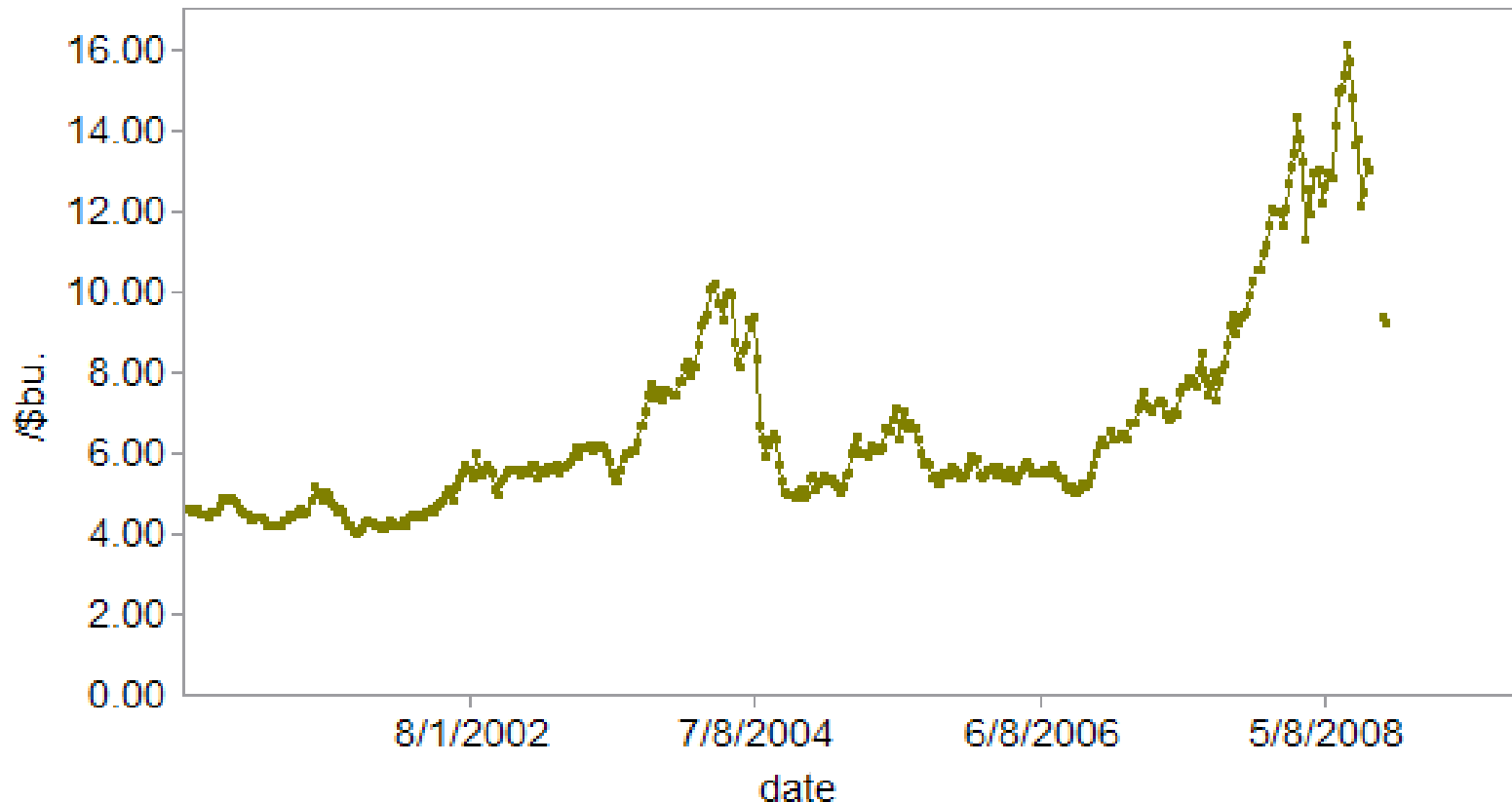
Weekly (Thursday) Corn Spot Cash Prices North Central Region of Illinois for the 9/1/2000 --- 8/31/2009 Marketing Year



Source: <http://www.agstats.state.il.us>

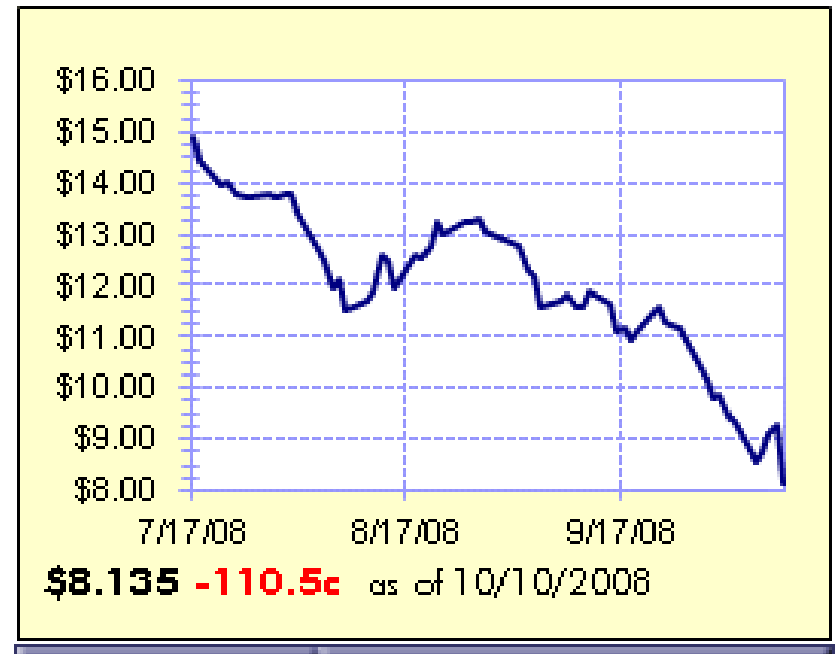
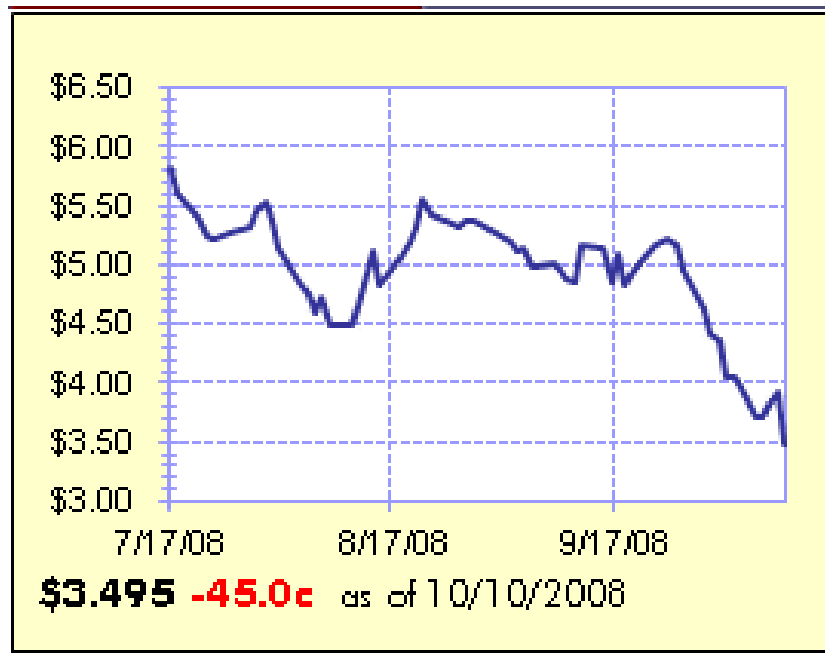
Illinois Soybean Prices – 2000-2008

Weekly (Thursday) Soybeans Spot Cash Prices North Central Region of Illinois for the 9/1/2000 --- 8/31/2009 Marketing Year

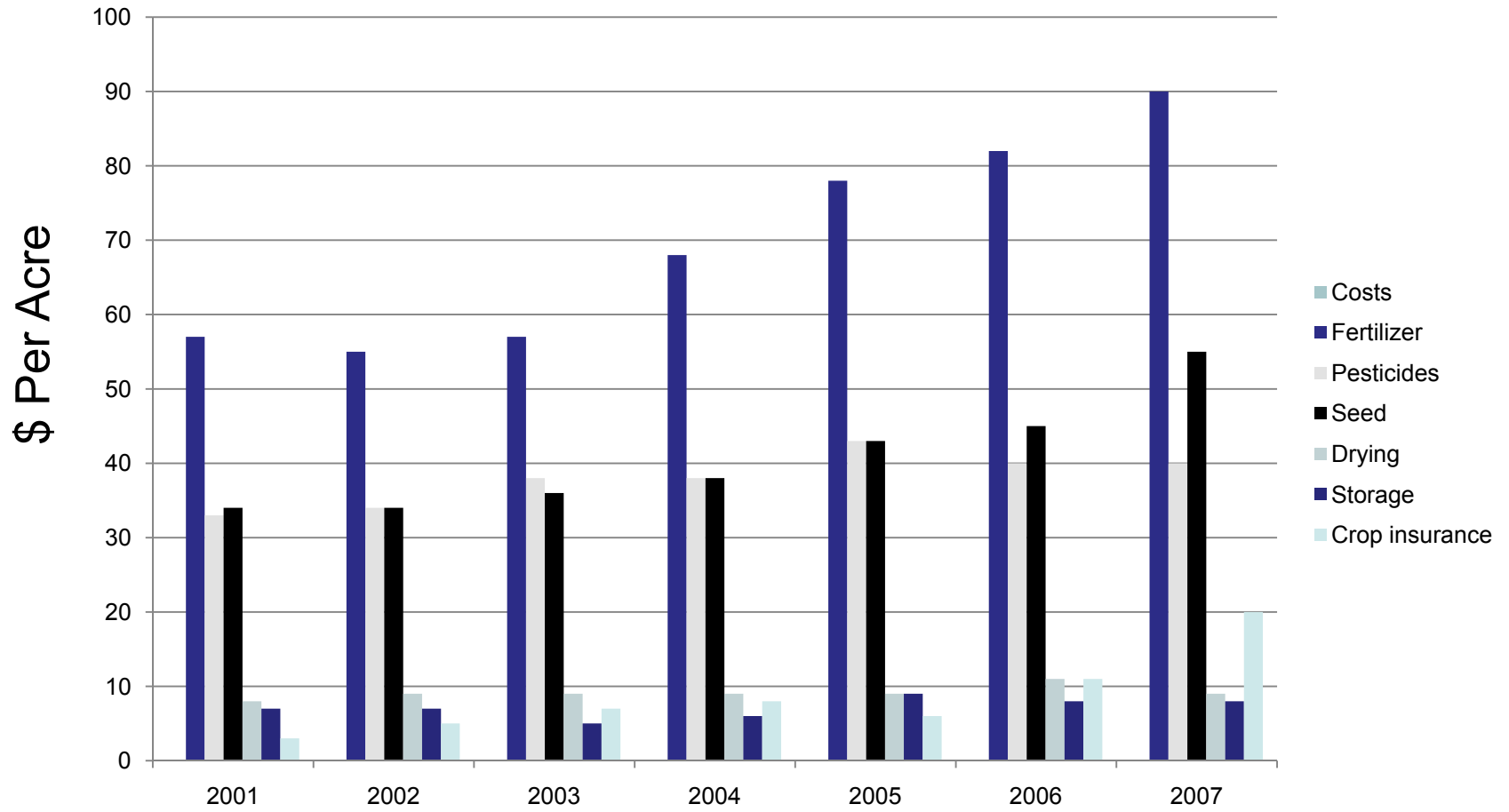


Source: <http://www.agstats.state.il.us>

Central Illinois Corn & Soybean Prices



Crop Input Costs—Central Illinois



\$4 corn/\$0.40 N vs \$2 corn/\$0.20 N

- Price ratio the same ... optimum rate the same
- But the economic penalty for over or under estimating need or for nutrient loss is much greater with today's higher prices
- Greater economic justification for:
 - Precision input application, enhanced efficiency products
 - Guidance systems
 - Soil testing and plant analysis, soil or plant imaging
 - On-farm strip trials, omission plots
 - Other forms of decision support
- Investing in determination of right **source**, **rate**, **time** and **place** for inputs is the right response for the pocket book and the environment

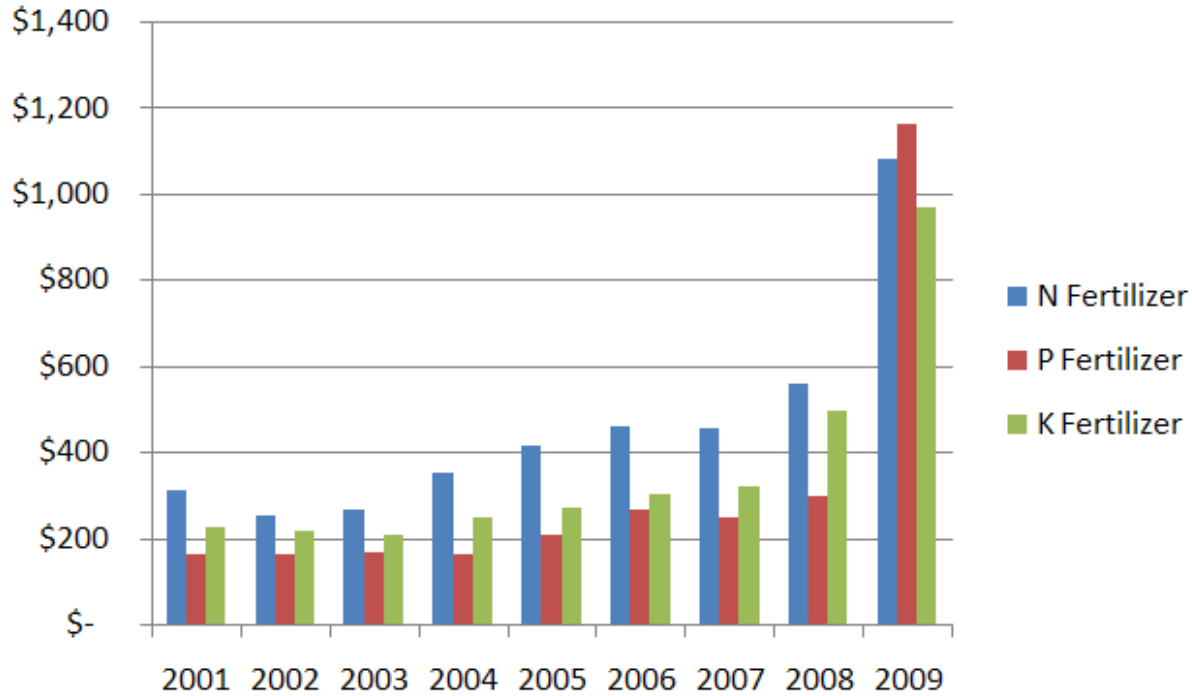
Increased demand for agricultural products has caused a remarkable transformation

We have left a **25-year era** dominated by the mindset that **production (over) is a problem ...**

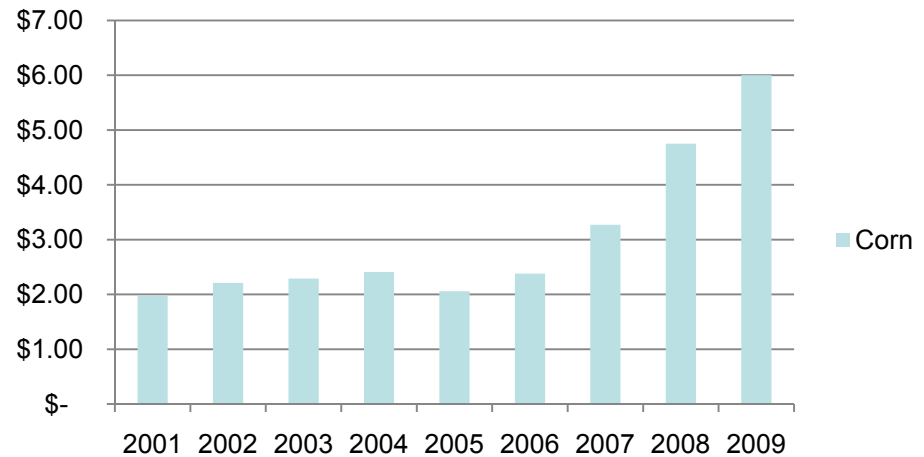
and entered an era with new enthusiasm for **sustainable** development of the real **potential of modern agriculture** to harness the sun's energy in **meeting human needs**.

That spells **opportunity**, provided the steps taken are not only good short-term business moves, but are grounded in **science-based sustainable practices** leading to **efficient and effective** resource utilization.

Fertilizer Prices

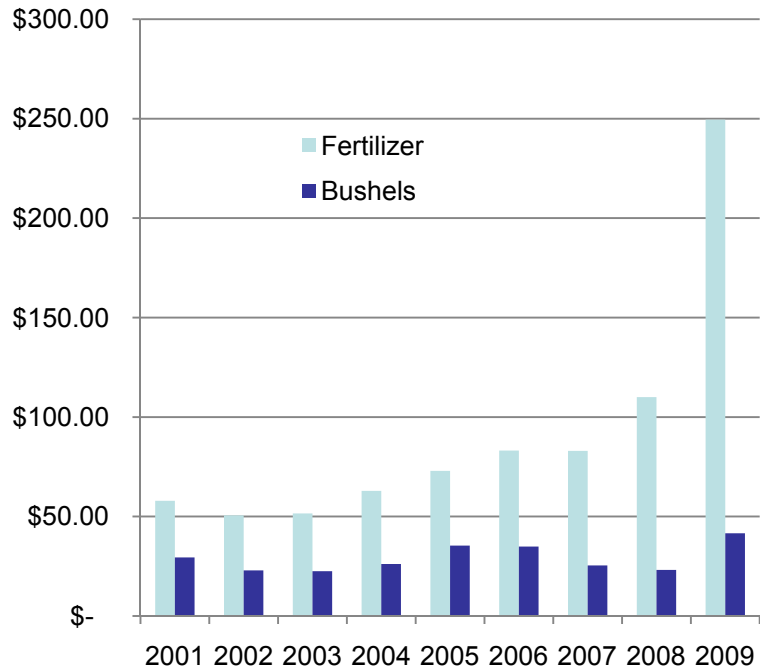


Corn Price



Price Trends Central Illinois

Cost of Fertilizer - Central Illinois

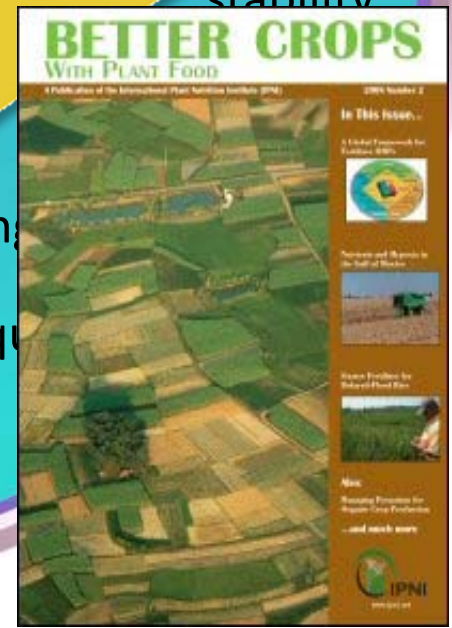
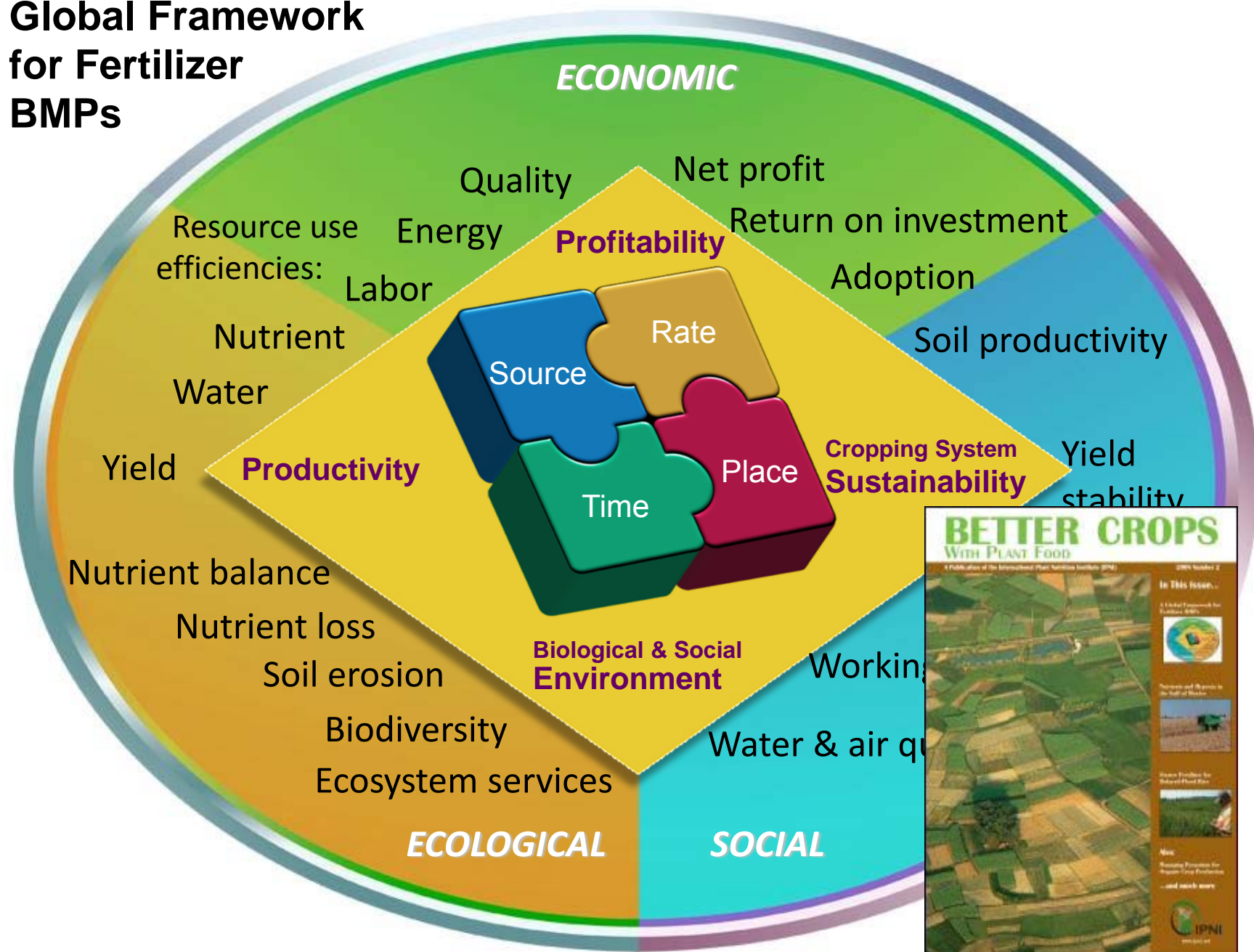


