The mediocre teacher tells. The good teacher explains. The superior teacher demonstrates. The great teacher inspires.

William Arthur Ward
Agricultural Advocacy Group’s Perspective

Dr. Howard Brown
Manager of Agronomy Services
GROWMARK, Inc.
Background

- SIU at Carbondale, IL (B.S.)
- Purdue at West Lafayette, IN (M.S.)
- University of Illinois, Urbana, IL (Ph.D.)
- 8 years with farm cooperative in sales
- 10 years as a field sales agronomist with seed
- 12 years as Manager of Agronomy Services, GROWMARK, Inc.
Background

• Past Chair of the International Certified Crop Adviser Board

• Provide technical support and training to over 450 crop specialists in IL, IA, WI, and Ontario
What has been done

- **2004**: IL leading state in no-till (6.7 Mil acres)
- **1994-2009**: Conservation tillage increased 56%
- **71%** of soybean acres use Conservation Tillage
- **1993-2003**: 80,000 acres of grass waterways established through CRP and EQIP contracts
- **1997-2002**: Farmers planted 35,000+ miles of Conservation Buffers.

Source: Illinois Farm Bureau
Certified Crop Advisers

- Close to 13,000 strong in U.S. and Canada
- Minimum competency standards for crop advising
- Achieved through testing and proof of experience
- Continuing Education Requirement every 2-Year Term: 40 hours of education
Certified Crop Advisers

- **Every Two Years:**
  - 5 hours in Soil and Water Management
  - 5 hours in Nutrient Management
  - 5 hours in Crop Management
  - 5 hours in Pest Management

- **1994 to 2010:**
  - 40 hours in Soil and Water Management
  - 40 hours in Nutrient Management
  - 40 hours in Pest Mgt.
  - 40 hours in Crop Mgt.

320 total Certified Educational Units
Four Rs of Nutrient Management

- **Right Source:** Anhydrous Ammonia, Urea, UAN, Ammonium Sulfate
- **Right Place:** Knifed-in, Incorporated, Surface Broadcast, Side-dressed
- **Right Time:** Fall, Early Spring, Pre-tillage, Pre-Plant, Post-Emergence
- **Right Rate:** MRTN, N-Rate Studies
Nitrogen as an Application
Nitrogen as a Management System, Not an Application

- Consider a “Systems” approach to N Mgt.
- Source
- Rate
- Timing
- Placement

The 4-Rs
Source-Time-Placement

- 50% N applied Fall or early Spring (Anhy. Am.)
- 30% applied pre-tillage or pre-plant (UAN)
- 20% post-applied (Urea w/Agrotain)

- Hedging Nitrogen Availability
- Compensate for Weather Fluctuations
- Reduce Risk
- Minimize Environmental Impact
Post-Emerge N
- Knife-in AA or UAN?
- Dribble UAN?
- Broadcast urea?
- Use methylene urea?
350 lbs Urea + Agrotaim

Applied June 21-22, 2009
Topdress w/Urea+Agrotaín

“When time allows I will download the harvest data map which looked very impressive as far as consistent yields where the urea was applied and a lot of variation where the NH3 was applied.”

Harvest Yield

<table>
<thead>
<tr>
<th>Yield (Bu/A)</th>
<th>Urea w/Agrotaín (36&quot; tall)</th>
<th>Spring Anhydrous</th>
</tr>
</thead>
<tbody>
<tr>
<td>207</td>
<td></td>
<td>200</td>
</tr>
</tbody>
</table>

When time allows I will download the harvest data map which looked very impressive as far as consistent yields where the urea was applied and a lot of variation where the NH3 was applied.”
100 lbs Urea w/Agrotain (46 lbs N)
2010 Season:
- 1400 tons urea
- 3 applicators
- Emergence to waist high

Prerequisites:
- Must use Agrotain
- Determine spread pattern
- Expect burn
- Must have rain

15 to 45 Bu/A so far
What do we need to know?

