

Challenges of Breeding for and Producing Soybeans in the South

Al Hoggard
Southern Soybean PEL
Syngenta Seeds, Inc.
Bay, AR

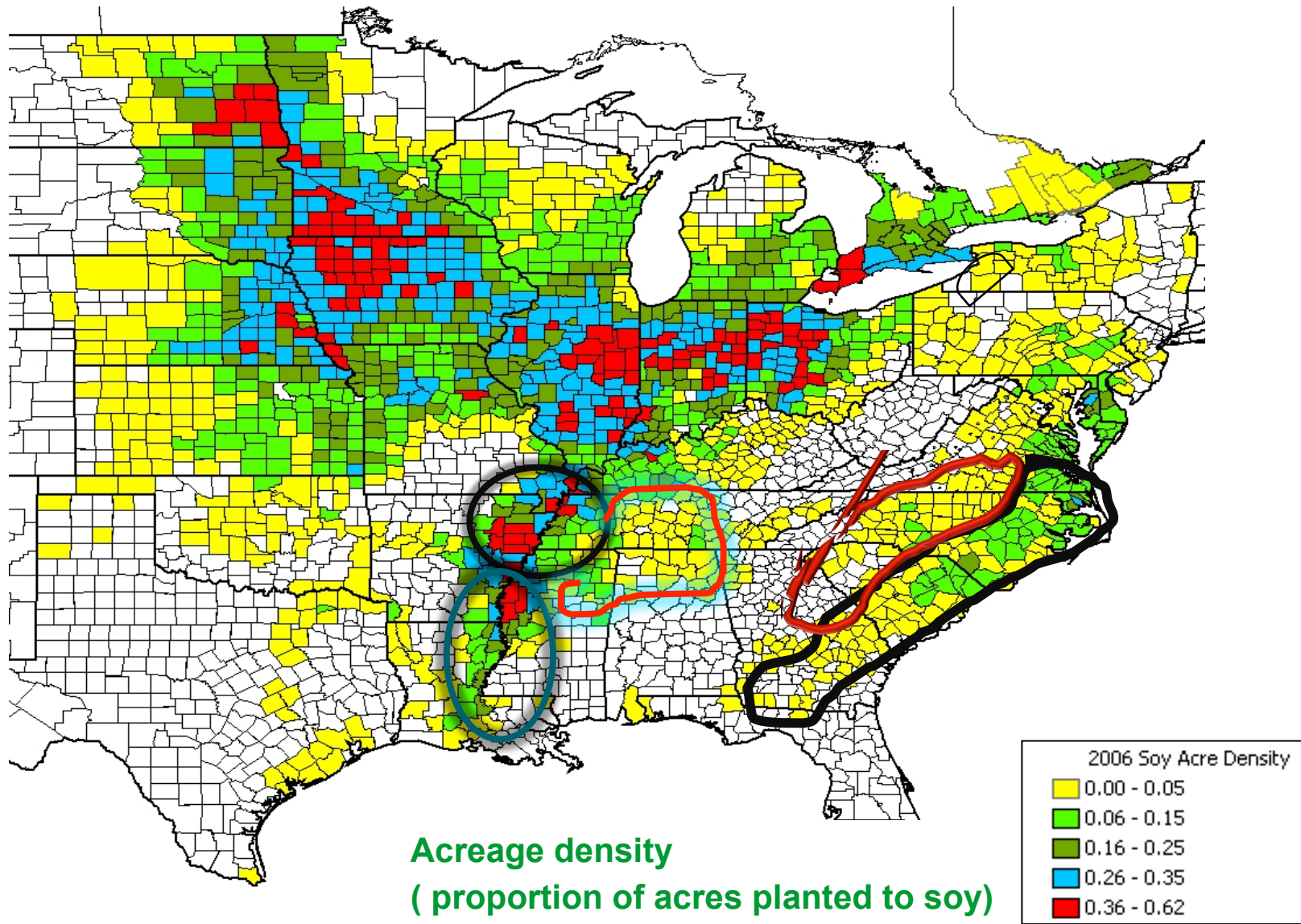
2011 SOYBEAN BREEDERS', AGRONOMISTS',
& PLANT PHYSIOLOGISTS' WORKSHOP
February 22, 2011
St. Louis, MO

“Will the new 4.9 Lt Tawny/Tan work in my area?”

