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Кафедра иностранных языков по техническим специальностям

AGRICULTURAL BUILDINGS

ПРАКТИКУМ

по изучающему чтению на английском языке

для студентов специальности

1-74 04 01 «Сельское строительство и обустройство территорий»

Рекомендовано Советом университета

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Данный практикум предназначен для аудиторных и внеаудиторных занятий для студентов дневного обучения специальности «сельское строительство и обустройство территорий», а также для других строительных специальностей.

Цель практикума – совершенствование навыков чтения и понимания научно-технической литературы по специальности, развитие навыков перевода, письма и устной речи в пределах проработанной тематики.

Практикум включает в себя тексты оригинальной английской и американской технической литературы по специальности для изучающего чтения с последующими лексико-грамматическими упражнениями. В приложении включены тексты для ознакомительного и дополнительного чтения.

Данный практикум одобрен на заседании кафедры иностранных языков по техническим специальностям БрГТУ и рекомендован к изданию. Рекомендован к изданию Советом университета.

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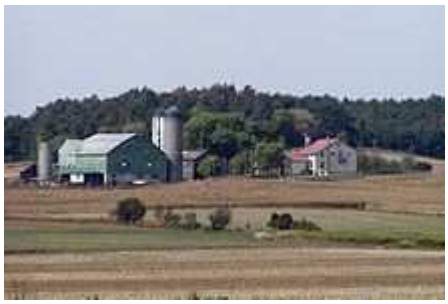
CONTENTS

FARMS AND THEIR TYPES

I. Read out the following words and learn them by heart:

1. to devote - посвящать, уделять, предназначать
2. commodity - предмет потребления, товар
3. grain - зерно
4. livestock - домашний скот
5. dairy - маслодельня, сыроварня; молочный
6. facility - завод, предприятие
7. to denote - обозначать, значить
8. poultry farm - птицеферма
9. vineyard - виноградник
10. orchard - фруктовый сад
11. truck farm - овощеводческая ферма
12. estate - имение, поместье; площадка
13. cash crop - сельскохозяйственная товарная культура
14. cattle - крупный рогатый скот
15. to raise - выращивать, разводить
16. breed - порода, потомство
17. hay - сено
18. silage - силос
19. fowl - домашняя птица
20. ownership - собственность, владение
21. tenant farming - фермерство на правах аренды
22. sharecropper - амер. издольщик



II. Read and translate the following text.

A **farm** is an area of land that is devoted primarily to agricultural processes or an area of water that is devoted primarily to aquacultural processes in order to produce and manage such commodities as fibres, grains, livestock, dairy, or fuel. It is the basic production facility in food production.

A farm may be owned and operated by a single individual, family, community, corporation or a company, may produce one or many types of produce and can be a holding of any size from a fraction of a hectare to several thousand hectares.

A farm may operate under a monoculture system or with a variety of cereal or arable crops, which may be separate from or combined with raising livestock. Specialist farms are often denoted as such, so dairy farm, fish farm, poultry farm or mink farm.

Some farms may not use the word at all, hence vineyard (grapes), orchard (nuts and other fruit), market garden or "truck farm" (vegetables and flowers). Some farms may be denoted by their topographical location, such as a hill farm, while large estates growing cash crops such as cotton or coffee may be called plantations.

Many other terms are used to describe farms to denote their methods of production, as in collective, corporate, intensive, organic or vertical.

Other farms may primarily exist for research or education, such as an ant farm, and since farming is synonymous with mass production, the word "farm" may be used to describe wind power generation or puppy farm.

Specialized farms

Dairy farming is a class of agriculture, where female cattle, goats, or other mammals are raised for their milk, which may be either processed on-site or transported to a dairy for processing and eventual retail sale.

In most Western countries, a centralized dairy facility processes milk and dairy products, such as cream, butter, and cheese. In the United States, these dairies are usually local companies, while in the southern hemisphere facilities may be run by very large nationwide or trans-national corporations.

Dairy farms generally sell male calves for veal meat, as dairy breeds are not normally satisfactory for commercial beef production. Many dairy farms also grow their own feed, typically including corn, alfalfa, and hay. This is fed directly to the cows, or stored as silage for use during the winter season. Additional dietary supplements are added to the feed to improve milk production.

Poultry farms are devoted to raising chickens (egg layers or broilers), turkeys, ducks, and other fowl, generally for meat or eggs.

A pig farm is one that specializes in raising pigs or hogs for bacon, ham and other pork products and may be free range, intensive, or both.

Forms of ownership

The gradual modernization and mechanization of farming, which greatly increases both the efficiency and capital requirements of farming, has led to increasingly large farms. This has usually been accompanied by the decoupling of political power from farm ownership.

In some societies collective farming is the norm, with either government ownership of the land or common ownership by a local group. Especially in societies without widespread industrialized farming, tenant farming and sharecropping are common; farmers either pay landowners for the right to use farmland or give up a portion of the crops.

III. Say if the following sentences are false or true. Correct the false statements.

1. A farm may be owned and operated either by a single individual or by a great number of people.
2. Both crops and livestock may be raised at the farm.
3. Hill farms and plantations are denoted by their topographical location.
4. A poultry-farm specializes in raising hogs.

IV. Fill in the proper words given below. Translate the sentences into Russian.

(holding, dairy, commodities, fowl, feed)

1. Butter, cheese, sour-cream are … products.
2. A farm can be a … of any size.
3. Turkeys, ducks, chickens are … raised for meat or eggs.
4. Many dairy farms also grow their own …, including corn, alfalfa and hay.
5. A farm can produce and manage such … as fibres, grains, livestock or fuel.

V. Complete the sentences using English equivalents for the Russian words given in brackets.

1. A farm (предназначена) primarily to agricultural processes.
2. (Фермой может владеть) and operated by a single individual or a company.
3. Some farms (определяются) by their location.
4. Many terms (используются) to describe farms by their methods of production.
5. Mammals (выращивают) for their milk and meat.
6. Additional supplements (добавляют) to the feed (чтобы улучшить) milk production.

VI. Answer the following questions.

1. Is a farm an area devoted only to agricultural process?
2. What farms denote their methods of production?
3. Poultry farms are devoted to raising fowl, aren't they?
4. Does an ant farm exist for research?
5. What are dairy farms specialized in?
6. Is it necessary to build very large farms?

VII. Translate the following questions into English in the written form and answer them orally.

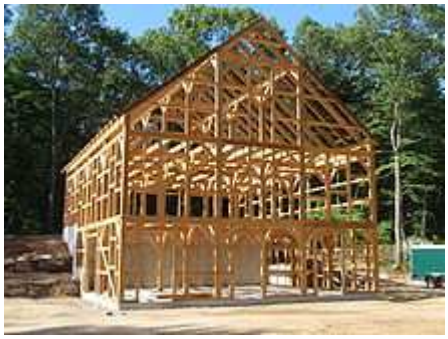
1. Какие виды ферм вы знаете?
2. Какого размера может быть ферма?
3. Кто может быть владельцем фермы?

VIII. Speak about specialized farms.

DEVELOPMENT OF FARM BUILDINGS

I. Read out the following words and learn them by heart:

1. thatch - тростник, солома
2. thatching - соломенная, тростниковая кровля
3. linear farmsteads - узкие и длинные, подобные линии усадьбы
4. cattle - крупный рогатый скот
5. fodder - корм для скота
6. bin - бункер
7. barn - амбар
8. stable - конюшня
9. granary - зернохранилище
10. long-house - удлинённый вигвам
11. rot - гниение
12. purlin - обрешетина, прогон
13. cob - обмазка из глины с соломой
14. to trap moisture - предотвращать влагу
15. deterioration - износ, ухудшение



II. Read and translate the following text.

Old farm buildings of the countryside contribute to the landscape, and help to define the history of the location, i.e. how farming took place in the past, and how the area has been settled throughout the ages. They also can show the agricultural methods, building materials, and skills that were used. Most of them were built with materials reflecting the local geology of the area. Building methods include earth walling and thatching.

Buildings in stone and brick, roofed with tile or slate, increasingly replaced buildings in clay, timber and thatch from the later 18th century. Metal roofs started to be used from the 1850s. The arrival of canals and railways brought about transportation of building materials over greater distances.

Clues determining their age and historical use can be found from old maps, sale documents, estate plans, and from a visual inspection of the building itself, noting (for example) reused timbers, former floors, partitions, doors and windows.

The arrangement of the buildings within the farmstead can also yield valuable information on the historical farm usage and landscape value. Linear farmsteads were typical of small farms, where there was an advantage to having cattle and fodder within one building, due to the colder climate. Dispersed clusters of unplanned groups were more widespread. Loose courtyard plans built around a yard were associated with bigger farms, whereas carefully laid out courtyard plans designed to minimize waste and labour were built in the latter part of the 18th century.

The barns are typically the oldest and biggest buildings to be found at the farm. Many barns were converted into cow houses and fodder processing and storage buildings after the 1880s. Many barns had owl holes to allow for access by barn owls, encouraged to aid vermin control.

The stable is typically the second-oldest building type on the farm. They were well built and placed near the house due to the value that the horses were draught animals.

Modern granaries were built from the 18th century. Complete granary interiors, with plastered walls and wooden partitioning to grain bins, are very rare.

Longhouses are an ancient building where people and animals used the same entrance. These can still be seen, for example, in North Germany, where the Low Saxon house occurs.

Few interiors of the 19th century cow houses have survived unaltered due to dairy-hygiene regulations in many countries.

Old farm buildings may show the following signs of deterioration: rotting in timber-framed constructions due to damp, cracks in the masonry from movement of the walls, e.g. ground movement, roofing problems (e.g. outward thrust of it, deterioration of purlins and gable ends), foundation problems, penetration of tree roots; lime mortar being washed away due to inadequate weather-protection. Walls made of cob, earth mortars or walls with rubble cores are all highly vulnerable to water penetration, and replacement or covering of breathable materials with cement or damp-proofing materials may trap moisture within the walls.

