Corn Best Management Practices

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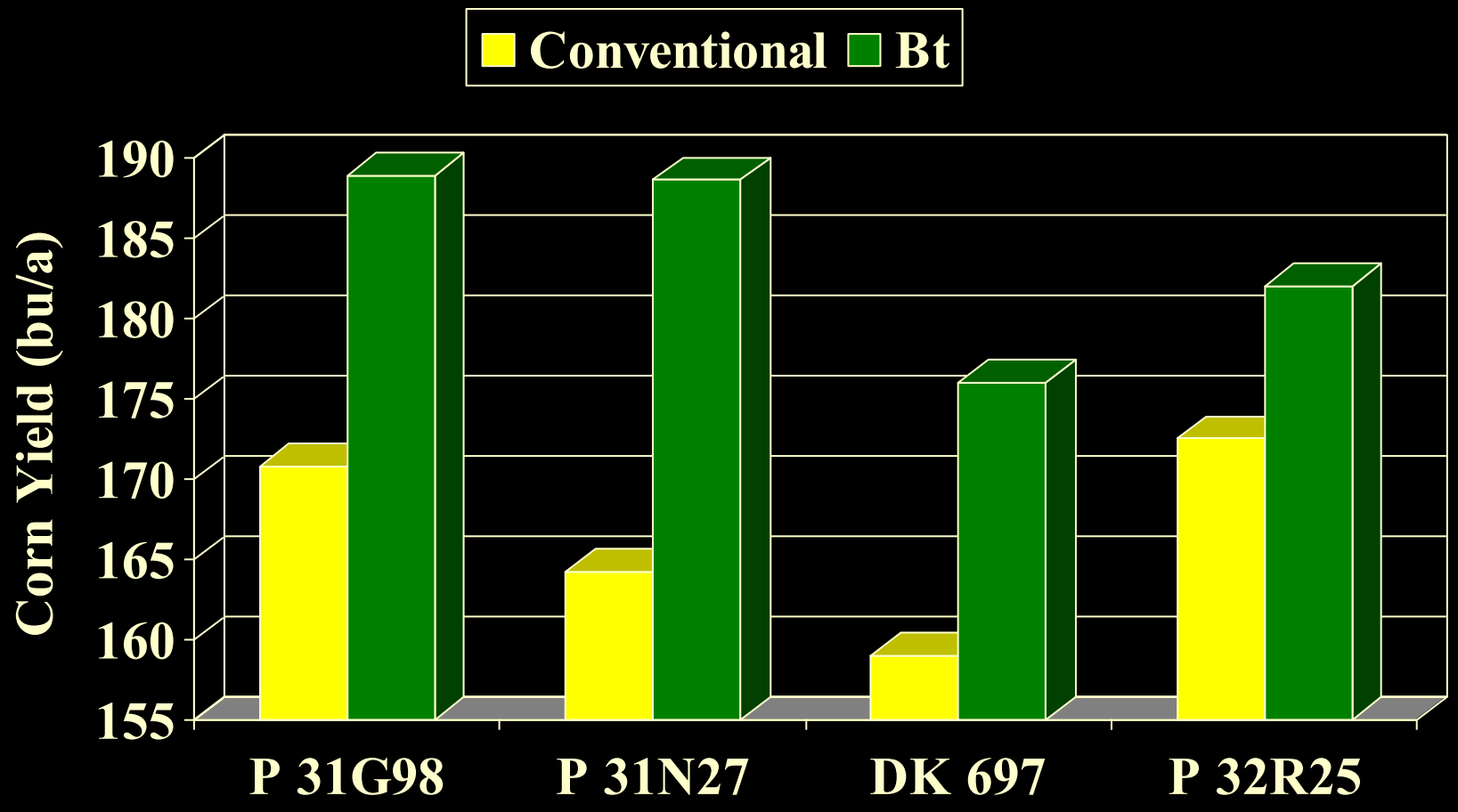
Planting Dates on Corn

- Plant Early……
  - Have to plant other crops
  - Tend to have greater yields
  - Reduced irrigation needs
  - Avoid Heat
  - Reduced Corn Borer Pressure
  - Less Foliar Diseases
  - Earlier Harvest
    - Less Risk from Hurricanes?
    - Better drydown??

Easter 2007 Freeze – April 6-8th

Corn Borers

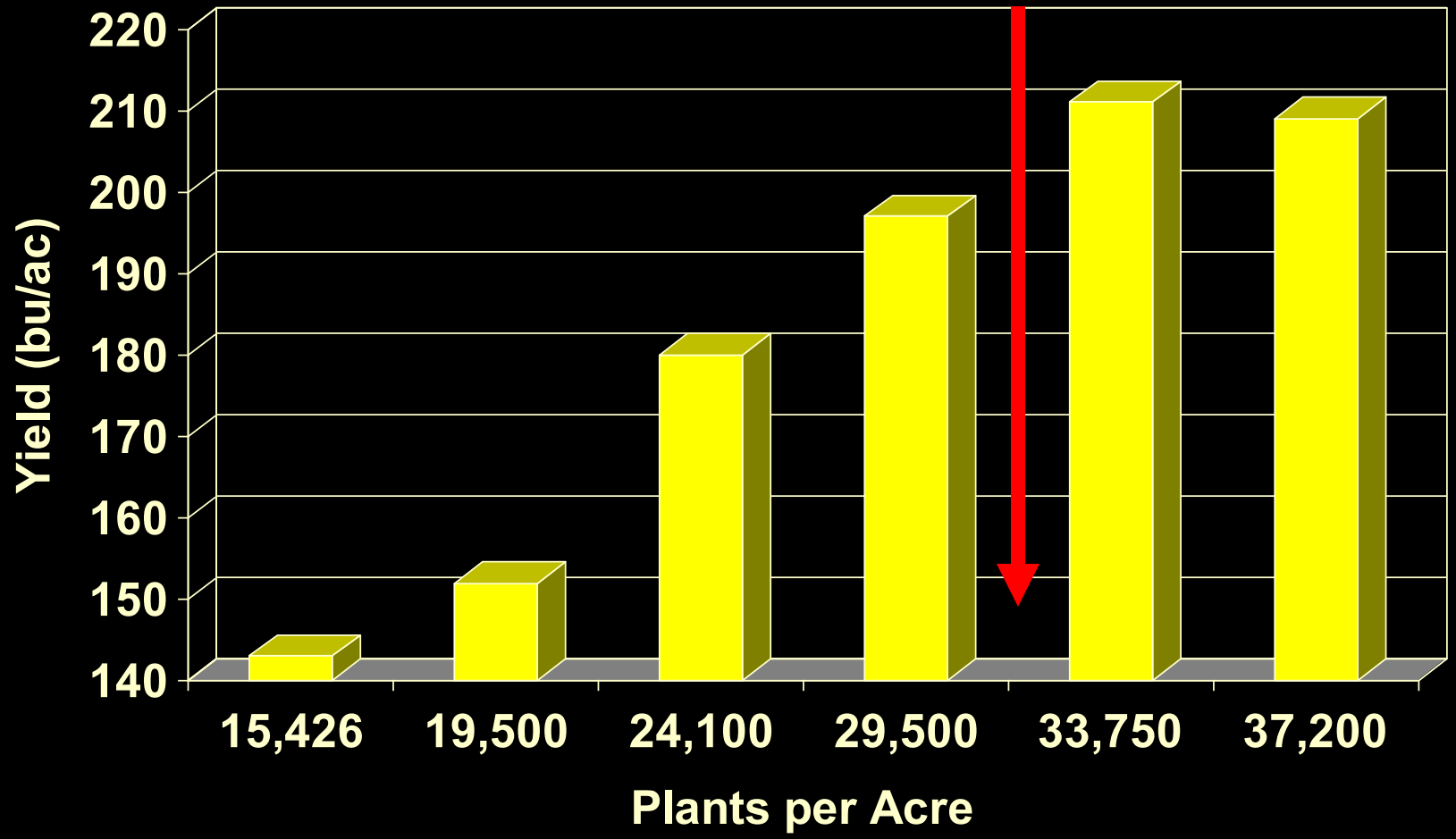
Effect of Bt on Mid-April Planted Corn Marianna, 2005



