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BIOTEHNIŠKA ŠOLA
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Let's talk about farming

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Operacijo delno financira Evropska unija iz Evropskega socialnega sklada ter Ministrstvo za šolstvo in šport. Operacija se izvaja v okviru operativnega programa razvoja človeških virov za obdobje 2007 – 2013, razvojne prioritete: Razvoj človeških virov in vseživljenjskega učenja, prednostna usmeritev Izboljšanje kakovosti in učinkovitosti sistemov izobraževanja in usposabljanja.

Vsebina tega dokumenta v nobenem primeru ne odraža mnenja Evropske unije. Odgovornost za vsebino dokumenta nosi avtor.

KAZALO

KAZALO SLIK

PREDGOVOR

V pričujočih učnih gradivih sem izhajala iz prakse, vsa učna gradiva sem že preizkusila in jih po potrebi predelala. Zakaj sem se odločila za jezik stroke? V prvi vrsti zato, ker ga imajo dijaki radi, saj je blizu njihovemu svetu in doživljanju. Najdejo se vsaj v enem področju. Drugič nas učitelje veže ustni del mature, kamor moramo vključiti dve vprašanji iz jezika stroke. In ne nazadnje, učbenika za to področje ni, zato moramo pripraviti gradivo sami. In sedaj se mi je ponudila priložnost, da sem skozi leta zbrano gradivo uredila.

V učno gradivo sem se trudila vključiti različne jezikovne spretnosti, branje, govorjenje ter pisanje, besedišče in nekaj slovnice. Slednja ni poudarjena, saj imamo zato druge učbenike. Posamezne vaje (po mojem osebnem občutku) izstopajo po zahtevnosti, saj zahtevajo od dijaka več samostojnosti in povezovanje znanj. Menim, da je pričujoče gradivo dovolj fleksibilno, da omogoča dijakom delo v razredu kakor tudi doma. Poleg tega pa lahko učitelj določa vrstni red enot, saj se po zahtevnosti ne stopnjujejo. Sama po navadi izhajam iz posameznega razreda, tako da začenjam s temami, ki so večini najljubše.

Moj cilj je, da bi dijaki ob tem gradivu osvojili osnovno strokovno izrazoslovje ter se tako znašli ob srečanju s tujcem v neki poklicni situaciji. Ravno tako mi je pomembno, da bi postali sposobni razumeti strokovne članke. S tem namenom mora opraviti vsak dijak v tretjem ali četrtem letniku kratko, a samostojno predstavitev strokovne teme, ki ni bila predhodno obravnavana v razredu; se pa seveda navezuje na eno izmed glavnih vej kmetijstva.

Dijakom in učiteljem angleščine kmetijsko-podjetniške smeri želim, da bi jim bila pričujoča učna gradiva v korist, pa tudi vsaj malo v veselje.

ANIMAL FARMING

1.1. Animals

Exercise 1: Look at the following chart to find different English animal expressions.

ANIMALS	CATTLE	HORSES	SHEEP	CHICKENS	PIGS
Male	bull	stallion	ram	cock / rooster	boar
Female	cow	mare	ewe	hen	sow
Baby / young	calf/ heifer*	foal / colt (M)	lamb	chick	piglet

**A heifer is a young female cow before she first has a baby.*

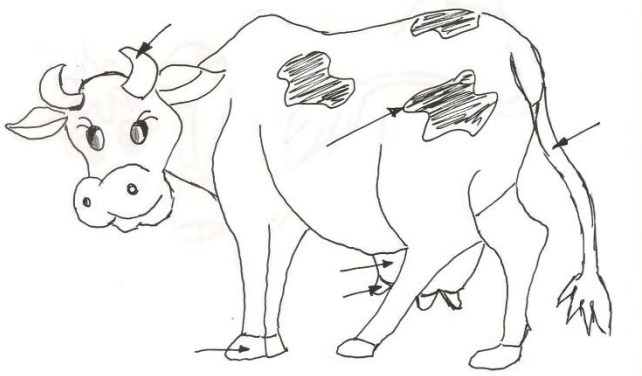
Exercise 2: Complete the sentences.

A hen is a _____ chicken. A foal is a _____ _____.

An adult male pig is called a _____. An adult female pig is called a _____. An adult female sheep is called a _____. A baby cow is called a _____.

Exercise 3: Label the picture with the following expressions:

horns	udder	hoof	tail	teats	spot



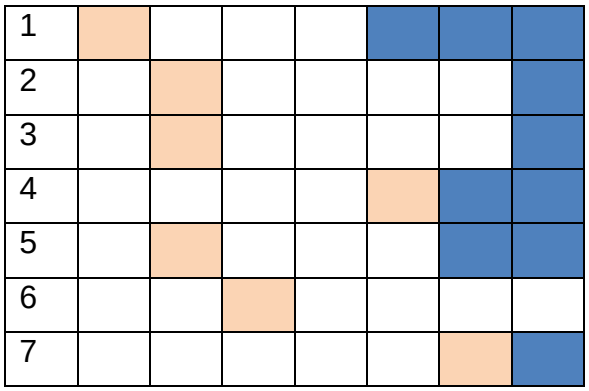
Slika 1. A cow

Exercise 4: Match the terms with the right definition.

A steer ✪	✧ an adult male cow
An ox ✪	✧ a young cow before her first delivery
Semen ✪	✧ an area where animals graze
A dairy ✪	✧ a castrated bull used for beef
A pasture ✪	✧ big farm animals like sheep, cattle, goats, horses
A breed ✪	✧ a plant where milk and other milk products are produced
A heifer ✪	✧ whitish liquid containing sperm
A bull ✪	✧ a castrated bull used for draft work
Livestock ✪	✧ a special type of a farm animal, developed for a particular purpose (i.e. meat or milk production)

Exercise 5: Rearrange the letters in each line and you will get seven expressions related to cattle farming.

1	E	T	A	M			
2	F	I	E	H	R	E	
3	E	L	T	T	A	C	
4	D	R	E	E	B		
5	O	N	R	S	H		
6	D	E	S	H	O	W	C
7	S	V	A	C	E	L	

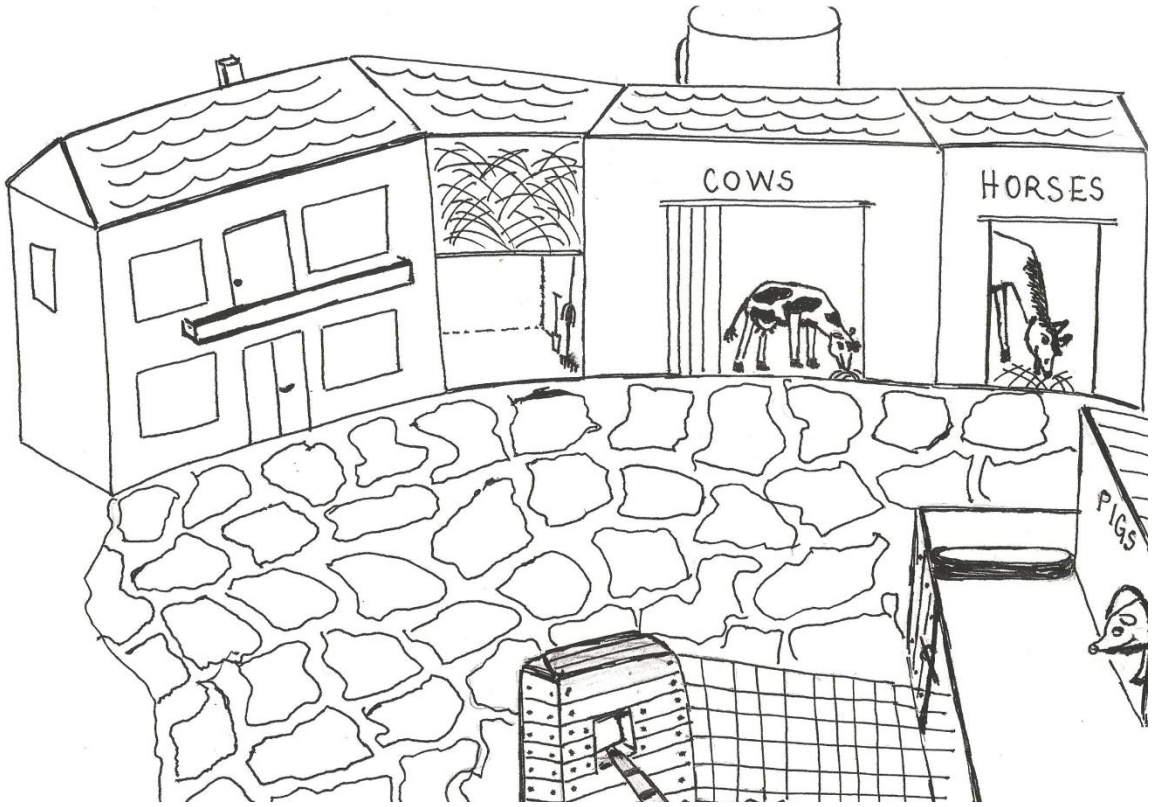


The letters in light orange squares give you another English word. Explain its meaning in English.

_____

1.2. Buildings on a farm

Exercise 1: Look at the picture of a farm and write the number of each word in the chart to the right building/structure.



Slika 2. A farm

1 A farmhouse	**4 A hayloft**	**7 A pigsty**
2 A farmyard	**5 A silo**	**8 A pen**
3 A cowshed	**6 A barn**	**9 A chicken house**

For help:

A hayloft is a building for storing hay.

A pen is an enclosed open space where animals like pigs, sheep, poultry, etc. are kept.

A barn is called *skedenj* in Slovenian.

Look up in a dictionary and find the meaning of the following words. Explain the meaning in English then.

- A meadow
  _____
- A pasture
  _____
- A field
  _____
- A pond
  _____
- A stable
  _____
- Outbuildings
  _____

1.3. A farmer's chores

Exercise 1: Imagine a Mr Furlan is a cattle farmer. He has 50 cows (and 10 chickens).

Look at the list of his EVERYDAY CHORES and tell what he usually does. Then look at the second list of OCCASIONAL CHORES, add other ideas and say *how often or when* he does these chores.

EVERYDAY CHORES

5 a·m· – get up
5·30 – feed the cows
6·30 – breakfast
7·00 – milk the cows
7·30 – shovel away cow's crap
8·00 – pick the eggs
9·00 – clean the chicken house
10·00 – cook lunch
12·00 – lunch

6·30 p·m· - feed the cows
7·00 - clean the cowshed
7·30 – a bath
8·00 – dinner
10 p·m· - bedtime

OCCASIONAL CHORES

clean the farmyard
trim the hooves
fix the fence
wash the tractor

Exercise 2: Complete the text with the words on the right.

Summer is a very busy time for a cattle farmer since he makes hay for the animal feed. First he _____ the meadows. When the hay is dry, he _____ it and then _____ it. If he stores the bales outside, he also _____ them. Otherwise, he takes them to the hayloft.

bales
mows
rakes
wraps

1.3.1. Farming tools

Label the pictures. Choose from the words below.

A shovel
A wheelbarrow
A rake
A fork

Slika 3. Tools

1.3.2. Farming machinery

Many words for farming machinery are easy to remember because they are derived from the verb. Look at the example and use the same pattern to complete the chart.

Verb →	***Noun - farm machinery***	***Translation***
bale →	*baler*	*balirka*
mow →		
wrap →		

1.4. Vocabulary revision

Exercise 1: Write the words in the column where they belong.

calf	rake	barn	stallion	rooster
stable	pen	sheep	shovel	pigsty

Tools	Animals	Buildings

Exercise 2: Fill in the gaps with the words from the box.

rams	water	hay	graze	trim
wolves	spring	fence	pasture	lambing

Most sheep farmers keep their sheep outdoors all year long. The sheep _____ on a pasture, which is surrounded by an electric _____. There is usually a sheep dog or a donkey to protect the flock of sheep from the _____. In a flock of one hundred sheep, there are normally two _____.
Even though the flock have enough food on the pasture from _____ to autumn, the farmer has to check them regularly. He has to bring them _____ supply if there is no stream running across the pasture. He has to fix the fence now and then. He has to _____ the sheep's hooves on a regular basis. Sometimes the sheep need to be transported to another _____. Twice a year, he has to shear them. He also helps with _____. And in winter, he has to supply the sheep with bales of _____.

Exercise 3: Answer the questions.

a) Where are pigs kept?
b) Where are horses kept?
c) Where are cows kept?
d) Where are animals kept in organic farming?
e) What activities does hay making consist of?
f) What machinery is needed for haymaking?
g) What is the building for storing hay called?
h) What is an adult male pig / horse / cow / sheep / chicken called?

Exercise 4: Describe the picture (about 5 sentences).

Slika 4. A farmer's work

_____

_____

_____

_____

1.5. Different purposes of animal farming

1.5.1. The history of raising animals

Read the text and mark if the sentences are true (T) or false (F).

a) The first domesticated animals were cows.
b) Horses were domesticated more than 5500 years ago.
c) The first animals were domesticated in Europe.
d) Pork is not consumed in China.
e) Poultry are a source of eggs and meat.
f) Nowadays there are no animals used as pack animals.
g) Manure coming from organic farms is worse quality than the one coming from non-organic farms.
h) The main idea of the text is to present the history of animal farming.

(Adapted from: Jenkins-Murphy, Andrew, The language of AGRICULTURE in English, Regents Publishing Company, Inc., 1981.)

Domestication of animals began very early in certain parts of the world. Cattle farming began in south-western Asia by 5000 B.C. Although most often utilized for meat, cattle also provided milk and hides, and served as beasts of burden. Horses were domesticated by 3500 B.C. in the Persian Gulf area, and were used mostly as means of transportation. Other animals, like pigs, goats, sheep, poultry, were domesticated later.

Most commonly, domestic animals are used as a source of food. Cattle and goats, for example, provide meat as well as milk, which can further be refined into cheese, butter, cream, and yoghurt. Also sheep have provided meat for centuries. Not to mention pigs, which contribute a major part to meat supply in Europe and China. Poultry, such as chickens, turkeys, ducks, and geese, were once only delicacies. Today, however, they are served as food frequently, and in many countries. Additionally, they are producers of eggs.

Some other animal species were domesticated only to become pack animals, and are still used as such in many parts of the world. Horses, donkeys, camels, llamas and even elephants were carrying heavy loads long before trucks and trains appeared.

Certain animals, which have enough strength, are well suited to pulling implements for cultivating land. Horses and cattle have been the most popular working animals. In this respect, there is another animal worth mentioning – a mule. This is a hybrid between a horse and a donkey, which was made by livestock breeders in North America. This animal is exceptionally well-suited to pulling implements as well as to carrying heavy loads.

Finally, domestic animals mean a source of manure, which helps to maintain soil fertility, especially if coming from organic farms.

SPEAKING: What is the main purpose of raising animals in the developed countries today? And what was it in the past?