It Depends



Geographical Growing environments of the South



Factors that affect the profitability of growing that new 4.9 Lt/Tan (in any given growing region) include:

- Yield Potential
- Disease Protection
- Management Practices



Yield Potential

- Three major types of soybean varieties



Race Horse



Mule



Race-Mule



“Will this new 4.9 work based upon it’s” Yield Potential

Optimum yields cannot be achieved unless the variety chosen has the right yield potential for the region and the production system being used.



“Disease Protection” Associated with the new 4.9 Lt/Tan variety

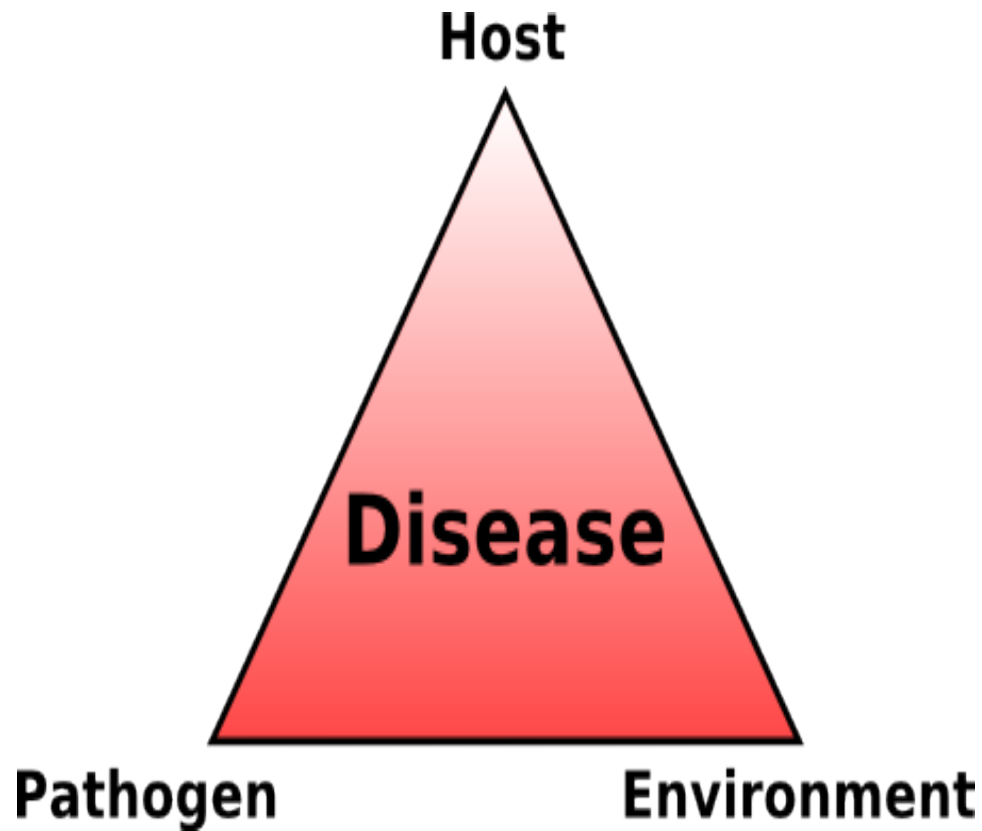
- Disease package plays major role in the adaptability and success of a variety.
- Over 100 pathogens that affect soybeans
- Different regions and different production systems affect diseases



SOUTHERN UNITED STATES SOYBEAN DISEASE LOSS ESTIMATE FOR 2009 --- Top 6 Yield Robbers

Diseases and Pests	Estimated loss of soybean yield due to disease (bushels in millions)
SCN and Rootknot Nematode	14.50
Phomopsis Seed rot	11.85
Anthrachnose	10.36
Frogeye Leaf Spot	5.22
Charcoal Root Rot	5.07
Sudden Death Syndrome	<u>3.11</u>
Total Reduction all Diseases	75.96 million bushels
<p>Source: Estimates of Soybean Yield Suppression by Diseases in the U.S. during 2009. Wrather and Koenning</p>	

