Sveučilište u Zagrebu Agronomski fakultet
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Evaluation methods of animal feeding materials (296586)

Nositelj kolegija

izv. prof. dr. sc. Kristina Kljak

Opis kolegija

Acquiring basic theoretical and practical methodical knowledge in evaluation of nutritional value of feeding materials and animal nutritional status.

ECTS: **6.00**

E-učenje: **R1**

Sati nastave: 60
Predavanja: 30
Laboratorijske vježbe: 28
Seminar: 2

Izvođač predavanja

- prof. dr. sc. Goran Kiš

Izvođač seminara

- izv. prof. dr. sc. Marija Duvnjak

Ocjenjivanje

Dovoljan (2): 60%
Dobar (3): 70%
Vrlo dobar (4): 80%
Izvrstan (5): 90%

Vrsta kolegija

- Graduate studies / MS Courses taught in English (Izborni kolegij, 1. semestar, 1. godina)

Oblici nastave

- Lectures
- Laboratory practice/exercises
- Seminars

Ishodi učenja i način provjere

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Ishod učenja	Način provjere
Estimate nutritional value of animal feeding materials	
Differentiate physical and chemical analyses applicable during feeding material evaluation	
Select minimal number of analyses for efficient feeding material evaluation	
Interpret results of feeding material analysis	
Apply results of feeding material analysis in diet formulation	
Estimate animal supply of nutrients	
Predict effect of production level on nutritional value of animal feeding material	
Predict economic and ecologic effects of feeding material evaluation in animal nutrition	

Polaganje ispita

Elementi praćenja	Maksimalno bodova ili udio u ocjeni	Bodovna skala ocjena	Ocjena	Broj sati izravne nastave	Ukupni broj sati rada prosječnog studenta	ECTS bodovi
2 preliminary tests		<60% 60% 70% 80% 90%	Nedovoljan (1) Dovoljan (2) Dobar (3) Vrlo dobar (4) Izvrstan (5)			

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Tjedni plan nastave

1. Sampling of feeding materials for analysis, physical analysis of feeding materials.
2. Proximate analysis, Introduction to instrumental analytical methods.
3. Methods of analysis of nitrogen compounds and lipids (nitrogen compounds – protein fractions, free amino acids, amino acid profile, NPN, soluble protein, ammonium nitrogen; lipids – fatty acid profile, peroxide, saponification and iodine number).
4. Methods of analysis of structural and storage carbohydrates (detergent fiber, dietary fiber, starch, sugars, amylose/amylopectin).
5. Methods of analysis of vitamins, antioxidants and minerals.
6. Methods of analysis of undesired compounds (anti-nutritive compounds, toxins and secondary metabolites of plants and microorganisms).
7. Methods for determination of total tract digestibility and retention of energy and nitrogen.
8. Methods for determination of digestibility in rumen and ileum, blood sampling and cannulating techniques.
9. Nutrient digestibility kinetics.
10. Passage kinetics.
11. Biological trials with animals [trials of nutrient utilisation (growth/production, consummation, conversion) and animal response.
12. Evaluation of nutritive status of animal, methods for determination of animal preference in feeding materials.
13. Methods of estimation and determination of energy value of feeding materials for main animal species.
14. Systems and models of estimation of feeding material nutritive value and animal energy requirements (empirical, dynamic and mechanistic models).
15. Formulation and optimisation of ration using available software.

Obvezna literatura

1. Moughan, P. J., Hendriks, W. N. (2018) Feed evaluation science. Wageningen: Wageningen Academic Publishers.
2. Wiseman, J., Cole, D. J. A. (2013) Feedstuff Evaluation. London: Butterworths
3. Serna-Saldivar, S.O.(2012). Cereal grains. Laboratory reference and procedures manual, Boca Raton: CRC press.
4. Givens, D.I., Owen, E., Axford, R.F.E., Omed H.M. (2000). Forage evaluation in ruminant nutrition. Wallingford:CABI Publishing

Preporučena literatura

1. France, J., Kebreab, E. (2008). Mathematical modelling in animal nutrition. Wallingford: CABI Publishing McDonald, P., Edwards, R.A., Greenhalgh, J.F.D., Morgan, C.A. (2010). Animal Nutrition, 7. izdanje, Edinburgh: Pearson Education Limited

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