Year	Fertilizer	Bushels
2001	\$ 57.89	29.4
2002	\$ 50.62	22.9
2003	\$ 51.52	22.5
2004	\$ 62.87	26.1
2005	\$ 72.96	35.4
2006	\$ 83.15	34.9
2007	\$ 82.99	25.4
2008	\$ 110.00	23.2
2009	\$ 249.50	41.6

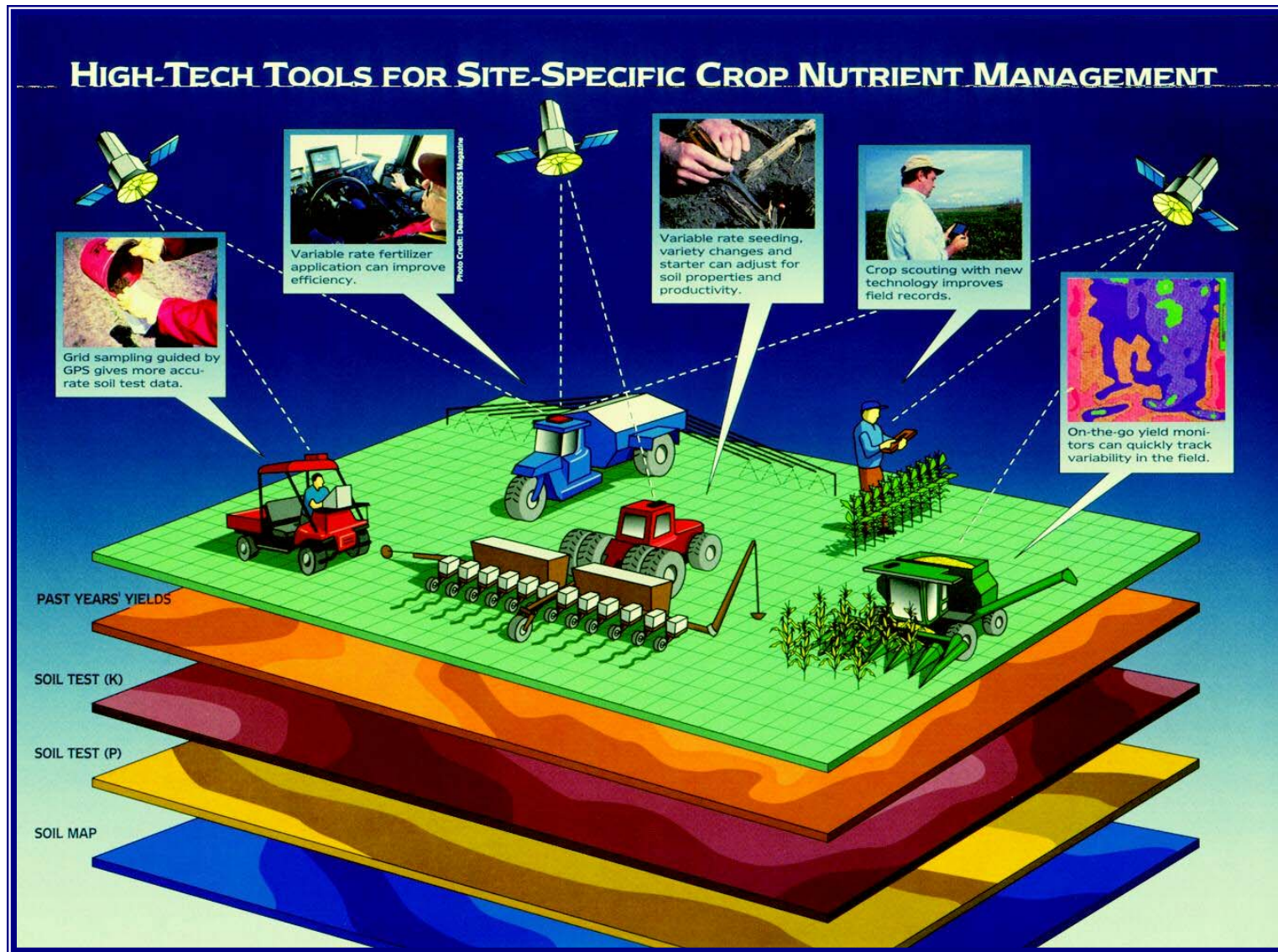
Value of Information

- Site-specific information on an individual field has never been more valuable.
 - Rising input costs
 - Declining grain prices
- Fine-tuning management decisions.

Global Framework for Fertilizer BMPs



Site-Specific Management Systems



Automatic Guidance by RTK GPS

Hands-Free Farming



High Resolution (RTK) GPS
Guidance Systems



International Conference on Precision Agriculture



- Biennial research conference
- IPNI & FAR Cooperating with Colorado State University
- Close to 500 participants from 48 countries
- Scientific presentations—oral and poster
- A to Z applied sessions (CIG project outreach)
- Exhibits
- Tours
- www.icpaonline.org

**10th ICPA – July 18-21, 2010
Denver, Colorado**

InfoAg 2007

Information Agriculture Conference



Foundation for Agronomic Research



International Plant Nutrition Institute



CropLife Media Group

InfoAg 2009
July 13-15, 2009
Springfield, Illinois



InfoAg 2009 Conference

**Springfield, Illinois
July 14-16, 2009**

- Latest ideas on collecting, managing, and utilizing information in crop decisions.
- Latest decision tools.
- Latest technology.
- Valuable networking opportunity.

www.infoag.org



InfoAg 2009

July 14-16, 2009
Springfield, IL

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[InfoAg 2007](#)
[InfoAg Northwest 2007](#)
[InfoAg Mid-South 2007](#)
[InfoAg 2005](#)
[InfoAg Midsouth](#)
[InfoAg 2001](#)

[Speaker Info](#)

Make Plans to Attend InfoAg 2009

Save the Date

InfoAg 2009 is scheduled for **July 14-16, 2009** in Springfield, Illinois at the Crowne Plaza. Make plans now to attend.

2007 Conference Proceedings

[Presentations have been posted.](#)

Presentation Spotlight

[\(click for more presentations\)](#)

Session: **Soil Properties for N Management**

Presentation: **ISNT and OM: Are They Different?**

Speaker: **Matías Ruffo, University of Illinois**



This presentation will discuss the relationship between ISNT (Illinois Soil Nitrogen Test) and organic matter, analyze their similarities and differences, and assess their value as nitrogen diagnostic tools for corn fertilization.





Search [input field] [button]

- About IPNI
- Media Resources
- Member Companies
- Nitrogen
- Phosphorus
- Potassium
- Secondary Nutrients
- Regional Programs
- Ecological Intensification

Introducing: The International Plant Nutrition Institute to a Global Audience

As world population and demand for food, fuel, feed, and fiber continue to increase, there is a growing need for knowledge and information based on sound science. That's where we come in. The International Plant Nutrition Institute (IPNI) is a new, not-for-profit organization dedicated to responsible use of plant nutrients - N, P, K, secondary nutrients, and micronutrients - for the benefit of the human body.

Already our office doors are open with programs in Brazil, China, India, Latin America, Russia, Canada, Multicultural America, North America (U.S. and Canada), and Southeast Asia.

IPNI Center Cares: Better Environment through Science

View Full Story



Regional Program Websites



Select a Program

- North America
- Latin America
- Latin America & Carib
- India
- China
- Southeast Asia

Publications

- Catalog of publications
- Crop Nutrition Forum Publications

Publications Links

Research

- Research Database

News

- News Archive
- IPNI Archive
- Monthly

Gear Up for 2008 Crop Management



Why crop producers in the U.S. are facing some unique circumstances as the 2007 harvest is followed by winter planning and management decisions for the 2008 season. In essence, what about corn after corn? And what about soybeans? Will all the options to improve crop efficiency from the previous season be met with technology on the farm? IPNI North America staff have prepared some timely articles to help address these issues.

Click here for the articles

Potential Risks to Influxes on Nutrient Use and Removal in the U.S.



A major challenge to the fertilizer industry and those producing nitrogen and nutrient management will be the development of nutrient management approaches. Successful ecological crop intensification where productivity is increased by using nitrogen and phosphorus in innovative ways to raise the challenge for society will fully address the challenges in the field about the "redemption" of nutrients and the loss of nutrients to agricultural systems.

Read this article

IPNI AWARD OF PRESENTS NAMPO 2007 INTERNATIONAL PLANT NUTRITION INSTITUTE



The first group winners of the National Awards sponsored by the International Plant Nutrition Institute (IPNI) has been announced.

Read Full Story

National Meeting on Precision Agriculture



An individual session of 1,700 growers and farmers attended this fourth annual event at the 2007 World of Ag Show, IPNI Latin America - Southern Cone Director Dr. Fernando Galvanes outlined the summarized session on soil fertility and nutrient management that included four presentations by researchers at IPNI, CITA, the sector with a problem on consultant. The final panel discussed the opportunities that are emerging for soil-specific fertilization in Argentina. The main area of concern has been how to increase as well the regional interest across the different landscapes that exist throughout the different grain production systems of the country. Focus will be on a remote sensing, especially with sensors like GreenSeeker and Crop Circle, and will be development of ESN or fertilizer analogs.

Latin America Southern Cone website



IPNI Website

www.ipni.net



Working with Farmer Yield Data

Yield Data Analysis



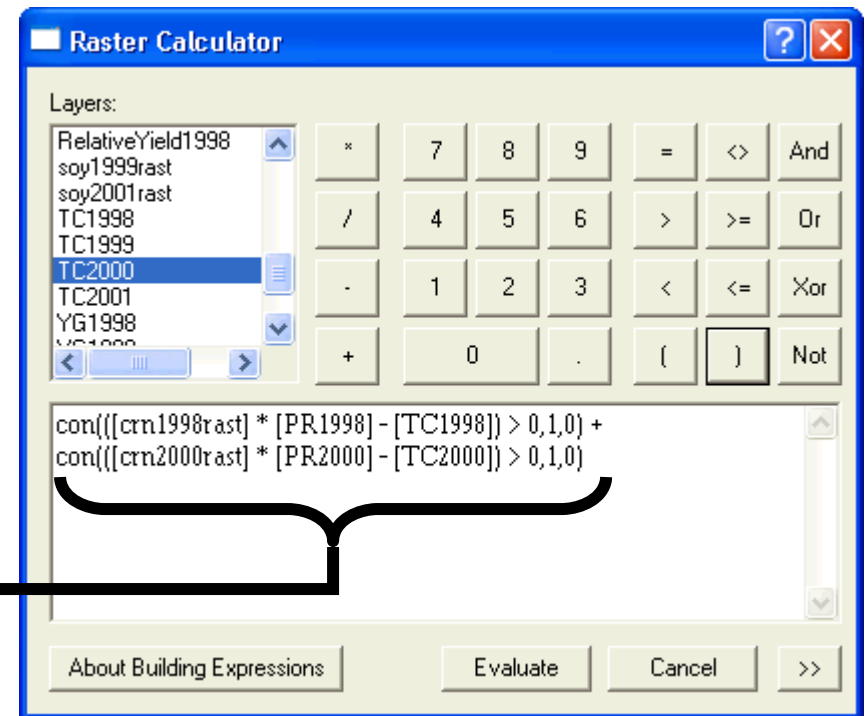
I have all these yield data, what can I do with them?

Investigating consistency

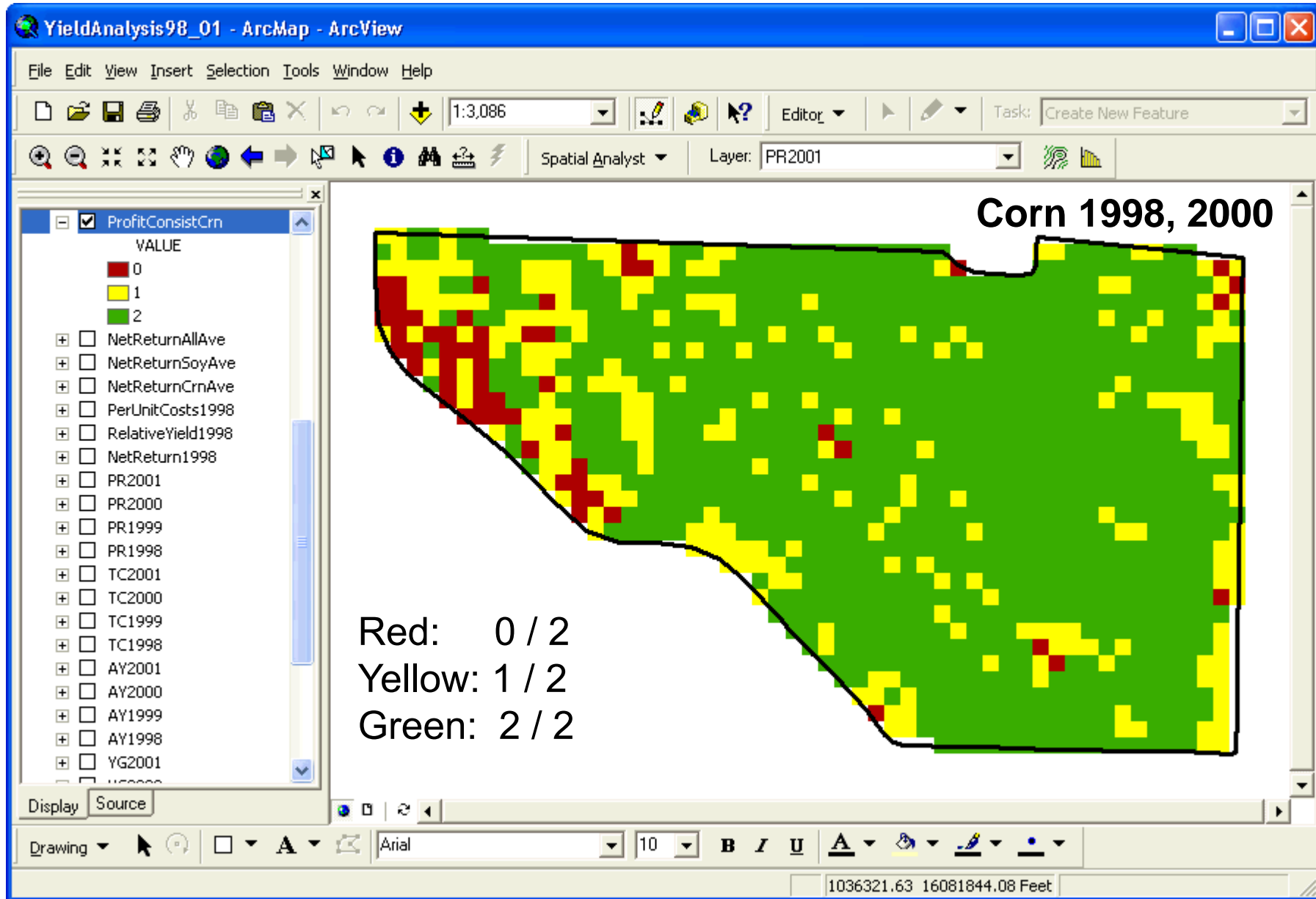
- Binary grids created for each year
- Binary grids added together
 - Example: 2 years of corn net returns
 - (0,1) grid 1998 + (0,1) grid 2000
 - Interpretation of results:
 - 0 = corn not profitable in either year
 - 1 = corn profitable in 1 of 2 years
 - 2 = corn profitable in 2 of 2 years

In what areas of the field has corn been consistently profitable?

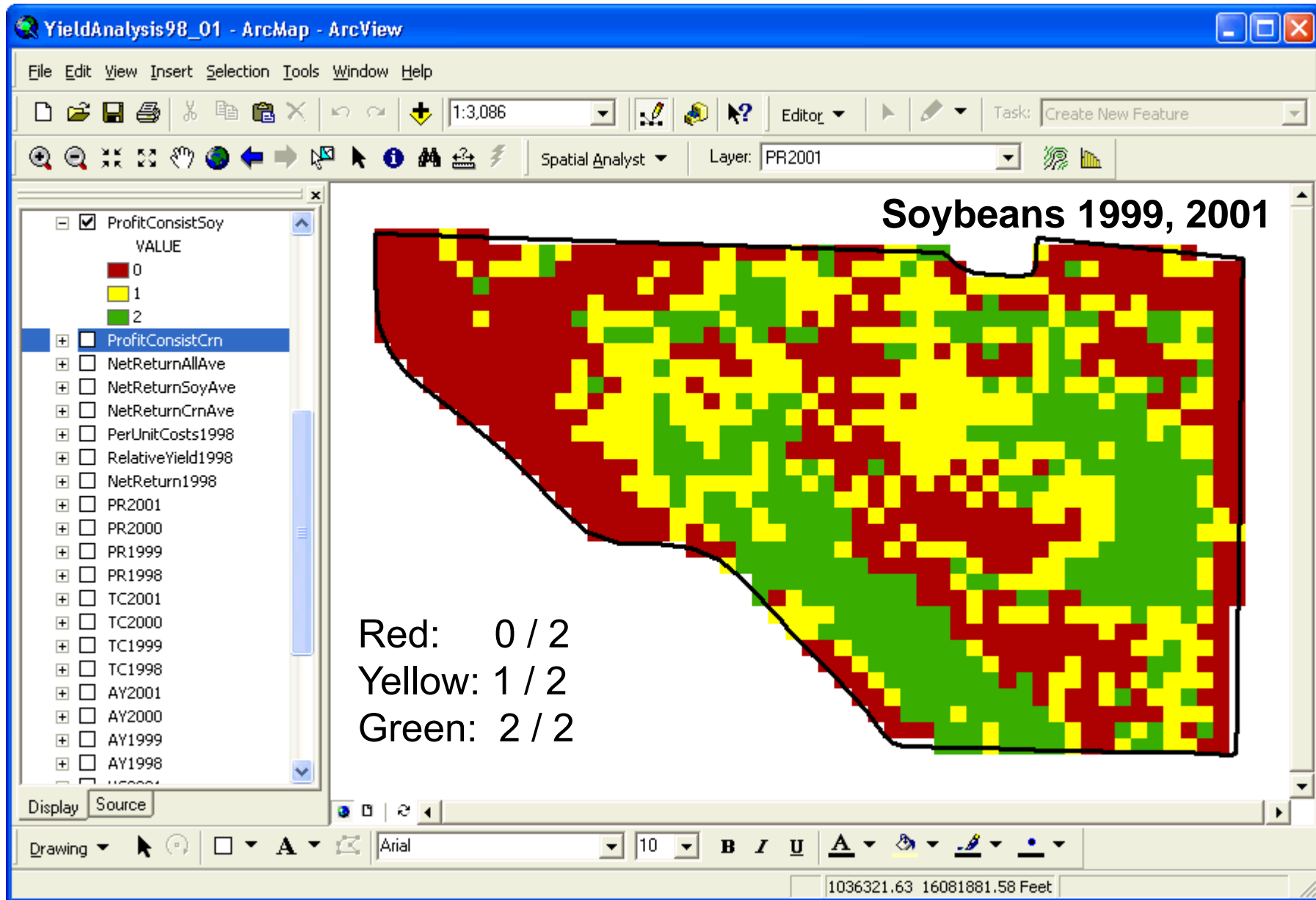
$\text{con}([\text{net profit } 1998] > 0, 1, 0) +$
 $\text{con}([\text{net profit } 2000] > 0, 1, 0)$



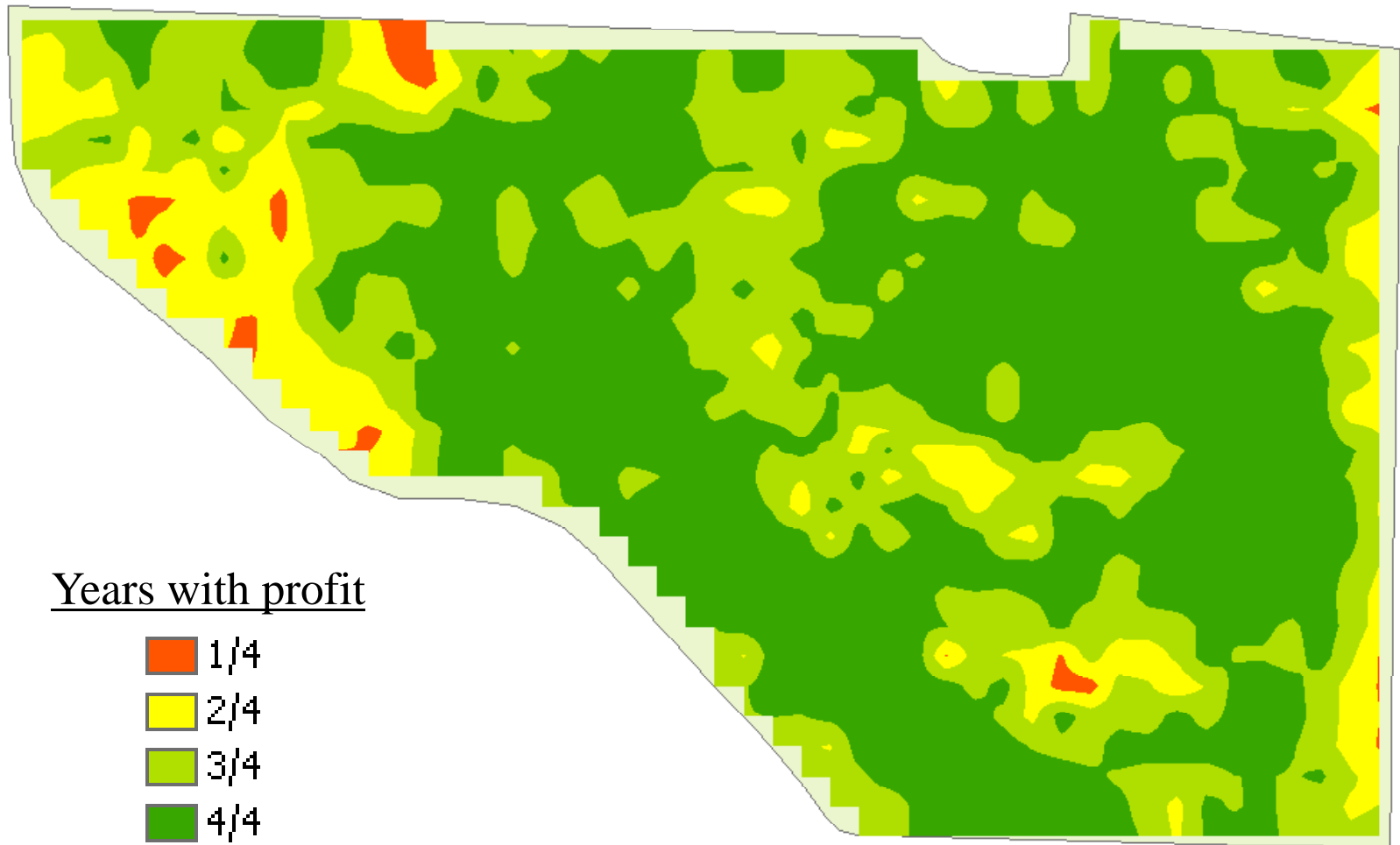
In what areas of the field has corn been consistently profitable?



