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**Department of Animal resource**

**College of Agriculture**

**University of Salahhadin**

**Subject: Feed and feeding practically**

**Course Book: second class**

**Lecturer's name: MSc. Adnan Hama Saheed**

**Academic Year: 2021/2022**

**Course Book**

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| **Course name** | | **First Course (Autumn Season)** | |
| **Lecturer in charge** | | **Dler Ali Othman & Adnan Hama Saheed** | |
| **Department/ College** | | **Department of Animal resource College of Agriculture** | |
| **Contact** | | **e-mail: adnan\_84md@yahoo**  **Tel: 07504050223** | |
| **Time (in hours) per week** | | **Practical: 9** | |
| **Office hours** | | **9 hours** | |
| **Course overview:**  Animal feed and feeding important applied science examines the relationships between food and animal needs to save his body and accessories production. Animal feed and feeding plays an important role in animal production projects, by quantities and types of feed and prices other than the type of animal and its relevance to the materials used in feed nutrition. General description of the contents of the subject: the definition of feed and feeding - nutrient - types of animal feed different and their nutritional value and ways to be divided - Methods of keeping the feed and the impact on the nutritional value - the digestion of feedstuffs in ruminant food and methods of formulation or configuration mixes feed according to the purpose of animal husbandry | | | |
| **Course objective:**  After the student can complete the subject with the following understanding: 1. See what types of feed ruminant animals and ways to divide, as well as knowledge of nutrient components of the feed. 2. Ways to save the feed and the things that affect the nutritional value. 3. Knowledge of methods of digestion experiments and how to calculate the coefficient of digestion of various nutrients. 4. Knowledge of different feed evaluation methods and usefulness of food. 5. Methods of formulation of fodder mixtures for different types of animals as production and suitable physiological state. 6. Know the chemical composition of the feed materials in order to satisfy the needs of the animals to maintenance production. | | | |
| **Student's obligation**  له‌ كاتي ئاماده‌نه‌بوني قو‌تابيان له‌ كاتي دياريكراوي ئه‌م بابه‌ته‌ خۆيان به‌رپرسياده‌بن له‌ فيربوني ناوه‌ڕۆكي بابه‌ته‌كه‌، وه‌ به‌رپرسيارده‌بن له‌ ده‌رنه‌چونيان له‌ بابه‌ته‌كه‌ له‌ كاتي ئه‌نجامنه‌داني تاقيكردنه‌وه‌كان و كويزاتي حه‌فتانه‌ و پێشكه‌شنه‌كردني ڕاپۆرتي زانستي داواكراو له‌لايه‌ن مامۆستاوه‌. | | | |
| **Forms of teaching**  وانه‌كه‌ له‌ ڕێگه‌ي داتاشۆوه‌ پێشكه‌ش به‌ قوتابيانه‌وه‌ ده‌كرێت كه‌ به‌شێوه‌ي پورپۆينت له‌ لايه‌ن مامۆستاوه‌ ئاماده‌كراوه‌، جگه‌ له‌مه‌ش ته‌خته‌ي سپي به‌شێوه‌يه‌كي سه‌ره‌كي به‌كارده‌هێنرێت بۆ ڕونكردنه‌وه‌ي پرسياري حسابي و نوسيني ياسا سه‌ره‌كيه‌كان ئه‌مه‌ش جگه‌ له‌ وه‌رگرتني بابه‌ته‌كه‌ به‌شێوه‌ي نوسيني كۆمپيوته‌ر له‌لايه‌ن قوتابيانه‌وه‌، ئه‌مه‌ش سه‌ره‌ڕاي به‌كارهێناني جۆره‌ها ئامێر به‌شێوه‌يه‌كي پڕاكتيكي له‌لايه‌ن قوتابيانه‌وه‌. | | | |
| **Assessment scheme**  له‌م وانه‌يه‌ جۆره‌ها پێوه‌ر هه‌ن بۆ دياريكردني ئاستي قوتابيان و هه‌ڵسه‌نگاندنيان، كه‌ يه‌كێكيان تاقيكردنه‌وه‌ي مانگانه‌يه‌ كه‌ له‌لايه‌ن قوتابيه‌كانه‌وه‌ ئه‌نجامده‌درێت كه‌ 12 ده‌ره‌جه‌ي له‌ كۆششي ساڵانه‌ بۆ هه‌ژمارده‌كرێت، وه‌ ئه‌وه‌ي ئه‌مێنێته‌وه‌ كه‌ 3 ده‌ره‌جه‌ي كۆششي ساڵانه‌يه‌ هه‌ژمارده‌كرێت له‌سه‌ر كويزاتي حه‌فتانه‌ و ڕاپۆرتي زانستي پێشكه‌شكراوه‌، به‌مه‌ش كۆي گشتي كۆششي ساڵانه‌ ده‌بێته‌ 15 ده‌ره‌جه‌ وه‌ك و بابه‌تێكي پڕاكتيكي.‌ | | | |
