**ВІДОКРЕМЛЕНИЙ ПІДРОЗДІЛ**

**НАЦІОНАЛЬНОГО УНІВЕРСИТЕТУ БІОРЕСУРСІВ**

**І ПРИРОДОКОРИСТУВАННЯ УКРАЇНИ**

**«НІЖИНСЬКИЙ АГРОТЕХНІЧНИЙ ІНСТИТУТ»**

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**МЕТОДИЧНІ ВКАЗІВКИ**

**З ВИВЧЕННЯ ІНОЗЕМНОЇ МОВИ ЗА ПРОФЕСІЙНИМ СПРЯМУВАННЯМ**

# для студентів факультету інженерії та енергетики

# ОС «Бакалавр»

**спеціальності** 208 «Агроінженерія»

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# Методичні вказівки з вивчення «Іноземної мовиза професійним спрямуванням» для студентів факультету інженерії та енергетики ОС «Бакалавр» спеціальності 208 «Агроінженерія» / Укладач: О.В. Безпала.- Ніжин, 2022.- 48 с.

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Рекомендовано до друку Методичною Радою факультету агротехнологій та економіки ВП НУБіП «Ніжинський агротехнічний інститут». Протокол №3 від 10 листопада 2022 року.

Методична розробка містить базові тексти зі спеціальності, вправи з граматики, матеріал для розвитку усного мовлення та підготовки до складання іспиту з іноземної мови за професійним спрямуванням і для загального розвитку студентів факультету.

Методичні рекомендації укладені на основі текстів з підручника Бородіна*,* Г. І. Англійська мова *[*Текст*] :* Підручник / Г. І. Бородіна*,* А. М. Спєвак, Т. Г. Богуцька. – К. : Вища школа, 1994. – 205 с.

У методичних вказівках представлено тексти для вивчення англійської мови за професійним спрямуванням за спеціальністю 208 «Агроінженерія». До кожного тексту пропонується комплекс вправ, які спрямовані на розвиток лексичних та граматичних навичок читання фахової літератури, а саме:

* встановлення правильної/неправильної відповіді;
* вибір заголовка, запитання або ключового твердження, що передає головну думку тексту;
* реконструкція тексту та заповнення пропусків;
* розташування частин тексту в логічній послідовності;
* вибір правильної граматичної форми (дієслово, іменник, прислівник, тощо)
* заповнення пропусків запропонованими словами;
* завдання на відповідність.

 Метою даного збірника є розвиток умінь англомовного читання текстів пов’язаних з майбутньою спеціальністю студентів факультету інженерії та енергетики.

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|  |  |  |
|  |  |  |

**TOPIC 1**

#### Read the text.

#### WHAT IS AGRICULTURE. THE BRANCHES OF AGRICULTURE

Agriculture is an important branch of economy. Economic growth of any country depends on the development of agriculture which supplies people with food and clothing and industry with raw materials.

The word “agre” is a Latin word. It means the cultivation of fields in order to grow crops.

Now agriculture also includes the use of land to breed farm animals.

We do not know when people began to grow crops. It was many thousand years ago. Now crop production and animal husbandry are highly developed branches of agriculture.

Life is impossible without plants. They play a highly important role in everyday life of people. Plants that are grown by farmers are known as farm crops. They are used for many different purposes. Most of them are used directly as food for people, some are consumed by farm animals, others are used in industry and medicine.

In order to increase crop yields and animal products our farmers apply widely intensive technologies.

There are two main branches of agricultural production – crop production and animal husbandry.

Crop production is the practice of growing and harvesting crops. The most important crops grown by man are grain crops, vegetables and grasses. In order to obtain high yields crops are grown under favourable soil and climatic conditions.

Animal husbandry is a branch of agriculture including the breeding of farm animals and their use. Dairy and beef cattle, hogs, sheep and poultry are widely bred throughout the world. Farm animals are highly important sources of food for man. They are kept for the production of such nutritious products as meat, milk and eggs.

Many crops grown by man are used in feeding livestock. At the same time manure produced by farm animals is an important source for the maintenance of soil fertility. Most of the nutrients taken by plants from the soil are thus returned. Applying manure, farmers improve the physical condition of the soil.

Thus, crop production and animal husbandry are closely connected with each other.

#### Answer the following questions on the text.

1. Why is agriculture very important?
2. What are the two branches of agriculture?
3. What does the Latin word “agre” mean?
4. Is life possible without plants?
5. Where are farm crops used?
6. How do people increase crop yields?
7. What is crop production?
8. What are the main farm crops?
9. What does animal husbandry include?
10. What products do farm animals produce?
11. What is manure used for?
12. ***Finish the sentences.***
13. Agriculture is an important … .
14. Economic growth of any country depends on … .
15. The word “agre” means the cultivation … .
16. Life is impossible … .
17. Farm crops are … .
18. There are two main branches of agricultural production - … .
19. Animal husbandry is a branch of agriculture including the breeding of
20. Crop production is the practice of … .
21. The most important crops grown by man are … .
22. Farm animals are highly important … .
23. Farmers improve the physical condition of the soil …

#### Find the Ukrainian equivalents in the second column.

|  |  |
| --- | --- |
| 1. agriculture | a. урожай |
| 2. crop production | b. галузь |
| 3. consume | c. тваринництво |
| 4. use | d. джерело |
| 5. branch | e. худоба |
| 6. purpose | f. стан |
| 7. yield | g. сільське господарство |
| 8. animal husbandry | h. отримати |
| 9. livestock | i. виробництво |
| 10. obtain | j. рослинництво |
| 11. source | k. мета |
| 12. production | l. споживати |
| 13. condition | m. використовувати |

**TOPIC 2**

1. ***Read the text.***

***AGRICULTURE IN UKRAINE***

For centuries agriculture has been an integral part of everything Ukrainian. The symbols of earth, fertility, plants and sun are everywhere. Traditionally mostly peaceful peasants populated the territory of Ukraine. The ancient practice of living off the soil and agricultural products has made Ukraine one of the world leading producers of grains, vegetable, oils, sugar. If you are looking for the country with favorable conditions for agricultural business there is hardly a better option than Ukraine.

Despite the dramatic changes Ukrainian economy has been passing through during the last decades, the national agricultural sector still holds its strong positions mainly due to its abundant resource base. The major alimentary products exported internationally are grains, rapeseeds, vegetables, sugar, sunflower oil, milk powder and meat.

Before the war 20% of the agricultural exports go to European Union, wich takes up to 17% of the volume. China, Turkey and the United States of America receive 7%, 6% and 4% of food exports from Ukraine respectively.

Sugar and oil processing is another major segment of the Ukrainian economy. Research showed that one out of four people in Ukraine works in agriculture or forestry which speaks expressively enough for the largest European country with 46 million people.

Experts claim only 45-50% of the Ukrainian arable lands are used to cultivate crops while meat and poultry production has drastically decreased over the past decade despite the world’s growing demand for food. Private farmers run their businesses mainly due to legal agreements allowing using the land for the time periods from 5 to maximum 49 years. The economic forecasts proving agricultural output of Ukraine is not likely to be seriously affected by the world financial crisis make this country one of the most attractive for exploration and investments.

#### Answer the questions.

1. What is an integral part of everything Ukrainian?
2. Who populated the territory of Ukraine?
3. What country is a better option for agricultural business?
4. What are the major alimentary products grown in Ukraine?
5. How many people work in agriculture?
6. How many Ukrainian arable lands are used to cultivate crops?

#### Complete the sentences.

1. The ancient practice of living off the soil and agricultural products has made Ukraine one of the world leading producers of …..
2. The national agricultural sector still holds its strong positions mainly due to … .
3. Ukraine exports 20% of the agricultural products while the countries of the European Union… .
4. Another major segment of the Ukrainian economy is …
5. Ukrainian meat and poultry production has drastically decreased over the past decade despite … .
6. Our country is one of the most attractive for … .
7. ***Find the equivalents.***

|  |  |
| --- | --- |
| 1. Plants
 | 1. Обробляти
 |
| 1. Favourable
 | 1. Сільськогосподарські культури
 |
| 1. Mainly
 | 1. Угода
 |
| 1. Sunflower
 | 1. Рослини
 |
| 1. Include
 | 1. Сприятливий
 |
| 1. Volume
 | 1. Головним чином
 |
| 1. Enough
 | 1. Соняшник
 |
| 1. Cultivate
 | 1. Включати
 |
| 1. Crop
 | 1. Обсяг
 |
| 1. Agreement
 | 1. Достатньо
 |

#### Read the text again. Mark the statements (+) True, (-) False or (?) if there is no information.

1. Experts claim only 55-60% of the Ukrainian arable lands are used to cultivate crops while meat and poultry production has drastically decreased over the past decade despite the world’s growing demand for food.
2. The ancient practice of living off the soil and agricultural products has made Britain one of the world leading producers of grains, vegetable, oils, sugar.
3. The symbols of earth, fertility, plants and sun are everywhere.
4. Sugar and oil processing is another major segment of the Ukrainian economy.
5. There are two main branches of agricultural production – crop production and animal husbandry.
6. China, Ukraine and the United States of America receive 7%, 6% and 4% of food exports from Britain respectively.

**TOPIC 3**

#### Read the text.

##### ***OPERATING AND MAINTAINING TRACTORS***

1. A tractor must be well maintained and operated so that the need for repair is reduced to a minimum. Repairs are expensive and there may be difficulties in getting the necessary parts and installing them.
2. A tractor operator should be able to operate, adjust and maintain his tractor. He should have knowledge and skill necessary for doing unspecialized tractor repair. The more specialized repair such as reboring cylinders, replacing worn parts is to be done by a qualified mechanic.
3. Most tractor service work includes the engine, so the repair and adjustment information on engines is useful.
4. A clutch is a disk mechanism operating on a friction basis. A clutch permits the gradual application of power from the engine to the load. It permits the disengagement of the engine from the drive mechanism for starting, for shifting of gears and for idling.

Clutch should be check periodically, since the pedal linkage wears with use and may need adjustment. A tractor operator must know the method of adjusting the linkage. Lack of clearance of the clutch pedal may reduce power and cause overheating.

