

INTEGRATING ADAPTATION AND MITIGATION FARMING PRACTICES IN SUSTAINABLE AGRICULTURE

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WORKSHOP: CARBON AND WATER MANAGEMENT IN
HORTICULTURAL EXPORTS FROM EAST AFRICA

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RAINFOREST ALLIANCE

An international, nonprofit environmental and sustainable development organization founded in 1987

We work to conserve biodiversity and ensure sustainable livelihoods by transforming...

Land use practices



Business practices

Consumer behavior



CORE PROGRAMS



Sustainable Agriculture

- More than 1,100,000 Ha certified in 32 countries
- 250,000+ farms (**90%** small-holders)
- Certified 2.5% world's coffee; 3.5% world's tea; 12% world's bananas; cocoa, fruits and flowers



Sustainable Forestry

- World's largest certifier of forest lands: 64M ha certified in 66 countries
- 3,300 forestry operations
- Accredited by the Forest Stewardship Council

Sustainable Tourism

- Working to improve the sustainability of tourism industry



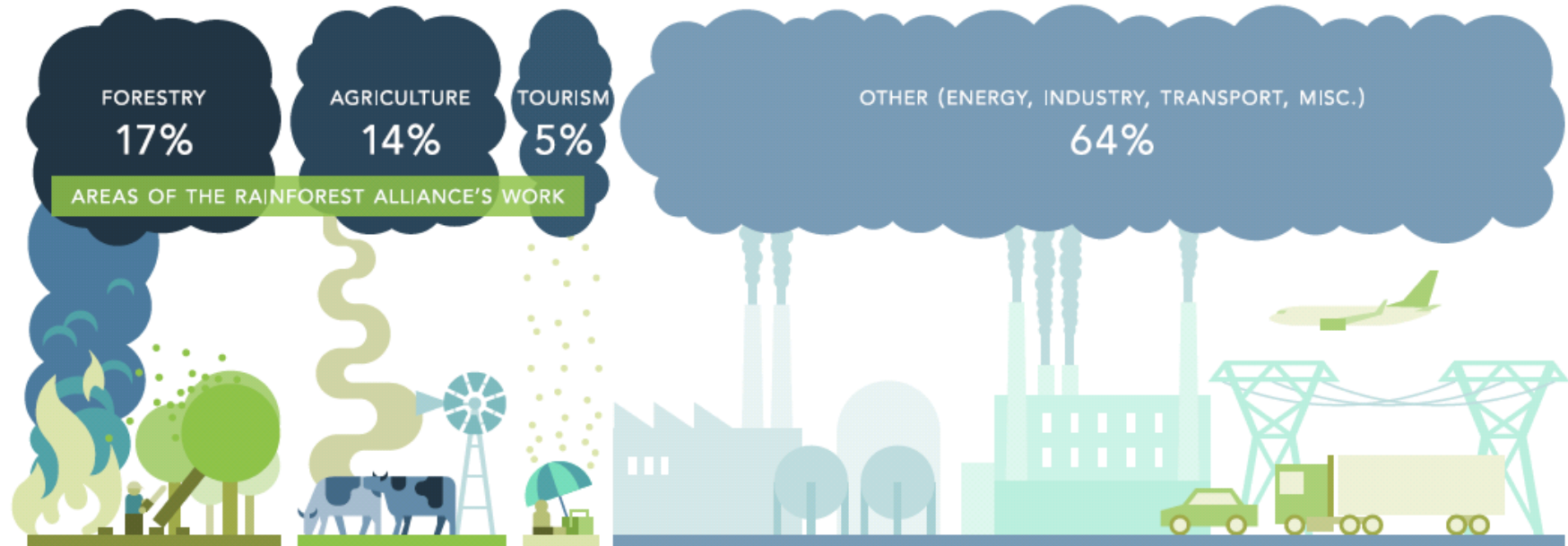
Climate

- Verifying forest carbon projects and analyzing methodologies for agricultural carbon.

