Emitters intensives (EI) of enteric methane (CH₄) vary greatly across the globe and are often higher in developing countries where productivity, low milk and meat output is growing fast to meet demand, information on activity data and emission factors are weak but where there is a large potential for EI reduction. Efforts to identify mitigation options and potentials that simultaneously improve and livestock, considering livestock productivity and food security and reduction in enteric methane emissions from agricultural activities cannot be considered in isolation, true mitigation potential needs to consider ‘packages’ of actions assessed in terms of impacts on multiple gases and synergies or trade-offs between individual actions.

**WHY IS CH₄ IMPORTANT?**

- CH₄ is a Short-Lived Climate Pollutant (SLCP) and has a half-life of 12 years – in comparison to carbon dioxide, parts of which stay in the atmosphere for many hundreds to thousands of years. CH₄ traps 84 times more heat than CO₂ over the first two decades after it is released into the air.
- Even over a 100-yr period, the comparative warming effect of CH₄ is 28 times greater than carbon dioxide (per kg). Using the 20-year GWP for CH₄ – a measure of the short-term climate impact of different GHGs – the share of CH₄ emissions is over 18% of global GHG (emissions of 49.6 t CO₂e, from slightly less than 6% at the 100-year timeframe. Therefore, reducing the rate of CH₄ emissions would help reduce the rate of warming in the near term and, if emissions reductions are sustained, can also help limit peak warming.
- About 70% of the CH₄ emissions from agriculture are attributed to enteric fermentation.

**WHAT CAN FARMERS DO?**

Agriculture is the source of livelihood for one-third of all mankind; about 60% of farmers own livestock. Livestock is essential to the livelihoods of millions of producers and critical to human health and global food and nutritional security. A large proportion of these livestock keepers are highly exposed and vulnerable to the changing climate (about 52% of rural people that live in rural and marginal areas, about 430 million are estimated to be poor livestock keepers).

Helping farmers improve the productivity of ruminants is a key way to improve rural livelihoods and improve food security. Farming systems that are much more productive generally also reduce CH₄ EI. Outcomes will be achieved by making improvements in the following three areas: Feed and Nutrition

**Improving feed quality through improved grassland management, improved pasture species, longer mix and greater use of locally available supplements. Matching ruminant production to underlying grazing resources, ration balancing, undertaking adequate feed preparation and preservation will improve nutrient uptake, ruminant productivity and fertility.**

**THE PROJECT**

We are working with stakeholders in 14 countries [see map], to design production system specific cost-effective packages of interventions that can be implemented on farm to result in multiple benefits for farmers, including gains in farm productivity, improved food security and reduction in enteric fermentation.

**A case study: MIXED DAIRY PRODUCTION IN EAST AFRICA**

East Africa has approximately 10% of the world’s dairy cows but produces only 1% of the global milk. Dairy production is developing fast and the predominant mixed farming systems produces 75% of total milk production. Kenya is the largest producer, with 37% of total milk produced in East Africa and a dynamic dairy sector that has increased by 60% since 1990, as a response to growing demand. Ethiopia, Tanzania and Uganda, with respectively, 21%, 14% and 10% of the region’s milk production, also face a significant challenge and opportunity in developing the dairy sector that has increased by 60% since 1990, as a response to growing domestic demand. Ethiopia, Kenya, Tanzania, Burundi, Uganda, Senegal, Malawi, and Mozambique are also working on dairy development. In addition to Kenya, the predominant mixed farming systems produce 75% of milk production in East Africa.

**Animal Health and Husbandry**

Improving the reproduction rates and extending the productive life of the animal will increase productivity, and reduce CH₄ EI. Relevant interventions include reducing the incidence of endemic, production-limiting diseases that have a number of negative outcomes, including death or cull of previously healthy animals, reduced live-weight gain, reduced milk yield and quality, reduced fertility, abortion and increased waste in the system. Healthier animals are generally more productive and have lower EI.

**Animal Genetics and Breeding**

Genetic selection is a key measure to increase productivity of animals. Breeding can help adapt animals to local conditions and address issues associated with reproduction, vulnerability to stress, adaptability to climate change, and disease incidence. Improved breeding management practices (using AI for example and ensuring access to wide genetic pools for selection) can accelerate those gains.

**Feed and Nutrition**

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**THE PROCESS**

**Activities**

1. **Regional stakeholder workshops**
   - Identify areas of high potential for intervention
   - Local livestock level data collection for baseline

2. **Mitigation packages developed at farm level in 14 countries**
   - Barriers to uptake understood
   - Economic costs of mitigation options documented

3. **Carrots**
   - Regional partners, funding options
   - Test sites for phase 2
   - Intervention packages for implementation
   - Scoping uptake options

4. **Communication, dissemination & outreach**
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**METHANE (CH₄) PRODUCTION IN RUMINANTS**

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