



## Technical Advisory Group (TAG) on Feed Additives

### *Terms of reference for TAG members*

#### 1. RATIONALE

Feed additives are mostly used in livestock systems to improve the performance of animals with either a nutritive or non-nutritive effects. For example, in monogastric production, common nutritive feed additives are minerals (e.g. calcium, phosphorus, and sodium), vitamins (e.g. vitamin C) and amino acids (e.g. methionine, lysine, threonine and tryptophan). The non-nutritive feed additives are mainly enzymes (e.g. xylanases, B-glucanases, phytase), antibiotics (e.g. avilamycin, virginiamycin), coccidiostats (e.g. monensin, salinomycin), pigments (e.g. xanthophyll), antioxidants (e.g. butylated hydroxyl toluene, phenolic compounds), antibiotic replacers such as probiotics (FAO, 2014, Poultry development review; FAO, 2016, Probiotics in animal nutrition – Production, impact and regulation) and prebiotics. Other feed additives are used to decrease rumen degradable proteins such as tannins or formaldehyde and to bind mycotoxins in the feed (adsorbents).

Research has recently intensified to develop and assess features of innovative feed additives, some of which are claimed to reduce emissions such enteric methane or ammonia emission from manure. Many studies explored the environmental benefits associated with feed additives at an animal or herd level e.g. probiotics (Vyas *et al.*, 2016) or essential oils (Kouazounde *et al.*, 2015). However, most studies have focused on specific processes (e.g. enteric fermentation) and only a few analyzed the environmental performance of the full life cycle of the livestock sector when feed additives are used, including impact associated with their production (Eugène *et al.*, 2015). There is therefore a need for the development of environmental assessment guidelines for feed additives. Because new feed additives so far remain unauthorised for commercialization in many countries, and because the LEAP partnership does not focus on specific countries or production system, this activity will need to focus on categories of feed additives that are commonly used by livestock farmers around the world.

#### 2. SCOPE OF THE FEED ADDITIVES GUIDELINES

The feed additives guidelines are intended to provide additional guidance on the current LEAP guidelines on feed and animal supply chains (FAO, 2016a, 2016b, 2016c, 2016d). A Technical Advisory Group (TAG) composed of different stakeholders of LEAP Partnership will develop a technical guidance for the accounting of: (i) environmental impacts associated with the production of feed additives and (ii) environmental impacts of livestock systems using feed additives.

The feed additives TAG will focus on:

- a. The accounting of greenhouse gas emissions, nutrient and water flows in the production of feed additives and associated environment impacts because the production of feed additives may require the use of nutrients such as nitrogen and water. The TAG will build on draft LEAP guidelines on nutrient use and water footprint.
- b. Develop guidelines on the impact of feed additives on the environment in specific nutritional approaches, which would cover all types of production systems, from smallholders limited in nutrient availability up to the most developed livestock production system.

By evaluating the impact based on specific nutritional approaches, this would allow the LCA practitioners to evaluate the different feed additives authorized or in use in the different countries and types of production systems.

### 3. DELIVERABLES

- a. Comprehensive LEAP guidelines on environmental assessment of the production and use of feed additives in livestock sector
- b. Peer-reviewed paper for publication in scientific journal

### 4. TENTATIVE TIMELINE

TAG formation	1st face-to-face meeting	2nd face-to-face meeting	Peer-review	Public review/revision	Publications
July-September 2017	November-December 2017	March-April 2018	June-July 2018	September-November 2018	December 2018

### 5. ROLE AND ENGAGEMENT

TAG members are invited to participate in-person and actively contribute to the two face-to-face meetings. Each meeting will last two to three days. In addition to participation in the two meetings, TAG members are expected to continue to work on TAG deliverables under the overall guidance of the TAG chair to deliver quality technical products on schedule. Active participation in TAG activities, also guarantees co-authorship of the LEAP technical products. TAG members report to the TAG chair. LEAP will not grant any honorarium to TAG members, who are also expected to arrange their trips autonomously. Trips will be pre-arranged by FAO only in specific circumstances (e.g. ensuring balanced participation of regional experts from developing countries).

### 6. QUALIFICATIONS

TAG members are technical experts having a strong background in one or more of the following subjects: animal science, animal nutrition, life cycle assessment, livestock production systems, feed technology and sciences. Ideally, TAG members have a proven track record in research.

Minimum requirements include:

- Working knowledge of English.
- Skilled in team working and hence in sharing views and knowledge in a constructive manner.
- Highly-motivated and committed to develop sound tools enabling to support transparent decision making at various scales and in all regions worldwide.
- Respect of cultural and scientific diversity of TAG members.

### 7. APPLICATION

Candidates are kindly requested to submit their CVs to the LEAP Secretariat (Livestock-Partnership@fao.org) by 31st July 2017. CVs must include an updated list of publications and work experiences. All applications will be reviewed by the LEAP Secretariat and LEAP Steering Committee. Merit, balanced regional representation of participants and gender balance are three key selection criteria.