МИНИСТЕРСТВО СЕЛЬСКОГО ХОЗЯЙСТВА
И ПРОДОВОЛЬСТВИЯ РЕСПУБЛИКИ БЕЛАРУСЬ

ГЛАВНОЕ УПРАВЛЕНИЕ ОБРАЗОВАНИЯ,
НАУКИ И КАДРОВОЙ ПОЛИТИКИ

Учреждение образования
«БЕЛОРУССКАЯ ГОСУДАРСТВЕННАЯ
ОРДЕНОВ ОКТЯБРЬСКОЙ РЕВОЛЮЦИИ
И ТРУДОВОГО КРАСНОГО ЗНАМЕНИ
СЕЛЬСКОХОЗЯЙСТВЕННАЯ АКАДЕМИЯ»

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АНГЛИЙСКИЙ ЯЗЫК

FARM ANIMALS

Рекомендовано учебно-методическим объединением в сфере высшего образования Республики Беларусь по образованию в области сельского хозяйства в качестве учебно-методического пособия для студентов учреждений образования, обеспечивающих получение общего высшего образования по специальности 6-05-0811-02 Производство продукции животного происхождения

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Приведены тексты и упражнения для обучения специальной лексике и развития умений чтения профессиональной литературы.

Для студентов учреждений образования, обеспечивающих получение общего высшего образования по специальности 6-05-0811-02 Производство продукции животного происхождения.

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ВВЕДЕНИЕ

Настоящее пособие предназначено для студентов 1-го курса факультета биотехнологии и аквакультуры, обучающихся по специальности 6-05-0811-02 Производство продукции животного происхождения.

Цель пособия – обеспечить овладение студентами основными терминами, сформировать у студентов умения вдумчивого чтения текстов по специальности с полным извлечением и интерпретацией информации, а также развить умения быстрого чтения, направленного на поиск нужных данных и составление общего представления о прочитанном. Сопутствующая задача – развитие умений устной речи в ходе обсуждения прочитанного.

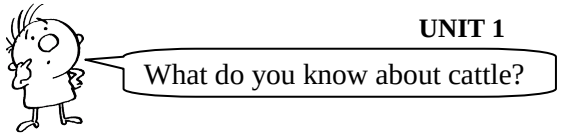
В основу пособия положена система текстов, взятых из аутентичных источников. Пособие включает 8 разделов, посвященных вопросам скотоводства, коневодства, козоводства, овцеводства, свиноводства, кролиководства, птицеводства и пчеловодства.

Каждый раздел включает два текста – А и Б, снабженных словарем и специально разработанными упражнениями. Предтекстовые упражнения направлены на усвоение лексики и формирование потенциального словаря обучаемых. Работа с текстом А предполагает тщательное изучение имеющейся в нем информации и предусматривает ответы на вопросы, определение истинности/ложности утверждений, заполнение таблиц, установление логических связей, обобщение информации и выражение собственного мнения. Работа с текстом Б предусматривает поиск различной информации, ответы на вопросы, касающиеся основного содержания, оценку прочитанного.

После обучающих разделов в пособии имеется вопросник-викторина, позволяющий обучаемым проверить знание фактов, касающихся домашних животных.

В конце пособия приводится общий расширенный алфавитный словарь специальной лексики, облегчающий работу студентов, а также дополнительный банк текстов для чтения.

Разработанные задания могут использоваться как на аудиторных занятиях, так и внеаудиторно.



UNIT 1

1.1. Learn the following words before reading text A.

flock – отара, стадо
bull – бык
cow [kaʊ] – корова
cattle – крупный рогатый скот
ox – бык, *мн.* – oxen
to breed [briːd] – разводить
species [ˈspiːʃiːz] – вид
long-horned – длиннорогий
steer [stɪə] – кастрированный бык
to neuter [ˈnjuːtə] – кастрировать
lifespan – продолжительность жизни
to weigh [weɪ] – весить
ruminant – жвачное животное
mammal – млекопитающее
section – отдел
to swallow [ˈswɒləʊ] – глотать
to mix – перемешивать
to soften – размягчать
chamber [ˈtʃeɪmbə] – отдел (*желудка*)
stomach [ˈstʌmək] – желудок
mouth – рот
cud – жвачка
to chew [tʃuː] – жевать
rumen [ˈruːmən] – рубец
reticulum [rɪˈtɪkjʊləm] – сетка
omasum [əʊˈmeɪsəm] – книжка
abomasum [ˌæbə(ʊ)ˈmeɪsəm] – сычуг
moisture [ˈmɔɪstʃə] – влага
to squeeze [skwiːz] out – выжимать
to digest [daɪˈdʒest] – переваривать
gastric [ˈgæstrɪk] juice – желудочный сок
female [ˈfiːmeɪl] – самка; женский, женского пола
male [meɪl] – самец; мужской, мужского пола
to nourish [ˈnʌrɪʃ] – кормить

dairy [ˈdeəri] cow – молочная корова
beef [biːf] cow – мясная корова
udder [ˈʌdə] – вымя
calf [kɑːf] – теленок, мн. – calves [kɑːvz]; телиться
heifer [ˈhefə] – телка

1.2. Practise the pronunciation of the following words.

Ancestor [ˈænsestə], aurochs [ˈɔːrɒks], bison [ˈbaɪsn], migratory [ˈmaɪgrətri], Pleistocene [plaɪstə(ʊ)siːn], era [ˈɪərə], Europe [ˈjʊərəp], Asia [ˈeɪʒə], ancient [ˈeɪnʃ(ə)nt], Egyptian [ɪˈdʒɪpʃ(ə)n], Babylonian [ˌbæbɪˈləʊnɪən], Assyrian [əˈsɪrɪən].

1.3. Read the words and translate them into Russian paying attention to the prefix *re-*.

To read – to reread, to write – to rewrite, to tell – to retell, to move – to remove, to chew to – to rechew, to swallow – to reswallow.

1.4. Match the synonyms.

1. ox	a. a young cow
2. to nourish	b. raising
3. significant	c. important
4. chamber	d. to feed
5. flock	e. section
6. breeding	f. water
7. heifer	g. herd
8. moisture	h. bull

1.5. Match the words with their definitions.

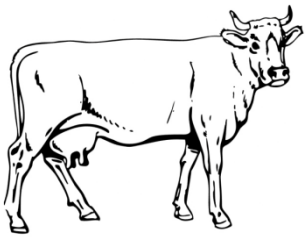
1. calf	a. an animal which is fed when young on milk from the mother's body
2. stomach	b. a kind of an animal
3. ruminant	c. a neutered bull
4. cud	d. the young of cattle
5. mammal	e. a hard pointed part that grows on the heads of cattle
6. to domesticate	f. a baglike organ in the body where food is digested after being eaten
7. horn	g. food that has been swallowed and brought up again to the mouth from the first stomach of the cow for further eating
8. species	h. to make an animal able to live with people and work for them
9. steer	i. an animal which brings back food from the stomach and bites it over and over again

1.6. Fill in the gaps with the words from ex. 1.5. You may have to make small changes in these words.

1. Cattle have sharp ... of different shapes.
2. The ... of cattle has four sections.
3. Humans and dogs are ... , fish and birds are not.
4. Rumen is the first section of the stomach of... animals.
5. Cows were ... to provide us with milk.
6. Young ... are kept for meat.
7. Cows always chew ... .
8. This rare bird can become an endangered … .
9. A newborn ... weighs between 25 to 45 kg.

1.7. Read the text and do the tasks that follow.

TEXT A: CATTLE



The domestication of cattle was one of the most significant events in human history. Sheep and goat **herders**[1] were still largely migratory peoples, seasonally driving their flocks between **pastures**[2]. The ox allowed humans to till the soil, settle and build villages and towns.

The Babylonians and the Assyrians were the first to breed oxen. They were used for many purposes including meat, milk, and labor.

Modern cattle are significantly different today from the earliest domesticated versions. They are raised on every continent except Antarctica. They are used for milk, meat, transport, entertainment, and power.

Highlights of the History of Cattle

Cattle originated millions of years ago in India. By the early Pleistocene era, they had migrated to Europe, North Africa, and the rest of Asia. Cattle belong to the ox family, like the bison, yak and water buffalo.

An early species of long-horned cattle, the **aurochs**[3], was hunted by people during the Stone Age. Cave drawings of the aurochs have survived from 30,000 B.C., and it was first domesticated around 10,000 B.C.

The ancient Egyptians **worshipped**[4] the bull-god Apis. Because of their belief that cattle were **sacred**[5], the Egyptians raised the animals in luxury and let them die of old age rather than killing them for food.

Long-horned cattle traveled with Christopher Columbus to the New World, landing in the West Indies in 1493. In 1624 the Pilgrims imported cattle to New England.

American pioneers used steers (neutered bulls) to pull **covered wagons**[6] and **plows**[7]. Steers were slower than horses, but they **stood**[8] the heat better and didn't need as much water.

Cattle Facts

There are almost 1,200 million cattle in the world. The United States has about 180 million. India has over 176 million, but India also has the lowest consumption of beef, because cows are considered sacred by Indians who practise the Hindu religion.

Cattle stand about five feet tall and weigh from 1,000 to 2,000 **lbs**[9]. Their average lifespan is 15 years, although some live up to 30 years.

Cattle are ruminants – mammals whose stomachs have four sections. After they swallow their food, it's mixed and softened in the first two chambers of the stomach – the rumen and the reticulum. Then it returns to the mouth as a ball called "cud", which is rechewed thoroughly. The food is then reswallowed and passes through the first two stomach sections into the third, the omasum, where moisture is squeezed out. The fourth chamber, the abomasum, actually digests the food through the action of gastric juices.

Dairy cows tend to have much larger udders than beef cows and usually produce more milk than what is needed to nourish one calf. Most dairy cows can give milk for five or six years, but some produce milk for 20 years or more. A young female before she has had a calf of her own and is under three years of age is called a heifer.

For the first three weeks of the calf's life they only drink their mother's milk, because their rumen is not yet fully developed. Between 3-8 weeks the calf starts eating some grass along with the milk. After eight weeks the calf's rumen should be fully functioning.

Notes to the text:

1 – пастухи
2 – пастбища
3 – зубр
4 – поклонялись
5 – священный
6 – крытые фургоны
7 – плуги
8 – переносили, выдерживали
9 – сокращ. от* pounds *от лат.* librae *– фунты

1.8. Answer the following questions.

1. Why was the domestication of cattle significant in human history?
2. What are cattle used for?
3. What is the homeland of cattle?
4. What animal was the ancestor of domestic cattle?
5. When was the aurochs first domesticated?
6. What is the amount of cattle in the world?
7. What kind of mammals are cattle?
8. How many sections do cattle's stomachs have? What are they?
9. When does the calf's rumen become fully developed?

1.9. Say whether the following statements are true or false. Correct the false ones.

1. Sheep and goat herders were settled peoples.
2. The ox gave humans an opportunity to migrate.
3. The Babylonians and Assyrians were the first to use oxen.
4. Cows are protected as sacred in Islam.
5. Cattle belong to the ox family.
6. The Egyptians raised cattle for food.
7. Christopher Columbus brought cattle to the West Indies in 1493.
8. American pioneers preferred steers to horses because they were hardier.
9. The cow is a worshipped animal in India.
10. The average lifespan of cattle is 30 years.
11. Beef cows tend to have much larger udders than dairy cows.
12. Some cows give milk for more than 20 years.

1.10. Find the English equivalents of the following words and word combinations in the text.

Одомашнивание животных, продолжительность жизни, жвачное животное, отдел желудка, желудочный сок, крупный рогатый скот, вид, влага, пережевывать, проглатывать, рубец, сетка, книжка, сычуг, жвачка, перемешивать, размягчать, разводить, теленок, телка, вымя.

1.11. Open the brackets and translate the Russian words and phrases into English.

1. (Современный крупный рогатый скот) are significantly different today from the earliest domesticated versions.
2. Cattle (разводят на каждом континенте) except Antarctica.
3. (Молочные коровы) produce more milk than what is needed to nourish one calf.
4. (Кастрированные быки) pulled covered wagons and plows of American pioneers.
5. Due to the Hindu religion India has (самое низкое потребление говядины).

6. In the fourth section of the stomach the food is digested (за счет действия желудочного сока).

1.12. Translate the sentences into English.

1. Одомашнивание крупного рогатого скота было одним из наиболее важных событий в истории человечества.
2. Рост крупного рогатого скота достигает свыше пяти футов.
3. Крупный рогатый скот весит от 1000 до 2000 фунтов.
4. В первых двух отделах желудка пища перемешивается и размягчается.
5. В третьем отделе желудка из пищи выжимается влага.
6. Жвачка снова тщательно пережевывается.
7. Коровы, как правило, дают молоко 5–6 лет.
8. Между третьей и восьмой неделями теленок начинает есть траву.

1.13. Complete the sentences using suitable words from the text.

1. Cattle ... millions of years ago in India.
2. The aurochs ... by people during the Stone Age.
3. ... traveled with Christopher Columbus to the New World.
4. In 1624 the Pilgrims … cattle to New England.
5. Steers ... heat better than horses.
6. Cattle are ruminants and their … have four sections.
7. The food returned to the mouth from the stomach is called ... .
8. The fourth chamber ... the food.

1.14. Describe the digestive process of cattle.

1.15. Compare the temper of a cow and a bull, and say which one is easier to deal with and how they are used.

1.16. Match the English proverbs with their Russian equivalents. Can you remember any situations that can be illustrated by these proverbs?

1. The bull must be taken by the horns.	A. Слезами горю не поможешь.
2. You cannot sell the cow and drink the milk.	B. С одного вола двух шкур не дерут.
3. An old ox makes a straight furrow.	C. Бери быка за рога.
4. He that will steal an egg will steal an ox.	D. Старый конь борозды не портит.
5. Many a good cow has an evil calf.	E. Кто украл яйцо, украдет и курицу.
6. It’s no use crying over spilt milk.	F. И от хорошего плохое родится.

1.17. Learn the words before reading text B.

cattle breeding – скотоводство
efficient [ɪˈfɪʃ(ə)nt] – продуктивный
feed efficiency [ɪˈfɪʃ(ə)nsi] – эффективность использования кормов
to measure [ˈmeʒə] – измерять
stage [steɪdʒ] – стадия
grain [greɪn] – зерно
intake [ˈɪnteɪk] – потребление
feedlot – откормочная площадка
records – учетные документы
forage [ˈfɒrɪdʒ] – грубый корм
to graze [greɪz] – пасти(сь)
beef – говядина
beef cattle – мясной скот
nutrition [njʊˈtrɪʃ(ə)n] – питание; кормление
nutritional requirements [rɪˈkwaɪəm(ə)nts] – потребности в питательных элементах
relationship – взаимосвязь
growing period – период выращивания
finishing period – заключительный период откорма
dry matter – сухое вещество
daily gain – суточный прирост
study – исследование
feed waste [weɪst] – непроизводительный расход кормов
carcass [ˈkɑːkəs] – туша
profit – прибыль
output – выход продукции
input – расход, потребление
generation [ˌdʒenəˈreɪʃ(ə)n] – поколение
appearance [əˈpɪər(ə)ns] – внешность
trait [treɪt] – признак
behaviour [bɪˈheɪvjə] – поведение

1.18. Read the title of text B. Judging by the title and the words from ex. 1.17., which of these things do you think are mentioned in it? Look through the text and write the numbers of the paragraphs in which you found them.

1) genetic engineering of cattle;
2) measuring how much cattle eat during different life stages;

3) determining the relationship between dry matter intake and average daily gain;

4) raising more efficient animals;

5) carcass characteristics;

6) traits making up cattle phenotype.

1.19. Find in the text the words that mean the following:

1) a period in a process or development (*paragraph 1*);

2) a plot of land on which livestock are fattened for market (*paragraph 2*);

3) the process of providing or obtaining the nutrients necessary for health and growth (*paragraph 2*);

4) food such as grass or hay for horses and cattle (*paragraph 2*);

5) money gained by business (*paragraph 6*);

6) all people/animals of about the same age (*paragraph 7*);

1.20. Look at paragraphs 1, 4, and 8 again. What words have the same meaning as:

- union *(paragraph 1)*
- productive *(paragraph 1)*
- colleague *(paragraph 4)*
- correlation *(paragraph 4)*
- information *(paragraph 8)*
- research *(paragraph 8)*

1.21. Read the text and do the tasks that follow.

TEXT B: FEED INTAKE STUDY IN BEEF CATTLE COULD LEAD TO MORE EFFICIENT BREEDS

[1]A change is coming to the cattle breeding industry. Breed associations have long been interested in finding the genetic basis for feed efficiency, with the aim of breeding more efficient animals. But the first step – accurately measuring how much cattle eat across different life stages and diet types – has been a missing piece. A new study helps fill the gap.

[2]"Grain intake in the feedlot is relatively easy to measure and the industry now has a substantial number of feed intake records. But forage intake while a cow is grazing is extremely difficult to measure." says Dan Shike, associate professor of beef cattle nutrition in the Department of Animal Sciences at the University of Illinois.

[3]Intake regulation varies depending on diet type. In other words, a cow can fill up on forages before meeting her basic nutritional requirements. The same cow being fed grain in a controlled setting like a feedlot will likely meet those requirements on less feed.

[4]Shike and a large team of collaborators from 11 institutions set out to determine if there was a relationship between feed efficiency in forage-fed

cattle and in grain-fed cattle. Heifers were fed forage during a growing period of 70 days, then switched to grain for a 70-day finishing period. Steers were fed grain for both periods. The team looked for relationships between dry matter intake and average daily gain in the two periods, and found a strong correlation for both heifers and steers for dry matter intake.

[5]"The study suggests that dry matter intake is repeatable across varying stages of maturity and diet types in cattle, and accurate feed efficiency measures can be obtained in either the growing or finishing period," Shike says.

[6]Having more information about feed intake can lead to a more economical operation. Raising more efficient animals can reduce feed waste and potentially increase profits.

[7]"We, as a cattle industry, are very good at tracking our outputs," Shike says. "We know how they grow, what their carcass characteristics are, and we can predict those very well in the next generation. But we don't have data on the input; really just a few feed intake records existed prior to this project. Some breeds had no feed intake records."

[8]An animal's feed intake is just one of the many traits that make up its phenotype – or appearance and behavior. The study provides more data on this trait across the lifespans of both steers and heifers.

1.22. Answer the questions.

1. Why do breed associations want to find the genetic basis for feed efficiency?
2. What has been a missing piece in it?
3. What kind of feed intake is easy to measure?
4. What kind of feed intake is difficult to measure? Why?
5. What did Shike and his colleagues set out to determine?
6. What did they find?
7. How can feed waste be reduced?
8. What is the cattle industry good at?
9. What data do they lack?
10. What kind of data does the study provide?

1.23. Say whether these statements are true or false or not mentioned in the text. Correct the false ones.

1. The cattle breeding industry is going to change.
2. The change will take 10 years.
3. Dan Shike is a Canadian veterinarian.
4. A grazing cow can fill up before meeting her basic nutritional requirements.

5. Steers were fed forage for both growing and finishing periods.

6. Dry matter intake varies across different stages of maturity and diet types in cattle.

7. Cattle breeders can predict carcass characteristics in the next generation.

8. Some breeds had no feed intake records at all.

9. Phenotype includes appearance and behavior.

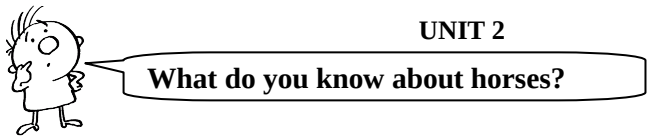
10. The scientists identified the genes responsible for the quality of the carcass.

1.24. Join the halves of the sentences. Consult text B while doing it.

1. Intake regulation	a. during the growing period.
2. A cow being fed grain in a controlled setting	b. can lead to a more economical operation.
3. Heifers were fed forage	c. can be obtained in either the growing or finishing period.
4. The same heifers were fed grain	d. varies depending on diet type.
5. Accurate feed efficiency measures	e. during the finishing period.
6. Having more information about feed intake	f. will likely meet nutritional requirements on less feed.

1.25. Describe the feeding experiment.

1.26. Speak about the importance of the study. Give as many reasons as you can. Make use of the words: *efficient breeds, feed efficiency, input, economical operation, feed waste, profit.*



UNIT 2

2.1. Learn the following words before reading text A.

horse [hɔːs] – лошадь
to tame – приручать, одомашнивать
to buck – становиться на дыбы
to break – объезжать, приучать к поводьям
stirrup [ˈstɪrəp] – стремя
girth [gəːθ] – подпруга
bridle [ˈbraɪd(ə)l] – уздечка
saddle [ˈsæd(ə)l] – седло
mane [meɪn] – грива

hoof [huːf] – копыто, *мн.* – hoves [huːvz]
tail – хвост
handler – человек, ухаживающий за лошадью; дрессировщик
to handle – ухаживать; обращаться, управлять
to whinny [ˈwɪni] – тихо ржать
to neigh [neɪ] – ржать
to ride – ехать верхом
mount – лошадь для верховой езды
to kick – лягать(ся)
to bite – кусать(ся)
to bolt [bəʊlt] – убежать, понести (о лошади)
stable – стойло; конюшня
horsemanship – искусство верховой езды
height [haɪt] – рост; высота
hand – *здесь*: ладонь (единица измерения роста лошади, равная 10 см)
heavy draft [drɑːft] – тяжеловоз
pony [ˈpəʊni] – пони
light – легкий
stallion [ˈstaljən] – жеребец
mare [meə] – кобыла
mature [məˈtʃʊə] – зрелый
foal [fəʊl] – жеребенок
colt [kəʊlt] – жеребчик
filly [ˈfɪli] – кобылка
dam [dæm] – (кобыла-)производительница, матка
to inherit [ɪnˈherɪt] – наследовать
sire [ˈsaɪə] – (жеребец-)производитель
sense – чувство
grass – трава
hay – сено
bran – отруби
oats [əʊts] – овес
carrot [ˈkærət] – морковь

2.2. Practise the pronunciation of the following words.

Eurasian [jʊ(ə)ˈreɪʒ(ə)n], Chinese [ˌʧaɪˈniːz], Siberia [sʌɪˈbɪərɪə], Missouri [mɪˈzʊəri], conquistador [kɒnˈkwɪstədɔː], polo [ˈpəʊləʊ], rodeo [ˈrəʊdɪəʊ], machine [məˈʃiːn], knight [naɪt].

2.3. Find the odd word in each line. Use a dictionary if necessary.

1) aggressive	tall	nervous	curious	stubborn
2) mystery	anger	fear	contentment	well-being
3) stallion	mare	piglet	foal	colt
4) oats	water	barley	bran	carrots
5) mane	hoof	armor	tail	skin
6) saddle	bridle	chariot	girth	stirrup

2.4. Match the synonyms.

1. ancestor	a. fear
2. stamina	b. partner
3. companion	c. hardiness
4. intelligent	d. forefather
5. to bolt	e. clever
6. fright	f. to run away

2.5. Match the words with their definitions.

1. dam	a. a young male horse
2. predator	b. a small horse
3. stallion	c. to travel sitting on a horse
4. filly	d. the mother of a four-legged animal
5. mare	e. a wild animal that kills and eats other animals
6. sire	f. a young female horse
7. colt	g. a mature male horse
8. to ride	h. to make a loud long cry
9. foal	i. the father of a four-legged animal
10. pony	j. a mature female horse
11. to neigh	k. a baby horse

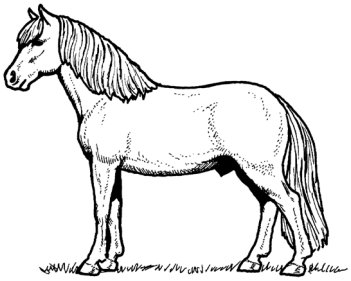
2.6. Fill in the gaps with the words from the box given below. Consult text A in case of difficulties.

	riding	predators	to break	stallion	
ponies	dam	foals	sire's	neighs	filly

1. … can stand up almost immediately after birth.
2. A ... gives to a foal its personality and behavior.
3. A foal usually inherits the … looks.
4. ... are good mounts for children.
5. Tigers, lions and wolves are ... but horses and cows are not.
6. The heard is headed by a ... .
7. At the age of 4 a … will become a mare.
8. A horse ... to greet its master.
9. A wild horse is difficult ... .
10. Horses are kept for … .

2.7. Read the text and do the tasks that follow.

TEXT A: HORSES



Early man hunted horses for food and it was not until 5000 B.C. that the Eurasian wild horse, the ancestor of all domestic horses, was tamed by the **nomads**[1] of the steppes. At first the horse was only used to draw loads, because of its natural tendency to buck predators or riders from its back. Over the centuries, horses were increasingly broken for riding, but it was only when the Chinese invented the stirrup in the 5t^{h} century A.D. that, cavalry became a popular means of warfare. Alongside their historic role as war machines, horses have always been valued companions and workers.

Horses' Personalities and Behaviour

Like humans individual horses can be lazy, **generous**[2], aggressive, nervous, **easygoing**[3], **curious**[4], **obedient**[5] or **stubborn**[6]. Horses are very intelligent. They are basically good-natured animals, especially if they trust their handlers. But a horse that has been **cruelly treated**[7] will react to the person who **abused**[8] it with fright for a long time.