McLeod, 2005

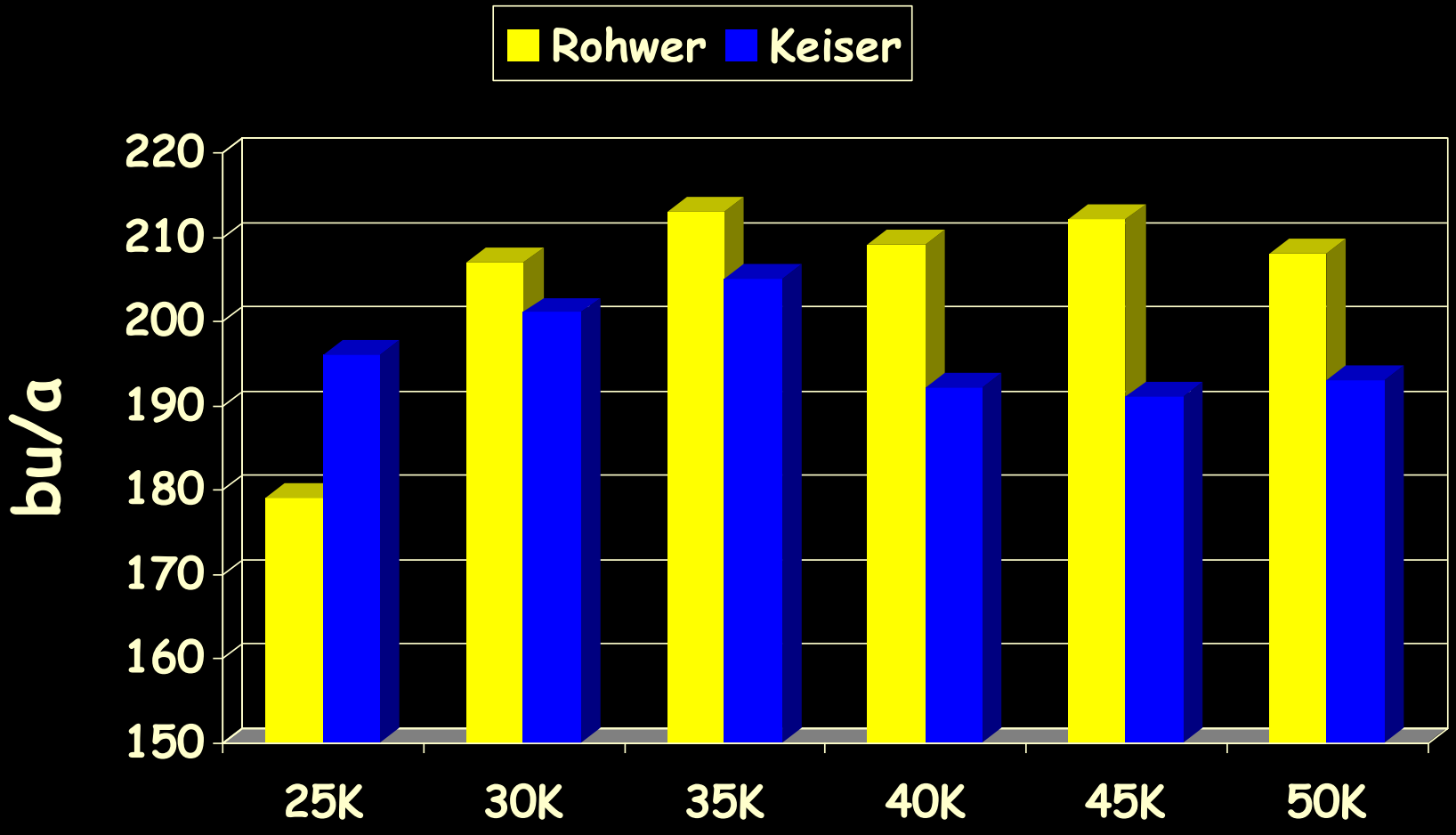

15K
20 K
25 K
30 K
35 K
40 K

Effect of Plant Population on Corn Yield - Furrow Irr, 38 inch row spacing SEREC



Kelley, 2005

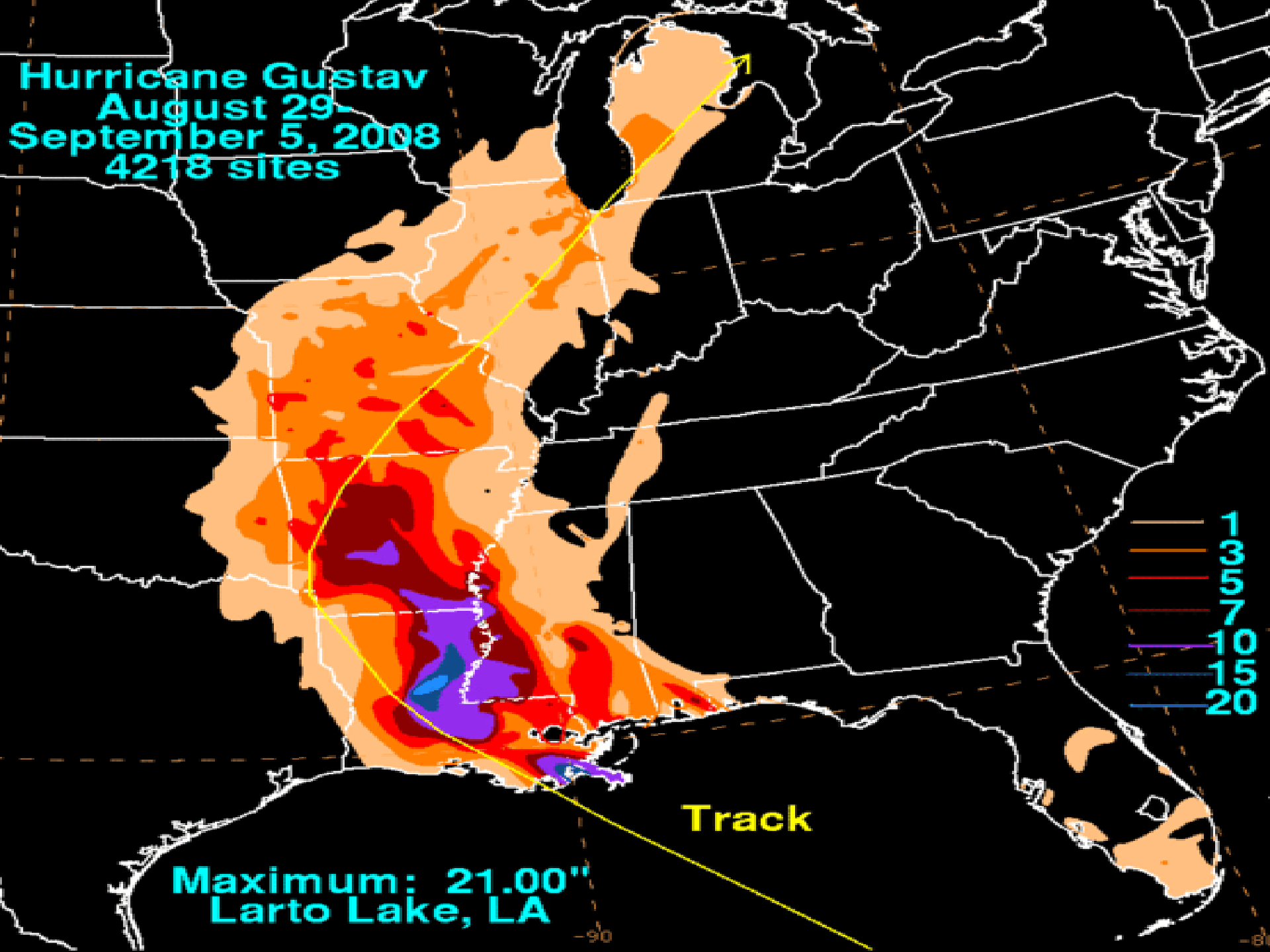