In what areas of the field have soybeans been consistently profitable?



What areas of the field are consistently profitable?



All Crops

Are Our Soil Test Goals Adequate for Current Systems?

Treatment	P ₁ Soil Test	K Soil Test	Corn Yield (bu/A)	P ₁ Soil Test	K Soil Test	Soybean Yield
	(ppm)	(ppm)		(ppm)	(ppm)	(bu/A)
Standard P and K Soil Tests	20	161	152	32	184	57
High P and K Soil Tests	32	237	190	41	222	57

38 bu/A more corn!!





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Building on the Best Agronomic Science



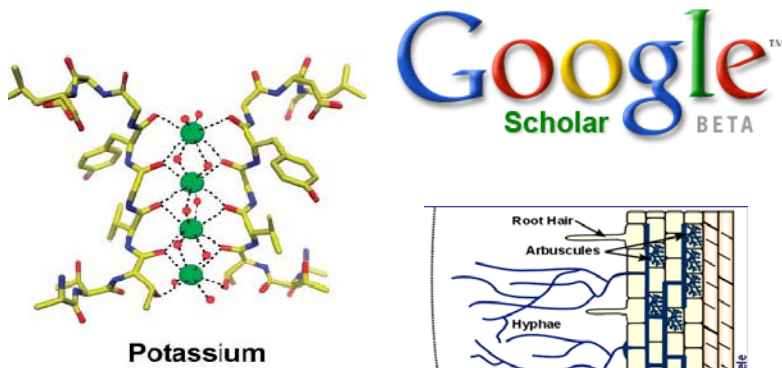
Our Best Agronomic Science ...

- What is it?
- Where is it?
- Is it good enough?

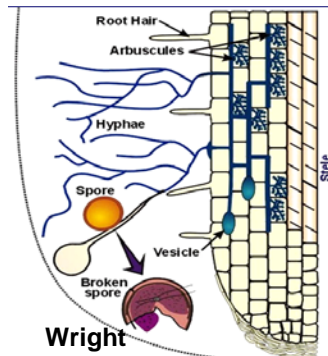
What is it?

Science has never had a more complete set of “knowledge nuggets”.

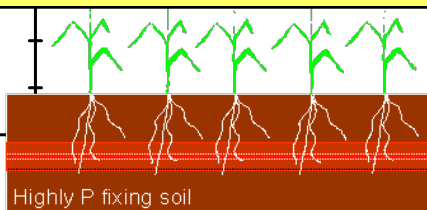
Industry has never had a more impressive set of technologies.



Google Scholar BETA



The best agronomic science might well be that which guides us to determining which practices and technologies are “best” for a specific farm or field.



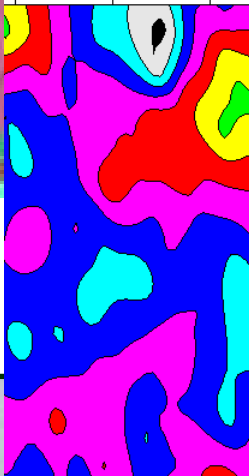
AccuHarvest Protein



Decision support and risk management tools



AccuHarvest Protein



Variable Rate Applicator with GreenSeeker



Farm Research Analyst

Design Plot Plan

Select Plot Design, Planting Direction, and a Field Boundary. Fill in the remaining dialog fields.

Plot Design

Strip Trial Small Plot Trial

Planting Direction

North/South East/West

Field Boundary: Fieldborder.shp

Plot Unit Width: 100 Feet

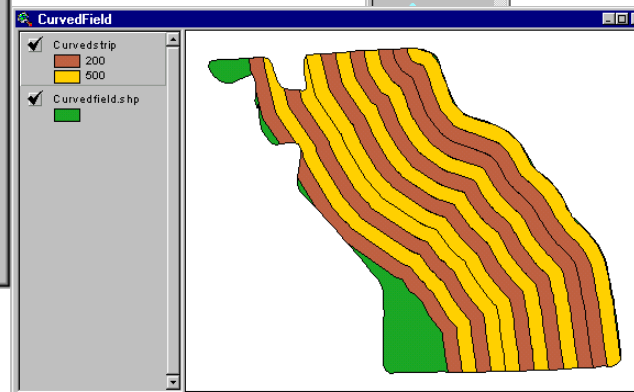
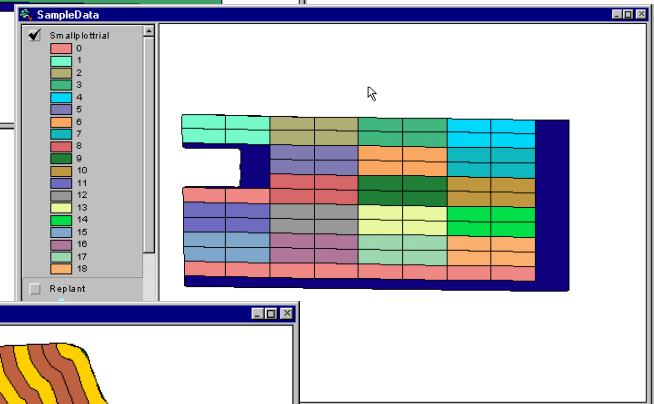
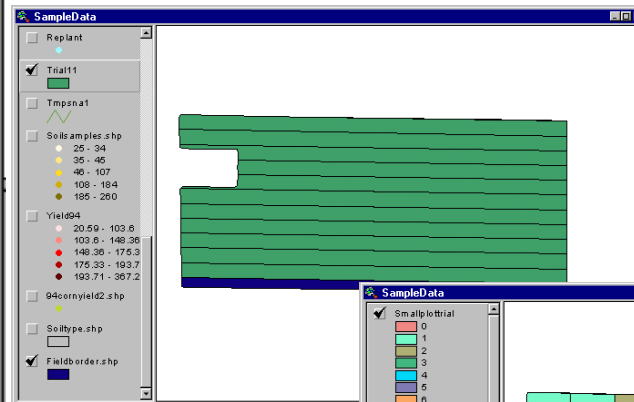
Determine Field Angle... Define Custom Strip ...

Offsets

No Offset Spaces Between

Create a sample strip trial or grid plot

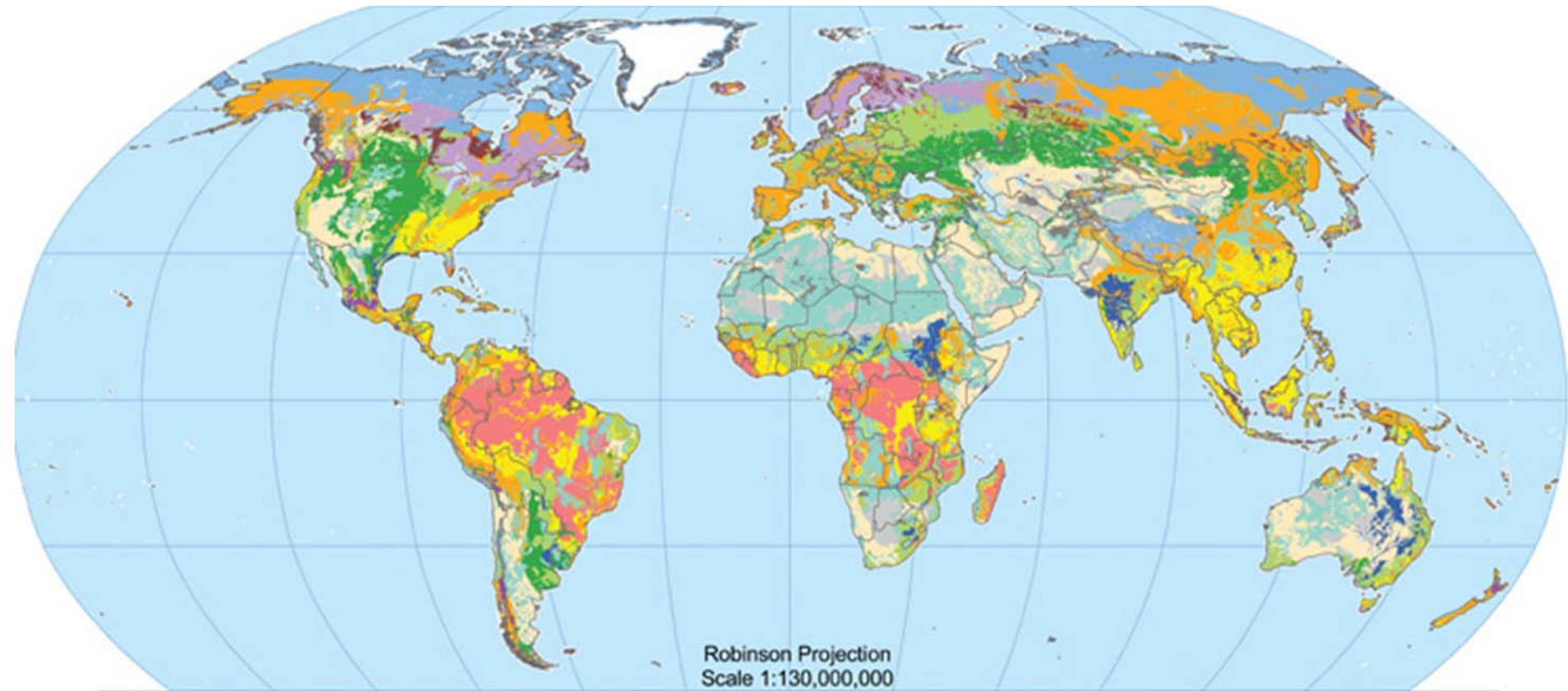
Design Close



Our best agronomic science ...
















- What is it?
- **Where is it?**

Potential source of relevant agronomic science?



Robinson Projection
Scale 1:130,000,000

Soil Orders

 Alfisols	 Entisols	 Inceptisols	 Spodosols	 Rocky Land
 Andisols	 Gelisols	 Mollisols	 Ultisols	 Shifting Sand
 Aridisols	 Histosols	 Oxisols	 Vertisols	 Ice/Glacier

Our best agronomic science ...

- What is it?
- **Where is it?**
 - Could be anywhere in the world
 - “The world is flat.” - *Thomas Friedman*
 - Could be from your own farm
 - Published science not always clear ... answer may only be found through on-farm testing
 - Sound agronomics fits globally



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Global Maize



Teams:

- High yield farmer(s) and their advisers
- Extension scientists (multidisciplinary)
- Research scientists (multidisciplinary)

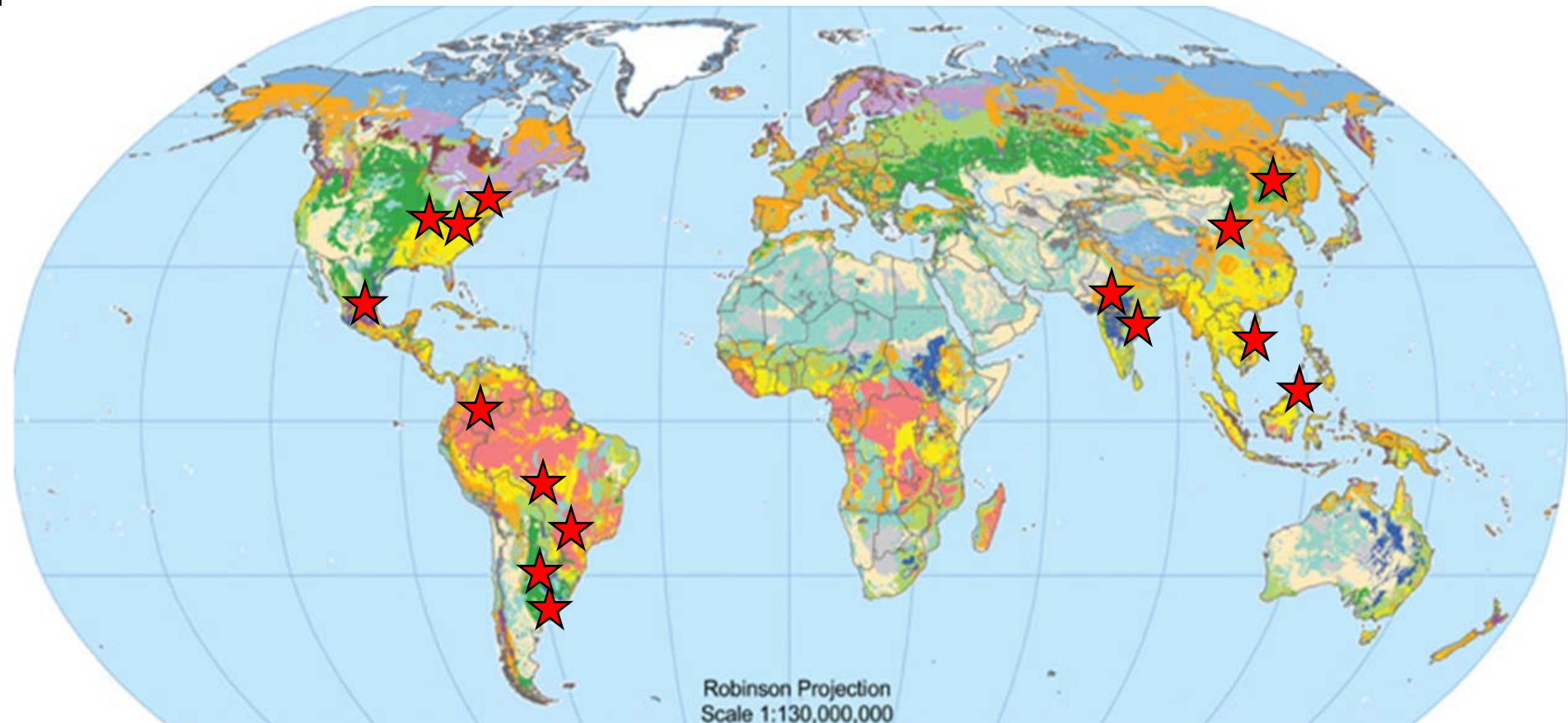
Protocols

Average
farmer
practices

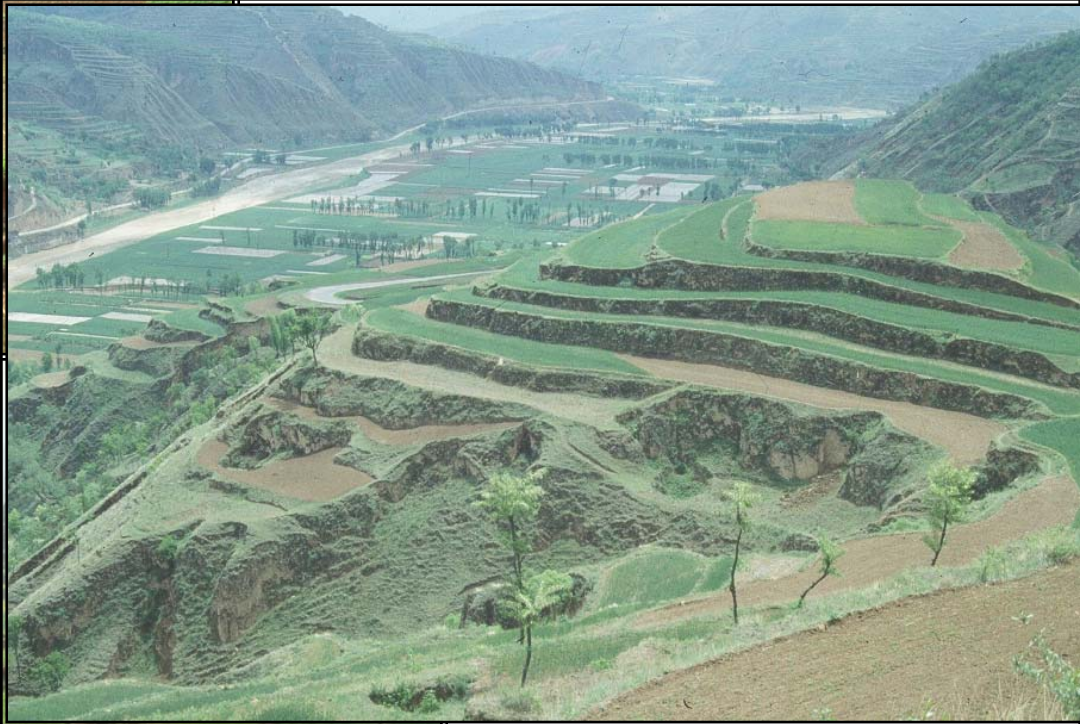
Recommended
practices

High yield
approaches

Global Maize

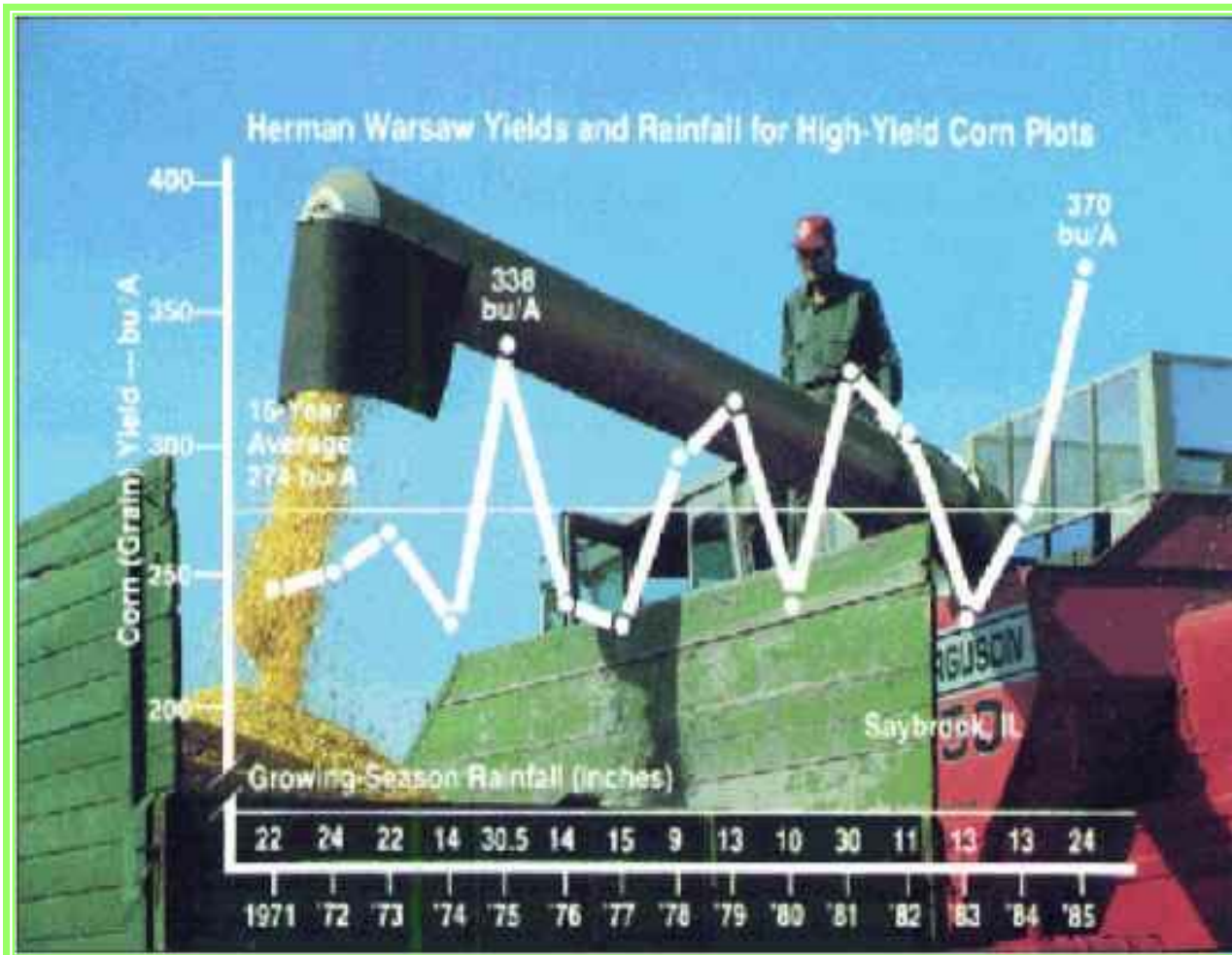


Land availability is most often the primary limiting resource



Herman Warsaw---

---World Record Corn Producer



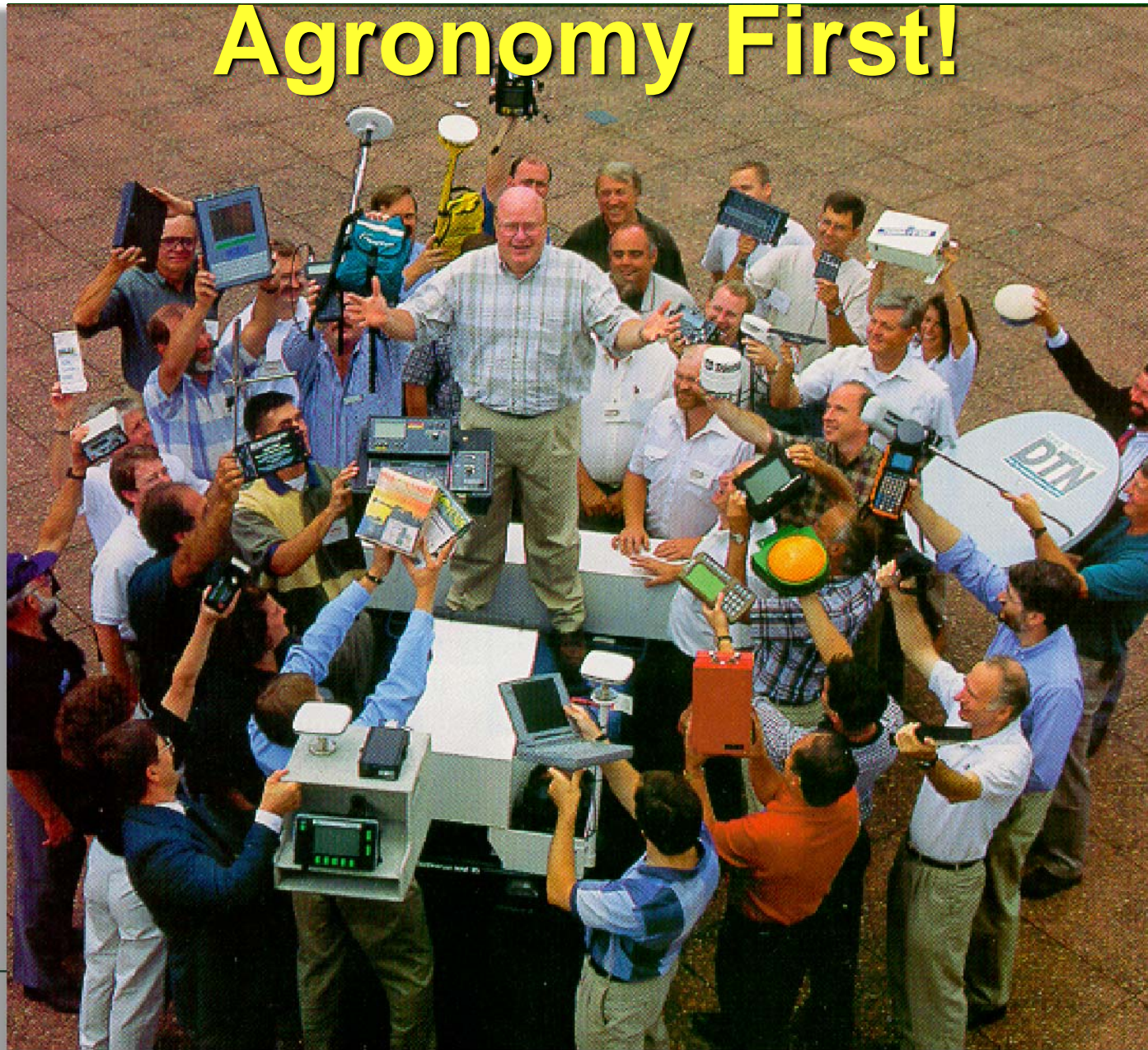
— 370 bu/A \equiv 23.2 metric tons/ha



Warsaw's Resources



Agronomy First!