A frightened horse will often kick or bite, but its usual reaction to extreme danger is to bolt.

Horses communicate by whinnying or neighing. The whinny is a short, low, sad sound that signals distress. The neigh is a loud, drawn-out sound that signals a variety of feelings: well-being and **contentment**[9], anger and fear.

Most horses are friendly and sociable towards other animals. They sometimes have a stable companion such as a dog, a cat, or even a kid goat. Horses rub noses with each other as a sign of friendship.

Highlights of the History of Horses

During the Ice Age, herds of horses **roamed**[10] every continent except Antarctica. But sometime during this era horses mysteriously **vanished**[11]

from North America. One theory explaining their disappearance is that the horses migrated north and west to Siberia across a land bridge.

The people who lived in central Asia around 1000 B.C. were the first to tame and ride horses.

About 400 B.C., the ancient Greeks developed basic rules for horsemanship (riding and handling horses). These rules are still in use today.

Horses were bred for size and **stamina**[12] during the Middle Ages. They carried **knights**[13] and heavy equipment into battle and wore **armor**[14], like their riders.

In A.D. 1519, horses reappeared in North America. They were brought to Mexico by the invading Spanish conquistadors.

Native Americans used horses for hunting and fighting. Horses played an important part in the colonizing and settling of America from the 1600s well into the 1800s. They were used for transportation, for clearing land and as mounts for Pony Express riders who carried the mail between Missouri and California.

Today horses are kept for riding, hunting, competitive sports like racing, polo, as performers, in circuses, rodeos, and movies, and for farm work.

Horse Facts

There are about 75 million horses in the world.

A horse's height is measured in hands. One hand equals about four inches.

Horses come in three basic sizes:

Heavy draft – used for load hauling and farm work.

Light – used for riding, jumping, and showing.

Pony – any small horse that is under 14.2 hands (58 inches) high. Some ponies are known for their hardiness and often serve as children's mounts and pets.

Horses in the wild run in herds. The herd is headed by a stallion (mature male) and includes mares (mature females), foals, colts, and fillies.

Foals – baby horses – are born with their eyes open. They can stand up almost immediately after birth and are able to run around within a few hours. A foal usually inherits its father's (sire's) looks, but its mother's (dam's) personality and constitution.

The average lifespan of a horse is 20 years, but some horses live for 50 or even 40 years.

Horses have a keen sense of smell, hearing, and direction.

Horses are vegetarians. They eat mainly grass and in winter hay. Horses also enjoy oats, bran, carrots, and barley.

Notes to the text:

1 – кочевники
2 – добрый
3 – добродушный
4 – любопытный
5 – послушный
6 – упрямый
7 – жестоко обращались
8 – плохо обращался
9 – удовлетворение
10 – бродили
11 – исчезли
12 – выносливость
13 – рыцари
14 – доспехи

2.8. Answer the following questions.

1. When and by whom was the Eurasian wild horse tamed?
2. What prevented people from riding the horse at first?
3. What kind of animals are horses?
4. Can horses communicate? How?
5. How do horses express friendship?
6. There are three basic sizes of horses. What are they?
7. How do horses run in the wild?
8. Why are horses called vegetarians?
9. What is the historic role of horses?
10. How are horses used nowadays?

2.9. Say whether the following statements are true or false. Correct the false ones.

1. Horses were never used for food.
2. The stirrup was invented by the Chinese.
3. Like people, horses can have their own temper.
4. The whinny usually expresses positive emotions.
5. Horses do not like other animals.
6. During the Ice Age horses inhabited Antarctica.
7. The rules for horsemanship developed by the ancient Greeks are still in use nowadays.
8. During the colonizing of America horses were used mainly for hunting.
9. There are 75 million horses in the world.
10. A horse’s height is measured in hands.
11. Ponies are kept to take part in rodeos.

2.10. Find in the text the English equivalents of the following words and phrases.

Таскать тяжести, приучить к узде, поведение, любопытный, ленивый, нервный, агрессивный, добродушный, послушный, упрямый, общительный, искусство верховой езды, жеребец, кобыла, жеребенок, наследовать, матка, производитель, молодая кобыла, молодой жеребец, рост.

2.11. Complete the sentences using the words from the box.

to buck	good-natured	bite
partners	the stirrup	to bolt	kick

1. The horse's natural tendency ... predators off its back made it difficult to ride it.
2. ... was invented by the Chinese in the 5th century.
3. In the history of humanity horses have always been not only servants but ... as well.
4. If horses trust their handlers they are mostly ... animals.
5. A frightened horse will often ... or … .
6. A horse's usual reaction to extreme danger is ... .

2.12. Fill in the chart about horses.

Kinds of horses according to their sex and age	Stallion, ...
Basic sizes	
Height	
Average lifespan	
Food	Carrots, ...
Traits of character	Easy-going, …
People working with horses	Rider, ...

2.13. From the list of verbs choose the ones referring to:

a) horses' activities and behavior;

b) human treatment of horses.

To bolt, to bite, to treat cruelly, to ride, to neigh, to breed, to draw loads, to handle, to abuse, to whinny, to buck predators off its back, to break, to develop basic rules for horsemanship, to kick, to use horses for hunting, to rub noses with each other, to roam.

2.14. Translate the sentences into English.

1. Евразийская дикая лошадь была предком всех домашних лошадей.
2. Подобно людям лошади могут быть ленивыми, любопытными, упрямыми или послушными.
3. Лошади долго помнят плохое обращение.

4. Лошади известны своей общительностью и дружелюбием по отношению к другим животным.

5. В средние века ценились крупные и выносливые лошади.

6. Исчезновение лошадей из Северной Америки во время ледникового периода может быть объяснено их миграцией в Сибирь по сухопутному перешейку.

7. Лошади помогали колонизировать и заселять Америку

8. Дикие лошади живут стадами.

9. Жеребенок, как правило, наследует конституцию и характер матки, а внешность – производителя.

10. Хотя средняя продолжительность жизни лошади 20 лет, некоторые лошади живут 40 лет.

2.15. Tell about:

1) the historic role of horses;

2) the role of horses nowadays;

3) horses' character and behavior.

2.16. Describe the biological characteristics of horses.

2.17. What do you think of horses? Answer these questions.

1. Do you like horses?
2. Would you like to have a horse of your own? What kind?
3. Do you think peasants can't do without horses?
4. What work do horses do in the village?
5. Is it easy to keep a horse? What conditions are necessary for it?
6. What do you think about horse racing?
7. Have you ever bet on horses?
8. What are horses bread for in our Republic?

2.18. Match the English proverbs with their Russian equivalents. Try to remember a situation from your personal or somebody else's experience which can be described by any of these proverbs.

1. A horse stumbles that has four legs.	A. Через силу и конь не скачет.
2. All lay loads on a willing horse.	B. Каждой лошади своя поклажа самой тяжелой кажется.
3. You may take a horse to the water, but you cannot make him drink.	C. Хорошего коня не следует погонять.
4. Never spur a willing horse.	D. Конь о четырех ногах, да и то спотыкается.
5. Every horse thinks its own pack heaviest.	E. Дареному коню в зубы не смотрят.
6. Don't look a gift horse in the mouth.	F. Кто везет, того и погоняют.

2.19. Learn the words before reading text B.

quality [ˈkwɒlɪti] – качество
shelter – укрытие, убежище
access [ˈækses] – доступ
sandy [ˈsændi] – песчаный
surface [ˈsəːfɪs] – поверхность
dust [dʌst] – пыль
mould [məʊld] – плесень
respiratory [rɪˈspɪrət(ə)ri] – дыхательный, респираторный
ailment [ˈeɪlm(ə)nt] – болезнь, заболевание
environment [ɪnˈvaɪrənm(ə)nt] – среда
prone to [prəʊn] – подверженный, склонный
exposure [ɪkˈspəʊʒə] – воздействие
harmful – вредный
barn – конюшня; сарай
insulation [ɪnsjʊˈleɪʃ(ə)n] – изоляция
damp – сырой, влажный
conditions [kənˈdɪʃənz] – условия
bedding – подстилка (*для скота*)
airways [ˈeəweɪz] – дыхательные пути
mucus [ˈmjuːkəs] – слизь
stall [stɔːl] – конюшня
drainage [ˈdreɪnɪdʒ] – сток
urine [ˈjʊərɪn] – моча
to soak up – впитывать
hay – сено
staple [ˈsteɪp(ə)l] – основной
fibre [ˈfaɪbə] – клетчатка
gut [gʌt] – пищеварительный тракт
fungus [ˈfʌŋgəs] – грибок, *мн.* – fungi [ˈfʌŋgiː]
lungs [lʌŋz] – легкие

2.20. Look at the title of text B and its subtitles. Judging by this information and the words from ex. 2.19., what medical problem does it discuss? What is this problem caused by?

2.21. Put each word in the correct blank.

1) ***access*** / ***shelter***

Horses need _____ from the wind and _____ to water and food.

2) ***surfaces*** / ***dusts***

Sandy _____ can introduce many _____ .

3) ***lungs*** / ***mucus***
Ammonia can increase _____ production in horses' _____ .
4) ***urine*** / ***bedding***
You should provide adequate _____ to soak up _____ .
5) ***hay*** / ***fibre***
_____ is a source of _____.
6) ***eyes*** / ***spores***
Mould _____ are often undetectable to human _____ .
7) ***condensation*** / ***barn***
A cold and wet _____ may have _____ problems.

2.22. Look through the text and find the words having the same meaning as:

- disease *(paragraph 2)*
- conditions *(paragraph 2)*
- aeration *(paragraph 3)*
- isolation *(paragraph 4)*
- moist *(paragraph 4)*
- respiratory tract *(paragraph 5)*
- to absorb *(paragraph 6)*
- digestive tract *(paragraph 7)*

2.23. Read the text and do the tasks that follow.

TEXT B: AIR QUALITY IN THE HORSE BARN

[1]Horses are naturally designed to live outside. With shelter from the wind and access to fresh water and good quality food, most horses can live quite comfortably without a stable. This is not always a convenient option for domestic horses.

[2]The domestic horse is frequently stabled and ridden on sandy surfaces, which can introduce many dusts and moulds that increase the chances of respiratory ailments. A horse in a dusty environment is more prone to infection than a horse in a cleaner environment.

What can you do to improve air quality and reduce dust in your stable?

Ventilation

[3]Fresh air without **drafts**[1] will go a long way to minimizing a horse's exposure to harmful environmental **irritants**[2]. A combination of **inlets**[3] and **outlets**[4] help to provide ventilation, especially once barn windows and doors are closed up to provide warmth in the winter. Mechanical ventilation is another consideration.

Insulation

[4]Minimizes temperature **fluctuations**[5] caused by warm days and cold nights. Proper insulation not only keeps the barn warm in the winter, but when combined with good ventilation, a barn will avoid condensation problems which can be in cold and damp conditions.

Bedding

[5]Choose high-quality, absorbent bedding with low dust levels. If you can smell ammonia – your horse's airways are at risk. Ammonia can increase mucus production. Daily, proper cleaning of stalls is of course a must. It is recommended to turn horses out prior to cleaning the stable as bedding is the second most common source of dust in the barn.

Drainage

[6]Floors that allow urine to be absorbed and travel down through the flooring material layers can suffer from **odour retention**[6]. Non-porous floors depend on **slope**[7] for drainage and adequate bedding to soak up urine.

Feed

[7]Hay is the staple of the horse's diet providing fibre, which is essential for healthy gut function but is also the single most common source of dust and mould for horses. Even good quality hay will contain some dust. **Sprinkling**[8] hay with water can reduce the dust by half. Feeding from the ground and not throwing hay over the top of stall door will also reduce airborne dust. All hay will have some mould present as there are many types of fungi in field crops. Hay that has been **baled**[9] damp is the biggest concern as doing so provides an environment of moisture and heat for mould to thrive and multiply. Mould spores are very small and often undetectable to the human eye, but can travel deep into the lungs of a horse. Avoid round bales which can become havens for dust and mould.

Notes to the text:

1 – сквозняки
2 – раздражители
3 – входные отверстия
4 – выпускные отверстия, отдушины
5 – колебания
6 – сохранение запаха
7 – наклон, уклон
8 – опрыскивание
9 – упаковано в тюки, рулоны

2.24. Answer the questions.

1. Is it good for domestic horses to leave outside?
2. How can you provide ventilation?
3. What is the main function of insulation?
4. Why is it recommended to turn horses out prior to cleaning the stable?
5. What are the best floors for horses?
6. Why do horses need fibre?
7. Why is it recommended to sprinkle hay with water?
8. Why should round bales be avoided?

2.25. Say whether these statements are true or false or not mentioned in the text. Correct the false ones.

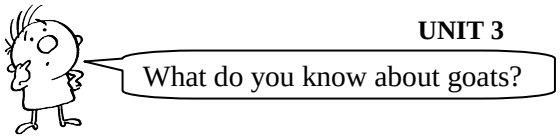
1. A horse can inhale and exhale approximately 60 litres of air per minute.
2. Stabling horses on sandy surfaces increases the chances of respiratory ailments.
3. There are mucus-producing cells in the linings of airways.
4. Barns with closed windows and doors need ventilation.
5. Moulds often cause respiratory ailments.
6. Stalls must be cleaned every other day.
7. Floors that allow urine to be absorbed can suffer from odor retention.
8. Hay is the most common source of dust and mould for horses.
9. Good quality hay doesn't contain any dust.
10. Throwing hay over the top of stall door reduces airborne dust.

2.26. Replace the Russian words in brackets with their English equivalents. Refer to the text if necessary.

1. A horse in a dusty environment (больше подвержена инфекции) than a horse in a cleaner environment.
2. Fresh air helps to minimize (воздействие на лошадь вредных раздражителей внешней среды).
3. (В холодных и сырых условиях) a barn is likely to have condensation problems.
4. You should choose (качественную подстилку с абсорбирующими свойствами и низким содержанием пыли).
5. All hay will have some mould present (так как в полевых культурах присутствуют разные типы плесневых грибов).
6. (Во влажной и теплой среде) mould will thrive and multiply.

2.27. What new facts have you learnt from the text? Enumerate them.

2.28. Give recommendations on how to feed horses to reduce the chances of respiratory ailments.



UNIT 3

3.1. Learn the following words before reading text A.

goat [gəʊt] – коза
lush [lʌʃ] – сочный
pasture [ˈpɑːstʃə] – пастбище

to nibble – щипать (траву)
thistle [ˈθɪs(ə)l] – чертополох
to chomp – жевать
flavour [ˈfleɪvə] – вкус
protein [ˈprəʊtiːn] – белок
nanny goat – *разг.* коза
billy goat – *разг.* козел
beard [bɪəd] – борода (у животного)
chin – подбородок
breed – порода
Toggenburg [ˈtɒgənˌbəːg] – тоггенбург (порода коз молочного направления)
Saanen [ˈsɑːnən] – зааненская порода короткошерстных коз молочного направления
Nubian [ˈnjuːbɪən] – нубийская порода коз молочного направления
Anglo-Nubian [ˌangləʊ ˈnjuːbɪən] – англо-нубийская порода коз молочного направления
to survive – выжить
to descend [dɪˈsend] from – происходить от
dung [dʌŋ] – помет, навоз
bone – кость
sinew [ˈsɪnjuː] – сухожилие
hide – шкура
leather [ˈleðə] – кожа
wool – шерсть
offspring – потомство; приплод
gestation [dʒeˈsteɪʃ(ə)n] – беременность
kid – козленок
to wean [wiːn] – отлучать (от матки), отнимать
adult [ˈædʌlt] – взрослый
to butt [bʌt] – бодаться
gate – ворота
fence – забор, изгородь

3.2. Practice the pronunciation of the following words.

Thorny [ˈθɔːni], yogurt [ˈjɒgət], Switzerland [ˈswɪtsələnd], Persia [ˈpəːʃə], Asia [ˈeɪʒə], to chew [tʃuː], primarily [ˈpraɪm(ə)rɪli], desert [ˈdezət], weight [weɪt], azalea [əˈzeɪlɪə], leash [liːʃ], collagen [ˈkɒlədʒ(ə)n].

3.3. Put each of the words from the box in columns under the topic headings: a) dairy products; b) body parts and structures; d) goats' food.

hide	yogurt	bone	grass	thistles	beard
sinew	cheese	horns	milk	bushes	wool

3.4. Match the synonyms.

1. pasture	a. skin
2. to nibble	b. to chew
3. flavour	c. wool
4. to chomp	d. grazing land
5. breed	e. taste
6. hair	f. strain
7. hide	g. to bite

3.5. Match the words to make up word combinations. Consult text A in case of difficulties.

lush	ears
rich	behaviour
thorny	coat
floppy	animals
dappled	pasture
work	cheese
milk	bushes
dog-like	producers

3.6. Match the words with their definitions.

1. to butt	a. to continue to live
2. nanny goat	b. one of the structures that make up the skeleton in
3. billy goat	many animals
4. hide	c. to make a young animal stop feeding on its mother's
5. to descend	milk and to start eating other food
6. to survive	d. to hit the head against something
7. bone	e. a male goat
8. sinew	f. white inelastic tissue that attaches a muscle to a bone
9. to wean	g. an animal's skin
	h. to have the origin
	i. a female goat

3.7. Fill in the gaps with the words from ex. 3.6. You may have to make small changes in these words.

1. Horses', cows' and elephants' ... are used for making leather.
2. The dog was chewing on a ... .
3. Robinson Crusoe managed ... on a desert island.
4. Collagen is the main protein of …, bone and skin.
5. The goat lowered its head and ... at the hedge.
6. ... are good milk producers.

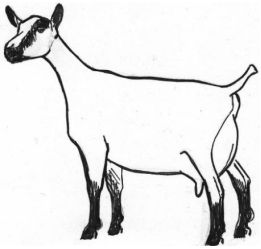
7. The farmer has decided ... all of the calves from their mothers and sell them in two weeks.

8. ... have a beard under the chin.

9. The Anglo-Nubian goat ... from the Nubian goat.

3.8. Read the text and do the tasks that follow.

TEXT A: GOATS



Goats don't need lush pasture; they'll nibble almost anything, including thorny bushes and thistles. If you stand too close to a goat you may even find that it starts chomping at your clothes!

Female goats – called nanny goats – are good milk producers. Some people prefer the flavour of goats' milk which can be made into rich cheese and yogurt. One cup of goat milk is high in protein and calcium.

The male billy goats have a distinctive beard under the chin.

Two of the best-known breeds of goat – the Toggenburg and Saanen – come from Switzerland.

Many goats are able to survive in dry, hot countries, eating whatever plants they can find. The Nubian goat lives in the deserts of Africa. In the 19th century, it was brought to Britain for breeding. The result was this cute-looking Anglo-Nubian goat, with its long **floppy**[1] ears and a **dappled**[2] coat in shades of brown and grey. Today the Anglo-Nubian is the popular goat in the USA.

Highlights of the History of Goats

Most domestic goat breeds probably descended from a wild goat that lived in Persia (now Iran).

Goats were first domesticated about 9,000 years ago; probably in Southwestern Asia. Neolithic farmers began to herd wild goats primarily for easy access to milk and meat, as well as to their dung, which was used as fuel, and their bones, hair and sinew for clothing, building and tools.

Through the centuries, goats have been bred for food (milk, cheese, meat) and for their hair (wool) and hide from which leather is made. They are used as work animals in some countries such as India.

Historically, goat hide has been used for water and wine bottles in both traveling and transporting wine for sale. It has also been used to produce **parchment**[3].

Goat Facts

There are more than 400 million goats worldwide. The United States has about 3 million goats.

Goats are ruminant mammals. They are closely related to cows and antelopes.

The lifespan of a goat ranges from 8 to 18 years. Female goats give birth to one or two offspring in the spring after a gestation period of 150 to 180 days. Baby goats are called kids.

Within minutes of being born, kids are up and walking around. At three to four months the kids are weaned, and at 30 months they are ready to have kids of their own.

Depending on the breed, adult female goats can weigh between 22 to 300 pounds and adult males can have between 27 to 350 pounds of body weight.

Goats have a well-developed sense of taste. They are attracted by salty-tasting things, such as paper, and they like to lick the salt off people's hands. They are known for **rooting out**[4] almost anything containing minerals and chewing on it. Azalea bushes are poisonous to goats.

Butting (hitting the head against something) is a goat's way of greeting other goats. They also butt at trees, gates, or fences for fun, and they will butt at people or things to show anger.

Domestic goats are intelligent and dog-like in their behaviour. They can be trained to a **leash**[5] and like to follow the owners around.

Notes to the text:

1 – висячие
2 – пятнистый
3 – пергамент
4 – выкапывают с корнем
5 – поводок

3.9. Answer the following questions.

1. What helps goats to survive in severe conditions?
2. How do people use goats' milk?
3. When was the Nubian goat brought to Britain for breeding?
4. Where did the ancestor of most domestic goats live?
5. Why do goats like to chew paper?

6. Why do goats butt at each other?
7. Are domestic goats clever animals?
8. What animals do goats resemble in their behavior?
9. What animals are they related to?

3.10. Say whether the following statements are true or false. Correct the false ones.

1. Goats can't live without lush pastures.
2. Female goats are called nanny goats.
3. The Anglo-Nubian goat is unpopular in the USA.
4. Goats were domesticated some 9,000 years ago.
5. In some countries, goats are used as work animals.
6. There are over 400 million goats in the world.
7. Goats can live to 18 years.
8. Azalea bushes are common food for goats.
9. Goats butt at trees and gates to show anger.
10. Domestic goats can be trained to leash and follow their owners.

3.11. Find in the text the English equivalents of the following words and phrases.

Сочное пастбище, быть способным выжить, шкура, происходить от, шерсть, кожа, борода, хорошо развитое чувство вкуса, выкапывать с корнем, бодаться, привязь, забор, коза, козел, козленок, помет, потомство, беременность, отлучать.

3.12. Join the halves of the sentences.

1. Goats' ability to nibble almost anything	a. are typical of some goats.
2. The Anglo-Nubian goat, appeared as a result of breeding,	b. because they give food, wool and leather.
3. Most domestic goat breeds	c. makes possible their survival in dry, hot countries.
4. Through the centuries, goats have been important for man	d. are two of the best-known breeds of goat.
5. Horns and a pointed beard	e. had long floppy ears and a dappled coat of brown and grey shades.
6. Being attracted by salty-tasting things, goats	f. descended from a wild goat that lived on the territory of modern Iran.
7. The Toggenburg and Saanen	g. root out and chew almost anything containing minerals.

3.13. Pick out from the text the verbs describing goats' behavior.

3.14. Choose the correct word.

1. A lot of people prefer the (smell, flavor, color) of goats' milk.
2. Goat milk is (tall, high, low) in protein and calcium.
3. Goats are ruminant (predators, producers, mammals).
4. The Nubian goat is the (ancestor, descendant, offspring) of the Anglo-Nubian goat.
5. A goat's lifespan (weighs, derives, ranges) from 8 to 18 years.
6. At three to four months the kids are (killed, weaned, cleaned).
7. In case of goats, the (gestation, greeting, feeding) period lasts for about 150–180 days.

3.15. Fill in the chart about goats.

Goat breeds	Average lifespan	Average weight	Products from goats

3.16. Translate the sentences into English.

1. Козы дают хорошее молоко.
2. Вкус козьего молока нравится многим людям.
3. Козы способны выжить даже в пустыне, так как не нуждаются в сочных пастбищах.
4. В XIX веке нубийскую козу привезли в Великобританию для разведения.
5. В Индии коз используют в качестве рабочих животных.
6. Коз разводят ради мяса, молока, сыра, кожи и шерсти.
7. Известно, что козам нравятся соленые на вкус вещи.
8. Бодание является у коз способом приветствия.
9. Домашние козы похожи своим поведением на собак и очень умны.

3.17. What interesting facts about goats have you learned from the text?

3.18. Can you remember any situations that can be illustrated by these proverbs?

1. Trumpet in a herd of elephants; crow in the company of cocks; bleat in a flock of goats.
2. The goat which has many owners will be left to die in the sun.
3. Better a goat that can give milk than a cow that cannot.

A. Лучше синица в руках, чем журавль в небе.
B. Тонул – топор сулил, а как вытащили – и топорища жаль.
C. На воре и шапка горит.
D. С волками жить – по-волчьи выть.

4. A man accused of stealing a goat should not entertain his visitors with goat meat.
5. When you are sick you promise a goat, but when you are well again make do with a chicken.

E. У семи нянек дитя без глаза.

3.19. Learn the words before reading text B.

nutritionist [njʊˈtrɪʃ(ə)nɪst] – специалист по кормлению
feed additive – кормовая добавка
to cause [kɔːz] – вызывать
shift – изменение
nutrient [ˈnjuːtrɪənt] – питательный элемент
to determine [dɪˈtəːmɪn] – определять, решать
response [rɪˈspɒns] – реакция
to anticipate [ænˈtɪsɪpeɪt] – ожидать, предвидеть
available [əˈveɪləb(ə)l] – доступный; имеющийся в наличии, в распоряжении
performance [pəˈfɔːm(ə)ns] – продуктивность
peak milk – максимум лактации
milk persistency [pəˈsɪstənsɪ] – продолжительность лактации
milk records – учёт надоев молока, учёт молочной продуктивности
milk curve [kəːv] – лактационная кривая
growth chart – график прироста
body condition graph [grɑːf] – диаграмма состояния тела
reproductive summary – репродуктивные показатели
to supply [səˈplaɪ] – снабжать, поставлять
average [ˈæv(ə)rɪdʒ] – средний
volatile fatty acid [ˈvɒlətaɪl ˌfæti ˈæsɪd] – летучая жирная кислота
loss – потеря
essential [ɪˈsenʃ(ə)l] – важный; необходимый

3.20. Read the title of text B. Judging by the title and the words from ex. 2.18., which of these things do you think are mentioned in it? Look through the text and write the numbers of the paragraphs in which you found them.