Effect of Plant Population on Corn Yield – Rohwer, Keiser, 2008



Planting Population

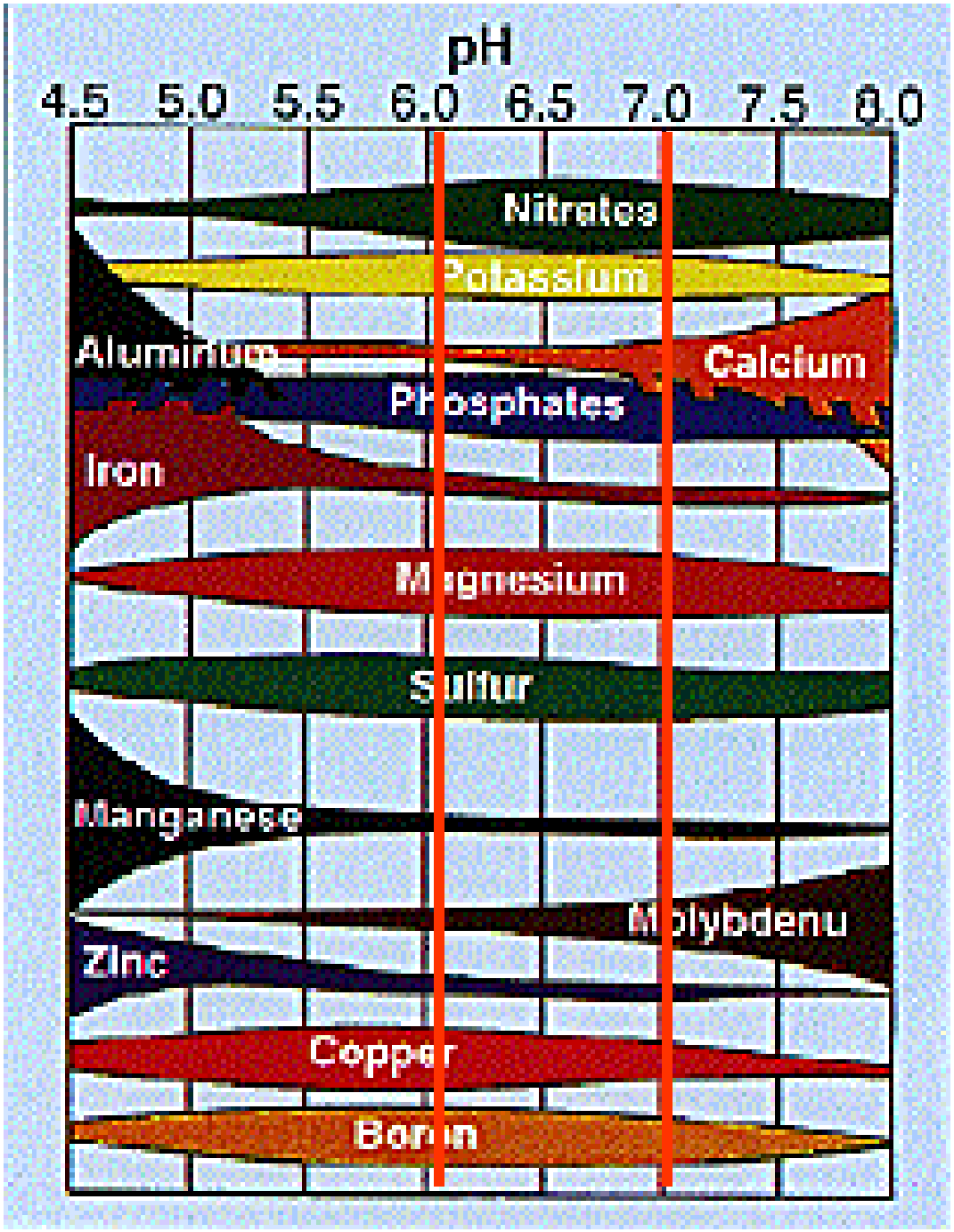
- Optimum plant populations have increased over time and will continue to increase

