

# From place-based landscape research to IPG

CATIE's activities on:  
Model Forests Network  
Silvopastoral systems and climate change

Eduardo Somarriba

CATIE

Bonn, Germany

18 December 2017

# Model Forests



## Model Forests: Fostering the Sustainable Development of Forest-based Landscapes

[HOME](#)[ABOUT US](#)[MODEL FORESTS](#)[THEMES](#)[NEWS](#)[PUBLICATIONS](#)[COLABORATE](#)[CONTACT US](#)

## What is a Model Forest?

RIABM 27 DE JUNE, 2014

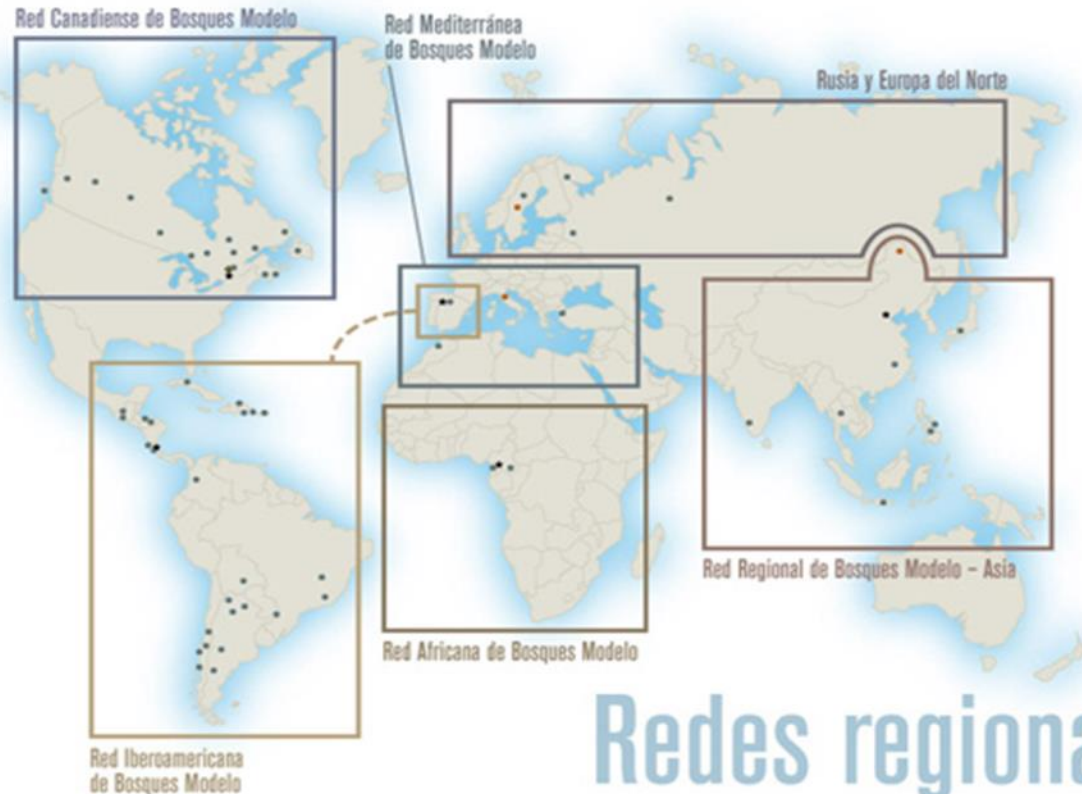
The term “Model Forest” was created in the early 90s, when the Government of Canada sought an alternative to the conflicts between forest loggers and communities living in forested areas. The first Model Forest was created in Canada in 1992 to help prevent and resolve such conflicts over the management and use of natural resources. In Latin America, the first Model Forest, the Chiloé Model Forest, was founded in southern Chile in 1996.

Model Forests are social, inclusive and participatory processes that seek the sustainable development of a territory and thus contribute to global targets related to poverty, climate change, desertification and sustainable development. More than 31 million hectares in 15 countries in Latin America are part of the 30 Model Forests in this region.



## La Red Internacional de Bosques Modelo

- miembro
- candidato
- ★ Secretario de la Red Regional
- ★ Secretario de la RIEM



Created 1995

Ottawa, Canada  
Headquarters
















+70 MFs

+ 25 countries

5 continents

# Model Forests are negotiation platforms

## GET TO KNOW A MODEL FOREST

- |   |  |
|---|--|
|  Argentina   |  Bolivia            |
|  Brazil      |  Chile              |
|  Colombia    |  Costa Rica         |
|  Cuba        |  Dominican Republic |
|  Ecuador     |  España             |
|  Guatemala   |  Honduras           |
|  Paraguay    |  Perú               |
|  Puerto Rico |  |

## THEMES

-  Governance
-  Conflict Management
-  Climate Change
-  Food Security
-  Local Economic Development
-  Territorial Management
-  Sustainable Development