1) the definition of feed additives;
2) animals’ responses to feed additives;
3) genetically modified feed additives;
4) the list of ingredients in a feed.

3.21. Replace the words printed *in italics* with the words from the word bank, which have the same meaning.

Word Bank	ingredient	determine	feed additives	cause
	peak milk	rumen	nutrients	nutritionists

1. Feeding goats in the current economic environment is not easy for *specialists in feeding farm animals*.
2. Feed additives contain *substances that animals need in order to live and grow*.
3. Some feed additives can *be the reason for* intensive growth.
4. Most sheep and goat producers will use very few *food supplements for farm animals including vitamins, amino acids, fatty acids, and minerals*.
5. To *make a decision* if you want to use a feed additive you should consider four factors.
6. Some feed additives increase *the period of highest milk yields*.
7. One of the effects is stabilized pH in the *large first part of the stomach of cows, goats, and sheep in which cellulose is broken down by the action of symbiotic microorganisms.*
8. Feed companies do not have to give you the exact weight of each *component part*.

3.22. Look through the text again and find the words having the same meaning as:

- reaction *(paragraph 1)*
- change *(paragraph 1)*
- expected *(paragraph 3)*
- productivity *(paragraph 4)*
- important *(paragraph 5)*
- to provide *(paragraph 8)*

3.23. Read the text and do the tasks that follow.

TEXT B: FEED ADDITIVES FOR GOATS AND SHEEP

[1]Feeding sheep and goats, particularly in the current economic environment, is a **challenging task**[1] for producers and nutritionists. Feed additives are a group of feed ingredients that can cause a desired animal response such as rumen pH shift or growth. Several feed additives contain nutrients such as **sodium**[2] in sodium bicarbonate, or protein in **yeast culture**[3]. Feed additives are not a requirement or guarantee for high productivity or profitability.

[2]Most sheep and goat producers will use very few, if any, feed additives. However, feed additives are **heavily marketed**[4] and producers should be aware of what they are and which ones work and which do not. Not all feed

additives used by larger ruminants such as dairy cows are **legal**[5] or **suitable**[6] to use in sheep and goats.

[3]Four factors should be considered to determine if you want to use a feed additive: anticipated response, economic **return**[7], available research, and field responses.

[4]Response refers to the performance changes the user could expect or anticipate when a feed additive is included. Several examples are:

• Higher milk yield (peak milk and/or milk persistency)
• Higher average daily gain (ADG)
• Better hair/wool growth
• Increase in milk components (protein and/or fat)
• Greater dry matter intake
• Stimulation of rumen microbial synthesis of protein and/or volatile fatty acid (VFA) production
• Increased digestion in the digestive tract
• Stabilized rumen environment and pH
• Improved growth (gain and/or feed efficiency)
• Minimized weight loss
• Reduced heat stress effects
• Improved health (such as less **ketosis**[8], reduced **acidosis**[9], or improved immune response)

[5]Research is essential to determine if experimentally measured responses can be expected in the field. Studies should be conducted under controlled conditions similar to field situations and have statistically analyzed results (determining if the differences are repeatable).

[6]Results obtained on individual farms are the economic return. Producers and nutritionists must have data to compare and measure responses.

[7]Several tools to measure results (to evaluate responses on a farm) include milk records (peak milk, persistency, milk components, and milk curves), reproductive summaries, dry matter intake, average daily gains, growth charts, body condition graphs, and herd health profiles that will allow critical evaluation of a selected additive.

[8]A feed company must supply you with a complete list of ingredients in a feed if such a request is made. However, they do not have to give you the exact weight of each ingredient; what they will do is list the ingredients starting with the largest and ending with the smallest.

Notes to the text:

1 – непростая задача
2 – натрий

3 – культура дрожжей

4 – усиленно рекламируются

5 – законный; легальный

6 – подходящий, пригодный

7 – прибыль

8 – кетоз (нарушение углеводного, белкового и жирового обменов и накопление в организме большого количества кетоновых веществ (ацетона, ацетоуксусной и бета-оксимасляной кислот)

9 – ацидоз (нарушение кислотно-щелочного баланса в организме, которое характеризуется избытком кислот, а также повышением концентрации водородных ионов)

3.24. Answer the questions.

1. What do feed additives cause in animals?
2. What nutrients can feed additives contain?
3. What four factors should be considered to determine if you want to use a feed additive?
4. What does response refer to?
5. What changes in milk productivity can feed additives cause?
6. In what way do feed additives improve the digestive system of animals?
7. How do feed additives affect the growth and development of animals?
8. How do they affect their health?
9. Why is it essential to do research on feed additives?
10. What tools can be used to measure the results?

3.25. Say whether these facts are true or false or not mentioned in the text. Correct the false ones.

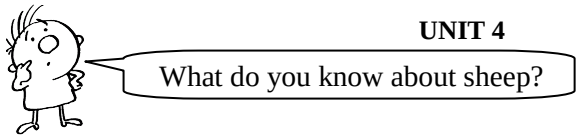
1. Feed additives always guarantee high productivity.
2. Feed additives are heavily marketed nowadays.
3. Feed additives reduce the quality of goat milk.
4. All feed additives used by dairy cows are suitable to use in sheep and goats.
5. Studies of feed additives should be conducted under controlled conditions similar to field situations.
6. The data received on individual farms should be compared to measure responses.
7. It is necessary to determine if the differences are repeatable.
8. Milk records usually include peak milk, persistency, milk components, and milk curves.
9. A feed company must give you the exact weight of each ingredient in a feed.
10. Feed additives are not allowed in organic farming.

3.26. Put the statements in the order in which they are mentioned in the text.

1. Milk components include protein and fat.
2. Results obtained on individual farms are the economic return.
3. Producers should be aware of what feed additives are and which ones work and which do not.
4. Critical evaluation of a selected additive is based on measuring results.
5. Some feed additives used by larger ruminants are illegal to use in sheep and goats.
6. Feed companies list the ingredients starting with the largest and ending with the smallest.
7. Improved growth depends on feed efficiency.
8. Feed additives are not a requirement for high profitability.

3.27. Are you for or against using feed additives in feeding farm animals? Why? Give as many reasons as you can.

3.28. What about food additives? Do you want to buy food containing additives? Why? / Why not?



UNIT 4

4.1. Learn the following words before reading text A.

sheep [ʃiːp] – овца, *мн.* – sheep
hardy – выносливый
to withstand [wɪðˈstænd] – выдерживать, выносить
scarce [skeəs] – скудный, недостаточный
mutton [ˈmʌt(ə)n] – баранина
ram [ræm] – баран
ewe [juː] – овца
lamb [læm] – ягненок
lambing [ˈlamɪŋ] – окот (*овец*), ягнение
orphan [ˈɔːf(ə)n] – сирота
to rear [rɪə] – выращивать
shearing [ˈʃɪərɪŋ] – стрижка (овец)
clippers – ножницы (для стрижки овец)
to dip – мыть в дезинфицирующем растворе
disease [dɪˈziːz] – болезнь

source [sɔːs] – источник
fat – жир
silage [ˈsaɪlɪdʒ] – силос
fodder – корм
cornstalk – стебель кукурузы
silo [ˈsaɪləʊ] – силосохранилище
straw [strɔː] – солома
legume [ˈlegjuːm] – бобовое растение
weed [wiːd] – сорняк
herbs – разнотравье
shrubs [ʃrʌbz] – кустарник
single birth – ягненок, который родился один
twins – двойня
triplets – тройня
quadruplets [ˈkwɒdrʊpləts] – четверо ягнят, родившихся вместе
quintuplets [ˈkwɪntjʊpləts] – пятеро ягнят, родившихся вместе

4.2. Practice the pronunciation of the following words.

Mountainous [ˈmaʊntɪnəs], Northern Hemisphere [ˌnɔːð(ə)n ˈhemɪsfɪə], migration [maɪˈgreɪʃ(ə)n], spiral [ˈspaɪr(ə)l], to curve [kəːv], to occur [əˈkəː].

4.3. Read these groups of words and translate them into Russian paying attention to the meaning of the suffixes.

Lamb – to lamb – lambing; to rear – rearing – reared; feed – to feed – feeding – fed; to shear – shearing – sheared; to dip – dipping – dipped.

4.4. Match the words with their definitions.

1. orphan	a. passing animals trough a bath containing a
2. ram	chemical that kills insects
3. shearing	b. any of many substances, present in such foods as
4. ewe	meat, eggs and beans that helps to build up the body
5. dipping	c. unhealthy condition caused by infection
6. silage	d. two children born of the same mother at the same
7. lamb	time
8. twins	e. cutting the wool off a sheep
9. disease	f. an adult female sheep
10. protein	g. a child whose parents are both dead
	h. a mature male sheep
	i. a young sheep
	j. grass or other plants cut and stored in a silo away
	from air for preservation as winter food for cattle

4.5. Complete the sentences using the words from ex. 4.4. You may have to make small changes in these words.

1. Mutton is food high in ... .
2. My brother and I look so alike that people often think we are ... .
3. Her parents died in a plane crash so she is an … .
4. Some … are caused by bacteria.
5. ... lambs are lighter than ... .
6. Newborn ... weigh from 4 to 18 pounds.
7. Nowadays ... is done by electric clippers.
8. ... is done to protect sheep against diseases.
9. ... has a comparatively low feeding value.

4.6. Match the synonyms.

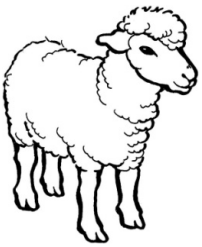
1. scarce	a. forage
2. to shear	b. to bend
3. disease	c. bush
4. herb	d. deficient
5. to handle	e. to clip
6. to curve	f. illness
7. shrub	g. to look after
8. fodder	h. grass

4.7. Match the antonyms.

1. to survive	a. female
2. indoors	b. weak
3. painless	c. forward
4. male	d. domestic
5. timid	e. abundant
6. scarce	f. outdoors
7. backward	g. painful
8. wild	h. to die
9. hardy	i. brave

4.8. Read the text and do the tasks that follow.

TEXT A: SHEEP



Sheep are hardy animals and they roam over wide areas on the farm. With their woolly coats, sheep can withstand cold weather. They can survive when food is scarce. There are over 50 (different breeds of sheep for farmers to choose from. Sheep are kept for their wool, meat (mutton) and milk.

The male sheep is called a ram, the female – a ewe. Ewes have their lambs early in the spring, often while there is still snow on the ground. At lambing time many farmers bring their sheep indoors where they can keep an eye on them all the time. If a ewe dies, her orphan lambs have to be reared by hand.

They need to be bottle-fed every four hours – day and night – for the first four or five days.

Sheep shearing takes place once a year, usually at the beginning of summer. In the past, it had to be done by hand and took a long time. Now electric clippers are used and an expert can shear 300 sheep in a day. Shearing is painless for the sheep, and afterwards they have to be dipped to protect them against diseases.

Highlights of the History of Sheep

The wild ancestors of domesticated sheep lived in mountainous and plain areas all across the Northern Hemisphere. Today, wild sheep are found only in mountainous areas. One theory explaining their migration from the plains is that they retreated before an increasingly dominant animal – man.

Sheep were among the first animals to be domesticated, more than 8,000 years ago, probably in Western Asia.

Sheep became an important source of energy food – high in protein and fat – for early humans. Because sheep were easy to handle and herd, primitive peoples were able to migrate from place to place with them.

There is evidence that sheep wool was used in **fabrics**[1] as early as 4000 B.C.

Sheep Facts

Like cattle and goats, sheep eat grass, hay, silage (fodder such as cornstalks, hay, or straw, kept in a silo), legumes, weeds, herbs, and shrubs.

Some rams (male sheep) and ewes (females) have horns. They grow backward and downward, then curve forward in a spiral.

A mature sheep can weigh from 60 to 400 pounds. The size of a sheep varies considerably, depending upon the breed.

The lifespan of a sheep ranges from 12 to 20 years.

Sheep's wool is usually white, but black, brown, or red wool is not uncommon.

Newborn lambs can weigh from 4 to 18 pounds. Ram lambs are usually heavier than ewes. Most lambs are single births, but twins, triplets, and even quadruplets and quintuplets sometimes occur.

Sheep are **timid**[2], nearly **defenseless**[3] animals, easy **prey**[4] for wolves and other predators. They spend their time grazing and resting, follow their leader, and prefer to flock together.

Notes to the text:

1 – ткани
2 – робкий, пугливый
3 – беззащитный
4 – добыча

4.9. Answer the following questions.

1. How many sheep breeds are there in the world?
2. When do ewes have their lambs?
3. How many lambs can a ewe have?
4. Can orphan lambs survive if their mother dies? How?
5. Why did shearing take much time in the past? Why is it not a long process nowadays?
6. Why do sheep have to be dipped after shearing?
7. Where did the wild ancestors of domesticated sheep live?
8. Did sheep migrate with primitive peoples?
9. Why do sheep eat the same food as cattle and goats?

4.10. Say whether the following statements are true or false. Correct the false ones.

1. Woolly coats help sheep to withstand cold weather.
2. Sheep cannot survive without abundant food.
3. At lambing time farmers keep their sheep outdoors.
4. Orphan lambs have to be bottle-fed 3 times a day for the first five days.
5. An expert can shear 3000 sheep in a day.
6. Sheep were domesticated more than 8,000 years ago.
7. Sheep wool has been used in fabrics since ancient times.
8. All sheep have horns.
9. There are no great variations in the size of a sheep.
10. Sheep's wool can be red or brown.

4.11. Find in the text the English equivalents of the following words and phrases.

Выносливое животное, переносить холодную погоду, недостаточно пищи, время ягнения, присматривать за кем-либо, кормить из бутылки, стрижка, делать вручную, электрические ножницы, болезнь, источник

калорийной пищи, новорожденный ягненок, с высоким содержанием белка и жира, бобовое растение, сорняк, корм, разнотравье, стебель кукурузы.

4.12. Choose the correct word.

1. Sheep can survive when food is (absent, scarce, artificial).
2. Such timid and defenseless animals as sheep are easy prey for (vegetarians, herbivores, predators).
3. (Lambing, dipping, shearing) takes place at the beginning of summer.
4. Most lambs are (triplets, single births, quintuplets).
5. Shearing is (painful, painless, pleasant) for the sheep.
6. Sheep's (extinction, migration, revival) from the plains to the mountains was caused by human expansion.
7. Primitive people migrated with their sheep as they were easy to (herd, hunt, ride).
8. A (newborn, mature, sick) sheep can weigh 400 pounds.

4.13. Translate the sentences into English.

1. Овцы приносят ягнят рано весной.
2. Большинство овец приносит одного ягненка, но иногда рождается двое, трое или даже пятеро.
3. Ягненка, который остался без матери, нужно кормить вручную.
4. Стрижку овец проводят один раз в год.
5. После стрижки овец нужно искупать в дезинфицирующем растворе для защиты от болезней.
6. Овцы были среди первых одомашненных животных.
7. С помощью электрических ножниц опытный специалист может остричь 300 овец в день.
8. Овцы следуют за своим вожаком и предпочитают держаться вместе.

4.14. Fill in the chart about sheep.

Kinds of sheep according their sex and age	Average lifespan	Weight	Sheep's food	Products from sheep
Ewe, ...			Grass, …	

4.15. Tell your groupmates how to keep sheep.

4.16. Match the English proverbs with their Russian equivalents. Which of them do you like best? Can you think of any situation that can be described by it?

1. Every family has a black sheep.	A. Согласного стада и волк не берет.
2. If one sheep leaps over the ditch, all the rest will follow.	B. У ленивой пряхи и про себя нет рубахи.
3. Where every hand fleeces, the sheep go naked.	C. В семье не без урода.
4. A lone sheep is in danger of the wolf.	D. Паршивая овца все стадо портит.
5. A lazy sheep thinks its wool heavy.	E. Куда один баран, туда и все стадо.
6. One scabbed sheep will mar a whole flock.	F. Где все стригут, там овцы голы.

4.17. Learn the words before reading text B.

skill – навык, умение
know-how – знание технологии
to achieve [əˈtʃiːv] – достигать, добиваться
grazier [ˈgreɪzɪə] – животновод, выращивающий скот на подножном корме
to observe [əbˈzəːv] – следить, наблюдать
management [ˈmænɪdʒm(ə)nt] – содержание (*животных*)
visually [ˈvɪʒuəli] – зрительно, визуально
to assess [əˈses] – оценивать
paddock [ˈpædək] – загон
parasite [ˈpærəsaɪt] – паразит
infested [ɪnˈfestɪd] – зараженный
entire [ɪnˈtaɪə] – целый, весь
nutritious [njʊˈtrɪʃəs] – питательный
seed [siːd] – семя, семечко
leaf [liːf] – лист, *мн.* – leaves
dormant [ˈdɔːm(ə)nt] – в состоянии покоя
palatable [ˈpælətəb(ə)l] – вкусный
finished – откормленный
annual [ˈænjuəl] – однолетний
turnip [ˈtəːnɪp] – турнепс, репа
humid [ˈhjuːmɪd] – сырой, влажный
crossbreed [ˈkrɒsbriːd] – гибрид, кроссбред
appropriate [əˈprəʊpriət] – подходящий

4.18. Read the title of text B and its subtitles. What pitfalls is it going to discuss?

4.19. Look through the text and find the paragraphs which mention the following things:

1) know-how;
2) the grazier's trained eye;
3) guardian animals;
4) visual assessment of the paddock;
5) a high-energy annual crop;
6) appropriate breeds and crossbreeds.

4.20. Put each word in the correct blank.

1) ***forages*** / ***grains***
Unlike _____ growing _____ are always changing.

2) ***changes*** / ***graziers***
_____ have to know when to make _____.

3) ***paddock*** / ***sheep***
You shouldn't keep the _____ in the infested _____.

4) ***pastures*** / ***parasites***
Test your _____ for the presence of _____.

5) ***growing*** / ***annual***
_____ crops can help to finish lambs after the end of the _____ season.

6) ***dormant*** / ***frosted***
Most grasses and legumes go _____ after being _____.

4.21. Find in the text the words having the same meaning as:

- ability *(paragraph 1)*
- to watch *(paragraph 2)*
- tasty *(paragraph 7)*
- fat *(paragraph 7)*
- wet *(paragraph 8)*
- hybrid *(paragraph 8)*

4.22. Read the text and do the tasks that follow.

TEXT B: THE BIGGEST PITFALLS[1] TO PRODUCING GRASS-FED LAMB

[1]There is no denying that producing a grass-fed lamb requires skill and know-how. Unlike grains and stored forages that can be tested and formulated into a ration with a predictable result, green and growing forages are constantly changing.

[2]Therefore it is impossible to offer a **cookbook**[2] for producing grass-fed lambs and expect everyone, everywhere, to achieve the same result. The grazier needs to train his or her eye to observe forages and animals so they know when to make changes.

[3]The biggest pitfalls that get in the way of producing grass-fed lambs are listed below.

Predators

[4]You are likely to lose a great number of lambs in your first **encounter**[3] with predators if you do not have a **viable**[4] strategy to stop them. If you are not using electric fencing and **guardian animals**[5] you are going to lose your sheep and will have to exit the business.

Forage quality

[5]This is **the trickiest**[6] aspect of grazing. Most of your management is going to depend upon visually assessing the paddock and your animals. While it would seem ideal to graze the paddock when it is at an optimal nutritional state, always doing so may cause more problems than it solves. That is because of parasites. So test your pastures and move the sheep out of the infested paddock.

[6]Forage quality also varies with the season. Almost the entire plant is nutritious in early spring. When plants have gone to seed, only the very top three leaves are adequate for lactating ewes and lambs. Therefore it is necessary to move the sheep after grazing only the top 30%.

The finishing plan

[7]Most grasses and legumes go dormant after being frosted a time or two. Grasses start pulling the sugars from their leaves and storing them in their roots, making the forage less palatable. As it takes seven to eight months to produce a finished lamb on grass, and the growing season in the North is only six months long, a high-energy annual crop such as turnips can help to finish lambs after the end of the growing season.

Genetics

[8]You need the right genetics for your environment. Some breeds that **excel**[7] in a dry country just cannot **thrive**[8] on forages in humid climates. Larger animals tend to require more time to finish and may not do so in the time allowed by the grazing season. Choose breeds or crossbreeds appropriate for your level of management and forage quality. The best way to decide which breeds best fit your climate is to get out and visit other sheep producers in your area to see what is working for them.

Observation

[9]The most powerful tools you have in the grass-finished lamb business are your eyes. Successful production of grass-fed lambs heavily depends on observing and making changes **on the fly**[9]. While there are plenty of potential pitfalls to grass-finishing, they can be avoided with proper attention to detail.

Notes to the text:

1 – трудность, подводный камень

2 – справочник, руководство

3 – столкновение

4 – эффективная
5 – сторожевые животные
6 – самый сложный
7 – демонстрируют отличные показатели
8 – хорошо развиваться
9 – немедленно

4.23. Answer the questions.

1. What's the main problem with green and growing forages?
2. How does the grazier know when to make changes?
3. How can the grazier stop predators?
4. What does most of the management depend on?
5. How does forage quality vary with the season?
6. Why are dormant plants less palatable for sheep?
7. How long does it take to produce a finished lamb on grass?
8. What is the importance of genetics in producing a grass-fed lamb?
9. What does successful production of grass-fed lambs depend on?

4.24. Say whether these facts are true or false or not mentioned in the text. Correct the false ones.

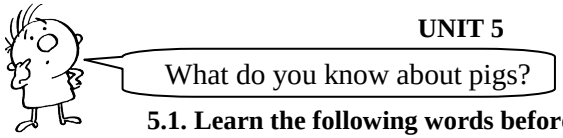
1. The results of grass feeding are difficult to predict.
2. Every grazier can achieve the same result following the cookbook.
3. Predators usually attack old or sick animals.
4. Infestation with parasites may reduce forage quality.
5. It is necessary to move the sheep after grazing the top 50% of mature plants.
6. Most grasses and legumes go dormant after the first frosts.
7. The length of the growing season in the North is not enough to produce a finished lamb on grass.
8. Larger animals usually require more time to finish.
9. To decide which breeds best fit your climate you need information from other sheep producers in your area.
10. The meat of grass-fed lambs is considered organic.

4.25. Put these things in the order in which they are mentioned in the text, and then rank them in importance from 1 to 5.

a) observation;
b) the finishing plan;
c) genetics;
d) forage quality;
e) predators.

4.26. Is sheep breeding well developed in Belarus? Why? / Why not? What kinds of meat are traditionally consumed in our country?

4.27. Do you think sheep breading has good prospects in our country? Justify your opinion.



UNIT 5

5.1. Learn the following words before reading text A.

pig – свинья
individual [ɪndɪˈvɪdʒʊ(ə)l] – особь
omnivore [ˈɒmnɪvɔː] – всеядное животное
to consume [kənˈsjuːm] – потреблять; съедать
research [rɪˈsəːtʃ] – исследование
to forage [ˈfɒrɪdʒ] – добывать корм, рыскать в поисках еды; кормить грубыми кормами
livestock [ˈlaɪvstɒk] – домашний скот
corn – кукуруза
soybean [ˈsɔɪbiːn] – соя
meal – мука
diet [ˈdaɪət] – рацион
to feed (fed, fed) – кормить, откармливать
pigsty [ˈpɪgstaɪ] – свинарник
to fatten – откармливать
boar [bɔː] – кабан; боров
shoulder – плечо; лопатка
length [leŋθ] – длина
eyesight [ˈaɪsaɪt] – зрение
smell – обоняние
nostril – ноздря
snout – рыло
hog – свинья
swine – свинья, *мн.* – swine
sow [saʊ] – свиноматка
pregnancy [ˈpregnənsi] – беременность
to average [ˈæv(ə)rɪdʒ] – составлять в среднем
nest – гнездо
farrowing [ˈfærəʊɪŋ] – опорос
litter – помет, приплод
to squeal [skwiːl] – визжать, верещать
to nurse [nəːs] – кормить

piglet – поросенок
sucker [ˈsʌkə] – сосунок
shoat [ʃəʊt] – поросенок после отъема (*массой от 27 до 72 кг*)
to wallow [ˈwɒləʊ] – валяться, кататься
pork – свинина
lard – сало, свиной жир
fertilizer [ˈfəːtɪlaɪzə] – удобрение
to grunt [grʌnt] – хрюкать
farmyard – двор

5.2. Practise the pronunciation of the following words.

Creature [ˈkriːtʃə], biologically [ˌbaɪəˈlɒdʒɪk(ə)li], frequently [ˈfriːkwəntli], mixture [ˈmɪkstʃə], debut [ˈdeɪbjuː], tribe [traɪb], to wander [ˈwɒndə], miniature [ˈmɪnətʃə], maturity [məˈtʃʊərəti], decibel [ˈdesɪbel], sociable [ˈsəʊʃəb(ə)l].