1.5.2. Dressage

Read the text and fill in the gaps with the following words.

century	muscular	saddle	breed	shoulders	stallion
intelligent	gray	head	located	long-lived	dark

(Adapted from Wikipedia.)

The Lipizzaner is a horse breed closely associated with the Spanish Riding School of Vienna. They date back to the 16th _____ and they take their name from one of the first stud farm, _____ near the village of Lipica, in Slovenia.
Most Lipizanners measure between 14.2 and 15.2 hands (a unit for measuring the height of a horse up to its shoulder – 10.16 cm). They are compact and _____ , with very powerful hind legs, which allow them to do the difficult »High School« movements. They generally have a strong-featured _____, set high on a well-muscled neck. Their legs have good bone and well-sloped _____. Their gaits are powerful and elastic. Lipizzaners are naturally balanced, easily trained and very _____.
Lipizzaners are slow to mature. They are not put under _____ until the age of four, and they are not considered fully mature until the age of seven. However, they are also _____ horses. They often perform well into their mid-20s and they live into their 30s. For example, the _____ Siglavy Mantua I was an excellent solo performer with the Spanish Riding school at the age of 26.
Lipizzaners are gray horses. This means they are born _____ and become lighter each year as the graying process takes place. Lipizzaners usually _____ quickly and develop a completely white hair coat. They are usually completely white by the age of seven. Until the 18th century, Lipizzaners had other coat colours. However, gray is a dominant gene and it came to be the colour of the overwhelming majority of Lipizzan horses.

1.5.3. Transhumance

Exercise 1: Read the text and think of a suitable heading for each paragraph.

_____
_____
_____
_____
_____
_____
_____

TRANSHUMANCE *(Adapted from Wikipedia and an article in Slovenian Times.)*

A Transhumance is the seasonal movement of people with their livestock over relatively short distances, typically to higher pastures in summer and to lower valleys in winter. Herders have a permanent home, typically in valleys. Only the herds travel, with the people necessary to tend them.

B Traditional or fixed transhumance occurs or has occurred throughout the inhabited world, including Scandinavia, Scotland, England, Morocco, France, Italy, Ireland, Lebanon, Romania, Bulgaria etc.

C The traditional economy of the Alps was once based on rearing cattle. Seasonal migration between valley and high pastures was critical in feeding an increased number of cattle and supporting a higher human population. That practice has shaped a lot of landscape in the Alps, as without it, most areas below 2000 m would be forests.

D While tourism and industry contribute today much to Alpine economy, seasonal migration to high pastures is still practised in Bavaria, Austria and Switzerland, except in their most frequented tourist centres. In some places, cattle are taken care of by local farmer families who move to higher places. In others, this job is for herdsmen employed by the cooperative owning the pastures.

E Austria has over 12 000 sites where 70 000 farmers take care of about 500 000 cattle. Alpine pastures amount to a quarter of the farmland. Bavaria has about 1400 sites hosting 50 000 cattle. In Switzerland, about 380 000 cattle including 130 000 cows as well as 200 000 sheep are in summer on high pastures. Alpine pastures amount to 35% of Swiss farmland.

F In Slovenia, transhumance is still practised to a certain extent. There are a few pastures in the Alps above Bohinj, Tolmin and Kamnik. A well-known event is organised in Bohinj in September to welcome the return of cattle into the valley. It is called *kravji bal* and it is popular with tourists too.

G The largest Slovenian alpine pasture is Velika planina, which is special in many ways. There are settlements of wooden herdsmen's huts with ovoid roofs stretching to the ground. They are unique to this region, but at the same time among the best preserved herdsmen's settlements in Europe.

Exercise 2: Make a short GLOSSARY on transhumance. Find the corresponding English expressions in the text.

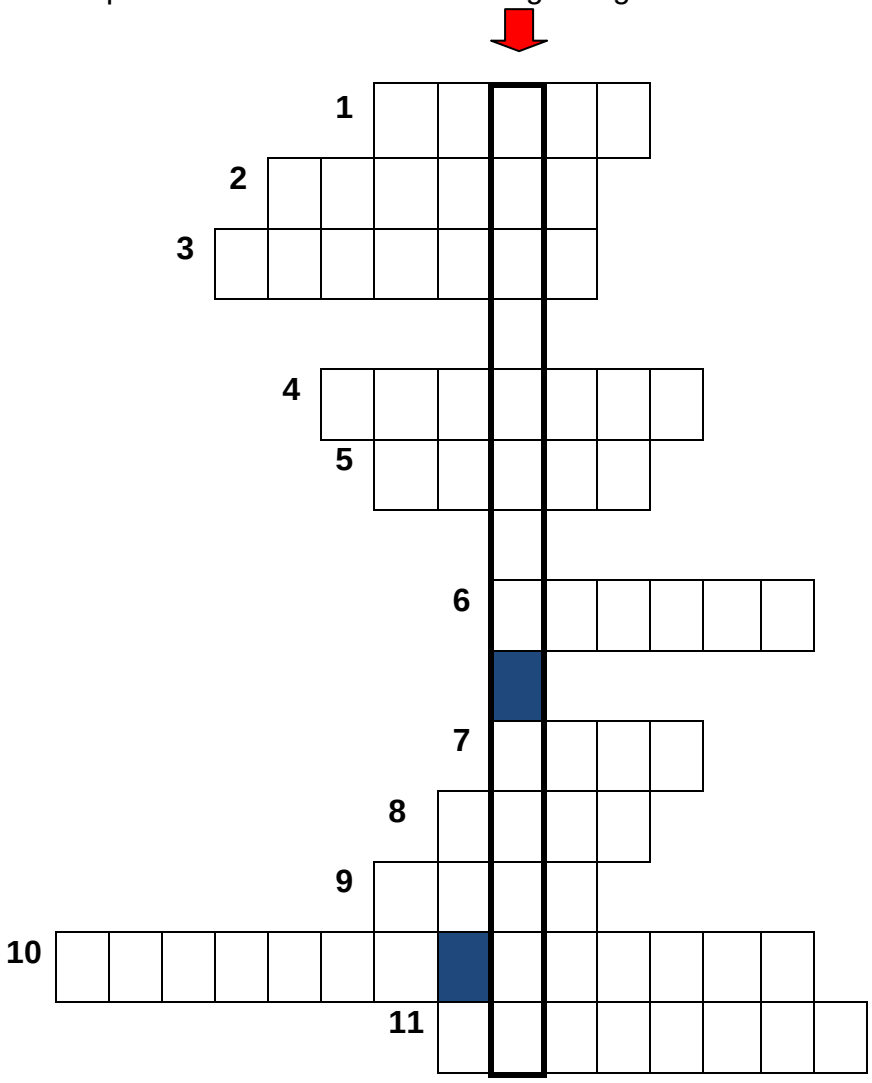
Planšarstvo - _____
Pastir - _____
Čreda - _____
Živina - _____
Koča -_____

Exercise 4: SPEAKING

- **How do cattle farmers make profit today? What products do they make?**
- **Why are Velika planina and the event *kravji bal* tourist attractions?**

Exercise 5: CROSSWORD PUZZLE – Cattle and horses

1 A special sort of horse, cow etc.
2 A building where horses are kept
3 A building where cattle are kept
4 Grassy land where cattle or sheep graze
5 A formation on the cattle's head used for protection
6 Cows, bulls and calves
7 A young horse
8 A group of cattle
9 Long hair on a horse's neck
10 A soft dairy product, used in baking too
11 A person who takes care of the grazing cattle



1.5.4. Chicken farming

The average person eats 173 eggs every year. But do you ever think about where your eggs come from?

Group A Read about Fresh Free Range Eggs and underline the main features.
Group B Read about Battery Farms and underline the main features.

TESCO NATURE'S CHOICE **FRESH** **FREE RANGE** EGGS LAID BY HENS WITH THE FREEDOM TO ROAM IN OPEN FIELDS AND PASTURES *Tesco Nature's Choice is a range of premium quality foods. They are developed to strict standards, giving consideration to animal welfare, low input farming and the removal of unnecessary additives.*	*Tesco Nature's Choice Eggs are laid by hens that live on a free range farm. Throughout the day, they are free to go outdoors, and roam across grass fields, where a minimum of 10 square metres of space is allowed for each bird. Fencing around the edge of the fields protects the hens from predators.* *For shelter and security at night, or in bad weather, the hens have a spacious house with plenty of bedding or perches. The farmers who supply Tesco with Nature's Choice Free Range Eggs, are all specially selected and they keep to strict rules of animal welfare. Nature's Choice Eggs are now available in all our stores in a variety of sizes.*
BATTERY FARMS Seventy per cent of eggs come from 'battery farms' – intensive farms where eggs and chicken meat are produced as quickly and as cheaply as possible – with little regard for the well-being of the birds. The fact, however, is that a battery hen lays on average 15 more eggs a year than a free range hen. CRAMPED CONDITIONS The conditions for the birds are terrible. As many as 10,000 hens live in one windowless shed. Battery-farm chickens spend their lives without enough space to move. They struggle even to fully stretch their wings. The amount of space they have in a battery cage is less than a sheet of A4 paper per hen.	FOOD FIGHTS Beak trimming is common: the tips of the chickens' beaks are cut off to stop them attacking each other. And then there's the smell. If a bird is in its way, namely, the others will clamber over them… It is a fight for food if they all want to feed at the same time. BAN The good news is that in 2012 the European Union ban on 'barren' cages comes into place. This means that farmers will have to provide more space and a perch for the hens. Yet in the meantime it is not realistic to expect from all people to buy free-range eggs. Battery eggs are still cheaper.

(Adapted from: Club magazine, November/December 2008.)

Group A and group B, find the answers to these questions in your text.

What kind of text is it?

What are the hens' living conditions?

What are the advantages of that type of farming?

1.6. Writing

1.6.1. A composition

Exercise 1: Brainstorming: What comes into your mind when you hear the term organic animal farming? Put down your ideas in the space below.

Exercise 2: Compare organic farming to free range farming.

Exercise 3: Write a composition of about 150 words titled *Organic Animal Farming*.

1.6.2. A letter of reservation

Imagine you are planning a trip to Scotland. You see the following advert on the internet. Imagine you want to spend a few days on that tourist farm and explore the surroundings.

Corehouse Farm
£28.00 - £34.00 per person per night
★★★
Location: Lanark, Lanarkshire
Type: B&B
Rooms: 3

Address:

Faye Hamilton
Corehouse Farm
Kirkfieldbank
Lanark
Lanarkshire
ML11 9TQ

A warm family welcome awaits you on our traditional farm with sheep and horses.

Slika 5. A horse farm

(Taken from http://www.farmstay.co.uk/search.dot?accommodation_type=0&accommodation_grading=0&accommodation_name=&location=&within=20&region=52&search_again.x=37&search_again.y=2, *retrieved on 3/6/2011.)*

MAP OF SCOTLAND

Legend:
1Edinburgh
2 Glasgow
3 Ben Nevis
4 Loch Ness
5 Lanarkshire
6 Lanark
7 the River Clyde

Slika 6. A map of Scotland

In your letter of reservation:

- **give your reason for writing and make a reservation (dates, number of people),**
- **present yourself and the other people coming with you (age, nationality, interests),**
- **ask about the payment and the traffic connections,**
- **ask anything connected with your interests.**

2. WINEGROWING

Winegrowing is also called **viticulture**.
Winemaking is also called **viniculture**.

2.1. Wine culture in Slovenia

2.1.1. Some facts

Read the following statements. Circle the letters in front of the right answers and they will give you a word connected with viticulture.

Wine and vines were brought to this region _____.

S **by the Roman soldiers** **B** **by Slaves**

The oldest growing vine in the world is situated ____.

A **in Verona** **E** **in Maribor**

It is over _____ years old.

S **500** **C** **300**

Slovenia has _____ wine growing regions.

A **3** **R** **5**

Primorska is subdivided into ____ winegrowing districts.

E **4** **T** **5**

Cviček is a wine blend typical of _____.

E **Dolenjska** **A** **Štajerska**

The annual wine production in Slovenia is ____ million litres.

L **500** **U** **100**

The annual consumption per capita is ____ litres.

T **20** **R** **40**

The holder of the Slovenian wine queen contest is the _____.

S **Agricultural Fair of Pomurje** **Y** **Ministry of Agricullture**

2.1.2. Crowning the Slovenian wine queen

Do you know what the requirements for the girls who wish to enter this national competition are? If no, find your answers on http://www.pomurski-sejem.si/slo-vk/vk_kaj_je.htm in http://sl.wikipedia.org/wiki/Slovenska_vinska_kraljica.

2.1.3. Personal attitude

Exercise 1: PAIR WORK - Ask and answer questions about each other's experience. You can use the ideas in the box to help you.

Agricultural Fair of Pomurje		cviček	meet a Slovenian wine queen
get drunk	pick grapes	prune vines	give a wine tasting

Exercise 2: Put down 3 of your future plans with respect to having (or not having) your own wine making farm one day. If you come from a wine growing family, you can mention 3 short-term or long-term plans of your family.

2.2. Growing conditions

The term refers to **climate, soil** as well as **landscape** and **site.**

Exercise 1: Look at the terms describing the soil. Match each term with the right definition.

Water-logged ♦	◊ rich, full of minerals and organic matter
Shallow ♦	◊ consisting of river sediments
Well-drained ♦	◊ full of water
Fertile ♦	◊ consisting of sand
Sandy ♦	◊ not deep
Silty ♦	◊ alkaline
Clay ♦	◊ allowing water to seep through
Airy ♦	◊ consisting of thick and heavy earth, which stays wet long
Acidic ♦	◊ with pH values lower than 7
Basic ♦	◊ not heavy
Light ♦	◊ with no tendency to flooding and with a very low level of available water

Exercise 2: Write the opposite.

A large amount of precipitation _____

Mild winters _____

Hot summers _____

Exercise 3: Describe the climate of your region.