Country	Model Forest	Formoseiro	Futaleufú	Jujuy	Norte del Neuquén	San Pedro	Tucumán	Chiquitano	Mosaico Sertão V-P	Caçador	Alto Malleco	Cachapoal	Panguipulli	Risaralda	Reventazón	Chorotega	Sabanas de Manacas	Urbión	Lachuá	Los Altos	Atlántida	Yoro	Sico-Paulaya	Noroeste de Olanchito	Tierras Adjuntas	Sabana Yegua	Yaque del Norte
	Private Sector relationships																										
	Payment for Environmental Services																										
	Environmental Education																										
	Strategic Planning and Monitoring & Evaluation																										
	Environmental Restoration																										
	Tourism																										
	Integrated Watershed Management																										
	Prevention of fires, disease control and management of risks																										
	Agricultural and Agroforestry Activities																										
	Formation and Strengthening of Groups to Promote the Commercialization of Forest Products and Services																										
	Non-Timber Forest Products																										
	Wood Products (forestry, wood extraction, plant production)																										
	Micro-credits																										
	Work with Biological Corridors and Biosphere Reserves																										
	Work with Protected Areas Land Planning																										

# Principles and Attributes

The Model Forests around the world are as unique and diverse as the countries and cultures in which they are located. Although Model forests participants define together their own priorities and governance structure, at a global scale they are connected by common attributes. Every Model Forest shares a core of six principles that provide coherence to the IMFN and the basis for networking and knowledge sharing.

- Principle 1.** Broad-base Partnership
- Principle 2.** Large Landscape
- Principle 3.** Commitment to Sustainability
- Principle 4.** Participatory Governance
- Principle 5.** A Broad Program of Activities
- Principle 6.** Commitment to Knowledge Sharing, Capacity Building and Networking

# Criteria and Indicators

The above six principles have been broken down in 23 criteria and 68 indicators for monitoring and evaluation purposes.



# La Red Iberoamericana de Bosques Modelo

Fernando Carrera  
fcarrera@catie.ac.cr



## What is the RIABM?

RIABM 24 DE JUNE, 2014

The Ibero-American Model Forest Network (RIABM) links territories that drive responsible forestry and natural resource management initiatives. It is a voluntary alliance between Model Forests, supported by national government representatives from each member country which are attached to the [Ibero-American Model Forest Secretariat \(IMFNS\)](#).

It is the first regional voluntary organization that groups 15 Central American, South American, Caribbean and Spanish countries to manage knowledge and share experiences of Model Forests in Ibero-America.

The RIABM counts on the support of prestigious international organizations such as [CATIE](#) (The Tropical Agricultural Research and Higher Education Center), the United Nations' [Food And Agricultural Organization \(FAO\)](#), Canadian NGO, [CUSO International](#), and the [CIFOR](#) (Center for International Forestry Research).

Its management is focused on promoting good governance of natural resources by linking the territories and promoting initiatives that encourage sustainable production and the conservation of natural resources and forests of the partner countries.

The RIABM is one of six regional networks within the International Model Forest Network along with the Mediterranean Network, the African Network, the Asian Network, the Russian and Northern European Network, and the Canadian Network.

## The Model Forests of Ibero-America





Model Forest network (MFN) is a natural partner for FTA's Sentinel Landscape work.....

The Nicaragua-Honduras Sentinel Landscape (NHSL) overlaps (and cooperate) with the MFN in Sico-Paulaya, Honduras



Red Iberoamericana  
de Bosques Modelo

**RIABM**

*Ibero-American Model Forest Network*

## Contact information

[www.bosquesmodelo.net](http://www.bosquesmodelo.net)

Fernando Carrera: [fcarrera@catie.ac.cr](mailto:fcarrera@catie.ac.cr)