5.3. Translate these expressions into Russian.

To rear pigs, the mother pig, a full-time job, to feed piglets, stone pigsty, to provide meat, to become wild, to use for food, to range in height, adult pigs, to give birth, to roll in mud or dust.

5.4. Match the words with their definitions.

1. sow	a. an uncastrated male pig
2. to farrow	b. an animal that eats a variety of food of both plant
3. pigsty	and animal origin
4. boar	c. a long projecting nose of swine
5. omnivore	d. a young pig, especially one which is newly weaned
6. shoat	e. cattle, horses, poultry, and similar animals kept for
7. livestock	domestic use but not as pets
8. snout	f. to give birth
	g. the mother pig
	h. a small building for pigs

5.5. Match the synonyms.

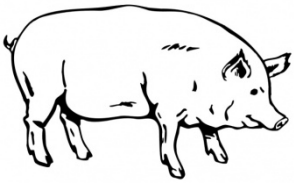
1. pregnancy	a. swine
2. litter	b. to nourish
3. to wallow	c. to fatten
4. hog	d. ration
5. to consume	e. gestation
6. to nurse	f. to eat
7. diet	g. offspring
8. to feed	h. to roll

5.6. Guess the meaning of the following words and the phrases (1-6) and translate the sentences in which they are used.

1. to make a pig of oneself	He made a pig of himself at the restaurant.
2. pigtail	The little girl had her hair in pigtails.
3. pigheaded	He never listens to anybody. He is so pigheaded.
4. pigskin	I have bought a red pigskin bag.
5. pig breading	Pig breeding is very important in Northern England.
6. pigsty	He is so lazy. He has almost turned his house into a pigsty.

5.7. Read the text and do the tasks that follow.

TEXT A: PIGS



With around 1 billion individuals alive, the domestic pig is among the most populous large mammals in the world.

Pigs are omnivores and can consume a wide range of food. Biologically, pigs are very similar to humans, and are frequently used for human medical research.

The first people to rear pigs were the ancient Chinese in 1100 B.C. The breeds that we know today have been around for only about 250 years old.

In the wild, pigs are foraging animals, primarily eating leaves, roots, fruits, and flowers, in addition to some insects and fish. As livestock, pigs are fed mostly corn and soybean meal with a mixture of vitamins and minerals added to the diet. In the past, country people often kept a pig which lived in a stone pigsty next to the house. It was fattened by **kitchen scraps**[1] and then killed to provide meat for the family.

Highlights of the History of Pigs

Wild pigs originated in Europe about 40 million years ago. They were in Africa and Asia about 25 million years ago.

Present-day domestic pigs are probably descended from two wild pig types – the European wild boar and the East Indian pig.

Pigs made their debut in the New World in the 1400s and 1500s. They were introduced by such explorers as Christopher Columbus and Hernando de Soto. Some pigs from the de Soto expedition were left with native American **tribes**[2]; others **wandered off**[3] and became wild.

Through the centuries, pigs have been used for food and the making of medicines. Their skin and hair have been used for leather goods and **bristle**[4] brushes.

Pig Facts

Pigs range in height from 12 inches (miniature pigs) to four feet at the shoulder. Their length varies from about 20 inches to 6 feet. Adult pigs can weigh from 60 to 800 pounds. The lifespan of a pig can vary from 10 to 27 years.

Pigs have poor eyesight, but a great sense of smell. The pig's nostrils are on its leathery snout, which is very sensitive to touch. The pig uses the snout to search, or root, for food. Farmers sometimes get their pigs to help them find truffles.

Pigs are also known as hogs or swine. Male pigs of any age are called boars; female pigs are called sows.

Female pigs reach sexual maturity at 3–12 months of age. The pregnancy period averages 112-120 days. The sow builds a nest during the last 24 hours before farrowing. The mother pig usually gives birth to a litter of 8 to 12 squealing piglets, and it's a full-time job feeding them all! Nursing occurs every 50–60 minutes. A piglet between birth and weaning is called a sucker. A weaned piglet is a shoat.

During hot, humid weather, pigs like to cool off by wallowing (rolling over and over) in mud or dust.

Pigs provide a variety of valuable products to humans, including pork, lard, leather, and fertilizer.

Pigs are very sociable animals. They grunt and squeal to communicate with one another. A pig's squeal can be as loud as 115 decibels – that's 3 decibels higher than the sound of a **supersonic airliner**[5].

Pigs are among the smartest of all domesticated animals. And they are friendly creatures, so it is not surprising that certain breeds can be kept as farmyards pets. Not only are pigs sometimes kept as pets, they can even be trained because they are smarter than dogs!

Notes to the text:

1 – кухонные отходы

2 – племена

3 – убежали
4 – щетина
5 – сверхзвуковой авиалайнер

5.8. Match the questions in the left column with the answers in the right column.

1. When and where were the first domestic pigs reared?	A. Wild pigs originated in Europe about 40 million years ago.
2. Where did country people often keep pigs in the past?	B. Pigs are used for food and in the making of medicines.
3. When and where did wild pigs originate?	C. Pigs were firstly reared by ancient Chinese in 1100 B.C.
4. What animals did domestic pigs probably descend from?	D. Christopher Columbus and Hernando de Soto.
5. Who introduced pigs in the New World?	E. The mother pig is called a sow.
6. What is the mother pig called?	F. In a stone pigsty next to the house.
7. What are pigs used for?	G. From two wild pig types – the European wild boar and the East Indian pig.

5.9. Fill in the chart about pigs.

Height	Length	Weight	Lifespan	Average litter size

5.10. Complete the sentences.

1. The domestic pig is (одно из наиболее многочисленных крупных млекопитающих) in the world.
2. In the wild, pigs (рыщут в поисках корма).
3. (Определенные породы свиней) can be kept as farmyard pets.
4. (Взрослая свинья) can weigh from 60 to 80 pounds.
5. The lifespan of a pig (колеблется) from 10 to 27 years.
6. (Срок беременности) in swine averages 112–120 days.
7. It's a full-time job for a sow (кормить всех своих поросят).
8. Pigs (хрюкают и визжат) to communicate with one another.

5.11. Translate the following sentences into English.

1. Свиньи – всеядные животные, они могут потреблять самую разную пищу.
2. Свиней держали в свинарнике около дома и кормили отходами с кухни.
3. На протяжении столетий свиней использовали для производства пищи.

4. У свиней плохое зрение, но прекрасное обоняние.

5. Свинья использует свое рыло для поиска пищи.

6. Самки свиней достигают половой зрелости в возрасте 3–12 месяцев.

7. Кормление происходит каждые 50–60 минут.

8. Свиньи валяются в грязи, чтобы охладиться.

9. Свиньи обеспечивают людей множеством ценных продуктов.

10. Свиньи – дружелюбные существа и считаются одними из самых умных домашних животных.

5.12. Tell about the history of pigs.

5.13. Tell how to keep pigs.

5.14. Read the information given below and answer the question: *How did the pig get a statue?*

In every country there are monuments to people. But in some countries there are also monuments to animals. There is even a monument to a pig. The history of the monument is strange. The people of a German town saw that a pig often dug in one and the same place. "Why?" they thought. When they dug up the soil of the place, they discovered salt under it. Salt was very dear at that time. So the people of the town got salt and the pig got a statue.

5.15. This is a spelling game in which you must change the words by changing one letter at a time. To help you there is a definition by each word. Can you change the word *food* to the word *pork*?

1 _____ something to eat
2 _____ not bad
3 _____ comes from trees
4 _____ made of letters
5 _____ your job
6 _____ used for eating
7 _____ meat from a pig

5.16. Match the English proverbs and idioms with their Russian equivalents and make up short stories to prove them.

1. To cast pearls before swine.	A. Когда рак свистнет.
2. Never buy a pig in a poke.	B. Кривого веретена не выпрямишь.
3. When pigs fly.	C. Метать бисер перед свиньями.
4. You cannot make a silk purse out of a sow's ear.	D. Не покупай кота в мешке.

5.17. Learn the words before reading text B.

wastage [ˈweɪstɪdʒ] – потери; непроизводительный расход
feeder − кормушка

position [pəˈzɪʃ(ə)n] − положение, место
ability [əˈbɪləti] – возможность, способность
to reach [ri:tʃ] − дотянуться
to foul [faʊl] − пачкать, загрязнять
faeces [ˈfi:si:z] − фекалии
drinker − поилка
to drop − ронять
to ensure [ɪnˈʃɔ:] – позаботиться о том, чтобы
rodent [ˈrəʊd(ə)nt] – грызун
to adopt [əˈdɒpt] − выбирать
to affect [əˈfekt] – влиять; плохо отражаться
diarrhoea [ˌdaɪəˈriə] − понос, диарея
to result in – приводить к
raw [rɔ:] – сырой; непереваренный
ground [graʊnd] – измельченный, молотый
rolled [rəʊld] − плющеный
hole [həʊl] − дыра; отверстие
to repair [rɪˈpeə] – чинить, ремонтировать
slats [slæts] – планчатый пол
leakage [ˈli:kɪdʒ] – утечка; просачивание
routine [ru:ˈti:n] – режим
breeding − случка
to attempt [əˈtempt] − пытаться, стараться
oestrus [ˈi:strəs] – течка, половая охота
feed trough [trɒf] − кормушка
overfeeding − перекармливание

5.18. Read the title of text B. Judging by the title and the words from ex. 5.17., which of these things do you think are mentioned in it? Look through the text and write the numbers of the paragraphs in which you found them.

1) feed prices;
2) siting the feeder;
3) positioning the drinker;
4) feeding sows in the farrowing area;
5) feeding sows in the breeding area;
6) feeding sows in the gestation area.

5.19. Fill in the blanks with the correct words and phrases from the word bank.

Word Bank	overfeeding slats feed wastage to adopt ability drop faeces repaired

1. In times of high prices, it is important to minimize _____.
2. Feeders should be placed taking into consideration the _____ of the pig to reach it.
3. Feeders positioned in cold corners may become fouled with _____ .
4. Carrying food in their mouths, pigs often _____ it on the floor.
5. It is essential _____ a well-formulated diet for pigs.
6. Leaking feeders should be immediately _____ .
7. Optimised surface of the _____ has low absorption.
8. _____ in early gestation results in a waste of feed and money.

5.20. Find in the text the words that mean the following:

1) small mammals with large, sharp front teeth, such as mice and rats (*paragraph 4*);
2) an illness in which the guts are emptied too often and in too liquid a form (*paragraph 5*);
3) the accidental escape of liquid through a hole or crack (*paragraph 7*);
4) a regular way of doing things (*paragraph 8*);
5) containers for giving food to animals (*paragraph 8*);
6) the period of maximum sexual receptivity of the female (*paragraph 9*).

5.21. Read the text and do the tasks that follow.

TEXT B: MANAGEMENT PRACTICES TO REDUCE EXPENSIVE FEED WASTAGE

[1]In a time of record feed prices, it is essential that feed wastage be minimized. It is estimated that 10% of feed delivered is wasted on the average farm. On a 250 sow unit, this can be more than 150 tonnes of feed per year.

Where is feed wasted?

Feeder position

[2]When siting the feeder, consider the ability of the pig to reach it. Feeders placed in cold corners will often become fouled with urine and faeces as the pigs use the area as a toilet.

[3]Pigs like to drink shortly after feeding. If the drinkers are more than 2 metres from the feeder, pigs will walk between the feeder and drinker and carry food in their mouths. This feed will be dropped (and wasted) on the

floor and bedding. Ensure that the pigs do not have to cross the sleeping area to get from the feeder to the drinker.

[4]Uncovered feeders contribute up to 30% of the dust in the air. The feeder is exposed to rodents and possibly birds, which can both eat the feed and **soil**[1] the remaining feed. All feeders should be covered.

Feed preparation

[5]It is essential to adopt a suitable diet. In times of high prices, it is tempting to simplify and cheapen the feed, but growth and health could be affected. Note if the pig's growth slows down. Poorly formulated diets are more likely to result in diarrhoea, resulting in raw feed ingredients ending up on the floor.

[6]Feed which is incorrectly prepared − ground or rolled, can result in increased waste. Whole grains cannot be digested by the pig and are passed out whole and undigested − and are therefore wasted.

Holes in the feeder

[7]It is **imperative**[2] that all feeders are examined regularly. Any feeder with a hole should be thrown away or immediately repaired. Holes that occur over slats cost enormous amounts of money, where chronic feed leakage occurs without trace.

Adult pig feeding

[8]The feeding routines practised in the farrowing, breeding and gestation areas can result in enormous feed wastage. In the farrowing area, attempting to get the sows to eat too fast can result in loss of appetite in the lactating sow. The pig then fails to clean out the feed trough, resulting in mould development and, in the worst cases, **fly**[3] infestation of the feed.

[9]In the breeding area, when sows are in oestrus they often will not eat and this results in feed remaining in the feed troughs and being wasted.

[10]In gestation areas, feeding routines can be extremely careless, resulting in large amounts of feed being wasted on the floor. Combined with poor cleaning routines, this feed becomes soiled. Overfeeding of the gestating sow is extremely common on pig farms. This extra feed is wasted and does not benefit the growing piglets.

Notes to the text:

1 – загрязнить, испачкать

2 – обязательно

3 – муха

5.22. Answer the questions.

1. How much feed is wasted on the average farm?
2. What is the best distance between feeders and drinkers?
3. Why is it recommended to cover feeders?

4. What do poorly formulated diets cause?

5. What can incorrect feed preparation result in?

6. Why do holes that occur over slats cost enormous amounts of money?

7. Why is it unwise to get the lactating sow to eat fast?

8. What is the most common problem in the management of the gestating sow?

5.23. Say whether these facts are true or false or not mentioned in the text. Correct the false ones.

1. On the average farm, feed consumption is 6.3 tonnes per sow per year.

2. Pigs like to use cold corners as a toilet.

3. Pigs usually want to drink shortly after feeding.

4. The feed should be distributed evenly along a feeder to minimize aggression and fighting at the feed space.

5. In times of high prices, it is wise to simplify and cheapen the feed.

6. Any feeder with a hole should be thrown away and never repaired.

7. Uncleaned feed troughs may be infested with flies.

8. Sows that are in oestrus don't eat much.

9. Feed in the hospital pen feeders should be adjusted according to the needs of the sick pigs.

5.24. Join the halves of the sentences. Consult the text if necessary.

1. On a 250 sow unit, feed wastage can	a. to cross the sleeping area.
2. Make sure that the pigs do not have	b. be digested by the pig.
3. Simplified and cheapened feed can	c. be examined regularly.
4. Whole grains cannot	d. the feed on the floor becomes soiled.
5. All feeders should	e. be more than 150 tonnes of feed per year.
6. Combined with poor cleaning routines,	f. affect pigs' growth and health.

5.25. Tell how to place the feeder properly.

5.26. Give recommendations on feeding adult pigs. Make use of the following expressions: *You should … , Ensure that … , Take care to … , You should be careful not to … , It is never a good idea to … .*

UNIT 6

What do you know about poultry?

6.1. Learn the following words before reading text A.

poultry [ˈpəʊltri] – домашняя птица

duck [dʌk] – утка

webbed [webd] – перепончатый
beak [biːk] – клюв
bill – клюв
duckling – утенок
drake [dreɪk] – селезень
egg – яйцо
to hatch – высиживать (*цыплят*); выводить (*цыплят*) искусственно
broody [ˈbruːdi] hen – наседка
artificially [ˌɑːtɪˈfɪʃ(ə)li] – искусственно
feather [ˈfeðə] – перо
down [daʊn] – пух
goose [guːs] – гусь, *мн.* – geese [giːs]
wing – крыло
bird [bəːd] – птица
gander [ˈgændə] – гусак
gosling [ˈgɒzlɪŋ] – гусенок
to raise [reɪz] – разводить
wattle [ˈwɒt(ə)l] – бородка (*индюка*)
snood [snuːd] – серёжка (*мясистый придаток над клювом у индюка*)
domestic fowl [faʊl] – домашняя птица
the Dutch Bantam [ˌdʌtʃ ˈbæntəm] – голландская бентамка (*карликовая порода домашних кур*)
the Leghorn [leˈgɔːn] – леггорн (*высокопродуктивная порода домашних кур яичного направления*)
the Rhode Island [ˈrəʊd ˌaɪlənd] Red – род-айлендская красная (*порода кур мясо-яичного направления*)
chick – цыплёнок
pullet [ˈpʊlɪt] – молодая курица, молодка (*самка птицы первого года яйцекладки*)
to lay eggs – откладывать яйца
hen – курица, несушка
rooster [ˈruːstə] – петух
cock – петух
yolk [jəʊk] – желток
coop [kuːp] – курятник; клетка для кур, домашней птицы
to scratch up – рыть землю, откапывать (*о курах*)
insect [ˈɪnsekt] – насекомое
worm [wəːm] – червь
to peck – клевать
pecking order – ранг в иерархии стаи
comb [kəʊm] – гребень

claw [klɔ:] – коготь
toe [təʊ] – палец
shell – скорлупа

6.2. Practise the pronunciation of the following words.

Puddle [ˈpʌd(ə)l], guard [gɑ:d], Michaelmas [ˈmɪk(ə)lməs], Christian [ˈkrɪstʃ(ə)n], Saint Michael [sən(t) ˈmaɪk(ə)l], variety [vəˈraɪəti], valuable [ˈvaljʊb(ə)l], primarily [ˈpraɪm(ə)rɪli], dozen [ˈdʌz(ə)n], Thailand [ˈtaɪlænd], Burma [ˈbə:mə], Sumatra [sʊˈmɑ:trə].

6.3. A) Which parts of speech do these words belong to? Complete the chart.

Farmer, particularly, to hatch, webbed, noisy, consumed, to rear, fiercely, intruder, domestic, eight, artificially, billion, served, feather, to peck, down, adult, popular, especially, dozen, called.

Verb	Noun	Adjective	Adverb	Numeral	Participle II

B) Translate the following word combinations into Russian.

Cold water – water birds, a fat goose – goose fairs, cold winter – winter months, neighboring country – country people, a bodyguard – guard dogs.

6.4. What do we call?

1) a hen less than a year old 6 letters
2) to break out of an egg 5 letters
3) a cage for hens with small chickens 4 letters
4) a water bird larger than a duck 5 letters
5) red fleshy crest of fowl 4 letters
6) an embryo enclosed in a shell 3 letters
7) the flat part of the body that a bird uses for flying 4 letters

6.5. Sort out the words according to their meanings: 1) birds' body parts and structures; 2) male birds; 3) female birds; 4) young birds.

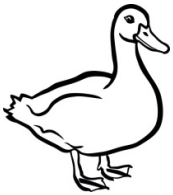
Claw, duck, feather, duckling, down, drake, wing, cock, comb, goose, toe, snood, gander, gosling, hen, wattle, pullet, chick, rooster, beak.

6.6. Which words from groups 2-4 refer to: a) chickens; b) geese; c) ducks?

6.7. Read the text and do the tasks that follow.

TEXT A: POULTRY

Ducks

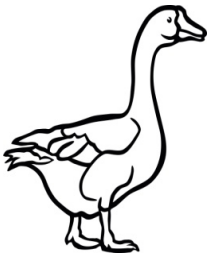


Ducks are water birds. Their webbed feet help them swim and their beaks (called bills) are just the thing for **sifting**[1] food from **pond**[2] water. If there isn't a pond handy, ducks **will make do**[3] with puddles and ditches for splashing their feathers.

A baby duck is called a duckling, and an adult male is a drake. Most domestic ducks neglect their eggs and ducklings, and their eggs must be hatched under a broody hen or artificially.

Ducks can be reared for their meat, eggs, and feathers (particularly their down), but many farmers keep a family of ducks just because they are fun to have around.

Geese



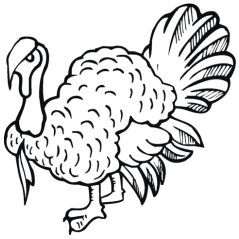
Geese are very big noisy birds. They may not look like guard dogs, but geese will **honk**[4] fiercely at **intruders**[5] and chase after them, flapping their wings and hissing!

Long ago, roast goose was served to celebrate the **Feast of Michaelmas**[6] (29th September, a Christian holy day in honour of Saint Michael) every September. Goose **fairs**[7] were held where farmers could bring their birds to the market. In the winter months, country people used to rub goose fat over their bodies to keep out the cold.

A female bird is called a goose and a male is called a gander. A young bird of this family is a gosling.

Geese are kept as a source of meat, eggs and feathers, or in some cases as house pets.

Turkey



The turkey is a very popular bird, especially around the holiday season. About 45 million turkeys are consumed each **Thanksgiving day**[8].

There are 8 breeds and numerous varieties of domestic turkey that represent valuable source of meat and eggs for humans.

Turkey can reach 3.3 to 4.1 feet in length and up to 86 pounds of weight. Males are much larger than females.

Hanging over a turkey's beak is a long snood. The **flaps**[9] of red skin that hang from the chin are wattles.

Chickens

The chicken is the most common and widespread type of domestic fowl. With 25 billion chickens in the world, there are more of them than any other bird species. People keep chickens primarily as a source of food (consuming both their meat and eggs) and, more rarely, as pets.

There are dozens of chicken breeds, such as the Dutch Bantam, the Leghorn and the Rhode Island Red.

Baby chickens are chicks. Female chickens laying eggs are hens. Young hens less than one year old are pullets. Male chickens are called roosters or cocks.

Highlights of the History of Chickens

The chicken's most direct ancestor is the wild **red jungle fowl**[10] of Thailand, Burma, Sumatra, and Eastern India.

Chickens were probably the first domesticated birds. They were tamed about 5,000 years ago. By 1400 B.C., the Chinese were raising chickens tor meat and eggs. Soon after, chickens were exported to Egypt. They were also raised in Ancient Rome and Greece.

Once chickens were domesticated, cultural contacts, trade, migration and **territorial conquest**[11] resulted in their introduction to different regions around the world over several thousand years.

Chicken Facts

Chickens can't really fly; at best, they can flap a few feet off the ground. Chickens have a keen sense of hearing and good eyesight, but poorly developed senses of taste and smell.

It takes 21 days for a chicken egg to hatch. Chicks are nourished in the egg by the yolk. When a chick is about to hatch, it **chirps**[12] faintly, then

chips[13] its way out of the shell with its beak. A newly hatched chick remembers its mother. It can run around a few hours after birth.

Mother hens shelter their chicks under their wings. They scratch up food, including grain, worms and insects, for their chicks to eat.

Most chickens have four-clawed toes on each foot.

Hens lay about 240 eggs a year. A pullet starts to lay eggs at about 5 months old.

Chickens that are kept in coops and allowed to mix with the other chickens have a "pecking order" – they peck each other to determine which will eat or drink first. Even the smallest chick will fight for its place in the pecking order.

Chickens are the only domestic fowl that have combs – **fleshy growths**[14] that stand up on the tops of their heads.

Notes to the text:

1 – процеживание, фильтрация
2 – пруд
3 – обойдутся
4 – кричат, трубят (о гусях)
5 – незваный гость
6 – Михайлов день
7 – ярмарки
8 – День благодарения
9 – лоскуты
10 – банкивская (красная) джунглевая курица
11 – захват территории
12 – чирикает, щебечет
13 – отламывает (скорлупу)
14 – мясистые выросты

6.8. Answer the questions.

1. Where do ducks look for food?
2. What are ducks raised for?
3. What are the main products derived from geese?
4. How many breeds of domestic turkey are there in the world?
5. What are turkeys kept for?
6. Why do people raise chickens?
7. What are the most common chicken breeds?
8. How long did it take chickens to spread around the world?
9. When does a pullet start to lay eggs?
10. How do chickens establish their pecking order?

6.9. Say whether the following statements are true or false. Correct the false ones.

1. Ducks, geese and chickens are water birds.

2. Domestic ducks tend to neglect their eggs.
3. Geese can be kept as house pets.
4. About 45 million ducks are consumed each Thanksgiving day.
5. Female turkeys are much larger than males.
6. Geese were probably the first domesticated birds.
7. The chicken is the most widespread type of domestic fowl.
8. Chickens have poorly developed senses of taste and smell.
9. Most chickens have five-clawed toes on each foot.

6.10. Insert the prepositions from the box. Consult the text if necessary.

After from in over (2) for (3) at under about up

1. Ducks' beaks (called bills) are ____sifting food ____ pond water.
2. Ducks can be reared ____their meat and eggs.
3. Geese may honk fiercely ____ intruders and chase ____ them.
4. Chickens were tamed ____ 5,000 years ago.
5. In winter country people used to rub goose fat ____ their bodies.
6. Turkey can reach ____ to 86 pounds of weight.
7. Hanging ____ a turkey's beak is a long snood.
8. It takes 21 days ____ a chicken egg to hatch
9. Mother hens shelter their chicks ____ their wings.
10. Chickens are usually kept ____ coops.

