

“Agroforestry Horizons: Experiences and Reflections”

A Meeting of the USDA National Agroforestry Center April 27th and 28th, Washington, D.C. Report-Out

Overview

The USDA National Agroforestry Center (NAC) is charting a course for the next five years. As part of this process, NAC and the USDA Interagency Agroforestry Team hosted a meeting of leaders in the fields of agroforestry, agriculture, and forestry, from government, universities, and the private sector, to share experiences and insights on agroforestry opportunities and challenges. The meeting occurred on April 27th and 28th, 2016, in Washington, D.C., and entailed presentations and discussions on current and potential roles of agroforestry in supporting water quality, soil health, economic diversification, food security, and pollinator/wildlife habitat. This report-out provides a summary of the meeting for participants and other interested parties.

Background

Agroforestry is the intentional combination of agriculture and forestry to create integrated and sustainable land-use systems. Best known for improving soil health and water quality, agroforestry practices can also play a critical role in food security, pollinator/wildlife habitat, and green infrastructure efforts. In addition, agroforestry can be an important tool in addressing climate adaptation and mitigation needs, and can help to diversify income streams to private landowners and communities.

Authorized in the 1990 Farm Bill, the National Agroforestry Center (NAC) provides national leadership for agroforestry research and technology transfer. Working with partners across USDA and other government agencies, as well as with State forestry and agriculture agencies, conservation districts, universities, and non-governmental organizations, NAC has supported the development of numerous tools, publications, trainings, working groups, demonstration sites, and research syntheses.

The five most widely-recognized categories of agroforestry systems in the United States are: silvopasture, alley-cropping, forest farming, windbreaks, and riparian buffers; when established in the right place at the right time, each can provide economic and environmental benefits to farmers, ranchers, and communities.

Report-Out

Approximately 50 participants attended the meeting from the US Forest Service, other USDA agencies, EPA, and many non-Federal entities. Industry participants represented the American Soybean Association, the Alliance for Sustainable Agriculture, Dow Chemical, and Organic Valley. Other private entities represented included National Wildlife Federation, the Conservation Fund, National Farmers Union, Minority Landowner Magazine, Arcadia Farms, Xerces Society, the Savanna Institute, American Farmland Trust, and Nobel Foundation. University participants from the East (Virginia Polytechnic Institute and State University, and North Carolina A&T State University), the Mid-West (University of Missouri), and the West (New Mexico State and Oregon State University) also attended, as did representatives of State agriculture and forestry agencies. As a whole, participants represented a broad geographic diversity of the United States mainland as well as Puerto Rico and Hawaii. A complete list of participants can be found in Appendix 1.

Presentations and discussions focused on current and potential roles of agroforestry in supporting water quality, soil health, economic diversification, food security, and wildlife habitat (see Appendix 2 for the agenda, speaker bios, and discussion questions). Highlights from the meeting are provided below. More detailed meeting notes can be obtained from Susan Stein, Director, USDA National Agroforestry Center.



Agroforestry is meeting a broad range of objectives for government, industry and non-profit entities.

The organizations represented at the meeting engage in agroforestry to meet a broad range of objectives, all having to do with enhanced production (including production on marginal lands), expanded economic opportunities (particularly for smaller farmers), and/or ecosystem service benefits, most notably water quality, as well as biodiversity (including pollinator habitat), biomass production, carbon storage and organic farming efforts. Other uses being investigated include phyto-remediation from oil and gas contamination. Examples of specific uses mentioned include:

- Organic dairy farmers are using silvopasture to improve production. This practice can be expanded and enhanced through 1) sharing research related to agroforestry's impact on improved forage quality and 2) identification of current practitioners that can serve as models for others.
- Soybean producers are employing agroforestry practices such as windbreaks and riparian buffers.
- Silvopasture is popular among cattle producers that are members of the National Grazing Lands Coalition (NGLC) and is featured at the national conferences held by NGLC every three years.
- State forestry agencies and others in the Chesapeake Bay area are working to improve water quality through the promotion of riparian forest buffers.

There are significant opportunities for enhanced agroforestry outreach and partnerships.