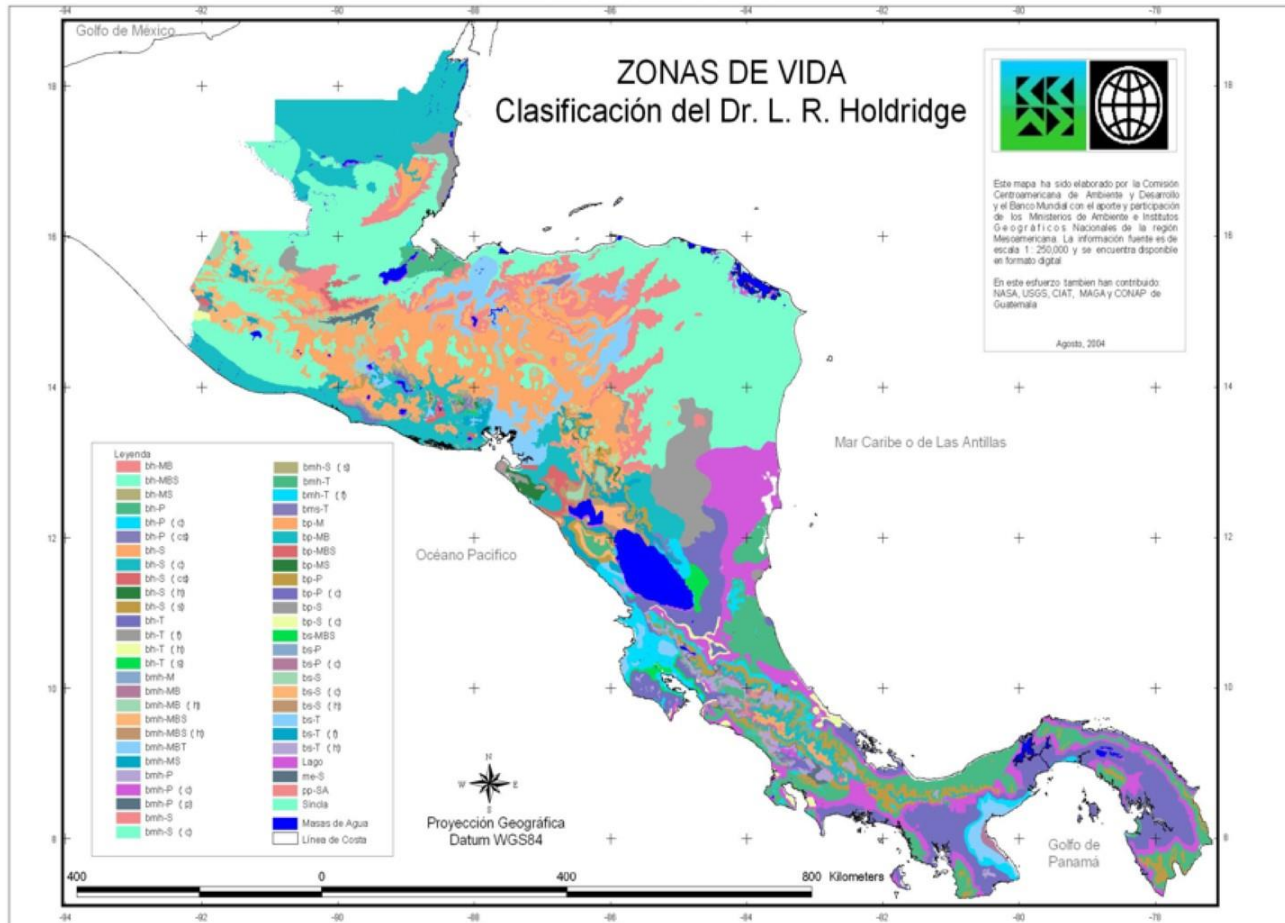
# Program on Sustainable Livestock Systems (GAMMA)



# Major R&D lines

- Silvopastoral Systems for fodder, ecosystem services, deforestation-reforestation, national REDD+, climate change and other conventions
- LEDS, reduced emissions methane, N<sub>2</sub>O, pollutants (nitrates and phosphates), and other GHG
- Restoration of degraded pasture lands, build-up of soil organic matter