RAINFOREST ALLIANCE PROGRAMS



SOURCES OF GREENHOUSE GAS EMISSIONS



SOURCE: PEW CENTER ON GLOBAL CLIMATE CHANGE

POTENTIAL TO LEVERAGE LARGE IMPACT



Sustainable
Agriculture
Network



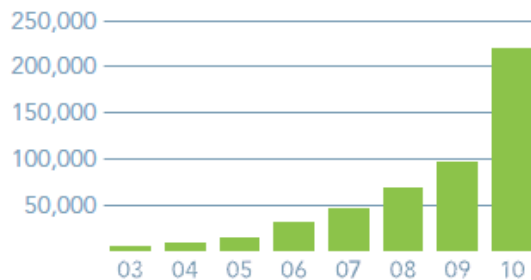
MARKET SHARE

COFFEE

VOLUME CERTIFIED



CERTIFIED PRODUCTION (METRIC TONS)



Benefits in
Climate Change

Mitigation

Adaptation

THREE MAIN APPROACHES TO CLIMATE-FRIENDLY

I. Rainforest Alliance Certified™

- Certification to the SAN standard
- Some current practices help farms mitigate climate change and adapt to its impact



THE SAN STANDARD

- 1 Social and Environmental Management System
- 2 Ecosystem Conservation
- 3 Wildlife Protection
- 4 Water Conservation
- 5 Fair Treatment and Good Working Conditions for Workers
- 6 Occupational Health and Safety
- 7 Community Relations
- 8 Integrated Crop Management
- 9 Soil Management and Conservation
- 10 Integrated Waste Management



STANDARD

- 10 Principles
- 100 criteria
- 16 Critical Criteria

REQUIREMENT

Score

- 100% on critical
- 80% overall score
- 50% minimum in each principle

EXAMPLES OF HOW CERTIFIED FARMS ADAPT TO AND MITIGATE CLIMATE CHANGE

Farmers who are certified...

- **Do not convert forest to cropland**, thus reducing emissions from deforestation
- **Restore natural ecosystems and plant shade trees**, thus capturing CO₂ from the atmosphere, providing shade to locally reduce temperatures and stabilising slopes/soil.
- **Reduce waste**, thus reducing emissions from waste and emissions in producing the product



THREE MAIN APPROACHES TO CLIMATE-FRIENDLY

1. Rainforest Alliance Certified™

- Some current practices help farms mitigate climate change and adapt to its impact

2. Rainforest Alliance Certified Climate Plus -

New criteria to demonstrate climate-friendly practices (adaptation and mitigation)

- Development of the SAN 'Climate Module' in several countries and with different players:
 - Guatemala (ANACAFE, Efico, Efico Foundation, U de Valle)
 - Ghana, Kenya, Tanzania, Indonesia, and Brazil (Rockefeller Foundation)
 - El Salvador (Caribou Coffee)



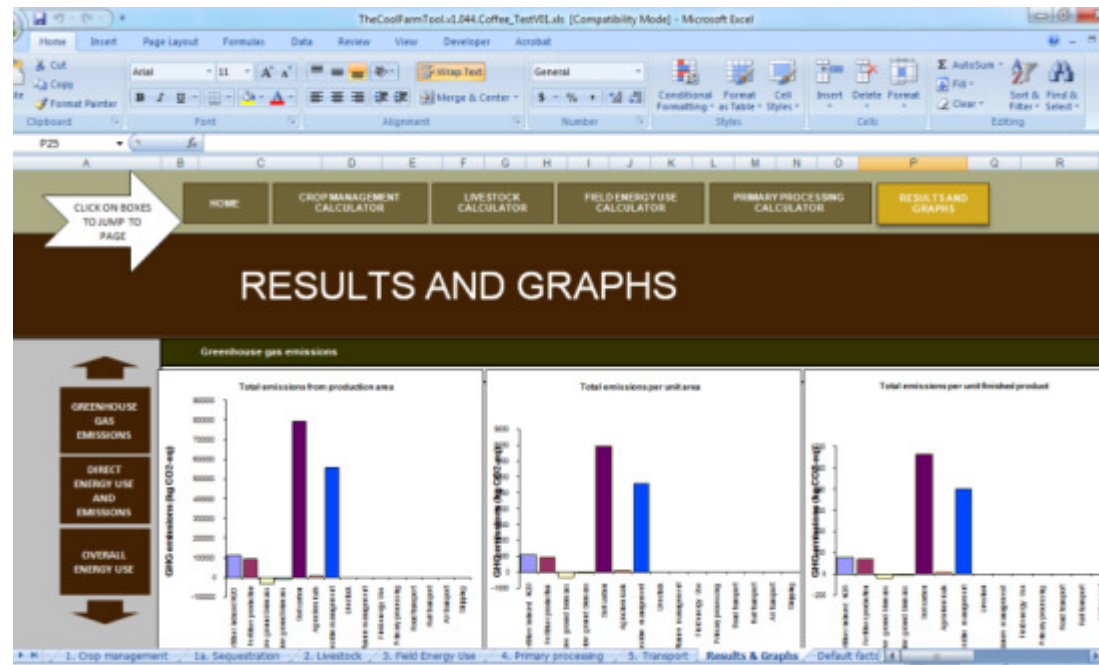
THE SAN CLIMATE MODULE



IDENTIFICATION OF MITIGATION PRACTICES

Record data about main **GHG** emissions sources related to:

