GACSA ACTION GROUPS

GACSA Annual Forum, May 4, 2023

Action Group Co-Leads:
Ernie Shea, Solutions from the Land & North American CSA Alliance
Allison Chatchyan, Cornell University
Rosa Mosquera, University de Santiago de Compostela

Agenda in Brief

14:30  Opening comments/Welcome/Objectives: Ernie Shea
14:40  Case Study Presentations:
  - Knowledge Action Group:
    - University Initiative: CSA and Soil Health Programs in NY: Dr. Allison Chatchyan,
      Cornell
    - Business Initiative: 4R Nutrient Stewardship Program in Africa: Dr. Shamiie Zingore,
      African Plant Nutrition Institute
    - NGO Initiative: Armenian Cover Crop & Soil Health Initiative in Armenia: Artak
      Khachatryan
      Cosby, USDA
    - Enabling Action Group: Dr. Rosa Mosquera, University de Santiago de Compostela, Spain
15:20  Breakout Room Sessions:
  - What do you need to scale up the adoption of CSA systems and practices like the ones we
    just heard about?
  - How can GACSA help facilitate/support these efforts in your country/organization?
15:45  Reports from Breakout Groups (2 min each)
16:00  Close and Challenge to GACSA Members: Ernie Shea

GACSA ACTION GROUPS OVERVIEW: Ernie Shea

The Knowledge Action Group (KAG) works to increase and promote knowledge, research, and development into technologies, practices, and policy approaches for CSA. In particular, KAG functions are:

- Increasing and promoting knowledge, research and development into technologies, practices, and policy approaches for climate-smart agriculture; practices and technology sharing and cooperation; improving communication and information sharing among participants; and outreach, extension, and technical assistance.

The Enabling Environment Action Group (EEAG) works to identify the technical, policy and investment conditions needed to scale up Climate-Smart Agriculture (CSA) approaches, and to promote the harmonization of community-based national agriculture, climate change and food system policies.

- In particular, the EEAG functions are: integrating climate-smart agriculture into policy, strategies and planning at regional, national, and local levels and across landscapes.

The Investment Action Group (IAG) functions are:

- Improving the effectiveness of public and private investments that support the three pillars of climate-smart agriculture
Climate Smart Farming
Applied Research, Resiliency, and Soil Health Initiatives
Allison Chatrchyan, Deborah Aller, Jenna Walczak, Emily Lindback
Cornell University & Cornell Cooperative Extension

climatesmartfarming.org
newyorksoilhealth.org

Climate Impacts: Extreme Precipitation

“A normal season does not seem like it happens any more. It’s either really dry, or really wet. It seems like when we get rain, it’s apocalyptic...We got 5 inches of rain in about 1.5 hours, and I had a lot of soil loss...I see the impact for generations.”

– Thor Oechsner, Oechsner Farms, Newfield, NY

http://climatesmartfarming.org/videos/oechsner-farm/

Cornell Climate Smart Farming Program

• Working toward resilient and sustainable agricultural, ecological, and social systems in the face of a rapidly changing climate
• Launched Cornell Climate Smart Farming (CSF) Program and CSF Extension Team in 2015

climatesmartfarming.org
Cornell Climate Smart Farming Website

How is the changing climate affecting your farm?

Applied Research, Decision Tools, Resources, Extension & Education, Partnerships
www.climatesmartfarming.org

CSF Extension Team:
- Working with Farmers in NYS
- Expertise in agriculture resiliency & stewardship, dairy management, field crops, fruit crops, berries, and grapes, soil health, vegetables, & viticulture

Harvest NY Ag Climate Resiliency Team
Two extension agents with 100% time committed to working on climate change mitigation, adaptation, and resiliency in New York State agriculture

TOPICS
- Improving farm resilience
- Preparing for extreme weather events
- Reducing GHG emissions
- Sequestering carbon
- Funding, grants, & incentives

EDUCATIONAL METHODS
- Presentations
- Factsheets & articles
- Farm visits
- Webinars & field days

http://climatesmartfarming.org/climate-smart-farming-education/ag-ext-resilience/
CSF Decision Tools

- Data (Northeast Regional Climate Center at Cornell (NOAA):
  - 4X4 km gridded climate data
  - NWS forecasts
  - Agricultural models

- Farmer Input:
  - Location: Any farm location in NE, WV to ME, save multiple locations
  - Planting Date, Crop
  - Choose Season to Date, Last Season, Seasonal Outlook
  - Climate Change Context
  - Info: Meta Data behind the tools

CSF Growing Degree Day Calculator

Cumulative Growing Degree Days (Base 50)

2022 Season Outlook

Climate Change and Agriculture Impacts Assessment

https://nysclimateimpacts.org/
New York Soil Health and Resiliency Program
Supports Healthy Food, Profitable Farms, and a Better Environment

- Advancing soil health management for sustainable agriculture and meeting the state’s climate mitigation and water quality goals
- Field research on cover cropping, tillage, and carbon management, as well as new techniques for assessing soil health
- Coordination of outreach activities and training events across the state that support knowledge-based programs and services

https://www.newyorksoilhealth.org/

Importance of Soil Health
Soils sustain terrestrial life and are the foundation of our food system

Soil health: well-being and ability to function...

NYS Soil Health and Climate Resiliency Act (2021)

- The Act helps farmers mitigate and adapt to the impacts of climate change, by applying sustainable soil and crop management strategies that improve farm resilience and benefit the environment.
- Codifies an existing program that aims to encourage, assist and train the state’s farmers in improving soil through better practices.