“Fine tuning . . . removing the next limiting factor”

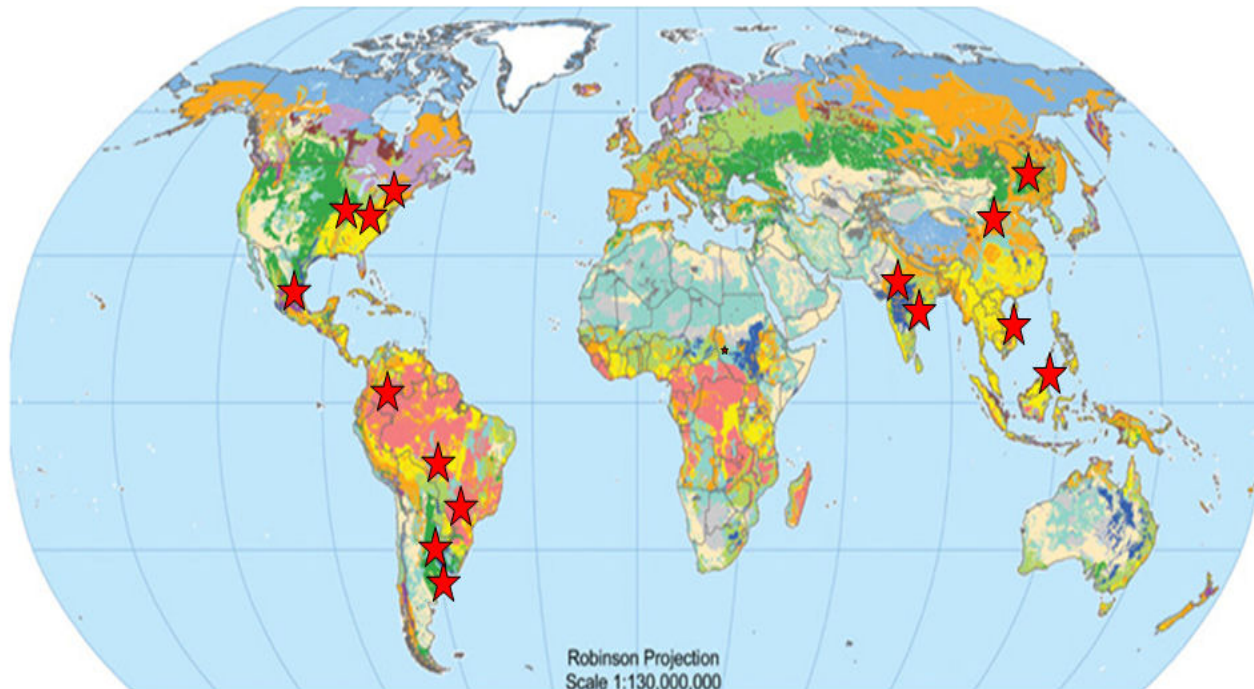
W. L. Nelson

Global Maize Long-Term Sites Comparison of Management Systems



Global Maize Long-Term Sites Comparison of Management Systems

- Average Farmer Practice
- Current Official Recommendations
(university or government)
- Intensive (High Yield) Management



Teams:

- High yield farmer(s) and their advisers
- Extension scientists (multidisciplinary)
- Research scientists (multidisciplinary)

Protocols

Average
farmer
practices

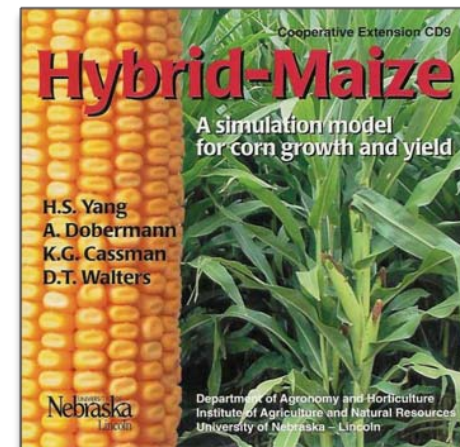
Recommended
practices

High yield
approaches

Global Evaluation of *Hybrid -Maize*

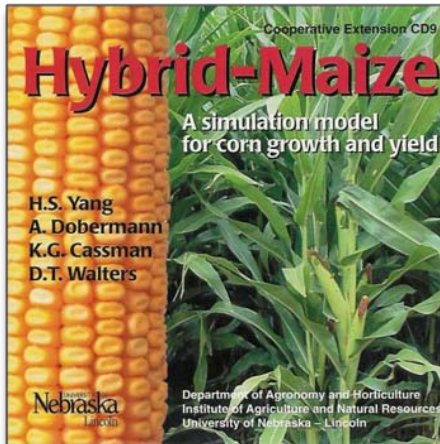
Ecological Intensification of Maize

- To test predictability of maize growth and yield at all scales
- Adapt model to local climate, soils, cultural practices, scale
- To define current yield and yield potential in major maize-growing areas of the world
- Build and test nutrient management components (N)



Global Evaluation of *Hybrid -Maize*

- Local adaptability
 - *Climate*
 - *Soil*
 - *Cultural practices*
 - *Scale*
- Guide ag industry
 - *Right product, rate, time, place*
 - *Technology adaptation*
- Mechanistic approach
 - *Process-oriented*
 - *Site-specific parameters*
- Define yield potential
- Define research needs
- Focus research results
- Guide management decisions



Global Evaluation of *Hybrid Maize*

-- On-Farm Testing --

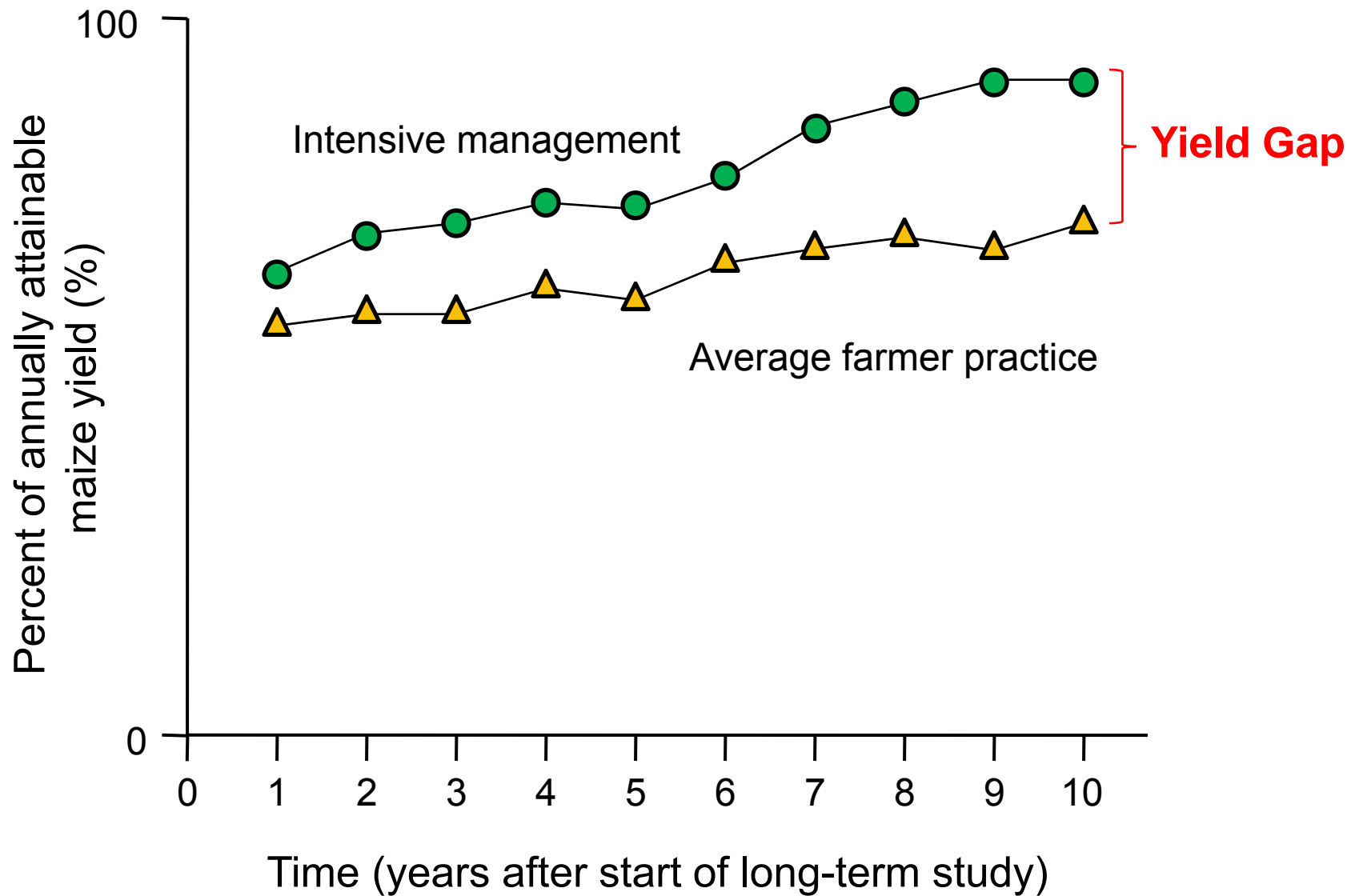
• Research Sites

- Institution location
- Long-term
- Monitoring capability
 - *Crop*
 - *Soil (nutrients, water, erosion, etc.)*
 - *Environment (air, water)*
- Multi-Nutrient interactions
- **Refine** the science

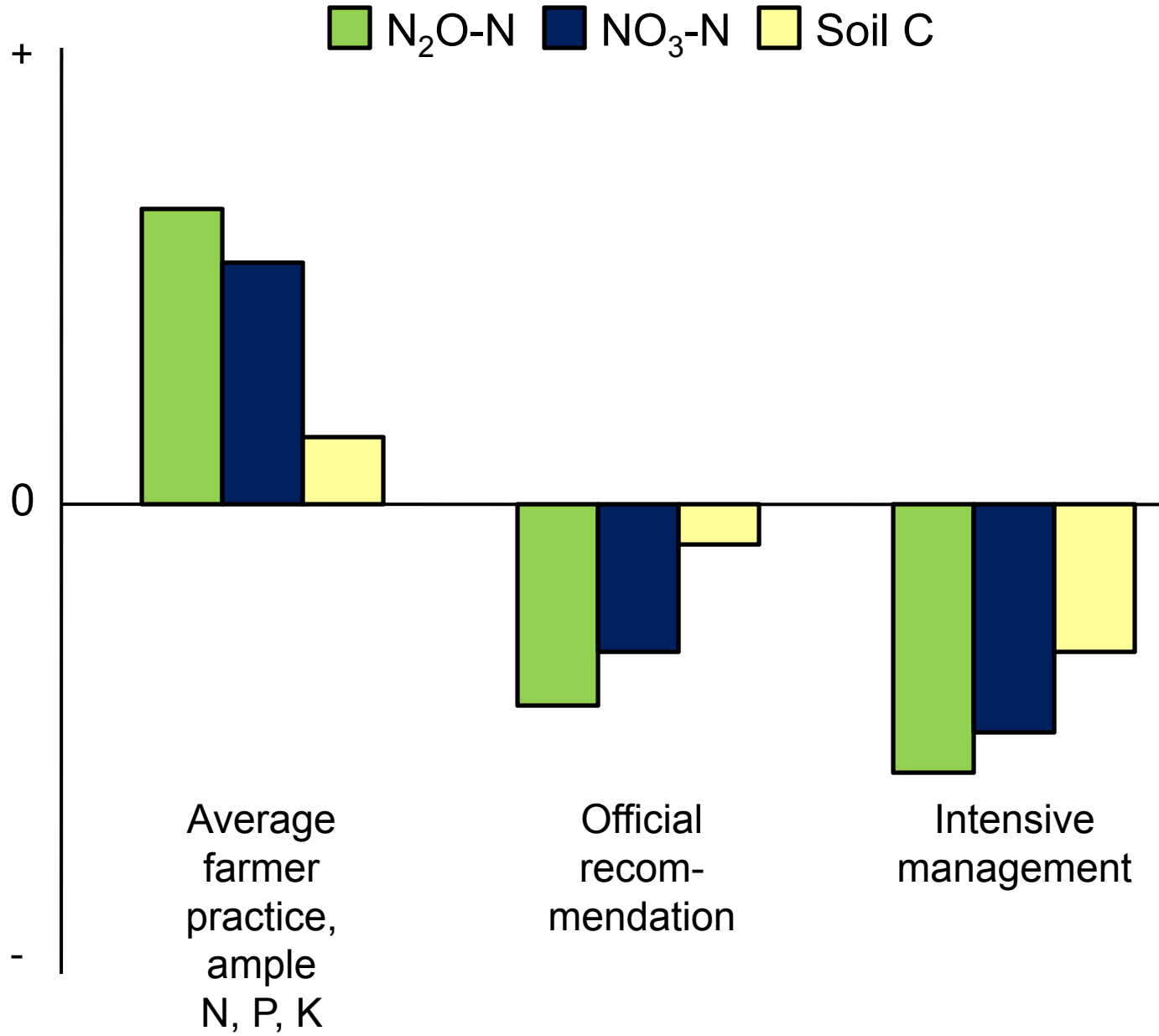
• On-Farm Sites

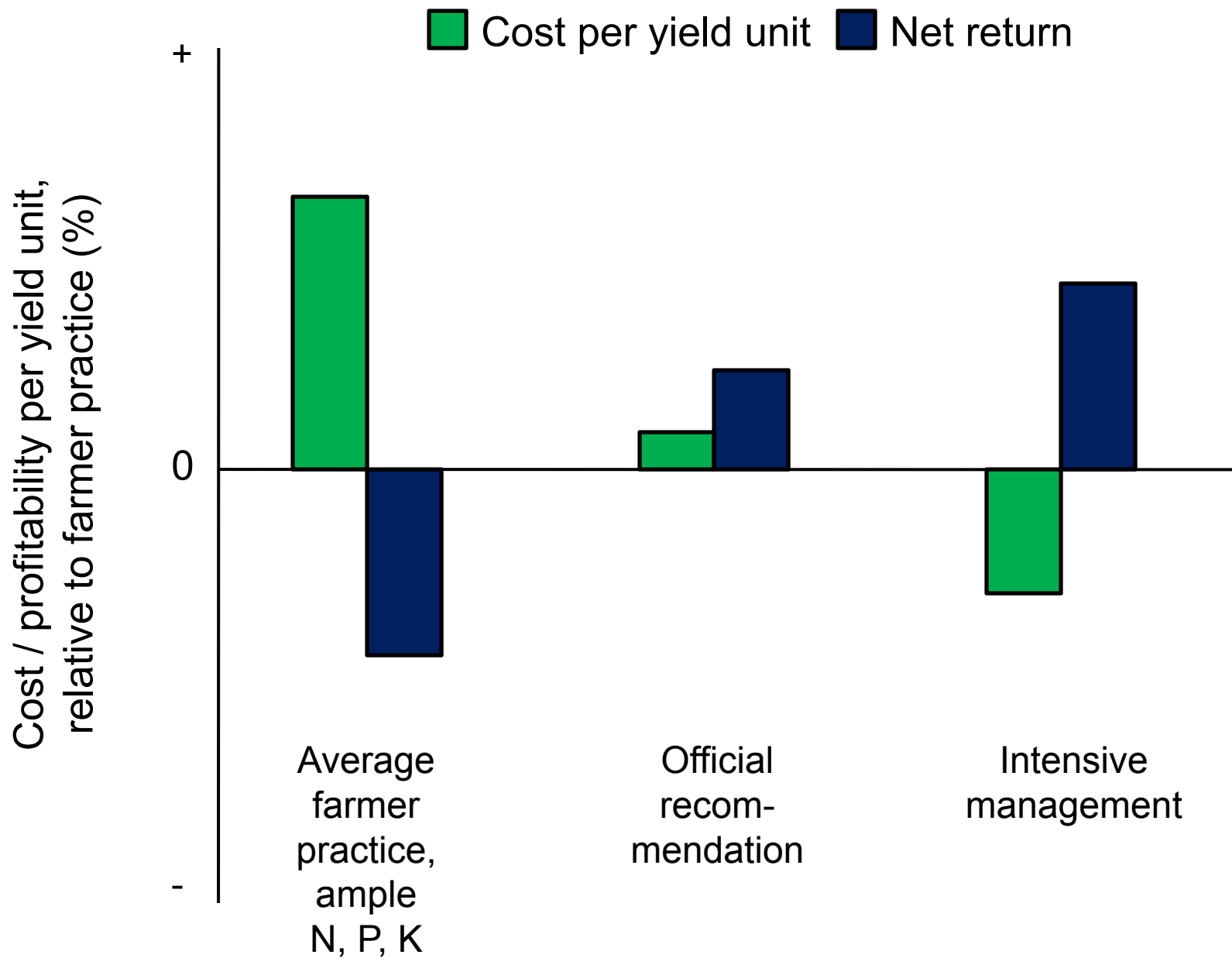
- Omission plots (N, P, K, S)
- Partner with local agency or dealer
- Field-scale equipment
- Adapted to local culture and technology
- Demonstrations and field days
- Data collection protocol
- **Implement** the science

Data Analysis (Hypothetical Data)