Disease Development

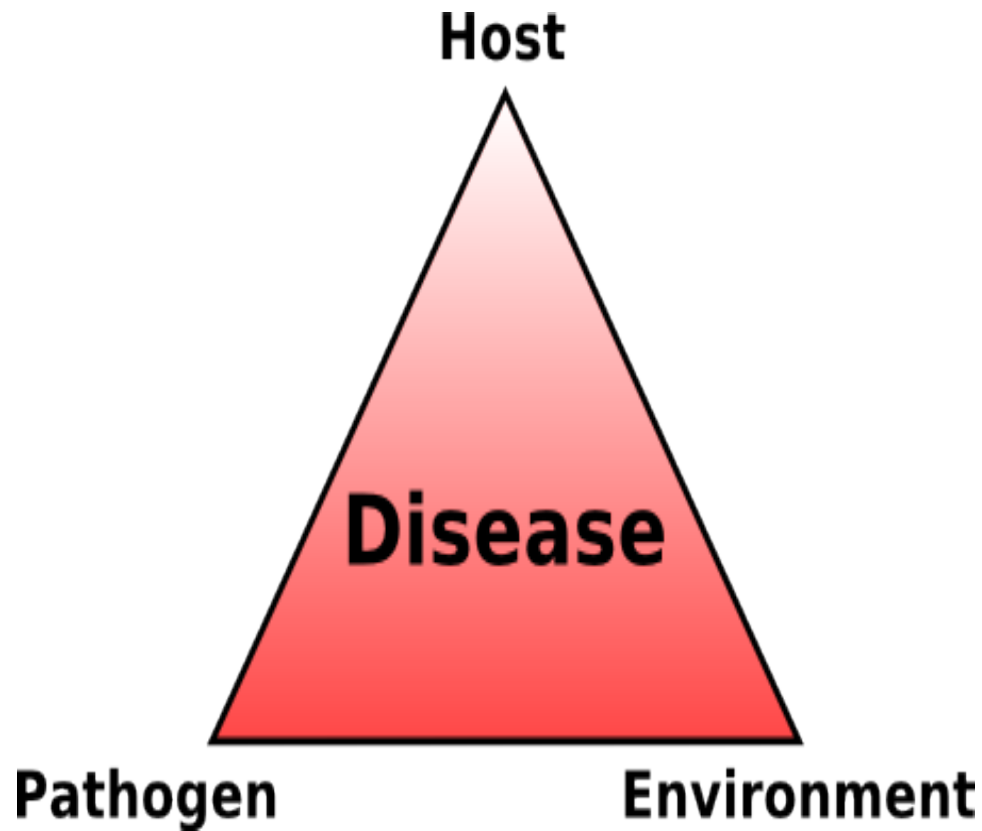


Disease development dependent upon:

- 1) Variety
- 2) Cropping System
- 3) Crop Rotation
- 4) Temperature and
- 5) Moisture



Disease Development



“Management Practices” the New 4.9 Will Be Grown Under



Conventional Tillage

- Usually includes both a pre-plant and post-emergence tillage
- Along with a pre-emergence and/or post-emergence herbicide application
- Goal is:
 - 1) control weeds
 - 2) incorporate fertilizer and/or herbicides
 - 3) prepare a clean seed bed