Participants represented a range of organizations that have and can provide new connections with landowners, as well as opportunities for case studies and, in some cases, demonstration sites. Additionally, there are many partnership approaches to be explored or strengthened. These include public-private partnerships, as well as partnerships with/between agricultural, culinary, and nutraceutical industries. The importance of more extensive and intensive outreach to limited resource landowners, in partnership with 1890's colleges and universities, tribal colleges and universities, and others was also raised, as was the opportunity for outreach to returning veterans.

A broad array of agroforestry research and information sharing opportunities was identified.

Presentations by universities (Virginia Tech, University of Missouri, New Mexico State, Florida A&M, and Washington State University) highlighted advances in a broad swath of agroforestry-related applied research, as well as future needs. A recurring theme expressed throughout the meeting was the need for more socioeconomic data and information to inform agroforestry adoption and to better understand landowner behavior and attitudes.

Participants also expressed a need for sharing of data and information on a variety of topics, including:

- Benefits/impacts of agroforestry practices (related to water quality, biodiversity, pollen and pesticide drift, biomass production, soil health, etc.);
- Extent, conditions and trends of agroforestry plantings nationwide;
- How to manage riparian forests for special forest products;
- Forest farming for personal or light commercial sale;
- Silvopasture systems;
- Living snow fences;
- Biofuel feedstock production;
- Use of agroforestry for waste water treatment and green infrastructure; and
- Use of powerline corridors for agroforestry.

Formalized agroforestry research and tech transfer networks could help to advance agroforestry.

Suggestions for formalized networks included:

- A National Agroforestry Advisory Council;
- A coalition of universities engaged in agroforestry research/outreach/education;
- A network of on-farm demonstration sites;
- A network of research sites;
- The establishment of a directory with agroforestry points of contact in each State; and
- A centralized source of information on tools for designing and implementing agroforestry practices.



Additionally, participants expressed interest in seeing a person/position established to coordinate partners and help maintain the energy and enthusiasm for agroforestry among participants at the meeting.

Agroforestry engagement by landowners, universities, natural resource professionals, watershed planning bodies and others, could be strengthened through enhanced communication. Many of these entities are engaged with topics that relate to potential agroforestry adoption, though often do not currently work on agroforestry. Observations included the need to ensure that each of these entities possess the knowledge, skills, contacts and awareness required to successfully engage in agroforestry research, technology transfer, outreach, and adoption. Several participants referred to the importance of coordination between State forestry and agriculture agencies in order to advance agroforestry.

Discussions on communications included whether the term “agroforestry” helps or hinders the mission; how to best communicate agroforestry messages to a diversity of landowners, from small to large holdings, with different objectives; and how to strengthen communications between the agriculture and forestry sectors, at local, state and federal levels. Interest in local landowner case studies and demonstration sites was often mentioned as was interest in a centralized source of information on agroforestry research, outreach and adoption.

Agroforestry is of particular interest to organizations/agencies working with and/or representing small farms, underserved communities, minority farmers and “new and beginning” farmers. Many farmers in these communities are interested in using creative approaches to diversifying production. Agroforestry is of interest in that it provides an opportunity to use multiple practices on the same piece of land – increasing productivity and income. Organizations working with these groups, such as Minority Landowner Magazine and Arcadia Farms, can help to connect producers with agroforestry information and tools. Minority Landowner Magazine, for example, can publish articles on agroforestry and Arcadia Farms could incorporate agroforestry into its demonstration farm.

Each of the five agroforestry practices can be designed to support pollinator health. Windbreaks and hedgerows can be designed to manage pesticide drift and to provide pollinator habitat. Riparian forest buffers can provide habitat for beneficial insects and produce shade for streams and rivers; ally cropping and multi-story cropping systems can provide pollinator forage. Silvopasture systems can be managed for diverse and abundant bloom. Forest farming systems can include pollinator forage in over-story trees and beneficial understory crops.

