

# GLOBAL RESEARCH ALLIANCE

ON AGRICULTURAL GREENHOUSE GASES

9<sup>th</sup> Livestock Research Group meeting

10-12 April 2017



## BUILDING CAPABILITY

In February 2016, we agreed our capability building focus would be...

**...to help countries move towards  
Tier 2 inventories and designing  
improved MRV systems for  
livestock GHGs**

Some major achievements since then →



# MRV of livestock GHGs

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As presented by Lini – a joint LRG, CCAFS and FAO project looking at ways to improve the measurement, reporting and verification of livestock GHGs

→ Due for completion in May

Measurement, reporting and verification of livestock GHG emissions by developing countries in the UNFCCC: current practices and opportunities for improvement

PRE-WORKSHOP DRAFT FOR DISCUSSION



# Benefits of advanced inventories

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Guidelines for policy makers and scientists explaining:

- Why livestock inventories are important
- The benefits for livestock development
- The difference between Tier 1 & 2
- How to set up a Tier 2 inventory
- Sample inventory for beef production
- Uruguay's Tier 2 inventory
- Where to find more information

*(Jointly produced with CCAFS)*







## **Improving livestock greenhouse gas inventories in South & South East Asia:**

- Regional engagement workshops
- Technical training
- Peer review of draft Tier 2 inventories
- Linking inventories with climate change development plans



## REDUCING ENTERIC METHANE

*for*  
improving food security  
and livelihoods



### **Flagship capability building project led by FAO and NZAGRC:**

- Supported by CCAC and World Bank
- 13 countries across S. Asia, Sub-Saharan East Africa, S. America
- Identification and modelling of cost-effective, technical interventions to improve livestock production and reduce CH<sub>4</sub> emissions intensity
- Has already supported at least one INDC on livestock GHGs
- Planning underway for Phase 2

# Two new case studies of success in reducing emissions intensity

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## REDUCING THE EMISSIONS INTENSITY OF LIVESTOCK PRODUCTION: CASE STUDIES OF SUCCESS

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### CANADA

Scale: National  
System: Mixed  
Sector: Beef

#### Producing beef with lower greenhouse gas emissions

Canada produced 32% more beef in 2011 than in 1981, mostly due to higher carcass weights. This was done with 70% less breeding stock, 27% fewer slaughter cattle and 24% less land, with a 14% reduction in greenhouse gas emissions intensity.

#### Background

Canada produces around 2% of the world's beef and is the fifth largest global exporter of beef, producing 1.41 million tonnes in 2014. Beef production contributes an estimated C\$33 billion annually to the Canadian economy. The national beef herd is significantly larger than the dairy herd - 3.86 million beef cows compared to 0.562 million dairy cows in 2011.

Beef farms can be found in every province of Canada, with around 68,500 in total across the country and almost all of those (99%) family owned and operated. Production systems are diverse in terms of numbers of cattle per farm, feeds and feeding management practices employed. Broadly, however, there are three types of farm:

- Cow-calf operations where farmers breed cows to produce calves
- "Backgrounding" operations where farmers put additional weight on weaned calves through pasture or other high-quality diets
- Feedlot operations where the cattle are fed grain-based diets before slaughter (these are mostly located in Alberta)

Beef heifers are typically bred as yearlings and calves at two years old. Calfing occurs in the winter-spring, with cows having a calving interval of around one year, with an average milk yield of 77 kg/head/day. Cows are typically weaned in the autumn when they are, on average, around seven months old.



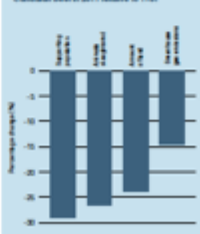
#### Key actions & their effects on productivity, income & food security

Researchers have found that over a 30-year period, Canadian farmers significantly increased the efficiency of beef production. The beef industry in Canada is a small margin business and the volatility in commodity prices means that a sustainable business may experience short-term financial loss, while remaining profitable in the long run. Beef producers must continually improve efficiency of production to adapt to the market conditions. High input costs require not just productivity improvements but changes in marketing practices to ensure the type of product demanded is the product supplied. Failure to respond to changing consumer preferences can result in a shrinking market share.