# Ganadería sostenible basada en el manejo de los ecosistemas







**BANCOS DE FORRAJE DE MORERA EN CUBA, DIFERENTES MOMENTOS DE CORTE**



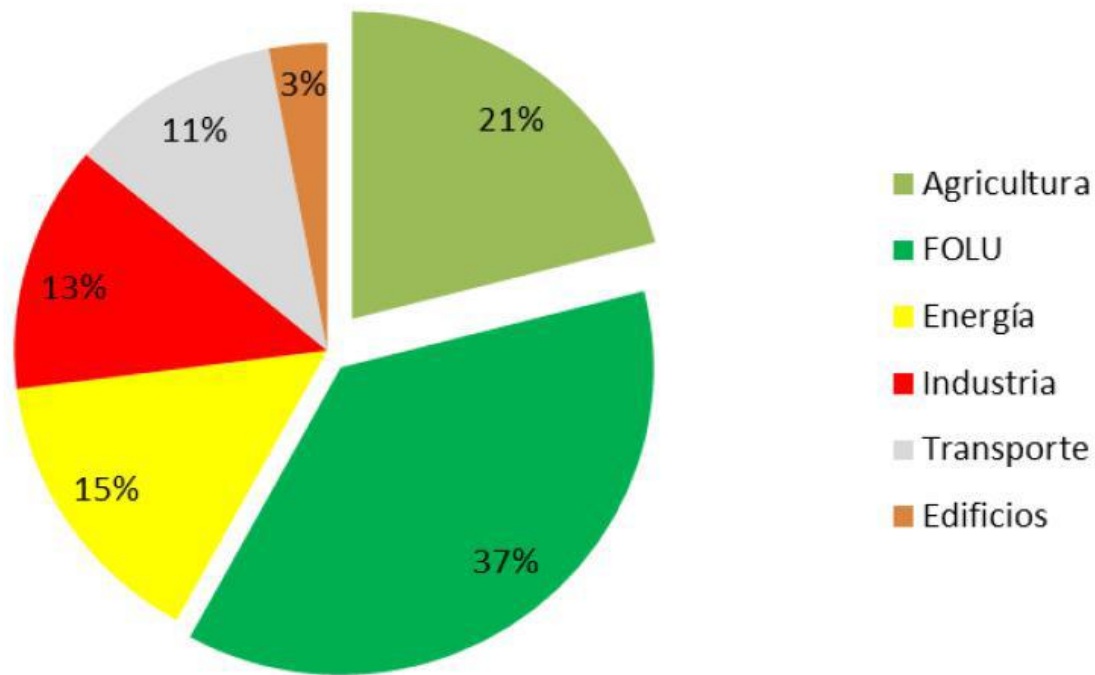








Low GHG emissions from livestock  
systems...adaptation



Fuente: IPCC AR5 & FAOSTAT



Fermentación entérica



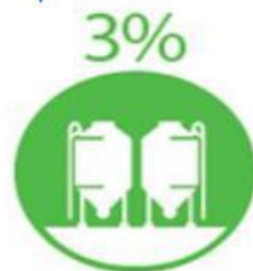
Estiércol depositado en las pasturas



Fertilizantes sintéticos



Estiércol aplicado a los suelos

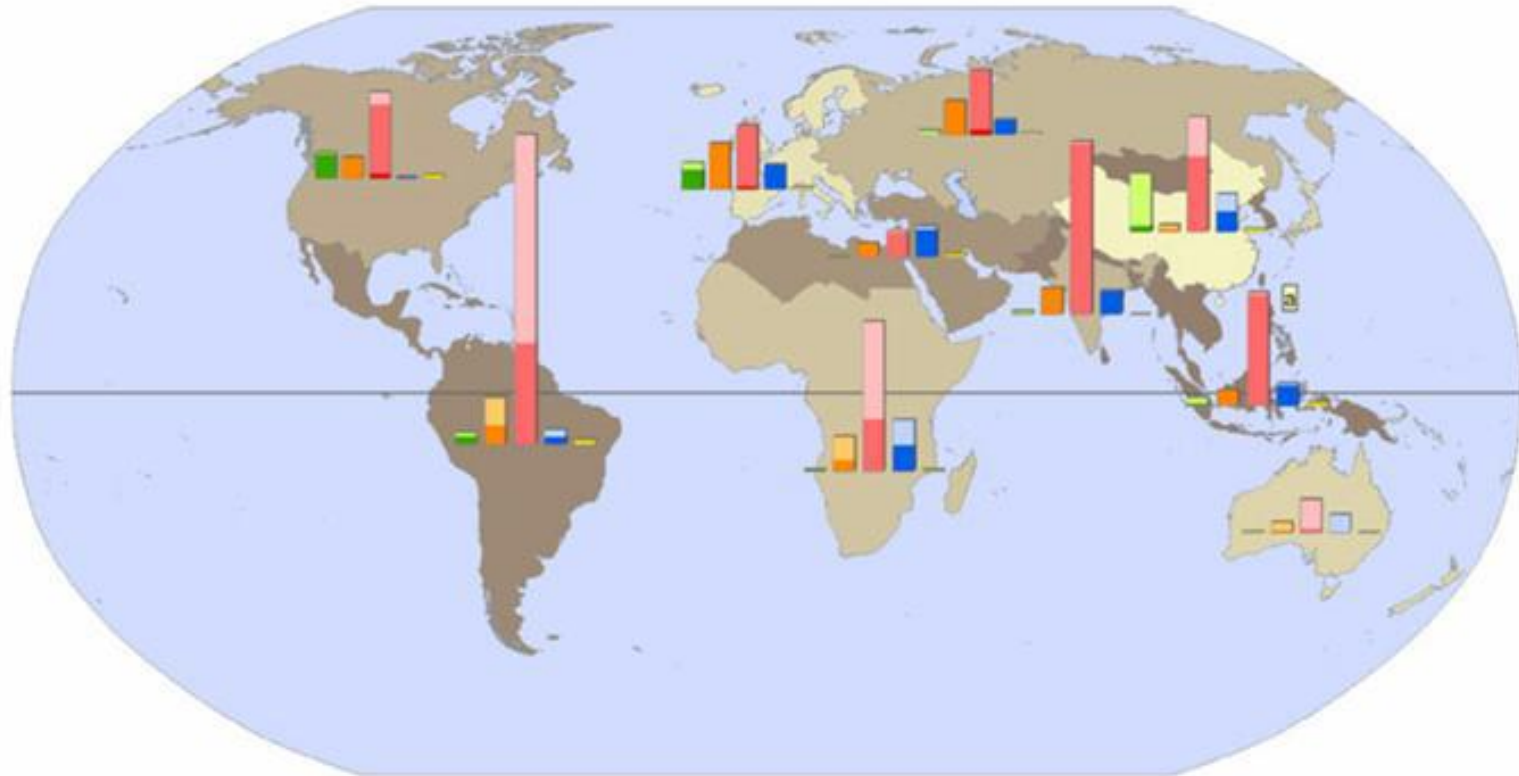


Gestión del estiércol



Residuos agrícolas

# Methane emissions



## CH<sub>4</sub> livestock emission

### Pigs

- Mixed
- Industrial

### Dairy cattle

- Grazing
- Mixed

### Cattle & Buffalo

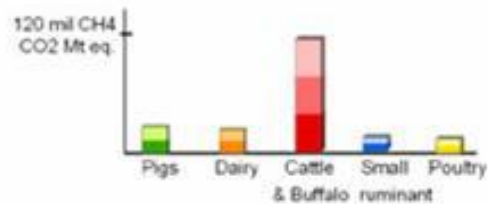
- Grazing
- Mixed
- Industrial

### Small ruminant

- Grazing
- Mixed

### Poultry

- Mixed
- Industrial



0 5,000 km (at the equator)