1. When a tractor’s transmission needs repairing, special equipment is necessary. Several checks on the transmission can be made by the operator of a tractor.
	* If oil leaks are present the gaskets need tightening or replacing.
	* The axle bearing is to be examined by lifting each wheel up and down with a bar and by pushing and pulling each wheel side wards.
	* Rear wheel brakes should be checked for wear and for the adjustment needed.
	* The belt pulley bearing and drive gear need checking for wear. The belt pulley mechanism needs regular cleaning and servicing, a special lubrication device being used for its lubrication.
	* New lubricant must be added to maintain the oil at its proper level.
	* After draining the transmission it is flushed with kerosene and refilled with transmission lubricant.
2. The belt pulley is usually located in the right side or at the back. On some tractors the belt pulley may or must be removed when the tractor is not being used for belt work.
3. The power take – off shaft on a tractor is powered directly from the engine and may be used to operate machines. It is usually controlled by a separate disk clutch which is operated hydraulically. Thus, the motion of the tractor does not affect the speed of the PTO – shaft and starting or stopping the PTO – shaft does not affect the speed of the tractor. One must stop the shaft before dismounting from a tractor.
4. The steering mechanism is to be examined for wear and for repairs and adjustment needed. If the steering is of the hydraulic type, there is no mechanical connection between the steering wheel and the front axle. If the steering mechanism has a mechanical linkage, the linkage should be lubricated and checked for wear periodically.
5. Tractors are often equipped with brakes that are hydraulically operated. The tractor operator has to inspect the brake mechanism before adjusting the hydraulic break valve and the brake pedals.
6. All trailing implements are often attached to the drawbars being equipped with different types of drawbars. The tractor operator must follow instructions regarding hitching and adjusting the drawbar.
7. The proper care and preventive maintenance of a tractor are very important so that break downs and expensive repairs are as rare as possible.
8. ***Find in the text English equivalents to the following words and phrases.***

|  |  |
| --- | --- |
| тракторист | перемикання передач |
| керувати | присутнє витікання мастила |
| регулювати і обслуговувати трактор | вісь підшипника |
| неспеціалізований ремонт трактора | гальма заднього колеса |
| заміна зношених частин | підшипник шківа ременя |
| поступове застосування | диск зчеплення |
| кермо | рульовий механізм |

1. ***Complete the sentences using the words below.***

**a.** **large; b. clutches; c. multipurpose; d. axle; e. special; f. four-wheel; g. farm.**

1. The classic ..… tractor is a simple open [vehicle](http://en.wikipedia.org/wiki/Vehicle), with two very large driving wheels on an ..… below and slightly behind a single seat.
2. Some ..… drive tractors have the standard "two large, two small" configuration typical of smaller tractors, while some have four …… , powered wheels.
3. Larger types of modern farm tractors include articulated four wheel or eight-wheel drive units with one or two power units which are hinged in the middle and steered by hydraulic.…… or pumps.
4. A farm tractor is …… power unit.
5. The area to be cultivated, the type of crops grown and the soil – all require a tractor of …..design.

**TOPIC 4**

#### Read the text.

***INTERNAL COMBUSTION ENGINE***

Internal combustion is the process of burning of fuel within the engine. The fuel burns within the engine and provides forces. These forces provide the engine power.

Internal combustion engines have stationary, rotary and reciprocation parts.

Stationary Engine Parts The stationary engine parts are the cylinder block, the crankcase and the cylinder head.

The cylinder block is one of the basic parts of the engine. The process of combustion takes place within the cylinders. Tractor engines have some cylinders.

The crankcase is a part of the cylinder. It supports the crankshaft and the camshaft and keeps the lubricating oil near the engine parts.

The cylinder heads close the cylinders. The cylinders and the cylinder heads form the combustion chambers.

The burning of fuel takes place within the combustion chambers.

Rotary Engine Parts Rotary engine parts are the crankshaft, the flywheel and the camshaft.

The crankshaft changes reciprocating motion of pistons to rotary motion. The camshaft opens the valves of the engine.

1. ***Complete the sentences using the words below.***

***Cylinder heads, camshaft, burning, crankcase, crankshaft, cylinder block***

1. The……..changes reciprocating motion of pistons to rotary motion.
2. The…......opens the valves of the engine.
3. The……..is one of the basic parts of the engine.
4. The cylinders and the……form the combustion chambers.
5. The……..of fuel provides forces.
6. The………keeps the lubricating oil near the engine parts.
7. ***Match the English and Ukrainian equivalents of word–combinations.***

|  |  |
| --- | --- |
| 1. Cylinder block
 | 1. колінчастий вал і розподільчий вал
 |
| 1. Piston rings
 | 1. мастило
 |
| 1. Combustion chamber
 | 1. обертальний рух
 |
| 1. Intake valves
 | 1. циліндрична головка
 |
| 1. Engine parts motion
 | 1. зворотньо – поступальний рух
 |
| 1. Fuel combustion process
 | 1. енергія двигуна внутрішнього згорання
 |
| 1. Internal combustion engine power
 | 1. процес згорання пального
 |
| 1. Reciprocating motion
 | 1. рухомі частини двигуна
 |
| 1. Cylinder head
 | 1. впускні клапани
 |
| 1. Rotary motion
 | 1. камера згорання
 |
| 1. Lubricating oil
 | 1. поршневі кільця
 |
| 1. The crankshaft and the camshaft
 | 1. циліндричний блок
 |

**TOPIC 5**

#### Read the text.

##### ***DIESEL STARTING SYSTEM***

Some diesels use an additional gasoline engine for starting. The small engine is attached to the diesel by means of clutch. The gasoline engine is known to crank the diesel until the diesel starts. Exhaust from the starting engine is used to heat the intake manifold of the diesel engine.

After a short warm – up period, the compression lever is returned so that the diesel will start.

Most farm tractor diesels use electric starting motors similar to those used in gasoline engine tractors. They are operated from the battery on the tractor. In warm weather starting is usually not a problem, but for cold weather starting there are several starting aids. Some tractors are equipped with electric plugs to heat the intake manifold warms the air entering the engine so that the engine will start when cranked by the starter.

To start an engine either may also be used. Either has a low ignition point so that the heat of compression in cold weather is enough to ignite the either. This will then ignite the fuel charge.

Fuel is highly explosive and must be injected into the engine only when the starter is cranking the engine.

Engine – block heaters can also be used to start the diesel engine. These heaters are usually electrically operated and heat either the oil in the crankcase or the engine coolant.

#### Read the text again. Mark the statements (+) True, (-) False or (?) if there is no information.

1. The small engine is attached to the diesel by means of clutch connection.
2. After a long warm – up period the diesel will start.
3. Most farm tractor diesels use electric starting motors.
4. In warm weather starting is usually a problem, because there are several starting aids.
5. Some tractors are equipped with electric plugs and a crank.
6. The heat of compression in cold weather is enough to ignite the diesel engine.

#### Find the English equivalents to the following phrases.

1. додатковий бензиновий двигун для запуску
2. нагрівати впускний патрубок
3. компресійний рівень
4. електричні пускові двигуни
5. електричні свічки
6. низька точка запалювання
7. паливний заряд
8. високо вибуховий
9. двигунні пічки
10. двигунний охолоджувач
11. ***Answer the questions.***
12. Which type of engine has an additional gasoline engine for starting?
13. By what a way is the small engine attached to the diesel?
14. What is used to heat the intake manifold of the diesel engine?
15. Do most farm tractor diesels use electric starting motors similar to those used in gasoline engine tractors?

**TOPIC 6**

#### Read the text and translate it into Ukrainian.

##### ***AGRICULTURAL MACHINERY***

The system of food and fiber production in agriculture is highly mechanized. These mechanized systems extend from initial tillage of the soil through planting, agricultural practices during the growing season, protection from pests, harvesting, livestock feeding and delivery for processing.

The tendency has been to large self – propelled special – purpose machines; in tillage the tendency has been to large four - , six – or eight wheel or crawler tractors which trail high – capacity plows or discs and alsosubsoilers used to loosen compacted soils.

Farm machines have undergone changes and improvements to become the modern and effective agricultural power units of today. New developments have made them more efficient, versatile, safe, convenient and powerful. Continuous improvements in design produced highly mechanized machinery with hydraulic linkage and control system.

While many implements such as plows, cultivators and fertilizer spreaders are usually mounted on tractors, there are many that are too large and are trailer behind and controlled and operated hydraulically. Some multi - purpose machines are used where a high degree of precision is needed for precision tillage, planting, bed shaping and fertilizing. They have to till the soil, form seedbeds, form irrigation furrows, either … plant the seed or cultivate the crop and apply fertilizer in one pass through the field. The use of aircraft has revolutionized many farming operation: fertilizers and herbicides, are applied from the air.

Farming operation includes plowing, harrowing, planting, tilling, harvesting, drying and processing crops.

Soil preparation for planting usually involves plowing and harrowing. Plowing is often the most important farming operation, not only because of the basic nature of the work but also from the standpoint of power required.

The essential feature of plowing by moldboard is that a layer of soil is separated from the underlying subsoil and is turned, so that any vegetation or manure present on the surface is buried and a layer of soil from below is brought to the surface where it is exposed to the action of weathering agents and of agricultural implements.

The harrowing of the plowed soil is designed to break clods, level the surface and destroy weeds. A wide variety of implements are classified as harrows, the most common kinds being the disc harrow and the knife harrow. Previously, the function of seedbed preparation was performed entirely by the implements classified as harrows. With the introduction of power farming, it is now performed in large part by field cultivators, rotary tillers and various designs of rollers. Power – driven rotary tillers perform the function of both plowing and harrowing.

#### Answer the questions.

1. What kinds of agricultural machines do you know?
2. What information about agricultural machines do you know?
3. What implements do you know?
4. What farming operations do you know?
5. What farming operations does the soil preparation involve?
6. What kinds of harrow do you know?
7. ***Find the Ukrainian equivalents.***

|  |  |
| --- | --- |
| 1. Fiber production –
2. Initial tillage –
3. Growing season –
4. Livestock feeding –
5. high – capacity plows –
6. subsoilers –
7. versatile –
8. convenient –
9. plow –
10. cultivator –
11. fertilizer spreader –
12. to till the soil –
13. form seedbeds –
14. formirrigation furrows –
15. moldboard –
16. a layerof soil –
17. manure –
18. vegetation –
19. weather in gagents –
20. to break clods –
21. knife harrow –
 | 1. ножова борона
2. розбивати грудки
3. обробляти землю
4. формувати грядки
5. рослинність
6. плуг
7. гній
8. зручний
9. відвал
10. розкидач добрив
11. культиватор
12. вегетаційний період
13. шар грунту
14. формувати поливні борозни
15. глибокі розрихлювачі
16. годівля тварин
17. універсальний
18. плуги високої ємності
19. початкова обробка
20. вивітрювання компонентів
21. виробництво штучного волокна
 |

1. ***Complete the sentences with the proper words from the brackets and translate them into Ukrainian.***
2. The system of food and fiber production in agriculture is highly **(specialized/ mechanized/qualified**) .
3. Many (**implements/transport/ mechanisms)** such as plows, cultivators and fertilizer spreaders are usually mounted on tractors.
4. Farming operation includes plowing, harrowing, planting, tilling, harvesting, drying and processing **(plants/soils/crops).**
5. Soil preparation for **(planting/irrigation/tilling)** usually involves plowing and harrowing.
6. The **(plouging /disking/harrowing)** of the plowed soil is designed to break clods, level the surface and destroy weeds.