- High Populations
  - High yields in good environments
  - Don't over do it – Lodging problems
  - Timely irrigation critical
  - Proper fertilty
  - 32K good population for IRR
  - 25K for dryland

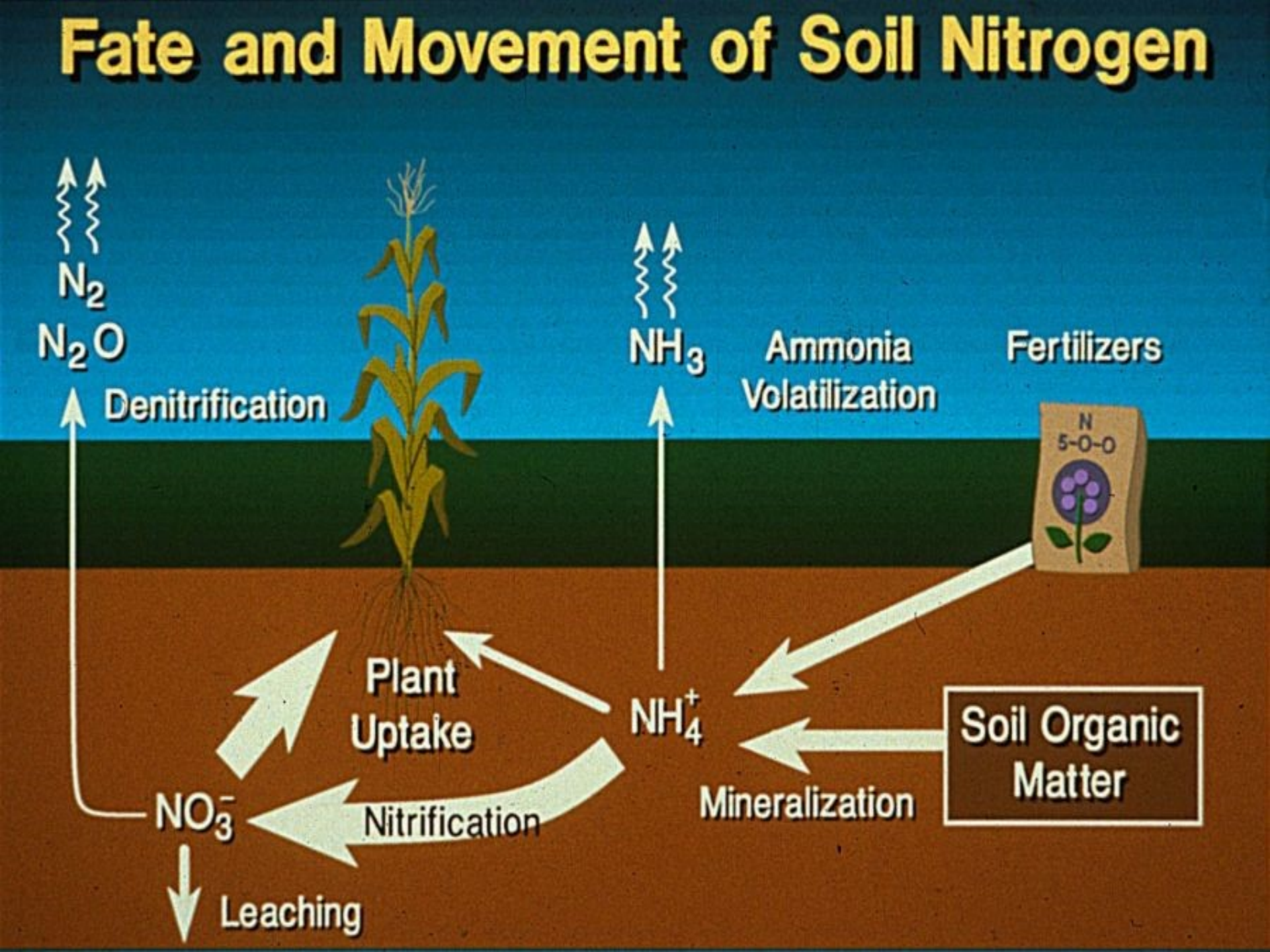

Hurricane Gustav
August 29-
September 5, 2008
4218 sites
1
3
5
7
10
15
20
Track
Maximum: 21.00"
Larto Lake, LA
-90
-8

