

Regional Strategy for Biobased Products in the Mississippi Delta

**Executive Briefing
For
Tennessee Renewable Energy and
Economic Development Council
Memphis, Tennessee
November 17, 2009**





Memphis Bioworks Foundation is a nonprofit organization dedicated to growing the biosciences in the region.

www.agbioworks.org



BioDimensions

BioDimensions is a business development firm focused on facilitating farmer-owned processing and the development of biobased products.

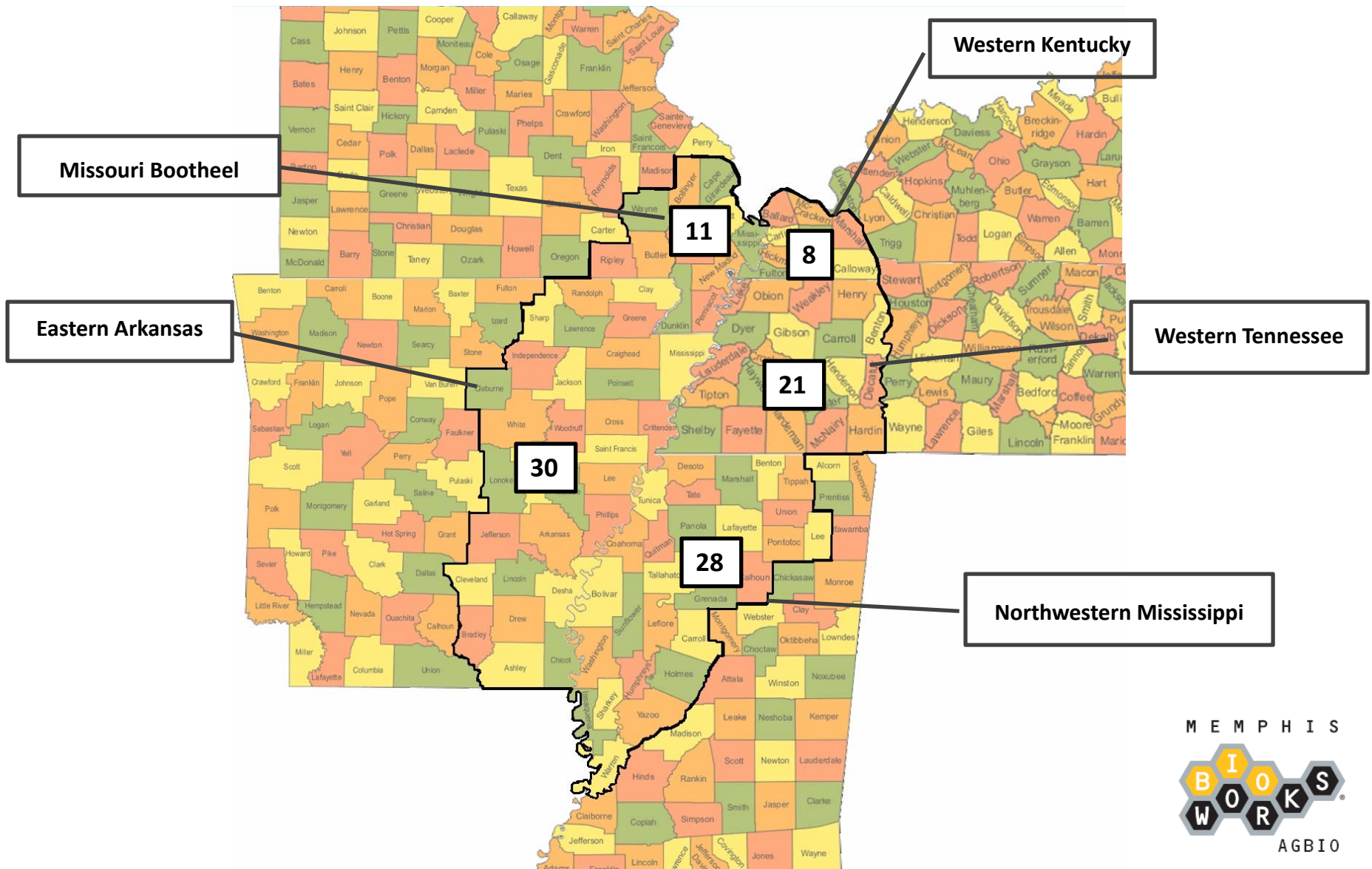
www.biodimensions.net

The “Bioeconomy”:

An economy in which the feedstocks for energy and the building blocks for industry are derived from renewable plant/crop resources.

