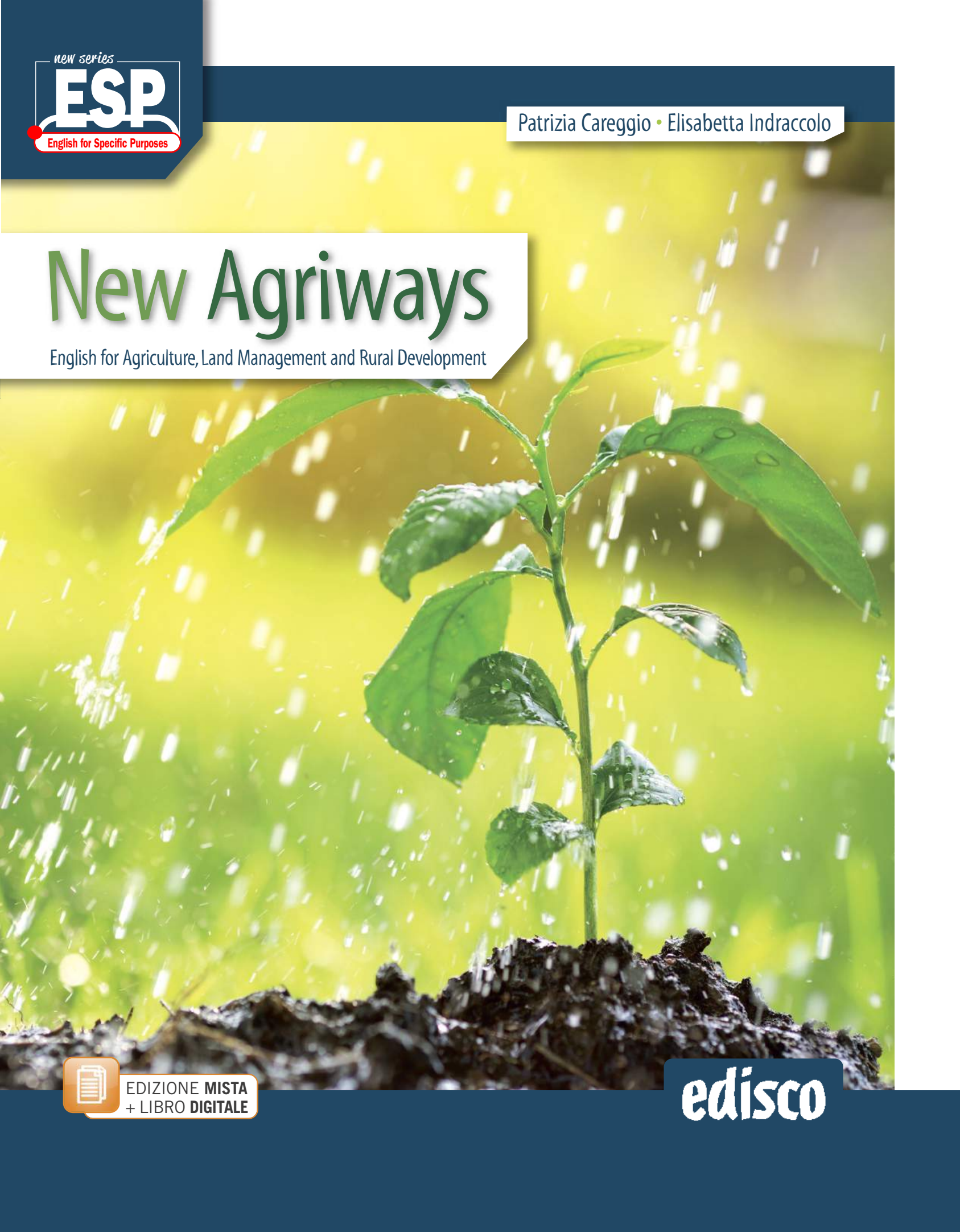


New Agriways

English for Agriculture, Land Management and Rural Development



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NEW AGRIWAYS

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and Rural Development

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New Agriways

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PRESENTAZIONE

L'ARGOMENTO

New Agriways è rivolto in particolare agli studenti dei corsi a indirizzo Agrario, Agroalimentare, Agroindustria e per i Servizi per l'Agricoltura e lo Sviluppo rurale; più in generale, a coloro che hanno l'esigenza di utilizzare la lingua inglese come strumento di studio e/o di lavoro in questi settori.

Grazie alla ricchezza del materiale proposto, **New Agriways** – concepito per promuovere un apprendimento attivo basato sui contenuti (*content-based learning*) – offre la possibilità di scegliere gli argomenti sia in base ai programmi delle materie tecnico-scientifiche di indirizzo, sia in base al livello di competenza linguistica degli studenti.

I contenuti sono stati ordinati secondo criteri di graduale complessità concettuale e linguistica e vengono esplorati utilizzando le quattro abilità in modo omogeneo ed integrato. I brani, autentici o appositamente pensati per il profilo di apprendente a cui il corso è indirizzato, offrono un assortimento di stili, registri e livelli di difficoltà, e sono tratti da fonti diverse: giornali e riviste, libri e manuali, materiale promozionale e siti web.



OBIETTIVI DEL TESTO

New Agriways si propone di:

- far acquisire le competenze necessarie per comprendere testi che presentano termini, espressioni, strutture sintattiche e modalità discorsive specifiche del linguaggio settoriale
- migliorare le capacità di ricezione e produzione orale e scritta, anche tramite attività tipo PET e FEC e di attività tipo IELTS per quanto riguarda l'ambito dell'inglese accademico
- arricchire il patrimonio lessicale sia con il lessico tecnico che generale
- consolidare abitudini grammaticali corrette e approfondire alcune strutture
- stimolare l'interesse e la partecipazione attiva degli studenti, dando spazio alla loro esperienza personale e a problematiche di attualità
- contribuire a sviluppare sensibilità per il rispetto e la protezione dell'ambiente con suggerimenti per comportamenti "eco-friendly".

LA STRUTTURA

New Agrivays è diviso in sette Moduli, ognuno dei quali è ripartito in quattro sezioni:

1 **SOWING (Contents Section)** – Divisa in **Unità** contiene testi e attività che riguardano i contenuti specifici della specializzazione già affrontati in L1. Ogni unità è suddivisa in brevi **Capitoli** su due pagine – teoria ed esercizi – per favorire non solo uno studio più parcellizzato, ma anche la scelta antologica da parte dell'insegnante. I testi vengono affrontati in modo graduale, attraverso esercizi di *warm-up*, esplorazione del lessico specifico, comprensione scritta e orale, globale e specifica, reimpiego dei termini tecnici e produzione scritta e orale. **Brevi box** permettono di ampliare le conoscenze sugli argomenti:



per approfondimenti generali;



per analisi di fatti e dati;



per curiosità;



per approfondimenti culturali;

Un ricco **apparato iconografico** correda i brani di lettura, per ognuno dei quali è previsto un esauriente **glossario**.

AGRICULTURAL CROPS

CEREALS

Answer the questions.

- What are the main crop plants grown in Italy?
- Where did the crop plants grown in Italy originate? Where were they domesticated?
- Are vegetables and legumes multibot?

The word "cereal" derives from the name **Ceres**, the Roman goddess of the harvest who was believed to teach humans how to grow, preserve and prepare grain and corn. As a matter of fact, cereals were the earliest cultivated plants, and for over ten thousand years they have been the **staple food** for many human societies. Today, cereal plants **account for** over fifty per cent of human energy and protein needs and occupy two-thirds of all cultivated land. Basically, cereals are grains produced by plants belonging to the **grass family**. They are annual plants and, once they have grown their seeds, they have completed their life cycle and can be harvested, using either a **combine harvester** or hand tools, such as **scythes**. All these plants have adapted in order to survive and flourish in particular environmental conditions. These are the most common cereal crops:

- Wheat** is the primary cereal of temperate regions where it is utilised for making bread and pasta. Consumed worldwide, it is a staple food in North America, Europe, Australia and New Zealand.
- Maize** grows best in hotter conditions and is an important cereal crop in many different areas, from the arid desert plains of the south-western United States to the high Andean mountain plains of Ecuador and Peru. It is mainly used as forage, but is also employed for making **mash** or to produce vegetable oils.
- Rice** is a crop of the wet tropics.
- Sorghum** can survive in very hot, dry conditions.
- Rye** and **barley** are grown in temperate and cool regions where other cereals do not grow well and are used to make whisky or beer. Barley, in particular, has been adapted to the widest variety of climates, from the North-Arctic to the sub-tropical, from Russia, Germany and Turkey to Australia and North America.
- Oats** is grown throughout the temperate zones mainly for livestock, especially horses.
- Millet** is a staple food in the semi-arid tropics of Asia and Africa.
- Kamut** and **spelt** are wheat varieties, while **chia**, **quinoa**, **amaranth** and **blackbeet** are classified as pseudo-cereals, as they are seeds from different plants external to the grass family.