Summary/Conclusions

About 50 representatives from a wide range of entities convened to share experiences and insights on agroforestry research and adoption. Discussions and presentations indicated that agroforestry practices are being used to address a wide range of needs and issues across the United States, including the Pacific and Caribbean Islands. As pressures on agricultural resources increase, so do the potential benefits of agroforestry. The successful expansion of agroforestry for multiple benefits can be greatly strengthened through enhanced national and regional cooperation on research and technology transfer. The National Agroforestry Center will seek to build upon the energy and input provided at this meeting through various means, including follow up conversations with entities represented as well as outreach to additional groups and organizations.

For questions, please contact

Susan Stein, Director, National Agroforestry Center, (202) 360-9737, sstein@fs.fed.us;



Appendix 1:

Agroforestry Horizons Meeting April 27-28, 2016

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APPENDIX 2A: AGENDA

“Agroforestry Horizons: Experiences and Reflections”

A Meeting of the USDA National Agroforestry Center

April 27th and 28th

Location: International Programs Office, 1 Thomas Circle NW, Suite 400, Washington, D.C. USA 20005

DAY 1 – Agroforestry Accomplishments and Needs

- Participants learn about the USDA National Agroforestry Center’s goals, approaches, and achievements.
- Participants share perspectives on how agroforestry practices have, or can, meet priority goals of their respective organizations/agencies.

MORNING

- 8:30 **Welcome & Introductions** – *Toral Patel-Weynand, Sustainable Forest Mgmt. Research, USDA Forest Service*
- 9:00 **Agenda Review** - *Susan Stein, USDA National Agroforestry Center (NAC)*
- 9:15 **Introduction to Agroforestry and the National Agroforestry Center** – *Susan Stein, USDA NAC*
- 9:30 **National Agroforestry Center Overview: Goals, Approaches, Achievements in Agroforestry Research and Technology Transfer, and Future Advancement in Agroforestry** – *Panel Presentation*
- 10:15 **BREAK**
- 10:30 **Group Discussion:** Agroforestry application to goals and objectives of attendee organizations.
- 11:30 **LUNCH**

AFTERNOON

- 12:45 **Overview of panel presentations and discussion** – *Susan Stein, USDA NAC*
- 1:00 **Industry Panel**
Moderator: Toral Patel-Weynand, Sustainable Forest Mgmt. Research, USDA Forest Service
- Mike Uhl, Dow Chemical
 - Bev Paul, American Soybean Association
 - Mark Kopecky, Organic Valley
 - Allison Thompson, The Alliance for Sustainable Agriculture
- 2:00 **Wrap-Up and Group Discussion**
- 2:45 **BREAK**
- 3:00 **University Panel**
Moderator: Eric Norland, USDA National Institute for Food and Agriculture
- John Munsel, Virginia Tech
 - Oghenekome Onokpise, Florida A&M
 - Shibu Jose, University of Missouri
 - Andrew Perleberg, Washington State Extension
 - Mick O’Neill, New Mexico State University
- 4:15 **Wrap-Up and Group Discussion**
- 5:00 **Adjourn**



DAY 2 – Thursday, April 28th, 2016; “The Role of Partnerships in Achieving Shared Goals”

- Participants share perspectives on how agroforestry practices have met or can meet, priority goals of their respective organizations/agencies.
- Hear participant perspectives on current and potential partnerships for achieving mutual land management goals through agroforestry.

MORNING

8:30 **Recap Day 1 and Discuss Objectives for Day 2** – *Susan Stein, USDA NAC*

8:35 **Non-Governmental/Non-Profit Panel**

Moderator: Ariel Lugo, International Institute of Tropical Forestry, USDA Forest Service

- Chad Ellis, Noble Foundation
- Mace Vaughn, Xerces
- Ben Larson, National Wildlife Federation
- Victor Harris, Minority Landowner Magazine
- Anita Adalja, Arcadia Center for Sustainable Food & Agriculture

9:50 **Wrap-Up and Group Discussion**

10:20 **BREAK**

10:35 **Federal and State Government Panel**

Moderator: Eunice Padley, Natural Resources Conservation Service, USDA

- Bettina Ring, Virginia Department of Forestry
- Elise Golan, Office of the Chief Economist, USDA
- Karen Wirth, US Environmental Protection Agency
- Henry de Gooijer, Agriculture and Agri-Food Canada

11:35 **Wrap-Up and Group Discussion**

12:15 **LUNCH**

AFTERNOON

- Partnership strategies to advance agroforestry research and assistance

1:30 **Group Discussion**

2:00 **World Café:** Participant reflections and discussion on agroforestry needs and partnerships.