6.11. Complete the sentences using suitable words from the text.

1. Ducks' webbed feet are _____ .
2. Some farmers keep a family of ducks just _____ .
3. Long ago, roast goose _____ to celebrate the Feast of Michaelmas.
4. The Chinese were raising chickens for _____ .
5. Chickens can't fly, they can only _____ .
6. When a chick is about to hatch _____ .
7. A newly hatched chick _____ .
8. Hens scratch up food, including _____ .
9. Chickens in coops are allowed to _____ .
10. Chickens are the only domestic fowl that _____ .

6.12. Translate the sentences into English.

1. Утки – это водоплавающие птицы. Их перепончатые лапы помогают им плавать, а клюв – процеживать пищу из прудовой воды.
2. Гуси – очень большие и шумные птицы.
3. Возможно, они не похожи на сторожевых псов, но они шипят на незваных гостей и часто преследуют их.

4. Индейка является ценным источником мяса для людей.

5. Считается, что куры были первыми домашними птицами.

6. Их одомашнили около 5000 лет назад.

7. Культурные и торговые связи способствовали распространению кур по всем регионам земного шара.

8. Куры не умеют летать. Самое большее – они взлетят на несколько футов от земли.

9. У кур острый слух и хорошее зрение, но плохо развиты чувства вкуса и запаха.

10. Куры единственные из всех домашних птиц имеют гребни.

6.13. Tell about the history of chickens.

6.14. Describe the process of hatching.

6.15. Match these well-known sayings about geese with their meanings. Can you remember any situation that can be illustrated by them?

1. to have a gander	a. silly person
2. What's sauce for the goose is sauce for the gander.	b. to destroy a reliable and valuable source of income
3. to cook one's goose	c. a foolish and hopeless search for something that is impossible to get
4. silly goose	d. one person or situation should be treated the same way that another person or situation is treated
5. to kill the goose that lays the golden eggs	e. to ruin something for someone
6. a wild goose chase	f. to have a quick look

6.16. By changing one letter at a time change *bird* to *lark* and *bird* to *dove*.

bird

____ to tie or fasten

____ people who play music together

____ a place where money is kept

____ the loud cry of a dog

lark

bird

____ poet

____ naked

____ to tire by being uninteresting

____ a part of the skeleton

____ finished (*participle II*)

dove

6.17. Learn the words before reading text B.

stockmanship [ˈstɒkmənʃɪp] – правила ухода за птицей или скотом

emergence [ɪˈmɜːdʒ(ə)ns] – появление

technique [tekˈniːk] – метод

level [ˈlev(ə)l] – уровень

case – случай
to recognise [ˈrekəgnaɪz] – распознавать
flock – стая; стадо
biosecurity [ˌbaɪə(ʊ)sɪˈkjʊərəti] – биобезопасность
to restrict [rɪˈstrɪkt] – ограничивать
personnel [ˌpəːsəˈnel] – персонал, рабочие фермы
equipment [ɪˈkwɪpmənt] – оборудование
site – место, участок
to comply [kəmˈplaɪ] with – подчиняться (*требованиям, правилам*)
thorough [ˈθʌrə] – тщательный
disinfection [ˌdɪsɪnˈfekʃ(ə)n] – дезинфекция, обеззараживание
carry-over – перенос
pathogen [ˈpæθədʒ(ə)n] – патоген, патогенный, болезнетворный микроорганизм
detergent [dɪˈtəːdʒ(ə)nt] – очищающее, моющее средство
to remove [rɪˈmuːv] – удалять
to treat [triːt] – обрабатывать; лечить
treatment [ˈtriːtmənt] – обработка; лечение
to eliminate [ɪˈlɪmɪneɪt] – устранять, исключать
litter – подстилка
to deliver [dɪˈlɪvə] – доставлять
immediate [ɪˈmiːdɪət] – немедленный
excess [ɪkˈses] – избыточный, излишний
build-up [ˈbɪldʌp] – накопление
to support [səˈpɔːt] – поддерживать

6.18. Read the title of text B. What do you think good broiler stockmanship includes?

6.19. Look through the text and write the numbers of the paragraphs which mention the things listed below.

1) antibiotic-free programmes for poultry;
2) birds’ behaviour and comfort level;
3) visitors’ access to the farm;
4) cleaning the poultry house;
5) providing chicks with access to feed and water.

6.20. Find in the text the words that mean the following:

1) the rules in handling livestock (*paragraph 1*);
2) keeping diseases out of the farm (*paragraph 3*);
3) the process of cleaning something with a chemical in order to destroy bacteria (*paragraph 4*);

4) a bacterium, virus, or other microorganism that can cause disease (*paragraph 4*);

5) a chemical substance in the form of a powder or a liquid for removing dirt (*paragraph 4*);

6) medical care given to a patient for an illness (*paragraph 7*).

6.21. Look at paragraphs 1, 3, and 7 again. What words have the same meaning as:

- coming *(paragraph 1)*
- method *(paragraph 1)*
- workers *(paragraph 3)*
- place *(paragraph 3)*
- extra *(paragraph 7)*
- accumulation *(paragraph 7)*

6.22. Read the text and do the tasks that follow.

TEXT B: PRACTICING GOOD BROILER STOCKMANSHIP IS THE KEY TO MINIMISING ANTIBIOTIC USE

[1]The emergence of **antibiotic-free[1]** (ABF) or minimal-use antibiotic programmes around the world has focused attention on the importance of stockmanship and best-practice management techniques in the broiler house.

[2]A good stockman will use all senses – sight, taste, hearing, smell and feel – to stay "**in tune[2]**" with the birds' behaviour and comfort level, and in the case of an ABF environment, stockmanship becomes even more important. The stockman must be able to recognise changes in flock behaviour which may indicate a problem that requires **prompt[3]** corrective action.

[3]Biosecurity should be a primary **focus[4]** for all broiler farms, but this is especially true for flocks grown without antibiotics. Access to the farm should be restricted to essential visitors at all times, and a visitor book should be used to document all personnel and equipment movement onto the farm. Site visitors must comply with visit farm protocols and, where possible, shower in and change into **freshly laundered[5]** farm clothing.

[4]Thorough cleaning and disinfection of the house, as well as appropriate **downtime[6]** between cycles (not less than 7 days) is necessary to prevent the carry-over of pathogens from the previous flock. Hot water and effective detergents should be used to ensure any organic material that may be present is completely removed from all surfaces and equipment. After cleaning, disinfection should take place.

[5]Bedding material can be a source of pathogens in a newly cleaned broiler house. If possible, heat-treated material should be used to eliminate the possibility of introducing health problems to a new flock.

[6]In order to achieve the correct environmental conditions when chicks are placed, houses should be heated to an air temperature of 30 C at least 24 hours prior to chick placement, with the litter temperature being 28 to 30 °C. The relative humidity (RH) should be 60 to 70 percent and temperature and RH monitored routinely to ensure a uniform environment. Chicks must be delivered to the farm as soon as possible after hatching and be provided with immediate access to feed and water.

[7]The correct minimum ventilation **rate**[7] should be established prior to the chicks being placed. Minimum ventilation supplies adequate fresh air, removes excess moisture, and limits the build-up of potentially harmful gases and **airborne by-products**[8]. Inadequate minimum ventilation can lead to respiratory **challenges**[9] later in the flock's life, which may require antibiotic treatment.

[8]Providing chicks with the correct environmental conditions promotes early development of feeding and drinking behaviour and optimises gut, organ and skeletal development to support body-weight gain and bird health throughout the life of the flock.

Notes to the text:

1 – без использования антибиотиков
2 – на одной волне
3 – быстрый
4 – объект внимания
5 – свежевыстиранная
6 – здесь: перерыв
7 – интенсивность
8 – побочные продукты, присутствующие в воздухе
9 – проблемы

6.23. Answer the questions.

1. What events have focused attention on the importance of stockmanship?
2. What must the stockman be able to recognise?
3. Why is it recommended to restrict visitors' access to the farm?
4. What should be done to prevent the carry-over of pathogens from the previous flock?
5. What means are used to remove organic material from all surfaces and equipment?
6. What danger is associated with bedding material?
7. What is the importance of ventilation?
8. Why is it necessary to provide chicks with the correct environmental conditions?

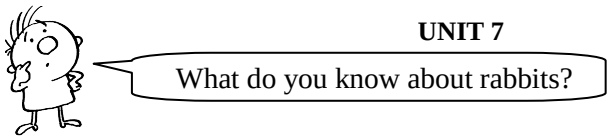
6.24. Say whether these facts are true or false or not mentioned in the text. Correct the false ones.

1. Best-practice management techniques in the broiler house are very important in case of minimal-use antibiotic programmes.
2. A good stockman needs all his senses.
3. All personnel and equipment movement onto the farm should be documented.
4. Site visitors should never take a shower and change their clothing.
5. Cleaning usually goes after disinfection.
6. Water systems must be cleaned and sanitised with approved products to remove biofilms.
7. The correct minimum ventilation rate should be established after the chicks being placed.
8. Any sick birds should be killed immediately.

6.25. What do these figures refer to: *30, 24, 28, 60, 70*?

6.26. State the main principles of biosecurity.

6.27. Tell how to achieve the correct environmental conditions for chickens.



UNIT 7

7.1. Learn the following words before reading text A.

rabbit [ˈræbɪt] – кролик
fur [fəː] – мех
pelt – шкурка (*в меховом производстве*)
nitrogen-rich [ˈnaɪtrədʒ(ə)n rɪtʃ] – богатый азотом
manure – помет, навоз
the Angora rabbit – ангорская порода пуховых кроликов
antibody – антитело
vaccine [ˈvæksiːn] – вакцина
valuable [ˈvaljʊb(ə)l] – ценный
The New Zealand White – новозеландская белая порода кроликов мясного направления
pen – клетка
flesh – мясо
strain – порода
creature [ˈkriːtʃə] – существо
fluffy [ˈflʌfi] – пушистый

whiskers [ˈwɪskəz] – усы
ear [ɪə] – ухо
to deserve [dɪˈzəːv] – заслуживать
fertile [ˈfəːtaɪl] – плодовитый; фертильный
to breed – размножаться; давать приплод
kitten – детеныш пушного зверя; *здесь*: крольчонок
kit – детеныш пушного зверя; *здесь*: крольчонок
doe [dəʊ] – крольчиха
buck [bʌk] – самец кролика
similar – похожий
clover [ˈkləʊvə] – клевер
cruciferous [kruːˈsɪf(ə)rəs] plant – крестоцветное растение
Brussels sprouts [ˌbrʌs(ə)lz ˈspraʊts] – брюссельская капуста
root – корень; корнеплод
bud [bʌd] – почка
bark [bɑːk] – кора

7.2. Practise the pronunciation of the following words.

Japan [dʒəˈpæn], chemical [ˈkemɪk(ə)l], stimuli [ˈstɪmjʊlaɪ], system [ˈsɪstəm], monk [mʌŋk], southern [ˈsʌð(ə)n], Catholic [ˈkæθ(ə)lɪk], Church [tʃəːtʃ], giant [ˈdʒaɪənt], Minorca [mɪˈnɔːkə], pygmy [ˈpɪgmi],.

7.3. Match the synonyms.

1. flesh	a. skin
2. valuable	b. furry
3. similar	c. animal
4. fluffy	d. alike
5. pelt	e. meat
6. creature	f. useful

7.4. Find the odd word in each line.

1) to breed	to raise	to keep	to kill	to rear
2) tail	meat	teeth	eyes	ears
3) antibody	vaccine	immunity	disease	gestation
4) baby	litter	kitten	piglet	gosling
5) to domesticate	to tame	to feed	to train	to break
6) mud	nitrogen	oxygen	carbon	iron

7.5. Match the words with their definitions.

1. doe	a. a cage for keeping animals
2. buck	b. any preparation used to provide immunity against one or
3. fur	several diseases
4. manure	c. a young rabbit

5. pen
6. vaccine
7. kit
8. whiskers

d. long projecting hairs or bristles growing from the face or snout of many mammals
e. a male rabbit
f. animal excreta used for fertilizing land
g. a female rabbit
h. the short, fine, soft hair of certain animals

7.6. Fill in the gaps with the words from ex.7.5. You may have to make small changes in these words.

1. My dog's … needed brushing because it was so matted down from him rolling in the mud.
2. Doctors say that taking the flu … will reduce the effects of the illness.
3. You can build a … in a yard of any size to house varying numbers of rabbits.
4. A pregnant ... , on average, gains 0.029 kg during the first week of pregnancy.
5. … should not be removed from their mother until at least 8 weeks.
6. The … on a cat act as a sensor and allow the animal to detect motion.
7. Two adult … housed together are likely to fight.
8. The farmers were distributing … over the field.

7.7. Read the text and do the tasks that follow.

TEXT A: RABBITS

Rabbits are small mammals found naturally in Europe, South Africa, Sumatra and Japan. Domestic rabbits are of great economic importance to people. Rabbit meat, known for its delicate flavour, is an important source of protein in many cultures.

In addition to their meat, rabbits are used for their wool, fur, and pelts, as well as their nitrogen-rich manure and their high-protein milk. Production industries have developed domesticated rabbit breeds (such as the well-known Angora rabbit) to efficiently fill these needs.

Moreover, rabbits have been and continue to be used in laboratory work such as production of antibodies for vaccines. The rabbit is an extremely valuable model for studying the effects of chemicals or other **stimuli**[1] on the male reproductive system. The New Zealand White is one of the most commonly used breeds for research and testing.

Highlights of the History of Rabbits

The domestication of the European rabbit probably began during Roman times in Spain, where rabbits were collected and placed in pens to provide a source of meat and fur. Some 1,400 years ago, **monks**[2] from Southern France bred rabbits for meat because the Catholic Church allowed the flesh of young rabbits to be consumed during **Lent**[3]. Today there are more than 50 established strains of domestic rabbit, all selectively bred from this one species. But while rabbits may have been domesticated relatively recently, humans have been hunting the animals for about 120,000 years, and they have been around for much, much longer.

In 2008, researchers discovered a 53 million-year-old ancestor of the modern rabbit. The creature's foot bones were found in a **coal mine**[4] in Gujarat, in West-Central India.

More recently, the skeleton of a giant-sized rabbit ancestor was unearthed on the island of Minorca, off the coast of Spain, in 2011. Named *Nuralagus rex*, this creature, which lived between three and five million years ago, was about six times the size of today's European rabbit, weighing in at around 26 pounds.

Rabbit Facts

Rabbits are small mammals with fluffy, short tails, whiskers and long ears. They are intelligent, social and very clean.

Some rabbits are about the size of a cat, and some can grow to be as big as a small child. Small rabbits, such as **pygmy**[5] rabbits, can be as little as 20 centimeters in length and weigh less than a pound. Larger species grow to 50 cm and weigh more than 10 lbs (4.5 kilograms).

Rabbits definitely deserve their reputation as being extremely fertile. They breed three to four times each year. Their pregnancy lasts 30 days and produces four to twelve babies, called kittens or kits. After four to five weeks, a kit can care for itself. In two or three months it is ready to start a family of its own and can have 800 children, grandchildren and great-grandchildren during its lifetime.

A female rabbit is a doe like a female **deer**[6]. Also, a male rabbit is called a buck. However, the animal rabbits are most similar to are not deer. They're most similar to horses. They have similar eyes, teeth, and ears as well as a similar diet and behavior. Clearly, their size is much different.

Rabbits' diet includes grasses, **clover**[7] and some **cruciferous plants**[8], such as broccoli and **Brussels sprouts**[9]. They also eat fruits, seeds, roots, **buds**[10], and **tree bark**[11].

A rabbit's teeth never stop growing. Fortunately, they're naturally kept short by the normal **wear**[12] of chewing. Lots and lots of chewing, that is about 120 times a minute.

Notes to the text:

1 – стимулы, мн. число от **stimulus**
2 – монахи
3 – Великий пост
4 – угольная шахта
5 – карликовый
6 – олень
7 – клевер
8 – крестоцветные растения
9 – брюссельская капуста
10 – почки
11 – кора деревьев
12 – стирание (зубов)

7.8. Answer the questions.

1. Where are rabbits found naturally?
2. What rabbit breed is used for wool, fur and pelt production?
3. What breed is the most commonly used laboratory model?
4. What kind of research are rabbits used in?
5. Where and when did the domestication of rabbits begin?
6. How many strains of domestic rabbit are there in the world?
7. Why did monks from Southern France breed rabbits some 1,400 years ago?
8. How long have humans been hunting for rabbits?
9. How old is the rabbit ancestor found in West-Central India?
10. Why do rabbits have the reputation of extremely fertile animals?
11. What animals are rabbits similar to?

7.9. Say whether the following statements are true or false. Correct the false ones.

1. Rabbit meat has a coarse taste.
2. Rabbit manure is useless.
3. All strains of domestic rabbit are bred from different species.
4. Rabbits are mammals with fluffy, long tails and short ears.
5. The average litter size in rabbits is four to twelve kits.
6. Rabbits mature at the age of two or three months.
7. A rabbit can have 8000 children, grandchildren and great-grandchildren during its lifetime.
8. Rabbits and deer have similar behaviour.
9. Rabbits chew about 20 times a minute.
10. Rabbit teeth keep growing throughout the rabbit's whole life.

7.10. Find the English equivalents to the following word combinations in the text.

Мелкие млекопитающие, богатый азотом, с высоким содержанием белка, породы домашних кроликов, удовлетворять потребности,

производство антител для вакцин, научные исследования и опыты, мужская репродуктивная система, источник мяса и меха, мясо молодых кроликов, пушистый хвост, карликовые кролики.

7.11. Join the halves of the sentences. Consult the text if necessary.

1. Rabbits are found naturally	a. a 53 million-year-old ancestor
2. Production industries have developed	of the modern rabbit.
	b. and very clean animals.
3. In 2008, researchers discovered	c. is much different.
4. The creature named *Nuralagus rex*	d. in Europe, South Africa,
5. Rabbits are intelligent, social	Sumatra and Japan.
6. The size of rabbits and horses	e. by the normal wear of chewing.
7. Rabbits' teeth are naturally kept short	f. lived between three and five million years ago
	g. many domesticated rabbit breeds.

7.12. Translate the sentences into English.

1. Кролики имеют важное хозяйственное значение для людей.
2. Мясо кроликов, известное своим тонким вкусом, является важным источником белка.
3. Кроличий помет содержит большое количество азота.
4. Некоторые кролики могут быть размером с маленького ребенка.
5. Кролики чрезвычайно плодовиты.
6. Они дают приплод 3–4 раза в год.
7. Беременность крольчихи длится около месяца.
8. Рацион кроликов схож с рационом лошадей.
9. Некоторые крестоцветные растения служат кормом для кроликов.
10. Кроликов содержат в клетках.

7.13. Fill in the chart about rabbits.

Kinds of rabbits according their sex and age	Length	Weight	Rabbits' food	Products from rabbits

7.14. Describe the giant-sized ancestor of the modern rabbit found on the island of Minorca.

7.15. Tell about rabbit reproduction.

7.16. Match these rabbit idioms with their meanings. Can you remember any situation that can be illustrated by them?

1. to breed like rabbits	a. so frightened or nervous that she/he doesn't know what to do
2. to pull a rabbit out of a hat	b. to get on with work someone is ready and waiting to do
3. like a rabbit caught in the headlights	c. tasteless vegetable salads
4. to let the dog see the rabbit	d. to have several babies in a short period of time
5. rabbit food	e. to do something surprising and seemingly impossible

7.17. Learn the words before reading text B.

alfalfa [æl'fælfə] – люцерна
pellet ['pelɪt] – гранула
juvenile ['dʒu:vənaɪl] – молодая особь
vegetable ['vedʒtəb(ə)l] – овощ
amount [ə'maʊnt] – количество
to avoid [ə'vɔɪd] – избегать
timothy ['tɪməθi] – тимофеевка
calcium ['kalsɪəm] – кальций
calorie ['kæləri] – калория
calorie content – калорийность
to make up for – компенсировать
guideline ['gaɪdlaɪn] – рекомендации
serving ['sə:vɪŋ] – порция
greens – зелень
treat [tri:t] – лакомство
senior ['si:nɪə] – кролик в возрасте шести месяцев и старше; половозрелое животное
to maintain [meɪn'teɪn] – поддерживать, сохранять
underweight [ˌʌndə'weɪt] – имеющий недовес
annual ['ænjʊəl] – ежегодный
blood test ['blʌd test] – анализ крови

7.18. Read the title of text B and its subtitles. What rabbit life stages are mentioned in it?

7.19. Which of the following things do you think the text discusses? Skim it and write the numbers of the paragraphs in which you found them.

1) weaning kits;

2) chemical composition of rabbit milk;
3) digestive problems;
4) weight problems;
5) feeding treats;
6) feed pellet composition.

7.20. Look at paragraphs 1, 2, and 3 again. Find the words that mean the following:

1) proteins produced in the blood that fight diseases by attacking and killing harmful bacteria (*paragraph 1*);
2) a leguminous plant with clover-like leaves and bluish flowers that is used for feeding farm animals (*paragraph 1*);
3) dried grass that is fed to certain farm animals (*paragraph 1*);
4) plants or plant parts used as food, such as a cabbage, potato, turnip, or bean (*paragraph 2*);
5) a Eurasian grass which is widely grown for grazing and hay (*paragraph 3*);
6) fibrous substances, such as the structural polymers of cell walls, consumption of which aids digestion and is believed to help prevent certain diseases (*paragraph 3*).

7.21. Look through the text and find the words having the same meaning as:

- granule *(paragraph 1)*
- recommendation *(paragraph 4)*
- quantity *(paragraph 2)*
- portion *(paragraph 4)*
- to compensate *(paragraph 3)*
- to sustain *(paragraph 5)*

7.22. Read the text and do the tasks that follow.

TEXT B: DIET REQUIREMENTS AND FEEDING RABBITS AT DIFFERENT LIFE STAGES

[1]*Baby rabbits*: A baby rabbit, or kit, feeds **solely**[1] on its mother's milk for about the first three weeks. During the first few days, the milk contains high levels of antibodies that help to protect the kit from disease. After three weeks, the kit will begin nibbling on alfalfa hay and pellets. By 7 weeks of age, baby rabbits can have unlimited access to pellets and alfalfa hay in addition to mother's milk. Kits are usually weaned from their mother's milk by 8 weeks of age, depending on the breed.

[2]*Juveniles*: Between weaning and 7 months of age, the young rabbit can have an unlimited amount of pellets and alfalfa hay. At 3 months of age, start introducing small amounts of vegetables into your rabbit's diet.

Introduce one vegetable at a time. If any vegetable seems to cause digestive problems, avoid feeding it in the future.

[3]*Young adults*: Young adult rabbits from the age of 7 months to 1 year should be introduced to timothy, grass hays, and/or oat hay, and it should be available all day long. The fibre in the hay is essential for their digestive systems to work properly. At this point, they will require little alfalfa hay, as well as fewer pellets. Alfalfa hay has more calories and calcium than rabbits need at this stage of development, and the high calorie content of pellets can also begin to cause weight problems. Instead of offering unlimited pellets, a good rule is 1/2 cup of pellets per 6 lbs. of body weight daily. To make up for the nutritional loss, you must increase your rabbit's intake of vegetables and hay. You can feed your rabbit some fruits during this stage, but because of calories, limit them to no more than 1-2 **ounces**[2] per 6 pounds of body weight daily.

[4]*Mature adults*: Mature adult rabbits should be fed unlimited timothy, grass hay, and oat hay. Once again, you should reduce the pellet portion of the diet. A standard guideline is 1/4 cup of pellets per 6 lbs. of body weight per day. Several servings of vegetables are required (2 cups per 6 pounds of body weight daily). Make sure to choose dark, leafy greens, and feed at least three different kinds daily. Also, make sure you are offering dark yellow and orange vegetables. Treats, including fruits, must be fed **sparingly**[3].

[5]*Seniors*: Senior rabbits over 6 years of age can be fed the same diet as mature adults if they do not have weight loss problems. You may need to increase pellet intake if your pet is not able to maintain his or her weight. Alfalfa can also be given to underweight rabbits, but only if calcium levels are normal. Annual blood tests are highly recommended for senior rabbits to determine the level of calcium and other components of the blood.

Notes to the text:

1 – исключительно

2 – унции (унция – единица веса, равная 28,3 г)

3 – в небольшом количестве

7.23. Answer the questions.

1. How long does a kit need only its mother's milk?
2. When are kits normally weaned?
3. When is it recommended to introduce vegetables into the ration of rabbits?
4. In what cases should vegetables be avoided?
5. What kind of hay do young adults need?
6. Why do young adults require little alfalfa hay and fewer pellets?

7. What kind of greens and vegetables do mature adults need?

8. When do you have to increase pellet intake by senior rabbits?

7.24. Say whether these facts are true or false or not mentioned in the text. Correct the false ones.

1. Antibodies in the mother's milk help to protect the kit from disease.

2. By 5 weeks of age, baby rabbits can have unlimited access to pellets and alfalfa hay.

3. Between weaning and 7 months of age, juveniles can have an unlimited amount of pellets and alfalfa hay.

4. Young adults from the age of 7 months to 1 year should be introduced to timothy, grass hays, and/or oat hay.

5. A rabbit's diet can be supplemented with flowers.

6. Young adults can have 2–4 ounces of fruits per 6 pounds of body weight daily.

7. A sudden change in the diet should be avoided as it can be fatal.

8. Mature adult rabbits need unlimited timothy, grass hay, and oat hay.

9. Alfalfa hay is low in calcium.

10. Annual blood tests are highly recommended for rabbits at all life stages.

7.25. Fill in the chart about rabbits' diet requirements at different life stages.

Life Stage	Kinds of Food
Baby rabbits	Mother's milk, …
…	
…	
…	
…	…, pellets

7.26. Tell how the feeding of baby rabbits varies with their age.

7.27. Give special recommendations on feeding and care of senior rabbits.

UNIT 8

What do you know about bees?