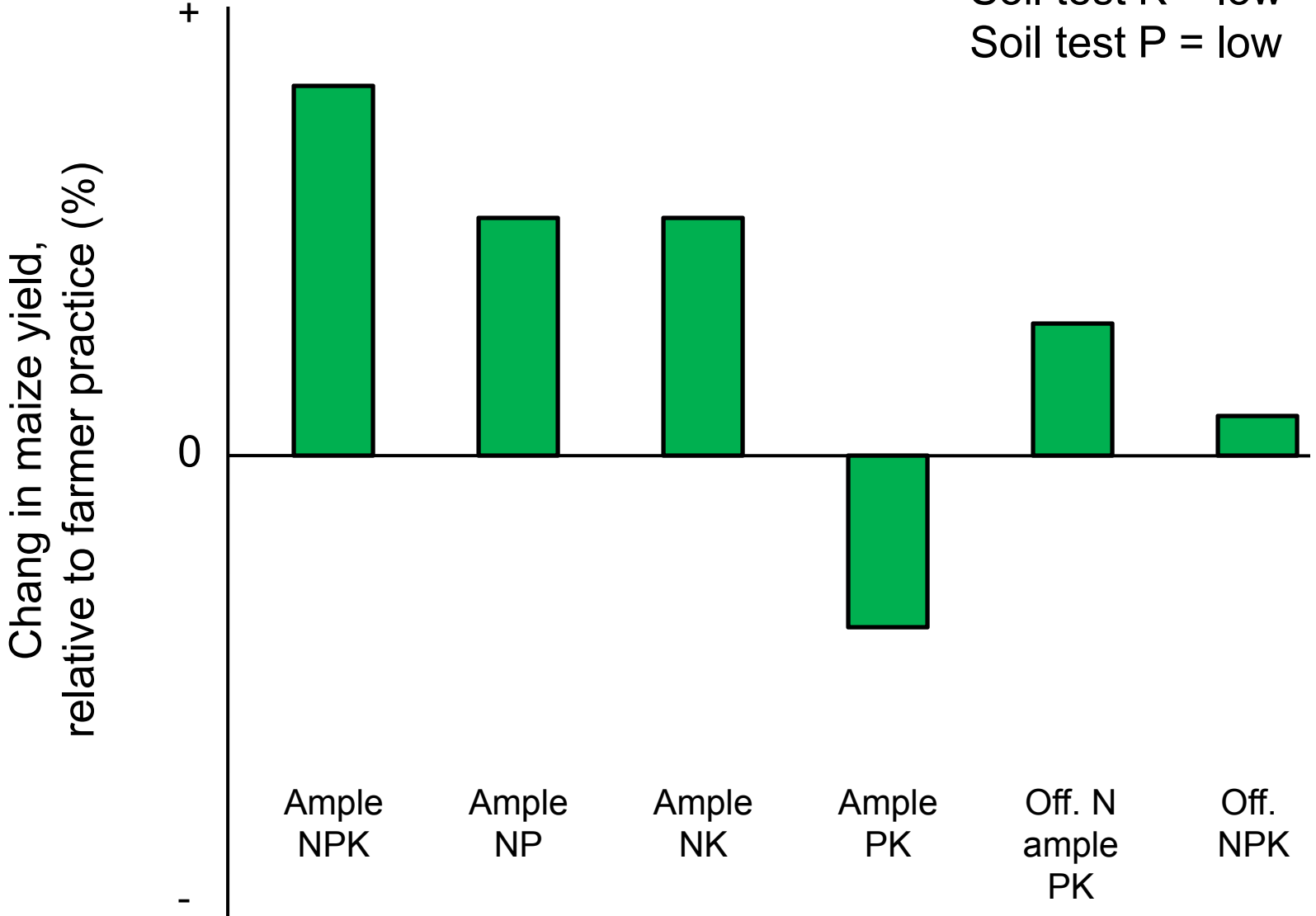


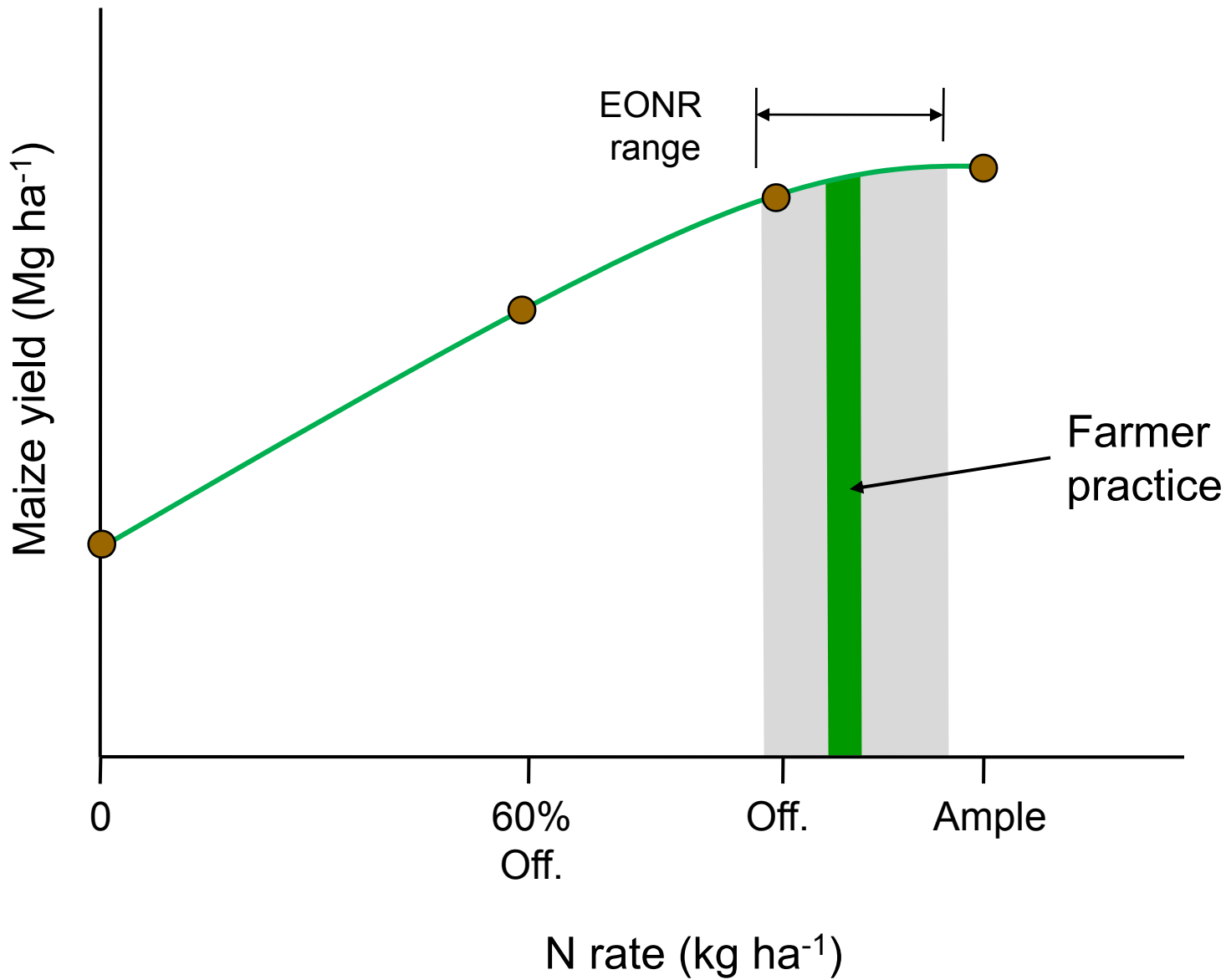
NO₃-N leaching / N₂O-N emission / C loss
per unit of yield, relative to farmer practice (%)





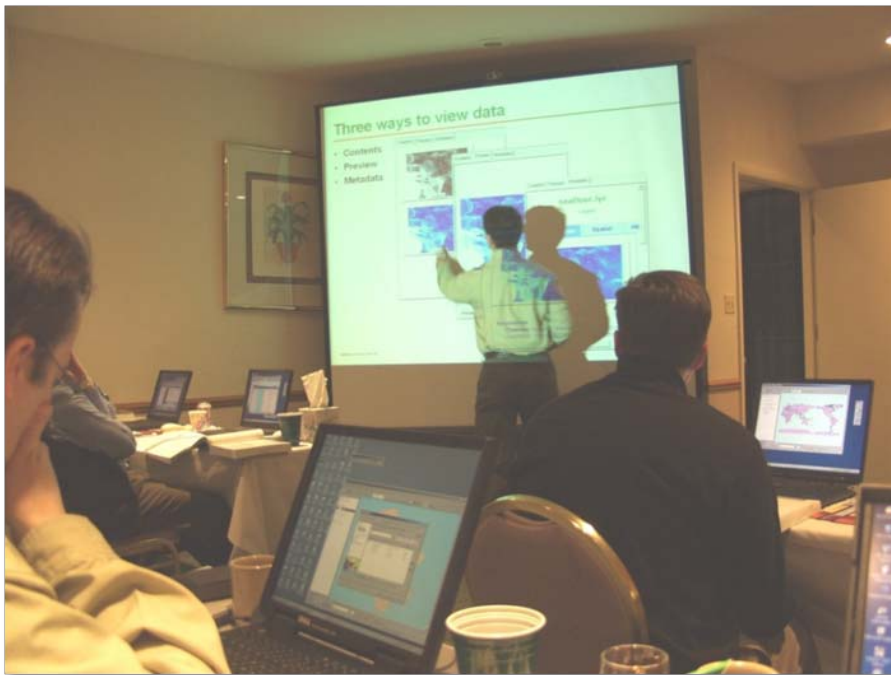
Soil test K = low
Soil test P = low





Training Sessions Sessions

- Everyone needs regular updates!!



- **Certified Crop Advisers**
– Continuing education

- New agronomic information
- New genetics
- New fertilizer & pest management products
- New technology
- New software
- New knowledge on local systems

Training Packages


- Developing training in three areas identified in Needs Assessment
 - Using Soil Test Data
 - Using Yield Data
 - Using On-Farm Research
- Packages include:
 - Sample Data Sets
 - Exercise workbooks
 - Slide Presentations
 - Trainer's Manual
 - CD with all materials




On-line CEU Module for CCAs

Phosphorus Nutrition in Wheat

[Wheat Requirements](#)
[Early Season](#)
[Placement](#)
[Supply](#)
[Management Strategies](#)



Phosphorus Nutrition of Wheat



00:02:05:28

[Click here for Quiz](#)

Scientific Terminology for Efficiency

- Purpose:
Develop standard terminology for reporting nutrient use efficiencies
 - Field measurements:
 - Yield vs. fertilizer use
 - Nutrient uptake vs. fertilizer use
 - Research measurements
 - Yield response vs. fertilizer use
 - Change in nutrient uptake vs. fertilizer use



Nutrient Use Efficiency and Effectiveness in North America: Indices of Agronomic and Environmental Benefit

By C.S. Snyder and T.W. Bruulsema, International Plant Nutrition Institute

MINERAL FERTILIZERS have made it possible to sustain the world's growing population, sparing millions of acres of natural and ecologically-sensitive systems that otherwise would have been converted to agriculture¹. Today, economic and environmental challenges are driving increased interest in nutrient use efficiency. Higher prices for both crops and fertilizers have heightened interest in efficiency-improving technologies and practices that also improve productivity. In addition, nutrient losses that harm air and water quality can be reduced by improving use efficiencies of nutrients, particularly for nitrogen (N) and phosphorus (P).

The world's population, growing in both numbers and purchasing power, is projected to consume more food, feed, fiber, and fuel—increasing global demand for fertilizer nutrients². Since fertilizers are made from non-renewable resources, pressure to increase their use efficiencies will continue. At the same time, efforts should increase to enhance fertilizer use effectiveness for improved productivity and profitability of cropping systems.

System Efficiency

Efficiencies are generally calculated as ratios of outputs to inputs in a system. The "system" can be defined in many ways, depending on the interest of the observer.

Agricultural cropping systems contain complex combinations of components, including: soils, soil microbes, roots, plants, and crop rotations. Improvements in the efficiency of one component may or may not be effective in improving the efficiency of the cropping system. Efficiency gains in the short term may sometimes be at the expense of those in the long-term. Short-term reductions in application rates increase nutrient use efficiencies, even when yields decline. However, in the long-term, lower yields reduce production of crop residues, leading to increased erosion risks, decreased soil organic matter, and diminished soil productivity. Sustainable system efficiency demands attention to the long-term impacts.

Best management practices (BMPs) focus on the effectiveness of fertilizers and keeping them in the field for use by the intended crop in adapting cropping systems to the economic and environmental challenges noted above. Effectiveness is maximized when the most appropriate nutrient sources are applied at the right rate, time, and place in combination with conservation practices such as buffer strips, continuous no-till, cover crops, and riparian buffers within intensively managed cropping systems that achieve both increasing yields and diminishing nutrient losses³. This approach ensures that improvements to the nutrient use efficiency of the components contribute toward improving the efficiency of the entire system.



Many components contribute to the efficiency of a cropping system.

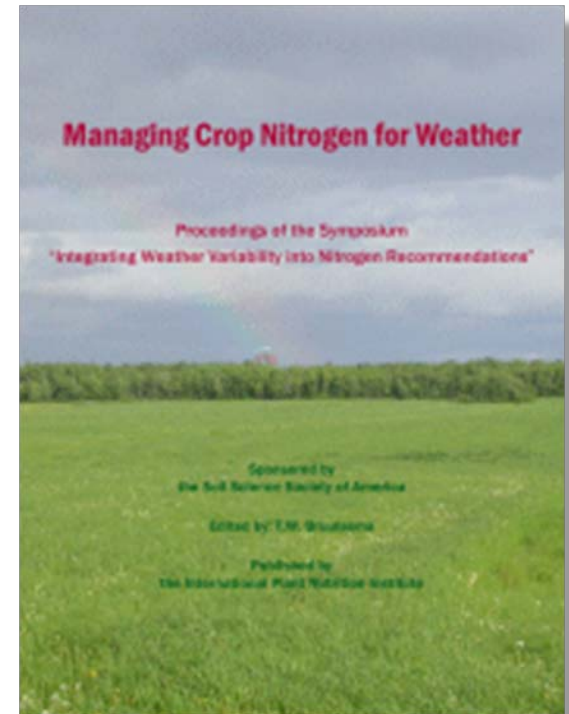
Because a cropping system includes multiple inputs and outputs, its overall efficiency depends on the science of economics. To maximize profit is to obtain the maximum value of outputs per unit value of all inputs. At the rate where the net return to the use of one input peaks, the input is making its maximum contribution to increasing the efficiency of all other inputs involved. Rates of nutrient application optimal for economic yields often minimize nutrient losses⁴.

Component Efficiencies

A recent review identified no fewer than 18 different definitions and calculations of nutrient use efficiency⁵. Even the most useful component efficiencies require careful interpretation if they are to contribute to effective nutrient use in cropping systems. In Table 1, we

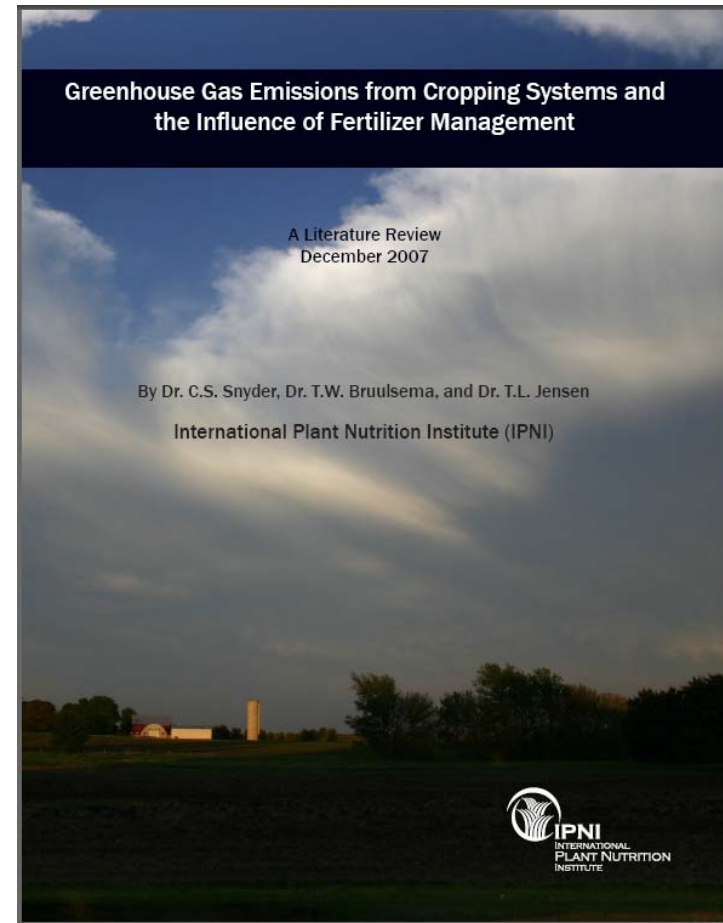
Managing Crop Nitrogen for Weather

- Purpose:
Improving nitrogen recommendation models to account for weather variability
- Venue:
Symposium at the annual meeting of the American Society of Agronomy



Review of Greenhouse Gas Emissions

- Agriculture's contribution to GHG emissions
- Effects of N rate, timing, and placement
- Enhanced N efficiency fertilizers
- Ecologically intensive production systems



Long-Term Research -- Morrow Plots, etc.



RECORD YIELD

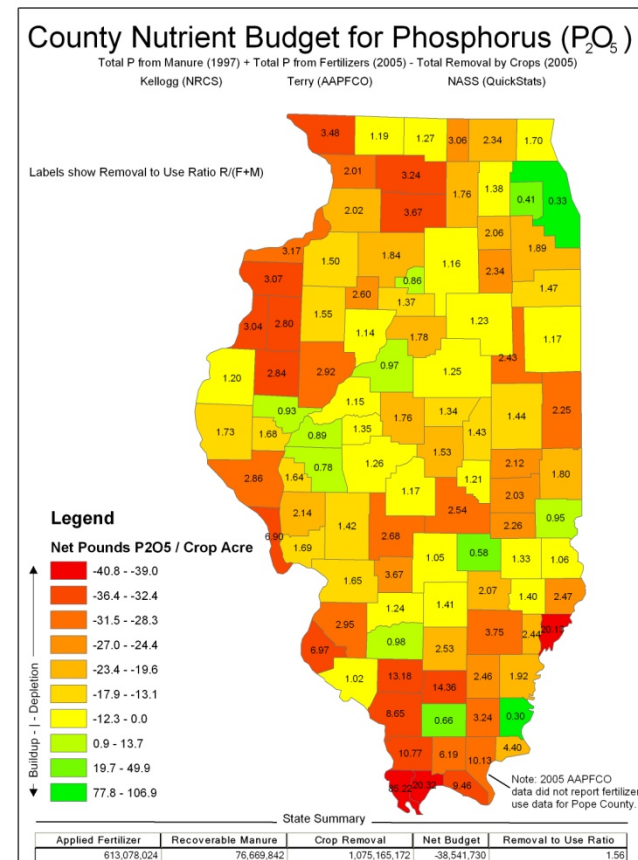
2003 – 264 bu/A



Long-term studies are an important scientific resource that should be protected...
...and used.

Example GIS Data Analysis for Illinois

- County P₂O₅ Budgets
- 3 sources: NRCS, AAPFCO, NASS
- Manure Applied
- Fertilizer sold
- Crop Removal
 - Actual yield of major crops
- Computations on county basis
- Aggregation to watershed basis



County Nutrient Budget for Phosphorus (P₂O₅)

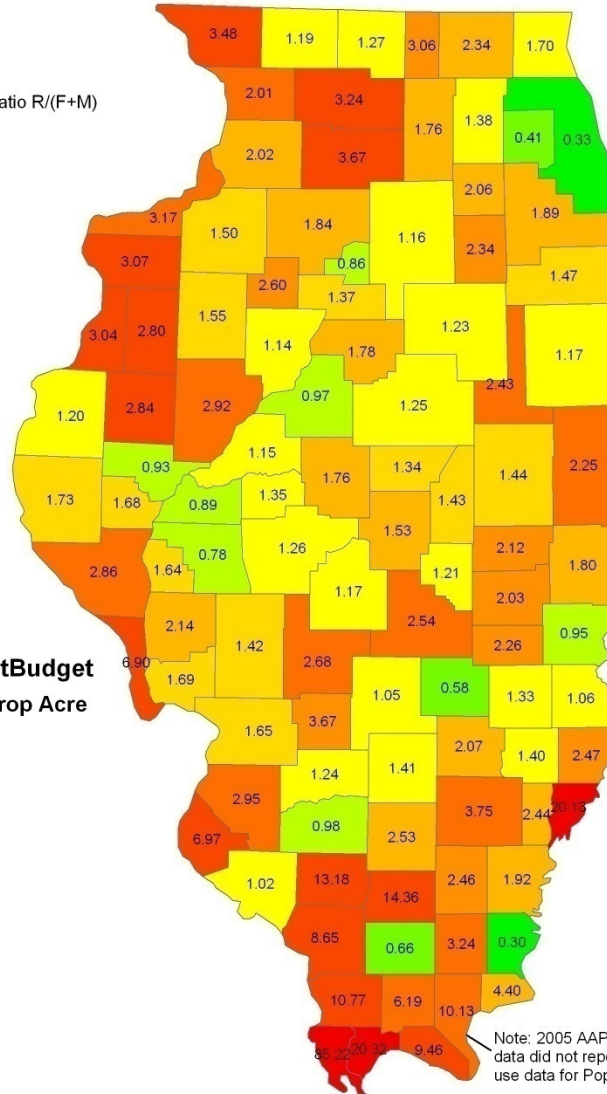
Total P from Manure (1997) + Total P from Fertilizers (2005) - Total Removal by Crops (2005)

Kellogg (NRCS)

Terry (AAPFCO)

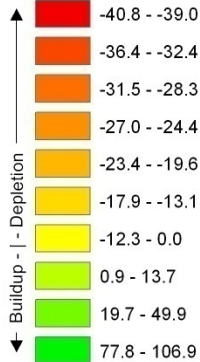
NASS (QuickStats)

Labels show Removal to Use Ratio R/(F+M)



Legend

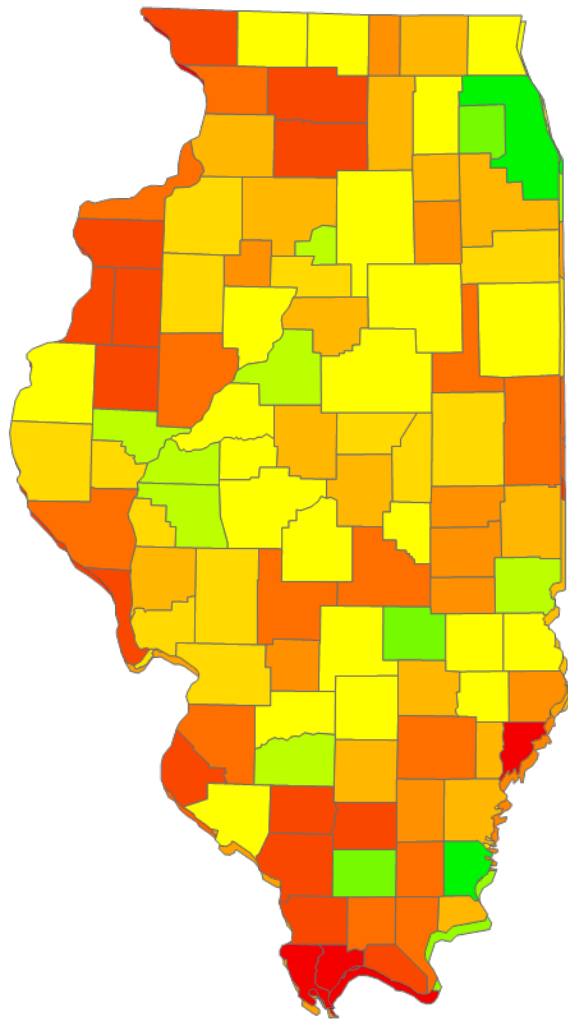
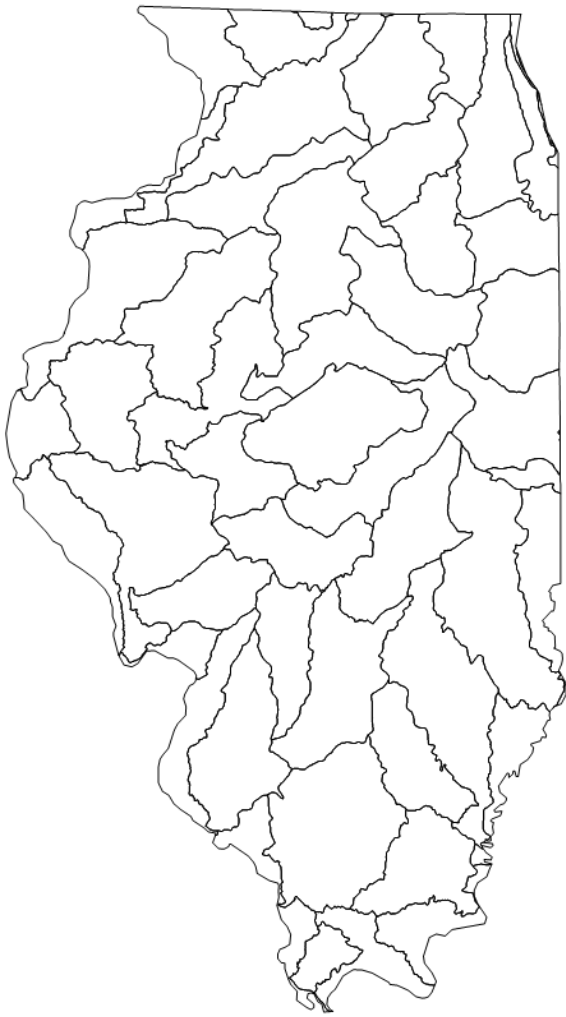
IL_County_NutrientBudget
Net Pounds P₂O₅ / Crop Acre



Note: 2005 AAPFCO data did not report fertilizer use data for Pope County.