**TOPIC 7**

* 1. ***Read the texts.***

***TEXT 1 A ROUND BALER***

A **baler** is a piece of [farm machinery](http://en.wikipedia.org/wiki/Farm_machinery) used to compress a cut and raked crop (such as [hay,](http://en.wikipedia.org/wiki/Hay) [cotton,](http://en.wikipedia.org/wiki/Cotton) [straw,](http://en.wikipedia.org/wiki/Straw) or [silage](http://en.wikipedia.org/wiki/Silage)) into compact bales that are easy to handle, transport, and store. Several different types of balers are commonly used, each producing a different type of bale – rectangular or cylindrical, of various sizes, bound with [twine](http://en.wikipedia.org/wiki/Twine), [strapping,](http://en.wikipedia.org/wiki/Strapping) [netting,](http://en.wikipedia.org/wiki/Netting) or [wire](http://en.wikipedia.org/wiki/Baling_wire).

The most common type of baler in industrialized countries today is the large round baler. It produces cylinder-shaped "round" or "rolled" bales. Grass is rolled up inside the baler using rubberized belts, fixed rollers, or a combination of the two. When the bale reaches a predetermined size, either netting or [twine](http://en.wikipedia.org/wiki/Twine) is wrapped around it to hold its shape. The back of the baler swings open, and the bale is discharged. The bales are complete at this stage, but they may also be wrapped in plastic sheeting by a [bale wrapper,](http://en.wikipedia.org/wiki/Bale_wrapper) either to keep hay dry when stored outside or convert damp grass into [silage.](http://en.wikipedia.org/wiki/Silage)

##### ***TEXT 2 A PLANTER***

**A planter** is an [agricultural](http://en.wikipedia.org/wiki/Agriculture) [farm implement](http://en.wikipedia.org/wiki/List_of_agricultural_machinery) towed behind a [tractor,](http://en.wikipedia.org/wiki/Tractor) used for [sowing](http://en.wikipedia.org/wiki/Sowing) crops through a field. It is connected to the tractor with a draw-bar, or a [three-point hitch](http://en.wikipedia.org/wiki/Three-point_hitch). Planters lay the seeds down in precise manner along rows. Seeds are distributed through devices called row

units. The row units are spaced evenly along the planter. Planters vary greatly in size, from 1 row to 48, with the biggest in the world being the 48-row [John Deere DB120.](http://en.wikipedia.org/wiki/John_Deere_DB120) The space between the row units also vary greatly. The most common row spacing in the United States today is 30 inches.

On smaller and older planters, a marker extends out to the side half the width of the planter and creates a line in the field where the tractor should be centered for the next pass. The marker is usually a single [disc harrow](http://en.wikipedia.org/wiki/Disc_harrow) disc on a rod on each side of the planter. On larger and more modern planters, GPS navigation and auto-steer systems for the tractor are often used, eliminating the need for the marker. Some precision farming equipment such as Case IH AFS uses GPS/RKS and computer controlled planter to sow seeds to precise position accurate within 2 cm. In irregular shaped field, the precision farming equipment will automatically hold the seed release over area already sewn when the tractor has to run overlapping pattern to avoid obstacles such as trees.

Older planters commonly have a seed bin for each row and a fertilizer bin for two or more rows. In each seed bin plates are installed with a certain number of teeth and tooth spacing according to the type of seed to be sown and the rate at which the seeds are to be sown. The tooth size (actually the size of the space between the teeth) is just big enough to allow one seed in at a time but not big enough for two. Modern planters often have a large bin for seeds that are distributed to each row.

**Vocabulary: baler** (a bale) – тюковязальник (тюк)**, planter**- сівалка

* 1. ***Complete the sentences with “planter” or “baler”. Translate them into Ukrainian.***
* A **1** is a piece of [farm machinery](http://en.wikipedia.org/wiki/Farm_machinery) used to compress a cut and raked crop into compact bales.
* A **2** is an [agricultural](http://en.wikipedia.org/wiki/Agriculture) [farm implement](http://en.wikipedia.org/wiki/List_of_agricultural_machinery) , used for [sowing](http://en.wikipedia.org/wiki/Sowing) crops through a field.
* **3** vary greatly in size.
* Different types of **4** produce the different type of bales.
* Older **5** commonly have a seed bin for each row and a fertilizer bin for two or more rows.
* The **6** has a single disc harrow on its side.

**TOPIC 8**

1. ***Read the text.***

***TRACTORS***

Power is supplied. Power can be supplied. Power can be supplied in various forms. The tractor can pull machines. The tractor can push machines. It can drive machines by means of a belt. It can drive machines by means of a belt from a belt pulley. The tractor supplies power to machines from the power-takeoff shaft.

The power is measured. It is measured by kilowatts or horse powers. Tractors are classified according to the power. Tractors are classified according to the power produced.

Crawlers are used for heavy operations. Crawlers or track laying tractors must be used for heavy operations. Large crawlers must be used for heavy operations. Crawlers have tracks. Tracks have a grip. Tracks have the grip on the ground. Tracks increase the grip of the tractor on the ground. The crawlers are able to push or pull heavy loads and machines.

The tractors may have tires. The tires can be placed farther apart. The tires can be placed closer or farther apart according to the distance between the rows. We are able to place tires closer or farther apart according to the distance between the rows that must be cultivated. Wheeled tractors may have implements and machines on them. Implements are mounted on the tractor. This is done by the three-point linkage.

There are tractors with diesel or gasoline engines. The diesel engine will use less fuel than the gasoline engine for the same work done. The fuel should be clean. The oil must be changed regularly. It is necessary to change the oil regularly. It is necessary to change the oil regularly because it provides tractor' s useful work.

#### Fill in the gaps with proper words and word-combinations.

1. The tractor can supply power to the machines from the **(power-take-off shaft, belt pulley, three-point linkage**).
2. The tyres can be placed closer or farther apart… **(according to, by means of)** distance between the rows.
3. The crawlers are usually **(small, large, various).**
4. The tractor can **(increase, pull, do)** machines.
5. The crawlers are able to **(produce, push, drive)** heavy loads.
6. Implements are mounted on the tractor by means of ..**(a belt pulley, tyres, a three-point linkage).**
7. The fuel should be **(heavy, clean)** and have no water.

**TOPIC 9**

#### Read and translate the text.

##### ***PLOUGHS***

There are various forms of the plough. The plough is an implement used for soil cultivation. It has become the implement used for soil preparation. The plough has been used for many centuries. It has been used for preparation of seedbeds.

A plough is an implement with one or more mould-boards. Mould boards cut the soil. Mould boards cut and turn the soil. They cut soil slices. They cut furrow slices. Both mounted and semi- mounted types of ploughs are being produced. A semi-mounted plough is not lifted off the ground. The number of mould boards is not the same on different ploughs. It depends on the type of soil and the tractor size.

There are three types of ploughs, conventional plough being one of them. Some trailed models of conventional ploughs are in common use. Most reversible ploughs are mounted, but some of the larger models are semi-mounted.

Disc ploughs have large rotating discs. The plough may have a disc coulter. The plough has a body. It also has legs. The plough body is attached to legs. Legs are bolted to the frame. The base of a plough body is called the frog. The share cuts the bottom of the furrow slice.

There are many types of mould boards, each producing its special surface.

There are three main types of a plough. The main types of plough body are general-purpose type and digger type. The digger type is used for deep ploughing. It is used in soil preparation for root crops. Digger bodies have a higher power requirement than the general-purpose type.

The plough has been used in its different forms for many centuries. It has become the main implement used for the preparation of seedbeds.

A plough is an implement with one or more mould-boards which cut and turn the soil.

Modern ploughs are commonly fully mounted on the tractor hydraulic system.

Some are semi-mounted with the front supported by the tractor hydraulic linkage and the rear by one or more wheels.

1. ***Write down 10 verbs from the text and make Past Indefinite and Past Participle forms.***

Cut-cut-cut

1. ***Translate the sentences. Pay attention to different forms of the verb ‘have’.***
2. A modern plough has up to six mould boards.
3. When the piston has reached the bottom of its stroke the inlet valve closes.
4. Both conventional and reversible ploughs have been produced by our plant.
5. The driver has to attach the plough correctly.
6. The pneumatic tyres have become so efficient and so popular that they are the standard part of all wheeled tractors.
7. Modern tractors usually have a four-stroke engine.
8. We have to set all mould boards at the same angle.

**TOPIC 10**

#### Read the text. Match the paragraphs (1 – 5) with the proper headings (A – E)

* 1. *The fuel system of the diesel engine*
	2. *The best condition to run*
	3. *The starting system*
	4. *Operation of diesel engine*
	5. *The reason of inefficient running of diesel engine.*
1. The diesel engine is known to be almost the same as the petrol but because of higher pressures it contains stronger parts. The method of operation of the diesel differs from that of other engine. Instead of fuel - air engines air mixture employed in other engines air only is taken to the cylinder. The air inside the cylinder is compressed and its temperature is rises. It results in the ignition of the fuel charge injected into it. Thus the fuel is ignited in the diesel engine.
2. The diesel fuel system operates under two pressure levels. The low pressure part of the system contains the fuel tank, fuel pumps and fuel filters. The high pressure parts of the system contain the injection pump, the high pressure lines leading to the injection nozzles.
3. We know some diesels to employ auxiliary gasoline engines for starting. These engines are used to crank the diesel until it starts. Most farm tractor diesels use electric starting motors similar to those used on gasoline engine tractors. They are operated from the battery on the tractor.
4. In diesel engines the fuel injection system is found to be the most usual cause of trouble. A smoky exhaust in a diesel engine is believed to be the sign of unsatisfactory work. If the engine runs for long time in this condition, the piston valves and injection nozzle become coated with carbon and this is sure to cause inefficient running and maу lead to more serious trouble.
5. Diesel engines are supposed to run best when the temperature of the cooling water reaches 75– 850C.

#### Answer the questions:

1. What’s the diesel engine?
2. What is the method of operation of the diesel engine?
3. How does the fuel diesel system operate?
4. What is used for starting in most diesel engines?
5. What is the sign of the unsatisfactory work of the diesel engine?

**TOPIC 11**

##### ***Read the text.***

##### ***APPLICATION AND VARIATIONS OF TRACTORS***

A variety of specialty farm tractors have been developed for particular uses. These include "row crop" tractors with adjustable tread width to allow the tractor to pass down rows of corn, tomatoes or other crops without crushing the plants, "wheatland" or "standard" tractors with fixed wheels and a lower center of gravity for plowing and other heavy field work for broadcast crops, and "high crop" tractors with adjustable tread and increased ground clearance, often used in the cultivation of cotton and other high-growing row crop plant operations, and "utility tractors", typically smaller tractors with a low center of gravity and short turning radius, used for general purposes around the farmstead. Many utility tractors are used for nonfarm grading, [landscape](http://en.wikipedia.org/wiki/Landscape_maintenance) [maintenance](http://en.wikipedia.org/wiki/Landscape_maintenance) and excavation purposes, particularly with loaders, backhoe heavy fields, pallet forks and similar devices. Small garden or [lawn tractors](http://en.wikipedia.org/wiki/Lawn_mowers) are designed for suburban and semirural gardening and landscape maintenance also exist in a variety of configurations.