III. Say if the following sentences are false or true. Correct the false statements.

1. Stables are the oldest and largest buildings at the farm.
2. Tile or slate roofs were built in the middle of the 19th century.
3. The arrival of canals and railways helped to bring building materials from other countries.
4. Straight and narrow farmsteads were typical of small farms.

IV. Fill in the proper nouns given below. Translate the sentences into Russian.

(landscape, cattle, usage, fodder, farmstead, moisture, waste, cement, labour, replacement, entrance, cracks, rotting, damp)

1. The arrangement of the buildings within the … can also yield valuable information on the historical … and … value.
2. … and … were within one building due to the colder climate.
3. Carefully laid out courtyard plans designed to minimize … and … were built at the end of the 18 th century.
4. People and animals used the same … in Long-houses.
5. … and … in the masonry may cause … in timber-framed constructions.
6. … or covering of breathable materials with …or damp-proofing materials may trap … within the walls.

V. Make up sentences in Past Simple Passive. Translate them into Russian.

1. Local buildings built were farm materials available with of the most.
2. Storage houses and cow buildings converted were barns into many.
3. The house were placed and built near stables.
4. From century granaries built were modern the 18th.

VI. Answer the following questions.

1. What influenced the choice of building materials and methods?
2. What building materials replaced clay, timber and thatch?
3. How can we determine the age and historical use of buildings?
4. Are granaries or barns the oldest and biggest buildings at the farm?
5. Interiors of the 19th century cow houses survived, didn't they?
6. What signs of deterioration may occur in old farm buildings?

VII. Translate the questions into English in the written form and answer them orally.

1. Когда начали использовать металлические крыши?
2. Современные амбары строили в 19 веке, не так ли?
3.Какие строительные материалы были заменены кирпичом и камнем?

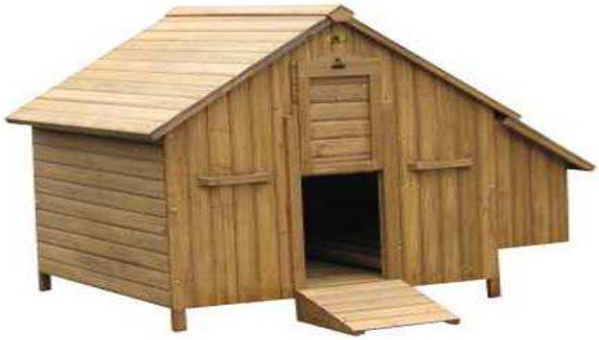
VIII. Speak about such farm buildings as barn, stable, granary, used building materials and signs of their deterioration.

HOW TO BUILD A CHICKEN HOUSE

I. Read out the following words and learn them by heart:

1. sturdy - крепкий, сильный
2. grade reel tape - рулетка
3. hammer - молоток
4. bundle of stakes - связка столбов
5. quantity - количество
6. to estimate - оценивать
7. stud - стойка, косяк
8. roof trusses - стропильная ферма крыши
9. roof decking - настил крыши

10. roofing felt - рубероид
11. shingle - плоская кровельная черепица
12. rectangle - прямоугольник
13. to measure-измерять
14. to stake - огораживать кольями
15. to dig (dug) - копать, выкапывать
16. pick - кирка
17. shovel - лопата
18. even ditch - ровная траншея
19. nail - гвоздь
20. bottom plate - плита основания
21. top plate - верхняя плита
22. flat - плоский



II. Read and translate the following text.

Raising different breeds of chickens in relatively small quantities for different reasons is an enjoyable and rewarding pastime for some. People raise chickens for their eggs, breeding and for food. Chickens are not difficult to build a habitat for, as they are pretty accepting of most building materials. As with any construction project, coupling quality materials with solid building practices will make a sturdier, longer-lasting, more trouble-free structure.

Things You'll Need

1 Construction grade reel tape
1 Hammer
1 Bundle of building stakes
Foundation concrete (quantity estimated by concrete company)
Cinder block and cap block (quantity estimated by concrete company)
Sand (quantity estimated by concrete company)
Mortar mix (quantity estimated by concrete company)
2-by-4 8-foot Building studs (quantity dependent upon 24-inch centers or 18-inch centers)
Roof trusses (quantity dependent upon how many studs installed)
10 Sheets roof decking
200 Feet of roofing felt
Tin or shingles to cover 200 feet of roof area
1 Pre-hung entry door (of desired width)

Instructions

1. Establish a size for the chicken house. Common estimates vary, but fall within the range of 2 to 3 feet of inside space per bird housed, depending upon the size of the bird. A chicken house built to house 100 chickens inside should be at least 200 square feet, a 10-foot by 20-foot rectangle. Also, building it 8 feet high will give you room to stand comfortably inside the structure, and use it for other things when you tire of chickens.

2. Measure, stake, dig and pour the footing for your chicken house. Use a tape to measure out your 10-foot by 20-foot structure. As the points are found, use a hammer to drive a marking stake at each point until you have the entire building foundation staked out. Using a pick and shovel or trencher, dig a ditch 8 inches wide by 8 inches to 12 inches deep along the inside of the marked out area keeping the bottom of the ditch even. Call the local concrete company and order your concrete. A service truck will come out and fill the foundation you just dug with foundation grade concrete up to roughly ground level.

3. Give the concrete 3 to 5 days to cure (completely dry and set up). Lay 4 or 5 courses of cinder blocks on your foundation, up to a height of 4 feet. Cap these blocks with cap block. Nail 2-by-4 boards flat down on the cap block. This is called the "bottom plate". On the plate measure and mark at 18-inch or 24-inch intervals (depending on how strong and sturdy you want to make it.) Nail in your 4-foot studs, end to plate vertically, on each mark you just made on the plate. Be sure to leave the space open for framing out your door. Frame out your door.

4. Nail down 2-by-4 boards flat on top of the 4-foot studs you just marked and installed. This is called the 'top plate'. The top plate will support your roof trusses. Order a roof truss for every pair of studs you have installed. Set and nail in your roof trusses. Cover these trusses with roof decking. Cover the decking with roofing felt. Cover the felt with shingles or tin.

5. Wrap your exposed 4-foot studs with heavy gauge chicken wire nailing it in securely at each stud. From the inside, hang heavy canvas retractable curtains that can be raised and lowered depending upon the weather.

Tips & Warnings

Locate your chicken house in partial shade for most of the day.

There is no need to floor a chicken house, since they are grazers and prefer the ground.

Secure your chicken house to keep out predators.

Unless you have completed at least one building project on this advanced level, it is recommended that you hire an experienced, licensed professional.

III. Say if the following sentences are false or true. Correct the false statements.

1. Joining good materials with a knack for building will create a durable long lasting structure.
2. It`s necessary to floor a chicken house.
3. The top plate supports the roof.
4. Decking is covered with shingles or tin.

IV. Fill in the proper words given below. Translate the sentences into Russian.

(shovel, tape, concrete, hammer, top plate, trencher)

1. … is used to measure the length of the structure.
2. … is used to drive marking stakes into the ground.
3. … or … are used to dig a ditch for foundation.
4. … is used to fill in the foundation.
5. … is used to support roof trusses.

V. Complete the sentences using English equivalents for the Russian words given in brackets.

1. (Позвоните) the local concrete company.
2. (Закажите) concrete for footing.
3. (Положите) 4 or 5 courses of cinder blocks on your foundation.
4. (Измерьте и обозначьте промежутки) on the plate.
5. (Прибейте гвоздями) 2 by 4 blocks on top of the 4-foot studs.
6. (Покройте) the trusses with roof decking.

VI. Answer the following questions.

1. What do people raise chickens for?
2. How much space is usually taken by each bird?
3. You will need many things for building a chicken house, won't you?
4. What is laid on foundation?
5. What covers the roofing felt?
6. Is it difficult and expensive to build a chicken house? Why?

VII. Translate the following sentences into English in the written form.

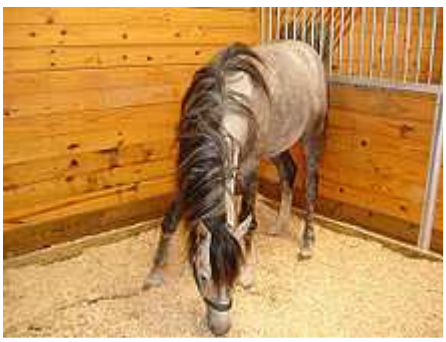
1. Определите размер курятника и измерьте его основание.
2. Используйте рулетку для измерения.
3. Обозначьте форму конструкции на участке.
4. Установите стойки вдоль линий.
5. Выкопайте траншею глубиной 8 дюймов.
6. Залейте бетоном основание.

VIII. Using exercises V and VII put the sentences in the right order and speak about the order of building a chicken house.

STABLE

I. Read out the following words and learn them by heart:

1. stable - конюшня
2. livestock - домашний скот
3. stall - стойло
4. masonry - каменная или кирпичная кладка
5. draught animal - рабочий скот
6. manger, feed rack - кормушка
7. hayloft - сеновал
8. to cobble - мостить
9. drainage - осушение
10. error - ошибка
11. aisle - проход
12. storage area - зона хранения
13. tack room - помещение для кормления
14. to handle a horse - управлять лошадью
15. lighting fixtures - осветительная арматура, прибор
16. mounted - установленный, закрепленный
17.to encase in cages-поместить в клетки
18. dense wood-плотное дерево
19. slant-уклон, наклон



II. Read and translate the following texts.

A **stabl**e is a building in which livestock, especially horses, are kept. It most commonly means a building that is divided into separate stalls for individual animals. There are many different types of stables in use today; the American-style barn, for instance, is a large barn with a door at each end and individual stalls inside or free-standing stables with top and bottom-opening doors. The term "stable" is also used to describe a group of animals kept by one owner, regardless of housing or location.

The exterior design of a stable can vary widely, based on climate, building materials, historical period and cultural styles of architecture. A wide range of building materials can be used, including masonry (bricks or stone), wood and steel. Stables can range widely in size, from a small building housing one or two animals to facilities at agricultural shows or race tracks that can house hundreds of animals.