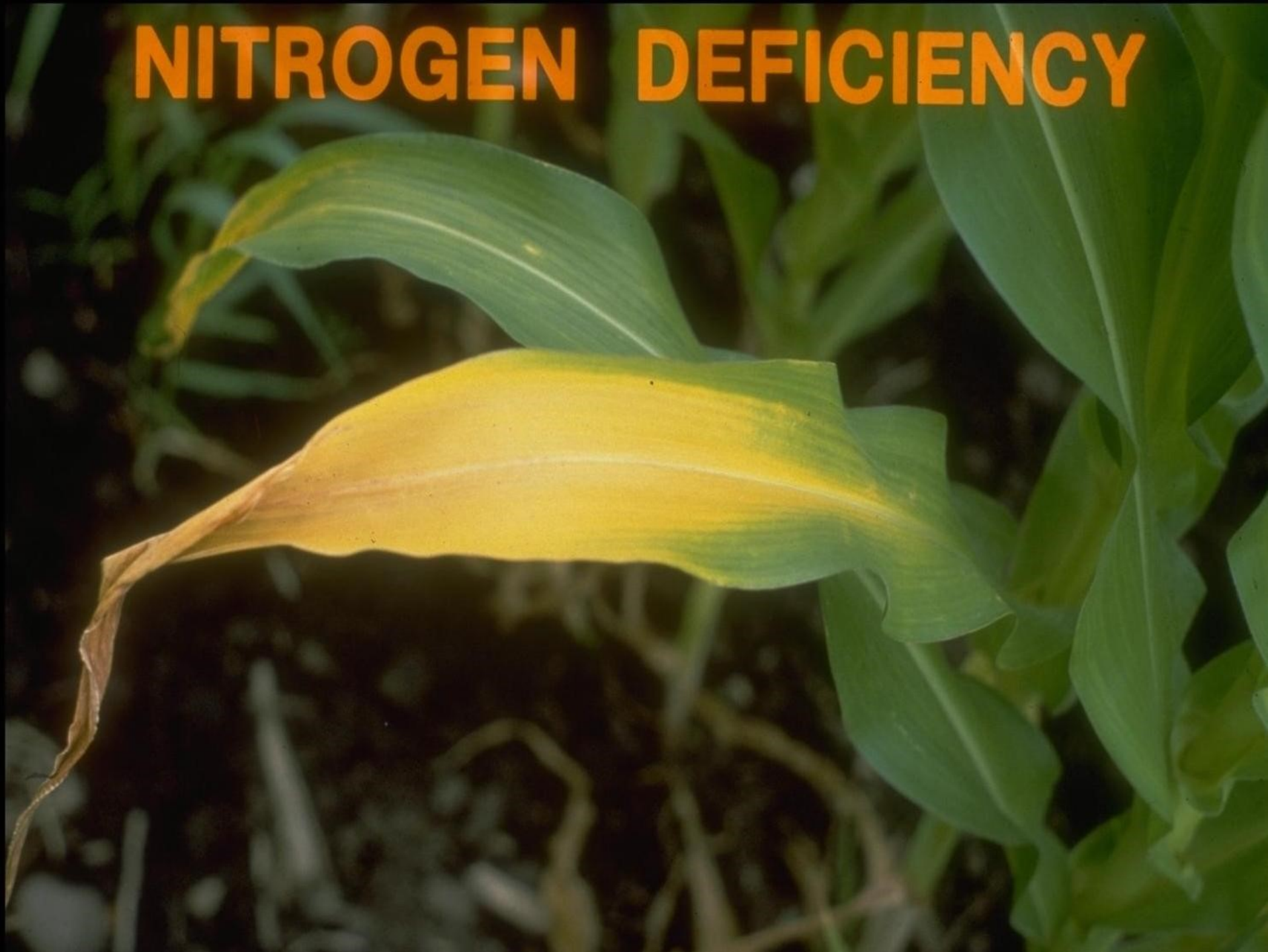
WEED CONTROL

- **Rotate modes of action**
- **Metochlachlor + rimsufuron**
- **Photosynthetic pathway herbicides**
- **Mesotrione**

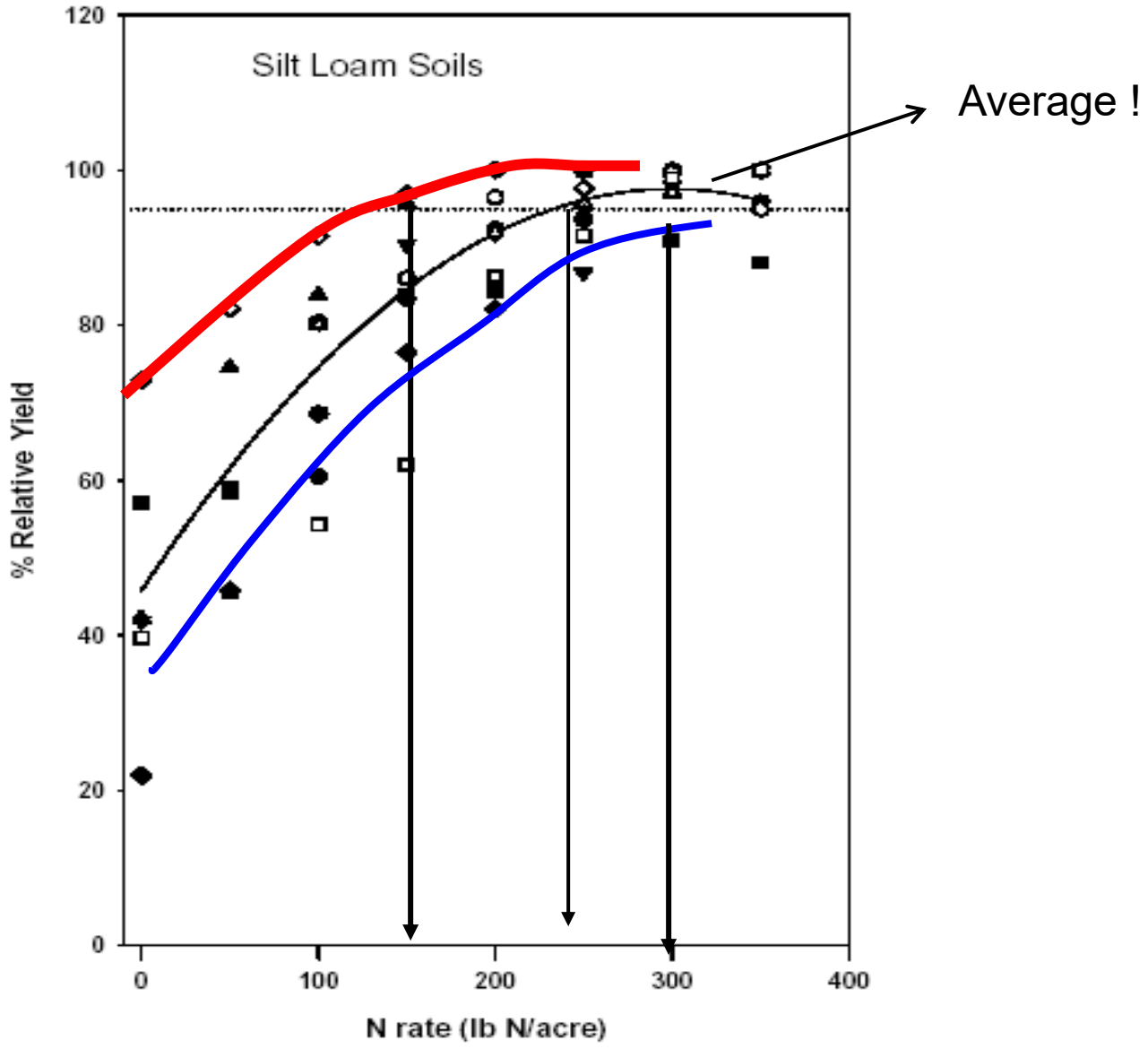

pH
4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0
Nitrates
Potassium
Aluminum
Calcium
Phosphates
Iron
Magnesium
Sulfur
Manganese
Molybdenu
Zinc
Copper
Boron