Cereals are an important source of energy, providing about 300 kcal per 100grams, and supplying most of their food energy as **starch**. **Gluten-free** cereals are good sources of fibre, protein, B vitamins and other important nutrients such as fat, iron and vitamin E. Maize, wheat and rice provide 87% of all grain production worldwide and 43% of all food calories.

1 Match the noun on the left with the definition on the right.

| | |
|------------|---|
| 1. Rice | a. It is a staple food in Africa and Asia. |
| 2. Maize | b. It is cultivated for its yellow edible grains, which develop on a spike. |
| 3. Rye | c. It is a drought resistant plant. |
| 4. Wheat | d. It is used in the beer making process. |
| 5. Barley | e. Its flour is suitable for making bread and pasta. |
| 6. Millet | f. It is considered the favourite food of horses. |
| 7. Oats | g. It is a staple food in eastern countries. |
| 8. Sorghum | h. Its grains are used in making flour and whisky. |

2 Refer to the text about cereals and fill in the table.

| CROP | GROWTH REQUIREMENTS | WORLD AREAS |
|---------|---------------------|-------------|
| Wheat | | |
| Maize | | |
| Rice | | |
| Sorghum | | |
| Rye | | |
| Barley | | |
| Millet | | |

3 Listen and decide if the statements are true or false. Correct the false ones.

- Nowadays people do not choose national food only.
- Chia was eaten in Mexico.
- Blackbeet seeds are round.
- Amaranth is poor in protein.
- Amaranth was used in religious ceremonies.
- Chia is a variety of rhabarbar.
- Chia seeds replaced money in trading.
- Blackbeet is suitable for people with celiac disease.
- Blackbeet easily adapts to poor soil conditions.
- Bees use blackbeet flowers to produce dark honey.



BIODIVERSITY CONSERVATION

If forests managed for timber are to help conserve **biodiversity**, some important steps should be taken into consideration. Firstly, since many species depend on the complex physical structure of natural forests, it would be advisable to leave in place some **key habitats**, including mature trees, **snags** and decomposing **logs**. These play a significant role in the cycling of nutrients (mainly phosphorus and nitrogen) within the forest ecosystem and are important components of wildlife habitats, furnishing cover and serving as sites for feeding, reproduction and resting for many wildlife species. Secondly, populations of **keystone species** should be maintained as a high priority, since they provide habitats or food for **pollinators** and **seed dispersers**, such as bats and forest eating birds. In addition, native tree species should be given priority over introduced species in forest regeneration and in the restoration of degraded lands. Finally, the **fragmentation** of natural forest areas, which occurs when they are used intensively, should be minimised. Small fragments are more likely to increase the extinction of a population, and isolated fragments are less likely to be colonised after extinction. Moreover, wide **ecotones** of a particular forest type should not be **logged** at the same time and **ecological corridors** should be maintained. These corridors either belong to the natural landscape or are created through human intervention. In such areas, one or more natural habitats allow the movement of wildlife and the exchange of genetic information between species, subspecies or varieties, increasing the degree of biodiversity. Through the corridors, individuals of species avoid being isolated and suffering the consequences of fluctuations and environmental disturbances. The dispersion of wildlife facilitates recolonisation and also avoids local extinctions. A significant example of how woodland management should **comply with** biodiversity conservation is given by **La Mandria Park** in North West Italy. It is one of the largest and most important environmental reserves where several animal species live in a natural state, and was declared a "Site of Community Importance" by the Natura 2000 network. Rich in biodiversity, the park provides habitats for species under threat of extinction and specially protected species, including European pond turtles, great crested newts and various species of bats, beetles and butterflies. Some (mice, woodpeckers) use dead trees to feed on **agave-like** invertebrates (the rare **Combeby** cecid and *Oxytropis crenata*), some (**snatchers**, **lawn owls**) nest in crevices of old trunks, while others (**edible dormice** and bats) take refuge in cavities and crevices in the breeding season and during hibernation.

4 Answer the questions.

- Why should mature trees, snags and decomposing logs be preserved?
- What is a keystone species?
- What kind of tree species should be used to restore degraded lands?
- Why should the fragmentation of natural forest areas be minimised?
- What are ecological corridors useful for?

5 Elicit from the text what to do and why, in order to safeguard biodiversity.

| WHAT TO DO | WHY |
|------------|-----|
| | |
| | |
| | |

6 Listen to the text and choose the right option.

- Canadians are particularly involved in conserving and protecting their forests.
 - Forest conservation and protection is not of primary importance.
- There are more forested areas in Europe than in Canada.
 - There are more forested areas in Canada than in any other country.
- The forest conservation programme does not affect areas where wood harvesting occurs.
 - Even areas where wood harvesting occurs are included in the forest conservation programme.
- The conservation policy implies specific guidelines for provincial areas.
 - The conservation policy implies overall guidelines for the whole country.
- Tree of various species must be planted.
 - Tree of the same species must be concentrated in specific areas.
- The marine environment is disregarded.
 - The marine environment is taken into account by the forest protection policy.
- The Canadian forest conservation is particularly involved in safeguarding protected areas.
 - The Canadian forest conservation strategy ignores protected areas.
- There is no restriction on industrial activities in protected areas.
 - Some activities are banned in protected areas.
- Harvesting mining and hydroelectric development are forbidden in the majority of protected areas.
 - Harvesting mining and hydroelectric development are allowed in about 95% of all protected areas.
- All conservation and protection efforts are science-based.
 - Only some conservation activities are grounded in science.

- 2 **GROWING** – Si occupa dei contenuti della disciplina ponendo particolare attenzione all'arricchimento **lessicale** e **strutturale**.
- 3 **HARVESTING** – Offre testi e attività di consolidamento dei contenuti appresi per sviluppare le abilità di **Listening**, **Speaking** e **Writing**.
- 4 **STORING** – Propone una mappa (**Mapping your Mind**), strumento utile per rappresentare la rete di relazioni tra i vari argomenti del Modulo, e **clip di opere cinematografiche** che offrono spunti di riflessione e svago su aspetti contenutistici del Modulo.

TEACHER'S BOOK

Programmazione didattica per modulo • Compiti di realtà • Soluzioni degli esercizi • Audioscripts delle attività di ascolto • Note didattiche • Schemi per unità • Doppie prove di verifica formativa per ogni Unità e sommative per Modulo • Domande per il Colloquio dell'Esame di Stato.

ONLINE RESOURCES

- Disponibili sul sito www.edisco.it:
- video, file audio formato MP3 con la registrazione delle attività di ascolto, corredati da attività di comprensione
 - materiale extra di approfondimento
 - prove di verifica per studenti BES
 - approfondimenti di civiltà
 - agganci letterari.

VOCABULARY

1 Label these animals.



1. _____ 2. _____ 3. _____

4. _____ 5. _____

7. _____ 8. _____

252 Module 6 GROWING

FILM

A LITTLE CHAOS

• PRODUCTION USA 2014
 • DIRECTOR Alan Rickman
 • STARRING Katie Winslet (Sabine De Barra), Matthias Schoenaerts (André Le Notre), Alan Rickman (King Louis XIV), Stanley Tucci (Philippe, the King's brother)

A SYNOPSIS

The year is 1682. Sabine De Barra is a talented landscape designer who works in the gardens and countryside of France. One day, she is unexpectedly invited to the court of King Louis XIV. André Le Notre is initial distinctive eye and savvy than he chooses her to gardens at the King's. With time, Le Notre re-chains in Sabine's work. her workers to complete t outdoor hallrooms, Sabine h intricate etiquette of the court and class barriers, she surprising himself and is supported by the King's gradually comes to terms with a tragedy in her personal interactions with André bring out honesty, compass

BEFORE VIEWING

1 Answer the questions.
 After reading the synopsis, surf the net to find information about King Louis XIV. The Royal Gardens of Versailles are among the most famous in the world, but it's well-known gardens in Italy too. Can you name any of them? What kind of activities do you think took place in the Royal Gardens of Versailles?