The stable is typically historically the second oldest building type on the farm. Free-standing stables began to be built from the 16th century. They were well built and placed near the house due to the value that the horses were draught animals. High status examples could have plastered ceilings to prevent dust falling through into the horses' eyes. Relatively few examples survive of complete interiors (i.e. with stalls, mangers and feed racks) from the mid-19th century or earlier.

Traditionally, stables in Great Britain had a hayloft on their first (i.e. upper) floor and a pitching door at the front. Doors and windows were symmetrically arranged. Their interiors were divided into stalls and usually included a large stall for a foaling mare or sick horse. The floors were cobbled (or, later, bricked) and featured drainage channels. Outside steps to the first floor were common for farm hands living in the building.

For horses, stables are often a part of a larger complex which includes trainers, vets and blacksmiths.

HOW TO BUILD A STABLE

Building a stable that has excellent form and function takes planning. Making errors during the planning and building stage can result in expensive modifications. When planning, consider the number of horses you have now and plan to have in the future.

Instructions

1. Design aisles wide enough for two horses to pass through without touching. Make them wide enough for the handler and horse to be able to turn around and move without trouble. You need to design a wash area, the storage area, the tack room and the stalls.

2. Build ceilings high enough to handle a horse and rider or a rearing horse. Nine foot ceilings or higher should be enough. Make sure your lighting fixtures are mounted out of major pathways and out of the horses' reach. If you can't keep them away from the horses, then encase them in wire cages.

3. Decide what materials to buy. The outside of most barns are metal while the insides and individual stalls are made of heavy, dense wood. Base the size of the stalls on the size of your horses. Consider ventilation, water, fire safety and electrical needs.

4. Consider drainage when building a stable. Stall drainage is important and keeps urine away from your horses' hooves, and from damaging your barn. Most championship barns are built on gravel, layered with clay and then have heavy duty stall mats in each stall. The stalls have an outward slant and the barn is placed on a hill, with gentle slopes on each side to allow for maximum drainage.

III. Say if the following sentences are false or true. Correct the false statements.

1. A stable is a structure where only horses can be kept.
2. Sometimes animals are encased in wire cages.
3. Stables are usually of the same size.
4. Aisles in a stable should be wide enough.
5. Stables in America had a hayloft.

IV. Complete the sentences using English equivalents for the Russian words given in brackets.

1. (Отдельно стоящие конюшни) were built in the 16th century.
2. (Потолки штукатурили) to prevent dust falling through into the horses' eyes.
3. (Осветительные приборы) are mounted out of major pathways.
4. The stalls have (направленный наружу уклон).
5. Stables in Great Britain had (сеновал на верхнем этаже).

V. Arrange the words in the right order to make up sentences in Imperative Mood.

1. Horses pass through aisles to design enough wide for two.
2. Horse rearing place a high enough ceilings to build.
3. Fixtures are lighting your horses reach out mounted of sure make.
4. When stable building a drainage consider.

VI. Answer the following questions.

1. What is a stable?
2. What building materials are stables usually built of?
3. Should a stable contain many areas?
4. Are animals or lighting fixtures encased in wire cages?
5. Were stables built near the house?
6. Why were the barns placed on a hill?

VII. Translate the sentences into English in the written form using Past Simple Passive.

1. Конюшни размещали на возвышенности и строили возле дома.
2. Здание делилось на отдельные стойла для каждого животного.
3. Разные материалы использовали при строительстве конюшен: дерево, каменную кладку и сталь.
4. Потолки делали достаточно высокими.
5. Полы в конюшне были выложены кирпичом или камнем.

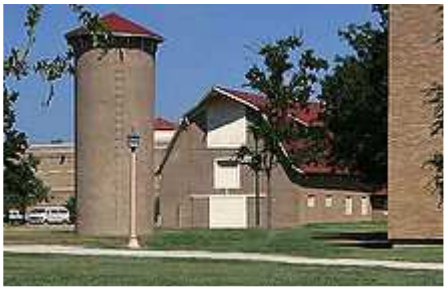
VIII. Speak about the interior of stables using the previous exercise and the content of the text.

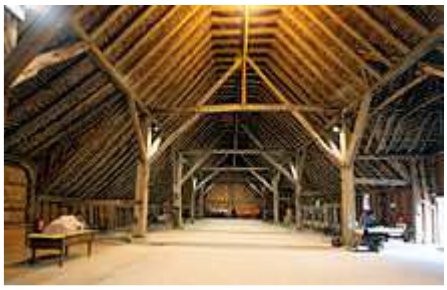
BARNS

I. Read out and learn the following words by heart:

1. barn - амбар
2. livestock - домашний скот
3. to house - вмещать
4. storage of crops - хранение урожая
5. threshing - молотьба
6. cattle - крупный рогатый скот
7. log crib - бревенчатый сруб, ряж из брёвен

8. timber frame - деревянный каркас
9. plank - брус
10. truss - ферма
11. lumber - строительный лес
12. joist - балка, брус, лага
13. sawmill - лесопильный завод, лесопильная рама
14. gambrel - мансардная крыша
15. hip roof - вальмовая крыша
16. straw - солома
17. Quonset hut - сборный дом из гофрированного железа
18. galvanized steel - оцинкованная сталь
19. to hoist - поднимать
20. trap door - опускная дверь
21. pen - зд. небольшой загон





II. Read and translate the following text.

A **barn** is an agricultural building primarily located on farms and used for many purposes, notably for the housing of livestock and storage of crops. In addition, barns may be used for equipment storage, as a covered workplace, and for activities such as threshing. The word barn is also used to describe buildings used for uses such as a tobacco barn or dairy barn. **Byre** is an archaic word for one type of barn meant for keeping cattle.

Construction

In the U.S., older barns were built from timber shewn from trees on the farm and built as a log crib barn or timber frame, although stone barns were sometimes built in areas where stone was a cheaper building material. In the mid to late 19th century in the U.S. barn framing methods began to shift away from traditional timber framing to "truss framed" or "plank framed" buildings. Truss or plank framed barns reduced the number of timbers instead of using dimensional lumber for the rafters, joists, and sometimes the trusses. The joints began to become bolted or nailed instead of being mortised and tenoned. The inventor and patentee of the Jennings Barn claimed his design by using less lumber, less work, less time, and less cost for building. Barns were durable and provided more room for hay storage. Mechanization on the farm, better transportation infrastructure, and new technology like a hay fork mounted on a track contributed to a need for larger, more open barns, sawmills using steam power could produce smaller pieces of lumber affordably, and machine cut nails were much less expensive than hand-made (wrought) nails. Concrete block began to be used for barns in the early 20th century in the U.S.

Modern barns are more typically steel buildings. They commonly have gambrel or hip roofs to maximize the size of the hay loft above the dairy roof, and have become associated in the popular image of a dairy farm. The barns that were common to the wheat belt held large numbers of pulling horses.

These large wooden barns, especially when filled with hay, could make spectacular fires that were usually total losses for the farmers. With the advent of balers it became possible to store hay and straw outdoors in stacks surrounded by a plowed fireguard. Many barns in the northern United States are painted red with a white trim. One possible reason for this is that ferric oxide, which is used to create red paint, was the cheapest and most readily available chemical for farmers in New England and nearby areas. Another possible reason is that ferric oxide acts as a preservative and so painting a barn with it would help to protect the structure.

With the popularity of tractors following World War II many barns were taken down or replaced with modern Quonset huts made of plywood or galvanized steel. Beef ranches and dairies began building smaller loftless barns often of Quonset huts or of steel walls on a treated wood frame (old telephone or power poles). By the 1960s it was found that cattle receive sufficient shelter from trees or wind fences.

Uses and features

In older style barns, the upper area was used to store hay and sometimes grain. This is called the mow (rhymes with cow) or the hayloft. A large door at the top of the ends of the barn could be opened up so that hay could be put in the loft. The hay was hoisted into the barn by a system containing pulleys and a trolley that ran along a track attached to the top ridge of the barn. Trap doors in the floor allowed animal feed to be dropped into the mangers for the animals.

In New England it is common to find barns attached to the main farmhouse (connected farm architecture), allowing for chores to be done while sheltering the worker from the weather.In the past barns were often used for communal gatherings, such as barn dances.

A farm may have buildings of varying shapes and sizes used to shelter large and small animals and other uses. The enclosed pens used to shelter large animals are called stalls and may be located in the cellar or on the main level depending on the type of the barn. Other common areas, or features, of a barn include:

- room (where bridles, saddles, etc. are kept), often set up as a break-room
- a feed room, where animal feed is stored – not typically part of a modern barn where feed bales are piled in a stackyard
- a drive bay, a wide corridor for a tack animals or machinery
- a silo where fermented grain or hay (called a silage or haylage) is stored.
- a milkhouse for dairy barns; an attached structure where the milk is collected and stored prior to shipment
- a grain (soy, corn, etc.) bin for dairy barns, found in the mow and usually made of wood with a chute to the ground floor providing access to the grain, making it easier to feed the cows.
- modern barns often contain an indoor corral with a squeeze chute for providing veterinary treatment to sick animals.

III. Say if the following sentences are false or true. Correct the false statements.

1. A barn is used only for storage of crops.
2. The barns were attached to the main farmhouse in New England.
3. Modern barns are usually built of concrete.
4. Location of stalls depends on the type of the barn.

IV. Complete the sentences using English equivalents for the Russian words given in brackets.

1. With the advent of balers it became possible (хранить сено и солому) outdoors in stouks.
2. Some modern barns have (мансардную крышу) to maximize the size of the (сеновал) above the dairy roof.
3. Quonset huts were made of (фанеры или оцинкованной стали).
4. (Опускная дверь в полу) allowed animal feed to be dropped into the (кормушки для животных).
5. The enclosed (загон) used to shelter animals is called (стойло).

V. Answer the following questions.

1. What purposes is a barn used for?
2. When did barn framing methods begin to shift away from traditional timber framing to truss framed buildings?
3. Did people require larger and more open barns?
4. When was it possible to build a barn using less time, less work and less money?

