



Department: ANIMAL RESOURCES

College: AGRICULTURAL ENGINEERING SCIENCES

University: SALAHADDIN-ERBIL

Subject: FEEDS & FEEDING Technology

Course Book – 2nd YEAR STUDENT

Lecturer's name: Dr. Susan. M. N. Muhamad BSc., MSc., PhD.

(Asst. prof.)

Dr. Nawzad Muhamad Aziz BSc, MSc., PhD.

(Asst. prof.)

Practical by: Mr. Adnan Heme Seid Resol BSc., MSc.

Mrs. Mhabad Ebrahim Saed BSc., MSc.

Academic Year: 2023-2024

Course Book

1. Course name	FEEDS & FEEDING
2. Lecturer in charge	Dr. SUSAN M. NUR MUHAMAD
3. Department/ College	ANIMAL RESOURCES/AGRICULTURE
4. Contact	e-mail: Suzan.muhamad@su.edu.krd Tel:
5. Time (in hours) per week	Theory: 2 Practical: 3
6. Office hours	Sunday, Monday and Thursday (9.0 am to 1.0 pm)
7. Course code	
8. Teacher's academic profile	Dr. Suzan M. Nur Muhamad BSc., MSc., PhD. (Asst. prof.) Dr. Nawzad Mhamad Aziz BSc. MSc., PhD. (Asst. prof.) Mrs. Mhabad Ebrahim Saed BSc, M Sc. (lecturer.) Mr. Adnan Heme Seid.(Asst. lect.)
9. Keywords	
<p>10. <u>Course overview:</u> Numerous different products have been used from time over the years for feeding purposes. However, a relatively limited number of their products make up the bulk of the nations feed supply. Feeds of many origins, qualities, and availabilities are used in animal diets in the world. The nutritive content varies tremendously among them. Feed represents a major cost in any intensive system of animal production. Even with sheep, which typically consume more roughage (as a percentage of their diet) than other domestic species. Feed may represent 55% or more of total production cost. A value of 75-80% might be more appropriate for poultry. Thus, it is imperative to supply an adequate diet (in terms of nutrient content) and to prepare and present the ration in a manner that will encourage consumption without excessive feed wastage. The proper feeding of livestock is, for the most part, a matter of supplying them with the right amounts of those chemical elements and compounds essential for carrying on the different life processes.</p>	
<p>11. <u>Course objective (Theory):</u> 1- Describe how feedstuffs are classified and identify the major categories of feedstuffs and their characteristics.</p>	

2- Identify the nutritive characteristics in various feedstuff categories.

12. Student's obligation

Students should attend the lectures (theory and practical) and participate in all quizzes during the course, also monthly examination and home work with reports required.

13. Forms of teaching

The forms of teaching include data show, power point also white board for explaining the subjects which needs more explanation and mathematical solutions.

14. Assessment scheme

Theoretical (65%) + Practical (35%)=100%

Theoretical (65%)

15% (Monthly Examination)

50% (Final Examination)

Practical (35%)

Monthly Examination

15. Student learning outcome:

During this semester the student should learn the objective for studding feeds & feeding subject, and how feedstuffs are classified and identify the major categories of feedstuffs and their characteristics. Also, identify the nutritive characteristics in various feedstuff categories.

16. Course Reading List and References:

1- Perry, T.W.; Cullison, A.E. & Lowrey, R.S. (2004) Feeds & Feeding (6th Ed.). Prentice Hall

2-Chahal ,S.U.& S.Kumar,2008.Handbook of General Animal.

3- Church, D.C. (1983) Livestock Feeds & Feeding (2nd Ed.). Prentice Hall

4- Damron, W.S. (2006) Introduction To Animal Science (3rd Ed.). Prentice Hall

5- Ensminger, M. E.; Oldfield, J. E. & Heinemann, W. W. (1990) Feeds & Nutrition Digest (2nd Ed.). Ensminger Publishing Co.

6- Perry, T.W.; Cullison, A.E. & Lowrey, R.S. (2004) Feeds & Feeding (6th Ed.). Prentice Hall

7-Stein, H. H., L. L. Berger, J. K. Drackley, G. C. Fahey Jr, D. C. Hernot and C. M. Parsons. 2008. Nutritional properties and feeding values of soybeans and their coproducts. Soybeans chemistry, production, processing, and utilization. AOCS Press, Urbana, IL. pp. 613-660.