Some farm-type tractors are found elsewhere more often than on farms: with large universities' gardening departments, in public parks. These are often fitted with grass (turf) tires which are less damaging to soft surfaces than agricultural tires.

[Space technology](http://en.wikipedia.org/wiki/Space_technology) has been incorporated into [agriculture](http://en.wikipedia.org/wiki/Agriculture) in the form of [GPS](http://en.wikipedia.org/wiki/GPS) devices, and robust on- board [computers](http://en.wikipedia.org/wiki/Computers) installed as optional features on farm tractors. These technologies are used in modern, [precision farming](http://en.wikipedia.org/wiki/Precision_farming) techniques. The [spin-offs](http://en.wikipedia.org/wiki/Government_spin-off) from the [space race](http://en.wikipedia.org/wiki/Space_race) have actually facilitated [automation](http://en.wikipedia.org/wiki/Automation) in plowing and the use of auto steer systems ([drone](http://en.wikipedia.org/wiki/Unmanned_ground_vehicle) on tractors that are manned but only steered at the end of a row), the idea being to neither overlap and use more fuel nor leave streaks when performing jobs such as [cultivating.](http://en.wikipedia.org/wiki/Cultivate) Several tractor companies have also been working on producing a [driverless tractor.](http://en.wikipedia.org/wiki/Driverless_tractor)

The durability and engine power of tractors made them very suitable for engineering tasks. Tractors can be fitted with engineering tools such as [dozer blades](http://en.wikipedia.org/wiki/Bulldozer), [buckets](http://en.wikipedia.org/wiki/Loader_%28equipment%29), [hoes](http://en.wikipedia.org/wiki/Hoe_%28equipment%29), rippers, etc. The most common attachments for the front of a tractor are dozer blades or buckets. When attached to engineering tools, the tractor is called an [engineering vehicle.](http://en.wikipedia.org/wiki/Engineering_vehicle)

#### Find the Ukrainian equivalents.

|  |  |
| --- | --- |
| 1. Adjustable tread width
 | 1. радіус повороту
 |
| 1. increased ground clearance
 | 1. збільшений дорожній просвіт
 |
| 1. turning radius
 | 1. регульована ширина протектора
 |
| 1. backhoes
 | 1. екскаватор
 |
| 1. pallet forks
 | 1. кермові системи
 |
| 1. auto - steer systems
 | 1. вила для піддонів
 |

1. ***Match the words from the right column with the words from the left column***

|  |  |
| --- | --- |
| 1. To pull
 | 1. a cargo car
 |
| 1. To tow
 | 1. a rototiller
 |
| 1. To disc
 | 1. stubble (стерня)
 |
| 1. To plant
 | 1. the fruit trees
 |
| 1. To plow
 | 1. a heavy field
 |

1. ***Match the words with their definitions.***

|  |  |
| --- | --- |
| 1. A tractor plows a field using
 | 1. a rototiller
 |
| 1. A tractor pulls
 | 1. a pump
 |
| 1. A farm tractor used to power …for irrigating a plot of land
 | 1. a [chisel plow.](http://en.wikipedia.org/wiki/Chisel_plow)
 |
| 1. A garden tractor tows
 | 1. a cargo cart
 |
| 1. A tractor with … for grain
 | 1. a [chaser bin](http://en.wikipedia.org/wiki/Chaser_bin)
 |
| 1. A… tractor performs various earth works.
 | 1. backhoe-loader
 |

1. ***Name constructive parts of a tractor.***
	* 1. exhaust stack –
		2. steering wheel -
		3. fender –
		4. driving wheеl –
		5. tread bar -
		6. headlight -
		7. counterweight -
		8. engine compartment -
		9. rim -
		10. step -
			1. обід
			2. вихлопна труба
			3. передні фари
			4. кермо
			5. привідне колесо
			6. протектор
			7. східця
			8. крило
			9. двигунний відсік
			10. противага

**TOPIC 12**

#### Read the text. Match paragraphs 1 – 12 with options A - L

##### ***SELECTING TRACTORS***

1. Tractor power is used extensively on farms. The types of tractor usually employed for work in agriculture include from the row – crop to general – purpose tractors standard wheel types, utility tractors and tracklayers.
2. A tractor should be selected after considering the advantages and disadvantages of different types. Original cost, adaptability, soil conditions, work to be done and economy are factors to consider in selecting a tractor.
3. Efficiency of the tractor selected also depends on operating, maintaining and adjusting it by an operator. Row crop type is especially designed for cultivating row crops. Row crop tractors are known to have been used since 1924.
4. Because of great number of row crops, different width between rows, low – or high - growing plants row – crop tractors must be adaptable to various field conditions and do many field operations. These tractors are usually called general – purpose tractors. Using three types of front - wheel equipment increases efficiency of row – crop tractors.
5. The distance between the centers of the rear wheels is also adjustable in row – crop models. Thus the tractor can be adapted to low – or high - growing plants and to various row widths; wheels will run between rows and cause a minimum of plant damage.
6. There are some other features common to row – crop models. By applying high vertical clearance (called cultivating clearance) a tractor operator can work in high – growing crops. Row – crop models are provided with the differential brakes. When one break is used it retards or stops one wheel and other wheel causes the tractor to make a short turn. Cultivating often requires short turns at the row ends.
7. Equipment for row – crop models usually includes belt pulley drawbar, power – take – off and hydraulic system. Engine power of tractors may be from about 20 hp to more than 100hp. The row

– crop tractor is more often used than any other type.

1. Standard wheel type is the oldest type. It is not designed for cultivating row crops, but is most useful for supplying power to trailed implements.

Four - wheel standard tractors with engine of 200 hp or more operate large implements or combinations of implements. In some models the front wheels are driven by hydraulic power.

1. Utility tractors may be with either fixed or adjustable tread. With adjustable tread they can be used for a wide variety of row crops. These tractors have less vertical clearance than the row - crop models and so they have more stability. Utility tractors are widely used for open field work – plowing and haying operations. Commonly used models have engines from 35 to 65 hp.
2. Tracklayers for agriculture have a lot of uses. Diesel engines are popular in tracklayers. Tracklayers are widely employed for field work requiring heavy loads. They are good on soft, wet, swampy ground. Preparing ground for irrigation and maintaining irrigation systems are tasks for which these tractors are designed.
3. Almost any tractors can be used in orchards. But tractors specially designed for this work are more useful. Wheel tractors for orchards are furnished with narrow tread and short wheel base. Most orchard tractors have a low center of gravity which increases tractor stability.
4. Lawn and garden tractors are small wheel type tractors. They are widely used in parks and gardens. Farmers think them useful for farm operations that require special accuracy – thinning and weeding, for example.
5. Belt pulley drawbar, power – take – off and hydraulic system is the equipment of the row – crop tractor.
6. Four - wheel tractors are most useful for supplying power to trailed implements.
7. These tractors have less vertical clearance and can be used for a wide variety of row crops.
8. They are good on soft, wet, swampy ground.
9. These tractors are widely used in parks and gardens.
10. These tractors are good for orchards.
11. All types of tractors are widely used on farms.
12. There are main factors which are considering in selecting a tractor.
13. Efficiency is one of the characteristics of the tractor power.
14. General purpose tractors do many field operations.
15. Row – crop tractors adapted to low – or high – growing plants and to various row width.

**L** Row – crop tractor has the differential brakes.

#### Answer the questions:

1. Where are different types of tractors employed?
2. What advantages and disadvantages should be considered in selecting tractors?
3. What determines the efficiency of the tractor?
4. What tractors are usually called general – purpose tractors?
5. Can the row crop tractor be adaptable to various field conditions and many field operations?
6. What is the equipment of the row crop tractors?
7. What type of a tractor is the oldest?
8. What may be the utility tractor?
9. What is the main application of the utility tractor?
10. What other kinds of tractors do you know?

**TOPIC 13**

#### Read the text and translate it into Ukrainian.

Heat is being produced in the combustion chamber of the engine as the fuel is being burned.

Some of this heat goes into useful power, some is lost through the exhaust gases, and some must be removed by cooling system of the engine. The cooling system removes about one – third of the heat produced. The heat passes through the cylinder walls into the coolant or into the air. The engine temperature must be controlled.

An engine equipped with a liquid – cooling system has a water jacket around the cylinder walls and the cylinder head of the engine. The water jacket is connected to the radiator by passages. The engine is cooled by coolant circulating from the water jacket through the radiator from top to bottom and back through the water jacket from bottom to top. The air flowing past the radiator takes heat from the coolant. The fan keeps a constant flow of air past the radiator and helps in the cooling process.

Two types of liquid – cooling systems: the thermosyphon system and the forced – circulation system are used on farm tractors. The thermosyphon system is a system in which the circulation of coolant is caused by difference in temperature between the coolant in the water jacket and that circulating in the other parts of the cooling system.

The forced – circulated system has all the parts that are in the thermosyphon system but it also has a water pump and a thermostat. The water pump is used for continuous circulation of the coolant. The thermostat controls the flow of the coolant through the cooling system and regulates the temperature.

The radiator has tubes through which the coolant is circulating. The fan behind the radiator removes heat from coolant.

Small stationary engines are air – cooled. Air – cooling system forces air past the hottest of the engine block. The air is forced through the system by a fan. It is necessary to keep the inlet to the fan clean because a reduced air flow will cause the engine overheating.

1. ***Find the English equivalents to the phrases below***
2. камера згорання;
3. вихлопні гази;
4. циліндричні стінки;
5. температура двигуна;
6. водяний жакет;
7. циліндрична головка двигуна;
8. циркуляція охолоджувача;
9. постійний потік повітря;
10. процес охолодження;
11. водяна помпа;
12. маленькі стаціонарні двигуни;
13. перегрівання двигуна.

#### Answer the questions:

* 1. What is the main aim of the cooling system of the engine?
	2. What are the main elements of the liquid cooling system?
	3. What are the two types of liquid cooling system in the engine?
	4. What are the main parts of the forced - circulated cooling system?
	5. What kind of engine has the air - circulated cooling system?