VI. Translate the questions into English in the written form and answer them orally.

1. Почему деревянные амбары, заполненные сеном, так опасны?
2. Почему многие амбары покрашены в красный цвет с белым обрамлением?
3. Когда многие амбары были снесены?
4. Какие виды амбаров вы знаете?

VII. Translate the following sentences into English in the written form.

1. Амбары используются для хранения урожая, оборудования и других целей.
2. Амбары строили из деревянного каркаса, камней, бетонных блоков и стали.
3. Покраска амбара окисью железа помогала защитить сооружение.
4. Меньшие амбары без сеновала начали строить в XX веке.
5. Многие амбары снесли или заменили сборными домами из гофрированного железа после II Мировой войны.

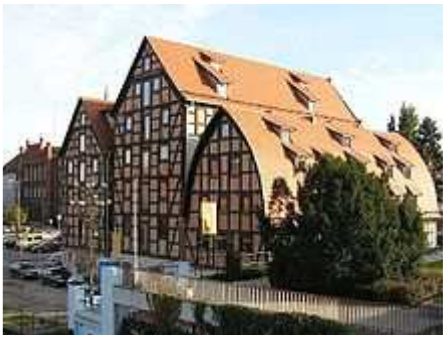
VIII. Speak about modern barns.

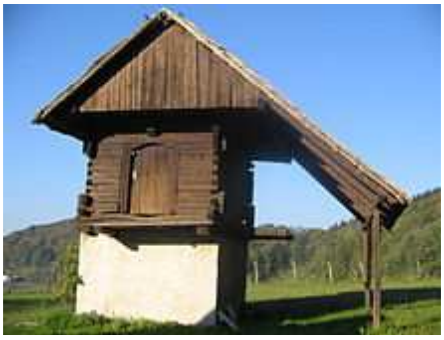
GRANARY

1. Read out the following words and learn them by heart:

1. granary - зернохранилище
2. barn - амбар
3. storehouse - кладовая, склад
4. to thresh grain - молотить зерно
5. pottery - керамика, гончарные изделия
6. storage - хранения
7. to store in bulk - хранить в большом количестве, объёме

8. suspended floors - подвесные полы
9. rodent - грызун
10. to preserve grain - сохранять зерно
11. to store grain - хранить зерно
12. scarcity - нехватка, дефицит
13. silo pit - силосная яма
14. staddle - подпорка, подмости
15. stump - пень
16. frame construction - каркасная конструкция
17. slate roof - крыша из шифера
18. warehouse - товарный склад
19. moisture - влага
20. to spread - распространять, зд. разложить, рассыпать.





II. Read and translate the following text.

A **granary** is a storehouse or room in a barn for threshed grain or animal feed. Ancient or primitive granaries are most often made out of pottery. Granaries are often built above the ground to keep the stored food away from mice and other animals.

From ancient times grain has been stored in bulk. The oldest granaries yet found date back to 9500 BC and are located in the Pre-Pottery Neolithic settlements in the Jordan Valley. The first were located in places between other buildings. However beginning around 8500 BC, they were moved inside houses, and by 7500 BC storage occurred in special rooms. The first granaries measured 3 x 3 m on the outside and had suspended floors that protected the grain from rodents and insects and provided air circulation.

The ancient Egyptians made a practice of preserving grain in years of plenty against years of scarcity. The climate of Egypt being very dry, grain could be stored in pits for a long time without discernible loss of quality. The silo pit, as it has been termed, has been a favorite way of storing grain from time immemorial in all oriental lands. In Turkey and Persia, usurers used to buy up wheat or barley comparatively cheap, and store it in hidden pits against seasons of dearth. In Malta a relatively large stock of wheat was preserved in some hundreds of pits (silos) cut in the rock. A single silo stored from 60 to 80 tons of wheat, which, with proper precautions, kept in good condition for four years or more.

Simple storage granaries raised up on four or more posts appeared in China and after the onset of intensive agriculture in the Korean peninsula during the Mumun pottery period (c. 1000 B.C.) as well as in the Japanese archipelago in 800 B.C. In the archaeological vernacular of Northeast Asia, these features are lumped with those that may have also functioned as residences and together are called 'raised floor buildings'.

In vernacular architecture of Indonesian archipelago granaries are made of wood and bamboo materials and most of them are built raised up on four or more posts to avoid rodents and insects.

In Great Britain small granaries were built on mushroom shaped stumps called staddle stones. They were built of timber frame construction and often had slate roofs. Larger ones were similar to linhays, but with the upper floor enclosed. Access to the first floor was usually via stone staircase on the outside wall.

Towards the close of the 19th century, warehouses specially intended for holding grain began to multiply in Great Britain. There are climatic difficulties in the way of storing grain in Great Britain on a large scale, but these difficulties have been largely overcome.

Modern grain farming operations often use manufactured steel granaries to store grain on-site until it can be trucked to major storage facilities in anticipation of shipping. The large *mechanized* facilities, particularly seen in Russia and North America are known as grain elevators.

Moisture control

As far as possible, grain must be kept away from moisture to preserve it in good condition and prevent mold growth. Newly harvested grain brought into a granary tends to contain excess moisture, which encourages mold growth leading to fermentation and heating, both of which are undesirable and affect quality. Fermentation generally spoils grain and may cause chemical changes that create poisonous mycotoxins.

One traditional remedy is to spread the grain in thin layers on a floor, where it is turned to aerate it thoroughly. Once the grain is sufficiently dry it can be transferred to a granary for storage.

In modern silos, grain is typically force-aerated *in situ* or circulated through external grain drying equipment.

III. Say if the following sentences are false or true. Correct the false statements.

1. From ancient times grain has been stored in great amount.
2. Granaries are often built above the ground to keep the stored food away from rodents.
3. Grain was often stored in silo pit in Western countries.
4. Raised floor buildings are situated on posts.

IV. Complete the sentences choosing the right variant.

1. Ancient granaries were often made of
a) stones
b) pottery
c) timber
2. Grain must be kept away from
a) rodents and insects
b) sunlight
c) moisture
3. The best way to remove moisture from the grain is
a) to spread it on the floor
b) to suspend it on the floor
c) to transfer it to granary for storage.

V. Fill in the proper nouns given below. Translate the sentences into Russian.

(posts, elevators, scarcity, pits, condition, facilities)

1. Ancient Egyptians preserved grain against years of … .
2. Grain could be stored in … for a long time.
3. A single silo could keep wheat in good … for four years or more.
4. Simple storage granaries raised up on … appeared in China.
5. The large mechanized … are known as grain … .

VI. Complete the sentences using English equivalents for the Russian words given in brackets.

1. A granary is a storehouse for (размолотого зерна).
2. Ancient granaries (располагались) in places (между другими зданиями).
3. Then (их переместили) inside houses.
4. Mushroom shaped stumps (назывались) staddle stones.
5. In Malta wheat (сохранялась) in some hundreds of pits (silos) (вырезанных) in the rock.

VII. Answer the following questions.

1. What is a granary?
2. When were granaries moved inside houses?
3. Where are granaries made of wood and bamboo materials?
4. Where was an access to the first floor in granaries of Great Britain?
5. When can the grain be transferred to a granary for storage?

VIII. Translate the following sentences into English in the written form.

1. Зернохранилище – это кладовая в амбаре для хранения размолотого зерна.
2. Зернохранилища строились из деревянной каркасной конструкции.
3. Подвесные полы защищали зерно от грызунов и насекомых.
4. На востоке пшеницу и ячмень хранили в спрятанных ямах.

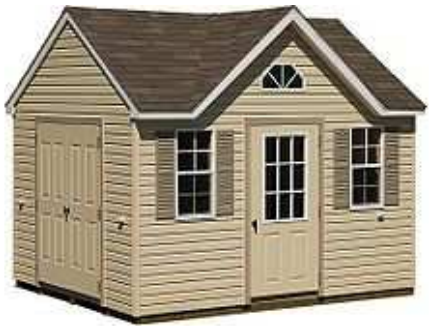
IX. Speak about granaries in different countries.

SHEDS

I. Read out the following words and learn them by heart:

1. shed - сарай
2. allotment - небольшой участок, отведенный под огород
3. outlet - зд. розетка
4. sheathing - обшивка
5. utility - полезность
6. utility group - универсальная группа
7. miscellaneous group - смешанная группа
8. to attach - примыкать, прикреплять
9. to rust - ржаветь
10. to galvanize - оцинковывать
11. to dent - вдавливать

12. to rot - гнить
13. screw-шуруп, болт, винт
14. stable-зд. прочный
15. permit-разрешение
16. warp-деформация, деформировать
17. debris-обрезки, лом; строительный мусор
18. to re-stain-подкрашивать
19. to varnish- покрывать лаком
20. stain-зд. краска



I. Read and translate the following text.

A **shed**, **outhouse**, **outbuilding** or **shack**, is typically a simple, single-storey structure in a back garden or on an allotment that is used for storage, hobbies, or as a workshop.

Sheds vary considerably in the complexity of their construction and their size, from small open-sided tin-roofed structures to large wood-framed sheds with shingled roofs, windows, and electrical outlets. Sheds used on farms or in industry can be large structures. The main types of shed construction are metal sheathing over a metal frame, plastic sheathing and frame, all-wood construction, and vinyl-sided sheds built over a wooden frame.

Sheds are used to store home and garden tools and equipment such as lawn tractors, and gardening supplies. In addition, sheds can be used to store items that are not suitable for indoor storage, such as petrol (gasoline), pesticides, or herbicides.

Small sheds include corner sheds, which fit into a corner, vertical sheds, horizontal sheds and tool sheds. When a shed is used for tool storage, shelves and hooks are often used to maximize the storage space. Gambrel-style roofed sheds (sometimes called baby barns) have a high sloping roofline which increases storage space in the "loft" area. Some Gambrel styles have no loft and offer the advantage of reduced overall height. Another style of small shed is the saltbox-style shed, there is also pent and apex roofed sheds.

Larger, more-expensive sheds are typically constructed of wood and include features typically found in house construction, such as windows, a shingled roof, and electrical outlets. Larger sheds provide more space for engaging in hobbies such as gardening, small engine repair, or tinkering. Some sheds have small porches or include furniture, which allows them to be used for relaxation purposes.