Reduced emissions



Carbon capture and storage

### Reducción de emisiones



### Fijación de carbono

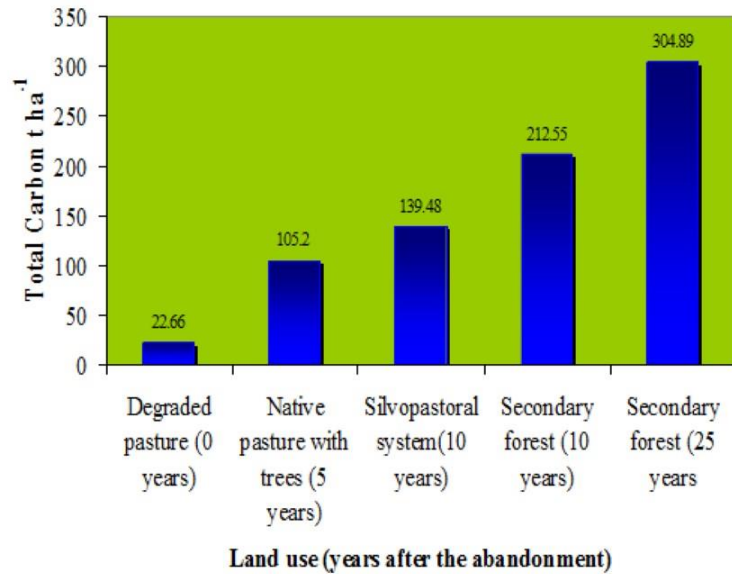


# Manure management

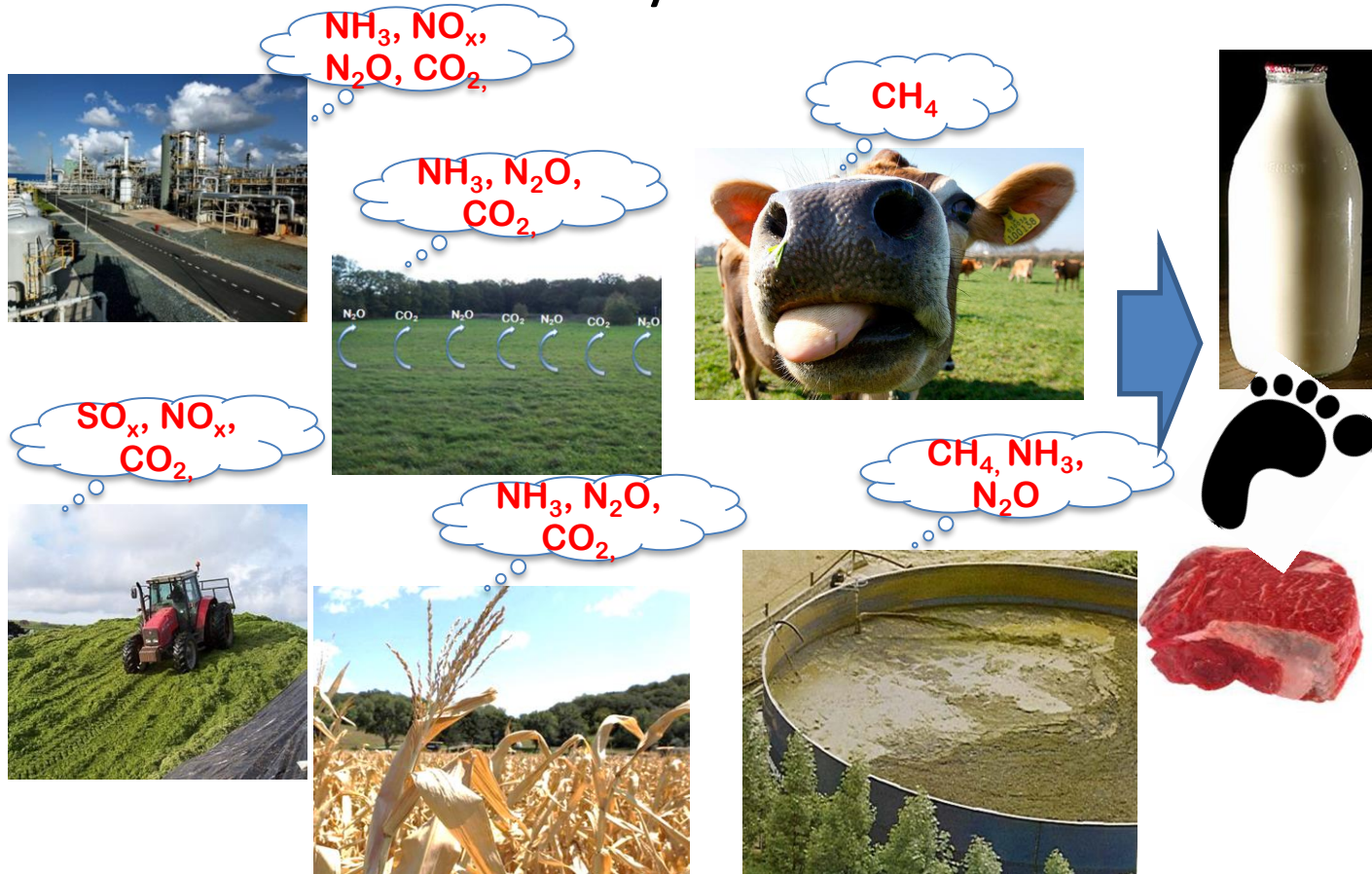




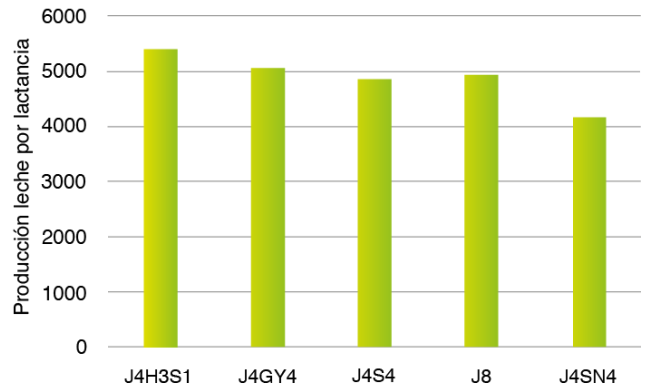
## Carbon stocks (capture 1-2 t C/ha/year)



# GHG emissions in dairy systems, life cycle analysis



# Climate Change: livestock genetics - adaptation & mitigation



Crossbred cows, such as Jersey x Holstein x Sahiwal and Jersey x Gyr, have more dairy production than Jersey breeds.