#### Match the English and Ukrainian equivalents

|  |  |
| --- | --- |
| 1. Hose
 | 1. *трубки*
 |
| 1. Drain petcock
 | 1. *термосифонна система*
 |
| 1. The forced – circulated system
 | 1. *повітряна система охолодження*
 |
| 1. Useful power
 | 1. *охолоджувач*
 |
| 1. The coolant
 | 1. *корисна потужність*
 |
| 1. A liquid –cooling system
 | 1. *вентилятор*
 |
| 1. Fan
 | 1. *охолоджувач*
 |
| 1. Thermosyphon system
 | 1. *спускний кран*
 |

1. ***Сomplete the sentences using the words in the brackets. Translate them into Ukrainian.***
2. An engine equipped with a liquid – cooling system has a water jacket around the cylinder……….**(*valve, walls, rings*)** and the cylinder head of the engine.
3. The thermosyphon system is a system in which the circulation of **(*coolant, fuel, oil****)* is caused by difference in temperature between the coolant in the water jacket and that circulating in the other parts of the **(*ignition, fuel, cooling***) system.
4. The forced – circulated system has all the parts that are in the thermosyphon system but it also has a **(*oil, water, high pressure***) pump and a thermostat.

**TOPIC 14**

### *Read the text and translate it into Ukrainian. Match the headings with the proper paragraphs.*

|  |  |
| --- | --- |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |

1. A cultivator in the small-scale gardening
2. A way of attachment of a cultivator on the tractor
3. Some sense of cultivator
4. The goal of the cultivating
5. A cultivator looks like a chisel plow.

##### ***CULTIVATOR***

* 1. A cultivator is any of several types of [farm implement](http://en.wikipedia.org/wiki/List_of_agricultural_machinery) used for secondary [tillage.](http://en.wikipedia.org/wiki/Tillage) One sense of the name refers to frames with teeth (also called shanks) that pierce the soil as they are dragged through it [linearly.](http://en.wiktionary.org/wiki/linear#Adjective) Another sense refers to machines that use [rotary motion](http://en.wikipedia.org/wiki/Rotary_motion) of disks or teeth to accomplish a similar result. The rotary tiller is a principal example.
	2. Cultivators stir and pulverize the soil, either before planting (to [aerate](http://en.wikipedia.org/wiki/Aeration) the soil and prepare a smooth, loose [seedbed](http://en.wikipedia.org/wiki/Seedbed)) or after the crop has begun growing (to kill [weeds](http://en.wikipedia.org/wiki/Weed)—controlled disturbance of the topsoil close to the crop plants kills the surrounding weeds by uprooting them, burying their leaves to disrupt their [photosynthesis](http://en.wikipedia.org/wiki/Photosynthesis), or a combination of both). Unlike a [harrow,](http://en.wikipedia.org/wiki/Harrow_%28tool%29) which disturbs the entire surface of the soil, cultivators are designed to disturb the soil in careful patterns, sparing the crop plants but disrupting the weeds.
	3. Cultivators of the toothed type are often similar in form to [chisel plows](http://en.wikipedia.org/wiki/Chisel_plow), but their goals are different. Cultivator teeth work near the surface, usually for weed control, whereas chisel plow shanks work deep beneath the surface, breaking up [hardpan](http://en.wikipedia.org/wiki/Hardpan). Consequently, cultivating also takes much less power per shank than does chisel plowing.
	4. Small toothed cultivators pushed or pulled by a single person are used as [garden tools](http://en.wikipedia.org/wiki/Garden_tool) for small-scale gardening, such as for the household's own use or for small [market gardens](http://en.wikipedia.org/wiki/Market_garden). Similarly sized rotary tillers combine the functions of harrow and cultivator into one multipurpose machine.
	5. Cultivators are usually either [self-propelled](http://en.wikipedia.org/wiki/Self-propelled_travel) or drawn as an attachment behind either a [two-](http://en.wikipedia.org/wiki/Two-wheel_tractor) [wheel tractor](http://en.wikipedia.org/wiki/Two-wheel_tractor) or four-wheel [tractor.](http://en.wikipedia.org/wiki/Tractor) For two-wheel tractors they are usually rigidly fixed and powered via couplings to the tractors' transmission. For four-wheel tractors they are usually attached by means of a [three-point hitch](http://en.wikipedia.org/wiki/Three-point_hitch) and driven by a [power take-off](http://en.wikipedia.org/wiki/Power_take-off) (PTO). [Drawbar](http://en.wikipedia.org/wiki/Drawbar_%28haulage%29) hookup is also still commonly used worldwide. [Draft-animal](http://en.wikipedia.org/wiki/Working_animal) power is sometimes still used today, being somewhat common in developing nations although rare in more industrialized economies.

#### Answer the questions

1. What type of farming implement is used for secondary [tillage](http://en.wikipedia.org/wiki/Tillage)?
2. What is the main constructive part of a cultivator?
3. What is the main purpose of using a cultivator?

#### Find the English equivalents to the phrases below.

1. обертовий рух дисків-
2. подібний результат-
3. збагатити грунт повітрям-
4. перервати їх фотосинтез-
5. дрібне садівництво-
6. маленькі зубчасті культиватори-
7. тягове зчеплення-
8. самохідний-
9. ***Find the Ukrainian equivalents to the following phrases***

|  |  |
| --- | --- |
| 1. Secondary [tillage](http://en.wikipedia.org/wiki/Tillage)
 | 1. під поверхнею
 |
| 1. Pierce the soil
 | 1. роторний культиватор
 |
| 1. Rotary tiller
 | 1. проколюють грунт
 |
| 1. Chisel plows
 | 1. культурні рослини
 |
| 1. Weed control
 | 1. Боротьба з бур’янами
 |
| 1. Beneath the surface
 | 1. вторинна обробка грунту
 |
| 1. Pulverize the soil
 | 1. навколишні бур’яни
 |
| 1. The topsoil
 | 1. верхній шар грунту
 |
| 1. Crop plants
 | 1. розпушувачі
 |
| 1. The surrounding weeds
 | 1. розпорошувати грунт
 |

#### TOPIC 15

#### Read the text and translate it into Ukrainian.

***HARROWS***

A disc harrow is a [farm implement](http://en.wikipedia.org/wiki/Farm_implement) that is used to [cultivate](http://en.wikipedia.org/wiki/Cultivate) the soil where [crops](http://en.wikipedia.org/wiki/Crops) are to be planted. It is also used to chop up unwanted weeds or crop [remainders.](http://en.wikipedia.org/wiki/Remainders) It consists of

many [iron](http://en.wikipedia.org/wiki/Iron) or [steel](http://en.wikipedia.org/wiki/Steel) [discs](http://en.wikipedia.org/wiki/Discs) which have slight [concavity](http://en.wiktionary.org/wiki/concave) and are arranged into two or four sections. When viewed from above, the four sections would appear to form an "X" which has been flattened to be wider than it is tall. The discs are also [offset](http://en.wiktionary.org/wiki/offset) so that they are not [parallel](http://en.wikipedia.org/wiki/Parallel_%28geometry%29) with the overall direction of the [implement](http://en.wikipedia.org/wiki/Tool). This is so they slice the ground they cut over a little bit to optimize the result. The concavity of the discs as well as their being offset causes them to loosen and pick up the soil they cut. Modern disc harrows are [tractor](http://en.wikipedia.org/wiki/Tractor)-driven and are raised hydraulically. Some large ones even have side sections which rise up [vertically](http://en.wikipedia.org/wiki/Vertical_direction) to allow easier road transport or better storage configurations.

Disc harrows are primarily used to chop up soil that has been recently [plowed](http://en.wikipedia.org/wiki/Plow) to eliminate clumps and loosen the soil if it has been packed. They are also used to chop up old crops, such as cornstalks, to make the land easier to plow and to eliminate clogging in the plowing process.

The disc is a secondary implement primarily used to break down soil clods into smaller units. By so doing it allows easier penetration of water into the soil, increases soil aeration and enhances the activity of soil biota.

1. ***Find the Ukrainian equivalents to the following words and phrases***

|  |  |
| --- | --- |
| to chop up unwanted weeds or crop [remainders](http://en.wikipedia.org/wiki/Remainders) | зрубувати небажані бур’яни чи залишки урожайних культур |
| penetration | легка вгнутість |
| flattened | сплющений |
| loosen the soil | зсув |
| overall direction of the [implement](http://en.wikipedia.org/wiki/Tool) | загальний |
| eliminate clumps | усунути грудки |
| offset | розпушити грунт |
| cornstalks | стебла кукурудзи |
| clogging | засмічення |
| slight [concavity](http://en.wiktionary.org/wiki/concave) | проникнення |

**TOPIC 16**

#### Read the text and translate it into Ukrainian.

##### ***FORAGE HARVESTER***

##### A self-propelled [John Deere](http://en.wikipedia.org/wiki/Deere_%26_Company) 5730 ForageHarvester.

A forage harvester (also known as a silage harvester, forager or chopper) is a [farm implement](http://en.wikipedia.org/wiki/Farm_implement) that harvests [forage](http://en.wikipedia.org/wiki/Forage) plants to make silage. [Silage](http://en.wikipedia.org/wiki/Silage) is [grass](http://en.wikipedia.org/wiki/Grass), [corn](http://en.wikipedia.org/wiki/Maize) or other plant that has been chopped into small pieces, and compacted together in a [storage silo](http://en.wikipedia.org/wiki/Storage_silo), silage bunker, or in silage bags. The silage is then fermented to provide feed for [livestock.](http://en.wikipedia.org/wiki/Livestock) [Haulage](http://en.wikipedia.org/wiki/Haylage) is a similar process to silage but using grass which has dried.

Forage harvesters can be implements attached to a [tractor,](http://en.wikipedia.org/wiki/Tractor) or they can be self-propelled units. In either configuration, they have either a drum (cutter head) or a flywheel with a number of knives fixed to it that chops and blows the silage out a chute of the harvester into a wagon that is either connected to the harvester or to another vehicle driving alongside. Larger machines also have paddle accelerators to increase material speed and improve unloading characteristics. Once a wagon is filled up, the wagon can be detached and taken back to a silo for unloading, and another wagon can be attached. Because corn and grass require different types of cutting equipment, there are different heads for each type of silage, and these heads can be connected and disconnected from the harvester. Maize and whole crop silage are cut directly by the header, using reciprocating knives, disc mowers or large saw-like blades. Kernel processors (KP), modules consisting of two mill rolls with teeth pressed together by powerful springs, are frequently used when harvesting cereal crops like corn and sorghum to crack the kernels of these plant heads. Kernel processors are installed between the cutter head and accelerator. In most forage harvesters, the KP can be quickly removed and replaced with a grass chute for chopping non-cereal crops.

Today's largest machines have engines producing up to 1,100 horsepower (820 kW), are fitted with headers able to cut up to a 35-foot (11 m) swath of corn in a single pass, and an output exceeding 400 tons of silage per hour (Krone).

Silage made from [grass,](http://en.wikipedia.org/wiki/Grass) [canola,](http://en.wikipedia.org/wiki/Canola) [oats](http://en.wikipedia.org/wiki/Oats) or [wheat](http://en.wikipedia.org/wiki/Wheat) are chopped in pieces 5 to 76 millimeters (depending on knife, cutter head, and length of cut transmission configuration) and treated with additives including bacteria, enzymes, mold inhibitors, and preservatives to accelerate the fermentation process. When silage is made of [corn](http://en.wikipedia.org/wiki/Corn) or [sorghum](http://en.wikipedia.org/wiki/Sorghum) additives are not necessary because of the high sugar and starch levels in the plants. Additives however are frequently added to corn and sorghum to augment their fermentation.