_____

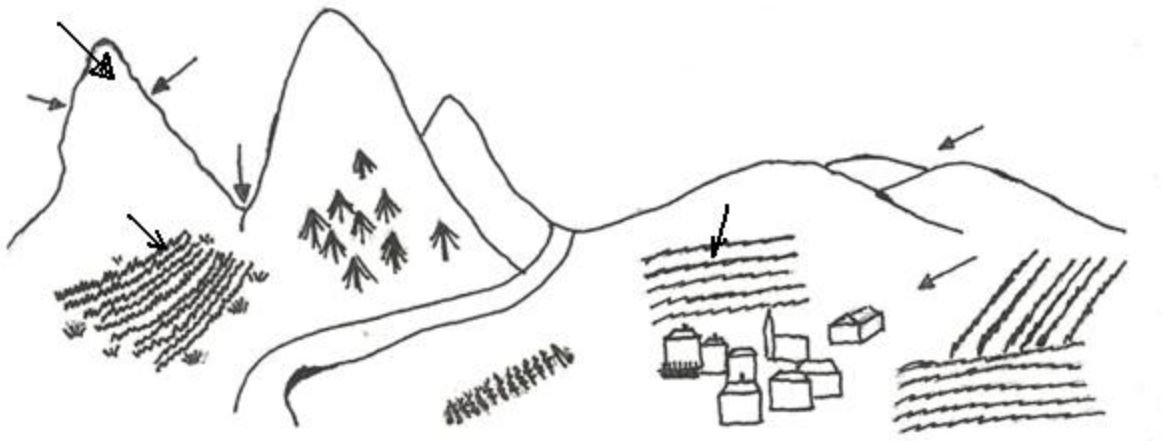
_____

_____

_____

Exercise 4: Look at the picture of the landscape. Look at the following expressions and number the picture parts.

rolling hills _1_	a gentle slope _2_	flat land _3_	a mountain _4_
a valley _5_	a steep slope _6_	field _7_	meadow _8_



Slika 7. Landscape

Exercise 5: Write the terms in the box in the right column.

shallow	fertile	plain	hilly	sandy	acidic
flat	airy	steep	water-logged	mild	severe

Climate	**Soil**	**Landscape**

Exercise 6: Read the following description of *Brda*. Then write a similar description of another Slovenian wine-growing region that you know well.

This hilly region in the far west of Slovenia is well-known for winegrowing and wine-making. The growing conditions are excellent here, firstly, because of the fertile soil, and secondly, because of the Mediterranean climate. The influence of the Adriatic Sea comes along the River Soča and from the Friulian Plain. That is why it is no wonder that all the hills are covered in vineyards.

There are many big winegrowers in Goriška Brda. They usually make their own wine and sell it to their regular customers and to the tourists that visit Brda. They normally have their own wine cellar. And they pay great attention to how it looks like, since this place serves not only for wine making but also for wine tasting and wine selling. Some farmers have a tourist farm, where they offer not only wines but also traditional dishes. In Brda, there is also a big winery. Some wine-growers sell most of their grape harvest to it.

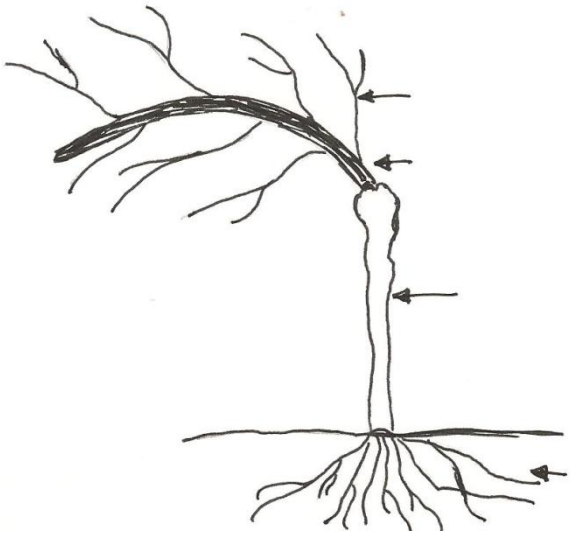
Exercise 7: Compare your wine-growing district to Goriška Brda.

2.3. Work in the vineyard

2.3.1. Parts of a vine

Exercise 1: Label the pictures with the following words:

roots	trunk	cordons	shoots	cluster	grape berry	leaf



Slika 8. A vine

Slika 9. Grapes

Veraison *is a process during which the shoot starts to harden and change colour from green to brown. After this process the shoot is no longer called so, but it is called a* ***cane****.*

Exercise 2: Arrange the processes in the chronological order.

ripening _ bud break _ leaf formation _ shoot growing _ flowering _
dormancy 1 self-pollination _ fruit set _

2.3.2. Tools and equipment

Number the pictures.

1 pruning secateurs	3 tie tape	5 mulcher
2 posts	4 wires	6 crates

2.3.3. A winegrower's chores

Exercise 1: Read the following text. Fill in the gaps with the phrases given below the text. Write the letter of the phrase on the dots.

Work in the Vineyard

(Adapted from **http://www.germanwines.de/icc/Internet-EN/nav/b83/b8307d71-9ffe-401e-76cd-461d7937aae2&_ic_uCon=3651079c-da51-501e-76cd-461d7937aae2*)***

)

Throughout the entire year a wine-grower has various tasks to tend to, such as training and pruning the vines, soil care, foliage treatment and thinning, (0)……E…….. the grapes. Many growers have come to realize that today, with a worldwide surplus of wine, quality is a vital competitive factor and quality begins in the vineyard. In January or February, the old wood is pruned away, a procedure that definitely influences the potential yield and, ultimately, (1)…….. Quality-conscious growers generally reduce the number of canes per vine to two short ones or one long one. Vine prunings are then mechanically crushed, and worked back into the soil to improve the humus supply.

Vineyard activities peak in springtime. Before bud-burst, the vine's shape takes form through bending and tying the shoots (2)…… an adequate nutrient supply to the shoots. Plowing and seeding for green covering, as well as the natural growth of plants in the vineyard, brings the soil to life. Organic nutrients, e.g. manure, straw or compost, as well as supplementary minerals, e.g. magnesium, calcium or phosphate, are also added at this time.

"As little as possible, as much as necessary" is the motto of modern wine-growers with regard to (3)…….. vine pests and fungus disease. To help keep the grapes healthy, growers spray them from four to seven times between May and August, depending on the weather.

Another labor-intensive phase begins after blossoming in June. Firstly, the unwanted shoots (4)…….. This chore is called shoot topping or trimming and it promotes growth. Secondly, some growers also prune clusters in order to reduce yield and thus, improve quality. Moreover, thick foliage, which develops between June and August, (5)…….. by tying or binding the shoots. Healthy, i.e. green, foliage is very important for assimilation in the leaves. Nevertheless, some of the leaves must be removed in order to increase sun penetration and improve air circulation. Leaf pruning in July and August also regulates the height of the vine. Today, this work is usually done by machine.

In July and until the beginning of August there are still means (6)…… the quantity and quality of the grapes. Thinning out some of the pea-sized berries strengthens those left on the bunch. Additionally, there is another practice, which is relatively modern and most often used to produce fine wine. This is the so called green harvest. Immature grapes are

removed while they are still green. This induces the vine to put all its energy into developing the remaining grapes. In theory this results (7)…….. and better flavour development.

Depending on the summer weather, the harvest begins in mid- or late September. Rainfall at this time is not desired, because at this stage of ripeness, the grapes would absorb the water and the wetness would encourage rot. Growers can measure how ripe the grapes are with the help of an optical instrument, a refractometer, and thus, determine the optimal time to begin picking. Grape variety, vineyard site as well as ripeness all play a role as to when the harvest begins, but the individual growers decide for themselves. In flat or gently sloping sites the vines are often harvested mechanically. The grapes for *Trockenbeerenauslese*, however, (8)……. by hand.

A can be removed
B the quality of the wine
C spraying to combat
D must be picked
E as well as harvesting
F of influencing
G in order to ensure
H is kept in shape
I in better ripening

Exercise 2: Answer the questions.

a. What are the main chores in the vineyard throughout the year?

_____

_____

b. Which of them are normally done mechanically in Slovenia?

_____

Exercise 3: GLOSSARY OF BASIC WINE GROWING TERMS:

a winegrower _____
a training system _____
a vine variety _____
a vineyard _____

Exercise 4: Compare the two pictures.

Slika 14. A training system

Slika 15. A training system

Exercise 5: Imagine you are sitting on a plane next to a person from Argentina. To make the time pass quickly by, you start chatting. During the conversation you learn that Argentina is a big wine producer. And you also realize that your conversational partner is quite knowledgeable about wine growing and wine making. Now CHOOSE one of the following tasks. Imagine that they are part of your imaginary conversation.

a. **Write a short paragraph in which you present a few characteristics of wine growing in Slovenia (minimum 5 sentences).**
b. **Write a short paragraph in which you present a few characteristics of your own wine growing farm (minimum 5 sentences).**
c. **Write 5 questions related to Argentinian wine production.**

Exercise 6: ROLE PLAY

Imagine that you are having a gap-year. You are travelling around Australia but you are also looking for a temporary job to earn some money. You come across a job advert in which you see that a wine growing farm is seeking seasonal workers. You phone them and you are invited to a job interview.

Act out the interview with your teacher. The teacher is going to play the role of an interviewer. You're going to discuss mostly your qualification and work experience.

2.3.4. Safety at work

Exercise 1: Think about the dangers that a winegrower might be exposed to. Is it possible that they endanger other people or things?

Exercise 2: Look at the headings of the following safety directions. Make sure you understand them.

READ SAFETY DIRECTIONS BEFORE OPENING OR USING

SCALA

400 SC FUNGICIDE GROUP I FUNGICIDE For the control of grey mould (*Botrytis cinerea)*

GENERAL INSTRUCTIONS

Grapevines

If three or fewer grey mould sprays are applied in a season, use only one spray per season containing a Group **I** fungicide. If four or more grey mould sprays are applied use no more than two sprays containing Group **I** fungicides.

Mixing

Add the required amount of Scala directly to the half-filled spray tank with agitators in motion, or with constant mechanical agitation. Do not allow the spray mixture to remain in the tank for long periods without agitation.

Application

Equipment

NOT to be applied by aircraft.

Grapevines - Scala can be applied using suitable dilute or concentrate ground application equipment. Equipment should produce a spray that ensures penetration of the canopy and coverage of the flowers or bunches.

Special Instructions for Grapevines

Dilute spraying

♦ Use a sprayer designed to apply high spray volumes, up to the point of run-off.

♦ Set up and operate the sprayer to achieve even coverage throughout the crop canopy. Apply sufficient spray volume to cover the crop to the point of run-off. Avoid excessive run-off.

DRIFT WARNING

DO NOT apply under weather conditions or from spraying equipment which could be expected to cause spray to drift onto adjacent crops, crop lands, pasture or livestock.

STORAGE AND DISPOSAL (5 and 10 L containers)

Keep out of reach of children.

Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight.

Pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site.

SAFETY DIRECTIONS

Will irritate the skin. Avoid contact with skin. When opening the container and preparing spray and using the prepared spray, wear cotton overalls buttoned to the neck and wrist and a washable hat and elbow-length PVC gloves. Wash hands after use. After each day's use, wash gloves and contaminated clothing.

FIRST AID

If poisoning occurs, contact a doctor.

DIRECTIONS FOR USE

CROP	DISEASE	RATE	CRITICAL COMMENTS
Grapevines	Grey mould (*Botrytis cinerea*)	**Dilute Spraying** 200 mL/100 L water (maximum 2.0 L/ha) **Concentrate spraying** Flowering* 1.5 to 2.0 L/ha Post-flowering 2.0 L/ha	Applications should be made at the critical timings for botrytis control. Apply by dilute or concentrate spraying equipment. Use a sufficient amount of water and/or adequate equipment to ensure penetration of the canopy and coverage of the flowers or bunches.

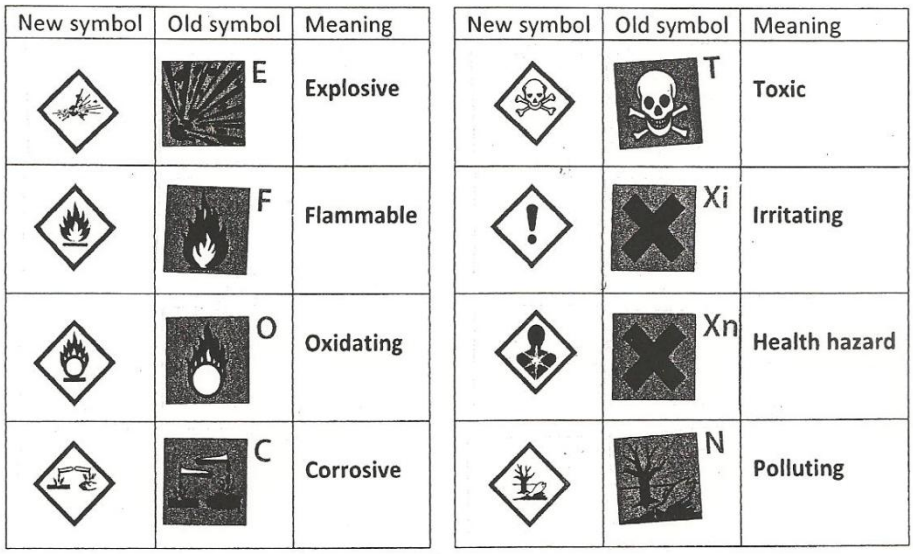
WITHHOLDING PERIOD

Grapes - DO NOT HARVEST FOR 7 DAYS AFTER APPLICATION.

(Adapted from http://www.herbiguide.com.au/Labels/PYRI400_46026-0403.PDF)

Exercise 3: GROUP WORK – Look at the safety instructions and find the answers.

a) What type of spray is it? What is it used for?
b) How is this spray used? When is it applied on the vines?
c) What is the English word for *»karenca«*?
d) Which of the following signs would probably be found on the Scala container? Tick them.



Slika 16. Pictograms of dangerous substances

Exercise 4: Give three examples of a winegrower's behaviour that will prove his safety awareness. What will (s)he do and what won't (s)he do?

_____
_____
_____
_____

2.4. Winemaking

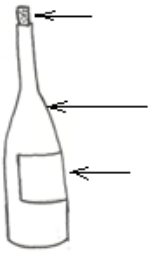
2.4.1. Equipment

Exercise 1: Label the pictures with some of the words below.

(Adapted from http://www.beer-wine.com/wine.asp*)*

Wine making equipment
Barrel, keg
Wine tap
Steel rings
Stand
Bung
Crusher/ Destemmer
Fermentation vessel
Filter
Press
Tank

Bottling supplies
Bottle
Stopper, cork
Label



Slika 17. Winemaking equipment

Slika 18. Winemaking equipment

Slika 19. Winemaking equipment

Slika 20. Winemaking equipment

Slika 21. Winemaking equipment

Exercise 2: Materials. Complete the sentences.

a) Barrels are made of _____.
b) Tanks are made of _____.
c) Wine taps are made of _____.
d) Stoppers are made of _____.

2.4.2. Wine labelling

Look at a wine label and try to name the indications that have to be on the front label.

2.4.3. Glossary of wine terms

Exercise 1: Wines are labelled in terms of sort, quality, sweetness level, geographical origin, winemaking procedure, age, and colour. Complete the following glossary.

Red wine _____
White wine _____
Rosé _____
Sparkling wine _____
Champagne _____
Barrique wine _____
Bottled wine _____
Draft wine
Wine from a keg _____
Wine on tap
Wine autochthonous of... _____
Vintage _____
Vintage wine _____
Aged wine _____
Ice wine _____
Pikolit
Trockenbeerenauslese (TBA) wine

Dry wine _____
Semi-dry
Medium dry wine _____
Semi-sweet
Medium sweet wine _____
Sweet wine _____
Dessert wine _____
Table wine _____
Country wine _____
Quality wine _____
High quality wine _____
Wine blend _____
Vintage wine blend _____
_____
_____
_____
_____

Exercise 2: What traditional Slovenian wine blends can you think of?