“Regional Strategy for Biobased Products in the Mississippi Delta”

98 Counties in 5 States; Common Agricultural & Woody Biomass



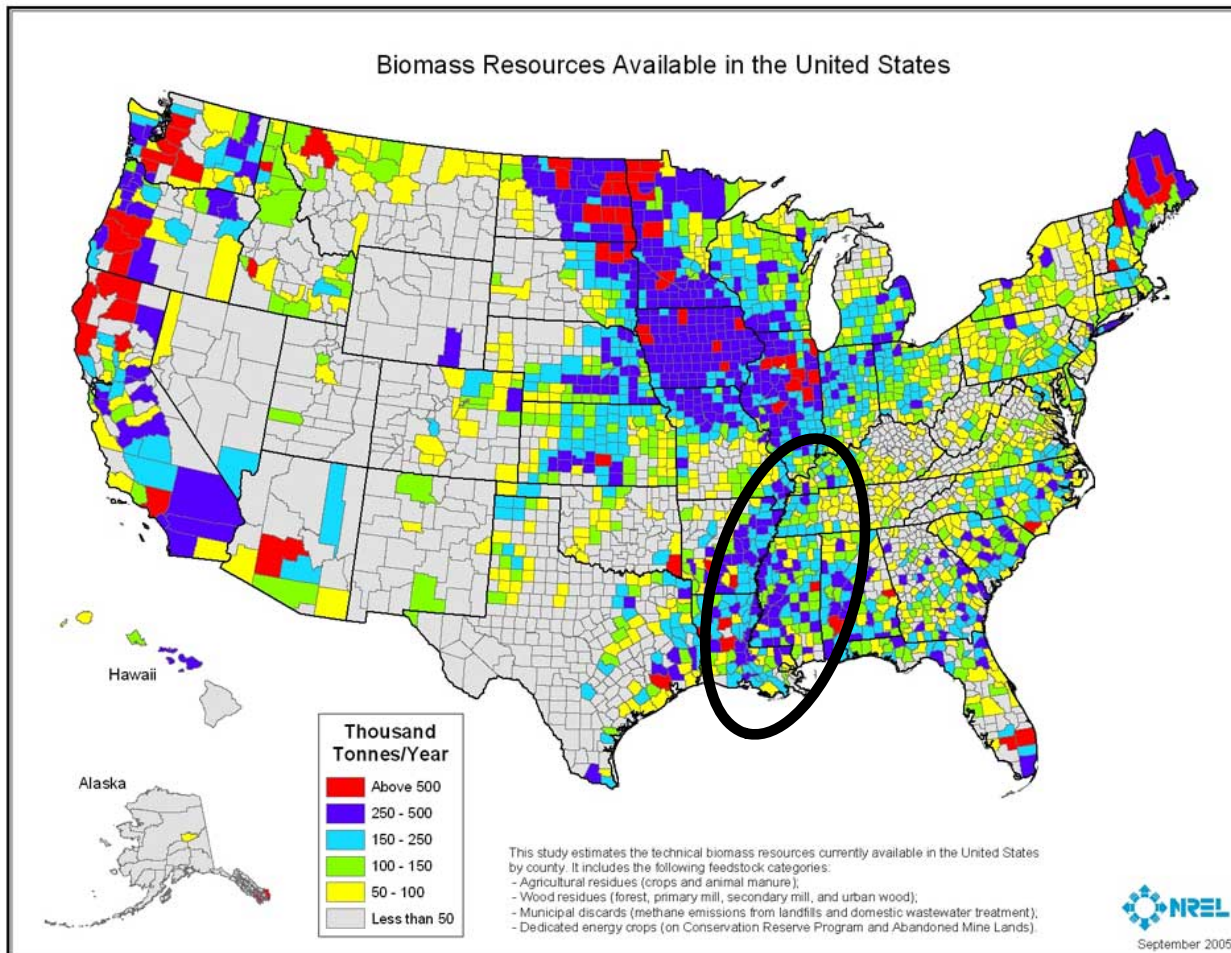
A Collaborative Strategy Initiated by MBF

