



The Gift of the Mississippi River

- ▼ Much has been written about the blessings of the mighty Mississippi River
- ▼ A watershed that encompasses >40% of the continental U.S.
- ▼ Enabling transportation logistics in & out
- ▼ Providing water for many uses
- ▼ Creating rich farmlands & deep alluvial soils deposited over centuries

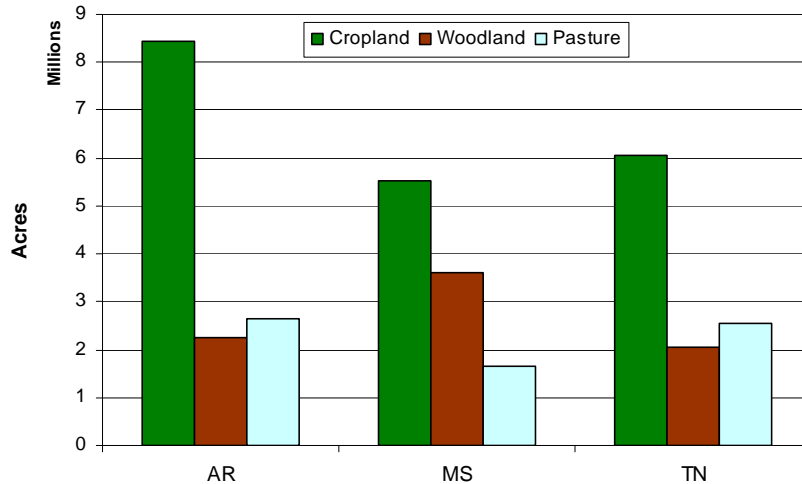


Mississippi River Drainage Basin



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Regional Farmland Assets

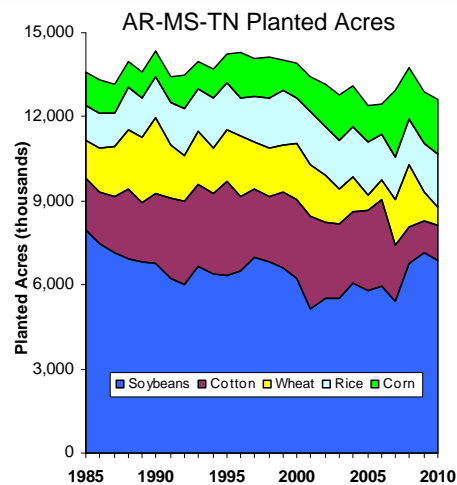


Source: USDA 2007 US Census of Agriculture

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A Farm Production "Machine"

- ▼ Agriculture is our economic engine
- ▼ Row crops, woodlands & pasture based on
 - ❖ Productive soils
 - ❖ Abundant rainfall
 - ❖ Long growing seasons
 - ❖ Farming expertise
 - ❖ Market infrastructure
- ▼ Efficient, cost-effective Bio-production of grains, oilseeds, cotton, wood
- ▼ Subject to annual supply & demand cycles



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Crop Shifts – Southern Ag in Flux

▼ Crop plantings shift for a reason

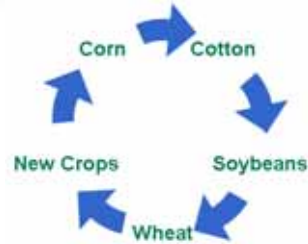
- ❖ Rotations to maintain productivity
- ❖ Market price and value opportunities
- ❖ Risk and cost management economics
- ❖ New technologies add value by cutting production cost & risk, adding value to fatty acids, plant oils, sugars, starches

▼ “Biomass” crops now an alternative to standard food, feed & fiber crops

- ❖ Non-food crops and crop residues
- ❖ Switchgrass, canola, sweet sorghum, woody crops, miscanthus
- ❖ Envisioned for fuels, energy, industrial chemicals, biomaterials

▼ Renewable feedstocks through sustainable production

▼ We have a lot to learn about what Biomass crops will fit into the rotation and the market

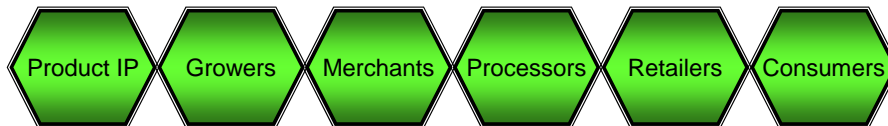


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The Path to Market

- ▼ The “Old South” was based on King Cotton & included
 - ❖ Seed genetics & crop production technology
 - ❖ Farming infrastructure, education & know-how
 - ❖ Markets (price discovery & merchants)
 - ❖ Processing Technologies (i.e. cotton gins, textile mills)
 - ❖ Consumer marketing & sales
 - ❖ Overlaid with logistics, workforce dev, regulation & Policy



Innovation, Investments, R&D, Policy, Regulatory Logistics, Education & Workforce Dev →

- ▼ The “South of Tomorrow” will likely include a wider array of crops – each with similar steps

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Bio Opportunities



▼ Supply

- ❖ New opportunities for agriculture
- ❖ Fulfills new & underutilized processing capacity
- ❖ New economic engines for the Mid-South
- ❖ New jobs

▼ Demand

- ❖ Growers need sustainable, profitable crops
- ❖ Biorefineries want alternatives to petroleum-based feedstocks
- ❖ Consumers demand renewable “green” products
- ❖ National Security demand for food, energy & industrial products independence

▼ We have the resources now

- ❖ The agricultural market is ready for change
- ❖ New use and conversion technologies evolving
- ❖ Consumers are ready
- ❖ Capital available for investments



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Bio Challenges

▼ Supply

- ❖ Farm productivity learning curves
 - ❖ Breeding, Biotech, know-how
- ❖ Biorefinery technology advances
 - Mechanical, chemical, biochemical
- ❖ Logistics & distribution

▼ Demand

- ❖ New crop market development
- ❖ Co-products vs. by-products

▼ Network and Alliance initiatives

- ❖ Private, government, NGO, industry

▼ Policies, regulations, environmental & economic development

▼ Consumer education and acceptance



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New Crops – Who Moves First?

- ▼ **Breeders** can develop new genetics, but will there be a customer base for their products?
- ▼ **Growers** have resources to grow new crops; but will there be a market for their harvest?
 - ❖ Biomass as material feedstocks / ingredients...
- ▼ **Processors** can build capacity, but will there be a reliable supply of feedstocks?
 - ❖ Cheap feedstocks may not be the best answer
- ▼ **Consumers** want products that make economic and environmental sense
- ▼ **Policy Makers** must use good science to regulate and enable alternatives
- ▼ **Everyone** must communicate and work together toward common goals



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The Vision is Ours to Make... Together

Questions?

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