STORING

LISTENING

ATMOSPHERE AND CLIMATE RESEARCH

1 Match the following nouns that you will hear to their translation. Besides meteorology, astronomy, physiology, even at the atmosphere and climate research at the Jungfraujoch in Switzerland.

| | |
|---------------|--------------------|
| 1. To assist | a. Diao |
| 2. Harsh | b. Digion |
| 3. Inevitable | c. Non struttibile |
| 4. To scatter | d. Valutare |
| 5. To take up | e. Assorbire |
| 6. Thawing | f. Disperdere |

2 Listen again and complete the sentences below with a word or a short phrase.

The highest meteorological station in Europe lies at (1) _____ m above (2) _____.

Besides meteorology, astronomy, physiology, even at _____ and _____ were the first disciplines to be studied.

The climate change is compromising the (3) _____ of the permafrost.

Due to its altitude above sea level, the station is not affected by ground-based (4) _____ sources.


The concentration of greenhouse gases and other pollutants in concentrations on the Jungfraujoch reflect the current general state of the (5) _____ over _____ in the _____ of the air.

Thanks to the station's long-term measurements, researchers can detect (6) _____ of clouds.

Fine particles in the air take up water (7) _____ and influence the (8) _____ of clouds.

Aerosols can be (9) _____ or man-made.

Perito, Massimo direttore Politecnico, Argentina



78

SPEAKING

AN ITALIAN SPECIALITY

Menu


Cocktails: Shady Mary "Madame"
Pork "Walt"
First Course: Lamb and Potato soup
Second Course: Rice with a fusilli of Parmigiano, Prosciutto and sauce
Main course: Milk of Beef with shell sauce
Salada alla Malpighi (for two)
Desserts: Pandoro
Labrador Ice Cream

All courses are served with traditional Italian Vin Santo of Montepulciano.

3 PAIR WORK Using the information given in the menu, improvise a dialogue at the Accetaia Malpighi restaurant between the waiter and the customer.

Customer - You would like to try the Italian specialities with traditional Balsamic Vinegar and you ask for information about the characteristics of the product and the best food combinations.

Waiter - Give the information required describing the features of the product (giving special importance to the production procedures), its unique flavour and the amazing combination with any kind of food. Give advice about the different items on the menu that should be tried.



FOOD PROCESSING AND PRESERVATION Module 6 215

CONTENTS



MODULE

1 HISTORY AND TRENDS

SOWING

1 PAST, PRESENT AND FUTURE

| | |
|---|----|
| Early steps | 14 |
| Up to the Industrial Revolution | 16 |
| The 20 th century Conventional farming | 18 |
| Organic and sustainable farming | 20 |
| From crossbreeding to genetics | 22 |

| | |
|---|----|
| The future of farming: hydroponics and aeroponics | 24 |
| Alternative agricultural practices on the rise | 26 |

2 TECHNOLOGY, AUTOMATION AND ROBOTICS

| | |
|---|----|
| Tools and machinery | 28 |
| Automation and robotics | 30 |
| Gps and drones: milestones of precision agriculture | 32 |

GROWING

| | |
|---|----|
| Vocabulary | 34 |
| Grammar • Expressing present time in English | 36 |

HARVESTING

| | |
|--|----|
| Listening • Scientist under attack | 38 |
| Speaking • Purchasing machinery and equipment | 39 |
| Writing • Whose side are they on? | 40 |

MAPPING YOUR MIND

41

STORING

| | |
|---------------------------------|----|
| Film • <i>Food, Inc.</i> | 42 |
|---------------------------------|----|



MODULE

2 ECOLOGY AND FORESTRY

SOWING

3 CLIMATE AND POLLUTION

| | |
|---|----|
| Weather vs climate | 46 |
| Adverse weather conditions: how to protect farm crops | 48 |
| Climate change and agriculture | 50 |
| Environmental pollution | 52 |

4 ECOLOGY AND ENERGY

| | |
|-------------------------------------|----|
| Ecology, environment and ecosystems | 54 |
| Energy sources | 56 |
| Other sources of renewable energy | 58 |

| | |
|-----------------------------|----|
| Global environmental policy | 60 |
|-----------------------------|----|

5 FORESTRY

| | |
|--------------------------------------|----|
| Forest management | 62 |
| Biodiversity conservation | 64 |
| Parks and protected areas | 66 |
| Dead wood: a key to biodiversity | 68 |
| Natural hazards | 70 |
| Forest protection from human hazards | 72 |

GROWING

| | |
|--|----|
| Vocabulary | 74 |
| Grammar • Expressing future time in English | 76 |

HARVESTING

| | |
|--|----|
| Listening • Atmosphere and climate research | 78 |
| Speaking • What is your ecological footprint? | 79 |
| Writing • Light pollution: not just an astronomer's problem | 80 |

MAPPING YOUR MIND

81

STORING

| | |
|-----------------------------|----|
| Film • <i>Avatar</i> | 82 |
|-----------------------------|----|



SOWING

| | |
|----------------------------|----|
| 6 SOIL | |
| Soil composition | 86 |
| Soil profile | 88 |
| Soil texture and structure | 90 |
| Soil degradation | 92 |
| Cropping systems | 94 |
| Fertilisers | 96 |
| 7 WATER | |
| Water resources | 98 |

| | |
|--------------------------------|-----|
| Water availability and quality | 100 |
| Methods of irrigation | 102 |
| Drainage | 104 |

| | |
|-------------------------------------|-----|
| 8 PLANTS | |
| Plant classification and importance | 106 |
| The parts of plants | 108 |
| Photosynthesis vs respiration | 110 |
| Weeds | 112 |

GROWING

| | |
|-----------------------------|-----|
| Vocabulary | 114 |
| Grammar • Connectors | 116 |

HARVESTING

| | |
|--|-----|
| Listening • Change in water volume | 118 |
| Speaking • Underground | 119 |
| Writing • Soil erosion: a big problem | 120 |

| | |
|--------------------------|-----|
| MAPPING YOUR MIND | 121 |
|--------------------------|-----|

STORING

| | |
|--------------------------------------|-----|
| Film • <i>Erin Brockovich</i> | 122 |
|--------------------------------------|-----|



SOWING

| | |
|---|-----|
| 9 AGRICULTURAL CROPS | |
| Cereals | 126 |
| Legumes | 128 |
| Potatoes | 130 |
| Mushrooms | 132 |
| Vegetables | 134 |
| Fruits | 136 |
| Plant adversities and remedies | 138 |
| 10 OIL PLANTS | |
| Types of oil crops | 140 |
| Olive grove conservation and management | 142 |
| Adversities and remedies in olive trees | 144 |

| | |
|--|-----|
| 11 VINEYARDS | |
| Grape varieties | 146 |
| Pruning and other maintenance activities | 148 |
| Training systems | 150 |
| Dangers in the vineyards | 152 |

| | |
|--------------------------------------|-----|
| 12 GARDENING AND LANDSCAPING | |
| Landscape | 154 |
| History of gardens | 156 |
| A turning point in English gardening | 158 |
| Horticulture and floriculture | 160 |
| Ornamental plants in gardens | 162 |
| New trends in gardening | 164 |

GROWING

| | |
|--|-----|
| Vocabulary | 166 |
| Grammar • Comparatives and superlatives | 168 |

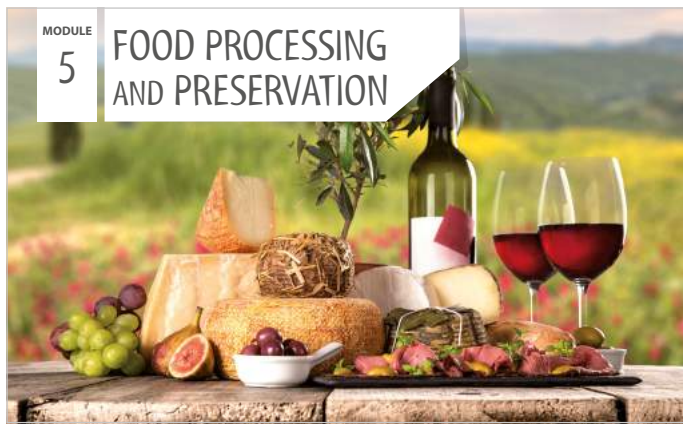
HARVESTING

| | |
|---|-----|
| Listening • Rice: a staple food | 170 |
| Speaking • Career opportunities for garden designers | 171 |
| Writing • Wild mushrooms | 172 |

| | |
|--------------------------|-----|
| MAPPING YOUR MIND | 173 |
|--------------------------|-----|

STORING

| | |
|-------------------------------------|-----|
| Film • <i>A Little Chaos</i> | 174 |
|-------------------------------------|-----|