• Can we use less N and end up with more yield?
• Will late N increase grain protein?
• Will a reduction in N change the overall dynamics of soil N?
• What N enhancements will improve efficiency?
• What N enhancements actually work?
Howard Brown, recently fired for statements made at a Nutrient Summit in Springfield, IL has told farmers to cut their N rates by 50% to increase yields.
178 Sites – Central IL
178 Sites – Central IL

MRTN = 177 lbs N/acre
MRTN = 177 lbs N/acre

178 Sites – Central IL

62% Less

19% More
N Rate Study

0 lbs N

50 lbs N

100 lbs?

150 lbs?

200 lbs?
“We Only Know What We Know”

- Inputs are interactive
- Confounding
- Changes crop response
- Law of the Minimum

Soybean pod cluster
South of Champaign
The Law of the Minimum

Minimum

Lost Yield Potential

N, B, Zn, P, K, S
Addressing Agronomic Questions

- **On-Farm Discovery**: Farmer questions, Farmer fields, Farmer data

Other Names:
- On-Farm Network *(ISA)*
- Adaptive Management *(USDA-NRCS)*

Partnering with land grant research specialists
Testing the Value of MES-Z
Central Illinois

Harvest Yield (Bu/A)

<table>
<thead>
<tr>
<th>Rep 1</th>
<th>Rep 2</th>
<th>Rep 3</th>
<th>Rep 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>MES-Z</td>
<td>DAP</td>
<td>MES-Z</td>
<td>DAP</td>
</tr>
<tr>
<td>185</td>
<td>159</td>
<td>181</td>
<td>159</td>
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</tr>
<tr>
<td>196</td>
<td>177</td>
<td>177</td>
<td>177</td>
</tr>
</tbody>
</table>
Super U vs. ESN as a Spring N Source
N Rate Study

3 Replications
“As it turns out the sources are not different. The only thing that mattered was rate and the more you put on the better and I guess that reflects the wet conditions.”

Dr. Don Bullock, Professor, University of Illinois
Where Are We Headed?

- Mississippi River Basin Initiative Proposal
- Corn Growers, Soybean Growers, Pork Producers, Illinois Farm Bureau, Illinois Fertilizer and Chemical Association
- Focused on a 12-digit HUC
What it Included

• Focused on N Rate Studies
• Development and implementation of NMPs
• Promote use of Enhanced Efficiency Products
• Promote use of “On-Farm Discovery”
• Rewarded “N as a System” approach
• Guided by “good agronomy” through U. of I.

Not Accepted in 2010

What Next?
Are current fertilizer recommendations adequate for ever-increasing yields?

Gyles Randall
Univ. of Minnesota, Waseca
## Combined Removal (Corn/Soybeans)

<table>
<thead>
<tr>
<th>YIELD (Bu/A)</th>
<th>150</th>
<th>200</th>
<th>250</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DAP</td>
<td>Pot.</td>
<td>DAP</td>
<td>Pot.</td>
</tr>
<tr>
<td>50</td>
<td>209</td>
<td>200</td>
<td>250</td>
<td>225</td>
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<tr>
<td>60</td>
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<td>70</td>
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<td>250</td>
<td>285</td>
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</tr>
<tr>
<td>80</td>
<td>261</td>
<td>275</td>
<td>302</td>
<td>300</td>
</tr>
</tbody>
</table>
## World Population 2050

10 Billion

12 x the current U.S. population

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>Constant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population in 2050 (millions)</td>
<td>7,409</td>
<td>8,919</td>
<td>10,633</td>
<td>12,754</td>
</tr>
</tbody>
</table>

Where to Find the Answers

- University system and research specialists
- Need to re-invent and revitalize
- Want to make jobs?
- What we do best
- Be the world’s source of Agricultural Practitioners
What do we need to do?

- Do not limit tools in the tool box by managing activities from the rear view mirror at 30,000 feet
- Support re-invention and revitalization of university research and educational system
- Communicate as we move forward and use a “team approach” where desired
- “First Understand, Then Be Understood”
CAUTION:
Vehicle may be Transporting Political Promises!