More adaptation to climate change  
Reduce GHE

J: Jersey; H: Holstein; S: Sahiwal; GY: Gyr; SN: Senepol



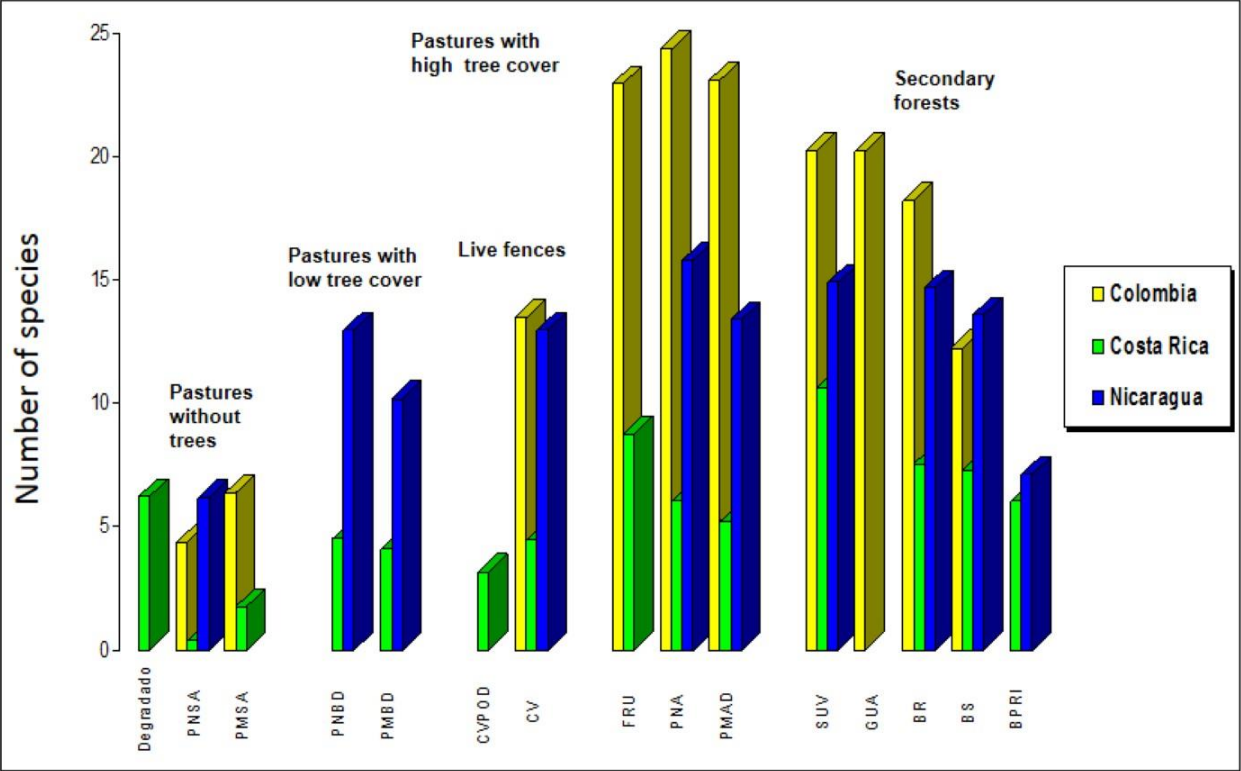
# The role of tree shading (10-15% tree canopy cover) on dairy production and respiration rates in Jersey cows

<b>Treatment</b>	<b>Milk (kg/vaca/día)</b>	<b>Respiration rate (breathing/min)</b>
<b>Without tree</b>	<b>11.37 b</b>	<b>80 a</b>
<b>With tree*</b>	<b>12.48 a</b>	<b>65 b</b>