MODULE

5

FOOD PROCESSING AND PRESERVATION

SOWING

13 FOOD PRESERVATION AND DAIRY PRODUCTS

| | |
|--|-----|
| Food processing and preservation in the past | 178 |
| The modern era of food preservation | 180 |
| Milk: the most complete food | 182 |
| Milk treatments | 184 |
| Dairy products | 186 |
| Cheese | 188 |
| English cheeses | 190 |
| Parmigiano Reggiano: the king of Italian cheeses | 192 |

14 THE EDIBLE OIL INDUSTRY

| | |
|--------------------------|-----|
| Olive oil processing | 194 |
| Olive oil classification | 196 |
| Nut and seed oils | 198 |

15 ALCOHOLIC BEVERAGES

| | |
|---------------------|-----|
| Oenology | 200 |
| Wine classification | 202 |
| Balsamic vinegar | 204 |
| Beer making | 206 |
| Types of beer | 208 |

GROWING

| | |
|-------------------------------|-----|
| Vocabulary | 210 |
| Grammar • Passive form | 212 |

HARVESTING

| | |
|---|-----|
| Listening • Transporting food and food additives | 214 |
| Speaking • An Italian speciality | 215 |
| Writing • The Champagne making process | 216 |

MAPPING YOUR MIND

217

STORING

| | |
|----------------------------------|-----|
| Film • <i>A Good Year</i> | 218 |
|----------------------------------|-----|



MODULE

6

LIVESTOCK

SOWING

16 RUMINANT LIVESTOCK

| | |
|---|-----|
| Introduction and classification of ruminant livestock | 222 |
| The ruminant digestive system | 224 |
| Cattle | 226 |
| Sheep | 228 |
| Goats | 230 |

17 NON-RUMINANT LIVESTOCK

| | |
|--------------------------------------|-----|
| Poultry: wild birds or farm animals? | 232 |
| Pig husbandry | 234 |
| Horses are the noblest animals | 236 |

18 BEEKEEPING AND AQUACULTURE

| | |
|-----------------------|-----|
| Pollinators community | 238 |
| Beekeeping | 240 |
| Aquaculture | 242 |

19 PROBLEMS IN LIVESTOCK MANAGEMENT

| | |
|-------------------------|-----|
| Livestock feeding | 244 |
| Diseases and treatments | 246 |
| Animal welfare | 248 |
| Slaughtering | 250 |

GROWING

| | |
|--|-----|
| Vocabulary | 252 |
| Grammar • Prefixes and suffixes | 254 |

HARVESTING

| | |
|--|-----|
| Listening • Cattle breeding in the Argentine Pampas | 256 |
| Speaking • Looking for a farm-house | 257 |
| Writing • Promoting out-of-the-ordinary holidays | 258 |

MAPPING YOUR MIND

259

STORING

| | |
|---|-----|
| Film • <i>Far from the Madding Crowd</i> | 260 |
|---|-----|



SOWING

| | |
|------------------------------------|-----|
| 20 FARM AND PARK MANAGEMENT | |
| The factors of production | 264 |
| A successful agribusiness plan | 266 |
| Risk and uncertainty | 268 |
| Budgeting | 270 |
| Protected area management in Italy | 272 |

| | |
|--------------------------------|-----|
| 21 ABOUT ECONOMY | |
| Agriculture and economy | 274 |
| The futures market | 276 |
| The common agricultural policy | 278 |
| Diversifying farm businesses | 280 |

GROWING

| | |
|--|-----|
| Vocabulary | 282 |
| Grammar • Expressing past time in English | 284 |

HARVESTING

| | |
|--|-----|
| Listening • The voice of Europe's young farmers | 286 |
| Speaking • Younger labour in farming population | 287 |
| Writing • Applying for financial aids | 288 |

| | |
|--------------------------|-----|
| MAPPING YOUR MIND | 289 |
|--------------------------|-----|

STORING

| | |
|-----------------------------------|-----|
| Film • <i>At any Price</i> | 290 |
|-----------------------------------|-----|

APPENDICES

1 HOW TO

| | |
|---|-----|
| How to write a summary | 294 |
| How to write an essay | 294 |
| How to write a report | 297 |
| How to write a promotional article | 298 |
| How to write an entry for a business blog | 299 |
| How to write a business presentation | 300 |
| How to describe tables, charts and graphs | 301 |

2 THE WORLD OF WORK

| | |
|----------------------|-----|
| Job adverts | 302 |
| Cover letters | 303 |
| The EUROPASS CV | 304 |
| Job interviews | 305 |
| How to get a job | 306 |
| Hard and soft skills | 307 |

TECHNICAL GLOSSARY

| | |
|--|-----|
| | 309 |
|--|-----|

ONLINE RESOURCES

1 HISTORY AND TRENDS

- The Perfect Agricultural Sisterhood 15
- Agricultural Revolution 17
- The Enclosure System 17
- New doubts over safety of GM food 22
- Vertical farming 24
- What is biodynamics: farming or philosophy? 26

Literary bits: *The Grapes of Wrath* by J. Steinbeck

2 ECOLOGY AND FORESTRY

- Weather vocabulary 47
- How global warming affects plants and animals 50
- Cycling is bad for the environment 51
- The surprising world of lichens 53
- Renewable energy and farming: a winning combination 58
- Canadian boreal forest 63
- Canadian boreal birds 65
- Natura 2000 network 66
- Canadian boreal protected areas 66

Literary bits: *London* by W. Blake

3 SOIL, WATER AND PLANTS

- Shale gas 87
- Ammonia: fertilisers to be handled with care 97
- World Water Day 2013 99
- Healing herbs 113

Literary bits: *The force that through the green
fuse drives the flower* by D. Thomas

4 CULTIVATION

- Quinoa 126
- Golden rice 127
- Lentils: history through a lens 128
- Canola oil: ideal for any type of cooking 141
- Sustainability through use of cover crops 143
- Pruning basics: spur pruning 149
- Saffron: Abruzzo's red gold 163
- NYC rooftop farms 165

Literary bits: *Robinson Crusoe* by D. Defoe

5 FOOD PROCESSING AND PRESERVATION

- Dirty secrets 180
- Is soy milk really healthy? 182
- The value of milk standardisation 185
- Plaisentif, the cheese of violets 188
- Passito di Pantelleria 202
- Balsamic Vinegar: what are the differences? 204
- Lambic beer 208

Literary bits: *Charlie and the Chocolate Factory* by R. Dahl



6 LIVESTOCK

| | |
|-----------------------------------|-----|
| • Rare breed survival | 223 |
| • Bees and Fibonacci sequence | 239 |
| • Bees building a honeycomb | 240 |
| • Bees and the mathematical truth | 241 |
| • Sea farming in the future | 243 |
| • Livestock transport | 248 |
| • Animal welfare dilemmas | 248 |
| • Halal | 250 |

Literary bits: *Animal Farm* by G. Orwell

7 AGRICULTURAL MANAGEMENT

| | |
|--|-----|
| • Sustainable agribusiness | 266 |
| • Futures market explained | 277 |
| • Unfair trading practices in the food chain | 278 |
| • Agritourism: a farm holiday | 280 |

Literary bits: *Brave New World* by A. Huxley

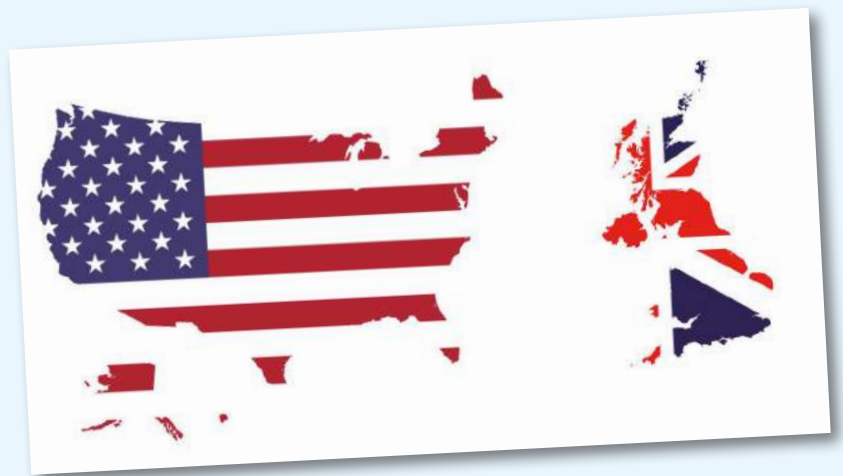
APPENDICES

| | |
|---|-----|
| • Workplace safety | 292 |
| • The history of Europass | 305 |
| • Europass – Opening door to learning and working in Europe | 305 |