8.1. Learn the following words before reading text A.

honey ['hʌni] – мед

honey bee – пчела медоносная, пчела домашняя

to inhabit [ɪn'hæbɪt] – обитать

meadow [ˈmedoʊ] – луг
pollination [ˌpɒlɪˈneɪʃən] – опыление
beeswax [ˈbiːzwæks] – воск
venom [ˈvenəm] – яд
propolis [ˈprɒp(ə)lɪs] – прополис, пчелиный клей
pollen [ˈpɒlən] – пыльца
royal jelly [ˌrɔɪəl ˈdʒeli] – маточное молочко
to derive [dɪˈraɪv] from – получать из
beehive [ˈbiːhaɪv] – улей; рой
apiculture [ˈeɪpɪˌkʌltʃə] – пчеловодство
apiary [ˈeɪpɪəri] – пасека
queen bee – пчелиная матка, пчеломатка
drone [drəʊn] – трутень
worker bee – рабочая пчела
cell [sel] – ячейка (*в сотах*)
honeycomb [ˈhʌnɪkəʊm] – соты
spermatheca – сперматека, семяприемник
haploid [ˈhæplɔɪd] – гаплоидный (*с одинарным набором хромосом*)
diploid [ˈdɪplɔɪd] – диплоидный (*с двойным набором хромосом*)
larva [ˈlɑːvə] – личинка, *мн.* – larvae [ˈlɑːviː]
gland – железа
to atrophy [ˈætrəfi] – атрофироваться
forager [ˈfɒrɪdʒə] – пчела-сборщица, полевая пчела
to guard [gɑːd] – охранять
swarm [swɔːm] – рой
remainder [rɪˈmeɪndə] – остаток
mated – спарившийся
scout bee – пчела-разведчица

8.2. In the list of words given above find the ones belonging to these two categories:

Kinds of bees _____
Products from bees _____

8.3. Practise the pronunciation of the following words.

Chemist [ˈkemɪst], engineer [ˌendʒɪˈnɪə], synthesized [ˈsɪnθəsaɪzd], ingredient [ɪnˈgriːdɪənt], through [θruː], pharaoh [ˈfeəroʊ], Tutankhamen [ˌtuːt(ə)nˈkɑːmen], China [ˈtʃaɪnə], Israel [ˈɪzreɪ(ə)l], sterile [ˈsteraɪl].

8.4. Match the synonyms.

1. to inhabit	a. to degenerate
2. to derive from	b. beekeeping
3. apiculture	c. fertilised

4. to guard	d. to live
5. to atrophy	e. to get from
6. mated	f. to protect

8.5. Match the words with their definitions.

1. meadow	a. a place where bees are kept, usually in beehives
2. pollination	b. a structure of hexagonal cells of wax, made by bees to store honey and eggs
3. apiary	c. a specialized cell, group of cells, or organ which secretes particular chemical substances
4. beehive	d. a great number of honeybees emigrating together from a hive in company with a queen to start a new colony
5. honeycomb	e. a field with grass and wild flowers in it
6. gland	f. a box-like or dome-shaped structure in which bees are kept
7. swarm	g. the immature, wingless, feeding stage of an insect
8. larva	h. the transfer of pollen from a male part of a plant to a female part of a plant

8.6. Fill in the gaps with the words from ex.8.5.

1. The ... was nearby; half a dozen hives faced south down the slope.
2. Beekeepers may remove the entire ... to harvest honey.
3. To the beekeeper, a ... represents a loss of bees resulting in less or no honey production.
4. This ... produces a pheromone attracting workers to a settled swarm.
5. Part of her own garden is a wildflower ... .
6. Each ... has one queen, and 100 female worker bees for every male drone bee.
7. After three days, the egg hatches into a worm-like form called a ... .
8. In order for a plant or flower to produce seeds, ... must occur between two flowers.

8.7. Read the text and do the tasks that follow.

TEXT A: BEES

The honey bee is a small-sized bee that inhabits quiet forests, jungles, meadows and gardens all over

the world. There are only 7 recognized species of honey bee, with a total of 44 subspecies. The best known honey bee is the Western honey bee or European honey bee (*Apis mellifera*) which has been domesticated for honey production and crop pollination. A third of what we eat is **reliant on**[1] bee pollination.

Honey bees are master chemists and chemical engineers. Their products include honey, beeswax, venom, propolis, pollen, and royal jelly. Three of these products, beeswax, venom, and royal jelly, are chemically synthesized by the bees themselves. The other three are derived from plants and modified and engineered by the bees for their own use. All these ingredients are essential to the bee, and without them the bee and the entire beehive could not survive.

Highlights of the History of Bees

Honey and bees' products follow man through history. Honey sweetened the lives of people and at the same time was a preventive against many illnesses.

Bees were likely first domesticated in ancient Egypt. **Sealed pots**[2] of honey were found in the **grave goods**[3] of pharaohs such as Tutankhamen.

In prehistoric Greece, there existed a system of high-status apiculture. Beekeeping was considered a highly valued industry.

Honey was a regular staple of the ancient Roman diet. Keeping bees was a respected art and apiaries were elaborate and large in many places.

Beekeeping was also practiced in ancient China.

Hives, made of straw and **unbaked clay**[4], were discovered in Israel, dating from about 900 BC.

Europeans brought bees to North America in 1622.

Bee Facts

A colony generally contains one queen bee, a fertile female; seasonally up to a few thousand drone bees, or fertile males; and tens of thousands of sterile female worker bees.

Eggs are laid singly in a cell in a wax honeycomb, produced and shaped by the worker bees. Using her spermatheca, the queen can choose to fertilize the egg she is laying, usually depending on into which cell she is laying. Drones develop from unfertilized eggs and are haploid, while females (queens and worker bees) develop from fertilized eggs and are diploid. Larvae are initially fed with royal jelly produced by worker bees,

later switching to honey and pollen. The exception is a larva fed solely on royal jelly, which will develop into a queen bee.

Young worker bees clean the hive and feed the larvae. When their royal jelly-producing glands begin to atrophy, they begin building comb cells. They progress to other within-colony tasks as they become older, such as receiving nectar and pollen from foragers, and guarding the hive. Later still, a worker takes her first orientation flight and finally leaves the hive and typically spends the remainder of her life as a forager.

Colonies are established by groups known as “swarms”, which consist of a mated queen and a large number of worker bees. This group moves to a nest site which was found by scout bees beforehand and whose location is communicated with a special type of dance.

Notes to the text:

1 – зависит от

2 – запечатанные горшки

3 – погребальные принадлежности

4 – необожженная глина

8.8. Answer the following questions.

1. What is the natural habitat of the honey bee?
2. How many species and subspecies of honey bee are there in the world?
3. What is he best known honey bee?
4. Why are honey bees called master chemists?
5. Where were bees likely first domesticated?
6. What was the status of apiculture in prehistoric Greece and Rome?
7. What does a bee colony usually consist of?
8. Where are eggs laid?
9. From what eggs do drones develop?
10. From what eggs do females develop?
11. What are larvae are fed with?
12. What do young worker bees usually do?

8.9. Say whether the following statements are true or false. Correct the false ones.

1. A fifth of what we eat is reliant on bee pollination.
2. Beeswax, venom, and royal jelly are derived from plants.
3. Beehives dating from about 900 BC were discovered in Israel.
4. Europeans brought bees to North America in 1422.
5. The wax honeycomb is made by the worker bees.
6. Drones are diploid.
7. A larva which will develop into a queen bee is fed solely on royal jelly.

8. Royal jelly-producing glands in worker bees never atrophy.

9. Worker bees receive nectar and pollen from foragers, and guard the hive.

10. Bees communicate with each other by dancing.

8.10. Find the English equivalents of the following words and word combinations in the text.

Луга и сады, целый улей, химически синтезируются, получают из растений, высокоразвитая система пчеловодства, восковые соты, фертильная самка, профилактическое средство против многих болезней, неоплодотворенные яйца, другая работа внутри колонии, первый ориентировочный полет, спарившаяся матка.

8.11. Summarize the information given in the text and fill in the following table.

Kinds of bees	Their functions

8.12. Translate the sentences into English.

1. Европейскую пчелу одомашнили ради производства меда и опыления культур.

2. Медоносные пчелы – искусные инженеры-химики.

3. Продукты пчеловодства сопровождают человека на протяжении всей его истории.

4. Мед был одним из основных продуктов питания в рационе древних римлян.

5. В Древнем Китае также занимались пчеловодством.

6. Пчеломатка оплодотворяет яйца, используя свою сперматеку.

7. Пчелиный рой состоит из спарившейся матки и большого количества рабочих пчел.

8. Пчелы-разведчики заранее находят место для нового гнезда.

8.13. Speak about the importance of honey bees for mankind.

8.14. Tell how worker bees' tasks vary with their age.

8.15. Explain how new colonies are established.

8.16. Match these bee idioms with their meanings. Can you remember any situation that can be illustrated by them?

1. to be as busy as a bee	a. something or someone extremely good
2. a bee in one's bonnet	b. a woman who has authority or is in a dominant position over her colleagues
3. to put the bee on somebody	c. a strange idea in one's mind, an obsession
4. queen bee	d. to squeeze money from somebody
5. the bee's knees	e. to be moving about quickly doing many things

8.17. Learn the words before reading text B.

pesticide [ˈpestɪsaɪd] – пестицид
death [deθ] – гибель
sample [ˈsɑːmp(ə)l] – образец; проба
trace [treɪs] – след; незначительное количество
permitted [pəˈmɪtɪd] – разрешенный
beneficial [ˌbenɪˈfɪʃ(ə)l] – полезный
impact [ˈɪmpækt] – воздействие, влияние
pollinator [ˈpɒlɪneɪtə] – опылитель
decline [dɪˈklaɪn] – уменьшение; ухудшение
field study – полевое исследование
prevalence [ˈprev(ə)ləns] – преобладание; широкое распространение
to gather [ˈgæðə] – собирать
survey [ˈsəːveɪ] – исследование
finding [ˈfaɪndɪŋ] – полученные данные
ban [bæn] – запрет
contaminated [kənˈtæmɪneɪtɪd] – загрязненный; зараженный
concern [kənˈsəːn] – беспокойство; забота
assessment [əˈsesmənt] – оценка
evaluation [ɪˌvæljʊˈeɪʃ(ə)n] – оценка
compound [ˈkɒmpaʊnd] – соединение (*хим.*)
persistent [pəˈsɪst(ə)nt] – стойкий, устойчивый
frequently [ˈfriːkwəntli] – часто
to turn up – оказываться
to be involved in – принимать участие
landscape [ˈlæn(d)skeɪp] – ландшафт
to contribute [kənˈtrɪbjuːt] – способствовать
collapse [kəˈlæps] – резкое падение
biodiversity [ˌbaɪə(ʊ)daɪˈvəːsəti] – биоразнообразие
government [ˈgʌv(ə)nmənt] – правительство
permanent [ˈpəːm(ə)nənt] – постоянный
solution [səˈluːʃ(ə)n] – решение

8.18. Read the title of text B. Judging by the title and the words from ex. 8.17., which of these things do you think are mentioned in it? Look through the text and write the numbers of the paragraphs in which you found them.

1) the maximum permitted levels of pesticide in food for humans;
2) the impact of neonicotinoids on pollinators;
3) the effect of pesticides on soil-dwelling insects;

4) the concentrations of chemicals in honey samples;
5) the cocktail effect of the mixing of several neonicotinoids;
6) a permanent ban on the use of neonicotinoids.

8.19. Put each word in the correct blank.

1) ***scientists*** / ***pollinators***
The death of _____ troubles _____ around the world.

2) ***use*** / ***decline***
The _____ in both the numbers and health of bees is connected with the _____ of pesticides.

3) ***traces*** / ***samples***
The study found _____ of pesticides in all honey _____ .

4) ***compound*** / ***evaluation***
The _____ of the risk is made from one single _____ in one test organism.

5) ***landscapes*** / ***neurotoxins***
Many _____ in the world are contaminated with dangerous _____.

6) ***warning*** / ***finding***
This _____ is a serious _____ to us.

8.20. Look through the text and find the words having the same meaning as:

- useful *(paragraph 2)*
- effect *(paragraph 3)*
- dominance *(paragraph 4)*
- collected *(paragraph 4)*
- research *(paragraph 5)*
- constant *(paragraph 12)*

8.21. Read the text and do the tasks that follow.

TEXT B: PESTICIDES LINKED TO BEE DEATHS FOUND IN MOST HONEY SAMPLES

[1]A new study has found traces of **neonicotinoid[1]** chemicals in 75% of honey samples from across the world. The scientists say that the levels of the widely used pesticide are far below the maximum permitted levels in food for humans. In one-third of the honey, the amount of the chemical found was enough to be harmful to bees.

[2]Neonicotinoids are considered to be the world's most widely used class of insecticides. They have generally been seen as being more beneficial for the environment than the older products that they have replaced.

[3]However, the impact of neonicotinoids on pollinators such as bees has long been a **troubling subject[2]** for scientists around the world. **Successive[3]** studies have shown a connection between the use of the products and a decline in both the numbers and health of bees.

[4]Earlier this year, the most **comprehensive**[4] field study to date concluded that the pesticides harm honey bees and wild bees. This new study looks at the prevalence of neonicotinoids in 198 honey samples gathered on every continent (except Antarctica).

[5]The survey found at least one example of these chemicals in 75% of the honey, from all parts of the globe. Concentrations were highest in North America, Asia and Europe. The European finding is a puzzle as there has been a ban on the use of these products in place since 2013.

[6]The authors believe though that the finding should not be a worry to people who eat honey. “It is well below the limit so I think it is not a major public health concern,” author Dr Alexandre Aebi from the University of Neuchatel in Switzerland, told BBC News. “We would have to eat an awful lot of honey and other contaminated products to see an effect, but I think it’s a **warning**[5]. Neonicotinoids have just been shown to cause **endocrine perturbations**[6] in honey bees, so who knows?”

[7]The bigger concern according to Dr Aebi was the impact on bees and other pollinators. Some 34 % of the honey samples showed the presence of neonicotinoids at levels that would harm bees.

[8]Of particular concern to the authors was the cocktail effect, the mixing of two or more neonicotinoids found in 45 % of the samples. “It is definitely **scary**[7] for honeybees and other bees and useful insects,” he said.

[9]“We have up to five molecules in one single sample. From a risk assessment point of view, the evaluation of the risk is made from one single compound in one test organism. So the cocktail is not tested. Mixed effects should be taken seriously.”

[10]“Neonicotinoids are highly persistent in the environment, and frequently turn up in soils, water samples, and in wildflowers, so we would expect to find them in honey,” said Dave Goulson, professor of biology at the University of Sussex, who was not involved in the study.

[11]“Entire landscapes all over the world are now **permeated**[8] with **highly potent**[9] neurotoxins, undoubtedly contributing to the global collapse of biodiversity. Some of us have been pointing this out for years, but few governments have listened.”

[12]The authors of the new study believe that a permanent ban, as proposed in France, is the best solution.

Notes to the text:

1 – неоникотиноидный (инсектицид)

2 – предмет беспокойства

3 – последовательные

4 – всестороннее

5 – предупреждение; предостережение
6 – эндокринные нарушения
7 – здесь: опасно
8 – насыщены
9 – высокоактивные

8.22. Answer the questions.

1. What has the new study found?
2. Why have neonicotinoids replaced older products?
3. Why does the use of neonicotinoids trouble scientists around the world?
4. What honey samples contained the highest concentration of pesticides, according to the survey?
5. Why does the European finding surprise the authors?
6. What is the effect of neonicotinoids on the endocrine system of honey bees?
7. What was of particular concern to the authors?
8. What is the characteristic feature of neonicotinoids?
9. What is the best solution to the problem, according to the authors of the study?

8.23. Say whether these facts are true or false or not mentioned in the text. Correct the false ones.

1. Neonicotinoids are the world's most rarely used class of insecticides.
2. There is a definite connection between the use of neonicotinoids and a decline in both the numbers and health of bees.
3. 198 honey samples were gathered on every continent including Antarctica.
4. Dr Aebi is an amateur beekeeper whose own honey was analysed in the study.
5. At least one example of neonicotinoids was found in 75 % of the honey.
6. Concentrations were highest in South America and Africa.
7. The authors believe that the finding should be a great worry to people who eat honey.
8. Mixed effects of neonicotinoids have never been assessed.
9. Field exposure of bees to neonicotinoids results in disorientation, reduced foraging, impaired memory and learning.

10 Highly potent neurotoxins permeating landscapes all over the world contribute to the global collapse of biodiversity.

8.24. Join the halves of the sentences. Consult the text if necessary.

1. The levels of the pesticide are far below	a. for honeybees and other useful insects.
2. But in one-third of the honey, the amount of the chemical was enough	b. up to five molecules of different pesticides.
3. One single honey sample contains	c. to be harmful to bees and other pollinators.
4. The cocktail effect is definitely scary	d. to the scientists' warnings.
5. The evaluation of the risk is made	e. the maximum permitted levels in food for humans.
6. Very few governments have listened	f. from one single compound in one test organism.

8.25. What do you think of the problem stated in the text? Is it relevant for our country?

8.26. Do you like honey? Do you want to eat pesticide-containing honey? Do you believe it is safe?

FARM ANIMALS QUIZ

Welcome to the farm animals quiz which will test your knowledge of farm and domesticated animals around the world.

1. Which farm animal lays eggs?
a) cow
b) horse
c) chicken
2. Where does a hamburger come from?
a) cow
b) horse
c) goat
3. Who do we get milk from?
a) poultry
b) pig
c) cow
4. Where does bacon come from?
a) pig
b) cow
c) goat
5. Which animal is sheared for its fleece?
a) horse
b) sheep
c) cow
6. How many chickens are there thought to be in the world?
a) 25 billion
b) 15 billion
c) 5 billion
7. How many teeth does a piglet have?
a) 38
b) 18
c) 28
8. What does a duck not use its beak for?
a) feeding
b) grooming
c) swimming
9. Which habitat did goats originate from?
a) rainforest

b) desert
c) mountains
10. In Australia, what animal is farmed for meat, oil and leather?
a) koala
b) emu
c) wombat
11. Where would you expect yaks to be farmed?
a) Asia
b) Africa
c) Europe
12. In which country is the cow seen as a sacred animal?
a) Australia
b) India
c) Thailand
13. Out of the more than 1,000 different species of sheep, how many of them are domestic?
a) 200
b) 600
c) 400
14. In the 1800s, approximately how many million bison where inhabiting the North American plains?
a) 60–100 million
b) 1–5 million
c) 10–50 million
15. Which bird's egg is the biggest?
a) ostrich
b) goose
c) chicken
16. What type of animal is a Holstein?
a) sheep
b) cow
c) goat
17. What type of animal is a Rhode Island Red?
a) duck
b) horse
c) chicken
18. What type of animal is a Nubian?
a) cow
b) sheep

c) goat

19. What is a group of birds called?

a) herd

b) crowd

c) flock

20. Which of these animals is also known as a billy?

a) goat

b) ostrich

c) chicken

21. In some countries, donkeys are used to _____ things.

a) carry

b) chase

c) control

22. Which animal is not a baby?

a) duck

b) chick

c) calf

23. A large number of cows is called a _____ .

a) collar

b) group

c) herd

24. Baby geese are called _____.

a) gooselings

b) gosslers

c) goslings

25. Other than a dog, what animal do some farmers use to protect their sheep from predators?

a) bull

b) llama

c) rooster

26. How smart are pigs?

a) as smart as or smarter than dogs

b) as smart as or smarter than 3-year-old children

c) as smart as or smarter than cats

27. When were cows first domesticated?

a) 6,000 years ago

b) 7,500 years ago

c) 10,500 years ago

28. What do you get when you cross a goat and a sheep?
a) shoat
b) geep
c) sheet
29. What do you get when you cross a female donkey with a male horse?
a) mule
b) horsey
c) hinny
30. Turkeys are native to:
a) Western Europe
b) North America
c) Middle East
31. Chickens love to bathe in:
a) water
b) dust
c) droppings
32. How many breeds of cow are there worldwide?
a) about 400
b) about 500
c) about 800
33. Which animal gives birth to foals?
a) horse
b) cow
c) sheep
34. What is it called when chickens lose their old feathers to get new ones?
a) feathering
b) balding
c) molting
35. How long does it take for a fertilized chicken egg to hatch?
a) 21 days
b) 14 days
c) 2 months
36. What is an unbred female cow called?
a) steer
b) sow
c) heifer
37. What is a female sheep called or known as?

a) colt
b) ram
c) ewe
38. What do you call a baby or young goat?
a) kid
b) mutt
c) kit
39. Which farm animal was the first in the world to be DNA cloned?
a) sheep
b) pig
c) duck
40. Why do pigs like to roll and cover themselves in mud?
a) they don't have sweat glands so it helps keep them cool
b) it protects their sensitive skin from the sun and flies and other insects
c) all of these answers are correct

Answer Key: *1c; 2a; 3c; 4a; 5b; 6a; 7c, 8c; 9c; 10b; 11a; 12b; 13a; 14a; 15a; 16b; 17c; 18c; 19c; 20a; 21a, 22a; 23c; 24c; 25b; 26b; 27c; 28b; 29c; 30b; 31b; 32c; 33a; 34c; 35a; 36c; 37c; 38a; 39a; 40a.*

VOCABULARY

A

Angora – ангорская порода пуховых кроликов
ability [əˈbɪlətɪ] – возможность, способность
abomasum [ˌæbə(ʊ)ˈmeɪsəm] – сычуг
access [ˈækses] – доступ
achieve [əˈtʃi:v] – достигать, добиваться
adopt [əˈdɒpt] − выбирать
adult [ˈædʌlt] – взрослый
affect [əˈfekt] – влиять; плохо отражаться
ailment [ˈeɪlm(ə)nt] – болезнь, заболевание
airways [ˈeəweɪz] – дыхательные пути
alfalfa [ælˈfælfə] – люцерна
amount [əˈmaʊnt] – количество
Anglo-Nubian [ˌangləʊ ˈnju:bɪən] – англо-нубийская порода коз молочного направления
annual [ˈænjʊəl] – ежегодный
annual [ˈænjuəl] – однолетний
antibody – антитело
anticipate [ænˈtɪsɪpeɪt] – ожидать, предвидеть
apiary [ˈeɪpɪəri] – пасека
apiculture [ˈeɪpɪˌkʌltʃə] – пчеловодство
appearance [əˈpɪər(ə)ns] – внешность
appropriate [əˈprəʊpriət] – подходящий
artificially [ˌɑ:tɪˈfɪʃ(ə)li] – искусственно
assess [əˈses] – оценивать
assessment [əˈsesmənt] – оценка
atrophy [ˈætrəfi] – атрофироваться
attempt [əˈtempt] − пытаться, стараться
available [əˈveɪləb(ə)l] – доступный; имеющийся в наличии, в распоряжении
average [ˈæv(ə)rɪdʒ] – составлять в среднем
average [ˈæv(ə)rɪdʒ] – средний
avoid [əˈvɔɪd] – избегать

B

ban [bæn] – запрет
bark [bɑ:k] – кора
barn – конюшня; сарай
be involved in – принимать участие

beak [biːk] – клюв
beard [bɪəd] – борода (у животного)
bedding – подстилка (*для скота*)
beef [biːf] – говядина
beef [biːf] cow – мясная корова
beef cattle – мясной скот
beehive [ˈbiːhaɪv] – улей; рой
beeswax [ˈbiːzwæks] – воск
behaviour [bɪˈheɪvjə] – поведение
beneficial [ˌbenɪˈfɪʃ(ə)l] – полезный
bill – клюв
billy goat – *разг.* козел
biodiversity [ˌbaɪə(ʊ)dʌɪˈvəːsəti] – биоразнообразие
biosecurity [ˌbaɪə(ʊ)sɪˈkjʊərəti] – биобезопасность
bird [bəːd] – птица
bite – кусать(ся)
blood [blʌd] – кровь
blood test [ˈblʌd test] – анализ крови
boar [bɔː] – кабан; боров
body condition graph [grɑːf] – диаграмма состояния тела
bolt [bəʊlt] – убежать, понести (о лошади)
bone – кость
bran – отруби
break – объезжать, приучать к поводьям
breed – порода
breed – размножаться; давать приплод; осеменять
breeding – разведение; случка
bridle [ˈbraɪd(ə)l] – уздечка
broody [ˈbruːdi] hen – наседка
Brussels sprouts [ˌbrʌs(ə)lz ˈspraʊts] – брюссельская капуста
buck – становиться на дыбы
buck [bʌk] – самец кролика
bud [bʌd] – почка
build-up [ˈbɪldʌp] – накопление
bull – бык
butt [bʌt] – бодаться