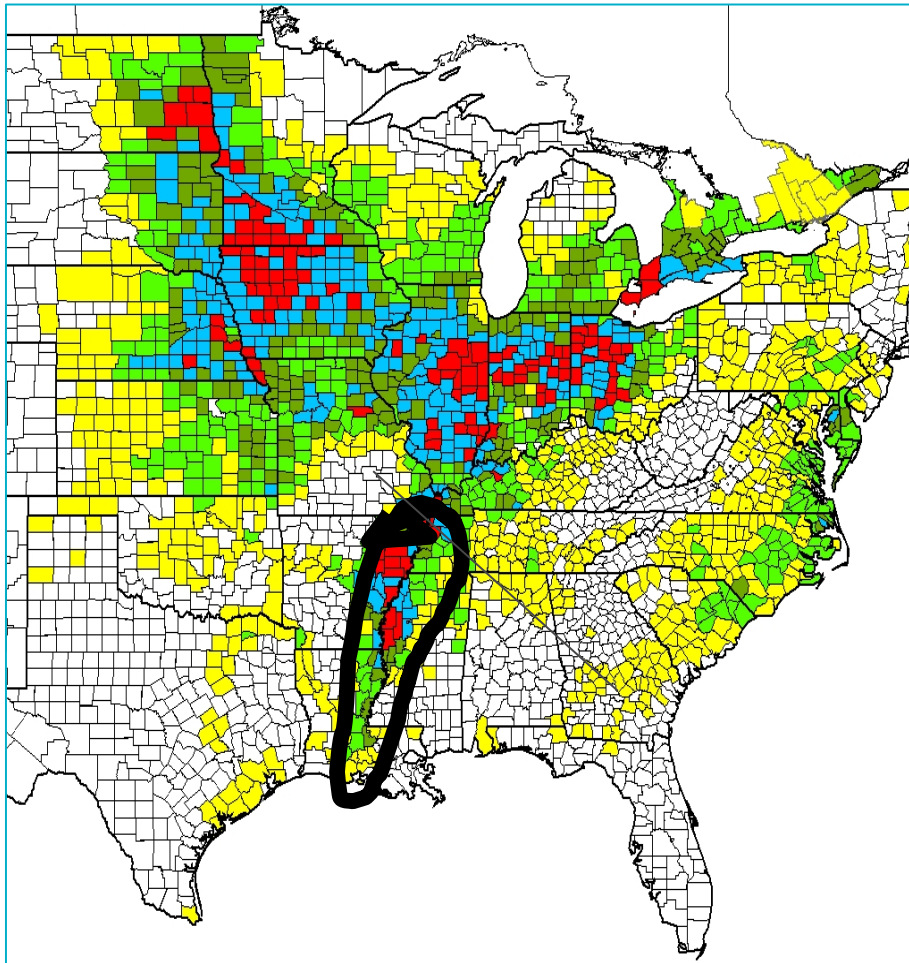


No-Till

- All primary tillage for seed bed preparation and
- All secondary tillage for weed control deleted
- Goal:
 - 1) Conserve moisture
 - 2) Timely planting
 - 3) Reduce soil compaction



Stale Seed bed -- ESPS



Stale Seed bed -- ESPS

- Works best on the shrink-swell type clay soils --- naturally breakup hardpans
- Not No-Till.
- Stale Seed Bed “seed bed that has received no tillage just prior to planting”
- Soybeans are planted into this undisturbed seed bed and weeds are killed by herbicides



Stale Seed bed -- ESPS

Goal:

- Maximize early planted acres
 - 1) Avoiding planting delays from tillage operations
 - 2) Reduces the number of tillage operations
- Critical reproductive stages avoid drought stress



Source: Soybeans 2011 Planning Budgets, Mississippi State University, Department of Agricultural Economics, Budget Report 2010-11 --- MS Delta Region

Production System	Expected Yield (Bu/ ac)
Full Season – Conv. Tillage -- Non Irr.	30
Full Season – Conv. Tillage -- Irrigated	53
Double Crop – No-Till -- Irrigated	45
ESPS – Stale bed – Non –Irrigated	42
ESPS- Stale Bed – Irrigated	65

Other Production Factors Important in the Various Cropping System

- Planting Date --

- *South Plants Soybeans from the Middle of March to the Middle of July -- Covering MG 3 to 8.*
- ESPS -- Recommended planting dates are mid March to Late April.
- FSPS -- Late April to mid June
- DCPS – Early June to mid July

Other Production Factors Important in the Various Cropping System

Row Spacing

- ESPS -- Row spacings of 20 inches or less.
- FSPPS -- Row spacings range from 7 to 38 inch.
- DCPS -- Row spacings of 20 inches or less.