Shed owners can customize wooden sheds to match the features (e.g., siding, trim, etc.) of the main house. A number of decorative options can be added to sheds, such as dormers, shutters, flowerboxes, finials, and weather vanes. As well, practical options can be added such as benches, ramps, ventilation systems (e.g., in cases where a swimming pool heater is installed in

a shed), and electric lighting. Sheds designed for gardening, called "potting sheds", often feature windows or skylights for illumination, ventilation grilles, and a potter's bench for mixing soil and re-potting plants

Farm sheds and other outbuildings are used to store farm equipment, tractors, tools, hay, and supplies, or to house horses, cattle, poultry or other farm animals. Run-in sheds are three-sided structures with an open face used for horses and cattle.

Shearing sheds can be large sheds found on sheep stations to accommodate large-scale sheep shearing.

Construction

The main types of shed construction are metal sheathing over a metal frame, plastic sheathing and frame, all-wood construction, and vinyl-sided sheds built over a wooden frame. Each type has various advantages and disadvantages that a homeowner has to consider. For example, while metal sheds are fire and termite-resistant, they can rust over time, or be severely damaged by high winds. The International Building Code(IBC) defines a shed as a building or structure of an accessory character; it classifies them under Utility and Miscellaneous Group.

Metal sheds made from thin sheet metal sheathing (galvanized steel, aluminium, or corrugated iron) are attached to a metal frame. Metal sheds are a good choice when long-term strength and resistance to fire, rot, or termites are desired. However, metal sheds may rust over time, particularly if they are constructed from steel that is not galvanized. Be aware that concrete is highly corrosive so care needs must be taken when assembling your shed to avoid contact with the outside panels.

As well, some types of metal sheds that have thin walls are easily dented, which may make some types of thin metal sheds a poor choice for vandal-prone areas or for high-traffic activities such as small businesses. In cold climates, metal sheds with thin walls need to have snow and ice cleared from the roof, because the thin metal may be damaged by a heavy accumulation. Since thin metal sheds weigh much less than wood or PVC plastic sheds, thin metal sheds are more at risk of being damaged by heavy winds. To prevent wind damage, thin metal sheds should be attached to a concrete foundation with screws.

In countries where the climate is generally mild, such as Australia, very large metal sheds are used for many types of industry.

Lifetime blow-molded plastic sheds

Plastic shed kiths utilizing heavy molded plastics such as PVC and polyethylene are less expensive than sheet-metal sheds. PVC resins and high-impact, UV light-resistant polyethylene make plastic outdoor sheds stronger, lighter, more durable, and more resistant to denting and chipping than wood, and tend to be more stable.

Plastic shed kits sided with vinyl are typically among the least expensive types of shed construction. Higher-quality sheds use UV-resistant plastic and powder-coated metal frames. Many plastic sheds are modular to allow for easy extensions, peg-boards, shelving, attic-storage, windows, skylights, and other accessories to be added later.

Plastic sheds are not susceptible to termite or wood-boring insect damage, and they require little maintenance. Being rot-proof they do not need to have preservative applied.

Unlike wooden or metal sheds, which often require a permit to build, in many areas, plastic sheds do not. However, this is something you will need to verify. A quick call to your council/town should do the trick.

Wooden sheds have a natural look that can blend in well with garden environments. Despite the strength of wood, over time, untreated and neglected wood can rot, split, warp or become susceptible to mold and mildew, so wood sheds should be treated for protection. Wood sheds need regular maintenance. This includes keeping plant matter and debris from piling up beside the walls and on the roof, and occasional rot-proofing with preservative. Sheds are sometimes also re-stained or varnished at times for aesthetic reasons. Fire and, in some regions, termite attack are also potential problems.

Stains and preservatives can be applied to wood sheds to prevent damage to the wood caused by exposure to rain, damp ground, light, harsh climatic conditions, fungal attack and wood-boring insects. If a coloured preservative oil or stain is used, a wooden shed can either be made to stand out as a feature within a garden, or to blend in with its surroundings. Red cedar coloured stain is popular. Some types of wood, such as cedar, are more naturally resistant to water damage. One advantage of using wood sheds is that it is easier to modify wooden sheds (i.e., than metal sheds) by adding windows, doors, shelving, or exterior trim (etc) because wood can be cut and drilled using commonly available tools. Some homeowners may prefer wood sheds because wood is a renewable resource.

Vinyl-sided sheds are typically built with standard wood framing construction and oriented strand board (OSB) on the walls covered with standard vinyl siding. Vinyl-sided sheds never need to be painted, but they might require special scrubbing. They are generally stronger than plastic or metal sheds, and are usually built to conform with the local building codes. They are not eco-friendly, and they cost more than wooden, metal or plastic sheds.

In the early and middle years of the 20th century, many garden sheds and domestic garages were made of asbestos-cement sheets supported on a very light angle-iron frame. Concerns about safety led to the practice being discontinued, but they were cheap and long-lasting, and many can still be seen in British gardens.

Since 2013 garden sheds have been available in the UK made from TPR - a sustainable alternative to concrete.They are typically coated in a marine gelcoat and are far stronger and more durable than traditional sheds. A shed made from TPR became the first Secured by Design approved shed in 2014.

III. Say if the following sentences are false or true. Correct the false statements.

1. Sheds are usually built near houses.
2. Gambrel-style roofed sheds have enough space in the loft area.
3. Metal sheds can rust over time.
4. Galvanized steel does not rust.

IV. Fill in the proper word combinations given below. Translate the sentences into Russian.

(storage space, metal frame, concrete foundation, wooden frame)

1. One of the main types of a shed construction is metal sheathing over a … .
2. Vinyl-sided sheds are usually built over a … .
3. Shelves and hooks are used to maximize the … .
4. Metal sheds should be attached to a … with screws.

V. Complete the sentences using English equivalents for the Russian words given in brackets.

1. Sheds are used (для хранения инструментов, оборудования и различных принадлежностей).
2. Decorative features are added to sheds such as (ставни и мансардные окна).
3. Farm sheds can house (лошадей, крупный рогатый скот и домашнюю птицу).
4. Vinyl-sided sheds are never painted, but (нуждаются в особой зачистке).

VI. Answer the following questions.

1. What is a shed? Where is it usually built?
2. What are the advantages of plastic sheds?
3. What are the disadvantages of wooden sheds?
4. What were asbestos sheds supported on?
5. What shed do you think is the best? Why?

VII. Arrange the words in the right order to make up questions and answer them.

1. Sheds are used for what farm?
2. Farm house can animals sheds?
3. The sheds type is of plastic what cheapest?
4. Little sheds do require plastic maintenance?

VIII. Translate the following sentences into English in the written form.

1. Сараи, сделанные из тонкой металлической обшивки, прикрепляются к металлической раме.
2. Металлические сараи с тонкими стенами легко прогибаются и повреждаются.
3. Неоцинкованный металл ржавеет со временем.
4. Пластиковые сараи не нуждаются в разрешении на строительство.

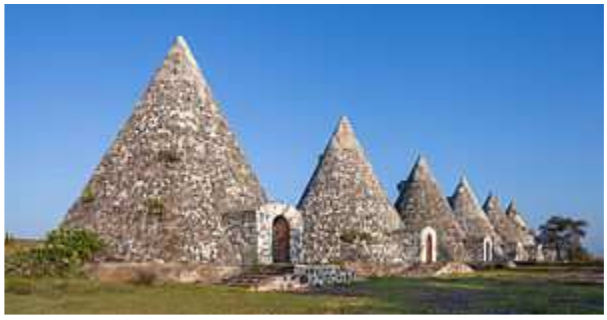
IX. Speak about wooden and plastic sheds.

SILO (PART 1)

I. Read out and learn the following words by heart:

1. silo - силосная яма или башня
2. bulk materials -большое количество, большой объем материала
3. silage - силос
4. sawdust - опилки
5. slipform - скользящая или подвижная опалубка
6. jumpform concrete silos - бетонные силосные башни с подъемно-переставной опалубкой
7. airtightness - герметичность
8. auger - винтовой фундамент
9. to unload - разгружать
10. silage fork - зд. вилы

11. pitchfork - вилы, камертон
12. bin - бункер
13. hoop - обод, кольцо
14. to align - выравнивать, выстраивать в линию; ставить в ряд
15. groove - паз
16. shell - здание без отделки, каркас
17. stack - стержень колонны
18. mold - плесень
19. decay - гниение, гнить
20. to occur - случаться, происходить
21. forage loading - погрузка корма
22. unloader chute - разгрузочный желоб, спуск
23. to seal - изолировать, уплотнять; запечатывать



II. Read and translate the following text.

A **silo** (from the Greek σιρός – *siros*, "pit for holding grain") is a structure for storing bulk materials. Silos are used in agriculture to store grain or fermented feed known as silage. Silos are more commonly used for bulk storage of grain, coal, cement, carbon black, woodchips, food products and sawdust.

Archaeological ruins and ancient texts show that silos were used in ancient Greece as far back as the late 8th century BC, as well as the 5th Millennium B.C in Israel. The first modern silo, a wooden and upright one filled with grain, was invented and built in 1873 by Fred Hatch in USA.

Three types of silos are in widespread use today: tower silos, bunker silos, and bag silos.

Silo types

Cement storage silos

There are different types of cement silos such as the low-level mobile silo and the static upright cement silo, which are used to hold and discharge cement and other powder materials. The low-level silos are fully mobile with capacities from 10 to 75 tons. They are simple to transport and are easy to set up on site. These mobile silos generally come equipped with an electronic weighing system with digital display and printer. This allows any quantity of cement or powder discharged from the silo to be controlled and also provides an accurate indication of what remains inside the silo. The static upright silos have capacities from 20 to 80 tons. These are considered a low-maintenance option for the storage of cement or other powders. Cement silos can be used in conjunction with bin-fed batching plants.

