Agroecosystem Living Labs: An approach to accelerate the development and adoption of beneficial management practices

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Meeting of G20 Agriculture Chief Scientists
San Salvador de Jujuy, Argentina
Climate Change is Threatening Agriculture

(a) RCP2.6
Change in average surface temperature (1986–2005 to 2081–2100)

(b) RCP8.5
Change in average precipitation (1986–2005 to 2081–2100)

Climate Change is Threatening Agriculture

Summary of projected changes in crop yields due to climate change over the 21st century

Global Population is Expected to Increase

Population of the world: estimates, 1950-2015, and medium-variant projection with 95 percent prediction intervals, 2015-2100

Source: United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects – 2017 Revision, 2017
The World Has Taken Notice

United Nations
Convention to Combat Desertification

Sustainable Development Goals

Life in harmony, into the future
COP10/MOP5 AICHI-NAGOYA, JAPAN 2010

COP21 • CMP11
PARIS 2015
UN CLIMATE CHANGE CONFERENCE
A New Approach is Required

- The challenge: How to provide a growing population with sufficient food, fiber and fuel (FFF) without using unsustainable agricultural practices?

- How to significantly accelerate both the development and adoption of beneficial management practices (BMPs)?
Agroecosystem Living Labs (ALL)

IMPROVED AGRIENVIRONMENTAL PERFORMANCE AND SUSTAINABLE INTENSIFICATION

Feedback loops

Adoption and implementation

Knowledge and Technology transfer activities

Mitigation technologies and BMPs development

INNOVATION

Multi-Thematic National (Multi-Site) Analyses

National (Multi-Site) Thematic Analyses

Data Warehouse
Geomatics / ED / Data Structure / Big Data / Modelling

Standardized Methodology

Site specific science network

BMP(s) / EGS Bundle

REGION A - PRIORITY ISSUES
Soil Biodiversity
Air Quality
Pollinators

BMP(s) / EGS Bundle

REGION X - PRIORITY ISSUES
Water Quality
Pollinators
IPM
Core principles

- Place-based activities in a working landscape
- Co-development with end users
- Interdisciplinary, systems approach
- Accelerated adoption

 Desired Outcomes

- Greater resilience in agricultural landscapes
- Improved agri-environmental performance, and
- Attainment of sustainable intensification
• Various initiatives in G20 countries underway using core principles to a varying degree

<table>
<thead>
<tr>
<th>Country</th>
<th>Example</th>
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<tbody>
<tr>
<td>Brazil</td>
<td>Integrated crop-livestock-forest systems</td>
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<tr>
<td>Canada</td>
<td>Network of sites in various agroecosystems under development</td>
</tr>
<tr>
<td>France</td>
<td>Laboratoire d’innovation territorial Ouest Territoire d’Élevage</td>
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<tr>
<td>United Kingdom</td>
<td>North Wyke Farm Platform</td>
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<tr>
<td>United States</td>
<td>Long-Term Agroecosystem Research (LTAR) Network</td>
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Canada’s Approach

- We are in the process of establishing a coordinated, long-term, nation-wide network of sites where producers, companies, non-profit groups, research organizations and governmental institutions collaborate to develop, assess and implement innovative solutions that are rapidly adopted to address persistent agri-environmental issues.
Key Areas of Focus in Moving Forward

• Co-development approaches with end-users
• Better integration of natural and social sciences
• Recruitment and development of human resources with key skills
• Data management and standardization
• Evaluation of the benefits of ALL versus the potential costs of status quo
The Opportunity for MACS

• Raise global awareness of need for ALL to accelerate progress in attaining sustainable intensification

• Work together in areas of joint interest bilaterally, regionally, globally

• Learn from each other by sharing experiences
Possible Next steps

• Discussion session at MACS 2018
• Use MACS Communique to emphasize need for accelerating the adoption of BMPs via the core principles of ALL
• Pursue further cooperation
• In-depth discussion at MACS 2019 on country experiences
• Workshops and side events to promote the approach
Thank you!
¡Gracias!