17. The Topics:	Lecturer's name
Introduction The evaluation of feedstuffs	Dr. Suzan Muhamad Nur (2 hrs.) 1 st WK /9/2023
General Functions of Feed Nutrients	Dr. Suzan Muhamad Nur (2 hrs.) 2 nd WK /9/2023
Classification of Feedstuff	Dr. Suzan Muhamad Nur (2 hrs.) 3 rd WK /9/2023
Feedstuff categories	Dr. Suzan Muhamad Nur (2 hrs.) 4 th WK /9/2023
Characteristics of feedstuff	Dr. Suzan Muhamad Nur (2 hrs.) 5 th WK /10/2023
The Measurement of Nutritive Value	Dr. Suzan Muhamad Nur (2 hrs.) 6 th WK /10/2023
Digestibility: Digestion and Feeding Trials.	Dr. Suzan Muhamad Nur (2 hrs.) 7 th WK /10/2023
Some Grazing Tips	Dr. Nawzad M.Aziz (2 hrs.) 8 th WK /10/2023
Feed blocks	Dr. Nawzad M.Aziz (2 hrs.) 9 th WK /11/2023
Feedstuff Energy.	Dr. Nawzad M.Aziz (2 hrs.) 10 th Wk/ 11 /2023
Mineral and Vitamin supplements.	Dr. Nawzad M.Aziz (2 hrs.) 11 th WK /11 /2023
Feed preparation and processing.	Dr. Nawzad M.Aziz (2 hrs.) 12 th Wk/ 11/2023
Balancing Rations	Dr. Nawzad M.Aziz 4 hrs.13&14 th WK/12/ 2023
Physical appearance.	Dr. Nawzad M.Aziz 2 hrs. 15 th Wk / 12 / 2023
<p>19. Examinations:</p> <p>Q1/ Answer the following:-</p> <p>A- What are the Learning objectives of feedstuffs classification, and then draw a table showing the NRC classification of feeds?</p> <p>1- Describe how feedstuffs are classified and identify the major categories of feedstuffs and their characteristics.</p> <p>2- Identify the nutritive characteristics in various categories.</p> <p>B-Explain the methods used to cheat feedstuffs and how you can detect it?</p> <p>1- Adding water on green forages like alfalfa, to increase its weight when delivered to the customer. It is detected by determination moisture percent.</p> <p>2- Adding cheap minerals sources like soil, salts and calcium carbonate. It is detected by determination of ash and Nacl percent.</p>	

- 3- Adding urea to increase crude protein percentage, which is regarded as cheap sources for non-protein nitrogenous compounds (NPN). As we know that urea contains 46% nitrogen, that mean 1Kg of urea can replace 12Kg of cotton seed meal with 24% crude protein. It is detected by determination energy in the mixture, because urea have no energy value.
- 4- Adding grinded roughages, it is detected by determination of crude fiber.
- 5- Adding cheap plant protein sources instead of expensive animal protein sources like blood meal, fish meal and meat meal. It is detected by determination of amino acids.
- 6-Increasing the ratio of holder in vitamin concentrate, trace mineral concentrate, which is resulted in reducing the percentage of vitamin and trace minerals? It is detected by determination of their percentage in the mixture.

Q2/ Complete the following sentences with missing words or statements:

- 1-The three basic functions of feed nutrients in the animal body as a structural material for building and maintaining the body structure , As a source of energy for heat production, work, and/or fat deposition , & For regulating body processes or in the formation of body –produced regulators .
- 2-To change PPM to %, simply Divide by 10000 . While to change % to PPM, simply multiply by 10000 .
- 3-Haylage is low moisture silage, made from grasses and/or legumes that are wilted to 40-55 % moisture content before Ensiling .
- 4-The process of Ensiling is to produce silage from Plant material under Anaerobic conditions.
- 5-Feed processing objective is, the target animal is able to utilize the greatest possible proportion of required nutrients from the feed.
- 6-Water in the feed is of no more value to an animal than from other sources .
- 7-The digestibility of a food is defined as the proportion which is not excreted in the faeces and which is, therefore, assumed to be absorbed by the animal.
- 8-Protein supplements include feeds from three major sources Plant origin , Animal origin and NPN sources .
- 9- The factors effects on Nutritive value of feedstuffs are Maturity , Weather change , Soil fertility , and Plant species . Harvesting method
- 10-During Digestibility trials, the food under investigation is given to the animal in Known amounts and the output of faeces Measured .
- 11-Total mixed ration (TMR) is a type feed that combines Roughage , concentrate , Minerals and other feed ingredients in line with the amounts required for supply to animals.
- 12-Protein feeds, includes feeds that contain more than 20 % or protein Equivalent , example such as pea & broad bean .

20. Extra notes:

Here the lecturer shall write any note or comment that is not covered in this template and he/she wishes to enrich the course book with his/her valuable remarks.

21. Peer review

پیداچونہوی ہاوہل

This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section.

(A peer is person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject).

نہم کورسبوو کہ دہبیت لہ لایہن ہاوہل کی نہ کادیپیہوہ سہیر بکریٹ و ناوہرؤکی بابہتہکانی کورسہکہ پہسہند بکات و چہند ووشہیہک بنوسیت لہسہر شیاوی ناوہرؤکی کورسہکہ و واژووی لہسہر بکات.
ہاوہل نہو کہسہیہ کہ زانیاری ہہبیت لہسہر کورسہکہ و دہبیت پلہی زانستی لہ ماموستا کہمتر نہبیت.