Fate and Movement of Soil Nitrogen




NITROGEN DEFICIENCY

Corn Yield Response to Varying N Rates

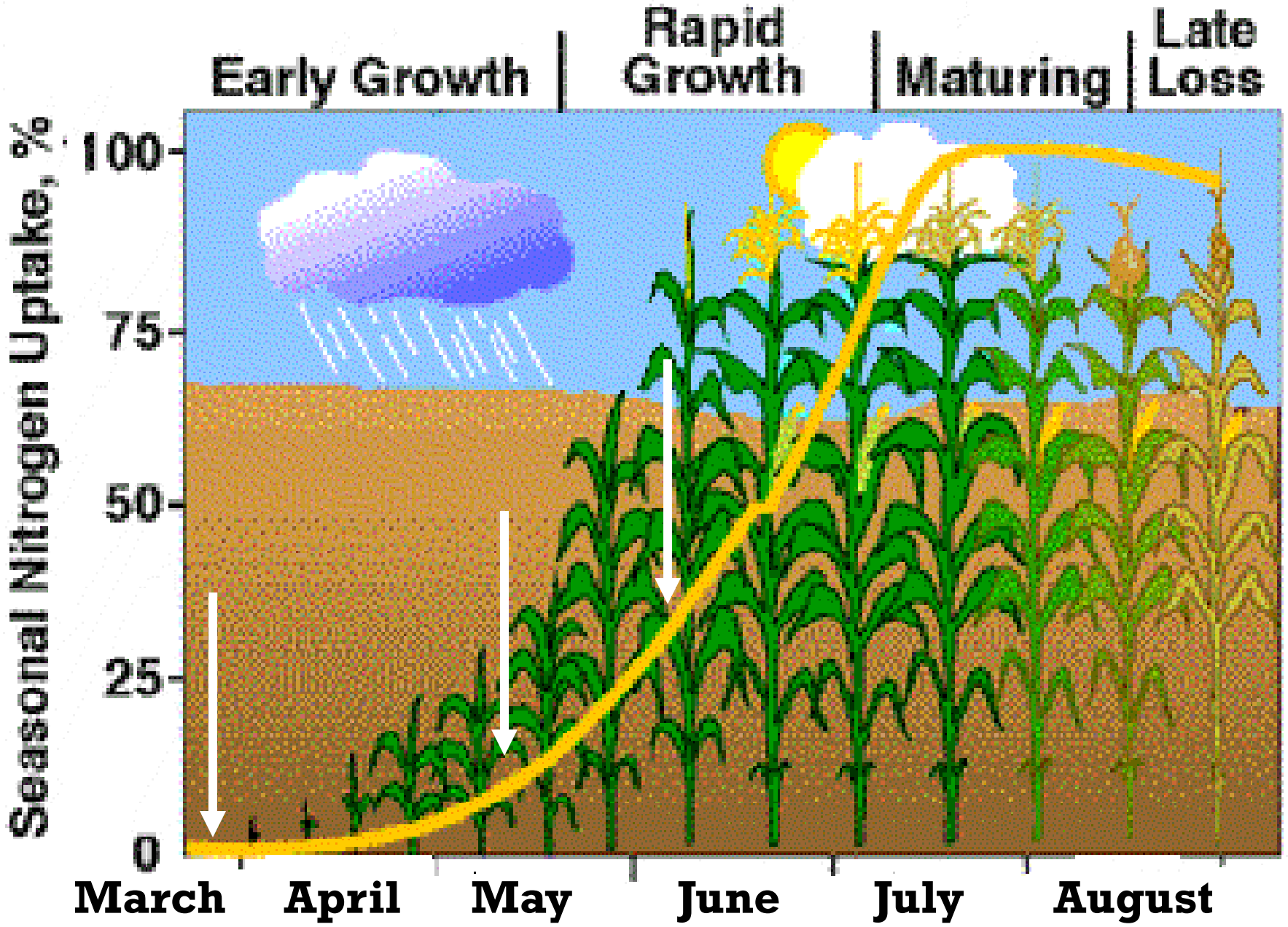


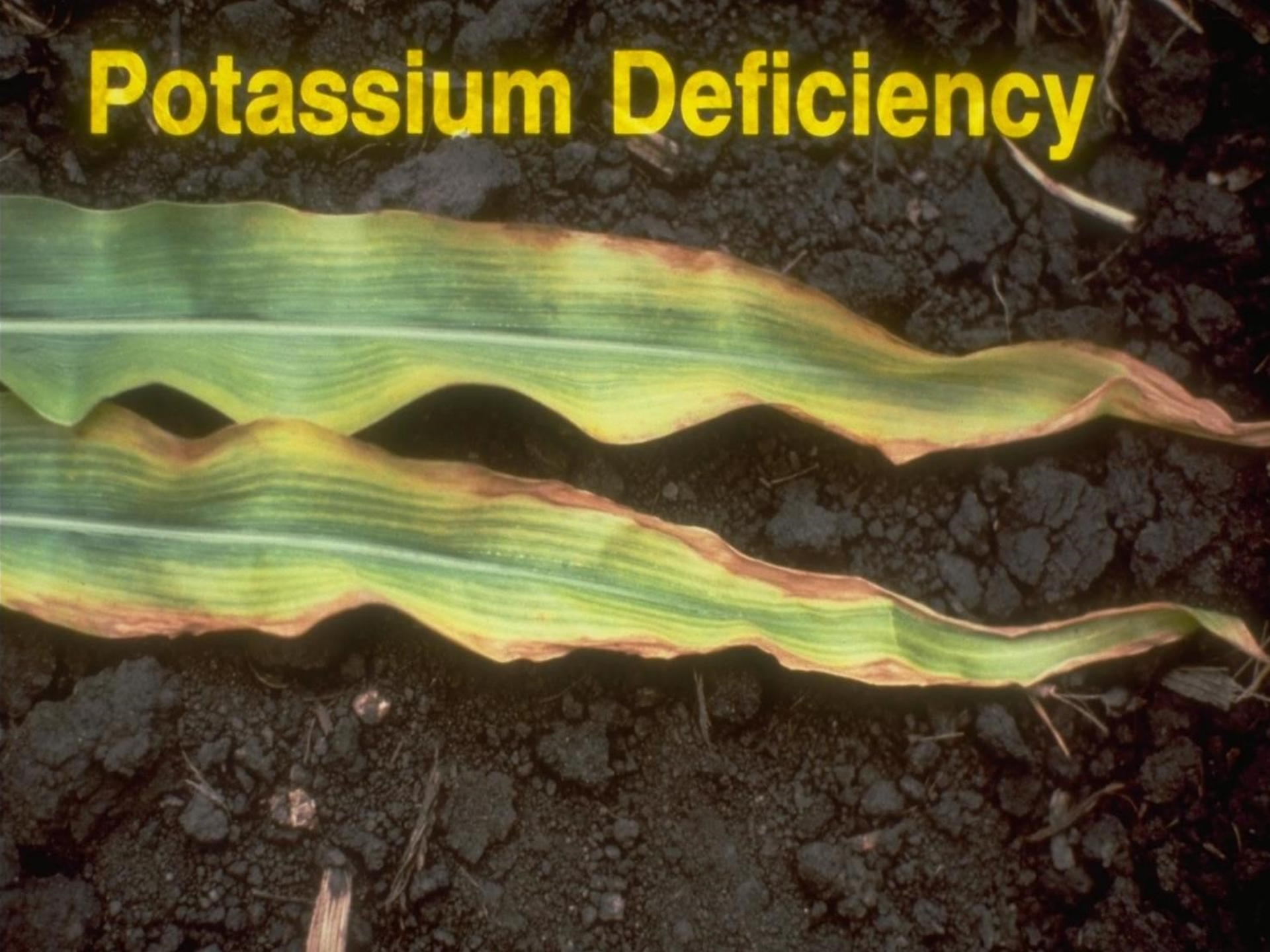
NITROGEN MANAGEMENT

- ***1.0-1.2 lbs N / Bu Corn***

- **Following SB or Cotton**