EXTRA ONLINE RESOURCES

CIVILISATION – UK vs US

- Geographical features
- Climate, flora and fauna
- History: the first invasions
- History: the Middle Ages
- History: the Renaissance
- History: the Age of Revolutions
- History: The 19th century
- History: The 20th century until 1945
- History: The 20th century since 1945
- History: The contemporary age
- Population and Language
- Habits
- Political geography
- The political system
- Political parties and elections
- Education
- Social security
- Economy



MODULE

4

CULTIVATION

SOWING

- 9 Agricultural crops
- 10 Oil plants
- 11 Vineyards
- 12 Gardening and landscaping

GROWING

- Vocabulary
- Grammar • Comparatives and superlatives

HARVESTING

- Listening • Rice: a staple food
- Speaking • Career opportunities for garden designers
- Writing • Wild mushrooms

STORING

- Mapping your mind
- Film • *A Little Chaos*

ONLINE RESOURCES

Literary bits: *Robinson Crusoe*, by D. Defoe



*A garden is a grand teacher.
It teaches patience and careful
watchfulness; it teaches
industry and thrift; above all
it teaches entire trust.*



Gertrude Jekyll

WHY STUDY THIS MODULE?

In this Module you will learn about the main crops which form the basis of our diet. You will also learn about different gardening styles.



Answer the questions.

- What are the main crop plants grown in Italy?
- Where did the crop plants grown in Italy originate? Where were they domesticated?
- Are vegetables and legumes nutritious?

account for: *equivallere, rappresentare*
buckwheat: *grano saraceno*
combine harvester: *mietitrebbiatrice*
goddess: *divinità*
grass family: *graminacee*
mush: *polenta*
scythe: *falce*
spelt: *farro*
staple food: *cibo principale*
starch: *amido*
unrefined: *grezzo*



Also known as *dinkel wheat*, spelt has long been a staple crop in Europe. Containing gluten, it is suitable for baking, while in Poland it is distilled to make vodka.

CEREALS

The word “cereal” derives from the name **Ceres**, the Roman **goddess** of the harvest who was believed to teach humans how to grow, preserve and prepare grain and corn. As a matter of fact, cereals were the earliest cultivated plants, and for over ten thousand years they have been the **staple food** for many human societies. Today, cereal plants **account for** over fifty per cent of human energy and protein needs and occupy two-thirds of all cultivated land.

Basically, cereals are grains produced by plants belonging to the **grass family**. They are annual plants and, once they have grown their seeds, they have completed their life cycle and can be harvested, using either a **combine harvester** or hand tools, such as **scythes**. All their varieties are relatively easy to grow, store and transport and have a high nutritive value. All these plants have adapted in order to survive and flourish in particular environmental conditions.

These are the most common cereal crops:

- **Wheat** is the primary cereal of temperate regions where it is utilised for making bread and pasta. Consumed worldwide, it is a staple food in North America, Europe, Australia and New Zealand.
- **Maize** grows best in hotter conditions and is an important cereal crop in many different areas, from the arid desert plains of the south-western United States to the high Andean mountain plains of Ecuador and Peru. It is mainly used as forage, but it is also employed for making **mush** or to produce vegetable oils.
- **Rice** is a crop of the wet tropics.
- **Sorghum** can survive in very hot, dry conditions.
- **Rye** and **barley** are grown in temperate and cool regions where other cereals do not grow well and are used to make whisky or beer. Barley, in particular, has been adapted to the widest variety of climates, from the sub-Arctic to the sub-tropical, from Russia, Germany and Turkey to Australia and North America.
- **Oats** is grown throughout the temperate zones mainly for livestock, especially horses.
- **Millet** is a staple food in the semi-arid tropics of Asia and Africa.

Kamut and **spelt** are wheat varieties, while **chia**, **quinoa**, **amaranth** and **buckwheat** are classified as pseudo-cereal grains, as they are seeds from different plants external to the grass family.

Cereals are an important source of energy, providing about 350 kcal per 100grams, and supplying most of their food energy as **starch**. **Unrefined** cereals are good sources of fibre, protein, B vitamins and other important nutrients such as fat, iron and vitamin E. Maize, wheat and rice provide 87% of all grain production worldwide and 43% of all food calories.



ONLINE RESOURCES

- Quinoa

1  **Match the noun on the left with the definition on the right.**

| | | |
|------------|--------------------------|---|
| 1. Rice | <input type="checkbox"/> | a. It is a staple food in Africa and Asia. |
| 2. Maize | <input type="checkbox"/> | b. It is cultivated for its yellow edible grains, which develop on a spike. |
| 3. Rye | <input type="checkbox"/> | c. It is a drought resistant plant. |
| 4. Wheat | <input type="checkbox"/> | d. It is used in the beer making process. |
| 5. Barley | <input type="checkbox"/> | e. Its flour is suitable for making bread and pasta. |
| 6. Millet | <input type="checkbox"/> | f. It is considered the favourite feed of horses. |
| 7. Oats | <input type="checkbox"/> | g. It is a staple food in eastern countries. |
| 8. Sorghum | <input type="checkbox"/> | h. Its grains are used in making flour and whiskey. |

ONLINE RESOURCES
• Golden rice

2  **Refer to the text about cereals and fill in the table.**

| CROP | GROWTH REQUIREMENTS | WORLD AREAS |
|---------|---------------------|-------------|
| Wheat | | |
| Maize | | |
| Rice | | |
| Sorghum | | |
| Rye | | |
| Barley | | |
| Millet | | |

3  **Listen and decide if the statements are true or false. Correct the false ones.**

- Nowadays people do not choose national food only.
- Chia was eaten in Mexico.
- Buckwheat seeds are round.
- Amaranth is poor in protein.
- Amaranth was used in religious ceremonies.
- Chia is a variety of rhubarb.
- Chia seeds replaced money in trading.
- Buckwheat is suitable for people with celiac disease.
- Buckwheat easily adapts to poor soil conditions.
- Bees use buckwheat flowers to produce dark honey.

| | |
|--------------------------|--------------------------|
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LEGUMES

alfalfa: *erba medica*

climber: *pianta rampicante*

clover: *trifoglio*

dietary fibre: *fibre alimentari*

dried: *secco*

grass hay: *fieno di graminacee*

green beans: *fagiolini*

legume hay: *fieno di leguminose*

mottled: *variiegato*

saturated fat: *grasso saturo*

shrub: *arbusto*

source: *fonte*

to supplement: *integrare*

to tie in: *essere collegato*

unsaturated fat: *grasso insaturo*

Legumes play an important role in the quality of life of mankind. They are grown as human food, animal feed and forage. They are annual plants (**shrubs**, **climbers**, and herbs) belonging to the family *Leguminosae* (or *Fabaceae*). Their characteristic seeds are contained in pods that split into two halves when ripe.

Grain legumes or **pulses** are inexpensive and excellent **sources** of protein and B

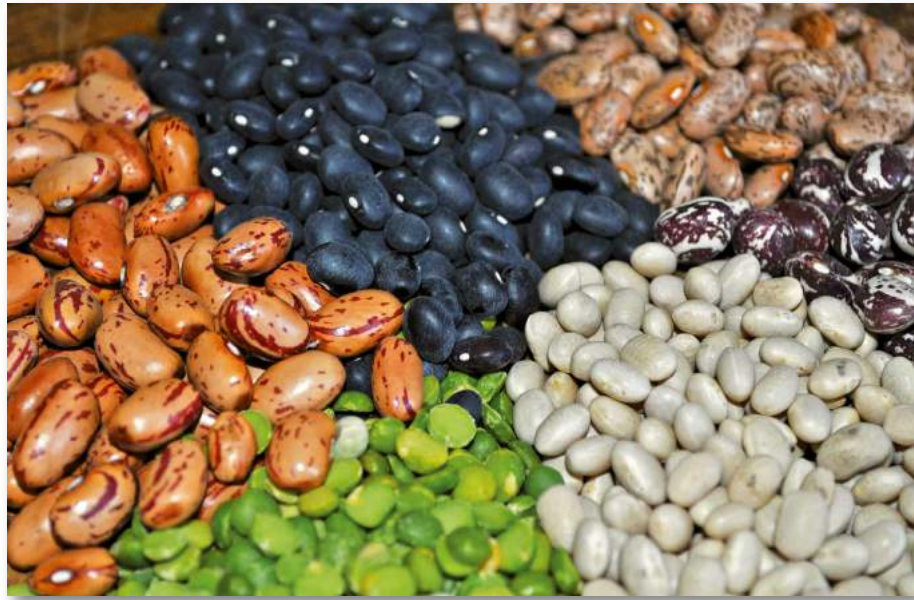
vitamins as well as carbohydrates and can be valid animal protein substitutes. Although their protein quality is not as good as that in meat, generally due to their low levels of some essential amino acids, this can be corrected by incorporating cereals into the diet. Furthermore, while sources of animal protein are often rich in **saturated fats**, the small quantities of fats in legumes are mostly **unsaturated fats**.