Tower silo

Storage silos are cylindrical structures, typically 10 to 90ft (4 to 30 m) in diameter and 30 to 275 ft (10 to 84 m) in height with the slipform and Jumpform concrete silos being the larger diameter and taller silos. They can be made of

many materials. Wood staves, concrete staves, cast concrete, and steel panels have all been used, and have varying cost, durability, and airtightness tradeoffs. Silos storing grain, cement and woodchips are typically unloaded with air slides or augers. Silos can be unloaded into rail cars, trucks or conveyors.

Tower silos containing silage are usually unloaded from the top of the pile, originally by hand using a silage fork, which has many more tines than the common pitchfork, 12 vs 4, in modern times using mechanical unloaders. Bottom silo unloaders are utilized at times but have problems with difficulty of repair.

An advantage of tower silos is that the silage tends to pack well due to its own weight, except in the top few feet. However, this may be a disadvantage for items like chopped wood. The tower silo was invented by Franklin Hiram King.

In Canada, Australia and the United States, many country towns or the larger farmers in grain-growing areas have groups of wooden or concrete tower silos, known as grain elevators, to collect grain from the surrounding towns and store and protect the grain for transport by train, truck or barge to a processor or to an export port. In bumper crop times, the excess grain is stored in piles without silos or bins, causing considerable losses.

Concrete stave silos

Concrete stave silos are constructed from small precast concrete blocks with ridged grooves along each edge that lock them together into a high strength shell. Much of concrete's strength comes from its high incompressibility, so the silo is held together by steel hoops encircling the tower and compressing the staves into a tight ring. The vertical stacks are held together by intermeshing of the ends of the staves by a short distance around the perimeter of each layer, and hoops which are tightened directly across the stave edges.

The static pressure of the material inside the silo pressing outward on the staves increases towards the bottom of the silo, so the hoops can be spaced wide apart near the top but become progressively more closely spaced towards the bottom to prevent seams from opening and the contents leaking out.

Concrete stave silos are built from common components designed with high strength and long life. They have the flexibility to have their height increased according to the needs of the farm and purchasing power of the farmer, or to be completely disassembled and reinstalled somewhere else if no longer needed.

Low-oxygen tower silos

Low-oxygen silos are designed to keep the contents in a low-oxygen atmosphere at all times, to keep the fermented contents in a high quality state, and to prevent mold and decay, as may occur in the top layers of a stave silo or bunker. Low-oxygen silos are only opened directly to the atmosphere during the initial forage loading, and even the unloader chute is sealed against air infiltration.

It would be expensive to design such a large structure that is immune to atmospheric pressure changes over time. Instead, the silo structure is open to the atmosphere but outside air is separated from internal air by large impermeable bags sealed to the silo breather openings. In the warmth of the day when the silo is heated by the sun, the gas trapped inside the silo expands and the bags "breathe out" and collapse. At night the silo cools, the air inside contracts and the bags "breathe in" and expand again.

While the iconic blue Harvestore low-oxygen silos were once very common, the speed of its unloader mechanism was not able to match the output rates of modern bunker silos, and this type of silo went into decline. Unloader repair expenses also severely hurt the Harvestore reputation, because the unloader feed mechanism is located in the bottom of the silo under tons of silage. In the

event of cutter chain breakage, it can cost up to US$10,000 to perform repairs. The silo may need to be partially or completely emptied by alternate means, to unbury the broken unloader retrieve broken components lost in the silage at the bottom of the structure.

In 2005 the Harvestore company recognized these issues and worked to develop new unloaders with double the flow rate of previous models to stay competitive with bunkers, and with far greater unloader chain strength. They are now also using load sensing soft-start variable frequency drive motor controllers to reduce the likelihood of mechanism breakage, and to control the feeder sweep arm movement.

III. Say if the following sentences are false or true. Correct the false statements.

1. A silo is a structure for keeping great amount of different materials.
2. Cement silos are built of concrete and used to store grain.
3. Low-level silo can be moved.
4. Static upright cement silo is well equipped, but has lower capacity than a low-level silo.
5. Silage fork has more tines than the common pitch fork.
6. Low-oxygen silos went into decline.

IV. Fill in the proper word combinations given below.

(concrete stave silos, static upright silos, tower silos, storage silos, low-level silos, low-oxygen silos, grain elevators)

1. The … are fully mobile and easy to set up on the site.
2. The … have a low-maintenance cost for storage.
3. … are cylindrical structures.
4. … containing silage are usually unloaded from the top of the pile.
5. … are used to collect, store and protect grain.
6. … are constructed from precast concrete blocks and held together by steel hoops encircling the tower.
7. … are designed to keep the contents in a low-oxygen atmosphere in a high-quality state at all times.

V. Complete the sentences using English equivalents for the Russian words in brackets.

1. Low oxygen silos (предотвращают плесень и гниение).
2. Even the unloader chute (изолирован от) air infiltration.
3. It would be expensive (спроектировать) such a large structure that is (невосприимчива) to atmospheric pressure changes.
4. Outside air (отделен) from internal air by large impermeable bags (прикрепленных) to the silo breather openings.
5. Unloader feed mechanism (расположен) in the bottom of the silo under tons of (силоса).
6. In bumper crop times (излишки зерна хранят в кучах).
7. Silos (хранящие стружки), cement or grain are typically (разгружаются) with air slides or augers.

VI. Answer the following questions.

1. What is a silo?
2. What is a silage?
3. What three types of silos do you know?

4. There are two types of cement silos, aren't there?
5. Are storage silos cylindrical structures?
6. What materials are used in building storage silos?
7. Where can silos be unloaded into?
8. What is the advantage of tower silos?
9. Why have low-oxygen silos gone into decline?

VII. Translate the sentences into English in the written form using Present Simple Passive.

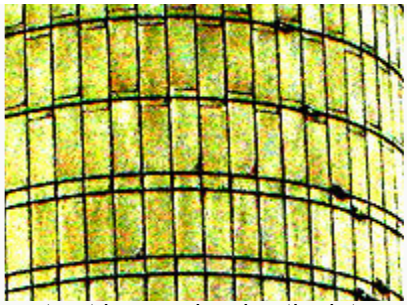
1. Силосные башни используют для хранения в большом количестве сельскохозяйственных культур и различных материалов.
2. Башни для хранения делают из различных материалов: дерева, бетона и стали.
3. Кольца в бетонных силосных башнях стягивают вдоль краев планок.
4. Иногда излишки зерна не хранят в силосных ямах и бункерах, вызывая значительные потери.

VIII. Say a few sentences about tower silos, concrete stave silos and low-oxygen tower silos.

SILO (PART 2)

I Read out the following words and learn them by heart:

1. trench - ров, траншея
2. bunker silo - бункерная яма
3. tarp - брезент
4. temporary - временный
5. harvest - урожай
6. condition - условие
7. dryer - сушильный аппарат
8. hollow - пустота, углубление, полость
9. to perforate - просверливать
10. to suspend - подвешивать
11. conventional - обычный
12. air infiltration - проникновение воздуха
13. combustible - горючий, воспламеняемый
14. hazard - риск, опасность
15. fabric - ткань, матерчатый
16. airtight - воздухонепроницаемый



High contrast image showing the intermeshed concrete staves, and how the lower hoops are aligned over the stave edges.

Small stave silos can be expanded upward. More hoops are added to strengthen the lower staves.

II. Read and translate the following text.

Bunker silos

Bunker silos are trenches, usually with concrete walls, that are filled and packed with tractors and loaders. The filled trench is covered with a plastic tarp to make it airtight. These silos are usually unloaded with a tractor and loader. They are inexpensive and especially well suited to very large opera- tions.

Bag silos

Bag silos are heavy plastic tubes, usually around 8 to 12 ft in diameter, and of variable length as required for the amount of material to be stored. They are packed using a machine made for the purpose, and sealed on both ends. They are unloaded using a tractor and loader or skid-steer loader. The bag is discarded in sections as it is torn off. Bag silos require little capital investment. They can be used as a temporary measure when growth or harvest conditions require more space, though some farms use them every year.

Bins

A bin is typically much shorter than a silo, and is typically used for holding dry matter such as concrete or grain. Grain is often dried in a grain dryer before being stored in the bin. Bins may be round or square, but round bins tend to empty more easily due to a lack of corners for the stored material to become wedged and encrusted.

The stored material may be powdered, as seed kernels, or as cob corn. Due to the dry nature of the stored material, it tends to be lighter than silage and can be more easily handled by under-floor grain unloaders. To facilitate drying after harvesting, some grain bins contain a hollow perforated or screened central shaft to permit easier air infiltration into the stored grain.

Sand and salt silos

Sand and salt for winter road maintenance are stored in conical dome-shaped silos. These are more common in North America, namely in Canada and the United States.

Fabric silos

Fabric silos are constructed of a fabric bag suspended within a rigid, structural frame. Polyester based fabrics are often used for fabrication of the bag material, with specific attention given to fabric pore size. Upper areas of silo fabric are often manufactured with slightly larger pore size, with the design intent of acting as a vent filter during silo filling. Some designs include metal thread within the fabric, providing a static conductive path from the surface of the fabric to ground. The frame of a fabric silo is typically constructed of steel. Fabric silos are an attractive option because of their relative low cost compared to conventional silos. However, when fabric silos are used to store granular or particulate combustible materials, conventional practices prescribed by established industry consensus standards addressing combustible dust hazards cannot be applied without a considerable engineering analysis of the system.

III. Say if the following sentences are false or true. Correct the false statements.

1. Bunker silos are cut in the ground.
2. Both bunker silos and bag silos are rather cheap.
3. Bunker silos are heavy plastic tubes.

4. Some farms constantly use bag silos.
5. Bins have a hollow for air infiltration.
6. The frame of a fabric silo is constructed of timber.

IV. Complete the sentences using English equivalents for the Russian words given in brackets.

1. Bag silos (запечатывают) on both ends.
2. Bag silos (используются как временная) measure.
3. Materials for road maintenance (хранят в конических куполоподобных силосных башнях).
4. Fabric silos (сооружают) of a fabric bag (подвешенного) within a rigid structural frame.