_____

Exercise 3: Explain the following terms **in English:** barrique wine, ice wine, pikolit.

Exercise 4: Read the following text and give short answers to the following questions.

Sweetness of wine *(Taken from Wikipedia, the free encyclopedia.)*
The **sweetness** of a wine is defined by the level of residual sugar (or RS) in the fermentation process. Residual sugar is the measure of the amount of sugars that remain unfermented in the finished wine. Residual sugar is usually measured in grams of sugar per litre of wine. Even among the driest wines, it is rare to find wines with a level of less than 1 g/L. By contrast, any wine with over 45 g/L would be considered sweet, though many of the great sweet wines have levels much higher than this. How sweet a wine will taste is also controlled by factors such as the acidity and alcohol levels, the amount of tannin present, and whether the wine is sparkling or not. Terms used to indicate sweetness of wine: **dry, semi-dry, semi-sweet, and sweet.**

a. What does the sweetness of a wine depend on? _____
b. What is residual sugar? _____
c. What is the minimum level of sugar in sweet wines? _____

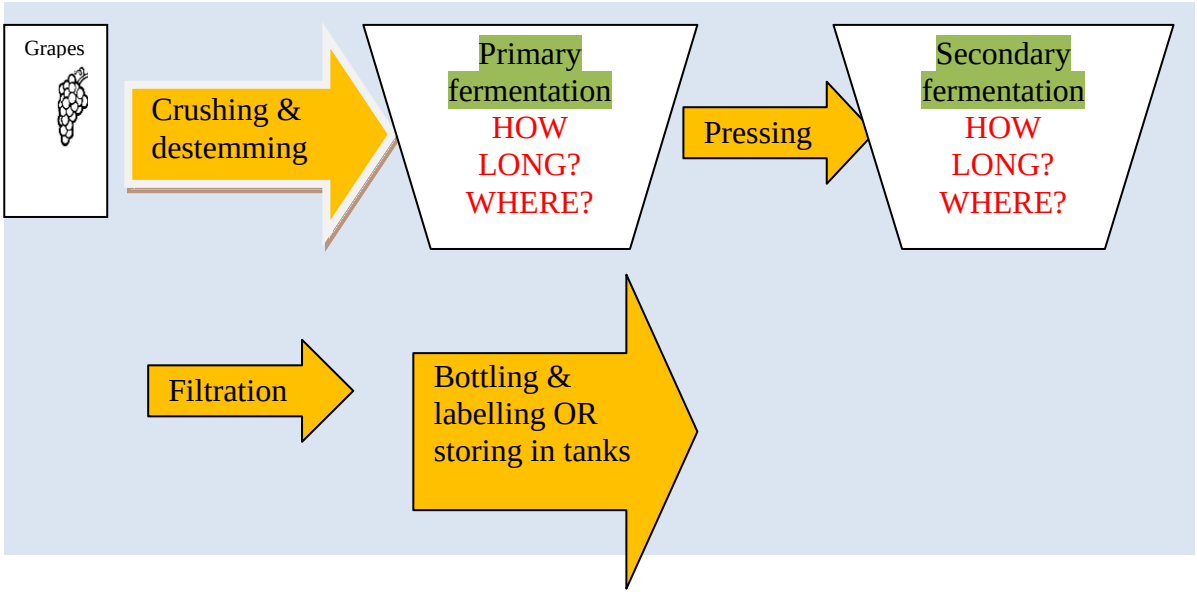
Exercise 5: Compare two wines. Choose from below:

- yours and your neighbour's,
- wine of two vintages,
- 2 wine sorts of the same colour,
- wines from two different Slovenian wine-growing regions.

2.4.4. Winemaking process

Exercise 1: Look at the following scheme.

Is it typical of white wine or red wine making?
Complete the diagram using the following terms: must, cultured yeast.



Exercise 2: GROUP WORK – Do the following tasks.

a) See the diagram and present the winemaking process in sentences.
b) What is different in the process of white wine making?
c) What are rosé wines?
d) What does wine quality depend on?
e) What criteria is wine quality judged upon?

2.4.5. Wine barrel care

Read the text and give short answers to the questions that follow.

Wine Barrel Care

(Adapted from http://www.recoop.net/Wine%20Barrel%20Care.htm*)*

A ReCoop barrel will impart its oak flavouring for three years from the date stamped under our brand. Thereafter, it can be used as a neutral storage vessel for your wine for an additional 5 years.

In accordance with good wine making procedures, barrels should be stored off the ground in a cool, well ventilated cellar away from direct sunlight to prevent mold growth and excessive temperature swings.

A barrel that is empty should be stored in a cool cellar, hydrated and sulfured every 3 weeks. When hydrating, make certain to avoid chlorinated water.

Hydrating of a ReCoop Barrel

There are various processes that can be undertaken to hydrate a barrel. The principal intent of hydrating is to ensure that the stave and head material are swollen with water in order to protect against wine seepage. In addition to expanding the wood, extended hydration and other barrel conditioning treatments will "sweeten" a barrel.

Winemakers will sometimes desire to remove or soften the harsher characteristics of new oak, preferring more vanillas and cinnamons. This is often accomplished by extending the period of water saturation (the barrel is completely filled for a period of 24-72 hours) or, once hydrated, cured with alkaline solutions of weak sodium chloride, sodium carbonate or caustic soda. If alkaline solutions are used, make sure to rinse out and neutralize the barrel prior to filling with wine.

Recommended hydrating procedure

Note to use only chlorine free, clean, potable water. While standing the barrel upright, fill the barrel with 1/10th its capacity with water. Cover the bung hole and roll the barrel 5-8 times to wet the inside of the barrel. Stand the barrel once again and put water on the head up to the top of the chime. After 4-8 hours, once again, roll the barrel 5-8 times and this time stand it on the other head and top the head with water up to the chime. Let stand for an additional 4-8 hours, then remove all water. Once all water is removed the barrel should be filled with wine immediately. If the barrel is not filled immediately after all water is removed, gas with sulfur or burn a sulfur strip to prevent any mold or fungus growth.

Sulfuring the barrel

Sulfur is available in strips and in discs. When burned in a closed barrel it is filled with SO2 to inhibit mold and bacterial growth.
Strips are hung in a **barrel** and burned to produce SO2. In this way the barrel is sanitized.

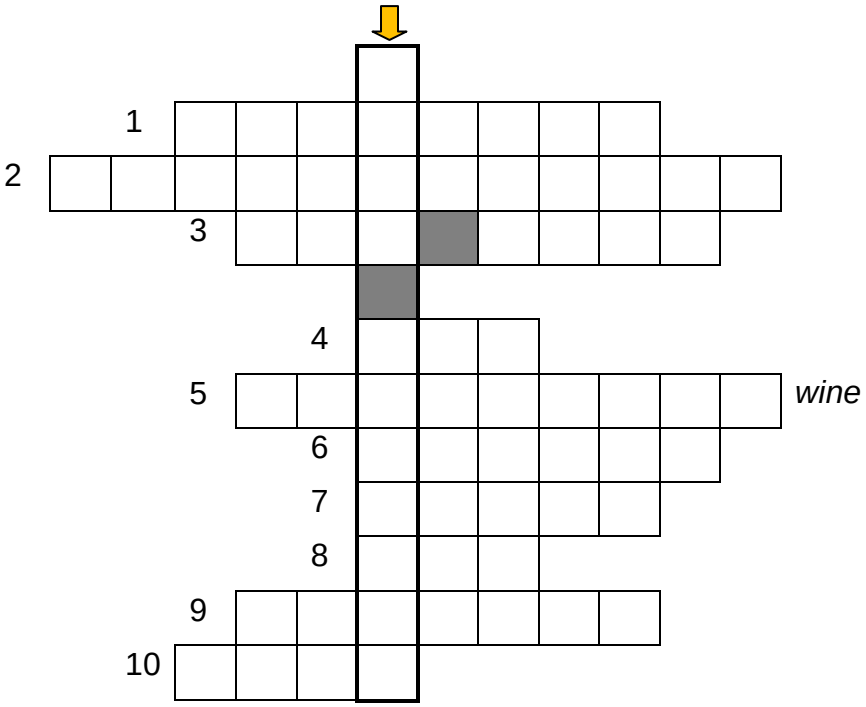
Give SHORT answers.

1. How long can the same barrel be used for barrique wines? _____
2. Is it good to keep the barrel direct on the ground? _____
3. What is typical of a good wine cellar? _____
4. How should an empty barrel be stored? _____
5. What is the purpose of prolonging the hydrating process up to 24 hours or more? _____
6. What should a wine-maker use to add some vanilla or cinnamon flavouring to the barrique wine? _____
7. What is the minimum time of the recommended hydrating process? _____
8. Why are barrels sulfured? _____

2.5. Revision

Exercise 1: Do the crossword puzzle on wines.

1, 2 The sweetness of wine is determined by the amount of the _____(1)_____ sugar after the _____(2)_____ process.
3 The wine made from the grapes that are left on the vines until they get frozen in the first five frosts.
4 Part of a barrel or tank which you turn on when you want to pour some wine.
5 Wine containing CO2.
6 _____(6)_____ is burned inside the barrels to sanitize it.
7 Wine which is not barrique is usually stored either in bottles or in wine _____.
8 The place in the countryside which offers local foods and drinks, similar to a restaurant.
9 It was typical of the last _____*(9)*_____ that it had a high level of sugar but it was small in quantity because of the hail.
10 A piece of wood closing the hole in the barrel, which is used for pouring wine into it.



Exercise 2: ROLEPLAY:

Imagine you own a tourist farm. The following advert can be found on Internet and in a local leaflet.

> **On the farm, where 25 people can be served sitting at the table, or 45 people standing, we offer visits of the wine cellar as well as wine tasting together with assorted homemade cold meat. Previous appointment is desired.**

One day, an English person calls to arrange wine tasting for a group of 7 people. In pairs, discuss the date, time, food and price.

2.6. Having your own business

Exercise 1: Imagine you have 3 hectares of vineyards and your own wine cellar where you accept guests, offer wine tastings and sell wine.

a. Consider the expenditures.

b. What initial investments are necessary?

c. What can be of great help when you're starting a business of your own?

d. What equipment / machinery is desired sooner or later?

e. What are the regular (monthly / annual) expenses?

f. Would you decide to have any labour (employees)? Why (not)?

g. Consider the turnover. Where does it come from?

2.7. Writing

2.7.1. A composition

Write a composition titled *Beauties & hardships of being a winegrower*.

2.7.2. A letter of enquiry

Imagine you want to buy one of the following machines:

- **a pruner,**
- **a tipping machine,**
- **a grape harvester.**

On Internet you found a company selling this.
http://www.tanesini-tech.it/main/index.php?id_pag=10 (retrieved on 31/5/2011)

Write **a letter (OR an email) of enquiry**, in which you:

- **give your reason for writing,**
- **present yourself (name, age, nationality, maybe employment),**
- **enquire about the stock, price, delivery, and payment,**
- **ask them to send you the catalogue.**

Your address is:
Jan / Ana Vesel
Vipavska 30
6000 KOPER

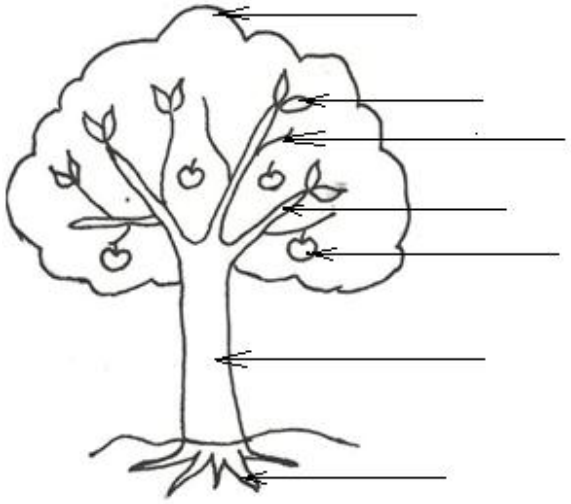
The company's address is:
Tanesini Technology srl
via R. Sella 19
48018 Faenza (RA)

3. FRUIT GROWING

3.1. Fruit trees

3.1.1. Parts of a tree

Label the parts of the tree in the picture.



Slika 22. A tree

3.1.2. Parts of a flower

Read the text and label the flower parts in the picture.

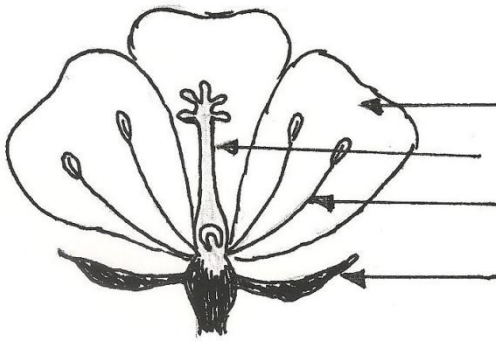
There are four parts to most flowers. These are the sepals, the petals, the stamens and the carpel. They are arranged in rings, one inside the other.

The **sepals** protected the flower while it was a young bud. Many **petals** are brightly coloured to attract insects to the flower. Many flowers also have lovely scents so that bees and other insects will notice them and come to them.

The **stamens** make a yellow dust called pollen. If you shake a ripe flower, little clouds of pollen come off.

If some pollen settles on the **carpels** of the same kind of flower, the carpels start to grow. Each carpel grows into a fruit which contains a seed.

(Taken from: Terry Jennings, Flowers, OUP 1982.)



Slika 23. A flower

3.1.3. Pollination

Exercise 1: Read the text and answer the questions that follow.

POLLINATION

Pollination – followed by **fertilisation** - is essential for the **reproduction of plants**.

Sometimes the pollen is carried away from one flower to another by insects. This usually happens when the flower is brightly coloured and has nectar in it or a sweet scent. Insects do not mean to carry pollen to other flowers. They visit the brightly coloured or scented flowers to feed on the nectar at the base of the petals. Or, in case of bees, the pollen as well as nectar are carried back to their hives. Anyway, those plants are categorised as **insect-pollinated plants**.

Some flowers such as those of grasses and many large trees do not have brightly coloured petals and nectar to attract the insects. These flowers are pollinated by the wind. The pollen of **wind-pollinated flowers** is very light and blows easily. Often wind-pollinated flowers have no petals at all to get in the way of pollen as it blows along. *(Taken from: Terry Jennings, Flowers, OUP 1982.)*

Are fruit trees insect- or wind-pollinated plants?
What is typical of insect-pollinated flowers?