| **Student learning outcome:**  له‌ماوه‌ي ئه‌م كۆڕسه‌دا قوتابيان له‌ڕێگه‌ي فێربوني ئه‌م بابه‌ته‌ ئاشنا ده‌بن به‌ ناسيني جۆره‌ها ئاليكي ئاژه‌ڵاني كاوێژكه‌ر وه‌ك مه‌ڕ و بزن و چێڵ، وه‌ فێربوني قوتابيان به‌ زانيني ئاماده‌كردني چه‌نده‌ها جۆري ئاليكي ئاژه‌ڵاني كاوێژكه‌ر به‌تايبه‌تي وه‌ك ئاليكي سايله‌ج و دريس وه‌ ڕونكردنه‌وه‌ي چۆنيه‌تي دروستكردن و خسته‌به‌رچاوي سود و زيانه‌كان و‌ هۆشياريداني قوتابيان به‌ چۆنيه‌تي به‌كارهێنانيان ئه‌م جۆره‌ ئاليكانه‌. جگه‌ له‌مه‌ش هه‌ر له‌ ڕێگه‌ي خوێندني ئه‌م بابه‌ته‌وه‌ قوتابيان فيري چۆنيه‌تي حسابكردني كرداري هه‌رسي ماده‌ خۆراكيه‌كان ده‌بن له‌لايه‌ن ئاژه‌ڵانه‌وه‌ وه‌ فيرده‌بن كه‌ چۆن چه‌ند ماده‌يه‌كي خۆراكي تێكه‌ڵي يه‌كتر بكه‌ن بۆ دروستكردني ئاليكێكي ده‌وڵه‌مه‌ند له‌ ماده‌ خۆراكيه‌كان ئه‌ويش له‌ ڕێگه‌ي دوو ڕێگه‌ي زانستي حيسابي كه به‌كارده‌هێنن بۆ شيكاري‌ چه‌نده‌ها پرسياري حيسابي له‌سه‌ر ئه‌م بابه‌ته‌. | | | |
| **Course Reading List and References‌:**  1- Internet.  2 - practical part of feedstuffs. D. Issa Hassan 2004. 3 - Chemical composition and nutritional value of feed materials in Iraq. Kazim Ali Khawaja, Elham Abdullah al-Bayati, Samir Abdul Ahad Mate 1978. | | | |
| **Practical Topics** | | | **Lecturer's name** |
| **1** | Some general terms in nutrition. | | MSc. Adnan Hama Saheed |
| **2** | Structure of feedstuffs and food components: A / Roughage feeds. B / Concentrates feeds. | |  |
| **3** | Basic rules for ration formulation. In order to find out the availability of materials and feed grain prices. | |  |
| **4** | Proximate analysis. In order to know the students an initial idea about determination of feedstuff in laboratory. | |  |
| **5** | Hay production. Goal of this lecture is to know how to make hay for ruminants, as well as knowledge of high-quality specifications hay | |  |
| **6** | A visit to the feed factory: In order to inform students the feed ingredients as well as how to make pellets. | |  |
| **7** | Silage production. Goal it is to know how to save green roughage feed material with most of its characteristics and knowledge quality specifications as well as to learn the advantages and disadvantages compared with hay. | |  |
| **8** | Digestion coefficient of feed. Know the amount of forage digested and absorbed by body tissue after the animals eat the feed. | |  |
| **9** | Types of digestion experiments. Learn how to evaluate the through a number of ways to test the digestion and to assess the needs of the animal and find out palatable feed to animal. | |  |
| **10** | Total of Digestible Nutrients. Students' knowledge on total digestible nutrients and their purpose and how to compute calculations with examples. | |  |
| **11** | Methods used in the mixing ration. Students' knowledge of how to mix diets of ruminants mathematically. | |  |
| **12** | How to convert from the feed as fed material on dry matter basis.  In order to know how to calculate rations components on the basis of dry matter and the use of these ratios in the tables during the research | |  |
| **13** | Feed Blocks: - Knowledge of the components used for the manufacture of feed blocks. | |  |
| **14** | Feed factories: - 1- The objective of the establishment of feed factories. 2- Building and Planning. 3- Storage. In order to give students an idea of ​​how to set up feed factories and building regulations. | |  |
| **15** | Visiting private animal farm. And to see some leguminous plants grown in the field such as alfalfa and see the place of silage manufacture animal husbandry and farm generally. | |  |
| **Examinations:**  Practical exam after the first fourth or fifth lectures.  **Q1/** Defined the following: Feedstuff **Answer/** Feedstuff is any substance that can eat by the animal and are digested in the digestive tract and absorbed into the body for use for the purpose of maintenance and production.  **Q2/** Put a sign (√) in front of the correct sentences and (X) in front of the wrong words with error correction. 1- Ash is most commonly performed by burning the sample at 550 to 600°C in an oven. (X)  **Answer/** Ash is most commonly performed by burning the sample at 550 to600°C in a muffle furnace.  **Q3/** Explain how making silage?  **Answer/** Silage must be made from plant material with suitable moisture content, about 50% to 60%, depending on the means of storage, the degree of compression, and the amount of water that will be lost in storage. For corn (maize), harvest begins when the whole-plant moisture is at a suitable level. For pasture-type crops, the grass is mowed and allowed to wilt for a day or so until the moisture content drops to a suitable level. Silage is also formed by mats of cynic-bacteria  The plant material is collected, chopped into pieces about 0.5 in (1.3 cm) long and packed. In the early days of mechanized agriculture, stalks were cut and collected manually using a knife and horse drawn wagon, and fed into a stationary machine called "silo filler" that chopped the stalks and blew them up a narrow tube to the top of a [tower silo](http://en.wikipedia.org/wiki/Tower_silo#Tower_silo). Current technology uses mechanical [forage harvesters](http://en.wikipedia.org/wiki/Forage_harvester) that collect and chop the plant material, and deposit it in trucks or wagons. These forage harvesters can be either [tractor](http://en.wikipedia.org/wiki/Tractor)-drawn or self-propelled. Harvesters blow the silage into the wagon via a chute at the rear or side of the machine. Silage may also be emptied into a bagger, which puts the silage into a large plastic bag that is laid out on the ground.  **Q4/** Fill the following blanks:  Roughage dry feed includes all feedstuff that contain more than -------- crude fiber in dry matter.  Roughage dry feed includes all feedstuff that contain more than 18% crude fiber in dry matter.  **Q5/** Prepare **180 kg** of ration with protein **18 %** by Equation method and the available of feedstuff in the farm: **Feedstuff Protein %**  Cotton meal 33  Soybean meal 44  Crashed barley 10  Sunflower meal 21  Bran 13  Knowing that used percentage of Sunflower meal to Cotton meal to Soybean meal is **1:3:1** & the percentage of carbohydrate source is **equal**.  **C:\Users\Document\Desktop\Untitled.pngQ6/** Prepare **650 kg** of ration with protein percentage **15 %** by Person square and the available of feedstuff in the farm:  **Feedstuff Protein %**  Cotton meal 29  Crashed barley 10  Soybean meal 46  Wheat Bran 11  Date stone 6  Knowing that the percentage of carbohydrate sources are equal, the Cotton meal percentage is 45% & the Soybean meal percentage is 55%?  **100 29**  **Answer/ 10+11+6 45 X =9**  **3**  **100 46**  **55 X =25.3**  **38.35**  **9 23.35**    **15**  **38.35 6**  **29.35**  **23.35**  **………….. X 100 = 79.56kg /3 = 26.52 Barley**  **29.35 26.52 Bran**  **26.52 Date stone**  **6**  **……....... X 100= 20.44kg 100 45**  **29.35 100kg 20.44 X =9.20 Cotton Meal**  **100 55**  **20.44 X =11.24 Soybean Meal**  **100 26.52 100 10**  **650 X 26.52 X**  **26.52 Barley X 6.5 =172.38 X 0.1 =2.65**  **26.52 Bran X 6.5 =172.38 X 0.11 =2.92**  **26.52 Date stone X 6.5 =172.38 X 0.06 =1.59**  **9.20 Cotton Meal X 6.5 = 59.8 X 0.29 =2.67**  **11.24 Soybean Meal X 6.5 =73.06 X 0.46 =5.17**  **650kg 15%**  **C:\Users\Document\Desktop\Untitled.png**  **Q8/** The ration contain of following feedstuffs by dry matter:  **Materials**  **The amount of origin material in the ration DM %**  Crashed barley 16 89  Silage 55 23  Alfalfa hay 11 11  Cotton meal 15 91  Mixed of Material & vitamins 3 88  **Calculate/** percentage of feed component by Dry Matters?  **Answer/**  **100 89**  **16 X = DMkg 14.24 DM %**  **14.24 …………. X100 = 32.08**  **12.6 44.39 28.5**  **1.21 2.73**  **13.65 30.75**  **2.64 5.95**  **44.39 100** | | | |
| **Extra notes:**  گه‌ر بمانه‌وێت ئه‌م بابه‌ته‌ ده‌وڵه‌مه‌ند بكه‌ين پێويسته‌ پێداويستيه‌كاني پڕاكتيكي بابه‌ته‌كه‌ جێبه‌جێ بكه‌ين وه‌ك شوێني خه‌زنكردني ئاليك و جێگه‌ي دروستكردني ئاليك وه‌ك جێگه‌يه‌ك بۆ دروست كردني دريس يان سايلج و ئاماده‌كردني ماده‌ ئاليكيه‌كان. | | | |
| **Peer review: پێداچوونه‌وه‌ی هاوه‌ڵ:** | | | |