Nitrogen in the Plant

- Part of
  - Amino Acids: Building blocks of proteins
  - Enzymes: responsible for all biological process
  - Nucleic Acids
  - Cholorphyll

- Needed for Carbohydrate use
- Increases root growth
Nitrogen deficiency symptom on corn leaf due to denitrification

(c) 2000 - RL Nielsen, Purdue Univ.
N that is not used is lost
Nitrogen is mobile.....
Nitrogen is mobile.....
Application
Application
“After the FACT” N Rate required for “MAX Yields” Ranged from 0 to 140 lbs N/ac

Exp. 502, 1971-2006

Optimum N Rate
Avg. 49 lb N/ac ± 39

Max Yield
Avg. 43 bu/ac ± 13
4 R’s

1. Right Source
2. Right Place
3. Right Rate
4. Right Time

IPNI: International Plant Nutrition Institute
Reference Strips

- Are Very Visual..
- BMP?
- Risk Aversion?
- Sales and Service?
Reference Strips

- **What:** A high rate of N applied in, across, through, over or under each and every field
- **How Much:** Minimum of 50 lbs N above preplant rate.
- **How and Where:** 10 to 100 ft wide, anywhere representative.
- **When:** Winter crops; before or after sowing (1+ months), Summer crops; before or immediately after planting.
Optical Sensors

- Numerical, describe the crops BIOMASS.
- DOES NOT really WORK WITH OUT A REFERENCE..........
- Multiple options
  - Companies
  - Resolution
Yield Prediction

SBNRC (YP0*RI = YPN)
100 Pre (100 lbs N/ac applied preplant)
Optical Sensors
Success Stories

- The N-Rich Strip
  - Approx 500,000 acres.
- Sensor Based N Rates (Agron behind it)
  - Winter Wheat, Sorghum, Corn, Canola, Cotton
- New Crops
  - Winter Canola 120,000 acres
  - Sesame 50,000 acres
- Partners in Research
Commercializing

- Use of the N–Rich strip is becoming very commercial.
- 1 consultant 1st year
  12,000 Ha
“Farming looks mighty easy when your plow is a pencil, and you’re a thousand miles from the corn field.”

— President Dwight D. Eisenhower
Thank you!!!

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