V. Arrange the words in the right order to make up sentences. Translate them into Russian and say if silos are cheap or expensive.

1. Capital bag require little silos investment.
2. Are inexpensive bunker silos.
3. Relatively silos have low fabric cost to compared silos conventional.

VI. Answer the following questions.

1. What is a bunker silo?
2. Are bag silos heavy plastic tubes?
3. Is silo shorter than a bin?
4. What is the shape of bins?
5. Is the frame of fabric silos constructed of steel?

VII. Translate the sentences into English in the written form.

1.Зерно высушивают в зерносушилке и хранят в бункере.
2.У бункеров обычно бетонные стены.
3.Вырытые траншеи покрывают брезентом, чтобы сделать их воздухонепроницаемыми.

VIII. Speak about the bunker silos built in the ground.

APPENDIX

I. ***Skim the text.***

FARMS AROUND THE WORLD

The land and buildings of a farm in America are called the "farmstead." Enterprises where livestock are raised on rangeland are called *ranches*. Where livestock are raised in confinement on feed produced elsewhere, the term *feedlot* is usually used.

Farming is a significant economic sector in Australia. A farm is an area of land used for primary production which will include buildings.

Where most of the income is from some other employment, and the farm is really an expanded residence, the term *hobby farm* is common. This will allow sufficient size for recreational use but be very unlikely to produce sufficient income to be self-sustaining. Hobby farms are commonly around 5 acres (20,000 m^2) but may be much larger depending upon land prices (which vary regionally).

Often very small farms used for intensive primary production are referred to by the specialization they are being used for, such as a dairy rather than a dairy farm, a piggery, a market garden, etc. This also applies to feedlots, which are specifically developed to a single purpose and are often not able to be used for more general purpose (mixed) farming practices.

In remote areas farms can become quite large. As with *estates* in England, there is no defined size or method of operation at which a large farm becomes station.

In the UK, *farm* as an agricultural unit, always denotes the area of pasture and other fields together with its farmhouse, farmyard and outbuildings. Large farms, or groups of farms under the same ownership, may be called an estate. Conversely, a small farm surrounding the owner's dwelling is called a small holding and is generally focused on self-sufficiency with only the surplus being sold.

Farm equipment has evolved over the centuries from simple hand tools such as the hoe, through ox- or horse-drawn equipment such as the plough and harrow, to the modern highly-technical machinery such as the tractor, baler and combine harvester replacing what was a highly labour-intensive occupation before the Industrial revolution. Today much of the farm equipment used on both small and large farms is automated (e.g. using satellite guided farming).

II. Answer the following questions:

1. What is farmstead?
2. Are livestock raised on ranches?
3. What is the difference between ranches and feedlot?
4. Hobby farm is common in Europe, isn't it?
5. Does hobby farm produce sufficient income to be self-sustaining?
6. What specialized farms do you know?
7. Is station the largest farm?
8. What is an estate?
9. What simple hand tools do you know?
10. How has the farms` equipment been modernized?

I. Skim the text.

GREENHOUSES

A greenhouse (also called a glasshouse or, if with additional heating, a hothouse) is a structure with walls and roof made chiefly of transparent material such as glass in which plants requiring regulated climatic conditions are grown. These structures range in size from small sheds to industrial-sized buildings. A miniature greenhouse is known as a cold frame. The interior of a greenhouse exposed to sunlight becomes significantly warmer than the external ambient temperature, protecting its contents in cold weather.

Types

Greenhouses can be divided into glass greenhouses and plastic greenhouses.

In domestic greenhouses the glass used is typically 3mm (or 1/8") 'horticultural glass' grade, which is good quality glass that should not contain air bubbles (which can produce scorching on leaves by acting like lenses). Plastics mostly used are polyethylene film and multiwall sheets of polycarbonate material, or PMMA acrylic glass.

Commercial glass greenhouses are often high-tech production facilities for vegetables or flowers. The glass greenhouses are filled with equipment such as screening installations, heating, cooling and lighting, and may be automatically controlled by a computer.

In the 20th century the geodesic dome was added to the many types of greenhouses. Greenhouse structures adapted in the 1960s when wider sheets of polyethylene film became widely available. Hoop houses were made by several companies and were also frequently made by the growers themselves. Constructed of aluminum extrusions, special galvanized steel tubing, or even just lengths of steel or PVC water pipe, construction costs were greatly reduced. This resulted in many more greenhouses being constructed on smaller farms and garden centers. Polyethylene film durability increased greatly when more effective UV-inhibitors were developed and added in the 1970s; these extended the usable life of the film from one or two years up to 3 and eventually 4 or more years.

Gutter-connected greenhouses became more prevalent in the 1980s and 1990s. These greenhouses have two or more bays connected by a common wall, or row of support posts. Heating inputs were reduced as the ratio of floor area to roof area was increased substantially. Gutter-connected greenhouses are now commonly used both in production and in situations where plants are grown and sold to the public as well. Gutter-connected greenhouses are commonly covered with structured polycarbonate materials, or a double layer of polyethylene film with air blown between to provide increased heating efficiencies.

Greenhouse ventilation and heating

Ventilation is one of the most important components in a successful greenhouse. If there is no proper ventilation, greenhouses and their growing plants can become prone to problems. The main purposes of ventilation are to regulate the temperature and humidity to the optimal level, and to ensure movement of air and thus prevent build-up of plant pathogens that prefer still air conditions.

Ventilation can be achieved via use of vents - often controlled automatically via a computer - and recirculation fans.

Heating or electricity is one of the most considerable costs in the operation of greenhouses across the globe, especially in colder climates. The main problem with heating a greenhouse as opposed to a building that has solid opaque walls is the amount of heat lost through the greenhouse covering. Since the coverings need to allow light to filter into the structure, they conversely cannot insulate very well. With traditional plastic greenhouse coverings having an R-value of around 2, a great amount of money is therefore spent to continually replace the heat lost. Most greenhouses, when supplemental heat is needed use natural gas or electric furnaces.

Passive heating methods exist which seek heat using low energy input. Solar energy can be captured from periods of relative abundance (day time or summer), and released to boost the temperature during cooler periods (night time or winter). Waste heat from livestock can also be used to heat greenhouses; e.g. placing a chicken coop inside a greenhouse recovers the heat generated by the chickens, which would otherwise be wasted.

Electronic controllers are often used to monitor the temperature and adjust the furnace operation to the conditions. This can be as simple as a basic thermostat, but can be more complicated in larger greenhouse operations.

II. Answer the following questions.

1. What materials are used in making greenhouses?
2. Which of them are more reliable? Why?
3. What equipment are greenhouses filled with?
4. How is ventilation achieved in greenhouses?
5. How are greenhouses heated?
6. Passive heating methods use low energy input, don`t they?

I. Skim the text.

HOW TO BUILD A POULTRY HOUSE

Housing is very important factor for poultry farming and how to build a poultry house is a common question for the producers. Basically the poultry housing is the main process of keeping your birds healthy, fast growing and producing the maximum. You have to make proper poultry housing plans, before starting poultry farming business or making a poultry house. Choose a suitable place for building chicken coop.

There are many ways of making poultry house. So, you have to choose the method on how you will build a poultry house. You have to make a proper and affordable poultry housing design first to become successful in chicken farming. Before making chicken coop, you have to keep in mind about some factor like the house should be well ventilated, free from predators or enemies, sufficient health facilities etc. Be sure all the facilities are fully available in your designed poultry house.

For successful poultry farming the chicken coop should contain some necessary facilities like it will be well ventilated, sufficient flow of air and sunlight will be available inside the poultry house. It would be better, if the house become south faced. The house must have to be free from harmful animals and birds. Keep the new chickens and the hen for sale separated from

each other. The hen for sale should be kept in another house. Before making houses for poultry birds, keep in mind that every chicken needs 40 to 50 square centimeters place. Suppose you have decided to make a poultry house for 1000 chickens. Then the area of the poultry house would be between 40000 to 50000 square centimeters. Keep the food and feeding equipment in regular distance according to the number of chickens and their daily food demands.

The poultry house must be well ventilated.

Ensure sufficient entrance of sunlight and fresh air inside the house.

It would be better if the house becomes situated north to south faced.

The proper distance of one house to another house is about 40 feet.

Clean the house properly before keeping the birds inside the poultry house.

Make a deep liter and keep it dry and clean always.

Wooden and rice bran can be used for making liter.

Keep feed and feeding equipment in proper distance inside the poultry house according to the number and demand of poultry birds.

The poultry house and all equipment must be free from viruses, parasites and germs.

Build the poultry house in such a place where all the poultry birds are free from all types of wild animals and other predators.

The poultry housing area will be free from loud sound/sound pollution.

Make the poultry house in quite and calm place.

It would be better if the house is located in an open air place.

However, to be successful in poultry farming the producers must have to be aware in making the poultry house. Be sure that all necessary equipment and facilities are available inside the poultry house.

II. Answer the following questions.

1. What do you have to do first before starting actual building of a chicken coop?
2. What necessary facilities must a poultry house contain?
3. Does one chicken need much free space for itself?
4. Is it better to locate the house south faced? Why?
5. What is the best distance of one house to another one?
6. What instructions do you think are the most essential for poultry farmers?

I. Skim the text.

TYPES OF BARNS

Barns have been classified by their function, structure, location, or other features. Sometimes the same building falls into multiple categories.

- Apple barn or fruit barn – for the storage of fruit crops
- Bank barn – A multilevel building built into a banking so the upper floor is accessible to a wagon, sometimes accessed by a bridge or ramp.
- Bridge barn or covered bridge barn – general terms for barns accessed by a bridge rather than a ramp.
- Boô – A sheep-barn and dwelling in the Netherlands, seasonal or sometimes year round.
- Cantilever barn – a type of log crib barn with cantilevered upper floor(s) which developed in Appalachia (U.S.A.)
- Combination barn — found throughout England, especially in areas of

pastoral farming and the standard barn type in America. This general term means the barns were used for both crop storage and as a byre to house animals.