- **– 220 lbs for 180-200 Bu/a**
- **– 260 lbs for 220-260 Bu/a**

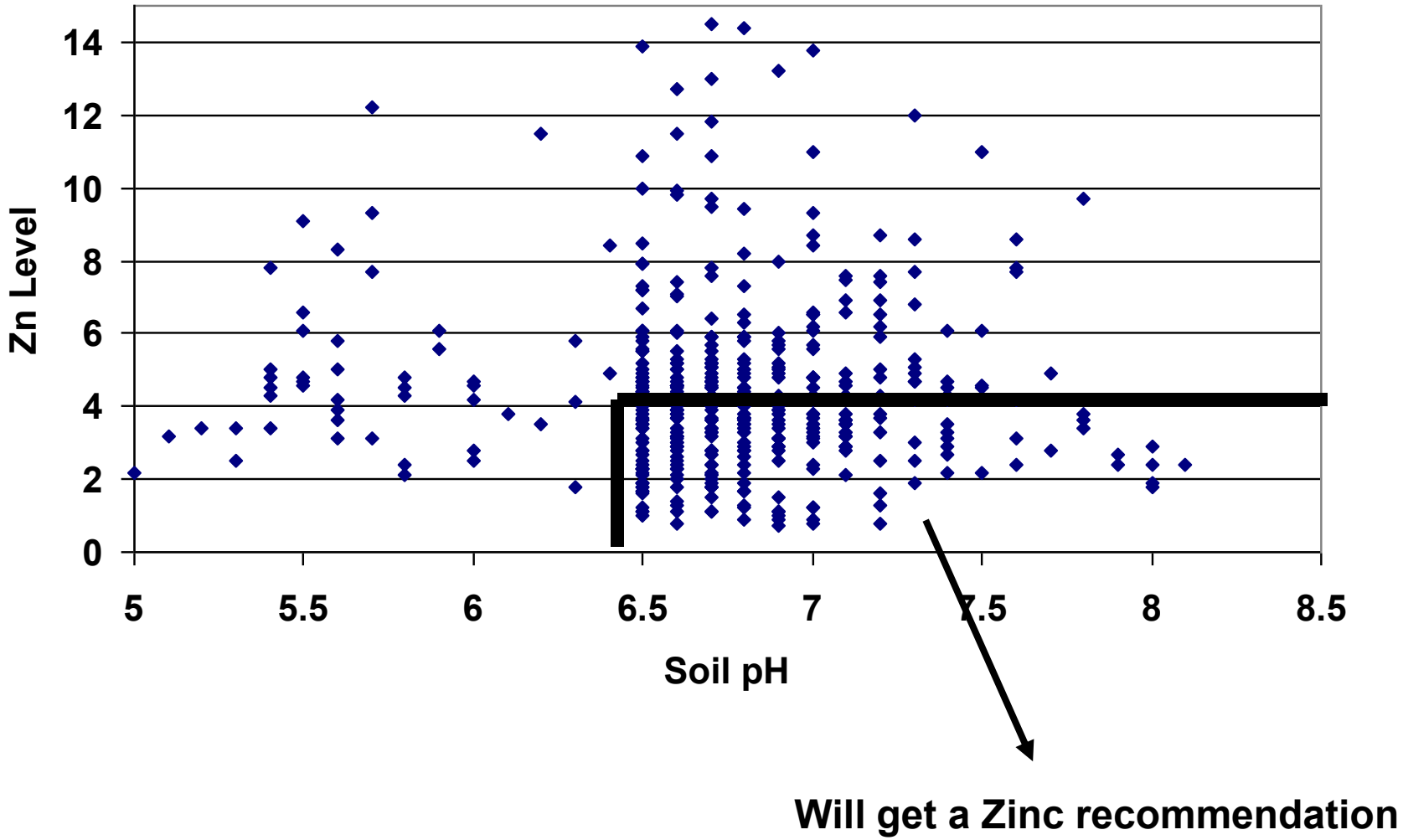
- **Corn Following Corn/Rice**
- **– 250-300 lb Nitrogen**


Early Growth
Rapid Growth
Maturing
Late Loss
Seasonal Nitrogen Uptake, %
100
75
50
25
0
March
April
May
June
July
August