State Summary

Applied Fertilizer	Recoverable Manure	Crop Removal	Net Budget	Removal to Use Ratio
613,078,024	76,669,842	1,075,165,172	-385,417,307	1.56



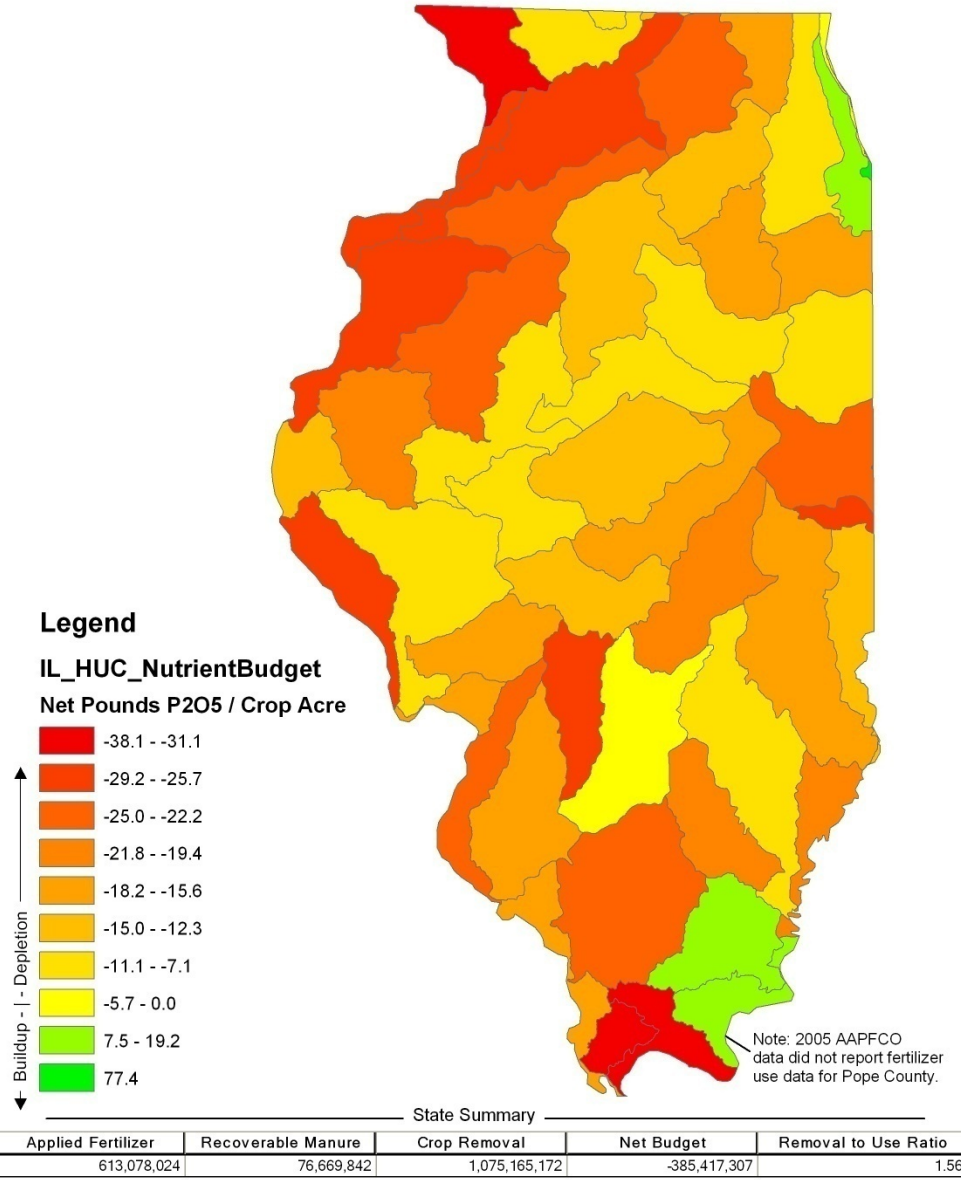
Watershed Nutrient Budget for Phosphorus (P_2O_5)

Total P from Manure (1997) + Total P from Fertilizers (2005) - Total Removal by Crops (2005)

Kellogg (NRCS)

Terry (AAPFCO)

NASS (QuickStats)



Nutrient Response Tool

www.ipni.net/northeast

- Excel Spreadsheet
- Fits several models
 - Linear-plateau
 - Quadratic
 - Quadratic-plateau
 - Mitscherlich
 - Sine



IPNI INTERNATIONAL PLANT NUTRITION INSTITUTE

Northeast

INTERNATIONAL PLANT NUTRITION INSTITUTE

REGIONAL PROGRAMS PUBLICATIONS FEATURES RESEARCH REGISTER STORE SEARCH ALL REGION

Regional Home Profile

Regional Updates +
Features +
Education +
Project Database +

Printable Version

Crop Nutrient Response Tool - NEW version 3.0



Version 3.0 (released October 2007) has the following features:

- five response curves fit simultaneously
- four calculated estimates of nutrient use efficiency (NUE)
- capacity for up to 36 treatments per site-year
- summary capacity of 1,000 or more site-years

This evaluation tool was designed to assist in interpretation and record-keeping for on-farm field crop trials involving multiple rates of any added nutrient. Its main goal is to provide the best possible estimate of "optimum rate" for a single-year response - the most economic rate (**MERN**) at which it is profitable to apply a purchased nutrient - from limited data. It can also estimate several basic forms of nutrient use efficiency (**NUE**): partial factor productivity, agronomic efficiency, partial nutrient balance, and recovery efficiency.

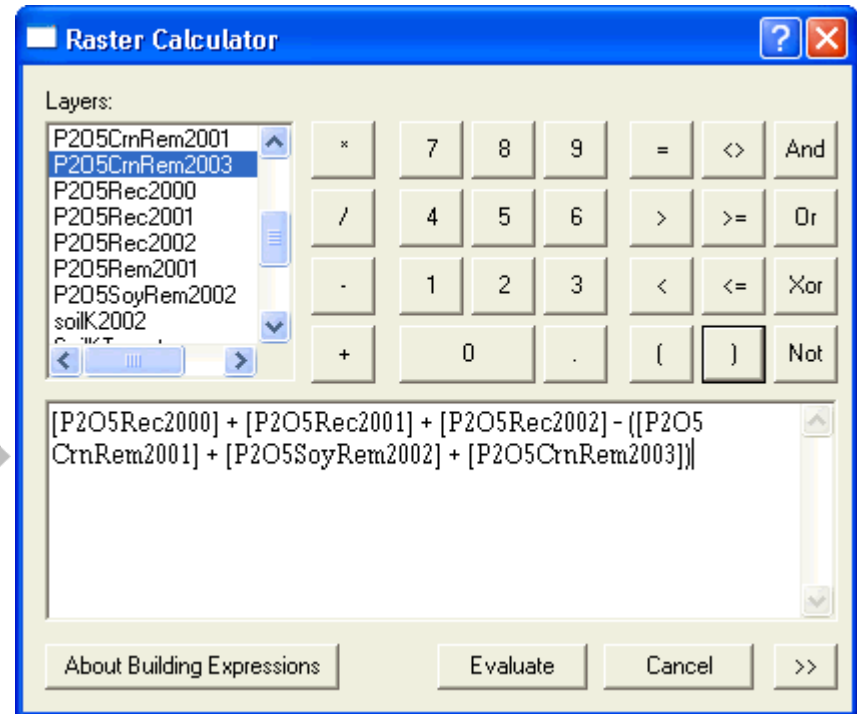
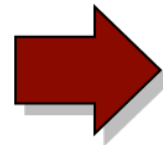
It can also function as a record-keeping tool. The summary worksheet provides a single-row storage for a thousand or more site-years.

Examining Nutrient Budgets at Different Spatial Scales

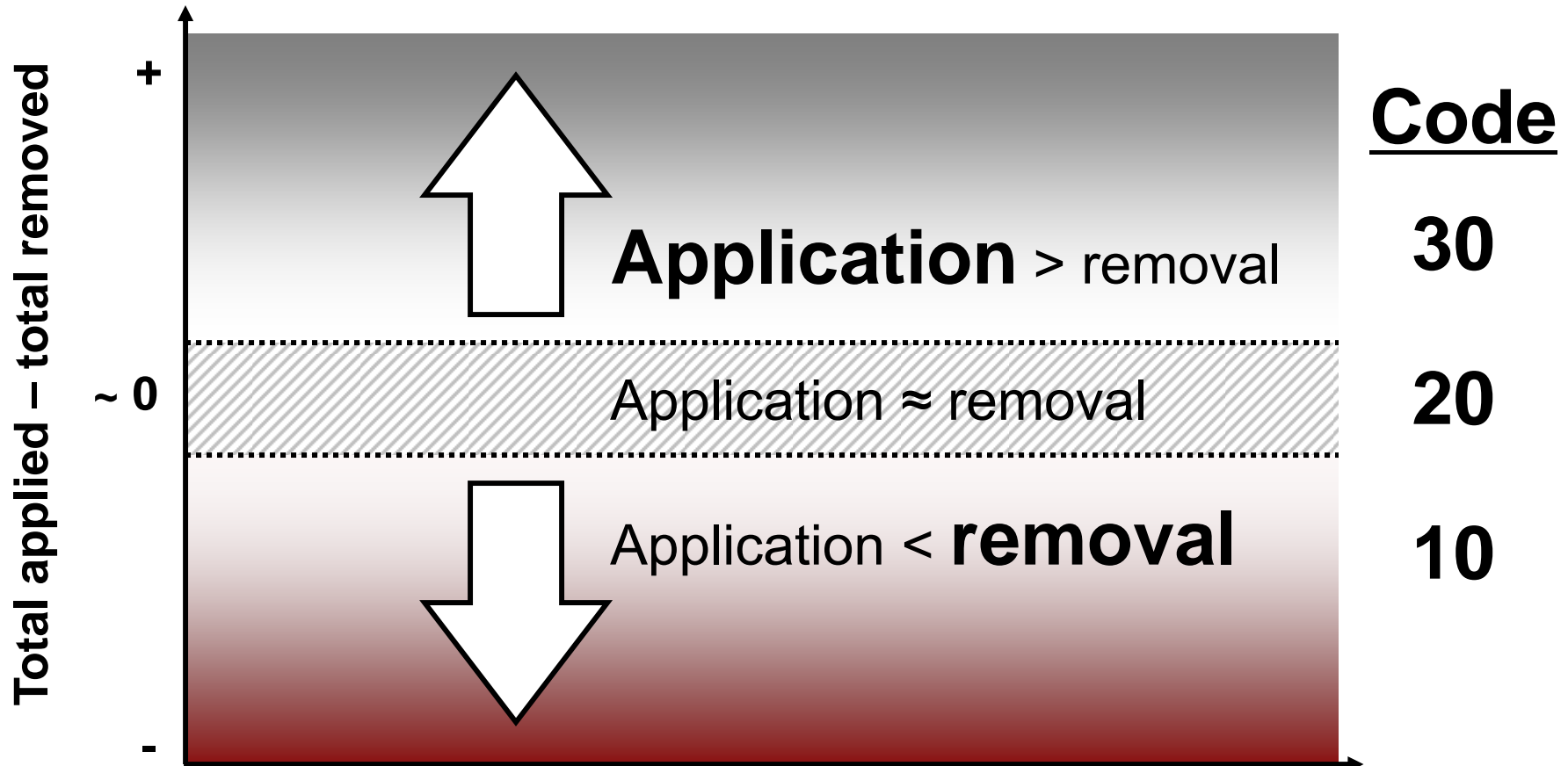
Calculating nutrient budgets with Raster Calculator

- Total added – total removed

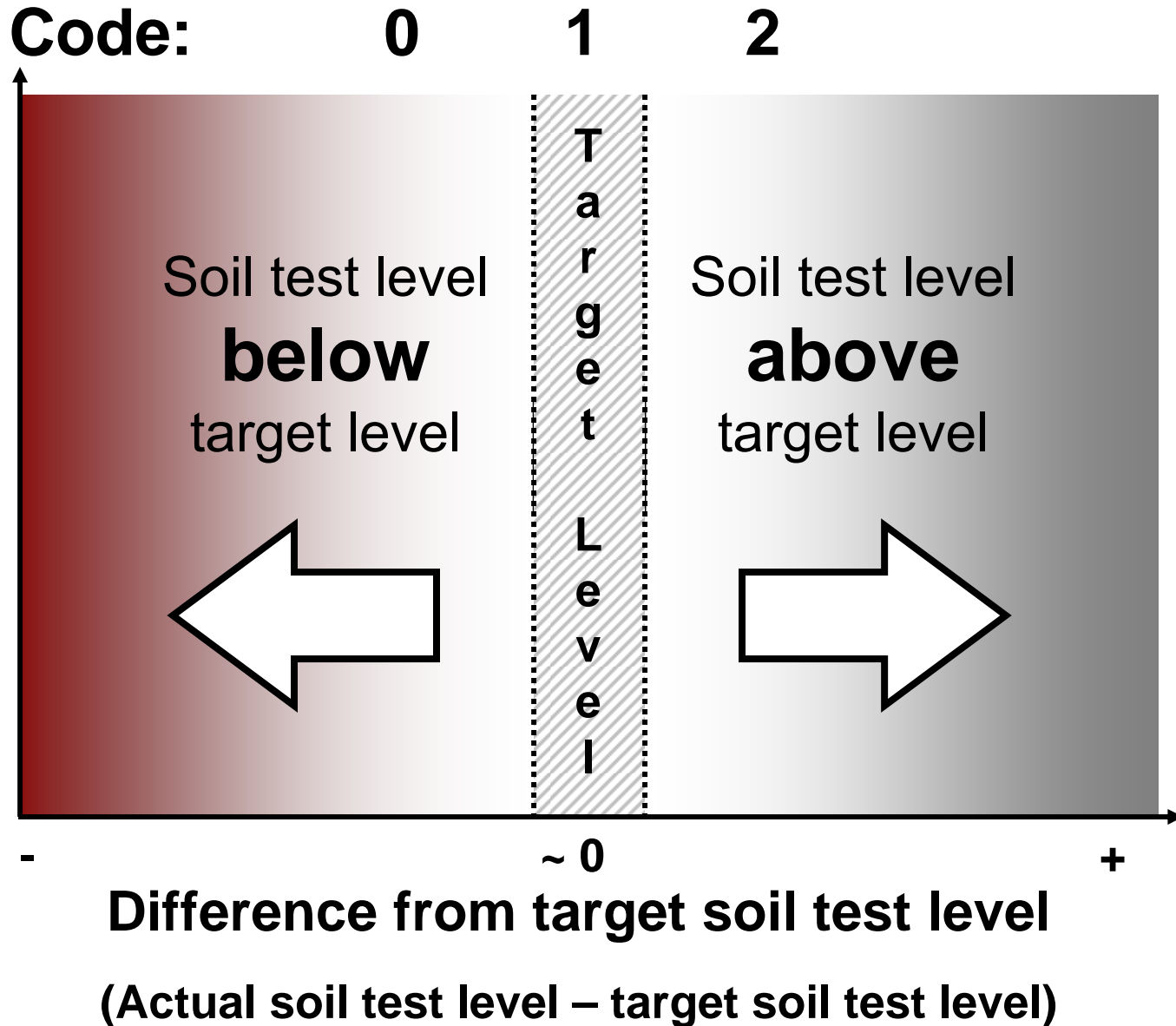
$$\begin{array}{r} \text{Recommendations} \\ \text{(2000 + 2001 + 2002)} \\ - \\ \text{Estimated removal} \\ \text{(2001 + 2002 + 2003)} \\ \hline \text{Budget} \\ \text{(2001 – 2003)} \end{array}$$