**Vocabulary:** *forage harvester – кормозбиральний комбайн****,*** *silage harvester – силосний комбайн*

#### Complete the sentences using the words in the brackets. Translate the sentences into Ukrainian.

1. A forage harvester is a [farm implement](http://en.wikipedia.org/wiki/Farm_implement) that harvests [forage](http://en.wikipedia.org/wiki/Forage) plants to make … **(silage/**[**haylage**](http://en.wikipedia.org/wiki/Haylage)**).**
2. [Silage](http://en.wikipedia.org/wiki/Silage) is [grass,](http://en.wikipedia.org/wiki/Grass) [corn](http://en.wikipedia.org/wiki/Maize) or other… **(animal/plant)** that has been chopped into small pieces, and compacted together in the silage bunker.
3. Forage harvesters can be implements attached to … **(a** [**tractor**](http://en.wikipedia.org/wiki/Tractor)**/a combine),** or they can be self- propelled units.
4. Corn and grass require different types of … **(chopping/cutting)** equipment.
5. When silage is made of [corn](http://en.wikipedia.org/wiki/Corn) or [sorghum](http://en.wikipedia.org/wiki/Sorghum) … **(inhibitors /additives)** are not necessary because of the high sugar and starch levels in the plants.

**TOPIC 17**

#### Read the text and translate it into Ukrainian.

##### Combine Harvester

The combine harvester, or simply combine, is a machine that harvests [grain](http://en.wikipedia.org/wiki/Cereal) crops. The name derives from its combining three separate operations comprising harvesting—[reaping,](http://en.wikipedia.org/wiki/Reaper) [threshing,](http://en.wikipedia.org/wiki/Threshing) and [winnowing](http://en.wikipedia.org/wiki/Winnowing)—into a single process. Among the crops harvested with a combine are [wheat,](http://en.wikipedia.org/wiki/Wheat) [oats,](http://en.wikipedia.org/wiki/Oat) [rye,](http://en.wikipedia.org/wiki/Rye) [barley,](http://en.wikipedia.org/wiki/Barley) [corn](http://en.wikipedia.org/wiki/Maize) ([maize](http://en.wikipedia.org/wiki/Maize)), [soybeans](http://en.wikipedia.org/wiki/Soybean) and [flax](http://en.wikipedia.org/wiki/Flax) ([linseed](http://en.wikipedia.org/wiki/Linseed)). The waste [straw](http://en.wikipedia.org/wiki/Straw) left behind on the field is the remaining dried stems and leaves of the crop with limited [nutrients](http://en.wikipedia.org/wiki/Nutrient) which is either chopped and spread on the field or [baled](http://en.wikipedia.org/wiki/Baler) for feed and bedding for livestock.

Combine harvesters are one of the most economically important labor saving inventions, enabling a small fraction of the population to be engaged in agriculture.

**Cutting unit**. This unit cuts the standing grain and delivers it to the feeding mechanism.

Main parts of this unit are reel, the dividers, the cutter bar and the auger. The reel is the first part to touch the standing grain. It can be adjusted up and down and also forward and backward.

Dividers separate the standing grain and define the swath to be cut. The cutter bar and knife are similar to those on a mover.

**Feeding unit.** This unit – if properly adjusted – carries away the cut grain from the cutter bar and feeds it into the cylinder.

**Threshing unit.** From 80 to 90 per cent of the grain separation takes place between the cylinder and the concaves. The stationеry concave bars and open grates are located below the cylinder Various types are used, but they all do the same work. Together with the cylinder, the concaves cause the grain to pass between the rapidly revolving cylinder and stationary surface. Grain falling through the grates is then collected on the grain pan and fed onto the sieves for cleaning.

**Separating unit.** Most of the threshed grain is separated from the straw at the concaves and at the finger grate at the rear of the cylinder. The grain falls through openings in the bottom of the rack to the grain pan or to the grain conveyor.

**Clearing unit.** This unit removes the chaff and fine residue from the threshed grain. It cleans grain by means of the combined action of sieves and air blast.

**Grain handling unit.** This unit conveys the clean threshed grain auger, clean grain elevator, and grain tank.

**Vocabulary:** *Grain handling unit - вивантажувальний пристрій для збирання очищеного зерна* [*reaping*](http://en.wikipedia.org/wiki/Reaper)*– жнива,* [*threshing*](http://en.wikipedia.org/wiki/Threshing) *unit– молотарка,* [*winnowing*](http://en.wikipedia.org/wiki/Winnowing)*— копання, the chaff and fine residue – солома і мілкі відходи, grain auger – шнековий навантажувач зерна, grates– решітки*

#### Answer the questions

* + 1. What is a combine harvester?
		2. What principle units of a combine do you know?
		3. What is the function of a cutting unit?
		4. What does the feeding unit do?
		5. What is the function of the threshing unit?

#### Look at the picture, find the main parts of combine harvester and study them

**Principle Units of a Combine**



|  |  |
| --- | --- |
| 1. Reel - котушка | 11) to pаdjustablesieve – верхнє регульоване |
| 2. cutter bar – різак | 12) bottom sieve – нижнє сито |
| 3. header auger – ведучий шнек | 13) tailings conveyor – хвостовий конвеєр |
| 4. grain conveyor (feeding) –зерноконвеєр | 14) rethreshing of tailings - обмолот хвостів |
| 5. stone trap –каменеуловлювач | 15) grain auger – зерновий шнек |
| 6. threshing drum–молотильний барабан | 16) grain tank – зерновий бункер |
| 7. concave - підбарабання, деко | 17) strawchopper- подрібнювач соломи |
| 8. straw walker - соломотряс | 18) driver'scab – кабіна комбайнера |
| 9. grain pan – зерновий піддон | 19) engine – двигун |
| 10. fan - вентилятор | 20) unloading auger – розвантажувальний шнек |
| 21) impeller- робоче колесо |

#### Match the names of units with their definitions

|  |  |
| --- | --- |
| 1. **Cutting unit**
 | 1. removes the chaff and fine residue from the threshed grain.
 |
| 1. **Clearing unit**
 | 1. separates the threshed grain from the straw
 |
| 1. **Separating unit**
 | 1. has the stationеry concave bars and open grates
 |
| 1. **Grain handling unit**
 | 1. carries away the cut grain from the cutter bar
 |
| 1. **Threshing unit**
 | 1. cuts the standing grain and delivers it to the feeding
 |
| 1. **Feeding unit**
 | 1. conveys the clean threshed grain auger, clean grain
 |

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**VOCABULARY**

**A**

Again (adv.) – знову

Agricultural (a) сільськогосподарський

Agriculture (n)– сільське господарство

Ahead (adv.) – попереду

Aid (v) – допомагати

Alarm (n) – сигнал тривоги, сигнальний пристрій

Alert (n) – тривога, поперед жувальний сигнал

Alfalfa (n) – люцерна

Alongside (prep) – поряд з

Alteration (n) – зміна, деформація

Alternative (a) – змінний

Although (cj) – хоч, незважаючи на

Altogether(adv.) –зовсім, цілком

Amount (n) – кількість, величина

Analog(ue) (n) –безперервна фізична величина

 Angle (n) – кут

Appear (v) – з’являтися

Applicable (a) – (n) – потік

Application (n) – застосування

Apply (v) – застосовувати

Area (n)- площа, район

Arm (n) – плече, тримач

Arrange (v) – розміщувати

Arrangement (n) – розміщення

As (cj) – як, так як

As … as (cj) – так … як

Aspect (n) – вигляд

Aspirator (n) – витяжний вентилятор

Assemble (v) – збирати

Assist (v) – допомагати

Associate (v) – пов’язувати

Assume(v) – припускати

Assure (v) – гарантувати

Attach (v) – приєднувати

Attachment (n) – приєднання

 Auger (n) – конвеєр, шнек

 Augerflight (n) – виток шнека

Auxiliary (a) – допоміжний

Available (a) – придатний

Average (a) – середній

Axial (a) – осьовий

Axle (n) –ведучий міст

***B***

Back (n) – задній, назад

Backrest (n) – спинка

Backward (a) – спрямований назад, зворотній

Baffle (n) – дросель, глушник

Bale (n) – тюк

Band (n) – смуга

Bank (n) – група, набір, блок циліндра

Bar (n) – пруток, стрижень

Barley (n) – ячмінь

Bat (n) – било, бияк

Beam(n)– балка. брус

Bearing (n) – підшипник

Bed (n) – грядка

Belt (n) – пас, ремінь

Belt driven pulley (n) – клинопасова передача

Beltpulley (n) – привідний шків

Beltpulley (n) – ремінний шків

 Beneath(prep) – внизу, під, нижче

Blade (n) – лопата, ніж, лезо

Blast (n) – потік

Block (n) – вузол, блок

Blockage (n) – засмічення, закупорення

Bore (v) – свердлити, розточувати

Bowl (n) – поплавкова камера

Brake (n) – гальмо, гальмувати

Breakdown (n) – поломка, несправність

Broadcast (v) – розкидати

Brush (v) – прочісувати

 Bury (v) – закопувати

**C**

Cab (n) - кабіна

Cage (n) – решітчастий барабан

 Camshaft (n) – кулачковий вал

Canvas (n) – стрічка (конвеєра)

Capability (n) - здібність

Capable (a) - здібний

Capacity (n) – ємність, номінальна потужність, продуктивність, місткість

Carry (v) – підтримувати

Carryaway (v) – відводити, відносити

 Carryon (v) – проводити, вести

Carryout (v) – виконувати

Centrifugal (a) – відцентрований

 Chaff (n) - полова

Chaffer (n) – полововловлювач

Chain (n) feederchain (n) – ланцюг, кормороздатчик, ланцюговий конвеєр

 Channel (n) – канал, жолоб

Charge (n) – заряд

Chart (n) – схема, діаграма

Chassis (n) – шасі, ходова частина

Chisel (n) – культиватор

Circuit (n) – ланцюг

Circulate (v) – циркулювати

Circumstance (n) – обставина

Cleaner (n), – очищувач

Cleaning unit (n) – очисний пристрій

Clearance (n) – шляховий просвіт

 Clod (n) – брила, грудка землі

 Closedcentеr - замкнутий центр

Clover (n) – конюшина

Clutch (n) – зчіпна муфта

 Coat (n) – покриття

Coil (n) – котушка, обмотка

Collect (v) – збирати

Combine (n) – комбайн

Combine (v) – об’єднувати

Common (a) – звичайний, простий

Compact (v) -ion (n)- ущільнювати,ущільнення

Companion crop – супровідна культура

Compare (v) – порівнювати

Compatible (a) – сумісний

Complete (a) – повний, завершений

Compose (v) – складати

Compress (v) – стискати

Concave (n) – підбарабання

 Condense (v) – згущувати

Confine (v) – обмежувати

Connect (v) – з’єднувати

Connectingrod (n) - шатун

Conserve (v) – зберігати

Consider (v) – розглядaти, вважати

Consider (v) – розглядати, вважати

Consolidate(v) – тверднути

Consult (v) – радитись

Consume (v) – споживати

Convenient (a) – зручний

Conventional (a) – стандартний

Convert (v) – перетворювати

Convey (v) – транспортувати,

Conveyer (n) – конвеєр

Cope (v) – справлятися

Corn (n) – зерно, збіжжя, кукурудза

 Corrosion (n) - корозія

Coulter (n) – ніж плуга

 Couple (v) – з’єднувати

Coupler (n) – з’єднувальний пристрій

Coupling (n) – муфта, зчеплення

Cover (v) – загортати

Crank (v) – заводити (прокручувативал двигуна)