- nitrogen fertilizer input,
- pesticide input
- fossil fuel use for machinery
- methane generated in waste and wastewater treatment and animal husbandry



“[Use of The Cool Farm Tool](#)”

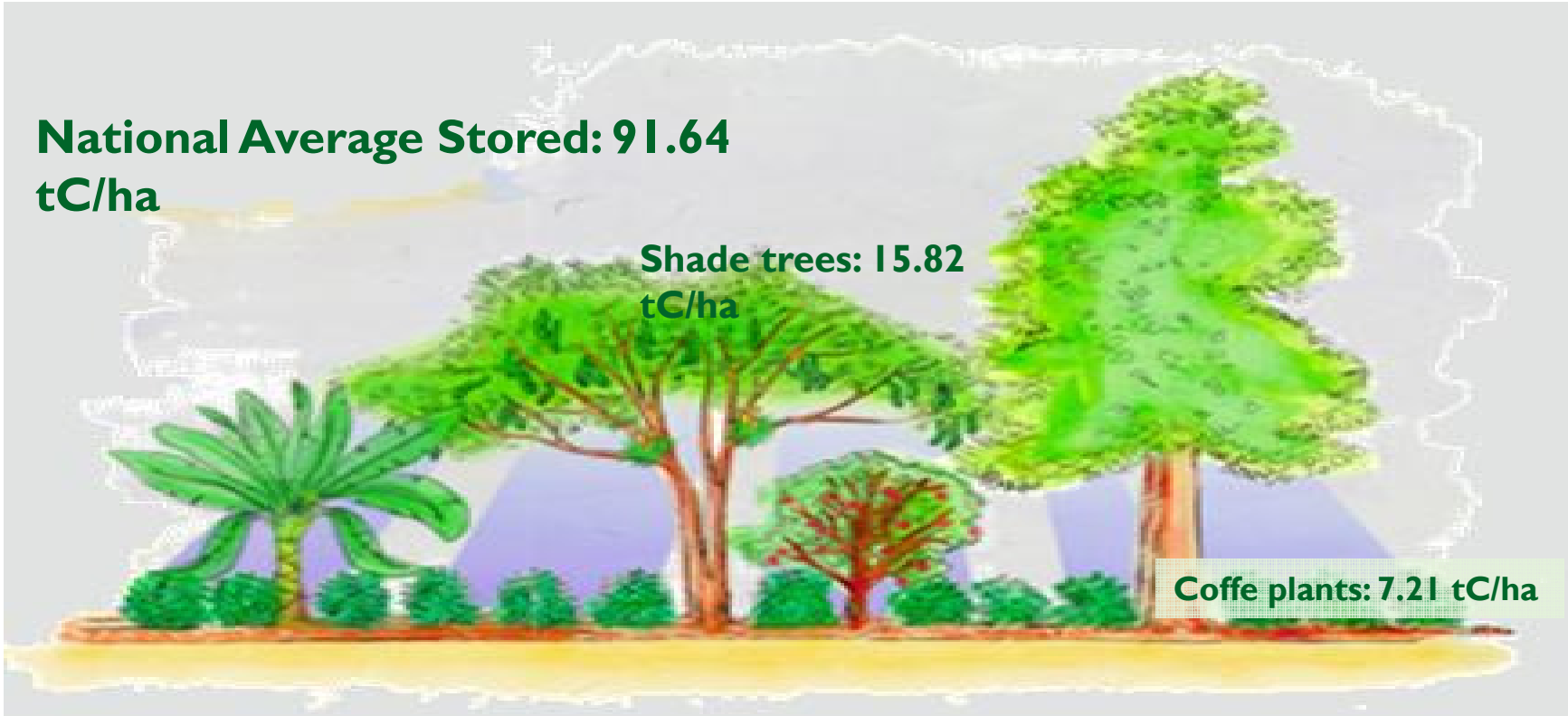


FROM DATA TO STRATEGIES

Most promising scenarios within this farming system to reduce net on-farm emissions are:

- ✓ **Efficient fertilizer use** and adoption of composting practices
- ✓ Reduction on crop residue emissions by **composting** and residue incorporation
- ✓ **Increasing carbon stocks** in soils and biomass by using reduced tillage, increased residue, compost and manure incorporation, agro-forestry and avoiding land-use change