Specific to the mid-South Delta region

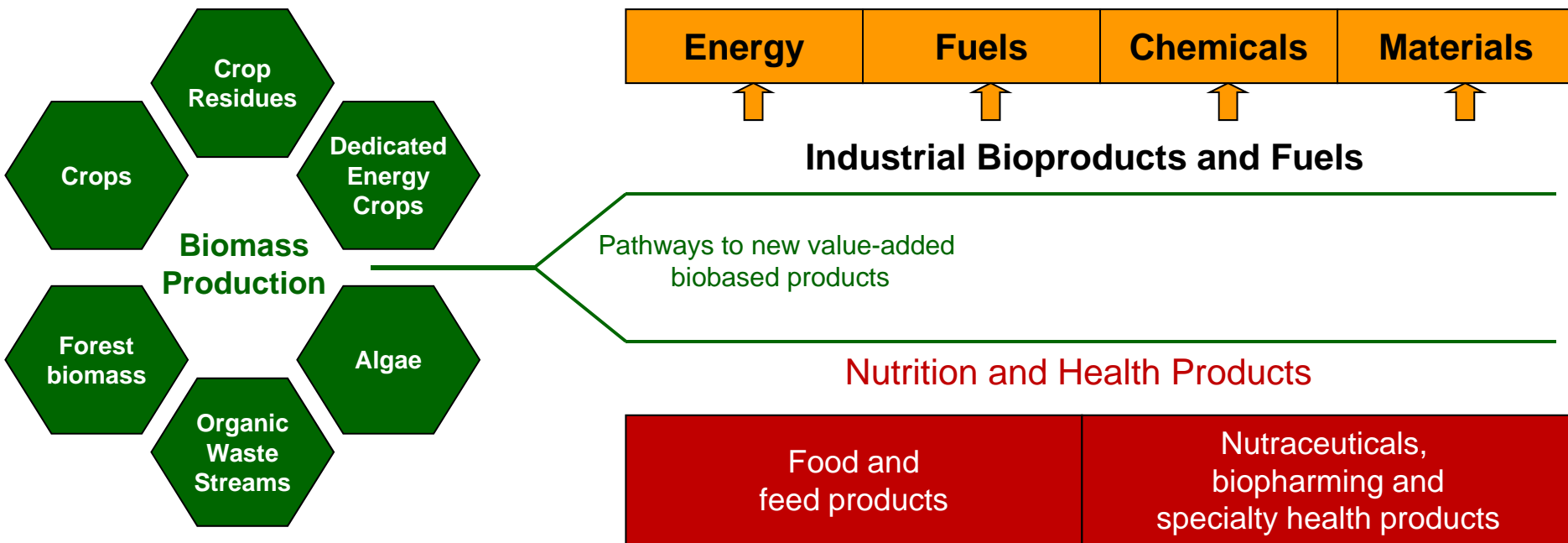
- Provide objective analysis regarding Delta region feedstocks and bioprocessing technologies
- Promote a comprehensive vision for agricultural feedstock & bioprocessing economic development
- Facilitate new partnerships and collaborations to build the regional renewable supply chain
- Direct public/private resources to most promising projects
- Support companies seeking to develop regional projects
- Develop alliances with key Federal and State policy makers
- Ensure that the region is an early and full participant in the bioeconomy

“Regional Strategy for Biobased Products in the Mississippi Delta”

Biomass is the primary renewable resource of the Region



The Mid-South has abundant biomass - a highly flexible resource



Key Conclusions

Battelle

The Business of Innovation

- Sustainably grown and harvested crops in the region can supply at least an \$8 billion local green industry without affecting the food and feed supply chain.
- This will support the formation of 25,000 green and related jobs in the Delta states within a decade and 50,000 by 2030.
- The bioeconomy will open up markets for new crops which will increase biodiversity in the region, leading to reduced use of synthetic fertilizers, agricultural chemicals and water, while increasing options for local farmers.
- The bioeconomy will contribute to reducing greenhouse gas emissions, increased air quality, providing sustainable raw materials for local industries, and bolstering national security.