Why are Row Spacings so Varied Between Cropping Systems?

- ESPS -- ≤ 20 inches
- 1) Plant so Early -- Ht becomes challenge
- 2) Early canopy closure more acceptable
- 3) Help reduce weed pressure



Why are Row Spacings so Varied Between Cropping Systems?

- FSPS -- 7 - 38 inches
- 1) Best response -- 30 inches or less
- 2) Key factor -- canopy closure
- 3) Want canopy closure close to R2



Why are Row Spacings so Varied Between Cropping Systems?

- DCPS -- ≤ 20 inches
- 1) Late Planting – Ht can be a challenge
- 2) Key factor -- canopy closure
- 3) Irrigation best tool for canopy closure by R2

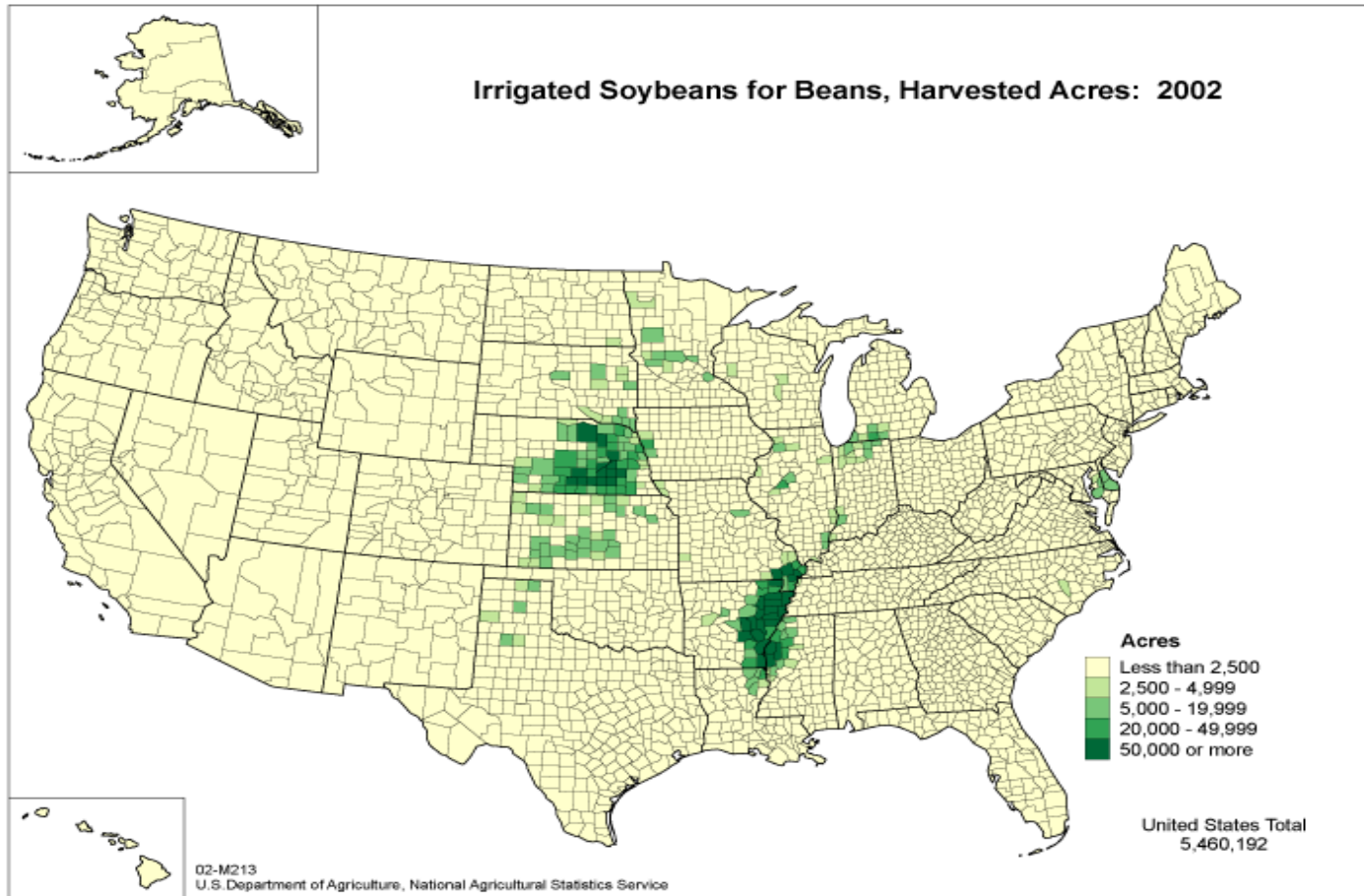


“Water Management for our new 4.9 Soybean Variety”

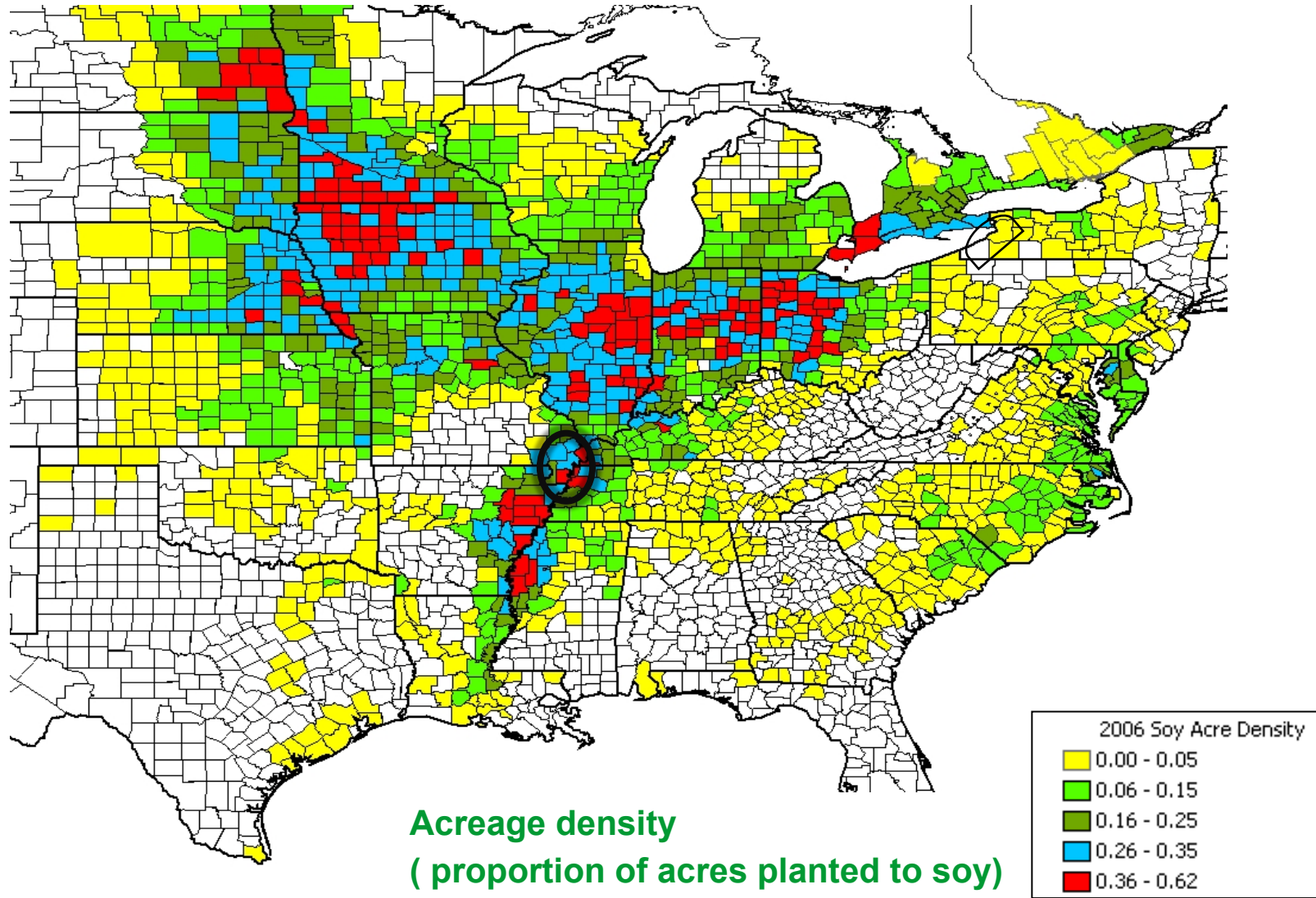
- Managing water stress critical for optimum yields
- Dryland soybeans can be profitable, but.....