Not only are legumes excellent sources of essential minerals, but they are also rich in **dietary fibre**, which aids digestion and helps reduce the cholesterol level in blood.

The most widely cultivated legumes for food include beans, peas, chick peas, lentils, soybeans and peanuts.

- **Beans** include different varieties (white beans, red beans, **green beans** and broad beans) which can be eaten fresh or **dried**; the protein content is higher in dried beans.
- **Lentils** (probably the first legume cultivated by man) contain the highest percentage of protein (25%) and a fair amount of minerals like potassium, calcium, phosphorus and iron.
- **Peas** are mostly eaten fresh, canned or frozen and were common food in ancient Rome; their protein content is 7%.
- **Chick peas**, a basic food in India, are rich in fats.
- **Soybeans** are used to make oil and a drink which is suitable for people who are allergic to cow's milk.
- **Peanuts** can be eaten raw, toasted, salted, made into oils, and used in make-up, medicines and textile materials.

Legumes live in a symbiotic relationship with bacteria in structures called nodules on their roots. These bacteria are able to take nitrogen from the air, which is in a form that plants cannot use, and convert it into compounds that the plants can use. For this reason, many leguminous plants, such as **clover** and **alfalfa**, are used as organic manure to improve the nitrogen content of soils. They are also considered good feed for livestock, since **legume hay** has a larger content of protein, calcium and vitamin than **grass hay**.



Staple food

The history of legumes is **tied in** closely with that of human civilisation, appearing early in Asia, the Americas and Europe, where they became a staple food, essential for **supplementing** protein when meat was less available. Today, although legumes are an important part of traditional diets around the world, they are often neglected in typical Western diets.

ONLINE RESOURCES

- **Lentils: history through a lens**

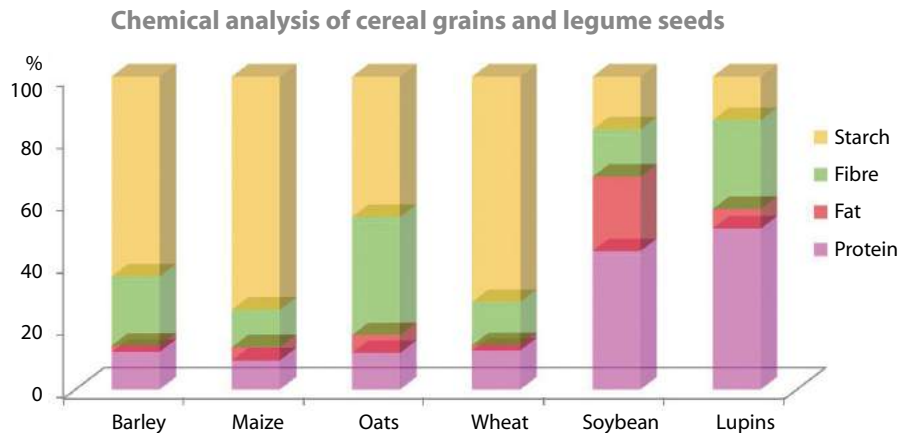
Peanuts



4  Find the English for these Italian words.

- | | | |
|---------------------|-------------------|--------------------|
| 1. Baccello | 5. Ceci | 9. Azoto |
| 2. Seme | 6. Soia | 10. Bestiame |
| 3. Fagioli | 7. Arachidi | |
| 4. Lenticchie | 8. Fave | |

5  Describe this graph.



6  Read and answer the questions.

Interesting Benefits of Adzuki Beans

These small beans are native to East Asia and the Himalayan region and are commonly eaten in Japan, China, Korea, and other Asian nations, although they can be found in other parts of the world. The name *adzuki* comes from Japanese, although the pronunciation often sounds like “azuki”. They are primarily red in colour, but white, black, and **mottled** cultivars can also be found in certain areas. These beans are mainly used for sweetened culinary applications, such as in the preparation of *natto*, a fermented bean dish, in Japan. When adzuki beans are boiled and sweetened into a red bean paste, the applications are endless in savoury dishes, sweet desserts, sushi, cakes, or as a topping for waffles, biscuits, or bread. They can even be used to make ice cream. Besides the unique flavour, adzuki beans are also a real nutritional powerhouse! There is a significant amount of protein, which is a crucial element, particularly for vegetarians and vegans who don’t get protein from animal sources. Moreover, its high content of B vitamins and folic acid can prevent the development of birth defect. Adzuki beans are also high in dietary fibre, one of the key elements of digestive health. This fibre has a second purpose, that of regulating the activity of insulin receptors in the body to ensure that blood sugars levels remain normal. They also contain a unique mineral known as molybdenum in quite high concentrations. This is a trace mineral and is not found in many foods, but it plays a crucial part in the detoxification of the liver.

Adapted from www.organicfacts.net/health-benefits/other/adzuki-beans

- Where do adzuki beans come from?
- What do they look like?
- Are they used only in salty dishes?
- Why is this legume called a nutritional powerhouse?
- Why should veggy people include adzuki in their diet?
- What is the function of its fibre?
- How do adzuki detoxify the body?



POTATOES

as a matter of fact: *in effetti*
to domesticate: *domesticare*
edible: *commestibile*
to occur: *trovarsi*
sailor: *marinaio*
spongy: *spugnoso*
sprout: *germoglio*
sprouting: *germogliamento*
starchy: *ricco di amido*
storage facilities: *sistemi di immagazzinamento*
underneath: *al di sotto*



Potatoes are tubers that are a staple food in many parts of the world, particularly Europe and the western world. They are **starchy**, tuberous crops from the perennial *Solanum tuberosum* of the **Solanaceae family** (also known as the nightshades). The word potato may refer to the plant itself as well as the **edible** tuber. There are about five thousand potato varieties worldwide. Three thousand of them are found in the Andes alone, mainly in Peru, Bolivia, Ecuador, Chile and Colombia.

As a matter of fact, potatoes originated in the region of southern Peru, where they were first **domesticated** between 8000 BC and 5000 BC. In the *Altiplano*, potatoes provided the principal energy source for the Inca Empire and its Spanish successors. Four centuries ago, **sailors** returning from Peru to Spain with silver and gold presumably brought maize and potatoes for their own food on the trip, and, since then, potatoes have become an integral part of most of the world's cuisine.

Today, the potato is the world's fourth-largest food crop, following rice, wheat and maize. Potatoes are amazingly nutrient-rich: they contain vitamins and minerals, are virtually fat-free, have no cholesterol and, when served in their skins, are a great source of fibre. Independent nutritionists and dietary researchers recommend potatoes as the perfect base for a balanced diet.

However, potatoes also contain toxic compounds known as glycoalkaloids, of which the most prevalent are solanine and chaconine. These compounds, which protect the plant from its predators, are generally concentrated in its leaves, stems, **sprouts** and fruits, which are not eaten. Exposure to light, **sprouting**, physical damage and age may increase the glycoalkaloid content within the tuber; the highest concentrations **occurring** just **underneath** the skin. For this reason, **storage facilities** need to be carefully designed to keep the potatoes alive and to slow the natural process of decomposition, which involves the breakdown of starch. It is crucial that the storage area is dark, well-ventilated and, for long-term storage, maintained at temperatures near 5-7 °C.

Consumers should avoid potatoes that are old, sunburned (green under the skin) or **spongy**. Such potatoes have toxic amounts of solanine, which can affect the nervous system and cause a variety of symptoms including headache, abdominal cramps, fever, hallucinations and even death.