Key Observations

- Opportunity
 - The Bioeconomy represents a revolutionary opportunity for rural economic development and job creation in the region
 - Lignocellulosic biomass represents the largest volume and job creation opportunity, with potential for solid (combustion) and liquid (transportation fuel) products
- Timing
 - Biobased products are emerging now, but must **compete** with fossil-based products for years
- Technology/projects
 - Technologies advancing rapidly, but many are still **developmental**
 - The region will “import” most advanced bioprocessing technologies
- Supply Chain
 - Farm-to-factory requires completely new alliances and partnerships

Eight Strategic Recommendations

1. Pursue Selective Near-Term Opportunities
2. Expand Bioprocessing Workforce Development
3. Establish a Regional Agricultural R & D Network
4. Establish a Regional Bioprocessing Technology Consortium
5. Establish a Regional Business Development Office
6. Expand Farmer Network
7. Harmonize State Policies and Incentives
8. Develop a Regional Policy Statement

Strategic Recommendation #1:

Pursue selective near-term Opportunities

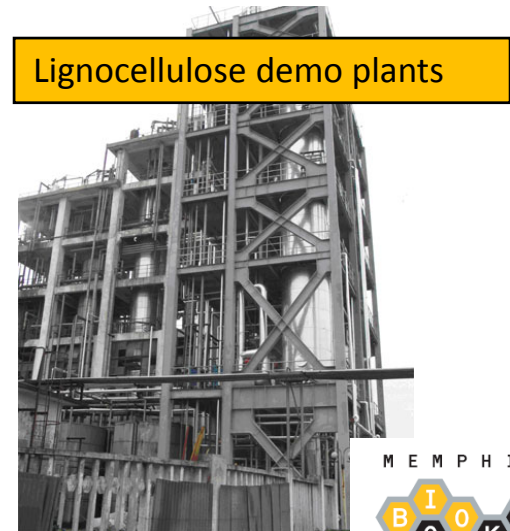
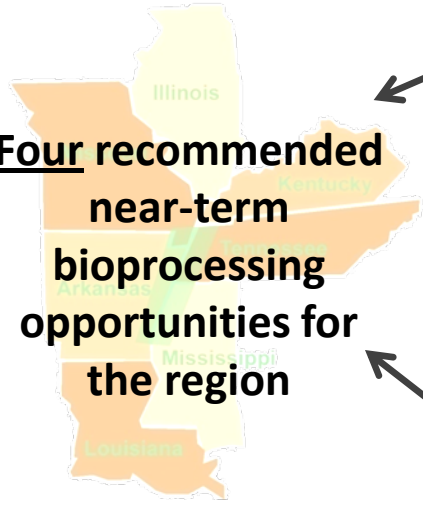