Crankcase (n) – картер

Crankshaft (n) – колінчастий вал

Crawler (n) – гусеничний трактор

Cross – drilled (a)- перехресно - просвердлений

Cross – drilled (a)- перехресно - просвердлений

Cultivate (v) – обробляти землю,вирощувати

Cumbersome (a) – громіздкий

Cumbersome (a) – громіздкий, обтяжливий

Curve (n) – крива (лінія)

Curve (n)- крива

Cushioning (n) – амортизація

Cushioning (n) – амортизація

 Cutter (n) – різець, фреза

Cutter (n) – різець, фреза, подрібнювач

Cutting unit (n) – різальний агрегат, жатка

##### **D**

Deadweight– власна вага

Decelerator (n) – сповільнювач процесу

Decrease (v) – зменшувати

Define (v) – визначати

Definitely (adv) - ясно

Deflect (v) - відхиляти

Deliveryauger (n) – розвантажувальний конвеєр

Demand (n) – вимога, потреба, сировина

 Denote (n) - позначити

Density (n) - щільність

Depth (n) - глибина

Detach (v) - відокремлювати

Determine (v) - визначати

Detonation (n) - вибух

Digger (n) – відрізняти (ся)

Dirt (n) - бруд

Discharge (n) – розряд, розвантаження

Disengage (v) – вимикати, роз’єднувати

 Disengagement (n) – роз’єднання

Dispersal (n) – розвіювання, розкидування

Displacement (n) – перестановка, об’єм

Distinguish (v) - розрізняти

Distribution (n) - розподіл

Disturb (v) – порушувати, збивати (наладку)

 Divert (v) – відводити

Downward (adv) – вниз, донизу

Draft(draught) (n) – тяга, зчеплення

 Drain(n) - осушувати

Drainage (n) – дренаж, осушення

Draughtlink (n) – силовий регулятор

Draw (drew, drawn) - тягти

Drawbar(n) – зчіпний пристрій, тяговий брус

Drawing – втягувати, всмоктувати

Drill – сівалка, рядова сівалка

Drivebelt (n) – привідний ремінь

Drop (v) - зменшувати

Drum (n) - барабан

Dry (a) - сухий

Dual (a) - подвійний

Durability (n) – міцність, тривалість

Dust (n) - пил

Dynamic (a) – активний

**E**

Ease (v) - полегшувати

Eccentric (n) - ексцентрик

Edible (a) - їстивний

Efficiency (n) – ефективність, к.к.д

 Efficient (a) -ефективний

Effort (n) - зусилля

Elevator (n) - елеватор

Eliminate (v) – усувати, ліквідовувати

Employ (v) – застосовувати

 Enable (v) – давати змогу

Engage (v) – зчіпляти, з’єднувати

Enhance (v) – посилювати

Enormous (a) – величезний

Ensure (v) – забезпечувати

Envelope (v) – обгортати

Equip (v) – обладнати, постачати

Estimate (v) – оцінювати

Ether (n) – ефір

Excess (n) – надлишок

Expose (v) – піддавати (чомусь)

External (a) – зовнішній

##### **F**

Farming (n) – сільське господарство

 Fatigue (n) – втома

Fault (n) – несправність, поломка

 Faulty (a) – несправний

Favorable (a) – сприятливий

Feed (v) – подавати

Feeder (n) – конвеєр

Feeding mechanism (n) – конвеєр

Feeding unit (n) – транспортний засіб

Fertilizer (n) – добрива

 Filler (n) – навантажувальний пристрій

Fin (n) – радіаторна пластина

Fingergrate (n) – гребінчаста колосникова решітка

Fit (v) – точно відповідати

Fix (v) – закріплювати

Flight (n) – виток, скребок елеватора

Float (n) – поплавок

 Fluid (a) –рідкий

Flush (n) – струмінь

Foodandfiber – продукція с/г господарства

Forage (n) – корм, фураж

Forage harvester (n) – кормозбиральний комбайн

Force out (v) – виштовхувати

Forced (a) – примусовий

 Forge (v) – кувати

Forget steel (n) – штампований із сталі

Forward speed (n) – передня поступальна швидкість

Freshly (adv) – свіжий, новий

Frog (n) – стойка, башмак (плуга)

Furnish (v) – постачати, доставляти

Furrow (n) – борозна

##### **G**

Gain (v) – отримувати

Gasket (n) – прокладка

Gauge (n) – вимірювальний прилад

Gearbox (n) – коробка передач

Governer (n) – регулятор

Gradual (a) – поступовий

Grain (n) – зерно,хлібні злаки

Grainauger (n) – зерновий конвеєр

Grain–handling unit (n) – вивантажувальний пристрій для збору очищеного зерна

Grainpan (n) – транспортна дошка

 Grass (n) – трава, пасовище

Grate (n) – решітка, грохот

 Grip (n) – зчеплення, захват

Guide (v) – керувати

Guidevane (n) – направляюча лопасть

##### **H**

Handle (v) – обходитися

Handling (n) – керування, транспортування

Harrow (n) - борона

 Harvester (n) - комбайн

Hay (n) - сіно

Header – unit (n) –жниварка

Headland (n) – край поля

Heater (n) – нагрівач, обігрівач

Heavy – duty (a) - потужний

Hilly (a) – горбистий

Hinge (v) –з’єднувати шарнірно, підвішувати на шарнірах

Hitch (n) – зачеп, захват, навісний пристрій

Hoe (n) - мотика

 Hook (n) - крюк

Horticulture(n) - садівництво

Housing (n) – корпус, чохол

Humus (n) - гумус

##### **I**

Idling (n) – холостий хід, робота на холостому ходу

 Ignite (v) – запалювати, займатися

Ignition (n) – запалювання, спалах

Impeller (n) – робоче колесо, крильчатка

Inclination (n) – нахил, укіс, спад

Incline (v) – нахилятися

Indicate (v) – позначати, показувати

Indication (n) – ознака, показання

Inhibit (v) – перешкоджати, затримувати

Initial (a) – початковий, вихідний

Inject (v) – впорскувати

Injector (n) – інжектор, форсунка

Inlet (n) – впуск, пусковий отвір

 Inner (a) – внутрішній

Intake (n) – впуск

Integrate (n) – об’єднувати

Intend (v) – мати намір, збиратися

Intercooler (n) – проміжний охолоджувач

 Intricate (a) – складний

Invert (v) – перевертати

Involve (v) – включати, охоплювати, містити в собі

Inward (a) – внутрішній, спрямований в середину

Irrelevant (a) – недоречний, що не стосується справи

##### **J**

Joint (n) – з’єднання, стик, шов

Journal (n) – цапфа, шийка вала

##### **K**

Knob (n) – кнопка, ручка

##### **L**

Laborious (a) –трудомісткий

Laid crop – вилягла культура

Landside (n) – польова дошка (плуга)

Lawn (n) – газон

Leak (v) – теча, давати течу

Leg (n) –стійка культиватора

Lever (n) – ричаг

Life (n) – строк служби, довговічність

Lift (v) – піднімати

Link (n) – ланка, зв'язок, зв’язувати

Linkage (n) –зчеплення, важільний механізм, важільна передача

Liquefy (V)– перетворювати у рідкий стан

Livestock (n) – домашня худоба

 Lock (n) – замок, стопор

Longitudinal (a) – поздовжній

Loosen (v) – послабляти, роз’єднувати, розрихлювати грунт

##### **M**

Mainbearing (n) – корінний підшипник

Maintain (v) – зберігати, підтримувати

Maintenance (n) – збереження, догляд, експлуатація

Makeup (v) – складати, комплектувати

Maneuverability (n) – маневреність

Manifold (n) – патрубок, трубопровід

Manure (n) – гній, добриво

Mean (n) – засіб, спосіб

Mechanism (n) – механізм

Meter (n) – лічильник

Might (n) – міць, сила

Moisten (n) – змочувати (ся)

Moisture (n) – вологість, сирість

Monoxide (n) – оксид

Muddy (a) – брудний, мулистий

Muffler (n) - глушник

Multi – cylinder (n) – багатоциліндровий

##### **N**

Narrow (a) – вузький

Newly (adv.) – недавно, наново

Nozzle (n) – наконечник, сопло, форсунка

Nutrient (n) – поживна речовина

##### **O**

Objective (n) – мета

Obstruct (v) – перешкоджати

Obtain (v) – отримувати

Obvious (a) – очевидний, явний

 Odorless(a) – без запаху

Oil (n) – мастило, нафта, змащувати

Оilpan (n) – масляний піддон

Opening (n) – отвір

Operator (n) – механік, оператор, водій

Orchard (n) – фруктовий сад

Outer (a) – зовнішній

Output (n) – потужність

Overheat (n) – перегрів, перегріватися

Overload (n) – перевантаження

Owingto (prep) – внаслідок, завдяки

##### **P**

Paddle (n) –лопасть, затвор

Pan (n) – піддон, лоток, корито

Panel (n) – панель, щит управління

Park (v) – ставити на стоянку

Particular (a) – особливий

Pass (n) – прохід, пропуск

Passage (n) – прохід, канал

Path (n) – шлях

Penetrate (v) – проникати, заглиблювати

Perforate (v) – пробивати, просвердлювати

Perform (v) – виконувати, здійснювати, виробляти

Performance (n) – технічна характеристика, експлуатаційні якості

Permit (n) – дозволяти, допускати

Pest (n) – шкідник, паразит

Petrol (n) – бензин, керосин

Petroleum (n) – нафта, гас

Pick (v) – збирати, підбирати

Pickup (v) – підбирач сіна

Pilot (v) – керувати, вести

Pin (n) – палець

 Pipe (n) – труба, трубопровід

Piston (n) – поршень

Pistonpin (n) – поршневий палець

Planter (n) –садильник

Plough (v) – плуг, орати

Ploughing (n) – оранка

Plug (n) – свічка

 Plunger (n) – плунжер

Point (n) – носок лемеша, точка

Power - take – off – shaft

Power stroke (n) – робочий хід

Power unit (n) – силовий агрегат

Powerfaming (n) – механізоване сільське господарство

Powerharrow (n) – силова борона

Precision (n) – точність, точний

Previously (adv.) – заздалегідь, раніше

 Prior (a) – попередній

Propel (v) – приводити в рух, рухати

Prove (v) – виявлятися, підтверджувати

 Provide (v) – забезпечувати, постачати

PTO (n) – вал відбору потужності

Pull (v) – тягнути

Pulley (v) – блок, шків

Pulverize (v) – розпилювати, розпушувати

Pump (v) – помпа, нагнітати

Push (n) – поштовх, штовхати

##### **Q**

Quality (n) – якість

Quantity (n) – кількість

Quick – detach (a) –швидкозйомний

##### **R**

Rack (n) – зубчаста рейка

 Ram (n) – плунжер

Range (n) – ряд, серія, діапазон, коливатися

 Rapid (a) – швидкий

Rare (a) – рідкісний

Rate (n) – швидкість

Rated (a) – номінальний

React (v) – реагувати

Realize (v) – здійснювати

Rear (a) – задній, задня частина

Rearward (a) –задній

Rebore (v) – розточувати (під час ремонту)