7  **Write questions for the answers.**

1. To both the plant and the tuber.
2. About five thousand.
3. In the region of southern Peru.
4. Spanish sailors.
5. Fibre, vitamins and minerals.
6. Solanine and chaconine.
7. In the inedible parts, such as the leaves, stems, sprouts and fruits.
8. To slow the natural process of decomposition and maintain the toxic substance at a low level.

8  **Listen and decide if the sentences are true or false. Correct the false ones.**

1. No kind of shrub belongs to the Solanaceae family.
2. Most nightshades are edible.
3. 3,000 varieties are used in our diet.
4. Black pepper is not a nightshade.
5. Some people are likely to suffer allergic reactions.
6. Solanine is an alkaloid.
7. Solanine is only found in Solanaceae.
8. Some chemicals contained in nightshades seem to have a positive impact on human health.

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| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

9  **Translate.**

Le nightshades sono un gruppo di piante comuni, quali pomodori, patate, peperoni, melanzane, tabacco e alcune piante medicinali. L'origine di tale parola è oscura. Si credeva che tali piante crescessero di notte e non alla luce del giorno. Mentre alcune varietà di questa famiglia sono commestibili, altre sono velenose. In passato alcune sono state addirittura impiegate nella stregoneria.



Atropa belladonna



MUSHROOMS

beech: *faggio*
birch: *betulla*
decaying: *in decomposizione*
hazel: *nocciolo*
hypha: *ifa*
hornbeam: *carpino*
mycelium: *micelio*
oak: *quercia*
oyster mushroom: *gelone*
paddy-straw mushroom: *fungo di paglia*
poplar: *pioppo*
prized: *prezioso*
relief: *sollievo*
to send off: *emettere*
toadstool: *fungo velenoso*
truffle: *tartufo*
upset: *indisposizione*

Mushrooms and **toadstools** are eukaryotic organisms belonging to the Fungi Kingdom.

Historically, fungi were included in the Plant Kingdom; however, as they lack chlorophyll and are distinguished by unique structural, physiological and growth features, modern Systematics has separated them from plants.

The visible part of the fungus is only the “fruit” of the organism. Its living body is a mycelium made out of filaments called

hyphae. The **mycelium** is usually hidden in the soil, in wood, or another food source.

Mushrooms are edible fungi with various scientific names: they vary greatly in colour, texture, shape, and properties. They are essentially saprophytes, i.e. they feed by absorbing nutrients from the organic material in which they live, in particular from dead or **decaying** plants and animal matter.

They are low in calories and rich in vitamins and minerals. Approximately 300 mushroom species have known medicinal properties, and another 1,800 with potential medicinal properties have been identified. Their major health benefits include **relief** from high cholesterol levels, breast cancer, prostate cancer, and diabetes. They also help in weight loss and increase the strength of your immune system. However, some side effects are possible in certain people, such as mental disorders, tiredness, stomach **upset**, skin allergies, anxiety and headache.

Four important mushroom species are grown commercially: the Shiitake mushroom (*Lentinula edodes*), the **oyster mushroom** (*Pleurotus ostreatus*), the **paddy-straw mushroom** (*Volvariella volvacea*) and the common cultivated mushroom (*Agaricus bisporus*), which is the most important species with the greatest estimated global production.

Edible subterranean fungi, **prized** as a food delicacy, are **truffles**. They prefer argillaceous or calcareous soils and grow in harmony with a host tree, which provides sugars to the fungus through photosynthesis. In return, the fungus provides the plant with minerals, water, and other nutrients from the soil that it could not get by itself.

This symbiotic relationship is established with the roots of several tree species, including **beech**, **poplar**, **oak**, **birch**, **hornbeam**, **hazel**, and pine.

Unlike mushrooms above ground, truffles rely entirely on animals to eat them as a means of spore dispersal: as they mature, they develop odors and **send off** gasses and pheromones that attract wildlife. Man has learned to use to their advantage the animal weakness for truffles: since ancient times female pigs, trained dogs and goats have been used to sniff out truffles, which produce a chemical almost identical to a sex pheromone.

There are many species of truffles, however only a handful are of culinary value: the most widely known truffles, because of their taste and commercial importance, are the White Truffle, the Black Truffle and the Black Summer Truffle.



Cultivating black truffles involves the planting of hazel trees whose roots are impregnated with truffle mycelium. The fruiting bodies are then harvested 4 to 40 years after planting the trees.



10  **PAIR WORK.** Start an interview between a journalist and a farmer who owns a truffle orchard and follow these hints.

- Necessary to diversify crop production. Samplings are inoculated with white truffle fungus.
- Partnership arrangement with TRF Enterprise which provided trees, advise and support to start the plantation.
- Necessary steps: raising the PH of the soil; spreading lime on the ground; protecting the trees from pests; training dogs; monitoring the average temperature; granting well-drained soil.
- Truffle production starts after four to seven years.
- Harvest period: October to mid January.

11  **Listen to this text on how to start a mushroom farm and complete the sentences.**

1. Mushrooms and other fungi, like can be cultivated.
2. The environments where mushrooms are grown must be and sterilised.
3. The yearly production of mushrooms may be up to pounds.
4. Small local growers sell mushrooms at the farmers' or to local restaurants.
5. It is essential to control, light and humidity.
6. The substrate is made of or wood chips.
7. The incubation phase should be about Celsius.
8. In the fruiting room, mushrooms need and a lot of natural light.



Shiitake mushroom

12  **Read the text and decide if the sentences are true or false. Correct the false ones.**

Superpowers of Shiitake Mushrooms

Shiitake mushroom is the superhero of the fungi kingdom. Its name is Japanese, and comes from the word “Shii”, which is the name of the oak tree the mushroom usually grows on. The medicinal properties of these mushrooms have been studied since the Ming Dynasty (1369-1644), when Japanese elders considered them the “elixir of life”. Their use has a long history in Asian folklore for healing an extensive list of ailments. As research verifies the medicinal and gastronomic qualities of shiitake, it has recently gained popularity in the West for its nutritional and medicinal value. Shiitake mushrooms provide a healthy source of carbohydrate, protein, and essential amino acids. They are low in fat and contain high concentrations of vitamins D, B6, B9 and B12, and minerals. Although there is no formal definition of a “superfood,” Shiitake unquestionably deserves this award: it prevents weight gain, lowers cholesterol, boosts the immune system and combats infections. Possibly, its most exciting property is its cancer-fighting ability. There is a growing body of evidence that the Shiitake-derived compound lentinan has potent anti-tumour abilities. Lentinan is already an approved drug constituent in Japan and is generally used to extend survival and improve the quality of life of patients receiving conventional cancer therapy. Oddly, despite being the third most prescribed drug globally, it has not been approved by the Federal Drug Administration (FDA) so far. The cancer-fighting characteristics of Shiitake compounds are very likely due to their ability to boost the immune system; in addition, some studies have documented Shiitake extracts destroying and preventing the proliferation of tumour cells while leaving non-tumour cells untouched.

Adapted from <https://www.honeycolony.com/article/shiitake-mushrooms>

1. The name of this mushroom comes from the geographical area where it grows.
2. Scientific research has verified the medicinal qualities of Shiitake.
3. This mushroom is a superfood because of its gastronomic qualities.
4. It can help prevent weight increase.
5. It can significantly worsen the function of immune cells.
6. The anti-tumour abilities of the compound lentinan has been verified.
7. The FDA has already approved lentinan.
8. Shiitake extracts may eliminate both tumour and non-tumour cells.

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VEGETABLES

broccoli rabe: *cime di rape*

cassava: *manioca*

celeriac: *sedano rapa*

chard: *bietola*

chives: *erba cipollina*

edible: *commestibile*

endive: *indivia*

grapefruit: *pompelmo*

leek: *porro*

lung: *polmone*

Jerusalem artichoke:

topinambur

kale: *cavolo nero*

shallot: *scalogno*

to thrive: *crescere vigorosamente*

Vegetables usually refer to herbaceous plants or parts of a plant which can be eaten raw or cooked. They are important in a healthy diet because they provide vitamins, minerals, fibre and antioxidants.

The large variety of vegetables allows growth in any season of the year: there are warm and cool season crops.