SHADE COFFEE CARBON STOCKS



Soil: 60.79 tC/ha

Source: Anacafe, 1998-2010. Research Environmental Services Coffee in Guatemala

MITIGATION PRACTICES

Maintain or increase soil carbon stocks by implementing management practices, such as crop residue recycling, permanent cover crops reducing tillage, and optimizing the soil's water retention and infiltration

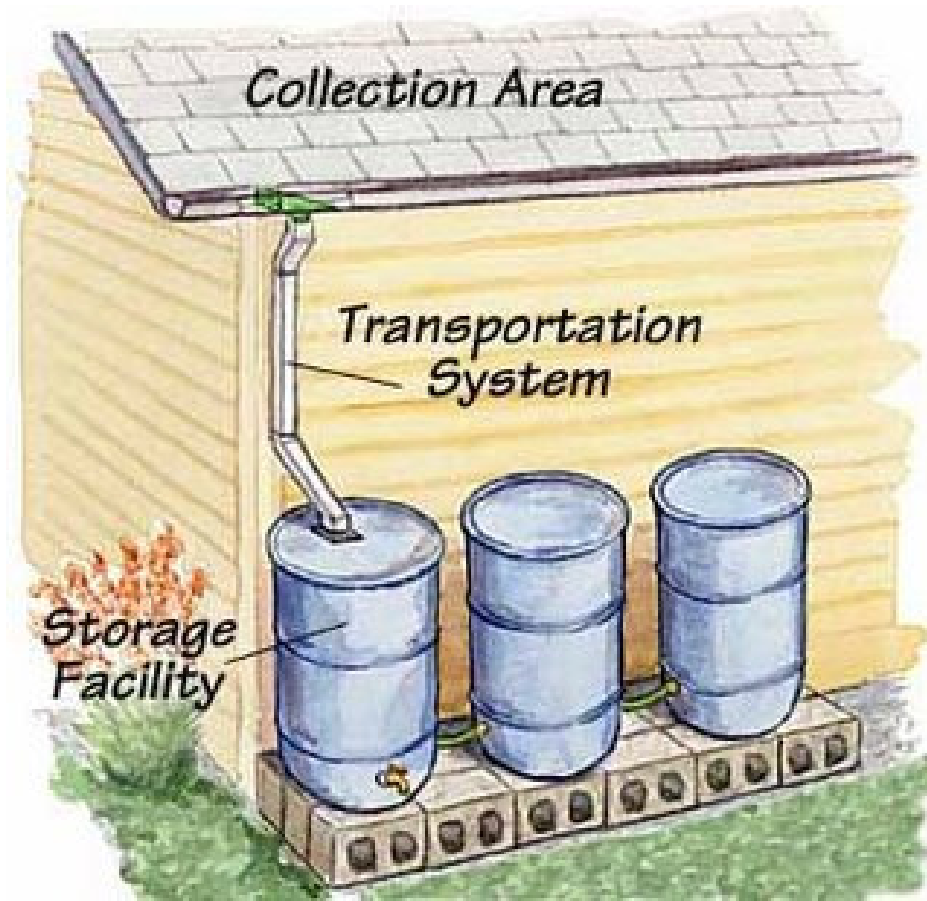


MITIGATION PRACTICES

Implement organic residue management practices that reduce GHG emissions, such as production of organic fertilizer or biomass energy generation.



ADAPTATION PRACTICES



Adapt to water scarcity by practices such as harvesting and storing rainwater and selecting drought tolerant crop varieties

ADAPTATION PRACTICES



Consider farmers have generations of knowledge about **traditional farming practices**

ADAPTATION AND MITIGATION PRACTICES (I)

Using **solar drying** for coffee & cocoa, instead of mechanized processes (reduces the size of the emissions source)



Implementation of an **emergency preparedness and response plan** for extreme weather events to prevent damage to people, animals and property

Inclusion of **climate change adaptation and mitigation practices** in training and education programs



ADAPTATION AND MITIGATION PRACTICES (II)

Increasing on farm **carbon stocks**



Estimating on farm **carbon biomass**

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3. Carbon Credits from Rainforest Alliance Certified Farms

- Nicaragua, México (IFC)