C

calcium [ˈkalsɪəm] – кальций
calf [kɑːf] теленок, мн. – calves [kɑːvz]; телиться

calorie [ˈkæləri] – калория
calorie content – калорийность
carcass [ˈkɑːkəs] – туша
carrot [ˈkærət] – морковь
carry-over – перенос
case – случай
cattle – крупный рогатый скот
cause [kɔːz] – вызывать
cell [sel] – ячейка (*в сотах*)
chamber [ˈtʃeɪmbə] – отдел (*желудка*)
chew [tʃuː] – жевать
chick – цыплёнок
chin – подбородок
chomp – жевать
claw [klɔː] – коготь
clippers – ножницы (для стрижки овец)
clover [ˈkləʊvə] – клевер
cock – петух
collapse [kəˈlæps] – резкое падение
colt [kəʊlt] – жеребчик
comb [kəʊm] – гребень
comply [kəmˈplaɪ] with – подчиняться (*требованиям, правилам*)
compound [ˈkɒmpaʊnd] – соединение (*хим.*)
concern [kənˈsəːn] – беспокойство; забота
conditions [kənˈdɪʃənz] – условия
consume [kənˈsjuːm] – потреблять; съедать
contaminated [kənˈtæmɪneɪtɪd] – загрязненный; зараженный
contribute [kənˈtrɪbjuːt] – способствовать
coop [kuːp] – курятник; клетка для кур, домашней птицы
corn – кукуруза
cornstalk – стебель кукурузы
cow [kaʊ] – корова
creature [ˈkriːtʃə] – существо
crossbreed [ˈkrɒsbriːd] – гибрид, кроссбред
cruciferous [kruːˈsɪf(ə)rəs] plant – крестоцветное растение
cud – жвачка

D

daily gain – суточный прирост
dairy [ˈdeəri] cow – молочная корова

dam [dæm] – (кобыла-)производительница, матка
damp – сырой, влажный
death [deθ] – гибель
decline [dɪˈklaɪn] – уменьшение; ухудшение
deliver [dɪˈlɪvə] – доставлять
derive [dɪˈraɪv] from – получать из
descend [dɪˈsend] from – происходить от
deserve [dɪˈzəːv] – заслуживать
detergent [dɪˈtəːdʒ(ə)nt] – очищающее, моющее средство
determine [dɪˈtəːmɪn] – определять, решать
diarrhoea [ˌdaɪəˈriə] − понос, диарея
diet [ˈdaɪət] – рацион
digest [daɪˈdʒest] – переваривать
dip – мыть в дезинфицирующем растворе
diploid [ˈdɪplɔɪd] – диплоидный (*с двойным набором хромосом*)
disease [dɪˈziːz] – болезнь
disinfection [ˌdɪsɪnˈfekʃ(ə)n] – дезинфекция, обеззараживание
doe [dəʊ] – крольчиха
domestic fowl [faʊl] – домашняя птица
dormant [ˈdɔːm(ə)nt] – в состоянии покоя
down [daʊn] – пух
drainage [ˈdreɪnɪdʒ] – сток
drake [dreɪk] – селезень
drinker − поилка
drone [drəʊn] – трутень
drop − ронять
dry matter – сухое вещество
duck [dʌk] – утка
duckling – утенок
dung [dʌŋ] – помет, навоз
dust [dʌst] – пыль
Dutch Bantam [ˌdʌtʃ ˈbæntəm] – голландская бентамка (*карликовая порода домашних кур*)

E

ear [ɪə] – ухо
efficient [ɪˈfɪʃ(ə)nt] – продуктивный
egg – яйцо
eliminate [ɪˈlɪmɪneɪt] – устранять, исключать
emergence [ɪˈməːdʒ(ə)ns] – появление

ensure [ɪnˈʃɔː] – позаботиться о том, чтобы
entire [ɪnˈtaɪə] – целый, весь
environment [ɪnˈvaɪrənm(ə)nt] – среда
equipment [ɪˈkwɪpmənt] – оборудование
essential [ɪˈsenʃ(ə)l] – важный; необходимый
evaluation [ɪˌvæljʊˈeɪʃ(ə)n] – оценка
ewe [juː] – овца
excess [ɪkˈses] – избыточный, излишний
exposure [ɪkˈspəʊʒə] – воздействие
eyesight [ˈaɪsaɪt] – зрение

F

faeces [ˈfiːsiːz] − фекалии
farmyard – двор
farrowing [ˈfærəʊɪŋ] – опорос
fat – жир
fatten – откармливать
feather [ˈfeðə] – перо
feed (fed, fed) – кормить, откармливать
feed additive – кормовая добавка
feed efficiency [ɪˈfɪʃ(ə)nsi] – эффективность использования кормов
feed trough [trɒf] − кормушка
feed waste [weɪst] – непроизводительный расход кормов
feeder − кормушка
feedlot – откормочная площадка
female [ˈfiːmeɪl] – самка; женский, женского пола
fence – забор, изгородь
fertile [ˈfəːtaɪl] – плодовитый; фертильный
fertilizer [ˈfəːtɪlaɪzə] – удобрение
fibre [ˈfaɪbə] – клетчатка
field study – полевое исследование
filly [ˈfɪli] – кобылка
finding [ˈfaɪndɪŋ] – полученные данные
finished – откормленный
finishing period – заключительный период откорма
flavour [ˈfleɪvə] – вкус
flesh – мясо
flock – стадо; отара; стая
fluffy [ˈflʌfi] – пушистый
foal [fəʊl] – жеребенок

fodder – корм
forage [ˈfɒrɪdʒ] – грубый корм
forage [ˈfɒrɪdʒ] – добывать корм, рыскать в поисках еды; кормить грубыми кормами
forager [ˈfɒrɪdʒə] – пчела-сборщица, полевая пчела
foul [faʊl] – пачкать, загрязнять
frequently [ˈfriːkwəntli] – часто
fungus [ˈfʌŋgəs] – грибок, *мн.* – fungi [ˈfʌŋgiː]
fur [fəː] – мех

G

gander [ˈgændə] – гусак
gastric [ˈgæstrɪk] juice – желудочный сок
gate – ворота
gather [ˈgæðə] – собирать
generation [ˌdʒenəˈreɪʃ(ə)n] – поколение
gestation [dʒeˈsteɪʃ(ə)n] – беременность
girth [gəːθ] – подпруга
gland – железа
goat [gəʊt] – коза
goose [guːs] – гусь, *мн.* – geese [giːs]
gosling [ˈgɒzlɪŋ] – гусенок
government [ˈgʌv(ə)nmənt] – правительство
grain [greɪn] – зерно
grass – трава
graze [greɪz] – пасти(сь)
grazier [ˈgreɪzɪə] – животновод, выращивающий скот на подножном корме
greens – зелень
ground [graʊnd] – измельченный, молотый
growing period – период выращивания
growth chart – график прироста
grunt [grʌnt] – хрюкать
guard [gɑːd] – охранять
guideline [ˈgaɪdlaɪn] – рекомендации
gut [gʌt] – пищеварительный тракт

H

hand – ладонь (единица измерения роста лошади, равная 10 см)
handle – ухаживать; обращаться, управлять
handler – человек, ухаживающий за лошадью; дрессировщик
haploid [ˈhæplɔɪd] – гаплоидный (*с одинарным набором хромосом*)

hardy – выносливый
harmful – вредный
hatch – высиживать (*цыплят*); выводить (*цыплят*) искусственно
hay – сено
heavy draft [drɑ:ft] – тяжеловоз
heifer [ˈhefə] – телка
height [haɪt] – рост; высота
hen – курица, несушка
herbs – разнотравье
hide – шкура
hog – свинья
hole [həʊl] – дыра; отверстие
honey [ˈhʌni] – мед
honey bee – пчела медоносная, пчела домашняя
honeycomb [ˈhʌnɪkəʊm] – соты
hoof [hu:f] – копыто, *мн.* – hoves [hu:vz]
horse [hɔ:s] – лошадь
horsemanship – искусство верховой езды
humid [ˈhju:mɪd] – сырой, влажный

I

immediate [ɪˈmi:dɪət] – немедленный
impact [ˈɪmpækt] – воздействие, влияние
individual [ɪndɪˈvɪdʒʊ(ə)l] – особь
infested [ɪnˈfestɪd] – зараженный
inhabit [ɪnˈhæbɪt] – обитать
inherit [ɪnˈherɪt] – наследовать
input – расход, потребление
insect [ˈɪnsekt] – насекомое
insulation [ɪnsjʊˈleɪʃ(ə)n] – изоляция
intake [ˈɪnteɪk] – потребление

J

juvenile [ˈdʒu:vənaɪl] – молодая особь

K

kick – лягать(ся)
kid – козленок
kit – детеныш пушного зверя; *здесь*: крольчонок
kitten – детеныш пушного зверя; *здесь*: крольчонок
know-how – знание технологии

L

lamb [læm] – ягненок
lambing [ˈlamɪŋ] – ягнение, окот
landscape [ˈlæn(d)skeɪp] – ландшафт
lard – сало, свиной жир
larva [ˈlɑːvə] – личинка, *мн.* – larvae [ˈlɑːviː]
lay eggs – откладывать яйца
leaf [liːf] – лист, *мн.* – leaves
leakage [ˈliːkɪdʒ] – утечка; просачивание
leather [ˈleðə] – кожа
Leghorn [leˈgɔːn] – леггорн (*высокопродуктивная порода домашних кур яичного направления*)
legume [ˈlegjuːm] – бобовое растение
length [leŋθ] – длина
level [ˈlev(ə)l] – уровень
lifespan – продолжительность жизни
light – легкий
litter – подстилка
litter – помет, приплод
livestock [ˈlaɪvstɒk] – домашний скот
long-horned – длиннорогий
loss – потеря
lungs [lʌŋz] – легкие
lush [lʌʃ] – сочный

M

maintain [meɪnˈteɪn] – поддерживать, сохранять
make up for – компенсировать
male [meɪl] – самец; мужской, мужского пола
mammal – млекопитающее
management [ˈmænɪdʒm(ə)nt] – содержание (*животных*)
mane [meɪn] – грива
manure – помет, навоз
mare [meə] – кобыла
mated – спарившийся
mature [məˈtʃʊə] – зрелый
meadow [ˈmedoʊ] – луг
meal – мука
measure [ˈmeʒə] – измерять
milk curve [kəːv] – лактационная кривая

milk persistency [pəˈsɪstənsɪ] – продолжительность лактации
milk records – учёт надоев молока, учёт молочной продуктивности
mix – перемешивать
moisture [ˈmɔɪstʃə] – влага
mould [məʊld] – плесень
mount – лошадь для верховой езды
mouth – рот
mucus [ˈmjuːkəs] – слизь
mutton [ˈmʌt(ə)n] – баранина

N

nanny goat – *разг.* коза
neigh [neɪ] – ржать
nest – гнездо
neuter [ˈnjuːtə] – кастрировать
New Zealand White – новозеландская белая порода кроликов мясного направления
nibble – щипать (траву)
nitrogen-rich [ˈnaɪtrədʒ(ə)n rɪtʃ] – богатый азотом
nostril – ноздря
nourish [ˈnʌrɪʃ] – кормить
Nubian [ˈnjuːbɪən] – нубийская порода коз молочного направления
nurse [nəːs] – кормить
nutrient [ˈnjuːtrɪənt] – питательный элемент
nutrition [njʊˈtrɪʃ(ə)n] – питание; кормление
nutritional requirements [rɪˈkwaɪəm(ə)nts] – потребности в питательных элементах
nutritionist [njʊˈtrɪʃ(ə)nɪst] – специалист по кормлению
nutritious [njʊˈtrɪʃəs] – питательный

O

oats [əʊts] – овес
observe [əbˈzəːv] – следить, наблюдать
oestrus [ˈiːstrəs] – течка, половая охота
offspring – потомство; приплод
omasum [əʊˈmeɪsəm] – книжка
omnivore [ˈɒmnɪvɔː] – всеядное животное
orphan [ˈɔːf(ə)n] – сирота
output – выход продукции
overfeeding − перекармливание
ox – бык, *мн.* – oxen

P

paddock [ˈpædək] – загон
palatable [ˈpælətəb(ə)l] – вкусный
parasite [ˈpærəsaɪt] – паразит
pasture [ˈpɑːstʃə] – пастбище
pathogen [ˈpæθədʒ(ə)n] – патоген, патогенный, болезнетворный микроорганизм
peak milk – максимум лактации
peck – клевать
pecking order – ранг в иерархии стаи
pellet [ˈpelɪt] – гранула
pelt – шкурка (*в меховом производстве*)
pen – клетка
performance [pəˈfɔːm(ə)ns] – продуктивность
permanent [ˈpəːm(ə)nənt] – постоянный
permitted [pəˈmɪtɪd] – разрешенный
persistent [pəˈsɪst(ə)nt] – стойкий, устойчивый
personnel [ˌpəːsəˈnel] – персонал, рабочие фермы
pesticide [ˈpestɪsaɪd] – пестицид
pig – свинья
piglet – поросенок
pigsty [ˈpɪgstaɪ] – свинарник
pollen [ˈpɒlən] – пыльца
pollination [ˌpɒlɪˈneɪʃən] – опыление
pollinator [ˈpɒlɪneɪtə] – опылитель
pony [ˈpəʊni] – пони
pork – свинина
position [pəˈzɪʃ(ə)n] − положение, место
poultry [ˈpəʊltri] – домашняя птица
pregnancy [ˈpregnənsi] – беременность
prevalence [ˈprev(ə)ləns] – преобладание; широкое распространение
profit – прибыль
prone to [prəʊn] – подверженный, склонный
propolis [ˈprɒp(ə)lɪs] – прополис, пчелиный клей
protein [ˈprəʊtiːn] – белок
pullet [ˈpʊlɪt] – молодая курица, молодка (*самка птицы первого года яйцекладки*)

Q

quality [ˈkwɒlɪti] – качество

queen bee – пчелиная матка, пчеломатка
quintuplets [ˈkwɪntjʊpləts] – пятеро ягнят, родившихся вместе

R

rabbit [ˈræbɪt] – кролик
raise [reɪz] – разводить
ram [ræm] – баран
raw [rɔː] – сырой; непереваренный
reach [riːtʃ] − дотянуться
rear [rɪə] – выращивать
recognise [ˈrekəgnaɪz] – распознавать
records – учетные документы
relationship – взаимосвязь
remainder [rɪˈmeɪndə] – остаток
remove [rɪˈmuːv] – удалять
repair [rɪˈpeə] – чинить, ремонтировать
reproductive summary – репродуктивные показатели
research [rɪˈsəːtʃ] – исследование
respiratory [rɪˈspɪrət(ə)ri] – дыхательный, респираторный
response [rɪˈspɒns] – реакция
restrict [rɪˈstrɪkt] – ограничивать
result in – приводить к
reticulum [rɪˈtɪkjʊləm] – сетка
Rhode Island [ˈrəʊd ˌaɪlənd] Red – род-айлендская красная (*порода кур мясо-яичного направления*)
ride – ехать верхом
rodent [ˈrəʊd(ə)nt] – грызун
rolled [rəʊld] − плющеный
rooster [ˈruːstə] – петух
root – корень; корнеплод; откапывать
routine [ruːˈtiːn] – режим
royal jelly [ˌrɔɪəl ˈdʒeli] – маточное молочко
rumen [ˈruːmən] – рубец
ruminant – жвачное животное

S

Saanen [ˈsɑːnən] – зааненская порода короткошерстных коз молочного направления
saddle [ˈsæd(ə)l] – седло
sample [ˈsɑːmp(ə)l] – образец; проба
sandy [ˈsændi] – песчаный

scarce [skeəs] – скудный, недостаточный
scout bee – пчела-разведчица
scratch up – рыть землю, откапывать (*о курах*)
section – отдел
seed [siːd] – семя, семечко
senior [ˈsiːnɪə] – кролик в возрасте шести месяцев и старше; половозрелое животное
sense – чувство
serving [ˈsəːvɪŋ] – порция
shearing [ˈʃɪərɪŋ] – стрижка (овец)
sheep [ʃiːp] – овца, *мн.* – sheep
shell – скорлупа
shelter – укрытие, убежище
shift – изменение
shoat [ʃəʊt] – поросенок после отъема (*массой от 27 до 72 кг*)
shoulder – плечо; лопатка
shrubs [ʃrʌbz] – кустарник
silage [ˈsaɪlɪdʒ] – силос
silo [ˈsaɪləʊ] – силосохранилище
similar – похожий
sinew [ˈsɪnjuː] – сухожилие
single birth – ягненок, который родился один
sire [ˈsaɪə] – (жеребец-)производитель
site – место, участок
skill – навык, умение
slats [slæts] – планчатый пол
smell – обоняние
snood [snuːd] – серёжка (*мясистый придаток над клювом у индюка*)
snout – рыло
soak up – впитывать
soften – размягчать
solution [səˈluːʃ(ə)n] – решение
source [sɔːs] – источник
sow [saʊ] – свиноматка
soybean [ˈsɔɪbiːn] – соя
species [ˈspiːʃiːz]– вид
spermatheca – сперматека, семяприемник
squeal [skwiːl] – визжать, верещать
squeeze [skwiːz] out – выжимать

stable – стойло; конюшня
stage [steɪdʒ] – стадия
stall [stɔ:l] – конюшня
stallion [ˈstaljən] – жеребец
staple [ˈsteɪp(ə)l] – основной
steer [stɪə] – кастрированный бык
stirrup [ˈstɪrəp] – стремя
stockmanship [ˈstɒkmənʃɪp] – правила ухода за птицей *или* скотом
stomach [ˈstʌmək] – желудок
strain – порода
straw [strɔ:] – солома
study – исследование
sucker [ˈsʌkə] – сосунок
supply [səˈplaɪ] – снабжать, поставлять
support [səˈpɔ:t] – поддерживать
surface [ˈsə:fɪs] – поверхность
survey [ˈsə:veɪ] – исследование
survive – выжить
swallow [ˈswɒləʊ] – глотать
swarm [swɔ:m] – рой
swine – свинья, *мн.* – swine

T

tail – хвост
tame – приручать, одомашнивать
technique [tekˈni:k] – метод
thistle [ˈθɪs(ə)l] – чертополох
thorough [ˈθʌrə] – тщательный
timothy [ˈtɪməθi] – тимофеевка
toe [təʊ] – палец
Toggenburg [ˈtɒgən¸bə:g] – тоггенбург (порода коз молочного направления)
trace [treɪs] – след; незначительное количество
trait [treɪt] – признак
treat [tri:t] – лакомство
treat [tri:t] – обрабатывать; лечить
treatment [ˈtri:tmənt] – обработка; лечение
triplets – тройня
turn up – оказываться
turnip [ˈtə:nɪp] – турнепс, репа
twins – двойня

U

udder [ˈʌdə] – вымя
underweight [ˌʌndəˈweɪt] – имеющий недовес
urine [ˈjʊərɪn] – моча
urine [ˈjʊərɪn] – моча

V

vaccine [ˈvæksiːn] – вакцина
valuable [ˈvaljʊb(ə)l] – ценный
venom [ˈvenəm] – яд
visually [ˈvɪʒuəli] – зрительно, визуально
volatile fatty acid [ˈvɒlətaɪl ˌfæti ˈæsɪd] – летучая жирная кислота

W

wallow [ˈwɒləʊ] – валяться, кататься
wastage [ˈweɪstɪdʒ] – потери; непроизводительный расход
wattle [ˈwɒt(ə)l] – бородка (*индюка*)
wean [wiːn] – отлучать (от матки), отнимать
webbed [webd] – перепончатый
weed [wiːd] – сорняк
weigh [weɪ] – весить
whinny [ˈwɪni] – тихо ржать
whiskers [ˈwɪskəz] – усы
wing – крыло
withstand [wɪðˈstænd] – выдерживать, выносить
wool – шерсть
worker bee – рабочая пчела
worm [wəːm] – червь

Y

yolk [jəʊk] – желток

SUPPLEMENTARY TEXTS

THE STRUCTURE OF FARM ANIMALS

All the livestock of economic importance in farming are known as vertebrates, which is the name given to members of the animal kingdom that have a backbone. The horse, ox, sheep, and pig are also classified as mammals, a class of vertebrates whose chief characteristic is that they suckle their young. They are warm-blooded animals, and have a skin that is covered with hair, and their young are fully developed within the body before birth.

By contrast, birds have a protective covering of feathers and their young arc hatched from eggs.

The body of an animal consists in the first place of a skeleton, which is a framework of bones and gives the necessary support to t the soft parts of the body. These include the various muscles, the lungs, the organs concerned with the circulation of the blood, the digestive and excretory systems, and the parts that provide for reproduction. The whole body is covered with a skin, which helps to maintain the animal at a constant temperature. The study of the structure of animals is known as Anatomy, and medical and veterinary students have to make a special study of the subject. For the agriculturist, it is only necessary to give a simple outline of the anatomy of farm animals, with special reference to those parts of the body of economic importance from the farmer's point of view.

THE SKELETON

The skeleton of an animal is made up of a number of bones, which are composed largely of mineral matter. The most important mineral constituent is phosphate of calcium, which produces a hard, white substance that is comparatively insensitive to pain and injury and is strong enough to give rigidity to the framework of an animal. A typical bone consists of a hollow tube with two solid ends, and the inside contains a soft and rather fatty substance known as bone marrow. This performs an important function in the manufacture of blood in an animal.

There are a large number of different bones in the skeleton and the separate bones are held together by cartilage, or gristle. In most cases, the place of contact between one bone and another forms a movable joint. The skeleton of a horse contains a total of 207 separate bones, each with a

special function to perform. The skeleton may be divided into the following main parts:

- The skull, which forms the cavity of the head and in which the brain is situated.
- The backbone, which is made up of a series of separate bones known as vertebrae, and which stretches from the neck to the tail.
- The ribs, which are attached to the backbone and form a large and well-protected cavity, for the heart and lungs.
- The hip-bones, which give the general shape of the hindquarters and to which the hind legs are attached.
- The shoulder-blades, to which are attached the forelegs.
- The limbs or legs themselves, which function as the organs of locomotion.

The head of a farm animal has no special economic importance, though its general appearance may be an indication of an animal's capacity. For example, considerable attention is paid to the difference in appearance between the head of a beef cow and that of a dairy cow.

The backbone is a structure of great importance from the point of view of the appearance of an animal, and because of the part it plays as a channel of communication from the brain to the rest of the body. It is composed of a number of hollow vertebrae placed end to end, forming a channel through which passes the spinal cord, which takes the nervous impulses from the brain to the part of the body concerned. The backbone determines the shape of the animal along the "top line." In the case of a horse, the farmer has a preference for an animal with plenty of curves, but with cattle and sheep the back should, as far as possible, form a straight line. The length of the animal is determined by the length of the backbone; and in animals that are to be slaughtered for meat, the length of carcass desired by the butcher can be obtained only from an animal with a long backbone.

The ribs play an important part in determining the shape and, in some respects, the performance of an animal. With horses, the ribs should be both flat and long, giving the animal a deep chest and capacious lungs. In the case of cattle, sheep, and pigs, the ribs should be better sprung, to give a round appearance. With these animals, the capacity for good breathing is not of the same importance as the need for ample ribs on which flesh and fat can be developed.

The hip-bones are of special significance on animals kept for their flesh, and great width at this part of the body provides ample space for the growth and development of the more valuable cuts of meat such as the rump and

loin. Also horses that are used for draught purposes can develop great strength when the hindquarters are well grown.

The shoulder-blades are of secondary importance where animals are sold as meat, and the flesh at this part of the body provides the cheaper cuts of meat that are often not very saleable. Coarseness at the shoulders is a most undesirable feature in almost all farm animals. In horses, however, the shoulders must be well developed, as they are the point at which the horse applies its strength to pull a load. The shape of the shoulders also affects the general form and action of a horse.

The limbs of most farm animals are of no economic importance and short legs are regarded as a desirable feature, especially in a mature animal. Calves and colts are noted for their appearance of "legginess" when they are born but this disappears as they grow up. In horses, limbs have a special value and this is particularly so in race horses and hunters. With farm horses, the size of the feet and the quality of the hoof are factors of importance in their value.

The different bones of the skeleton are attached to each other at the joints and these are arranged to allow of movement, in some cases to a limited extent and in others quite freely. There are several types of joints found in the body but the two important types are the hinged joint and the ball-and-socket joint. The elbow in man is an example of a hinged joint, whilst the shoulder works on the principle of the ball-and-socket. The smooth movement of one bone against another at a joint is made possible by a covering of cartilage attached to the ends of the bones. The interior of the joint is filled with a clear liquid, which acts as a lubricant to make the movement free and easy.

The flesh of an animal is supported on the framework provided by the bony skeleton and consists of a large number of different muscles. A muscle is made up of a series of fibres grouped together in bundles. The movement of a limb is caused by the contraction of the limb muscles. When the muscle fibres are stimulated, either by a message from the brain or by some external stimulus such as a mild electric shock, the centre of each fibre swells and in so doing shortens the whole fibre. If the muscle is firmly attached at each end to a bone, its contraction causes the movement of that part of the body. This explains briefly the way in which an animal causes the movement of its limbs. The muscles are attached to the bones by means of tendons, and parts of some bones have a roughened surface to facilitate the union of bone and tendon.