Solid fuels for co-firing

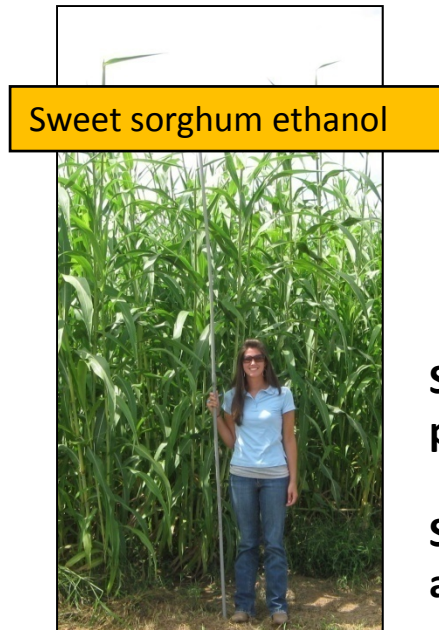


New oilseeds & crushers

Four recommended near-term bioprocessing opportunities for the region



Lignocellulose demo plants



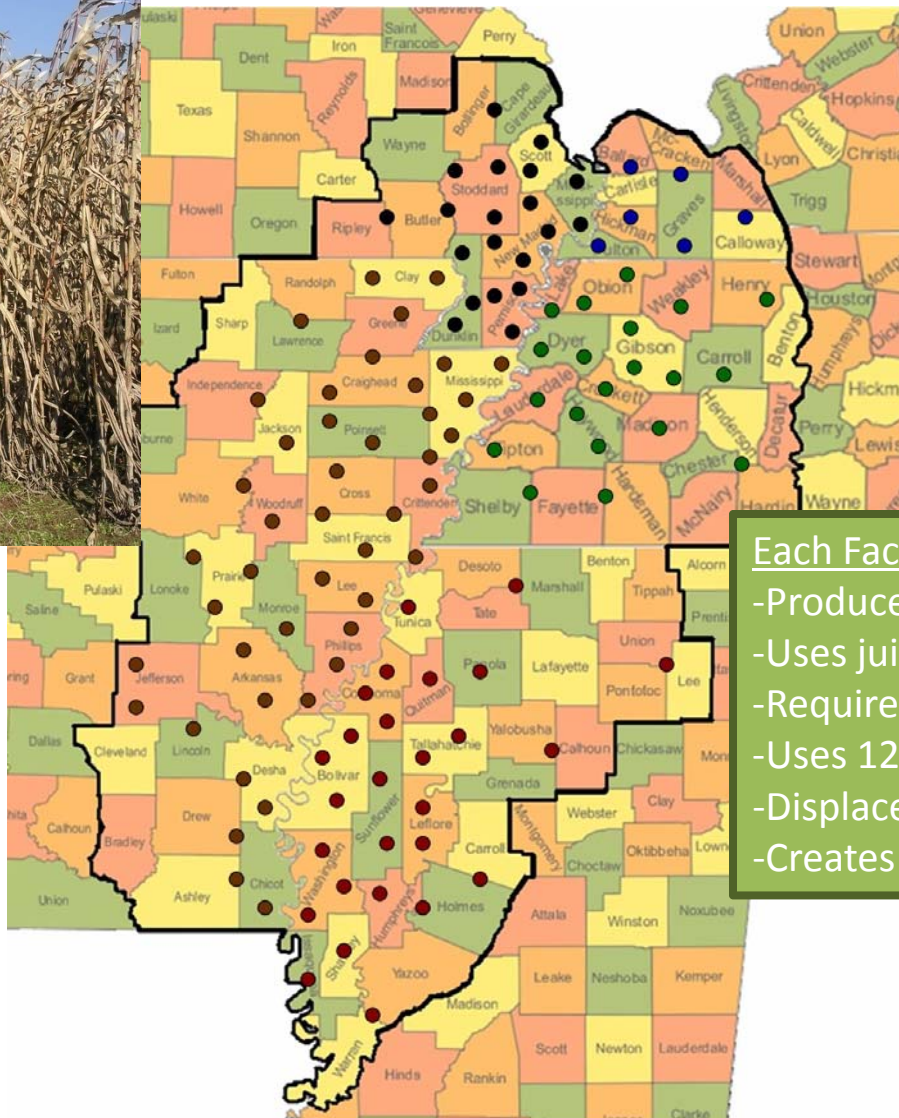
Sweet sorghum ethanol

Step #1 – Build a local supply chain with products we can make now.

Step #2 – Attract technology to make advanced products in the future.

Sweet Sorghum Ethanol

Potential for >100 Biorefineries



- Each Facility:
- Produces 10MM gpy ethanol
 - Uses juice sugars and bagasse
 - Requires 9000 acres
 - Uses 12% of acres in a 6-mile radius
 - Displaces 10% of corn+soybeans+cotton
 - Creates min. 25 direct & 25 indirect jobs

Overview of Delta Biorefineries

- Biorefineries will process diverse biomass feedstocks into fuels, chemicals, materials, and energy
- Biorefineries will be decentralized – in rural locations – to minimize biomass feedstock transportation costs
- Biorefineries represent “heavy industry”
 - Liquid fuel biorefineries will resemble chemical factories
- Biorefineries may ultimately practice technologies from more than one platform
 - Multiple products will be pursued to effectively utilize all of the biomass for the highest value end products
- The biorefinery workforce requires specialized technical skill sets which differ from agricultural production

Benefits to the Region

- Development of local value-added processing and job creation
- Encourage entrepreneurs and new global supply relationships
- Increase biodiversity and wildlife
- Potentially reduce agricultural inputs and encourage new approaches to sustainable agriculture and economic development

Next Steps

To coordinate and facilitate the growth of the bioeconomy in each state, AgBioworks recommends the immediate establishment of at least one “office”. These satellite office(s) will provide:

- An immediate and effective market presence
- Local guidance and direction
- Technical support and validation of potential projects
- Identification and prioritization of commercial opportunities
- Funding support

For Additional Information

www.agbioworks.org

www.memphisbioworks.org

www.biodimensions.net

20 S. Dudley St, Suite 802
Memphis, TN 38103
901.866.1800