CARBON CREDITS FROM COFFEE FARMS

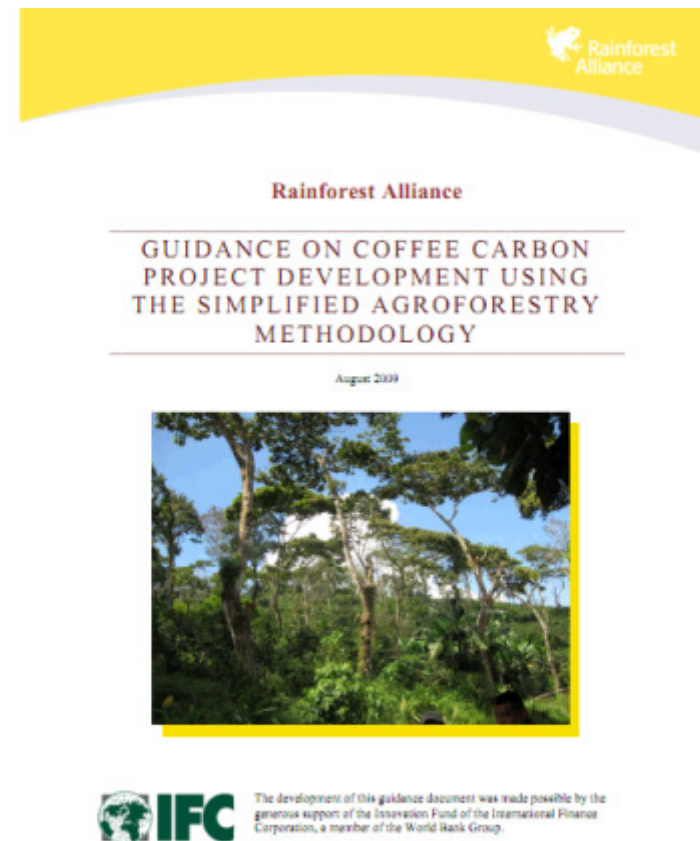
Creating and Testing a Carbon Monitoring Methodology for Coffee Farms

...from 2007-2009

..with IFC and ECOM

...in Mexico and Nicaragua

- ✓ Develop a credible methodology for measuring and verifying carbon stored on coffee farms.
- ✓ Piloted and developed guidance for project development
- ✓ Now with Pronatura Sur, AMSA and UNECAFE , building local capacity in technicians to develop project expected to sequester 100k tonnes CO2 over 25 years.



http://www.rainforest-alliance.org/sites/default/files/site-documents/climate/documents/coffee_carbon_guidance.pdf

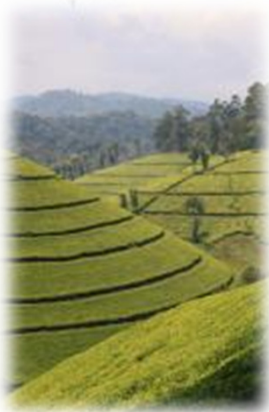
BENEFITS TO PRODUCERS

- Increase **access** to “green commodities” markets and climate responsible businesses
- Potential for added product **value** through differentiation
- Demonstrate that different mitigation and adaptation practices can be **integrated** into dynamic tropical agricultural landscapes;
- Provide **guidance** to manage co-benefits within the value chain;
- Integrate **PES** for associated co-benefits of watershed management, biodiversity protection, soil protection, water harvesting and bio-nutrient cycles;
- Reduced operating **costs** through optimizing water, fertilizers and energy use

EXPANDING WITH OTHER CROPS AND COUNTRIES

Work has been going on in other crops and countries too....

SAN has developed new standard for sustainable cattle productions whereby carbon footprint is included as part of farm management