Productivity gains have been achieved through improvements to average daily gain and slaughter weight, as well as reproductive efficiency. The average carcass weights of steers, heifers, cows and breeding bulls slaughtered in 2011

were 29%, 45%, 19% and 28% heavier, respectively, than those of animals slaughtered in 1981. Twenty-nine percent less breeding stock was required to produce the same amount of beef in 2011 than in 1981 (see Figure 1) and time to slaughter has also been reduced.

Figure 1: Percentage reduction in resource requirements and greenhouse gas emissions (CO<sub>2</sub>e) to produce a given amount of Canadian beef in 2011 relative to 1981



## REDUCING THE EMISSIONS INTENSITY OF LIVESTOCK PRODUCTION: CASE STUDIES OF SUCCESS

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### SRI LANKA

Scale: Local  
System: Mixed  
Sector: Dairy

#### Improving the productivity of integrated cattle- coconut systems

In southern Sri Lanka, smallholder farmers graze their cattle on local coconut plantations. Over the past three years, these farmers have been supplementing with tree fodder crops and low cost concentrates and have achieved significant improvements in both livestock and coconut productivity.

#### Background

Agriculture is the mainstay of Sri Lanka's rural economy and covers approximately 42% of its total land area. Feed crops (rice, maize, pulses and vegetables), plantation crops (tea, rubber and coconut) and dairy production prevail. However, despite dairy farming being a major activity, it only provides about 15-20% of the country's total requirement, the balance having to be imported.

Dairy production in southern Sri Lanka is mostly a non-commercial activity, carried out by approximately 2,500 smallholder farmers, with an average herd size of 2-3 cows. The system is relatively extensive. Dairy cows are reared under tethered conditions or graze freely under coconut trees, a practice permitted by some plantation owners for several decades. Productivity is very low. The average yield is around 2-3 litres of milk per day, and financial returns are poor.



The cattle graze natural herbage, considered weeds by the plantation owners, which vary in supply due to the bi-modal pattern of rainfall. Coconut peenac (oil cake) and bran are often given as a supplementary feed as local availability is high. Rice straw is occasionally used in dry seasons.

The potential to use additional land in order to meet the growing demand for food and other supplies in southern Sri Lanka is extremely limited. Around 6.5 million hectares of coconut land is estimated to be available for intercropping and cattle grazing, but is hampered by ongoing low productivity.

#### Key actions & their effects on productivity, income & food security

Dairy farmers in Mirissa, a village in southern Sri Lanka, have spent the last three years learning how to improve the productivity of cows grazing on coconut plantations. These efforts - largely centred on dietary management and coconut-livestock integration - have demonstrated real potential as a long-term strategy not only for food security but for other environmental gains.

Farmers were shown how to supplement the natural herbage that the cattle were grazing with a high protein tree fodder crop (Gliricidia sepium). G. sepium is a widely cultivated, multi-purpose tree in southern Sri Lanka. It is used in living fences to stabilise soils, prevent erosion and shade plantation crops; as a green manure; as an ornamental plant; and in traditional medicine for scabies. It has also recently been discovered to be completely resistant to the devastating pest, *Homocidus culicis*. G. sepium can be supplemented in normal ruminant diets up to 30% (fresh matter per day) as a cheap protein source that is rich in vitamins and minerals. At the same time as the tree fodder, farmers also introduced a low cost concentrate comprising urea, rice bran, molasses and minerals. This was fed to heifers at a rate of 200g/head/day and 250g/head/day during lactation.

Different manure management practices were also tested. The lengths of cows' tethered ropes were adjusted to allow them to graze an area with a radius of 6m during the day, reduced to 2m at night. This incorporated more dung and urine in the manure circle of the coconut husks etc. were deposited inside the manure circle to promote nutrient recycling.



# Upcoming activities

- Regional engagement and capability building in Uganda (also involving Tanzania, Kenya, Botswana and South Africa)
- Completion of MRV white paper
- Latin American & Caribbean regional platform
- Third meeting of regional inventory group in South and South East Asia
- Phase 2 of LRG/CCAC
- Review of draft Tier 2 inventories on request





# For discussion

1. What is the role for international collaboration to support countries' domestic work?
2. Should we broaden our efforts into other areas, e.g. support for NAMAs?
3. How can we broaden the resource base?
4. What are our priorities, and how do those link with priorities of countries, donors, partners?