“Healthy soil produces healthier foods, mitigates climate change through carbon sequestration and protects our natural resources.” – Donna Lupardo (Assembly member)
Factors that impact Soil Health

- **Inherent properties**
  - Parent material (minerals)
  - Climate, biology, relief, and time
  - No control

- **Cropping System**
  - Limited control

- **Management**
  - Much control

Comprehensive Assessment of Soil Health

- Soil health laboratory launched in 2006
- CASH test captures all important soil processes (physical, biological, chemical)
- Focus on
  - Practical soil health testing services
  - Interprets measured values
  - Identifies soil constraints
  - Guidance for management
- 32,000+ samples processed, 20,000 over the past five years

Status of Soil Health: New York State and Long Island

- First statewide and regional characterization reports
- Document current status of soil health on farmland statewide and in Suffolk County, Long Island
- Recognize distinct production environments

Amsili et al., 2020
Aller et al., 2022
Thank you!

Allison Chatrchyan, amc256@cornell.edu
Deborah Aller, da352@cornell.edu
Urgent need to increase crop productivity and reverse land degradation in Africa

4R Nutrient Stewardship Framework

- Relevant to each of the six actions of responsible plant nutrition, with a critical role for integrated farm management.
- Connected to performance outcomes.
- Global recognition.
- Site-specific application.

DELIVERING 4R SOLUTIONS

PHASE 1: 2019 - 2024

- 4R Nutrient Stewardship knowledge development and dissemination
- Improve agricultural productivity and farm income
- Incorporate important gender and environmental resilience strategies

Funded by Global Affairs Canada to improve the livelihoods of 80,000 smallholder farmers.

PHASE 2: 2024 - 2029

IMPLEMENTING PARTNERS

Delivering 4R Solutions

- Identification of crop production constraints
- Development of site-specific 4R-based recommendation
- Dissemination & scaling of 4R solutions

Malawi, Ivory Coast, Tanzania

Ethiopia

Ghana

Senegal
Knowledge dissemination and capacity building

Digital training program

Extension resources

https://www.apni.net/e-learning/

Thank you!

Shamie Zingore
Director for Research, APNI
s.zingore@apni.net

Climate-Smart Agriculture Demonstration Project

SCALING UP COVER CROP & SOIL HEALTH PRACTICES IN ARMENIA

ARTAK KHACHATRYAN
CSA in Armenia:
Background & Context

- One of the oldest countries in the world
- Agriculture critical to the economy, 30% of Armenians who work in the agriculture sector
- Extremely vulnerable to climate change
- Extreme heat events (above 40DC) are happening almost every year and lasting 10-15 days in the fertile Ararat Valley where most vegetables and apricots are grown.
- Small scale farmers face increasing drought and lack of adequate water, compounding other difficult economic and social challenges.
- There is a need for applied research, outreach & demonstration projects to increase adoption of CSA practices

Demonstration Site #1, Ararat: Spring, 2021

Demonstration Site #1, Ararat: Spring, 2023
Demonstration Site #2, Areguni: Spring 2023

Planted Varieties of Cover Crops

- Perennial Ryegrass:
  - Życica trwała (MAJA) 20%
- Italian Ryegrass:
  - Życica wielokwiatowa (TRUTETRA) 15%
- Festuca:
  - Kostrzewa czerwona (REDA) 20%
- Lolium multiflorum:
  - Lam. ssp. Alternativum (KOGA) 35%

Extension and Educational Outreach
Thank you!
Artak Khachatryan, Blejan NGO
Akhachatryan2@gmail.com

CSA Initiatives, Partnerships & Policies led by the
University de Santiago de Compostela

GACSA Enabling Environment
Working Group

Enabling Environment Collaborations

Europe-ASIA: FOREST4EU (waiting for approval) with China

Europe: EFI, SCAR-AKIS, SCAR-Agroecology

Europe-South-AMERICA: FONTAGRO (waiting for approval)

International:
* FAO (Global agroforestry capacity needs assessment)
* Circular Bioeconomy Alliance
* UNDERTREES
* UNFCCC NWP (Nairobi Work programme)
Publications

Reviews


Publications

Land management


Soil carbon stocks


Publications

Policies


Business environment and carbon farming:

Participative research

Bioeconomy

Journal Special Issues: Potential for Collaboration

- **2022**: María Rosa Mosquera-Losada is editor of the Research Topic of “Can the Trees Save the Crops? Predicting the Services Provided by Traditional and Novel Agroforests in Changing Mediterranean Landscapes”? in Frontiers in Ecology and evolution

Priority Activities

- Article “Soil organic carbon estimations”
- Foster collaborations with the previous networks through available funding: AF4EU
- Agroecology & Agroforestry flagship with the GRA
- **OUTCOMES:** Provide a list of locally adapted best practices linked to different regions of the world about innovative solutions linked to reaching carbon neutrality through the use of sustainable practices at agroecosystem, supply chain and policy scale (research, advisory, farmer support funding) associated with agroforestry and agroecology in the next three years, in selected countries all over the world.

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Thank you!
Rosa Mosquera Losada
mrosa.mosquera.losada@usc.es
Breakout Groups

- What do you need to scale up the adoption of CSA systems and practices like the ones we just heard about?
- How can GACSA help facilitate/support these efforts in your country/organization?

Report Out: Breakout Groups 1 - 6

Wrap Up: Challenge to GACSA Members

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