

Precision livestock management: application of quantitative biology and predictive models

ECTS

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Mots clés

Husbandry, robustness, animal fitness, Animal, Elevage, nutrient allocation, Feed resources, Ingredient acquisition, trade-off, Breeding, regulation

Description du contenu de l'enseignement

Objectifs:

The goal is to provide students with knowledge to understand how emergent properties at the animal level reflects trade-off between life functions at different levels of organization.

Contenu:

- * Main biochemical pathway of nutrient fluxes : molecular and cellular level, between organs fluxes
- * Physiological regulations described as homeostasis and teleorhesis regulation
- * Mechanism and regulation of feed intake
- * Specific functions of adipose tissue as an integrated organ
- * Theories of resources allocation applied to farm animal
- * Resource allocation and tradeoffs between lactation, reproduction, growth function and other life function (immune system) in farm animals.
- * Resources allocation: Interaction between genetic selection and nutrition
- * Mathematical models of resources acquisition and allocation
- * Integration of 'omics' data with resources allocation.

Compétences à acquérir

Knowledge on mechanisms by which animal uptake their diet and allocate nutrients between life functions.
Analyze how emerging properties at animal level results from integration of underlying levels of organization
Capacity of modeling vertically biological data
Fundamental knowledge and applied methods to study integrative resource allocation mechanisms in animals

Modalités d'organisation et de suivi

Coordinateur:

P. Schmidely (Pr APT),

Equipe pédagogique:

Thomas Heams (MC AgroParisTech)

Langue

Anglais

Volume horaire

CM : 12h, TD : 6h

Pré-requis obligatoires

Période et lieu(x) enseignements

Période:

Octobre -décembre

Lieu:

Paris

Mode de contrôle des connaissances

Personal work, assignments