3:00 **Report Out**

3:15 **Wrap-up and Closing**

APPENDIX 2 B: Questions for speakers and small group discussions

I. Questions Provided to Speakers for Each Panel

Industry Panel

- What are your organization's goals and needs?
- How might agroforestry help you achieve your goals/meet your needs?
- How might NAC and/or universities or other agroforestry experts help you?

University Panel

- What kind of agroforestry research & TT work are you doing?
- What kind of agroforestry work/projects would you like to be doing in the future?
- What are your partnership needs for enabling/enhancing current and/or future projects?

Non-Government/Non-Profit Panel

- What are your organization's goals and needs?
- How might agroforestry help you achieve your goals/meet your needs?
- How might NAC and/or universities, other agroforestry experts help you?

Federal & State Government Panel

- What are your agency's goals and needs?
- How might agroforestry help you achieve your goals/meet your needs?
- What kind of resources does your agency have to facilitate agroforestry?
- How might NAC and/or universities or other agroforestry experts help you?

II. Small Group Discussion Questions

A. Wednesday Morning: Agroforestry application to goals and objectives of attendee organizations.

- What is it about agroforestry that is interesting to you and your organization?
- What questions do you have about agroforestry?
- Back-up questions, if needed: What about this meeting enticed you to participate? Do you see any barriers to the practice of agroforestry? If so, what are they?



B. Thursday Afternoon World Café: Participant reflections and discussion on agroforestry needs and partnerships.

- **First session:**
 - What will it take to further advance agroforestry?
 - What challenges might arise and how might they be met?

- **Second session:**
 - What contributions can our organizations make to an agroforestry partnership?
 - What would a successful agroforestry partnership look like?



APPENDIX 2C.

AGROFORESTRY HORIZONS MEETING SPEAKER BIOS

INDUSTRY PANEL

Mark Kopecky

Mark is the Soils Agronomist for Organic Valley and CROPP Cooperative (<http://www.organicvalley.coop/>). Mark worked for over 24 years for the University of Wisconsin-Extension as an Agriculture and Natural Resources Agent and has served in his current position since 2012. He helps farmers understand ways to improve soil fertility, pasture management, and other crop and soil management skills. He is a member of the Association for Temperate Agroforestry and is interested in helping organic livestock farmers understand the value of agroforestry, silvopasture systems, and permaculture. He and his family have operated a small grass based dairy farm in northern Wisconsin for over 20 years and have been members of Organic Valley since 2007.

Beverly Paul

Beverly Paul has represented the American Soybean Association in Washington for 13 years. Her practice areas include research, aquaculture, nutrition, crop insurance, appropriations, sustainability, and conservation. Bev previously worked as Legislative Assistant for agriculture and trade for United States Senators Bob Kerrey and Ben Nelson, both of Nebraska. During her time on Capitol Hill, she was a primary author of the Agricultural Risk Protection Act, an \$8.2 billion crop insurance reform bill which was the most significant agricultural legislation of the 106th Congress and passed the Senate by a vote of 91-4. She holds degrees from the University of Nebraska and the LBJ School of Public Affairs at the University of Texas.

Allison Thomson

Allison Thomson is the Science & Research Director at Field to Market: The Alliance for Sustainable Agriculture where she works to connect the scientific community to efforts to advance metrics, tools, and methods for measuring sustainable agriculture using the best available science. Following 15 years of interdisciplinary research on agricultural systems interactions with energy systems and the environment, she brings this experience to the implementation of sustainable agriculture at scale in the US. Allison holds a BA from Carleton College and a Masters of Environmental Management from Duke University.

Mike Uhl

Mike is an Associate EH&S Environmental Director for Dow Chemical working in their Environmental Technology Center. He has over 30 years' experience in all aspects of the Environmental Management world, including Technology and Technology Implementation, Regulatory, Permitting, Sustainability, and Operations. He has worked in both the public and private sectors.