 Receive (v) – отримувати

Reciprocation (a) – зворотно - поступальний

Reclaim (v) – виправляти

Reclamation (n) – освоєння (землі), меліорація

Recognize (v) – визнавати

Reduce (v) – зменшувати, знижувати

Reduction (n) – зменшення

Reel (n)- мотовило

Refer (v) – відсилати, стосуватися

Regard (v) – розглядати, вважати

Relation (n) – співвідношення

Relationship (n) – зв'язок

Relatively (adj.) – відносно

Release (v) – звільнення, звільняти, випускати

Reliability (n) – надійність, міцність

Reliable (a) – надійний

Remain (v) – залишатися

Remove (v) – усувати, віддаляти, знімати

 Repair (n) – ремонт, лагодження

Replace (v) – заміняти, заміщати

Require (v) – вимагати

Requirement (n) – вимога

Resemble (v) – бути подібним

Residue (n) – залишки, відходи

Resist (v) – витримувати, протистояти, опиратися

Respect (n) – відношення

Restoration (n) – відновлення

Restore (v) – відновлювати

Retain (v) – зберігати

Retard (v) –сповільнювати

Return (a) – повернення, зворотна подача

Reverse (a, v) – зворотний, реверсивний, давати задній хід

Reverse speed (n) – задня швидкість

Reversegear (n) – шестерня зворотного ходу

Review (n) – огляд

Revolution (n) – обертання

Revolve (v) – обертатися

Ride (rode, ridden) (v) – рухатися

Right – handed (a) – правосторонній

Rigid (a) – жорсткий, нерухомо прикріплений

Rim (n) – обід

Ring (n) – кільце

Rise (rose, risen) – підніматися, зростати

Road (n) – дорога

Rod (n) – прут, стержень, брус

Roll (n) – каток, ролик, котитися

Roller (n) – ролик, каток

Roof (n) – дах

Root (n) – корінь

Root crops – коренеплоди

Rooty (a) –з безліччю коріння

Rotary (a) – обертальний

Rotary cultivator – ротаційна фреза

Rotate (v) – обертатися

Rotor (n) – ротор

Rough (a) – грубий, нерівний, шершавий

 Row (n) – ряд, міжряддя

Rowcrop (a) – розрихлював

Rubber (n) – гума, каучук

Rugged (a) – масивний, міцний

Run (ran, run) – працювати

##### **S**

Safe (a) – надійний, безпечний

Safely (adv.) – надійно

Safety (n) – безпека

Satisfactory (a) – задовільний, достатній

Satisfy (v) – задовольняти, відповідати

Save (v) – економити

Scheme (n) – схема, проект

Scraper (n) – скрепер

Screen (n) – екран, решето, сито

Seal (n) – ущільнення, герметичність

 Seed (n) – насіння

Seedbed (n) – рілля, підготовлений до посіву грунт

Self – ignite (v) – самозапалюватися

Self – propelled (a) – самохідний

Semi – digger (n) – плуг з передплужником

Semi – mounted (a) – напівнавісний

Separate (v) – сепарувати, відокремлювати

Separating unit (n) – сепарувальний пристрій

Separator (n) – молотарка (у комбайні), соломотряс (молотарки)

Set (set, set) – набір, комплект, встановлювати

Several (pron.) – декілька

Shaft (n) – вал

Shaker (n) – вібраційний гуркіт

Shallow (a) – мілкий, неглибокий

Shape (n) – форма

Share (n) –лемех

Sharpen (v) – точити, заточувати

Sharpness (n) – гострота, гострота заточки

 Shed (n) – намет, майстерня, ангар

Shell (n) – кожух, корпус

Shoe (n) – сошник

 Shop (n) – майстерня

Shut (v) – виключати, зупиняти, перекривати

 Side – hill – (n) – схил

Side – hill plough (n) – зворотній плуг

Side - wards (a) – спрямована вбік

Sidethrust (n) – боковий тиск

Sieve (n) – сито, решето

Sieve for cleaning (n) – решето очистки

Sieveshoe (n) – решітчастий стік

Sift (v) – сіяти

Significant (a) – значний, істотний

Similar (a) –подібний

Simple (a) – простий

Simplicity (n) –простота

Simplify (v) – спрощувати

Simultaneous (a) – одночасний

Since (cj) – так як, оскільки, з того часу

Single (a) – єдиний, окремий

Skid (n) – полозок, опорна лижа

Skill (n) – навичка, майстерність

Slice (n) – пласт

Slight (a) – слабкий, тонкий

Slightly (adj.) – злегка, трохи

 Slip (v) – ковзати, буксувати

Slope (n) – схил

Slot (n) – проріз, щілина

 Slow (a) – повільний

Smoke (n) – дим, кіптява

Smoky (a) – димний, кіптявий

Smooth (a) – гладенький, рівний, плавний

Soft (a) – м’який, слабкий

Soil – engaging parts – грунтозахватні частини

Soil (n) – грунт

Solely (adv.) – тільки, виключно

Solid (n) – твердий, масивний, міцний

Solution (n) – рішення

Somewhat (adv.) – щось, дещо

 Sophisticated (a) – ускладнений

Sound (a) –міцний

Spark (n) – іскра

Sparkplug (n) – свічка запалювання

Specification (n) – інструкція

Spike – toothharrow (n) – пружинна борона

Spike (n) – вістря, клин, загострений стержень

Spiralpath (n) – спіральна (гвинтова) траєкторія

Spray (n) – струмінь

Sprayer (n) – розпилювач, оприскувач

Spread (v) – розповсюджувати, розкидати

Spreader (n) – розкидач

Spring (n) – пружина

Sprocket (n) – ланцюгове або зубчасте колесо

Stack (n) – труба

Stalk (n) - стебло

Standpoint (n) – точка зору

Start up (v) – запускати

Steady (a) – стійкий, постійний, рівномірний

Steam – powered (a) – той, що приводиться в рух парою

Steam (n) – пара

 Steel (n) – сталь

Steep (a) – крутий

Steering (n) – рульове управління

Steering wheel (n) – рульове управління

Step (n) – ступінь, стадія

Sticky (a) – липкий, в’язкий

Stirup (v) – піднімати (пилюку)

Stony (a) – кам’янистий

Storage (n) – зберігання, нагромадження

Straight (a) – прямий, правильний, рівний

Straw (n) – солома

Straw rack (n) – соломотряс

Strawwalker(n) – клавішний соломотряс

Stress (n)- напруга

Strike (struck) – бити, вдарятися

Stroke (n) – такт, хід поршня

Stubble (n)- стерня

Subsoil (n) – підґрунтя, розпушувач підгрунтя

Subsoiler (n) – підґрунтовий розрихлював, грунтозаглиблювач

Substance (n) – речовина

Suck (v) – всмоктувати

Sufficient (a) – достатній

Sugar beet (n) – цукровий буряк

Suit (v) – влаштовувати, відповідати

Suitable (a) – придатний

Supply (v) – постачати

Swampy (a) – болотяний, болотистий

Swath (n) – смуга скошеної трави, прокіс, ряд

Swathing (n) – рядкування

Sweep (n) – культиваторна лапа, волок, гребка

##### **T**

Tachometer (n) – тахометр

Tailing (n) – обрізування корінців

 Tailings (n) – необмолочене колосся

Tank (n) – бак, резервуар

Tend (v) – мати тенденцію

Tension (n) – напруга, розтяжка

Thinning (n) – проріджування

Three – pointlinkage (n) – три точковий навісний пристрій

Thresh (n) – дросель,

Throttle (n) – дросельна заслонка

 Thrust (n) – напір, поштовх

Tight (n) – ущільнений, герметичний

Till (v) – обробляти

Tillage (n) – обробіток грунту

Tiller (n) – ґрунтообробне знаряддя, грунтовафреза

 Tilt (v) – перекидатися

To apply fertilizer – вносити добрива

Tool (n) – інструмент

Torque (n) – момент обертання

Trail (v) – тягнути

Trailer (n) – причіп

Transverse (a)– переносити, переміщати

Trap (v) – вловлювати, захоплювати

Trash (n) – сміття, рослинні залишки

Tread (n) – ширина ходу, колія

Tricycle (a) – триколісний

Truck (n) – автомобіль

Turbocharged (n) – з турбонадувом

Turnover (n) – перекидання

Tyre (n) – шина, покришка

##### **U**

Undergo (v) – випробувати

Unit (n) – одиниця, агрегат, переносити

Unlikely (adv) – навряд чи upright (a) – вертикальний

Usefulness (n) – корисність, придатність

 Utilization (n) – використання

Utilize (v) – використовувати

##### **V**

Value (n) – величина, значення, цінність

Valve (n) – клапан

Vane (n) – лопасть

Variable (a) – мінливий, змінний

Vary (v) – змінюватися

Vehicle (n) – транспортний засіб

Vibrate (n) – вібрувати

Volume (n) – об’єм

##### **W**

Walker (n) – платформовий соломотряс

Warm – up (n) – теплий, нагрівати

Warning (n) – попередження

Waxу (a) – восковий

Wear (n) – зношування

Weed (n) – бур’ян

Weeding (n) – прополювання

Wet (a) – сирий, вологий

Wheat (n) – пшениця

Wheel (n) – колесо

Wheelbase (n) – колісна база

Wide – swingdrawbar – маятниковий зчіпний п-й.

 Windrower (n) – рядкова жниварка

Windrowing (n) – валкоутворення, згрібання у валки

##### **Y**

Yield (n) – врожай

**FOR NOTES**