_____

Exercise 2: SPEAKING - Explain the process of pollination.

3.1.4. Functions of different plant parts

There are many processes that go on in the plant. Each part of a plant has, therefore, its specific function. Fill in the gaps with the missing part of a plant.

- _____ anchor the tree in the soil.
- _____ absorb water and minerals from the soil.
- The _____ gives the tree support.
- _____ manufacture food for the plant in the process called photosynthesis.
- _____ bring about the reproduction of the plant.
- _____ produce the male sex cells.
- The _____ produces the female sex cells.
- _____ protect the flower while it is in the bud stage.
- The embryo in the _____ develops into an adult plant. The seeds are enclosed by the fruit.

3.2. Fruit

Exercise 1: Use a dictionary and find the following expressions in English.

Jabolka	_____	Fige	_____
Hruške	_____	Kakiji	_____
Slive	_____	Citrusi	_____
Breskve	_____	Limone	_____
Marelice	_____	Pomaranče	_____
Češnje	_____	Limete	_____

Exercise 2: Use a dictionary and label the parts of the fruit in the picture.

Slika 24. An apple

Slika 25. A plum

Exercise 3: Different fruit ripens in different seasons. Complete the chart accordingly.

Fruit ripe in spring:	Fruit ripe in summer:	Fruit ripe in autumn:

Exercise 4: Answer the questions.

a) What fruits are most common in Slovenia?
b) What fruits are typical of the Mediterranean climate?
c) Why do some fruit trees grow (better) in some areas and not at all in others? Think of their growing conditions.
d) Which is your favourite stone fruit?
e) What is a fruit variety? Give two examples.
f) Give some examples how fruit varieties differ from each other.

3.3. Fruit growing in the past and today

Exercise 1: Read the following two definitions and think of the Slovenian translations for the expressions in bold type.

> **A fruit tree nursery** is a place where different **fruit tree varieties** are **propagated**. Also, fruit tree **seedlings** are bought by different people and fruit growers there.
> **An orchard** is an area of land where fruit trees are grown. However, this term is not used for citrus trees. In that case the word **grove** is used, i.e. *There are a lot of orange groves around the village*.

Exercise 2: Read the text What has changed in fruit growing? And put notes in the chart below.

What has changed in fruit growing?

The average orchard fifty years ago had about 80 trees to the hectare, grew a tree for fifteen years before any of fruit and most of the fruit was from 2m to 10m from the ground.
Today, a typical tree density is from 1000 to 4000 trees to the hectare, with a few up to 40,000. Fruit is produced from year two, with heavy cropping from year four or five. Most if not all the orchard work is done from the ground because tree height is around two metres. The great advantages which have been achieved with correct management are: high yield early in the life of an orchard, higher quality of fruit, higher visual quality.

(Adapted from: Somerville, Warren, Pruning and Training fruit trees, INKATA Press, 1996.)

The average orchard in the past	The average orchard today

Exercise 3: On the basis of the completed chart, compare the average orchard fifty years ago to a typical orchard of today.

Exercise 4: Have a look at the different aspects of tree management. After that, try to answer the questions that follow.

The different aspects of tree management are:

▪TREE SIZE CONTROL, ▪PRUNING, ▪TRAINING,	▪FERTILISING, ▪IRRIGATION, ▪PEST AND DISEASE CONTROL,	▪HARVESTING.

a) What does a fruit grower do in different seasons of the year? Explain on a particular fruit tree.
b) Is it easy to manage an orchard of your own? Why (not)?

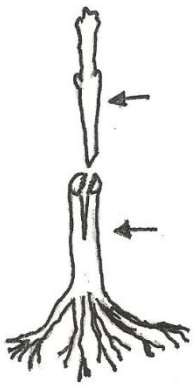
3.4. Fruit tree propagation

Exercise 1: Read the text and label the picture.

Most fruit trees consist of at least two **cultivars** growing together. One cultivar provides the root system of the tree and it is called the **rootstock**. The other cultivar provides the trunk, the shoots and fruiting part and it is called the **scion**.
Both should be virus free. The scion is attached to the rootstock by **grafting**. The combined tree is normally grown for at least one more season before being transplanted into the permanent orchard site.

The choice of the rootstock determines the tree size, the natural tree shape and the anchorage. It is also worth bearing in mind that different rootstocks tolerate different type of soil.

The scion determines the fruit variety and its features: size, shape, colour, flavour, aroma, firmness, shelf life, ripening season.



Slika 26. Grafting

(Adapted from: Somerville, Warren, Pruning and Training fruit trees, INKATA Press, 1996.)

Exercise 2: Answer the questions.

a) What fruit tree features are dependent on the rootstock?

_____

b) What fruit tree features are dependent on the scion?

_____

Exercise 3: Use your logic or internet and find the meaning of the term dwarfing trees. Afterwards, think about the advantages and disadvantages of dwarfing rootstocks?

_____

_____

_____

3.5. Pruning

3.5.1. Pruning equipment

Match the terms and the pictures.

secateurs	**a hand saw**	**long-handled secateurs**

Slika 27. Tools

3.5.2. Types of pruning

Complete the table.

TYPES OF PRUNING	What does it mean?	What is it done with?
Heavy winter pruning		
Summer pruning		
Thinning	*Removing much of the excess fruit bud*	

3.5.3. Reasons for pruning

Exercise 1: Read the text and write the letter of the paragraph to the right heading.

Controling the fruiting process
Maximising fruit quality
Restoring the damage
Contributing to pest control
Training fruit trees

Reasons for pruning

A _____ The orchardist has to give a fruit tree the framework. He has to select the leaders and to remove the competing leaders because the trees should not become too bushy. After each tree has filled its allocated volume, it has to be kept in its space. First of all, it should not grow too high. Secondly, it should not stretch limbs into another tree's space, or onto the path or it should not touch the ground. Anyway, pruning is not the only way how to manipulate the natural growth of a fruit tree. Another method is spreading limbs. For this purpose, branches are either tied to the support system or branch angles are controlled by the use of training aids (e.g. pegs).

B _____ When the tree is too young or the framework is as yet too weak to carry a crop of fruit then the majority of the fruit bud needs to be cut off at pruning time. When the tree is mature enough and strong enough there is still a need for selective removal of fruit bud when the bud density is clearly too high. This is done during the blossom and fruit-set period and this type of pruning is often referred to as thinning. It can be done by-hand, mechanically or chemically.

C _____ There are four fruit quality parameters: fruit size, fruit colour, fruit internal quality (including firmness, sweetness, flavour and aroma) and skin quality. Pruning contributes to all of them. Firstly, it improves the sunlight penetration to the fruit, which plays an important role as to the fruit size, fruit colour and internal quality. It is the best if fruit is grown in NEAR direct sunlight (75% sunlight). Secondly, the removal of the excess fruit at the flower bud stage by appropriate winter pruning guarantees bigger fruit size. Moreover, pruning ensures that the fruit hangs freely and does not rub against stems, or even leaves, which enables optimum skin quality.

D _____ Pruning can contribute to pest control. This becomes clear if we bear in mind that most spraying is done by drive-past air-blast sprayers. In order to use the minimum amount of pesticide with the highest effect possible, the tree should be open enough to allow spray penetration. In practice if a tree is pruned for penetration of light it is likely to be adequately pruned for spray penetration as well.

E _____ A tree can be physically damaged by a number of factors including: **crop load, machinery damage, storms, hail, rough pickers**. Rough wounds must never be allowed to remain on the tree. The brunch must be cut back to undamaged areas. And it is worth noting that all major cuts - made for purely pruning and training reasons or in order to restore a

damaged area on the tree - should be sealed shortly after cutting. The aim of sealing is to prevent invasion of pathogens (fungi and bacteria).
(Adapted from: Somerville, Warren, Pruning and Training fruit trees, INKATA Press, 1996.)

Exercise 2: Give SHORT answers.

a. What is the aim of spreading limbs?

   _____

b. Why is thinning important?

   _____

c. What are the four parameters of fruit quality?

   _____

d. Which of the four parameters are affected by the appropriate amount of sunlight?

   _____

e. What is the relation between pruning and pest control?

   _____

f. What does »sealing« mean according to your understanding?

   _____

g. What are three of the main aims of pruning? Enumerate.

   _____

3.6. Planning a new orchard

Exercise 1: Read the short text and think about the possible consequences if a particular aspect has not been premeditated.

Planning a new orchard

There are a number of things that have to be considered when planning a new orchard. The decisions include:

which fruit variety
which rootstock
the maximum size the tree will grow to
which training system
tree spacing along the row
spacing between the rows
the support system if necessary
pruning equipment.

(Adapted from: Somerville, Warren, Pruning and Training fruit trees, INKATA Press, 1996.)

Exercise 2: Read the passage and express your ideas about different training systems.

Training systems

There are different training systems or orchard designs. Some are more demanding than the others and demand better skilled labour. They also differ in the crop yield and in the costs of production. Finally, not all of them are appropriate for any fruit variety.

(Adapted from: Somerville, Warren, Pruning and Training fruit trees, INKATA Press, 1996.)

Exercise 3: Compare the orchards in the pictures.

Slika 28. An orchard

Slika 29. An orchard

Exercise 4: ROLE PLAY - Imagine you have an English neighbour. She wants to plant a few fruit trees behind her house. Give her some advice.

3.7. Revision

Exercise 1: Read the text and fill in the gaps with the words from the box.

grown	newly	easily	prolonged	nurseries	fertilizer
rotten	damaging	depending	larger	central	

APPLES are the most widely _____ fruit. They will grow in most soils, but do best in well-drained neutral or slightly alkaline soil that will not dry out in summer. Apples do not grow well in seaside gardens because salt laden winds can be _____.

Most varieties of apple tree need cross-pollinating by another variety that blossoms at the same time. But specialist _____ propagate family trees that consist of three cross-pollinating varieties on a single rootstock. In this way you need to plant only a single tree.

For a family of four people who like apples, six trees will provide ample fruit.

Planting The best time to plant an apple tree is in autumn or in frost-free weather in winter. The roots of _____ planted trees need plenty of water. If you plant during a dry period, make sure the soil is kept moist.

Taking care of apple trees For the first two or three years, mulch in spring with a layer of straw or well-_____ compost.

Every winter, in late January, feed apple trees with a suitable _____. Sprinkle the fertilizer evenly over the soil, covering an area slightly _____ than that overspread by the branches. Let it penetrate naturally. Do not fork it in as this can damage the roots. Remove weeds by shallow hoeing or with a liquid weed killer.

Mature trees need watering during _____ dry spells.

Thinning a heavy crop of young apples The aim of thinning is to allow the remaining apples to grow to full size. Otherwise, too heavy a crop would result in small, poor fruits. Start thinning a heavy crop of young apples in early June, before the natural drop later in the month. From each cluster remove the _____ fruit.

Harvesting apples according to their season Fruit matures from April to August, _____ on the variety. The best way to test if apples are ready for picking is to lift one up to the horizontal in the palm of your hand and twist gently. It is ready for picking if it parts _____ from the tree, with the stalk remaining on the fruit.

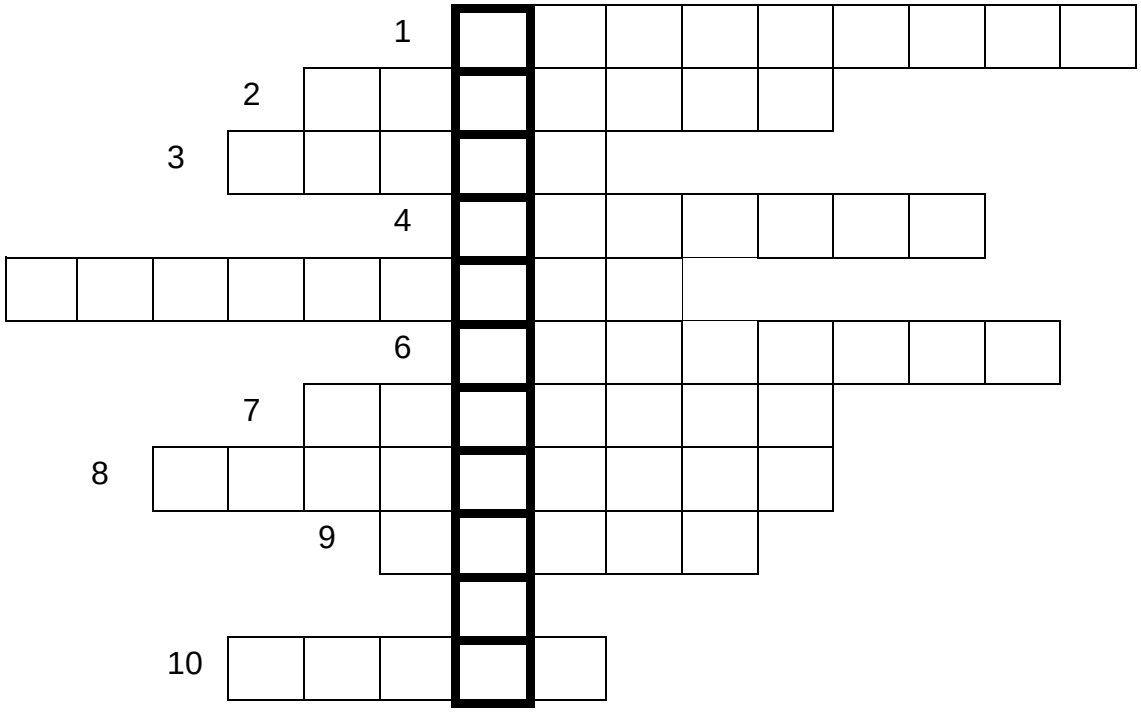
Harvest apples with as much care as if handling eggs, because they bruise easily. Place ripe apples in a container lined with soft material.

Early apples will not stay long and are best eaten as soon as they are picked.

(Adapted from: Leović, Marija, Engleski jezik, Zavod za udžbenike i nastavna sredstva – Beograd, 1983.)

Exercise 2: SPEAKING – Explain the chores in the apple orchard in different seasons.

Exercise 3: CROSSWORD PUZZLE



1 Orange fruit which is ripe in November.
2 The place where trees or plants are propagated.
3 The fruit variety which is grafted on the rootstock.
4 Cutting off excess shoots.
5 The fact of being rooted in the soil.
6 Joining two cultivars by means of a cut into the rootstock.
7 Taste.
8 The most frequently used pruning equipment.
9 The total amount of certain crops that is produced per year.
10 A hard thing containing the seed in the middle of some types of fruit.

Exercise 4: DEFINITIONS - Write the number of the appropriate definition.

thinning	1 maturity
a chain saw	2 pesticides
a row of trees	3 icy balls falling from the sky
tree density	4 the number of trees per hectare
a shoot	5 cutting off the excess leaves or fruits
ripeness	6 trees standing next to each other in a line
sealing	7 a new branch which starts growing in spring
hail	8 a machine on wheels used for pruning trees in a row
a hedging machine	9 a machine driven by a motor and used for cutting wood
plant protection products	10 covering wounds on a tree with a special chemical substance

Exercise 5: PASSIVE – Read the text and put the verbs into the passive.