**Increase in financial yield  
215 \$US /ha/yr**

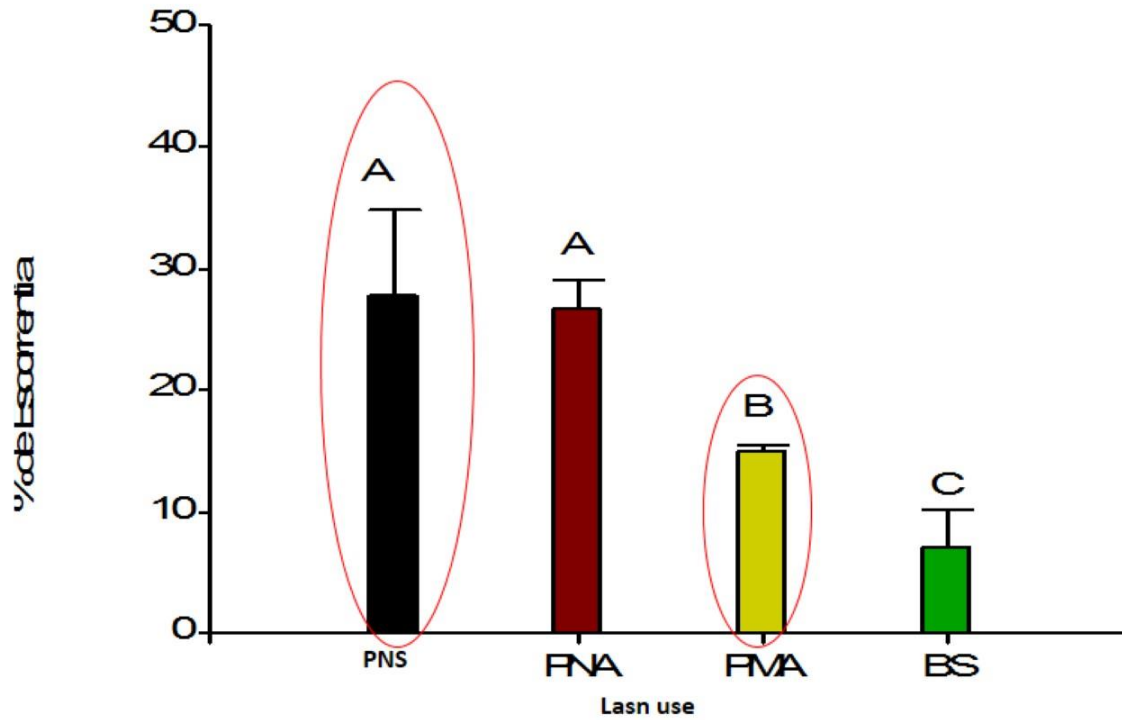


# Conservation of biodiversity (birds)



## Water runoff

PNS = Native pasture overgrazed; PNA = Native pasture with trees; PMA = Improved pasture with trees; BS = Secondary forest.



## Objetivo 2: protocolos de medición



- Definir protocolos mejorados para medir:
  - GEI y  $\text{NH}_3$  emisiones al ambiente
  - Nitrato y fosfato en agua



Policy, certification,....





**CARBONO  
NEUTRAL**

Reconocido por el Gobierno de Costa Rica



# Standard for Sustainable Cattle Production Systems

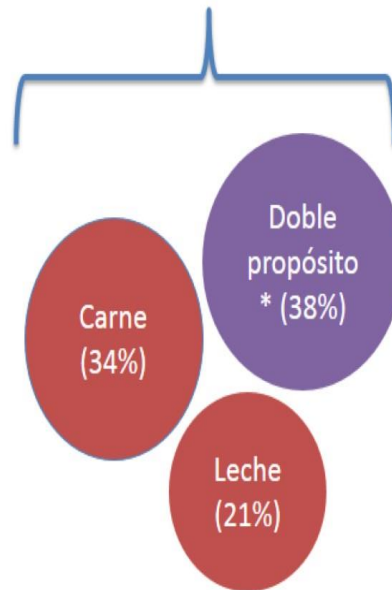


# NAMA Ganadería - Costa Rica

NAMA initiatives in preparation in:

Panama  
Honduras  
Guatemala  
Nicaragua  
Dominican Republic  
Cuba  
Belize

NAMA propone implementar medidas en fases para lograr una ganadería sostenible



\*Doble propósito se refiere a productores de carne que han incorporado la producción de leche, una tendencia creciente. Restante % corresponde a ganaderos de cría y de padrotes, no incluido.

## Proyecto BIOPASOS en México

Gestión del conocimiento,  
Herramientas, Metodologías,  
Evidencia

**INSUMOS PARA LA INCIDENCIA EN POLITICAS:**  
Interface entre investigación y el diseño de la  
política pública y/o privada

Escala Local



Escala Nacional



Escala Regional



Escala Global

Fortalecimiento a  
productores y gremios  
(Público + Privado)

Insumos para el diseño de  
políticas  
(Instrumentos – NAMAs,  
REDD+ e Incentivos –  
créditos, exoneraciones)

Estrategias Regulación  
Ganadería Sostenible

Acciones Agenda Global  
Ganadería Sostenible

- Cámaras de ganaderos,
- Productores de leche/carne
- Asociaciones/Juntas locales
- ONG locales

