Looking Forward
Future Directions for Silvopasture Research at UMCA

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Global Agenda for Sustainable Livestock Meetings
About the Center

MISSION
To support the long-term future of rural and urban working farms and forests by achieving economic, environmental and social sustainability…

- Discovering, integrating and applying new agroforestry knowledge and technologies
- Educating and training students, professionals, scientists, leaders and general public who are empowered to make a difference

History
- Established in 1998
- Over 20 years of leadership as a “Big C” Center

Recognition
- 2019 Program of Distinction-MU CAFNR

Excellence in Research
- Since 2013, over 150 book chapters and refereed publications
- Training materials, workshops, newsletters, patents

Funding
- Over $55 million in grants and contracts since inception
- Numerous partners and collaborators

http://www.centerforagroforestry.org
PHILOSOPHY

"A farm can be regarded as a food factory and the criterion for its success is saleable products. Or, it can be regarded as a place to live, and the criterion for its success is harmonious balance between plants, animals and people; between the domestic and the wild; and between utility and beauty."

- Aldo Leopold
Five Common Agroforestry Practices

- Windbreaks
- Riparian forest buffers
- Silvopasture systems
- Forest farming
- Alley cropping
Silvopasture Systems

• Intentional integration and management of:
“A la carte agriculture…”

- Timber
- Specialty Crops
- Habitat
- Windbreaks
- Fodder

- Cool season grasses
- Warm season grasses
- Legumes
- Brassicas

- Cattle
- Small Ruminants
- Swine
- Poultry
- Pollinators
Google Trends search interest index of term "Silvopasture" weekly since 2014
Web of Science results returned for search term “Silvopasture” as a percent of 267 total published articles
Institutional Support

Strategic Goal 2—Investigate
Conduct applied and basic research to advance the science and technology that supports the use of agroforestry.

Desired Outcome: Advances in the use of science-based agroforestry tools by landowners, managers, Tribes, and communities to improve productivity and address complex environmental, economic, and social conditions.

Bottom Line
Continued funding and partnership opportunities focused on sustainable livestock research, including silvopasture
Previous work

- Soil characteristics
- Nutrient retention
- Water quality
- Biodiversity

Environment

- Livestock performance
- Forage quality
- Tree growth
- Health

Production

- Revenue diversity
- Increased income
- Land efficiency

Economics
UMCA work: 2018

• Cover crops improve soil microbial activity (PLFA) and water dynamics
• Strategic buffers reduce non-point source H₂O pollution
• Fodder species (red and white mulberry) in Cherrybark Oak as a silvopasture system in MO
• Guinea grass cultivars under varying tree densities in Panama
• Tick populations in silvopasture systems are reduces compared to grazed and un-grazed forested lands
Gaps in the literature

- Performance studies with different species
  - Growth, health, heat stress, supplementation
  - Systems-level approach

- Water and air quality with livestock inclusion

- Animal impact on tree performance

- Economic analysis including establishment

- More accurate measures of biodiversity
Goals

**Short-term**

- Characterize local/regional practices
- Identify practitioners for partnership
- Enhance existing networks
- Identify immediate information needs
- Build confidence

**Long-term**

- Design targeted systems-level research
- Enhance outreach activities
- Expand partnerships
  - Land-use accessibility
- Interdisciplinary powerhouse
Agriculture is the Solution!
Thank you!

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