Organic apple production

(Abstract)

The aim of the research proposal is to solve two key problems of the organic apple production. First, to find the appropriate apple cultivars which were resistant against two most important apple diseases, apple scab and powdery mildew. A total of 37 more or less resistant apple cultivars will be planted to estimate the degree of resistance against scab and mildew in the Slovenian ecological conditions. All planted cultivars _____ (observe) through the pomological criteria, i.e. fruit quality and growth habit of trees. The resistance of planted cultivars _____ (estimate) in two ways: half of the trees will be free of any spraying against diseases and half of them _____ (spray) according to organic farming procedure. The fruit quality _____ (measure) and tested just after the harvest and after the end of storage in cool-room. The second major problem of the organic apple production is fruit thinning. Since the fruit quality and regular flowering depend mainly on the success of chemical fruit thinning, this measure is necessary in any economic apple production, commercial and organic. As none of the commercially known fruit thinning agents _____ (allow) in the organic farming, a substitute should _____ (find) to enhance the economy of organic apple production. Some preliminary experiments in the world showed that potassium salts of fatty acids, lime sulphur and some mineral oils accelerate apple fruitlet abscission. The sprays mentioned above are the agents allowed and used in organic farming against pest and diseases. We expect that an appropriate dose and application time of these agents would thin to the extent applicable to spray in organic apple production. In addition, we will try to thin with diluted acetic acid, some plant oils and with a low concentration of kitchen salt, i.e. the compounds possible _____ (use) in organic farming. Standard procedure for fruit thinning experiments will be used to asses the initial and final crop load and fruit quality. All the thinning experiments and fruit variety testings will be set with a statistical design in the fields at the enterprise Sadjarstvo Mirosan and at the experimental orchard in Brdo.

http://www.ist-world.org/ProjectDetails.aspx?ProjectId=755610a6de3d4d9cadc86b21e18c9f60

Exercise 6: SPEAKING - Read the short text and be prepared to discuss it.

Hail also does a great deal of damage to crops. U.S. costs run into hundreds of millions of dollars annually. While hailstones have been found weighing as much as 0.75 kilograms (1.67 pounds), even much smaller hail can destroy crops, slicing corn and other plants to ribbons in a matter of minutes. Farmers cope with the hail hazard by purchasing insurance. Illinois farmers lead the United States in crop-hail insurance, spending more than $600 million annually. However, U.S. hail is most common in the area where Colorado, Nebraska, and Wyoming meet, known as "Hail Alley." Parts of this region average between seven and nine hail days a year.

http://www.ucar.edu/communications/factsheets/Hail.html

Exercise 7: Make a GLOSSARY OF FRUIT GROWING TERMS.

4. BEEKEEPING

Sometimes called apiculture.

4.1. Facts on honey bees and honey

Read the facts and mark the most interesting ones for you.

(http://www.isba.us/index.educational_files/downloads/amazing_facts.pdf)

Honey bees must visit some 2 million flowers to make one pound of honey.
Honey bees fly about 55,000 miles to bring in enough nectar to make one pound of honey.
About one ounce of honey would fuel a honey bee's flight around the world.
Honey bees have been producing honey from flowering plants for about 10-20 million years.
The average honey bee worker makes 1/12 teaspoon of honey in her lifetime.

Honey bees have four wings that are latched into pairs by hooks.
Honey bees are the only insects that produce food for humans.
The male honey bee, the drone, has a grandfather but no father.
The average honey bee flies between 12 and 15 miles per hour.
A honey bee flaps its wings about 200 times per second. That is why bees buzz!

A honey bee worker visits more than 2,000 flowers on a good day.
Honey bees communicate with one another by smell and dances.
The average summertime honey bee lives only about 28 to 35 days.
A honey bee visits between 50 and 100 flowers during one collection trip.
A typical healthy hive may contain up to 60,000 honey bees during peak times.

Honey bees make an average of 3,700 round trips in order to produce about 50g of honey.
Bees will travel as far as one or two miles from the hive to gather nectar.
Honey bees from a typical hive visit approximately 225,000 flowers per day.
Queen bees will lay as many as 2,000 eggs on a good day -- an average of one every 45 seconds.
A good queen bee will lay between 175,000 and 200,000 eggs per year.
The average central temperature of the brood nest is kept between 33 -35 degrees Celsius.

Approximately 3.5 kilos of honey is eaten by bees to produce about 0.5 kilo of beeswax.
The Americas have no native honey bees -- early pioneers first brought them from Europe.
Honey bees pollinate approximately 25% of all the foods humans consume.

Approximately every third mouthful of food you eat is a product of honey bee pollination. Honey bees account for about 80% of all insect-pollinated food that humans eat.

Besides honey, honey bees produce wax and propolis, gather pollen, and produce royal jelly. A typical foraging honey bee will work herself to death in about three weeks.
One of the reasons for the massive death of the bees is pesticides.

There are many different types of honey bees. Some of them are: Italian bees, Carniolan bees, Caucasian bees, German black bees, Africanized honey bees.

4.2. Members of the bee family

Exercise 1: Complete the descriptions with the missing words and phrases from below.

two	wings	smallest	male	many	one	fully	hive	two

THE BEE QUEEN

a) She is the only _____ developed female.
b) A _____ day old larva is selected by the workers to become the queen bee.
c) She mates in flight with _____ drones.
d) She receives enough sperm to last her entire life span of about _____ years.

THE WORKERS

a) They are underdeveloped females.
b) They are the _____ bees in the colony.
c) Their life expectance is about _____ month in summer.
d) They feed the queen and nurse the brood, guard the _____, build the rooms and collect the nectar.
e) They keep the hive cool in summer and warm in winter, just by fanning their _____.

THE DRONES

a) They are _____ bees, which have no stingers.
b) They do not collect food or pollen from flowers.
c) Their (only) purpose is to mate with the queen.
d) If the colony is short on food, drones are often kicked out of the hive.

(Adapted from http://www.isba.us/index.educational)

Exercise 2: Test yourself.

A. Are the statements true or false?

a) Bees have special jobs.
b) The male bees act as guards.
c) Brood chambers are built by female bees.
d) The queen bee makes trips to collect nectar.
e) The queen be is fertilised by the drones inside the hive.
f) Drones do not have wings.
g) Bees make honey from nectar.
h) The hive is kept warm in winter by the drones.

B. Give the answers.

a) What are the drones?
b) What do they do?
c) How do their bodies differ from the bee workers?
d) Who are the bee workers?
e) What do they do?
f) What do they look like?
g) How long do female bees live?

4.3. Beekeeping glossary

Exercise 1: Read the definitions and find Slovenian translations for the beekeeping terms.

ABSCONDING – the act in which an entire colony leaves its hive to take up a new residence.
APIARY - a place where one or more bee hives are kept.
APIARIST – a beekeeper
BEE BREAD - pollen collected by the bee, mixed with small amounts of nectar and stored in the hive.
BROOD - The immature stages of the bee, including eggs, larvae and pupae.
BROOD CHAMBER - a section of the hive used by the bees for brood rearing and storage of their food reserves.
COMB - the completed cells in a frame or in the hive where the bees raise brood and store food.
HONEY - Honey bees collect the sweet nectar from various floral sources with their straw like tongue. The nectar mixes with enzymes in their honey stomach and is then transported back to the beehive and put in cells. The bees fan the cells full of the liquid nectar drawing the moisture out and thickening the nectar to make honey.

Honeys differ from each other according to their form, according to their source and according to their flavour. In reference to their form, beekeepers distinguish between extracted honey, comb honey, chunk honey and creamed honey. (See Products from the hive.) In reference to their source, it is talked about flower honeys and forest honeys. Finally, Slovenians are well used to honey labels such as chestnut honey, acacia honey, lime honey, which all refer to the prevailing flavour, given by nectar of a particular flower type.

HONEY PRODUCTS

Honey drinks: mead (honey wine), honey liquor, honey liqueur.
Honey pastries, gingerbread and other dishes containing honey.

LARVA - the second or feeding stage of the brood.

PUPA – the third stage of the brood development cycle, after which the bee emerges as an adult.

SWARMING – the act in which a portion of colony (called a swarm), including the queen, leaves its home to establish a new home elsewhere. The parent colony, reduced in population, raises a new queen.

WAGGLE DANCE - A dance carried out by scout bees to communicate where the best source of forage is. The dance tells them the distance of the forage and where it is in relation to the sun. The scout will also regurgitate some of the nectar it has taken from the plant and pass this to the forage bees to show them what the plant tastes like. There are a number of different dances which include the bee wagging from side to side and dancing around in a circle.

(Adapted from http://www.isba.us/index.educational, and http://www.teap-online.org/publications/elem/04-Bees_N_Honey.pdf)

Exercise 2: Look at the picture and answer the questions.

Slika 30. A bee formation

a) What is this called in English? _____
b) What do beekeepers do when they spot one?
c) What are the reasons for this phenomenon?
d) How can a beekeeper prevent this?

Exercise 3: Answer the questions on honey.

a) What types of honey are distinguished in reference to its form?
b) How is honey produced? Explain.
c) When is honey ripe enough to be extracted by the beekeeper?
d) What is mead?
e) What are the ingredients for honey liqueur?

4.4. Products from the hive

(by Rebecca and Carl Wenning, 1999; *http://www.isba.us/index.educational*)

Exercise 1: Read the text and give SHORT answers to the following questions.

Honey -- Honey is liquid sugar made from the nectar of flowers that is used by both honey bees and man as food. Honey has antibacterial qualities; it is often claimed that eating local honey can help fend off allergies. Honey is consumed in many forms:

- ***extracted honey* -- liquid honey; honey that has been extracted from the combs,**
- ***comb honey* -- honey that is in the comb,**
- ***chunk honey* -- honey that consists of a piece of comb honey immersed in extracted honey,**
- ***creamed honey* -- finely crystallized honey.**

Pollen -- a gamete produced by the male parts of flowers used by honey bees to make bee bread (a mixture of pollen and honey) to feed larvae and nurse bees. Some humans eat pollen for its high nutritional value. Typical pollen consists of up to 35% protein, 10% sugars, carbohydrates, enzymes, minerals, and vitamins A (carotenes), B1 (thiamin), B2 (riboflavin), B3 (nicotinic acid), B5 (panothenic acid), C (ascorbic acid), H (biotin), and R (rutine).

Propolis -- a sticky substance (resin) gathered from tree buds by honey bees and used as “glue” to fill in any unwanted spaces or cracks; used by man to treat skin disorders.

Royal Jelly -- a fluid secreted by special glands on the head of a nurse bee used to feed baby bees. It is also the powerful, milky substance that turns an ordinary baby bee into a queen. Royal jelly is sold at premium prices. It is used by some people as a dietary supplement and fertility stimulant. It is loaded with all of the B vitamins.

Beeswax -- a substance made from six wax glands on the underside of the abdomen of a worker bee used to make comb; man most commonly uses wax in candle making and art. It is also used by humans in cosmetics and furniture polish.

Bee Venom -- the poison contained in the venom sack of a honey worker bee used to sting predators or enemies; in some cases bee venom is used to treat the symptoms of rheumatoid arthritis, high blood pressure, high cholesterol and even multiple sclerosis.

Bees -- are also a product of the hive. Some beekeepers raise queen and worker bees so that they may be sold for profit.

a) Which honey protects best against allergenic problems? _____
b) Is chunk honey mostly in liquid form? _____
c) How is creamed honey crystallized? _____
d) What is bee bread? _____
e) What are larvae fed with? _____
f) Which nutrient has the highest value in pollen? _____
g) Where do bees collect the basic ingredient for propolis? _____
h) Is the comb built by drones? _____
i) What is bee venom used for by bees? _____
j) Which of the six bee products are completely produced by bees in their glands? _____

Exercise 2: Complete the sentences.

REVISION
The six bee products are: _____, _____, _____, _____, _____, _____. Three of them are gathered in nature and then slightly transformed by bees. These are _____, _____, _____. The other three products - _____, _____ and _____- are produced and secreted by special bee glands.

Bee products are useful for bees as well as for humans. To begin with bees, they need honey for _____. They need pollen to _____.
They need propolis to _____.
They need beeswax to _____. They need bee venom to _____.
And they need royal jelly to _____.
Not to mention humans, who have discovered the incredible power of the bee products for their life. Just to give one example:
_____
_____

4.5. Setting up your apiary

(by Carl Wenning, 1999; *http://www.isba.us/index.educational*)
Read the text. In the task that follows, always circle the right answer.

What to Look For
There are several things to look for as you attempt to locate the ideal apiary site: sources of nectar, pollen, and water. Even in town nectar and pollen are relatively abundant. Many flowers, fruits, vegetables, trees, bushes, and weeds provide abundant sources of pollen and nectar, and bees will forage from areas in excess of 10 square miles around the hive to obtain them. If no natural source of water is available, set out water for your bees so they don't pester your neighbors' watering tanks, swimming pools, bird baths, or leaky faucets. A pan of water filled with gravel to keep the bees from drowning works well.

Additionally, your chosen location should have a wind break to protect the bees from the cold prevailing winds of winter. Wind breaks also can shelter your apiary from view. You don't want broadcast the location of your hives to the general public. Even though many people are afraid to approach bee hives, many others are not. Unfortunately, theft of a whole group of hives and massive vandalism are not unheard of among beekeepers. Situate your hives in hidden-away locations. No need to advertise for trouble.

A good mixture of sunlight and shade to protect the colonies from the intense heat of the late afternoon summer sun is also helpful. Colonies that receive either too much or too little sunlight under-produce those with a nice mixture. When setting out your hives, avoid low spots where moisture and cold can accumulate.

Watch Out! Diseases and pests, unfortunately, are not the only things that a beekeeper needs to worry about. Add to the list insecticides. Insecticides, if improperly applied (broadcast while bees are foraging, or allowed to run off into the bees' water supply, for instance) can lead to the death of foragers or an entire colony. Some insecticides leave residues that can be active for days after application and can either contact the bees directly or via mixing with nectar. Other insecticides are mistaken by bees for pollen, are gathered up, and delivered to the hive where they are fed to the brood. The end result is an insecticide kill.

If you will place your apiary in an area where widespread use of insecticides can be expected (fields, gardens, and orchards), check with those likely to apply them. High toxicity insecticides should not be sprayed on bee-pollinated plants during bloom. If this is to occur, be prepared to protect your bees by screening their entrance on the day of insecticide application. Provide additional protection from the sun so that the bees don't overheat and die from prostration. Beekeepers have certain rights under the law that will help protect both bees and beekeepers. Nonetheless, it is much wiser to be proactive than reactive when it comes to insecticides.