- Asociaciones/federaciones (ANAGAN, CONAGAN, etc.)
- Empresa Privada (SUCARNE, NESTLE, BIMBO)
- Ministerio de Ambiente y Agricultura

- CAC
- PROCISUR
- Ganadera Sostenible Regional

- Alianzas con socios estratégicos
- FAO, BM, GEF, PNUD, PNUMA
- CGIAR: CIRAD, ICRAF, GAR

Buena gobernanza - Estrategia  
nacional ganadería sostenible  
– Implementación (NAMAs,  
LEDS, otros)

# Networking

GLOBAL  
RESEARCH  
ALLIANCE

ON AGRICULTURAL GREENHOUSE GASES

# AT A GLANCE

**48**  
member  
countries



**14** partner  
organisations



Over **3000** scientists  
involved in activities of the GRA



**44** international  
collaborative projects  
supporting the GRA



**50** fellowships awarded to  
recipients from **25** countries



**4** Research  
Groups



Paddy Rice  
Research  
Group



Livestock  
Research  
Group



Croplands  
Research  
Group



Integrative  
Research  
Group



**20** Science  
Networks



**19** technical training  
workshops held



**12**  
technical guidelines,  
resource materials and  
databases produced



[globalresearchalliance.org](http://globalresearchalliance.org)

@GRA\_GHG

June 2017



# FAO Latin American network on Silvopastoral Systems

## Global Agenda for Sustainable Livestock



# CATIE's Latin American network on sustainable livestock production systems

GLOBAL  
RESEARCH  
ALLIANCE

ON AGRICULTURAL GREENHOUSE GASES

## Investigadores se reúnen para evaluar cómo producir carne y leche con menor emisión de gases de efecto invernadero

Abril 13, 2017

Por Comunicaciones

Cómo producir leche y carne utilizando métodos sostenibles, sin agotar los recursos como el suelo o el agua, reduciendo las emisiones de gases, fue el motivo principal de la reunión.



(Washington D. C., 12 de abril de 2017) El 12 de abril de 2017 se llevó a cabo en Washington D.C. la presentación de la llamada "Plataforma de Producción Ganadera Sostenible: mayor productividad con menor emisión de gases de efecto invernadero", coordinada por el CATIE en colaboración con el Ministerio de Industrias Primarias (MPI) del Gobierno de Nueva Zelanda y la Alianza Global para la Investigación de Gases de Efecto Invernadero en la Agricultura (conocida como Global Research Alliance- GRA), y FONTAGRO, con la participación de investigadores de instituciones públicas, privadas y organismos de desarrollo.



### ULTIMAS NOTICIAS

- MAY 15 2017 FONTAGRO se reunió con funcionarios del USDA para presentar iniciativas.
- MAY 10 2017 BLOG: ¿Cómo alimentar a 9000 millones de personas ante la amenaza del cambio climático?
- MAY 8 2017 #ProyectoFONTAGRO: Continúa la implementación del Proyecto de Validación sobre Sistema Intensivo del Cultivo del Arroz (SICA).
- MAY 08 2017 #ProyectoFONTAGRO: Invitan a agricultores de la provincia de Huánuco a optar por semillas tradicionales para sus cultivos.
- MAY 04 2017 #ProyectoFONTAGRO: Destacados científicos latinoamericanos visitan Osorno.

### BOLETIN

Nombre	<input type="text"/>
Apellido	<input type="text"/>
Email	<input type="text"/>
Institución	<input type="text"/>
Posición	<input type="text"/>

## "mayor productividad con menor emisión de gases de efecto invernadero"

El objetivo principal de la plataforma es:

- establecer alianzas con audiencias clave para intensificar los sistemas de producción ganadera de manera sostenible
- estrategia regional de investigación para adaptarse y mitigar los efectos del cambio climático
- compartir conocimientos y fortalecerá las capacidades de los actores clave en el sector público y privado.

**Coordinado por:**



**Financiado por:**



**Participación de:**





# Initiative 20x20

Bringing **20 million** hectares of degraded land in Latin America & the Caribbean into restoration by **2020**

<http://www.wri.org/news/2014/12/release-latin-american-and-caribbean-countries-and-regional-programs-launch-initiative>



Education.....

From Farmer Field Schools to Post-Doc



# Projects

- **Theme: Low-GHG emission silvopastoral systems**
- BIOPASOS (Promoviendo la conservación de la biodiversidad a través de prácticas agrosilvopastoriles climáticamente inteligentes, en paisajes dominados por la ganadería de tres regiones de Mexico)
- SusCoRiDa (Sustainable futures for the Costa Rica dairy sector: optimising environmental and economic outcomes)
- Latin American and Caribbean Platform for Sustainable Intensification of Livestock Production: a regional strategy for adaptation and mitigation of climate change
- ECLEDS2: Enhancing capacities for low emission development systems
  
- Partners: CATIE, IICA-SAGARPA-CONABIO (Mexico), University of Bangor UK, FONTAGRO-GRA (Global Research Alliance on greenhouse gas emissions from agriculture); FONTAGRO-INIA-Uruguay, USDA-FAS, University of Wisconsin, MAG/INTA Costa Rica
- FP2-CoA5
- Links to FP5



Thank you