- Crib barn – Horizontal log structures with up to four cribs (assemblies of crossing timbers) found primarily in the southern U.S.A.
- Drying barns for drying crops in Finland and Sweden are called *riihi* and *ria*, respectively.
- New World Dutch Barn – An ancient barn type in the U.S.
- New England barn - a common style of barn found in rural New England and in the U.S.
- English barn (U.S.), also called a Yankee or Connecticut barn – An ancient and widespread barn type in the U.S.
- Granary – to store grain after it is threshed, some barns contain a room called a granary, some barns like a rice barn blur the line between a barn and granary.
- House-barn, also called a byre-dwelling – A combined living space and barn, relatively common in old Europe but rare in North America. Also, long-houses were housebarns.
- Pole barn — a simple structure that consists of poles embedded in the ground to support a roof, with or without exterior walls. The pole barn lacks a conventional foundation, thus greatly reducing construction costs. Traditionally used to house livestock, hay or equipment.
- Potato barn or potato house– A semi-subterranean or two story building for storage of potatoes or sweet potatoes.
- Prairie barn – A general term for barns in the Western U.S.
- Rice barn and the related winnowing barn
- Round barn, built in a round shape the term often is generalized to the include polygonal barn and octagonal barn
- Swing beam barn – A rare barn type in part of the U.S. designed for threshing with animals walking around a pole held by a *swing beam* inside the barn.
- Tobacco barn – for drying tobacco leaves
- Tithe barn — a type of barn used in much of northern Europe in the Middle Ages for storing the tithes — a tenth of the farm's produce which had to be given to the church
- Threshing barn — built with a threshing floor for the processing and storage of cereals, to keep them in dry conditions. Characterized by large double doors in the centre of one side, a smaller one on the other, and storage for cereal harvest or unprocessed on either side. In England the grain was beaten from the crop by flails and then separated from the husks by winnowing between these doors. The design of these typically remained unchanged between the 12th and 19th centuries. The large doors allow for a horse wagon to be driven through; the smaller ones allow for the sorting of sheep and other stock in the spring and summer.

II. Answer the following questions.

1. What features can we classify barns by?
2. Are barns mostly classified by their function or structure?
3. What functions can barns serve?
4. Are they designed in different ways?
5. Are barns multi-storied or simple structures?

I. Skim the texts.

HOW TO BUILD A BARN

Barns provide housing for farm animals and storage for the equipment used to care for them. A properly designed and built barn can save time, money and effort, while serving as a comfortable and pleasant place to work in. Here are some things to consider when building your barn.

Choosing a Site

Know the building and zoning codes for your area.

These will determine what kind of barn you can or can't build and provide a starting point for planning your barn.

Choose a location that's well drained.

Ideally, you want to build a barn on a site with enough slope for water to drain away, but not so much slope that it takes soil with it.

Check which way the wind blows. Spend time at your prospective site studying the wind patterns to find which way the wind usually blows the strongest from. Once you determine the prevailing direction, plan the barn layout to be at a 45 degree angle to this direction so that you'll have excellent air circulation without turning the barn's center aisle into a wind tunnel.

If the wind blows equally strong from all 4 directions an equal amount of the time, consider building a barn in a square layout with an entrance on each side. You can then open and close entryways as needed to provide adequate ventilation.

BUILDING THE BARN

Organize the barn features according to how you work.

Place the task rooms so that the tasks you do the most are clustered together and those you do least are furthest away. Clustering animal stalls together also makes it easier to clean the stalls and dispose of the manure in an efficient manner. If you have a large number of animal stalls, cluster them around the tack and feed rooms.

Put in a good floor.

Using slab concrete for the base floor provides a smooth surface for doorways and makes sweeping easier, while making it harder for animals to dig under stall partitions. However, concrete can be hard on animal hooves, so it should be covered with asphalt or rubber pavers on the center aisle and layers of gravel and clay in animal stalls.

Build wide center aisles and stalls.

At a minimum, center aisles should be 12 feet (3.7 meters) wide, although 14-foot (4.2-meter) wide center aisles allow added room for moving animals and equipment. Stalls should be at least 12 feet square, and preferably 14 feet square, with the rafters at least 10 feet (3 meters) off the floor to give animals adequate room to exercise without walking in their own excrement.

Provide plenty of air and light.

Good air flow keeps farm animals healthy, while good lighting discourages flies from congregating and makes the barn a better place for people to work in. Build your barn with adequate vent windows, placed out of the animals' reach, and add 1 or 2 exhaust fans to help move the air. Supplement the light from the windows with individual stall lights and rows of fluorescent lights in the center aisle.

Have adequate access to water and electricity.

Ideally, light switches, electric outlets and water spigots should be clustered between each pair of stalls, allowing you to fill water buckets conveniently and not need to use extension cords.

You should have at least one 220-volt outlet in addition to 110-volt outlets, for such things as hot-water heaters, clothes dryers or other specialized equipment requiring them.

Provide adequate cleaning stations.

An outdoor wash stall needs little more than an enclosure and running water to clean animals, while an indoor cleaning stall can be set up to clean yourself, your boots and animal equipment as well as the animals themselves, along with storage cabinets to provide ready access to animal brushes and cleaning gear.

Keep tack and feed rooms separate.

Keeping tack and feed rooms separate keeps the tack from being covered with feed dust. It also allows for putting storage cabinets in each room to hold related items.

You can also put a small refrigerator in the tack room to store animal medications that require refrigeration, as well as a sink for mixing those medications.

The feed room should have a week's worth of grain and a day's worth of hay, with the rest stored in a separate building. (Storing more hay than that in the barn may raise your fire insurance premium; some insurers won't cover barns used to store hay.)

Use the right doors.

For the main barn doors, paired sliding doors that open the width of the center aisle will last longer without sagging, while admitting light even when closed. (If the barn is being built in areas where flies are a problem, hinged screen doors inside will help keep the flies out.) Stall doors should be hinged, and feature wooden lower sections and ventilation bars above.

Provide rooms for your own convenience, too.

A separate utility room to store stall cleaning tools will help keep the tack and feed rooms cleaner, while a restroom will save you and your farmhand the trouble of running back to the house and tracking mud there if you need to go while working in the barn.

II. Answer the following questions.

1. Why is it so important to design a barn properly?
2. What must be done first of all before actual building?
3. What materials are the best for flooring?
4. What are the best sizes of stalls and aisles?
5. Why should feed and tack rooms be kept separately?
6. What new information did you find out in the text?

I. Skim the text.

SAFETY

Silos are hazardous, and people are killed or injured every year in the process of filling and maintaining them. The machinery used is dangerous and with tower silos workers can fall from the silo's ladder or work platform. Several fires have occurred over the years.

Dangers of loading process

Filling a silo requires parking two tractors very close to each other, both running at full power and with live PTO shafts, one powering the silo blower and the other powering a forage wagon unloading fresh-cut forage into the blower. The farmer must continually move around in this highly hazardous environment of spinning shafts and high-speed conveyors to check material flows and adjust speeds, and to start and stop all the equipment between loads.

Preparation for filling a silo requires winching the unloader to the top, and any remaining forage at the base that the unloader could not pick up must be removed from the floor of the silo. This job requires that the farmer work directly underneath a machine weighing several tons suspended fifty feet or more overhead from a small steel cable. Should the unloader fall, the farmer will likely be killed instantly.

Dangers of unloading process

Unloading also poses its own special hazards, due to the requirement that the farmer regularly climb the silo to close an upper door and open a lower door, moving the unloader chute from door to door in the process. The fermentation of the silage produces methane gas which over time will outgas and displace the oxygen in the top of the silo. A farmer directly entering a silo without any other precautions can be asphyxiated by the methane, knocked unconscious, and silently suffocate to death before anyone else knows what has happened. It is either necessary to leave the silo blower attached to the silo at all times to use it when necessary to ventilate the silo with fresh air, or to have a dedicated electric fan system to blow fresh air into the silo, before anyone attempts to enter it.

In the event that the unloader mechanism becomes plugged, the farmer must climb the silo and directly stand on the unloader, reaching into the blower spout to dig out the soft silage. After clearing a plug, the forage needs to be forked out into an even layer around the unloader so that the unloader does not immediately dig into the pile and plug itself again. All during this process the farmer is standing on or near a machine that could easily kill them in seconds if it were to accidentally start up. This could happen if someone in the barn were to unknowingly switch on the unloading mechanism while someone is in the silo working on the unloader.

Often, when unloading grain from an auger or other opening at the bottom of the silo, another worker will be atop the grain "walking it down", to ensure an even flow of grain out of the silo. Sometimes unstable pockets in the grain will collapse beneath the worker doing the walking; this is called grain entrapment as the worker can be completely sunk into the grain within seconds. Entrapment can also occur in moving grain, or when workers clear large clumps of grain that have become stuck on the side of the silo. This often results in death by suffocation.

Dry-material / bin hazards

There have also been many cases of silos and the associated ducts and buildings exploding. If the air inside becomes laden with finely granulated particles, such as grain dust, a spark can trigger an explosion powerful enough to blow a concrete silo and adjacent buildings apart, usually setting the adjacent grain and building on fire. Sparks are often caused by (metal) rubbing against metal ducts; or due to static electricity produced by dust moving along the ducts when extra dry.

The two main problems which will necessitate cleaning in dry-matter silos and bins are *bridging* and *rat-holing*. Bridging occurs when the material interlaces over the unloading mechanism at the base of the silo and blocks the flow of stored material by gravity into the unloading system. Rat-holing occurs when the material starts to adhere to the side of the silo. This will reduce the operating capacity of a silo as well as leading to cross-contamination of newer material with older material. There are a number of ways to clean a silo and many of these carry their own risks. However since the early 1990s acoustic cleaners have become available. These are non-invasive, have minimum risk, and can offer a very cost-effective way to keep a small particle silo clean.

II. Answer the following questions.

1. Is it dangerous to work in the silos?
2. Why are people injured in silos?
3. What dangers may occur while filling the silo?
4. What hazards does unloading process possess?
5. What precaution measures can we take to avoid danger?
6. Would you be afraid of working in the silo?

Учебное издание

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