Setting Up and Arranging Your Apiary: Elevate your hives by placing them atop bricks or wooden beams treated with preservatives to avoid termites and prevent rotting. When setting out your hives, tilt them so that rain won't come in through the

entrance. Provide a ventilation hole near the top so that moisture doesn’t accumulate within the hive. Damp hives leave colonies disease prone. Orient the hives so that their entrances face southeast or south, or any direction in between. Avoid placing a number of hives in a row as returning bees often become confused and drift back to the wrong hive. Drifting can be responsible for spreading diseases in an apiary, and will build up colony populations in the end hives at the expense of those more centrally located. Stagger the arrangement of your hives, or place them in a semicircle. Alternatively, place the hives among objects such as trees and bushes that can serve as landmarks. Some beekeepers who are forced to arrange their hives in rows paint the hives using varying light shades, or mark the entrances with different patterns, to help the bees distinguish one hive from another. Cut grass around entrances.

Which of the three things is most likely to be a problem for the bees located in town?

a) A source of nectar.
b) A source of pollen.
c) A source of water.

Which is the best water supply for bees?

a) A watering tank filled with straw.
b) A pan filled with water .
c) A low container filled with water and gravel.

The apiary should be located

a) in places unheard of vandalism.
b) in places not easily seen.
c) in the eye of the general public.

What is good for bees?

a) Accumulating moisture.
b) Late afternoon summer sun.
c) Reasonable sunlight.

Bees can mix up some insecticides with

a) nectar.
b) pollen.
c) tree bud resin.

What is the best beekeeper's policy if there is an orchard close to their apiary?

a) Talk to the orchardist before you expect them to spray.
b) Tell the orchardist your rights under the law.
c) Take the orchardist to court if they spray during bloom.

Tilt means

a) put into a sloping position.
b) place on a higher position.
c) cover .

Which measurement will not help bees find the right hive after foraging?

a) Making the hives face different points of compass.

b) Placing the hives among trees and bushes.
c) Colouring the hives in different colours.

4.6. A beekeeper's equipment

Exercise 1: Here are some of the basic tools and clothes of a beekeeper. Use the expressions to label the pictures.

extractor, uncapping knife, strainer, frame,
jar, label,
helmet, veil, gloves, beekeeper's suit, bee smoker.







Slika 31. *A beekeeper's equipment*
Slika 32. *A beekeeper's equipment*
Slika 33. *A beekeeper's equipment*
Slika 34. *A beekeeper's equipment*
Slika 35. *A beekeeper's equipment*
Slika 36. *A beekeeper's equipment*
Slika 37. *A beekeeper's equipment*

Exercise 2: Work out the puzzle.

It is used to subdue the bees
By making them think,
»Our house is on fire!
Let's fill up our stomachs
Before we leave home
So that we won't suffer from hunger.«

Exercise 3: Answer the questions.

a) What do beekeepers wear when they work with bees? Why?
b) What equipment is needed when extracting the honey?
c) Where is honey stored by a beekeeper?

Exercise 4: See a honey label and write its compulsory elements. You can make a drawing here.

4.7. Revision

Exercise 1: Read the text and fill the gaps with the words from the box.

apiarists	liqueur	beeswax	extracted	bread
nectar	royal jelly	stinger	comb	tree

Beekeeping offers a great variety of products to sell. Beekeepers normally specialize in a few of them.

The basic aim of the majority of_____ is to produce honey. Honey is made in the bee's stomach on the basis of the _____ that is gathered from the flowers. The most common form of honey consumption is _____ honey. This is liquid honey which is normally bottled. However, _____ honey is known as a speciality and is sometimes served as a dessert in restaurants. In this case, the comb is chewed well and the honey inside it is extracted in the consumer's mouth. It is said that chewing the comb is good for a sore throat. Swallowing it will be beneficial for your digestion. Honey is also famous for producing alcoholic drinks, like honey wine, liquor and _____. It is also used in cooking and baking. Gingerbread hearts, for example, are typical of Gorenjska and Dolenjska region.

The next product that bees gather from flowers is pollen. They mix it a little bit with honey and transform it into the so called bee _____. And there is one more product that is collected by bees. This is propolis, which is a sticky substance from _____ buds.

On the other hand, there are three bee products that are totally produced in the bee's glands. One is_____, secreted by special glands on the head of a nurse bee. The next is_____, which is produced in the glands inside the abdomen. And the third is bee venom, produced in the _____.

Exercise 2: Mark if the statements are TRUE or FALSE.

_____ Drones can't fly.
_____ Drones can't sting.
_____ Drones sleep outside the hive.
_____ Drones are useless.
_____ Drones die in autumn.
_____ Drones mate with the queen outside or inside the hive.
_____ Drones can't inseminate the queen from the same colony.
_____ Drones help covering the cracks with propolis.
_____ Propolis is produced in special glands of the drones.

Exercise 3: Answer the questions.

1. What is royal jelly and what is it used for by bees?
2. What do bees use the various products of the hive for?
3. What do beekeepers normally wear when they work with bees? Why?
4. What equipment is needed when extracting honey?
5. Where is extracted honey stored?
6. What forms is honey sold in?
7. What are some of the honey drinks?
8. What is mead?
9. What are three of the rules how to set up the apiary well?
10. What are some of the characteristics of Slovenian beekeeping? Mention 4.

Exercise 4: Look at the picture and tell what rules of setting up an apiary well were followed by the beekeeper.

Slika 38. An apiary

5. ARABLE FARMING

5.1. Arable crops and vegetables

Exercise 1: Use a dictionary and find the expressions for the most common arable crops and vegetables in Slovenia:

Pšenica _____
Koruza _____
Ječmen _____
Oves _____

žitarice _____

Korenje _____
Solata _____
Zelje _____
Repa _____
Kumarice _____
Bučke _____
Buče _____

Paradižnik _____
Krompir _____
Paprika _____
Fižol _____
Grah _____
Čebula _____
Česen _____

Exercise 2: Read the next short text and answer the questions.

There are some other **industrial plants**, like **sugar beet, oilseed rape** (or just **rape**), **sunflowers** or **hemp**. They can be found in some fields, but they used to be more common in the previous century when the demand for them was bigger.

- Do you know what these industrial plants are used for?

_____

_____

_____

- Are there any factories using these industrial plants in Slovenia?
- What other crop can be used for sugar production?
- What crops are used for oil production?

5.2. Work in the field

Exercise 1: Read the text and fill in the chart according to the text or to your experience.

Spring

Spring is the time to prepare the earth for planting. First, the farmer fertilizes his fields with cow or horse manure or chemical fertilizer. Then he ploughs the earth, turning it over and mixing in the fertilizer to provide a rich soil for the crops. Later, when the days are a little longer and the sun has warmed the soil, it is time to plant the seed.

Summer

After planting, the farmer waits and watches. He watches the weather, hoping for enough rain and enough sun. He waters the young plants and watches carefully for signs of plant disease annd the attacks of insects. Many farmers spray their fields with chemicals to keep away disease and harmful insects. With water, sun, care and protection the plants grow strong and healthy.

Winter

The days are getting shorter and shorter. The harvested crops are sold in the markets or stored in the barns. The farmer chops wood. And in the cold and snowy days, it is time for planning, for deciding where and what to plant next year. For soon it will be spring again and the cycle of planting, growing and harvesting will start again.

Autumn

This is the busiest time of the year. Now the crops in the fields are ready to harvest. It is time to gather in the vegetable crops and to reap the grass crops, such as wheat and corn. The farmers have to work quickly. Often it is necessary to call in extra workers. Work starts when the sun rises and finishes when the sun sets. The days are hard and long. But when the job is done, it is time for celebrating, eating, drinking and having fun.

(Taken from: Seal, Bernard, Vocabulary Builder 2, Longman, 1988)

	Spring	Summer	Autumn	Winter
The fields are planted.	✓			
The crops are sprayed.				
The corn is reaped.				
The wheat is reaped.				
The fields are planned.				
The crops are stored in the barns.				
The fields are ploughed.				
The fields are watered (irrigated).				
The fields are fertilized.				

Exercise 2: Which verb goes with which noun? Draw a tick in the right boxes.

	the earth	the crops	the corn	the vegetables	the fields
plough					
harvest					
pick					
water					

Exercise 3: Talk about field work. What do farmers do? Start with winter time.

5.3. Tools and farm machinery

Exercise 1: Read the text and complete it with the words on the right.

In the past, most of the field work was done manually – with *farming tools* and with the help of *working animals*. **Nowadays**, most of the field work is done by means of *farming machinery*, which made it much easier.

a. **In the past**, the holes were dug with a _____.
b. The field was ploughed with an ox or horse.
c. The field surface was levelled with a _____ or with a harrow, if pulled by an animal. So was the seed worked into the soil.
d. Manure was spread over the field with a _____.
e. Potato plants were always hoed with a _____, of course.

hoe
fork
shovel
rake

Exercise 2: Match the English words with the corresponding Slovenian words for farming machinery.

a plough	trosilnik za mineralna gnojila
a harrow	trosilnik za hlevski gnoj
a seed drill (a planter, a seeder)	škropilnik, pršilnik
a row seed drill	plug
a sprayer	prekopalnik
a manure spreader	brana
a fertilizer spreader	prikolica
a tiller	motokultivator
a farm trailer	sejalnik za strnjeno setev (pšenica)
a two-wheel tractor, a walking tractor	sejalnik za presledno setev (koruza)

Can you say which of them are **powered by an engine** and which are **implements**?

Exercise 3: Can you recognize the farming implement or machine part of which you see below?





Exercise 4: Write about field work today (in comparison to the past).

Nowadays .....

Exercise 5: ROLE PLAY

Imagine you're selling a tractor. You put a picture of it and some information on Internet. One day an Englishman, living in Slovenia, calls. He is interested in buying it.

Before doing the dialogue in pairs, decide on the following information about your tractor.

Manufacturer: _____
Brand: _____
Model: _____
Age: _____
Reason for selling: _____
Condition: _____
Price: _____

5.4. Sowing

Exercise 1: Read the text and remember the three sowing techniques.

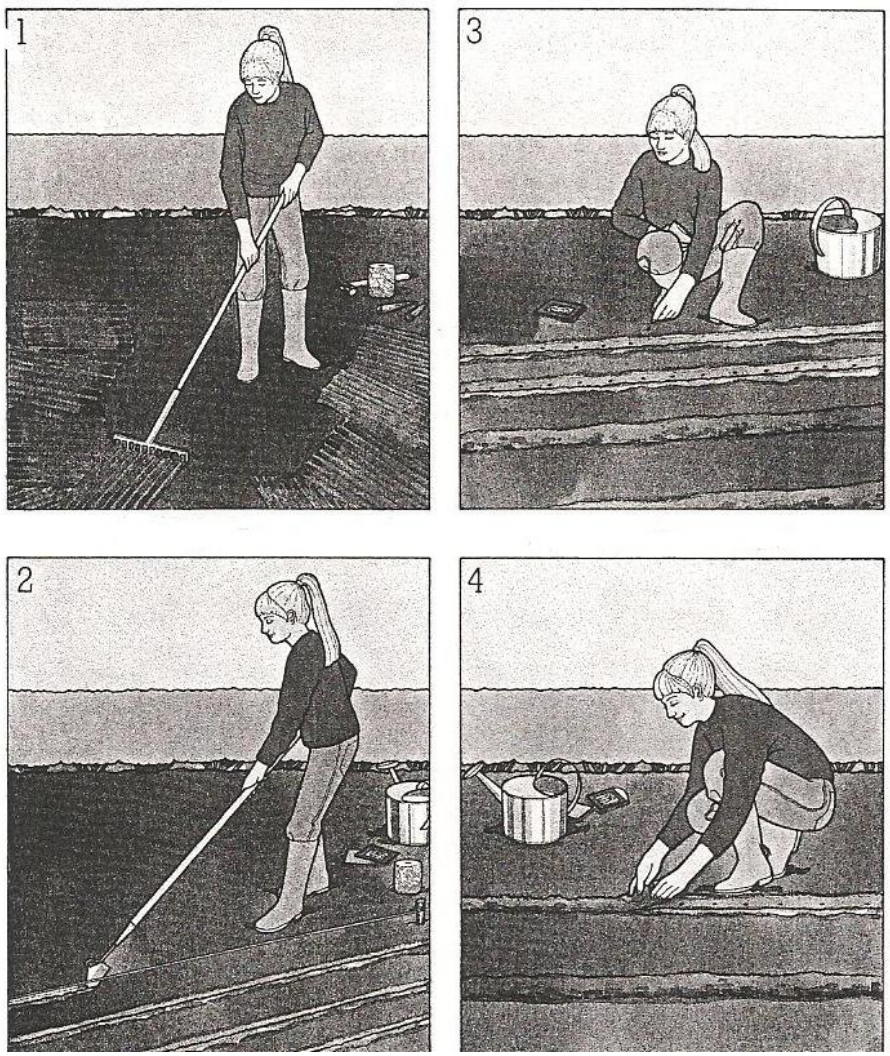
Sowing is the most common propagating method among arable crops. There are three sowing techniques:

- **Sowing broadcast**, i.e. spreading seed all over the surface;
- **Sowing in drills**, i.e. planting seed in rows;
- **Sowing in hills**, i.e. planting 3 to 5 seeds together.

Exercise 2: Give examples of different crops that are sown with a different technique.

Exercise 3: Explain the process of planting carrots. Follow the pictures.

