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Definitions in the context of adequate nutrition to support resilience of animals to stressors

(IFIF WG on Nutritional Innovation)

Background:

The IFIF paper on innovation to promote animal health highlights the need to define the role of animal nutrition beyond its conventional definition of covering an animal's "nutritional needs".

Traditionally, animal nutrition was limited to the provision of enough nutrients to adequately meet the animal's requirements. Historically, it was related only superficially to the health and welfare status of an animal. For many years, the animals' requirements of macronutrients were mostly based on indicators related to growth and feed conversion. Requirements for micronutrients were usually set to prevent deficiencies. The role of Specialty Feed Ingredients was perceived as either supporting feed quality and safety or supporting animal performance. Recent scientific research has shown that nutrients, substances, microorganisms, and other feed constituents supplied orally to animals may help maintain an animal in good health and assist in its endurance and resilience to stress factors by supporting the microbiome, gut integrity and functionality, physiological and immune functions. This provides a justification to rethink nutrition beyond its current perceived role.

The term 'adequate' used to qualify nutrition is proposed to emphasize the need to provide the most appropriate quality and quantity of nutrients to cover animals' needs in term of maintenance, performance, health, and welfare. It is also aimed at covering substances, microorganisms, and other feed constituents, that support body functions. It is also part of human nutrition, as defined by the World Health Organization (WHO)¹.

It is recognized that adequate nutrition may also support the sustainability of animal production (with regards to environmental footprint or socio-economic benefits) and its economics. However, this is looked at in other IFIF Committees and Working Groups and IFIF will consider it in its positions for all these aspects.

Definitions:

Adequate nutrition: the oral intake by animals of adequate levels of nutrients, substances, microorganisms, and other feed constituents, considering their combination and presentation, necessary to fulfill functions related to their physiological states, including the expression of most normal behavior, and their resilience capabilities to cope with stressors of various type² encountered in appropriate husbandry conditions.

¹ Facts File WHO 22/02/2018 : <https://www.who.int/news-room/facts-in-pictures/detail/nutrition>

² Stressors can be physical, chemical, environmental, emotional, or microbiological

Adequate nutrition is achieved through the:

- optimization of feed composition, manufacturing, presentation, and delivery to animals,
- minimization of the exposure of the animals to stressors in feeds,
- coverage of the animal's requirements for maintenance, activity, growth, production, and reproduction,
- support of digestion and physiological functions, body systems, and behavioral expression.

Appropriate husbandry conditions: Husbandry conditions that follow the guiding principles of the "Five Freedoms"³, which recognize the important states of animal welfare for domesticated species: (1) freedom from hunger, malnutrition and thirst, (2) freedom from heat stress or physical discomfort, (3) freedom from pain, injury or disease, (4) freedom from fear and distress and (5) freedom to express normal patterns of behavior.

³ OIE Terrestrial Animal Health Code