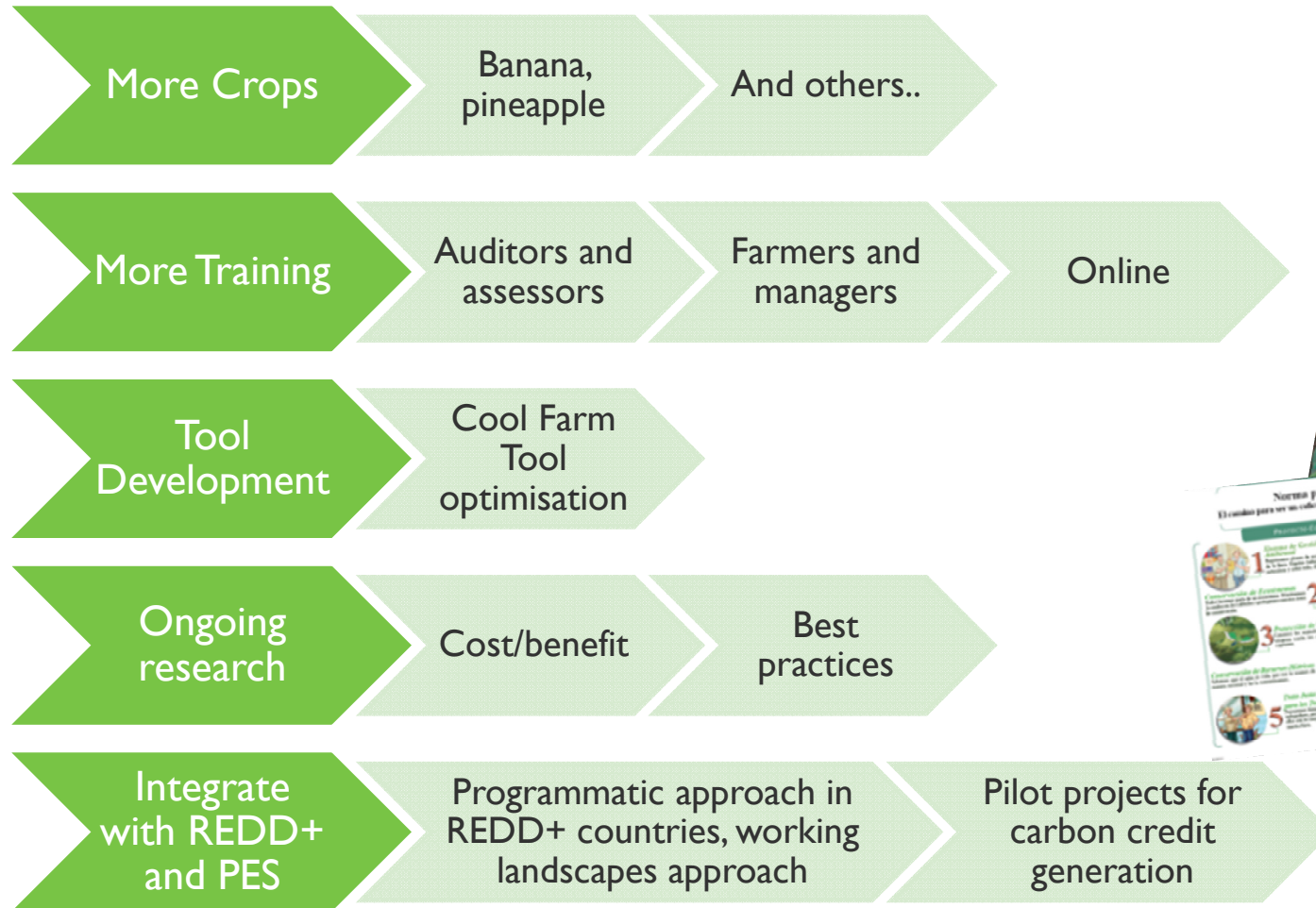


In depth studies in the Rwandan Tea sector. Development of adaptation/mitigation practices database. (DFID and Taylors of Harrogate)

Climate Module training and roll out in Ghana associated with landscape scale REDD+ project (OLAM)



LOOKING TO THE FUTURE



THE NEXT FIVE YEARS IN CARBON AND ENVIRONMENTAL FOOTPRINTING

Take-home messages for this workshop

What do you expect?

- Strong **policies and methodologies** in place for food value chain product carbon/env. footprinting in some regions
- **Private-public partnerships** driving changes in various countries.
- **Consumers** willing to reward efforts for getting sustainable products.
- **Producers** implementing adaptation and mitigation strategies through a number of strategies and access to payments for environmental services.
- Range of **tools and methodologies** available for LCA and carbon/Env. footprinting

THE NEXT FIVE YEARS IN CARBON AND ENVIRONMENTAL FOOTPRINTING

Take-home messages for this workshop

What do you wish for?

- More **attention to producers and origin sources**, solidarity and cooperation values widespread across value chain
- Balance between environmental and economic expectations through implementation of policies and **best practices**.
- Harmonize and **benchmark** all current initiatives and certification schemes (private/mandatory).
- Define **SMART impact** indicators for the demonstration of changes and differences along the value chain.
- **Engage** food industry and consumers through coordinated efforts, simple approaches and clear demonstration of benefits across the value chain.



Rainforest Alliance

Thank you!

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The Rainforest Alliance works to conserve biodiversity and ensure sustainable livelihoods by transforming land-use practices, business practices and consumer behavior.