Mike has a Bachelor's of Science Degree in Biology from Marshall University in Huntington, West Virginia, and a Master's Degree in Environmental Engineering, with an emphasis in Environmental Management and Ecology, from Duke University in Durham, North Carolina.

UNIVERSITY PANEL

Shibu Jose

Shibu Jose is the Garrett Endowed Chair Professor and Director of the Center for Agroforestry at the University of Missouri. Prior to this, he was Professor of Forest Ecology at the University of Florida. He received his B.S. in India and M.S. and Ph.D. from Purdue University. Current research efforts focus on ecosystem services of agroforestry and ecological sustainability of biomass and biofuel production systems.

John Munsell

John Munsell is an Associate Professor and Forest Management Extension Specialist in the Department of Forest Resources and Environmental Conservation at Virginia Tech. His areas of work include private forest and farm stewardship, agroforestry and whole property planning, bioenergy and family forest sustainability. He teaches agroforestry and human dimensions of natural resources. John also serves as the president of the Association for Temperate Agroforestry and is an associate editor for the journal Agroforestry Systems.



Mick O'Neill

Dr. O'Neill, Professor of Agronomy, New Mexico State University, has worked for over 30 years in the national and international agronomic/agroforestry research and development arena. Dr. O'Neill's current work focuses on identifying varieties of agronomic crops and hybrid poplar trees best adapted to the dry, harsh growing conditions of the semi-arid Four Corners region. He is currently investigating opportunities for the utilization of biochar as a soil amendment and continues to be involved with international agroforestry, especially in Africa.

Oghenekome U. Onokpise

Dr. Oghenekome U. Onokpise is a Professor, Distinguished Researcher, and former Associate Dean of the College of Agriculture and Food Sciences, Florida A&M University where he has been teaching, conducting research and outreach activities for more than twenty nine years. He obtained his Ph.D. in Forest Biology and Wood Science from Iowa State University, his M.S. in Plant Breeding and Genetics, from the University of Guelph, Guelph, Canada, and his B.Sc. in General Agriculture from the University of Ife in Nigeria. His postdoctoral research work was completed at Ohio State University.

Andrew B. Perleberg

Andy is extension forester and associate professor at Washington State University. He provides organized educational opportunities to forest owners and natural resource professionals throughout Washington State. He leads the Extension Forestry Program for WSU, chairs the education committee for the Washington Farm Forestry Association and coordinates the Washington Tree Farm Program for eastern Washington. Prior to WSU, Andy worked in industry and government planting trees, cruising timber, fighting fire, and even counting fish.

NGO/NON-PROFIT PANEL

Anita Adalja

Anita Adalja is the Director of Farmer Training at Arcadia Center for Sustainable Food and Agriculture, a non-profit committed to creating a more sustainable food system in the DC metro area. Anita initially became interested in sustainable agriculture and food equity/access while working as a social worker in Brooklyn, NY. She co-founded Seeds to Feed rooftop farm at a supportive housing residence for formerly homeless, mentally ill adults. From there, she spent a growing season at the Center for Agroecology and Sustainable Food Systems (CASFS) in Santa Cruz, CA, where she earned a Certificate in Ecological Horticulture. Anita was recently honored as a 2015 White House Champion of Change in Climate Smart Agriculture.

Chad R. Ellis

Before coming to the Noble Foundation in 2012, Ellis was a Regional Grazing Lands Conservation Initiative (GLCI) Director for 15 central states at the Central National Technology Support Center (CNTSC). Prior to that, Ellis worked with the Natural Resources Conservation Service as a Rangeland Management Specialist in San Angelo, TX. He has also worked in the Chihuahuan Desert and the subtropics in Florida. Chad currently manages the Center for Excellence in Land Stewardship at the Nobel Foundation, advancing collaborations to provide innovative solutions to common land stewardship priorities. Chad is also Chairman of the National Grazing Lands Coalition.