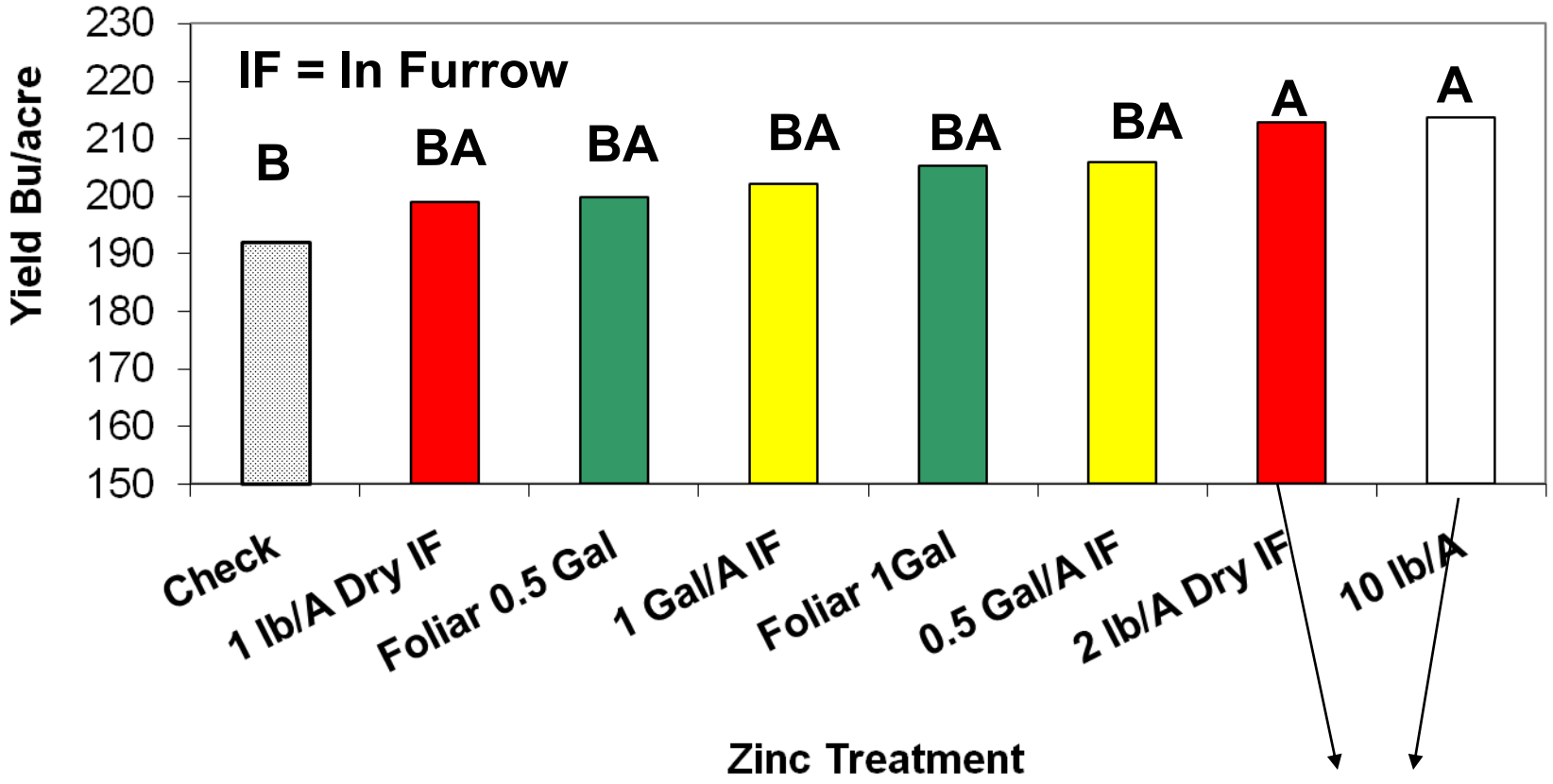

Potassium Deficiency


Zinc Deficiency

Zinc Levels in Selected Soil Samples Received by the Lab



Yield Response to Varying Zinc Rates and Application Methods



2 lb in-furrow as good as 10 lb/acre

Corn Diseases and Fungicides

SOUTHERN RUST – *PUCCINIA POLYSORA*

Photos: R.D. Cartwrigh

Southern rust is fast moving, destroying leaves prior to grain fill in some years (top photos). Unlike common rust, southern rust often develops on sheaths and ear shucks (lower left). The pustules are more dense on the upper leaf surface and are smaller, more oval and more orange than common rust (lower right). Warm temperatures (80-90 F) and high humidity (leaf wetness) favor southern rust.


Northern Corn Leaf Blight
SOUTHERN RUST
CRAZY TOP
Gray Leaf Spot
SOUTHERN LEAF BLIGHT
Photos courtesy Gary Munkvold, Jeremy Ross, Dave TeBeest

Fungicide Considerations

- Corn after Corn & No-till
- High Commodity Price
- High Yield Potential
- Delayed Harvest

STALK ROTS

Photos: R.D. Cartwrigl

Several soil-borne fungi cause stalk rots in corn and this disease complex can be greatly increased by premature leaf death from rusts or other foliar diseases, as well as fertility problems. Stalk rots result in lodging (upper left) and the fungi enter the roots, then crowns then lower nodes and internodes (upper right). Reddish purple discoloration is often associated with Fusarium fungi (lower left) while dark grey discoloration may be a sign of charcoal rot (lower right).

OTHER CORN DISEASES

- FUSARIUM EAR ROT
- ROOT KNOT NEMATODE
- COMMON SMUT


FUSARIUM EAR ROT


COMMON SMUT

AFLATOXIN

Photo: S.R. Vann

***ASPERGILLUS FLAVUS*, *ASPERGILLUS PARASITICUS* MAY PRODUCE AFLATOXIN ON CORN IN THE FIELD (PREHARVEST) OR IN STORAGE (IN TRUCKS, GRAIN BINS, ETC – POSTHARVEST)**

ESTIMATED WATER USE OF CORN

Days after planting	*Growth stage*	*Inches per day*	*Total water use (inches)*
0-20	seedling	.06	1.2
20-30	5" -10 "	.09	0.9
30-40	10" -20"	.15	1.5
40-50	20" -50"	.20	2.0
50-60	50" 80"	.21	2.1
60-70	80" -silking	.25	2.5
70-100	silking-grainfill	.33	10.0
100-110	grainfill	.25	2.5
110-120	maturity	.23	2.3
0-120	--------		25.0