Irrigation verses Non-Irrigation



Geographical Growing Environments of the South ----- Equal Different Soil Types



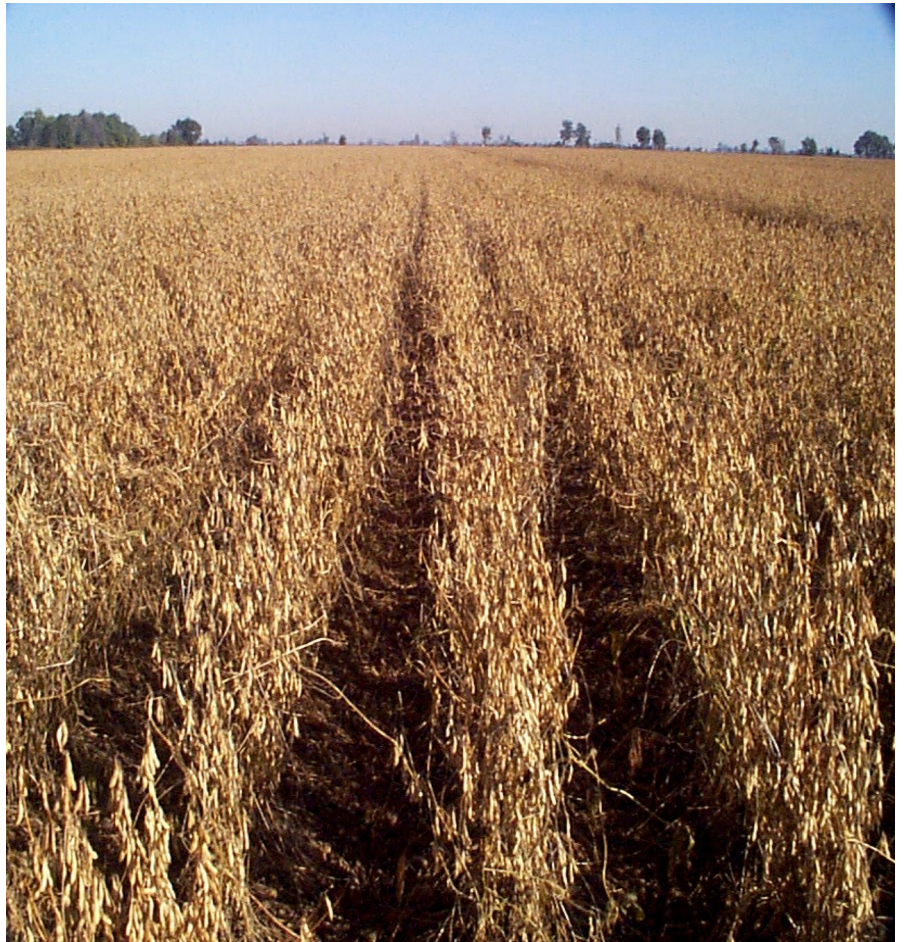
“Soil Type” the new 4.9 Lt/Tan will be planted on

- Soybeans can be grown on wide range of soil types
- Chose variety that gives;
 - 1) best yield potential
 - 2) disease protection,
 - 3) plant structure for the particular soil type



“Will the new 4.9 Lt Tawny/Tan work in my area of the South?”

- Seldom is anything ever a simple Yes or No
- Knowing Features and Benefits of product
- Understanding the challenges associated with the Production Environment
- **Challenges become Opportunities**



Thank You!