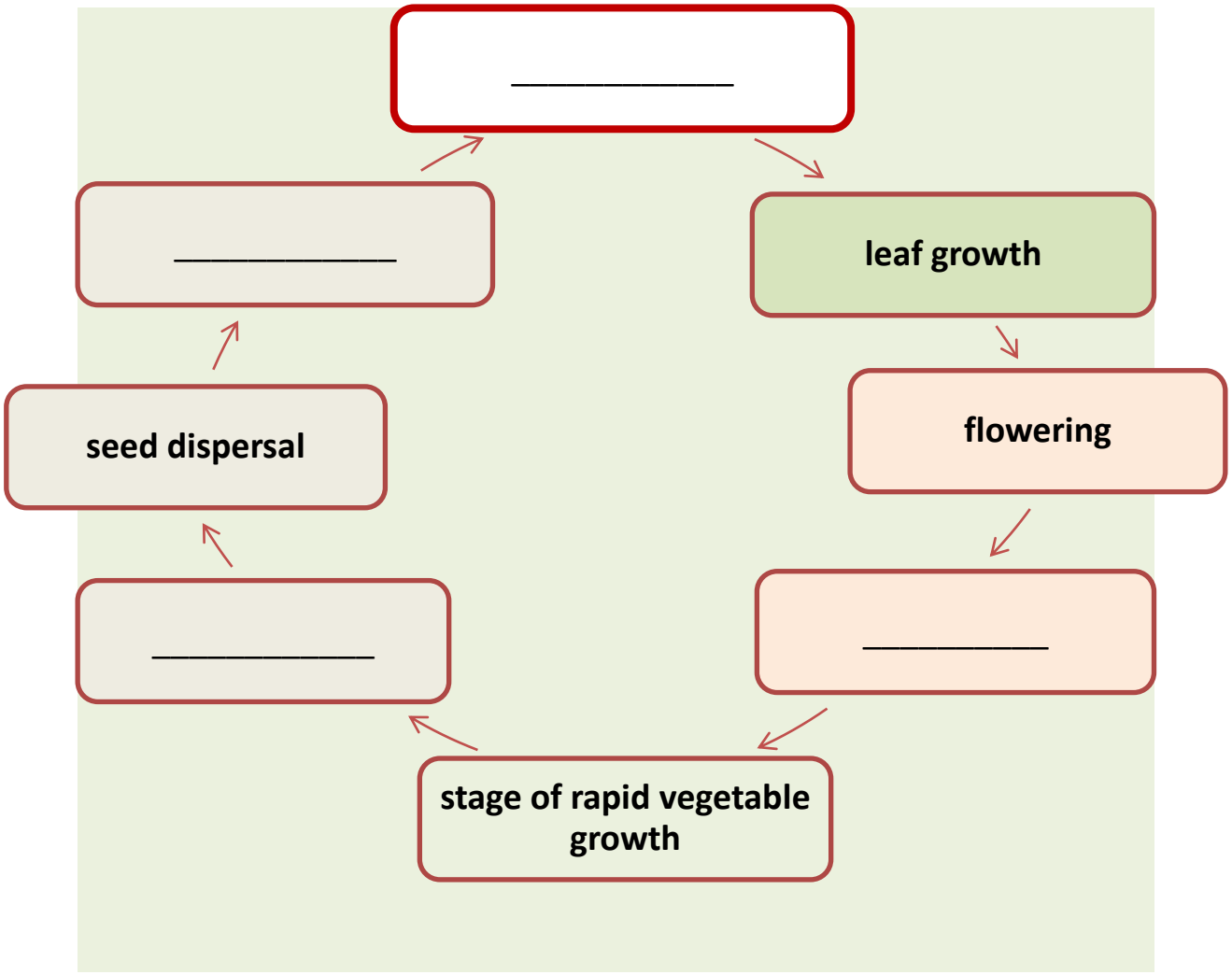
Slika 39. Sowing



5.5. The Life Cycle of a Plant

Exercise 1: Complete the diagram with the processes from the box.

fruit and seed production	decay of vegetative parts
germination	pollination and fertilization



Exercise 2: Explain the cycle on the example of lettuce or corn.

Exercise 3: Answer.

a. Are the stages of the plant life cycle always in the same order? If no, give an example.
b. Why do you think it is good to know the plant life cycle for you as a farmer?
c. Are there any crop farmer's activities related to a particular stage? Give examples.

5.6. Vocabulary revision

Exercise 1: Put the words in the right column.

cabbage	wheat	hemp	rape	lettuce	plough	peas
oats	garlic	harrow	barley	pumpkins	corn	tiller

Vegetables	Cereals	Farm machinery	Industrial plant

Exercise 2: Match a type of work with an appropriate machine.

	Verb
A	plough the field
B	harrow the field
C	sow seed
D	plant potatoes
E	harvest potatoes
F	spread manure
G	spray pesticides
H	reap wheat

Machine	
1 with a seed spreader	
2 with a plough	
3 with a manure spreader	
4 with a harrow	
5 with a potato harvester	
6 with a sprayer	
7 with a combine harvester	
8 by hand	

Exercise 3: Firstly, describe the picture. Secondly, express some deductions about the season and the farmer's plans.

Slika 40. A chore

Exercise 4: Choose two farm machines and describe them so that your school mates will guess which you have in mind.

Exercise 5: Give advice to the farmer who says this:

a. Deer ate lots of pepper buds overnight.
_____
b. Boars dug out half my potato harvest.
_____
c. My tractor is making a funny noise.
_____
d. I'm thinking of buying a second-hand tractor.
_____
e. I think the soil in my field is impoverished.
_____
f. Is it good to sow corn in the same field as last year?
_____

5.7. Grammar revision

Exercise 1: Complete the table of a few irregular verbs, related to farming.

Meaning	Base form	Past Simple	Past Participle
kopati			
	grow		
			sown, sowed
			mown, mowed
	spread		
	lay eggs		
	feed		

Exercise 2: Fill in the gaps with the verbs from the chart. Use the right form.

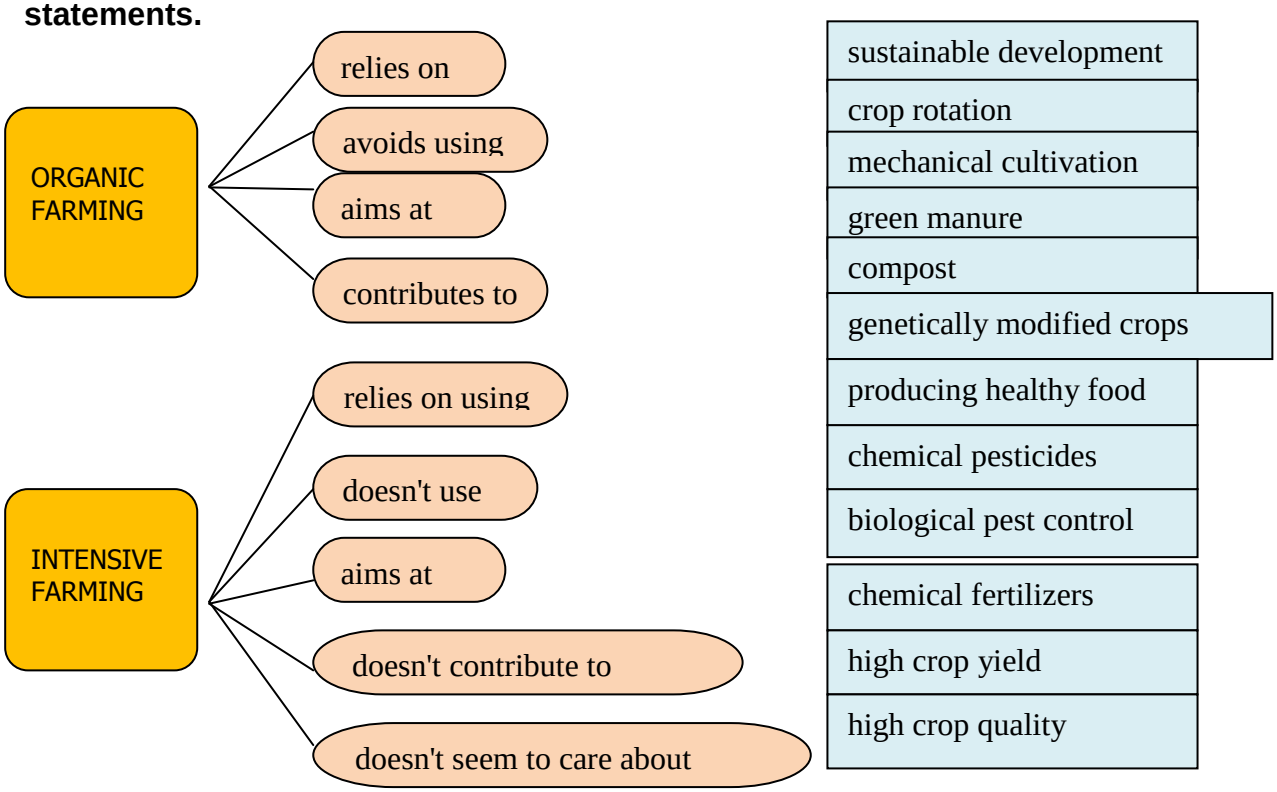
a. We _____ buckwheat yet. Maybe we'll try it this year.
b. I'm not sure whether the soil on the coast _____ last winter. It was really mild. The temperature hardly ever dropped below zero.
c. My dad _____ five deep holes behind our house yesterday. We're going to plant some fruit trees there.
d. It's a pity we _____ manure over the field in autumn. It's spring now and it's too late to do this now.
e. Which crops _____ in your region?

Exercise 3: Put the verbs in the right tense – Present Perfect Simple or Present Perfect Continuous.

a. What's that smell in the fields? – They _____ (spread) liquid manure.
b. _____ you ever _____ (hear) that manure from intensive factory farms contains a lot of antibiotics?
c. It's the end of July. Many farmers _____ already _____ (reap) the wheat. The fields are empty.
d. The son, who _____ just _____ (return) from a football training, asks his dad, »Why are you wearing these white overalls and the mask?«
   Dad says, »I _____ (spray) the vines.«
e. How long _____ you _____ (drive) a tractor? – Since I was 11 years old.
f. Božo _____ (mow) the meadows for the whole day. He started early in the morning.
g. We _____ (buy) a new tiller recently.

5.8. Organic and intensive farming

Exercise 1: Match verbs on the left with phrases on the right to make true statements.



Exercise 2: Think and express your opinion.
What is your opinion about organic farming? What is good and what is bad?

Exercise 3: SPEAKING - Divide into 2 groups and exchange arguments.
Group A: in favour of organic farming
Group B: against organic farming

Exercise 4: Read the text *Fertilizers* and match the statements with the corresponding paragraph. Write the letter of the paragraph in the box.

Corn fields are number one, as regards using inorganic fertilizers.	
Fertilizers enrich the soil.	A
Inorganic fertilizers have also a bad influence on the environment.	
Inorganic fertilizers are found in various forms.	
There are many advantages of organic fertilizers.	
There are some disadvantages of organic fertilizers as well.	
Inorganic fertilizers are the result of industrial revolution.	
The use of organic fertilizers has increased.	
The amount of nutrients in the soil can be measured.	

FERTILIZERS

(Adapted from Wikipedia.)

Fertilizers are substances that supply plant nutrients or amend soil fertility. They are the most effective means of increasing crop production (30-80 per cent increase in yields) and of improving the quality of food and fodder. Fertilizers are used in order to supplement nutrient supply in the soil, and, therefore, promote plant growth. The main nutrients present in fertilizer are nitrogen, phosphorus, and potassium. Fertilizers are usually directly applied to soil, but can also be sprayed on leaves as a foliar feeding. **A**

Organic fertilizers and some mined inorganic fertilizers have been used for many centuries, whereas chemically synthesized inorganic fertilizers were only widely developed during the industrial revolution. Inorganic fertilizer use has also significantly supported global population growth — it has been estimated that almost half the people on the Earth are currently fed as a result of artificial nitrogen fertilizer use. **B**

INORGANIC fertilizers come in various forms. The most typical form is granular fertilizer (powder form). The next most common form is liquid fertilizer; some advantages of liquid fertilizer are its immediate effect and wide coverage. There are also slow-release fertilizers (various forms including fertilizer spikes, tabs, etc.) which reduce the problem of "burning" the plants due to excess nitrogen. **C**

Synthetic fertilizers are commonly used to treat fields used for growing maize, followed by barley, rapeseed, soy and sunflower. One study has shown that application of nitrogen fertilizer on off-season cover crops can increase the biomass (and subsequent green manure value) of these crops, while having a beneficial effect on soil nitrogen levels for the main crop planted during the summer season. **D**

Applying excessive amounts of fertilizer has environmental impacts, and wastes the growers' time and money. To avoid over application, the nutrient status of crops can be assessed. Nutrient deficiency can be detected either by soil tests or by Plant Tissue Tests. **E**

Fertilizer run-off is the primary cause of a serious depletion of oxygen in many parts of the ocean, especially in coastal zones. This leads to the dying of marine wildlife. Furthermore, fertilizer run-off, is the cause of polluted groundwater. Last but not least, traces of toxic pollutants or heavy metals have been found in some inorganic fertilizers. **F**

ORGANIC fertilizers include manure, worm castings, compost, seaweed, and cover crops or green manure. And the fact is that they are on the rise as people are resorting to environmental friendly (or 'green') products. **G**

Organic fertilizers have been known to improve the biodiversity (soil life) and long-term productivity of soil. Organic nutrients increase the abundance of soil organisms by providing organic matter and micronutrients for organisms such as fungal mycorrhiza, (which aid plants in absorbing nutrients). **H**

However, there are some disadvantages of organic fertilizers. Firstly, organic fertilizers may contain pathogens and other disease causing organisms if not properly composted. Additionally, nutrient contents are very variable and their release to available forms that the plant can use may not occur at the right plant growth stage. Finally, organic fertilizers are comparatively voluminous. **I**

6. SELF-ASSESSMENT QUIZ

After each topic, you can assess yourself and do the following short QUIZ.

1. **How did you like the topic?**

a. I really enjoyed it.
b. I liked it.
c. It was OK.
d. I didn't like it much.
e. I hated it.

2. **How well do you know the vocabulary of this topic?**

a. Excellently.
b. Very well.
c. Quite well.
d. Not very well.
e. Badly.

3. **How well do you understand the reading texts?**

a. Excellently.
b. Very well.
c. Quite well.
d. Not very well.
e. Badly.

4. **How well can you orally express yourself about this topic?**

a. Excellently.
b. Very well.
c. Quite well.
d. Not very well.
e. Badly.

5. **How well can you express yourself about this topic in written form?**

a. Excellently.
b. Very well.
c. Quite well.
d. Not very well.
e. Badly.

7. KEY TO FEW EXERCISES

Page 16: Crossword puzzle on farm animals
1 breed, 2 stable, 3 cowshed, 4 pasture, 5 horns, 6 cattle, 7 foal, 8 herd, 9 mane, 10 cottage cheese, 11 herdsman, down – electric fence.
Page 28: Wine labelling: the type of product, the quality - ***table*** wine, ***quality*** wine, ***high-quality*** wine, country wine, the wine region for country wines, or the wine district for quality wines, the bottler, the producer, the country of production.
Page 33: Crossword puzzle on wine making
1 residual, 2 fermentation, 3 ice wine, 4 tap, 5 sparkling, 6 sulfer, 7 tanks, 8 inn, 9 vintage, 10 bung, down – wine tasting.
Page 46: Crossword puzzle on fruit growing
1 persimmon, 2 nursery, 3 scion, 4 pruning, 5 anchorage, 6 grafting, 7 flavour, 8 secateurs, 9 yield, 10 stone, down – propagation.
Page 66: **Pictures of farm machinery**
plough, baler, seed drill, tiller, harrow, trailer.

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9. PICTURE RESOURSES

- **Slika 9 – Thomas, B. J.: Intermediate vocabulary. Harlow, Longman, 1995.**
- **Slika 16 – Atomi in molekule: Laboratorijske vaje za kemijo v gimnaziji. Ljubljana, Modrijan, 2009.**
- **Slika 39 - Jennings, Terry: Seeds and Seedlings. Oxford, OUP, 1986.**
- **All of the other pictures are from my own source.**