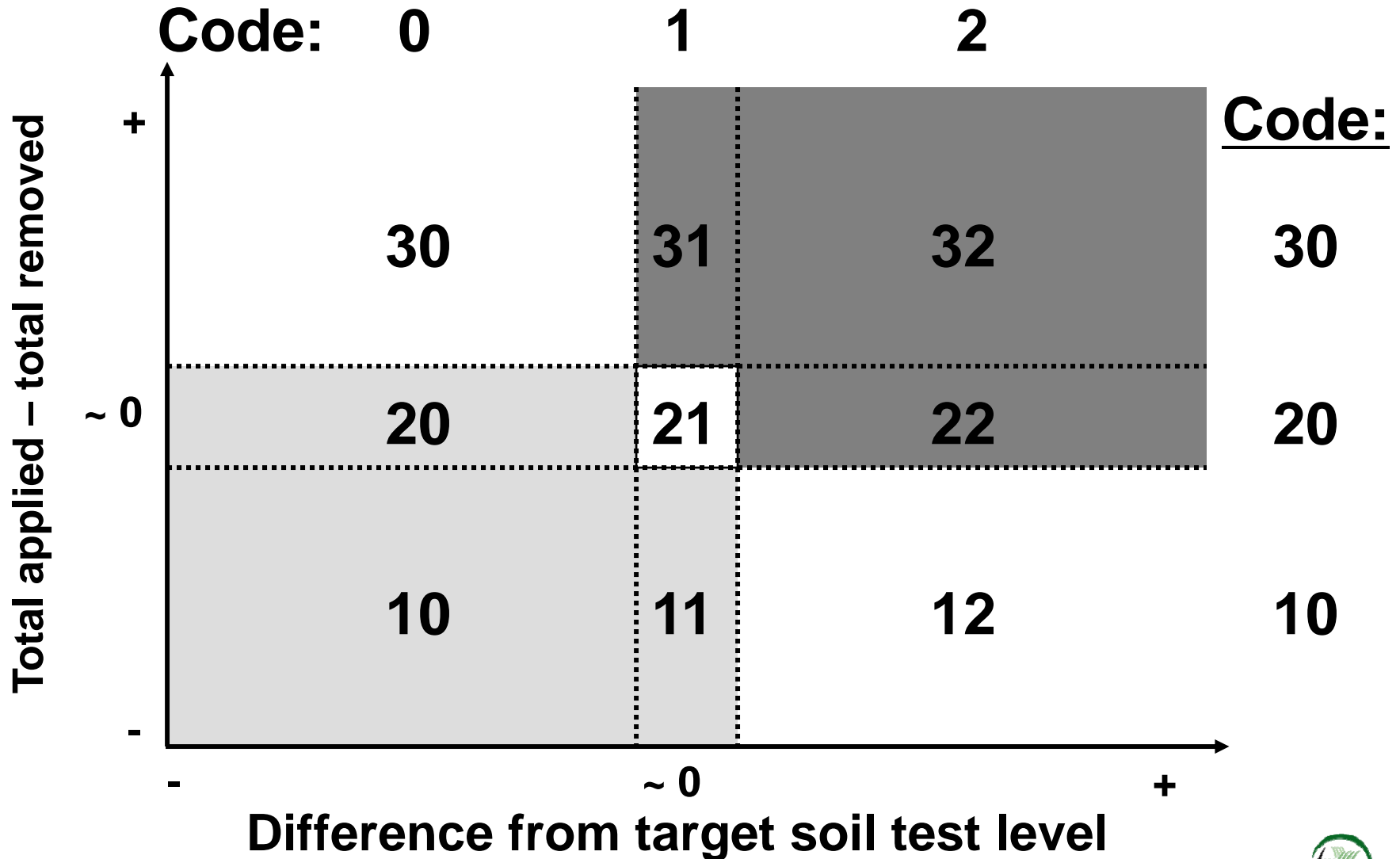
Interpreting nutrient budgets






Interpreting soil test levels

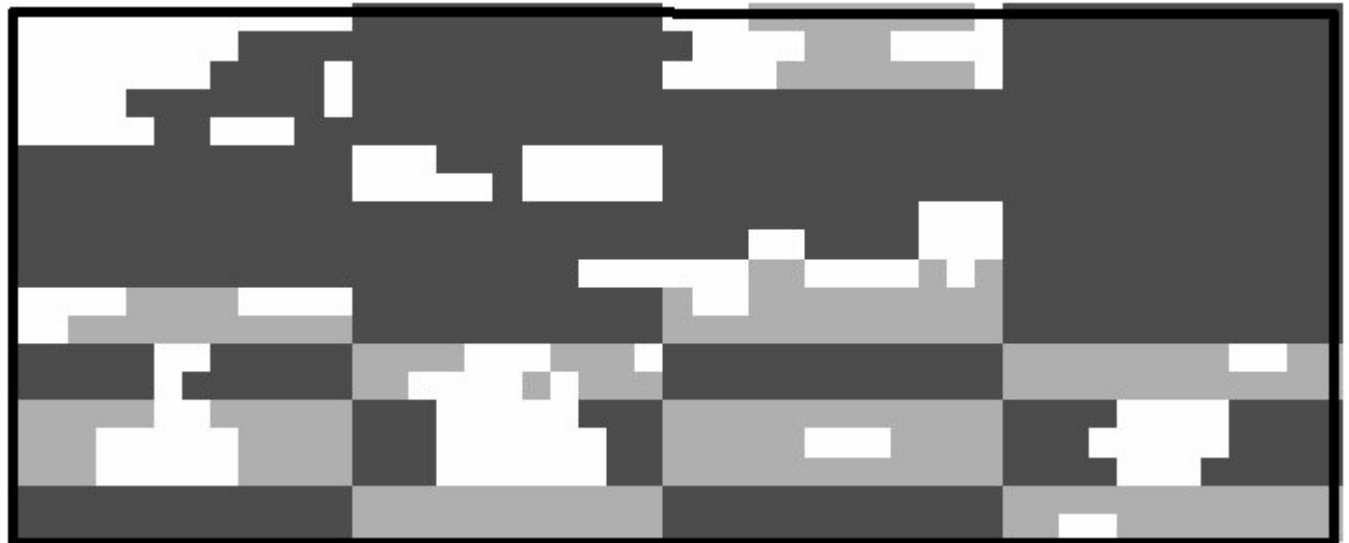


Evaluating nutrient budgets with soil test levels



Spatial evaluation of nutrient budgets

-  No alteration
-  Input increase needed
-  Input reduction needed

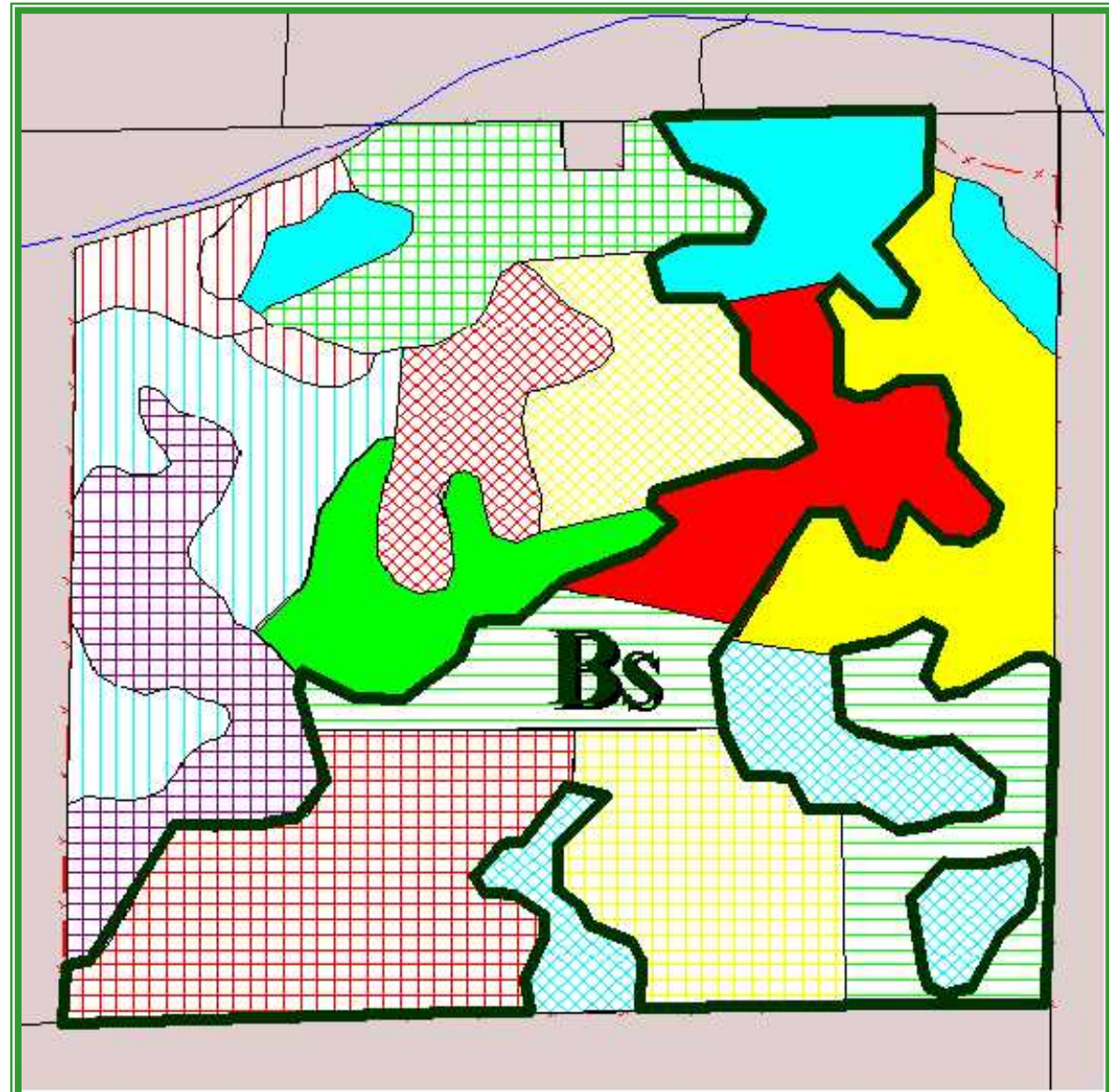


Zone Management of P and K

Slides from Lance Murrell's plots

Management Zones for an Indiana Field

- Soil mapping units divided into smaller areas
- Composite soil sample taken from each area
- Location of each core recorded
- Zone size range:
1 – 20 acres



Corn Yield

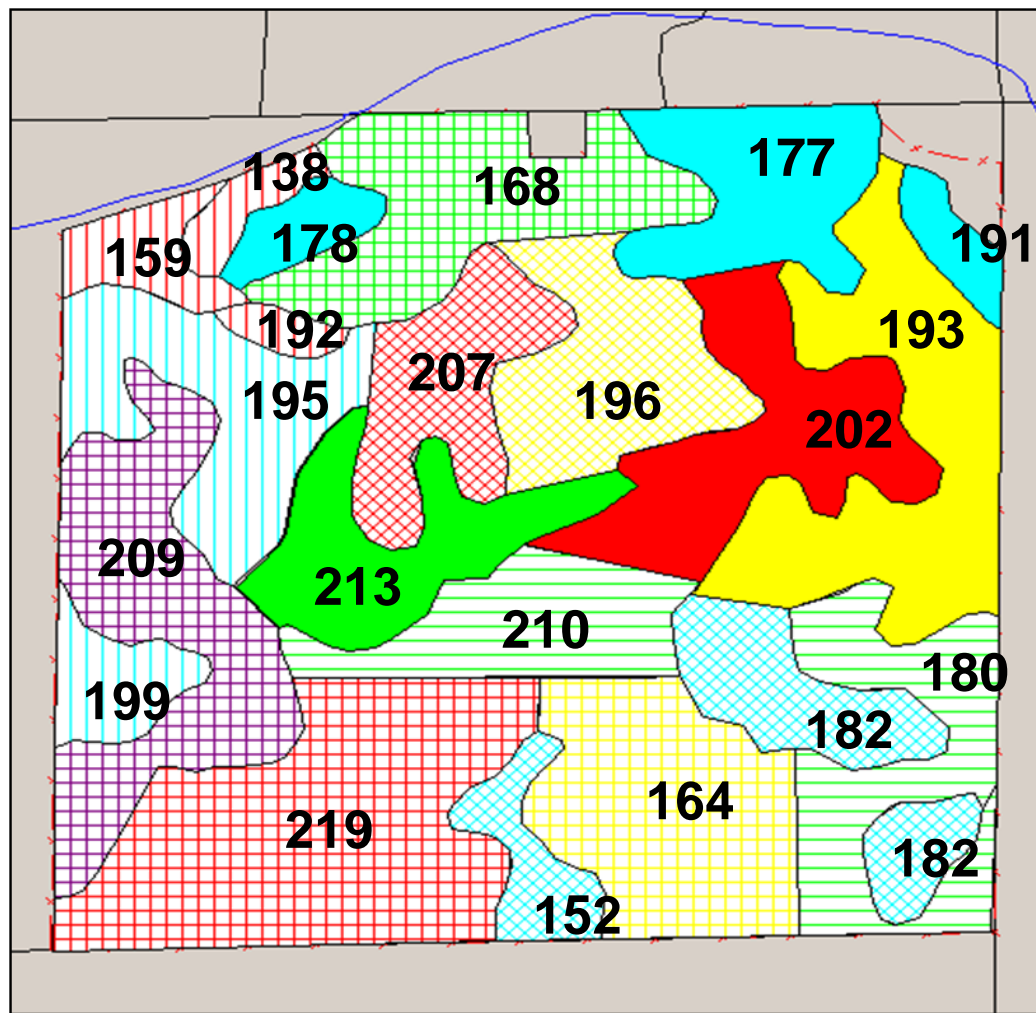
147-acre Field

Field Average (3 yr)

189 bu/A

Range by Zone

138-219 bu/A



Bray P1 Soil Test by Sampling Area

- **Site-Specific** Soil Test

Range:

22 – 97 ppm

Total P Applied:

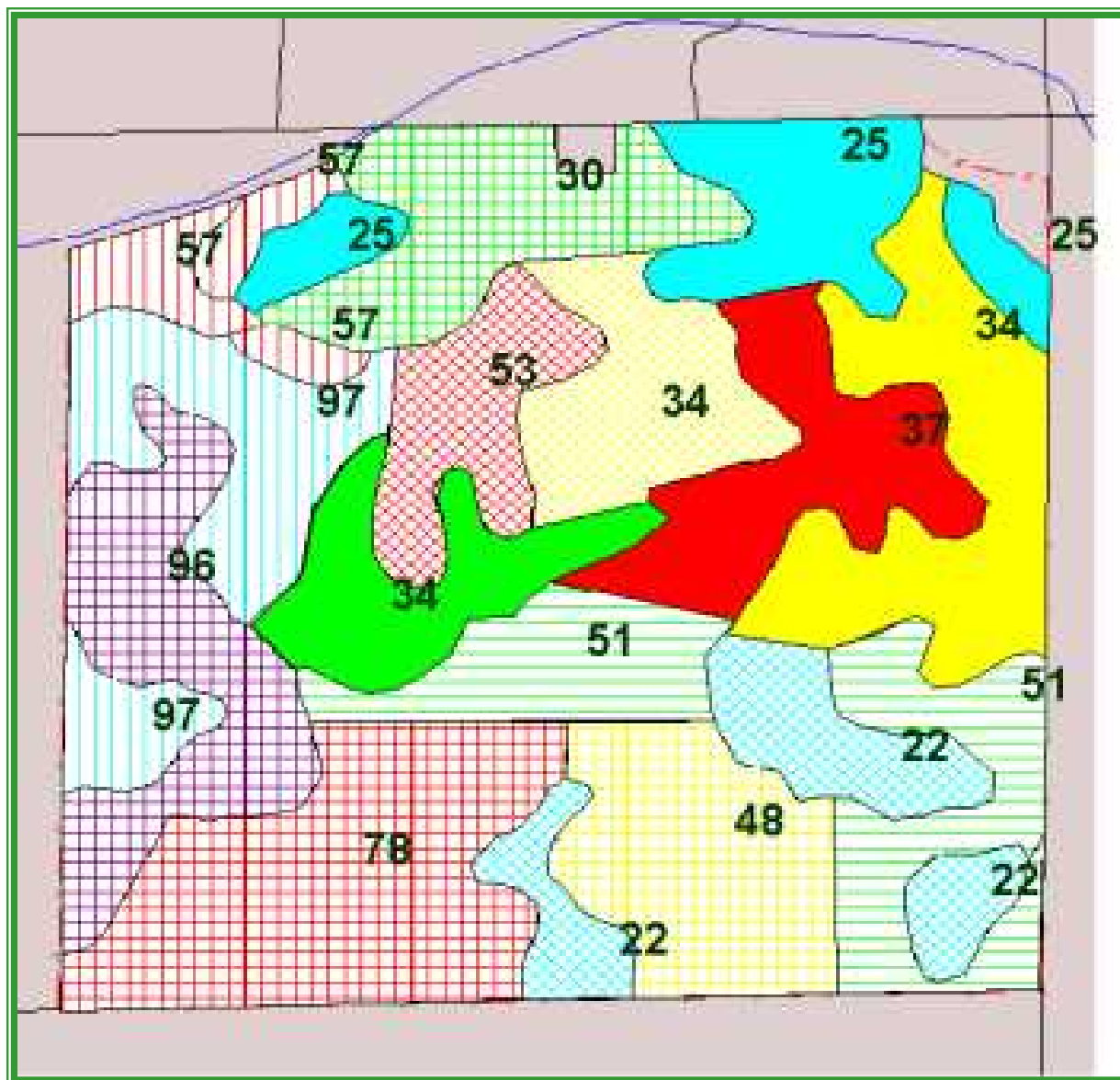
5113 lb P

- **Field Average** Soil test:

52 ppm

Total P Applied:

None



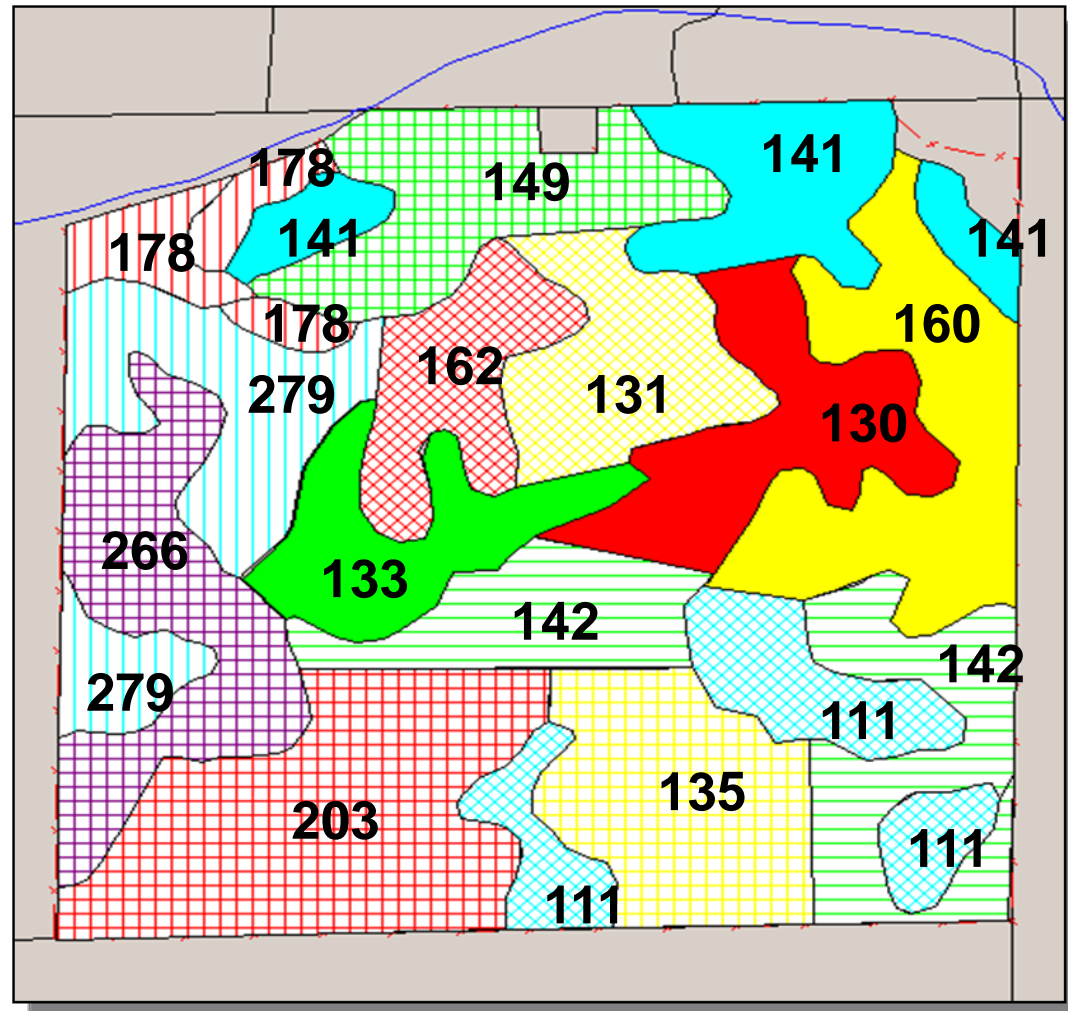
K Test (Mehlich III)

Field Average

K = 170 ppm

Zone Range

111-279 ppm



K Recommendation

Field Average

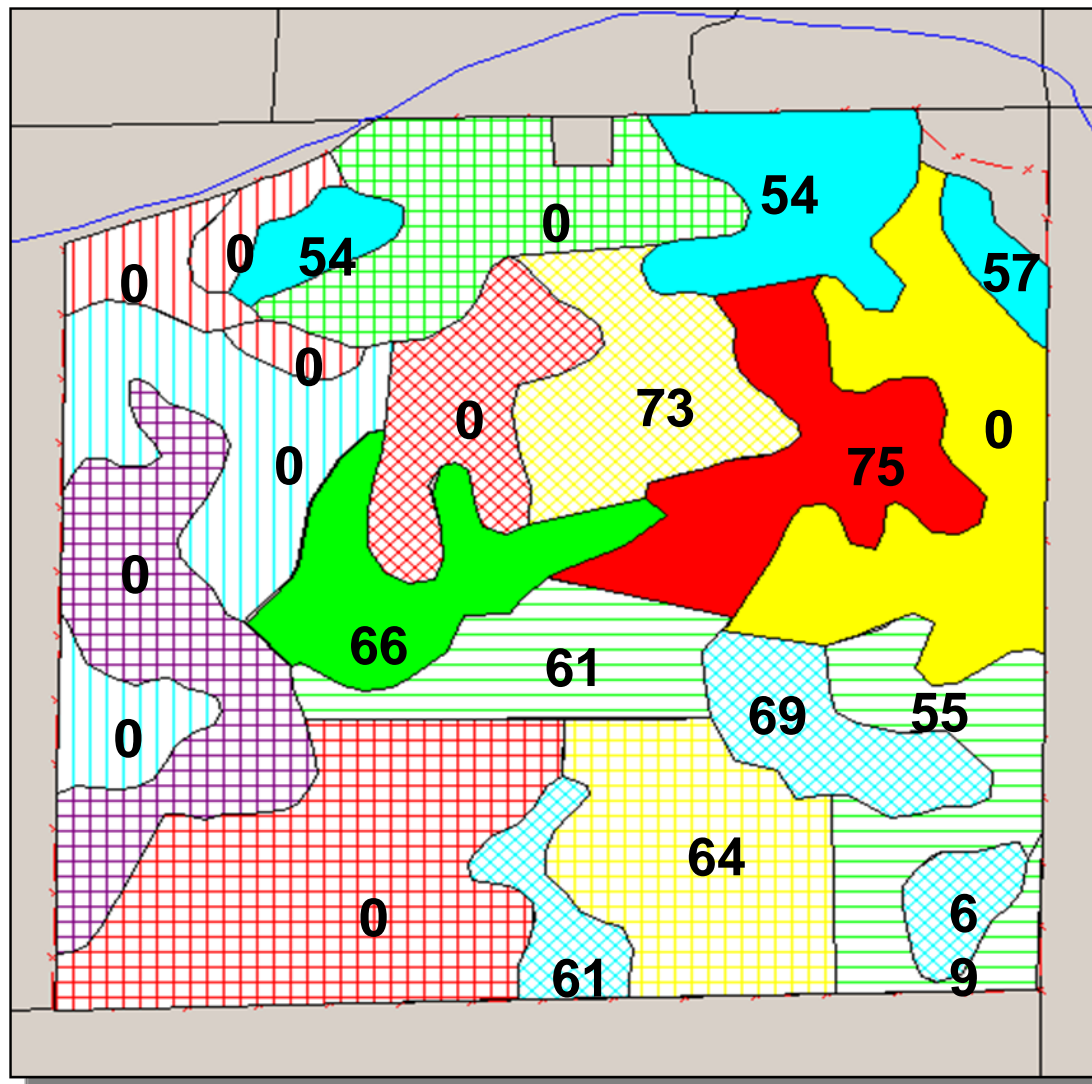
0 K₂O

Management Zones

76 Acres

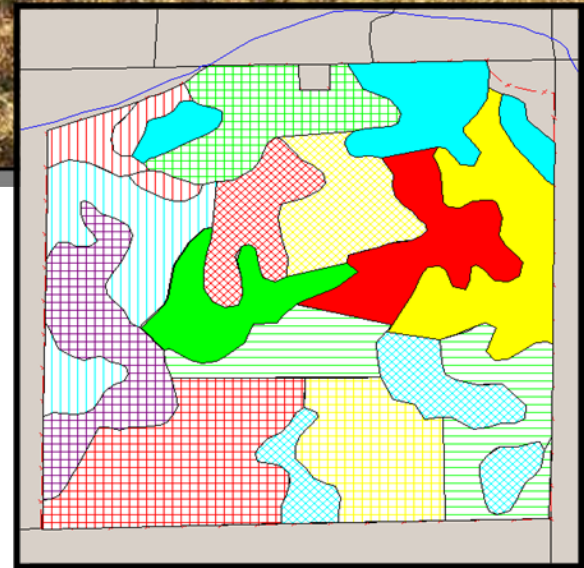
4895 lb K₂O

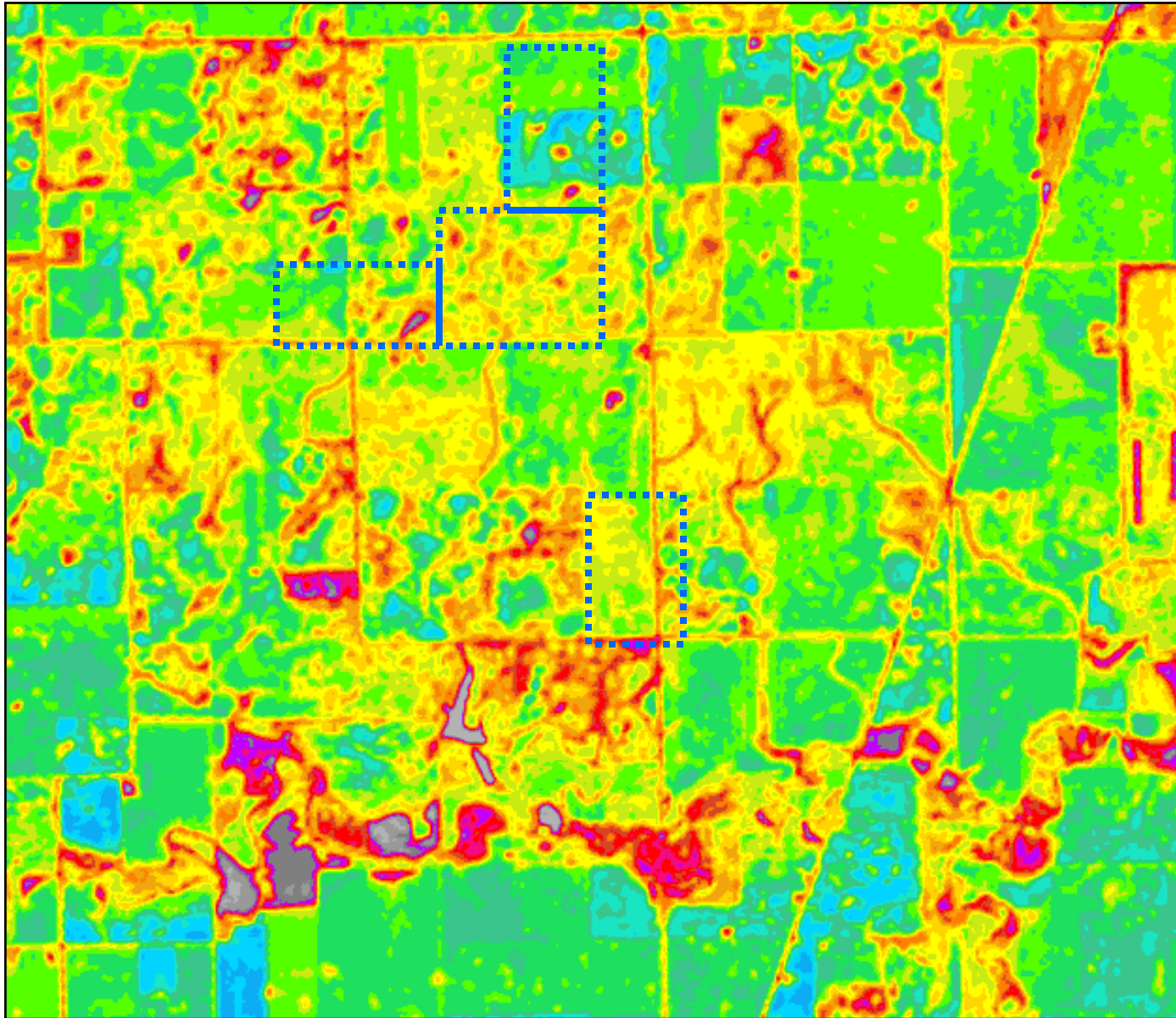
4+ Tons of Potash



Gain from Technology

- Nearly **10 tons of P and K fertilizer** sales
- *Corn Yield increase*
--- **35 bu/A**
- More efficient use of N and manure
- *A well-managed farm in a “mature market”---*
- ***There are many like it!***