There are two distinct muscular movements that can take place in an animal. One is the voluntary movement of a muscle, which is under the control of the animal through its brain. The muscles connected with voluntary movement have clearly defined fibres, and it is sometimes possible to recognize muscle fibres in a piece of cooked meat. But in addition to these voluntary movements certain of the body processes are carried out by involuntary movements of muscles. An animal does not consciously control the beating of its heart or the digestion of its food, and both call for muscular movement of an involuntary character.

In addition to the muscles, the fleshy parts of the animal's body contain varying amounts of fat. This has no power of expansion and contraction, and if fat is present in too great amounts it may even impede the action of the muscles. Fat is deposited in various parts of the body as a reserve of food that could be used by the animal as a source of energy if at any time the amount of food available was insufficient for its needs. It is a common experience with human beings to find that individuals who do little muscular work and take insufficient exercise are liable to get fat. This condition is wanted in many farm animals when they are being fattened in preparation for sale as meat.

THORAX AND ABDOMEN

The body, or trunk, of an animal is divided into two distinct parts. At the forepart is the thorax, or chest, and at the back is the abdomen, or belly. These are separated from each other by a partition of muscle called the diaphragm, and there is no opening or connection between the two cavities. The thorax is well protected by the ribs, because it is here that the heart and lungs are found and these are probably the most vital parts of the animal. The heart is responsible for the circulation of the blood within the body and it is a certain sign of the cessation of life when the heart stops beating. On either side of the heart are the lungs, which are concerned with the breathing of the animal, and they too are essential to its existence.

In the abdomen are found the stomach and the intestines, which together are responsible for the digestion and absorption of the food eaten by the animal and for the elimination of the solid indigestible matter. Other organs found in the abdomen and associated, with digestion are the liver and pancreas, or sweetbread, and in the same region are the kidneys, which dispose of the liquid waste products. The reproductive organs are situated in the abdominal region, though further to the rear of the animal. Here is found the womb of the female animal, in which the young develop before birth,

and one of the obvious signs of pregnancy is the increased size of the abdomen

THE SKIN

This is the external covering of the animal and its most important function is in maintaining the body temperature of the animal at a more or less constant level. When the temperature of the body rises unduly, an extra supply of blood goes to the blood vessels near the surface of the skin and the surplus heat can be lost by the cooling effect of air on the skin. If this does not cause a drop in the temperature, the skin secretes sweat through special glands: when this evaporates there is a further loss of heat. Some animals are better supplied with sweat glands than others. Horses have a great number of them and by sweating profusely maintain a constant body temperature very easily. Cattle, sheep, and pigs have comparatively few sweat glands, and a rise in temperature quickly leads to distress. A dog has none of these glands and tries to cool itself by exposing its tongue to the air. In the process of sweating, animals dispose of certain waste products from the body.

One of the surest indications that an animal is suffering from some disease is a rise in its normal temperature, since in conditions of health the body maintains a fairly constant temperature. The normal 'temperatures of farm animals are higher than that of humans, which is 98.4° Fahrenheit, and should be 100 to 101 F. for horses, 101° to 102° F. for cows, 103° to 104° F. for sheep, and 1020 to 103° F. for pigs.

The skins of farm animals are of some economic importance. The hides of cattle are tanned and used for leather, and pigskin can be made into a soft kind of leather. Hairy animals develop a thicker coat during the winter months as a protection against the colder weather, and as the weather gets warmer in the spring the old winter coat is thrown off. The animal is sometimes clipped to get rid of its winter coat and this is most frequently done for horses. Sheep have their winter coat taken off at the time of shearing in early summer. In some countries the wool from the sheep is of almost equal importance to the meat they produce.

THE TEETH

The obvious use of teeth is the part they play in the chewing, grinding, and mastication of food in the mouth prior to its digestion m the stomach. There are three main kinds of teeth: the incisors, or front teeth, which are

sharp-edged and used mainly for the cutting of food, especially in the grass-eating animals; the canines, or eye teeth, which are specially well-developed in flesh- eating animals and are used for tearing off the food and cutting the food in the mouth ; the molars, or grinding teeth, with flat, rough surfaces between the upper and lower groups of which the food can be finely ground. The horse and the pig have a number of all these different teeth in both upper and lower jaw; but the ox and the sheep have no incisor, or canine, teeth in the upper jaw, their place being taken by a hard pad against which the incisors in the lower jaw bite the food.

Animals are usually born without teeth and develop a temporary set while they are quite young. In time, these give way to permanent teeth. As the change from temporary to permanent teeth takes place at regular ages, it is possible to judge the age of an animal by examining its teeth. A horse develops a full mouth of permanent teeth at the age of five years. After all the permanent teeth have appeared, the age of a horse can be told by examining the extent to which the front teeth have been worn down, leaving a characteristic pattern at different ages.

BIRDS

The most distinctive feature of birds is the covering of feathers, which grows on the skin in place of the hair found on mammals. In the skeleton of a bird, the breastbone is broad, and attached to it are the powerful muscles that are needed to enable the bird to fly. The body cavity in birds is not divided by a diaphragm as in mammals. The digestive system is very different in character from that of mammals and will be discussed in a later chapter, for purposes of reproduction, birds lay with hard shells containing an embryo, which, when kept at a warm temperature for a definite period of incubation, develops into a chick. The yolk of an egg is the food provided for the nourishment of the chick during the period of incubation.

THE FUNCTIONS OF THE ANIMAL BODY

Plants and animals are living organisms and certain processes have to be carried out if they are to remain alive. In plants, the essential nutrients are comparatively simple in character and consist of carbon dioxide from the air and mineral salts and water from the soil. Animals depend on plants for their food, and the food materials taken in by animals are more complex and must be broken down into simpler substances before they can be utilized.

All animals are ultimately dependent on plants for their nourishment, the herbivorous, or grass-eating, animals being directly dependent whilst the carnivorous, or flesh-eating, animals rely indirectly on the food supplied by plants. Generally in the world of nature, plants are capable of existing without the aid of animals but the converse is certainly not true.

Animals require a source of energy to enable them to live, and this is derived from the breaking down of the complex constituents of the plants they eat. They also need a supply of oxygen to make this energy available, and this is obtained by the process of breathing. The different processes that take place in the maintenance of life are known as metabolism and consist of three main functions. The food is first taken in by the animal, and broken down by digestion. The useful products of digestion are then transported throughout the body by the circulation of the blood. Finally, the body must dispose of the material that cannot be digested and of the waste products arising from the different processes.

THE DIGESTIVE SYSTEM

The organs concerned with digestion are required to break down the food into a form in which it can be absorbed by the blood and transported to the parts of the body where it is required. Food contains three main substances of importance in nutrition: carbohydrates, fats, and proteins. In addition to these, the food consumed must contain adequate amounts of mineral salts and vitamins. The composition of the feeding-stuffs of the farm is dealt with in a later chapter.

The digestive system as a whole is known as the alimentary canal. In the simpler living organisms such as insects the alimentary canal is little more than a tube, which starts at the mouth and continues through the length of the body to the anus, where undigested material is passed out of the body. In farm animals, the alimentary canal is more complicated in structure and consists of the mouth, the pharynx situated in the throat, the gullet or oesophagus, the stomach, the small intestine, and the large intestine.

The food is taken in at the mouth, where it is crushed by the teeth and mixed with saliva and brought into a moist condition so that it can be easily swallowed. In the act of swallowing, the food has to pass the pharynx, which is situated at the back of the throat and is constructed in such a way as to guide the food into the gullet and to prevent it getting into the windpipe, where it would cause choking. The food travels down the gullet, which is a long tube leading from the throat to the stomach, passing through

the diaphragm. The stomach is an extension of the gullet in the form of a bag, in which the food collects. Here it is mixed with digestive juices and is churned round and round, and the process of digestion begins in the stomach. From the stomach is an opening into the small intestines, which are of considerable length and lie coiled up in the abdomen. The final digestion of the food takes place in the small intestines and here the soluble foodstuffs are absorbed into the blood through the walls of the intestine. The undigested residue passes into the large intestines, which consist of three separate parts: the caecum, the colon, and the rectum. In most farm animals, the caecum is used as a store for water, and there is a further breaking down of a part of the food material in the colon by the action of bacteria. This is of special importance in the case of ruminants. Finally, the undigested residue passes into the rectum and is voided by the animal as dung.

Cattle and sheep are known as ruminants, because they have the habit of chewing the cud. In these animals, the stomach is modified into four separate parts, which are called the rumen, or paunch, the reticulum, the manyplies, and the true stomach. The paunch has the largest capacity of the four parts and in the cow holds from 50 to 60 gallons of food material. When the food is first taken into the body it is not chewed very thoroughly but passes into the paunch. Later, when the animal is at rest, the food is brought back into the mouth in small amounts and given a more thorough chewing and mastication. When it is swallowed a second time it is in a more liquid condition and does not go into the paunch but passes through the second and third compartments into the stomach proper. Here the first stage of digestion proper begins, and from then on the process is similar to the general system already described. The capacity of the ruminants to store food in the paunch was developed as a means of defence when they were living as wild animals. A large quantity of food was quickly eaten and stored and the animal then sought a place where the food could be properly masticated and digested at leisure and in safety.

The actual digestion of the food is done by a series of ferments, or enzymes, which are mixed with the food at different stages in its passage through the alimentary canal. These ferments act on the various constituents of the food and break them down into a soluble form. They are secreted from glands, beginning with the salivary glands in the mouth. The saliva is secreted when food goes into the mouth and contains an enzyme known as ptyalin, which acts on starch and turns it into soluble sugar. There are glands in the wall of the stomach that secrete gastric juice containing a

ferment called pepsin, which breaks down the proteins in the food. Gastric juice contains some hydrochloric acid, to keep the contents of the stomach in a slightly acid condition so as to kill any bacteria that may have been taken in with the food. It is also capable of curdling the liquid milk it receives, by the action of an enzyme called rennin.

When the food enters the small intestine, it is first mixed with a substance called bile to neutralize the acid from the stomach, and this enables the fatty substances to get thoroughly mixed and in a state in which they can be acted upon by enzymes. Finally, the food is acted upon by the pancreatic juice secreted by the pancreas, which contains three separate ferments. One, called amylopsin, acts on the carbohydrates; a second, called trypsin, breaks down the proteins; and lastly, there is steapsin, which completes the digestion of the fats.

CIRCULATION OF THE BLOOD

The action of digestion is to bring the food into a soluble condition for transportation to all parts of the body. The distribution of the soluble food material is done mainly by the blood, which is also responsible for collecting some of the waste products for elimination. I here is another circulatory system in the body, of a clear liquid known as lymph, which is partly independent and partly connected with the blood system.

Blood is at first sight a thick red liquid, but when seen under the microscope it is found to consist of two distinct parts. The liquid part is colourless, but suspended in this liquid are a large number of small round and flat bodies, which are bright red in colour, and a smaller number of white bodies with no very definite shape. These bodies are known as red and white corpuscles respectively. The red corpuscles carry the oxygen which the blood takes to the different parts of the body and bring back the carbon dioxide which is formed in all parts of the body when any muscular activity takes place. When fully charged with oxygen, the corpuscles are a brighter red in colour than when charged with carbon dioxide, and this accounts for the slight variations in colour of the blood at different stages of its circulation.

The blood is in continual circulation throughout the body: starting from the lungs and heart, it passes into the arteries and thence to small capillaries, where it is transferred to other capillaries and by the veins goes back to the heart and lungs. The heart is essentially a central force pump, provided with powerful muscles to maintain the blood in constant circulation. The heart is

divided into four separate compartments, the two upper ones being known as auricles and the two lower as ventricles. The blood is received by the heart in the auricles, passes through valves into the ventricles, and is pumped out from them. The arteries in which the blood goes from the heart start from the ventricles, and the veins, which bring the blood back to the heart, empty themselves into the auricles.

The blood for circulation comes from the lungs, where it has been charged with a fresh supply of oxygen. It enters the heart by the left auricle and then through a flap valve into the left ventricle. The beating of the heart, which is caused by the contraction of the heart muscles, forces the blood from the left ventricle into the main artery. After leaving the heart, the main artery branches off to the different parts of the body, separate branches going to the head, the arms, the abdomen, and the legs. The artery to the abdomen again splits into two branches, one for the liver and one for the kidneys. The branches further divide until they become small fine capillary tubes, which are so fine that they can release the oxygen and the food substances that the blood is carrying. In exchange, other capillaries collect the waste products, especially carbon dioxide, and lead gradually to veins, which eventually join the main veins and in turn merge into one vein, which takes the blood into the right auricle. The blood, having completed its circulation of the body, is impure, and passes into the right ventricle, and thence by a special artery to the lungs, where it gets rid of the carbon dioxide it contains and is recharged with oxygen. It then returns to the heart to begin its journey through the body once again.

As has been stated, the blood carries with it food materials and oxygen. The oxygen is needed to enable the energy contained in the food to be used by the muscles concerned. The food materials include soluble sugars and proteins, which are absorbed through the walls of the small intestine, and the blood passes by way of the liver to the heart.

Small particles of fat cannot be absorbed in the same way as the sugars and proteins, and they are taken into the blood by the lymph. Lymph is a colourless liquid, which is apparent when a blister is caused on the skin. It circulates in a different set of channels, known as lymphatic ducts or vessels, which are connected with the blood vessels at certain points. At some places, the lymph vessels enlarge into glands, which function as a source of new white corpuscles for the blood. The lymph system is also capable of preventing the entry of bacteria into the blood stream and plays an important part in the maintenance of the health of the animal.

RESPIRATION

One of the obvious signs of life in an animal is that it continues to breathe. Respiration is the term applied to the function of breathing and it consists of the taking in of air to the lungs by way of the nose and mouth and the subsequent release of that air. When the air is taken into the lungs, it contains a supply of oxygen, but the air that is breathed out contains less oxygen and a greater amount of carbon dioxide and water vapour. The presence of water vapour is very apparent when one is breathing out on a cold morning. In a room where there are a large number of people the oxygen content of the air goes down and the room is then described as stuffy, owing to the accumulation of carbon dioxide.

The need for a supply of oxygen to the blood has already been pointed out, and the oxygen required is obtained from the air, which is breathed in through the nose and passes into the lungs through the windpipe, which divides into two branches to serve the two lungs. The lungs arc composed of a mass of spongy tissue made up of air tubes, which get smaller and smaller as they branch and divide. The very small air tubes are surrounded by very small blood vessels, and here the blood exchanges its waste products (carbon dioxide and water) for a fresh supply of oxygen. The waste products arc then expelled from the lungs in the act of breathing out. When the blood goes to the lungs it is full of waste products and is slightly purple in colour, but after the exchange, which involves the absorption of oxygen, it regains its bright red colour. It then returns to the heart for circulation round the body once again.

It can be seen that respiration is essential to life, and death is rapidly caused if an animal is unable to breathe in oxygen. This shows the great importance of fresh air to all farm animals. This is in ample supply when the animals are out of doors, but when they are kept in houses a good system of ventilation is needed if they are to obtain a good supply of oxygen.

DISPOSAL OF WASTE PRODUCTS

Excretion is the term applied to the disposal of waste products formed by metabolism, and the organs concerned with it are referred to as the excretory organs. The waste products of muscular action, consisting of carbon dioxide and water, are passed out of the body by way of the lungs.

The greatest part of the food waste to be removed from the body is the solid indigestible residue that is left after digestion is completed. As the

food passes through the alimentary canal, the food materials abstracted from it are gradually absorbed into the blood. By the time the food reaches the rectum, the animal has got all that is useful from it and the residue is removed from the body as faeces, or dung. The condition of the dung of an animal is some indication of the food it is eating. In the summer, when grass forms the main bulk of the food, the faeces are almost liquid in consistency, whereas in winter, when hay, straw, and meals form the main part of the diet, the dung is much firmer. With some diseases, the faeces are liquid and the animal is then said to be scouring.

The skin plays a small part in the excretion of waste products by means of the sweat glands it contains, and the principal pro-duct disposed of in this way is water. Other organs of excretion are the kidneys, which are responsible for the elimination from the body of the waste products formed by the breakdown of proteins. When the muscles of the body are performing some activity, there are a number of breakdown products that are poisonous in character. If these were allowed to accumulate, the animal would gradually be poisoned. They are collected by the blood and taken to the liver, where they undergo a chemical change, which renders them harmless to the animal. From the liver they pass to the kidneys, which act as a kind of filter and abstract the waste products from the blood. The waste products are then taken to the bladder and are excreted in solution in the urine.

The process of metabolism in the animal can now be summarized. It consists of the taking in of food, from which the blood stream absorbs the digestible matter. This is transported through the body by the blood, together with a supply of oxygen, which is obtained from the lungs. The blood system is responsible for collecting the waste products, some of which are expelled from the lungs and others excreted by the kidneys. If the amount of food eaten by the animal contains more nutrients than are needed, for the maintenance of life, the surplus is available for such purposes as the production of milk or an increase in weight or the performance of work. If the gains of the blood in food materials are evenly balanced with the loss of waste products, the animal remains alive without losing weight, but there is no surplus for productive purposes. If for some reason the animal is deprived of its food, it lives for a time on its own reserves, particularly the fat stored in the body. The animal remains alive but gradually loses weight. The same thing happens if the food is insufficient in quantity for the needs of the animal. If the farmer wishes to avoid a loss of condition in his animals, he must feed them in accordance with their requirements.

METABOLISM IN BIRDS

In principle, metabolism in birds is the same as in mammals. There are, however, differences in the structure of the organs concerned. The mouth differs from that of mammals by the absence of teeth, which are replaced by a horny beak. The alimentary canal, after leaving the back of the mouth by the gullet, widens into a thin-walled crop, in which food is stored. From the crop, the canal passes to a small stomach where the gastric juices are secreted. This is followed by the gizzard, which is composed of thick walls of muscle and a horny lining, and is constructed in two parts so that the food can be ground between two rough surfaces. The grinding is helped by the small stones and pieces of grit which are swallowed with the food. After passing through the gizzard, the food is in a finely ground condition, and the final processes of digestion are much the same as those that have been described for the mammal. There is, however, no bladder in birds and the waste nitrogenous products from the kidneys pass into the same channel from which the faeces are eliminated.

REPRODUCTION IN FARM ANIMALS

It is a characteristic of living organisms that they must reproduce themselves and so enable the existence of their kind to continue. So far as the common farm animals are concerned, there is little difference in the metabolism of male and female animals, and the most obvious distinction between them is in the respective sizes of the two sexes. The real distinguishing feature between male and female is in the organs of reproduction, and the male and female have Separate functions in the process of reproduction.

ORGANS OF REPRODUCTION

The essential organs of reproduction in the male are the testes, which are a pair of glands situated outside the body cavity and contained in a sac known as the scrotum. The glands are responsible for the formation of the male sex cells, called spermatozoa. These are minute in size and can be seen only under a microscope. A sperm consists of art egg-shaped head attached to a tail, which is about three times the length of the head and is used by the sperm for swimming about in the fluid in which it is secrete. The cells are produced in the testes and are stored near these glands, and at the time of

mating several million of them are passed into the female. They are contained in a fluid in which the sperm can move, and this liquid secretion is known as semen.

In the female, the essential organs of reproduction are contained within the body and consist of two organs called ovaries. At regular intervals, which vary in different animals, the ovaries shed one or more “eggs.” These are small and barely visible to the naked eye, but in all respects are similar to a hen’s egg in miniature without the hard shell. In size, they would be rather smaller than the head of a pin. When the egg has been shed from the ovary, it drops into the mouth of a tube situated immediately below the ovary. The tubes from the two ovaries later join to form one channel, which passes to the exterior. A part of this channel becomes the womb when the animal is pregnant; from the womb to the exterior, the channel is known as the vagina. The semen from the male is deposited in the vagina at the time of mating.

When the sperm enter the vagina, they propel themselves along the channel until they come to the uterus, which in due course becomes the womb. If the mating has been made to coincide with the shedding of an egg from the ovary, the sperm come into contact with the egg, and one of them attaches itself to the egg. When this fusion takes place the egg is said to be fertilized. Fertilization usually takes place soon after the egg leaves the ovary, and the fertilized egg passes down into the uterus and becomes attached to the lining. Here the development of the two original cells continues and the nourishment required is provided from the blood stream of the mother. The newly developing offspring is known as a foetus and it remains in the womb until the time of birth, when it is expelled through the vagina and starts an independent existence.

The sexual reproductive organs have an important effect on the body of the animal. They secrete into the blood stream certain chemical substances, which affect the size, shape, and appearance. Thus, a bull develops well-defined masculine characteristics, such as a massive body and a large powerful head and neck. When the testes are removed, as in castration, the resulting steer is very different in appearance. He is incapable of mating with a female and is generally quieter and more easily controlled. The ovaries are sometimes removed from female pigs, an operation known as spaying, and they fatten more readily when treated in this way.

Male animals are capable of performing the act of mating, or ‘serving’ a female, at any time of the year. The female, on the other hand, accepts service only at certain definite times, and is then described as being “on

heat" or "in season." The times of mating vary with different animals. A bitch comes on heat once every six months. With sheep, there is a well-defined mating season during the autumn when the periods of heat occur every 14-18 days. Mares and cows, particularly the latter, come on heat at intervals of three weeks throughout the year, though the periods of heat may cease in the mare during the winter. Sows can be mated regularly all the year round with an interval of three weeks between the periods of heat.

These periods of heat, when the female can be mated, are associated with the function of the ovaries, from which a new egg or, in some farm animals, a number of eggs are shed at this time. The eggs pass into the tubes just below them, where, if a service has taken place, they come into contact with living sperm and fertilization takes place. If for any reason fertilization is not effected, the ovaries develop another egg, which is shed at a later period of heat. It is sometimes difficult to observe whether an animal is on heat and the usual sign is some external discharge from the vagina. Cattle often show signs of being on heat by mounting the backs of other animals in the field. With young heifers that have not had a calf, it is a common practice to allow a bull to run with them to make certain they are served at the proper time, though this has the disadvantage that the date of calving is not known with certainty. It is more difficult to detect the period of heat during winter, and some cowmen make a practice of leading a bull along the cowshed once a day to ensure that no opportunity of service is lost. When sheep are mated, the ram, or tup, runs with the ewes and the under part of the ram is often coloured. When a ewe has been served, the colour rubs off on the ewe's back and this indicates whether a service has been made.

The time during which the foetus is retained in the womb is known as the period of gestation. During this time, the two cells that originally fused multiply and gradually form the different parts of the new animal. The developing embryo, as it is sometimes called, is nourished by the mother, and a mother requires special feeding during pregnancy to maintain herself and her embryo. The normal periods of gestation in the farm animals are :

Mare –11 months. Sheep –5 months.

Cow – 9 months. Pig – 4 months.

Normally, mares and cows produce one young animal from each pregnancy, though twins and even triplets are quite common. If twin calves consist of one male and one female, the female twin is known as a 'free-martin' and is not capable of breeding. With sheep, the lambs may be produced singly, as twins, or as triplets, but the flockmaster prefers ewes that regularly produce twins. Pigs have comparatively large litters, and from

12 to 15 piglets may be born in a litter. A good breeding sow should rear 8-10 pigs from every litter she produces.

Before a female can be used for breeding purposes, it is important that she should be well grown, so she should not be mated at too early an age. On the other hand, it is uneconomic to delay service longer than is necessary. Young horses are usually mated at three years of age, and the usual age of breeding in cattle is 18 to 24 months, in sheep is 18 months, and in pigs 12 months. Males can be used for service at a very young age, though they should not be used to excess. The minimum ages are 12 months for horses, 12 months for bulls, 6 months for rams, and 6 months for boars.

ARTIFICIAL INSEMINATION

Although only one sperm is needed to fertilize an egg, the male produces several hundred millions of sperm at each mating. A modern technique has been developed in an effort to make more economic use of the large numbers of sperm produced, most of which are not utilized. The semen from the male is collected in a specially constructed rubber vessel, and after collection is diluted with certain feeding substances such as egg yolk. In the case of cattle, the sperm survive for two or three days after they have been produced. When the cow comes on heat, a small quantity of the semen is injected into the vagina by a glass syringe, and fertilization usually takes place. In this way, the semen collected from a bull can be used to serve up to fifteen cows instead of the one by the normal method of mating, Thus, the semen from a valuable pedigree bull can be used to fertilize a large number of females.

The new technique is being developed at a number of centres where bulls of two or three breeds are kept, and the semen is transported from the centre over a wide area for the service of cows on heat. With this method, a small farmer can have all the advantages of service for his cows from a valuable pedigree bull at a low cost and without the necessity of keeping a bull on his farm. The development of artificial insemination will enable the type of stock in a district to be improved rapidly with the use of only a small number of high class bulls. It is not unlikely that, in the course of time, every farmer will be within easy reach of a centre from which his animals can be inseminated.

REPRODUCTION IN BIRDS

Reproduction in birds is very different in character from that in mammals. The female cells are produced by the hen and are fertilized by the cock by the act of ‘treading.’ When the two cells fuse, they are surrounded by a supply of food and covered with a shell, to form the egg that is laid by the hen. The embryo chick in the egg can only be developed by keeping the egg at a temperature of 102–103 degrees Fahrenheit for three weeks. Naturally, this is done by the hen sitting on the egg; but the chick also develops in the artificial heat of an incubator.

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