Victor L. Harris

Victor Harris has over 30 years of experience in forest management. He was an area forester with the Virginia Department of Forestry, becoming the first Black forester in the history of the agency, then joined the North Carolina Division of Forest Resources as head of engineering services, and was later promoted to assistant state forester for administration. Harris relaunched Cierra Publishing Company in 2005 and began publishing *Minority Landowner Magazine*, which chronicles the challenges and successes of minority farmers, ranchers and forest landowners across the country and provides information to improve productivity and maintain ownership of the land. Victor completed the forestry program at Tuskegee Institute and earned his Bachelor of Science degree in forestry at North Carolina State University.

Ben Larson

Ben Larson is the Forestry and Bioenergy Program Manager at the National Wildlife Federation (NWF). NWF's SE Forestry program focuses on longleaf pine restoration. Since 2012, Ben has been planting riparian forest buffers with a watershed organization north of his home in Baltimore (Prettyboy Watershed Alliance). Prior to NWF, Ben



worked as a biomass consultant and was a renewable energy advocate with the Union of Concerned Scientists. After college, Ben farmed for ten years in northern and western MN. Ben graduate with Highest Honors in Environmental Studies from Oberlin and has a MS in Forestry from Yale.

Mace Vaughan

Mace Vaughan serves as The Xerces Society's Pollinator Conservation Program Co-Director, and as a partner biologist and Pollinator Conservation Specialist with the USDA NRCS West National Technology Support Center in Oregon. In his tenure at the Xerces Society, the pollinator program has grown from a small pilot project to a \$1,800,000 a year program, with fourteen pollinator conservation specialists and several consultants across the U.S. Mace has written numerous articles on the conservation of beneficial insects, and is co-author of several books. He was a lecturer on honey bee biology and beekeeping at Cornell University, from which he holds Degrees in Entomology, Natural Resource Management, and Teaching.

FEDERAL & STATE GOVERNMENT PANEL

Elise H. Golan

Elise H. Golan is the Director for Sustainable Development at the U.S. Department of Agriculture, where she provides leadership in planning, coordinating, and analyzing the Department's policies and programs related to sustainable agriculture. Previously, Elise served as the Associate Director of the Food Economics Division at the Economic Research Service, USDA and did consulting work for the World Bank, the International Labor Organization, and the California Department of Finance, among others. Elise served as a senior staff economist on the President's Council of Economic Advisers from 1998-99. She received her Ph.D. in agricultural economics from the University of California at Berkeley.

Henry de Gooijer

Henry de Gooijer has worked with Agriculture and Agri-Food Canada (AAFC) in various roles since 2006, including Agroforestry Development Manager, Acting Manager of the Agroforestry Development Centre at Indian Head, and Acting Associate Director of Research and Development for Southern Saskatchewan. His current position is Coordinating Biologist for Research Farms in Saskatchewan which includes Agroforestry research and development programs, and agro-ecosystem productivity and health. Henry is presently providing technical design and review of the Agroforestry component of Canada's Agricultural Greenhouse Gases Program (AGGP).

Bettina Ring

A Virginia native, Bettina Ring was appointed by Governor Terry McAuliffe to serve as the 7th State Forester in this Commonwealth's history, leading the Virginia Department of Forestry into its second century of serving and protecting the citizens of the Commonwealth. Bettina began her career with the VDOF and has held a number of leadership positions within the agency, including deputy state forester. Additional positions have included Senior Vice President of family forests at American Forest Foundation; Executive Director of the Bay Area Open Space Council in San Francisco and Executive Director of the Colorado Coalition of Land Trusts. Bettina holds a BS Degree in Forestry and Wildlife from Virginia Tech and a Masters of Business Administration from James Madison University.

Karen Wirth

Karen Wirth has been an Environmental Protection Specialist with the US EPA's Office of Water since 1999. Currently, she is serving as the Team Leader for the Source Water Protection team in the Office of Ground Water & Drinking Water (www.epa.gov/sourcewaterprotection) where she works on implementing the Safe Drinking Water Act. Her primary focus is protecting sources of drinking water – the lakes, rivers, streams and aquifers that are tapped for drinking purposes. Karen is also the US EPA's representative to the National Source Water Collaborative (www.sourcewatercollaborative.org) 26 federal, state, and local partners, working together to further the goals of protecting sources of drinking water.