February 6-10,
2006

Illinois Regional Tillage
Seminars

John Ahlrichs, Digital Globe





Pará

Brazil

Salvador

Brasília

Bolivia

La Paz

Belo Horizonte

São Paulo

Rio de Janeiro

Paraguay

Asunción

27.33 14.02 S, 52.46 53.39 W

Uruguay

Chile

Buenos Aires

Montevideo

Argentina



Minas Gerais

Rio de Janeiro

Mato Grosso do Sul

Paraguay

São Paulo

Curitiba

Asunción

27 33 14.02 S, 52 46 53.39 W

State of Rio Grande Do Sul

Image NASA
© 2007 Europa Technologies
Image © 2007 TerraMetrics

© 2007 Google™

27 31 46.76 S, 52 31 46.76 W

Streaming 100%

Porto Alegre

Eye alt 1101.38 mi



27 33 14.02 S, 52 46 53.39 W



Faxinalzinho

Votouro

Sete de Setembro

Benjamin Constant do Sul

Entre Rios do Sul

São Valentim

Indade do Sul

27 33 14.02 S, 52 46 53.39 W

Souto Neto

Três Palmeiras

Cruzaltense

Alto Recreio

Campinas do Sul

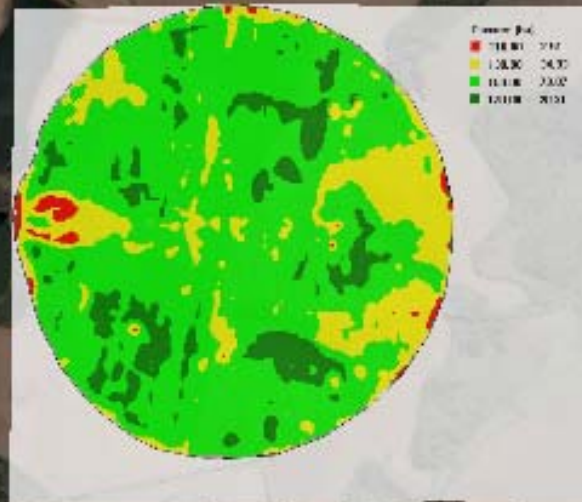
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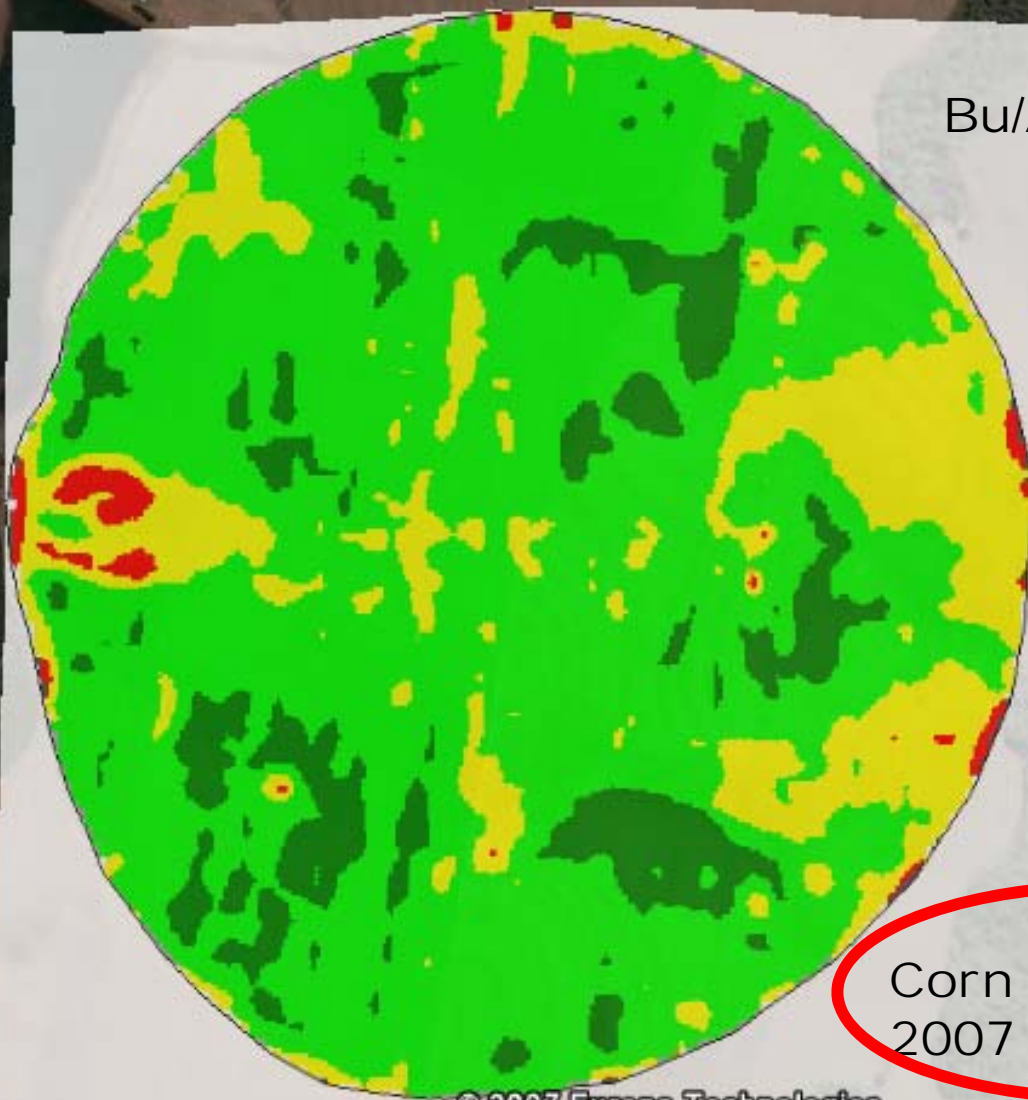
27 33 14.02 S, 52 46 53.39 W

Ongoing Research by Dr. Telmo Amado Univ. of Santa Maria



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Bu/A

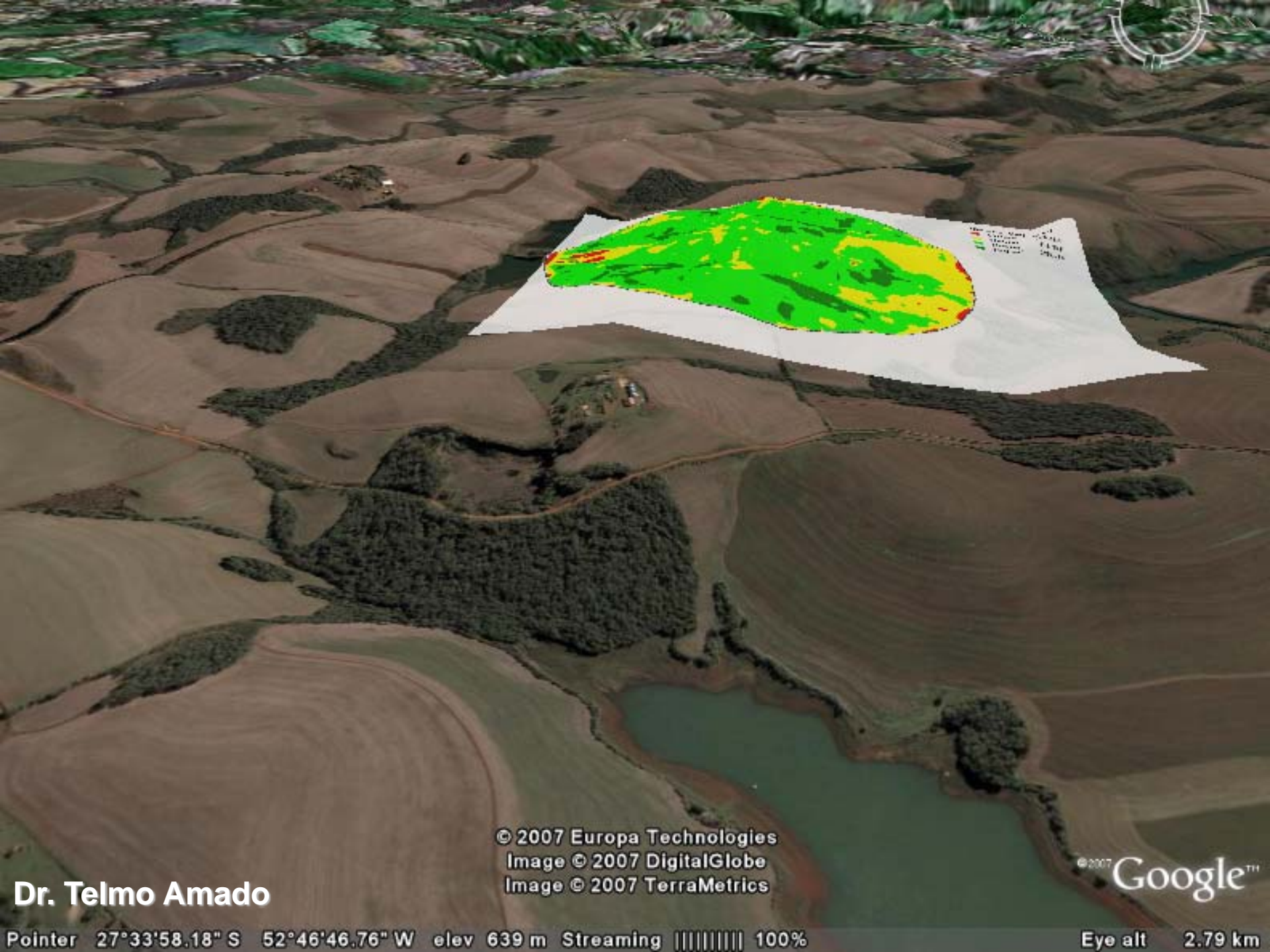
Classes: (ha)		
110.00	2.51	
130.00	34.93	
150.00	73.07	
170.00	20.31	

Corn Grain Yield
2007

Dr. Telmo Amado

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Google™



Elev
Slope
Aspect
Soil
Vegetation
Water
Urban

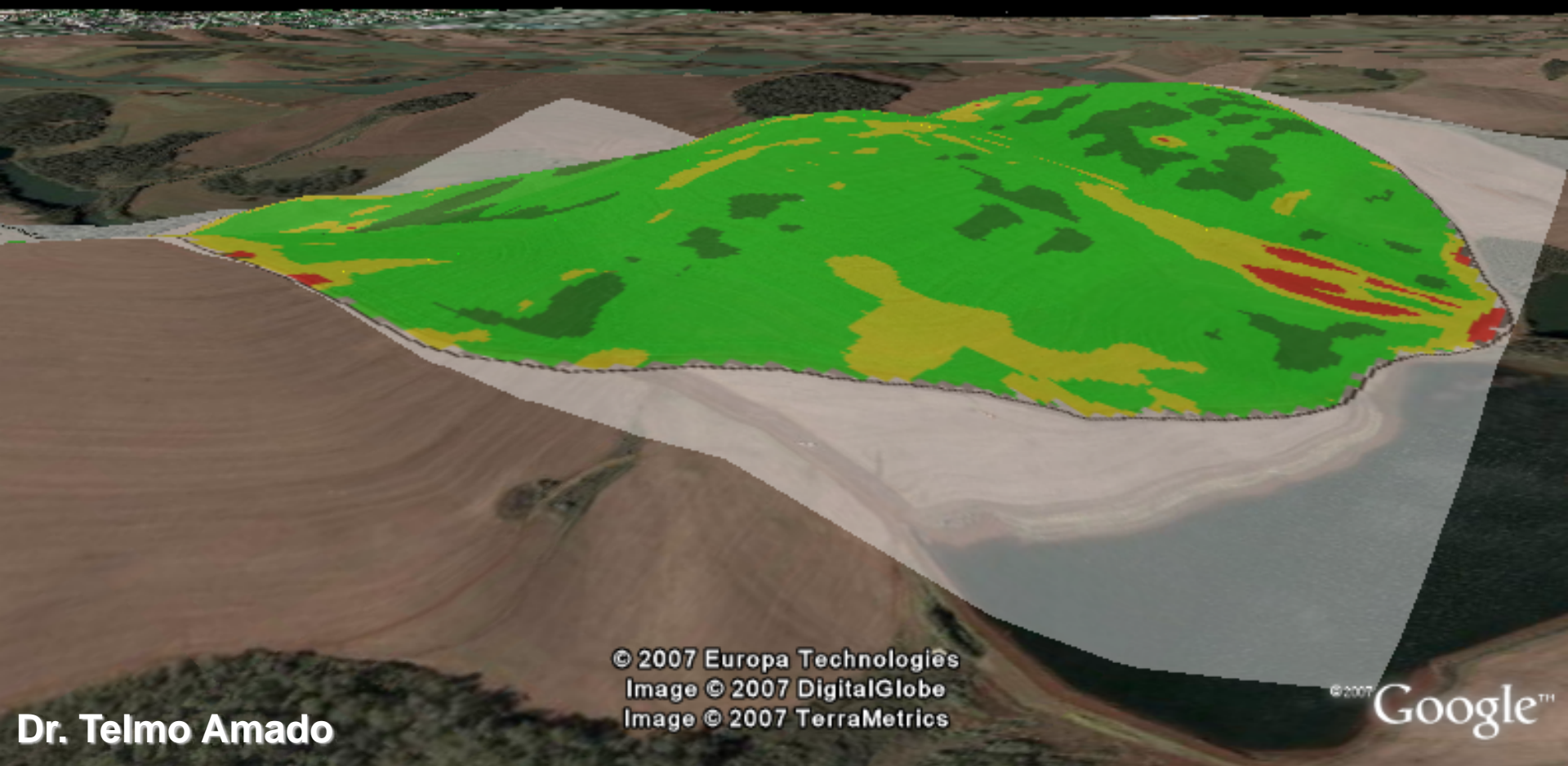
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Dr. Telmo Amado

Pointer 27°33'58.18" S 52°46'46.76" W elev 639 m Streaming ||||| 100%

Eye alt 2.79 km



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Image © 2007 TerraMetrics

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Dr. Telmo Amado

Pointer 27°33'06.25" S 52°46'45.13" W elev 636 m Streaming ||||| 100%

Eye alt 2.03 km



- **Greatest yield loss in high water flow areas**
 - Historical soil erosion
 - Poor water infiltration
- **Guides future management**

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Dr. Telmo Amado



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*Where do you fit in
the flattening world?*



International Society for Precision Agriculture

- Better Coordination & Communication
- International Board—July 2008
- Academic, Industry, Government
- Precision Ag Journal
- Precision Ag Website
- Conferences
 - International Conference on Precision Agriculture
 - European Conference on Precision Agriculture
 - InfoAg
 - Other ???

Take Home Summary

- Precision Ag is a **Tool**---*use it!*
- Data management and usage is the key
- Have office software or a consultant to help use all data, from all sources, to make decisions.
- Get a return on your technology investment
 - *Use variable-rate technology to adjust input rates*
 - *Record **as-applied** data to document actual applications*
 - *Use yield maps to document responses*
 - *Check results*
- Make better-informed decisions.
- **Get more than just pretty maps.**

The Future of Agriculture????

- The most exciting period we have ever seen is just ahead.
- Major changes --- but great opportunities for those who stay in tune.
- Rapid research turnaround.
- Unprecedented Extension needs.
- Unprecedented education / continuing education demands.
- Partnering / cooperation



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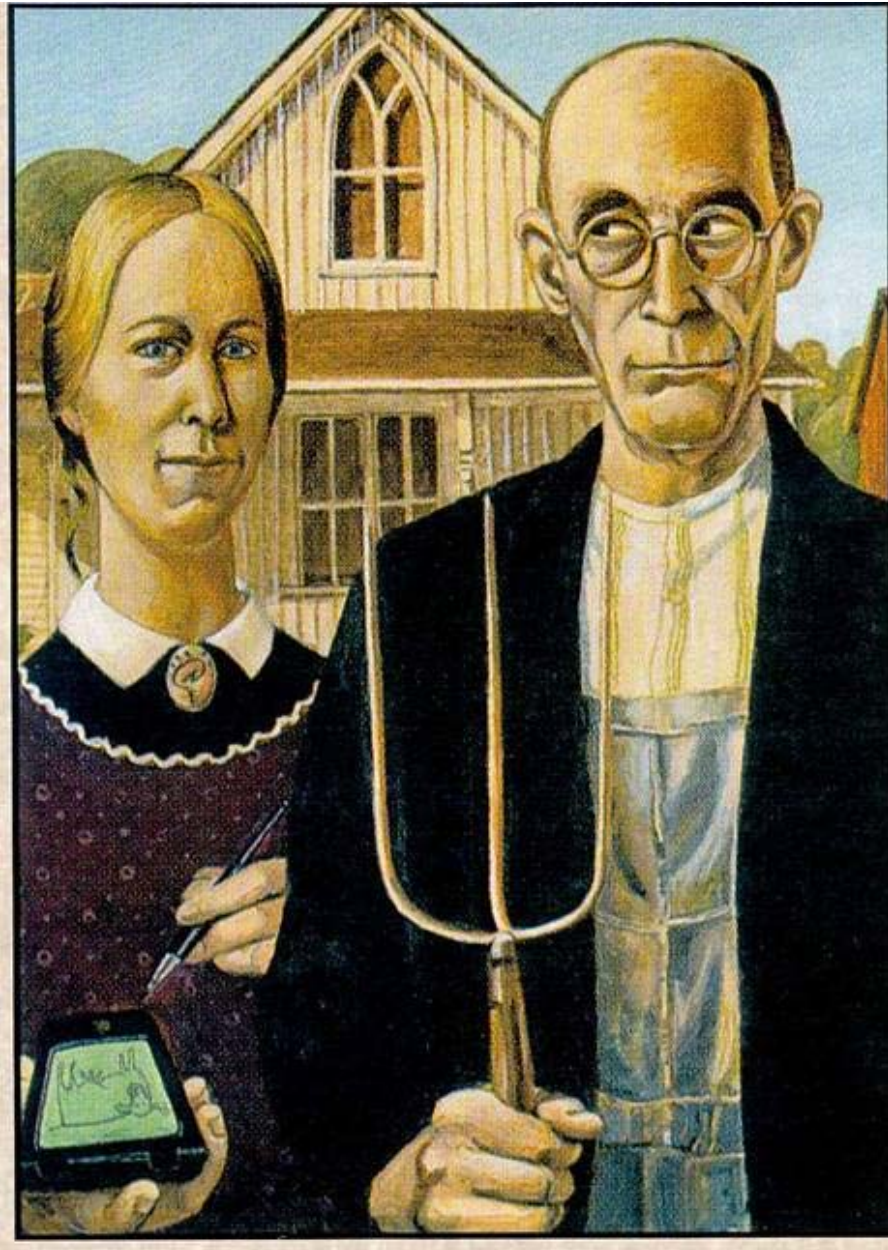
PLANT NUTRITION

INSTITUTE

***“...whoever makes two ears of corn,
or two blades of grass to grow
where only one grew before,
deserves better of mankind,
and does more essential service to his country than the
whole race of politicians put together.”***

--- from Gulliver's Travels





Thank You!!

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Director of External Support and FAR

International Plant Nutrition Institute
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Monticello, Illinois 61856

Phone: 217-762-2074

e-mail: hreetz@ipni.org