Anyway, any type of vegetable has specific cultivation requirements. Most of them grow best in a fertile, well-drained soil with a loamy texture since sandy loam soils are easily worked and are quite productive. Moreover, all vegetables need a healthy amount of organic material in the soil they grow in. Organic material serves many purposes: it provides many of the nutrients that plants need to grow and **thrive**; it “softens” the soil and makes it easier for the roots to spread through the soil; it also acts like small sponges in the soil and allows the soil in which vegetables grow to retain water.

The **edible** parts of a herbaceous plant are many: stems, roots, flowers, and leaves. We do not usually consider the fruits of a plant to be vegetables, except for fruits that are not very sweet. Tomatoes, squash, peppers, aubergines and beans, for example, are all fruits, but we usually refer to them as vegetables.

Harvesting and storage are very important. First of all, the vegetable must be harvested at the right time; some can be picked by hand (salad and lettuce) while other crops (potatoes or onions) are harvested mechanically. Also, storage may be different: onions and potatoes can be stored in cool, dry and dark places for at least three months, while leafy vegetables should be stored for a short time in a cool place and in sealed containers to preserve moisture and vitamin C.

Vegetables can be categorised into seven groups:

- **leafy green** vegetables, including spinach, lettuce, chicory and **endive**;
- **root** vegetables, e.g. beet, **celeriac**, carrot, radish and turnip;
- **stem** vegetables, e.g. celery, asparagus, **chard** and fennel;
- **bulb** vegetables, e.g. garlic, onion, **shallot**, **chives** and **leek**;
- **tuber** vegetables, e.g. potato, sweet potato, **Jerusalem artichoke** and **cassava**;
- **inflorescent** vegetables, e.g. artichoke, cauliflower, **broccoli rabe** and broccoli;
- **fruit** vegetables, e.g. olive, squash, pumpkin, avocado, cucumber, pepper, tomato and aubergine (BrE) / eggplant (AmE).



13  **Fill in the blanks with the right colour, choosing from the box.**

blue • green (x2) • purple • red • white

A Colourful Protection against Disease

The colour of a fruit or vegetable is related to its health benefits because of the chemicals it contains that produce its colour.

Some (1) or (2) vegetables, like cauliflower, broccoli and brussel sprouts contain sulforaphane, a compound which reinforces the body’s natural cancer-fighting resources.























The anthocyanins found in (3) and (4) foods, like blueberries and eggplant, not only protect the human body against cancer but also improve brain function and help keep the heart healthy.

(5) vegetables, such as **kale** and spinach, contain zeaxanthin, a carotenoid which helps prevent cancerous tumour growth in humans.

(6) fruits and vegetables, such as watermelon, tomatoes and red **grapefruit** contain lycopene, which reduces the risk of developing cancers of the **lung**, prostate and stomach.

14  **Fill in the blanks under each picture with the corresponding term.**

artichoke • asparagus • aubergines • beets • broccoli • carrots • cauliflower • celeriac • celery
 chard • courgettes • cucumbers • fennels • garlic • lettuce • onions • peppers • pumpkin
 radishes • spinach • tomatoes • turnips

| | | | | | |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| 1. | 2. | 3. | 4. | 5. | 6. |
|  |  |  |  |  |  |
| 7. | 8. | 9. | 10. | 11. | 12. |
|  |  |  |  |  |  |
| 13. | 14. | 15. | 16. | 17. | 18. |
|  |  |  |  | | |
| 19. | 20. | 21. | 22. | | |

FRUITS

cantaloupe: *melone*
clustered: *a grappoli*
drupe: *drupa*
hypanthium: *ipanzio, tubo florale*
mulberry: *mora di gelso*
pome: *pomacea*
pomegranate: *melagrana*
quince: *mela cotogna*
soggy: *imbevuto di acqua*
take hold: *attecchire*
withstand: *resistere*



Diabetic patients are strongly advised to select foods with a low glycemic index (GI). GI measures the rate at which carbohydrates elevate blood glucose. Foods with a high glycemic index increase blood glucose quickly, while those with a low glycemic index increase the blood glucose slowly. The high fibre content present in fruits slows down the absorption rate of sugar into the bloodstream. Nonetheless, it is wise to know that the riper a fruit is, the higher its glycemic index.

All fruits may be classified into three major groups:

- **simple fruits:** one fruit that has developed from the ovary of a single flower. Simple fruits can include **drupes** or stone fruits (plum, peach, cherry or apricot), citrus (lime, mandarin, grapefruit, orange and lemon), and **pomes** (apple, pear and **quince**);
- **aggregate fruits:** a fruit formed from several ovaries of one flower that produces many tiny fruits **clustered** tightly together. Aggregate fruits can include raspberries, blackberries and strawberries;
- **multiple fruits:** a fruit formed from the fusion of the ovaries of many different flowers which develop closely together to form one bigger fruit. Multiple fruits can include fruits like pineapples, figs, **mulberries** and **pomegranates**.

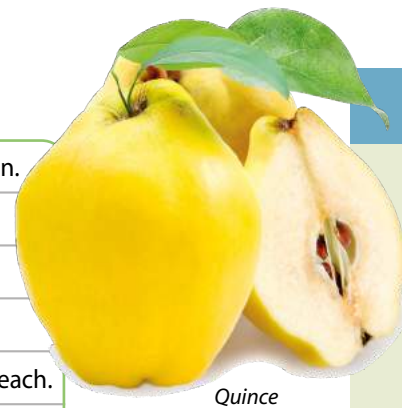


Some of the above-said fruits are actually **false fruits** or **accessory fruits**, i.e. they are not formed from the ovary, but from a different part of the flower. Even these fruits may be simple, aggregate, or multiple. **Pomes** – such as apples and pears – are simple accessory fruits with much of the fruit flesh derived from **hypanthium**, and have a central core with a seed chamber, called carpel. Strawberries would both be considered an aggregate fruit and an accessory fruit, since much of the fleshy part does not come from the ovary. Fruits can be **fleshy** like tomatoes or peaches, or **dry** like walnuts, hazelnuts, almonds or peanuts. They can have many seeds in them like **cantaloupe** and watermelon, or they can have one single seed in them like avocados, almonds and cherries. Fruits may be very large, like pumpkins, or very small, like blueberries.

Planting fruit-bearing trees requires careful study of various factors to ensure proper adaptability and growth. Important factors to be considered are climate, temperature, sunlight, rainfall, soil, and fertilisers. First of all, it is important to choose the fruit trees which are best-suited to an area, especially local old varieties. Also, proper soil is imperative to the survival and growth of fruit trees: if planted in **soggy**, poorly drained soil, the roots of fruit trees will rot, obstructing growth and development. Though pear, plum and apple trees can **withstand** moister soil better than other fruit tree varieties, loam soils are ideal, as they drain quickly. It is also important to avoid planting fruit trees in dense clay soil, which prevents roots from properly taking hold. As regards fertilisers, not all fruit trees need them every year and in the same amounts, but a common rule is to fertilise before the buds break.



15  Match the words to their definitions.



Quince

| | | |
|----------------|--------------------------|--|
| 1. Orchard | <input type="checkbox"/> | a. A small round melon of a variety with orange flesh and ribbed skin. |
| 2. Pome | <input type="checkbox"/> | b. A hard, acid pear-shaped fruit used in preserves or as flavouring. |
| 3. Drupe | <input type="checkbox"/> | c. The large oval brown seed of a tropical palm. |
| 4. Hypanthium | <input type="checkbox"/> | d. A piece of enclosed land planted with fruit trees. |
| 5. Coconut | <input type="checkbox"/> | e. A juicy, soft fruit of an orange-yellow colour resembling a small peach. |
| 6. Pomegranate | <input type="checkbox"/> | f. A fruit consisting of a fleshy enlarged receptacle and a tough central core containing the seeds. |
| 7. Stone | <input type="checkbox"/> | g. A cup-like or tubular enlargement of the receptacle of a flower. |
| 8. Cantaloupe | <input type="checkbox"/> | h. A fleshy fruit with thin skin and a central stone containing the seed. |
| 9. Apricot | <input type="checkbox"/> | i. A hard seed in a cherry, plum, peach, and some other fruits. |
| 10. Quince | <input type="checkbox"/> | j. A spherical fruit with a tough golden-orange outer skin and sweet red gelatinous flesh containing many seeds. |

16  Read the text and decide if the sentences are true or false. Correct the false ones.

Dry Fruits

Dry fruits are those fruits showing a hard texture. They can be classified as either dehiscent or indehiscent. The former open when they grow up and let their seeds go away: this type of fruit structure is characteristic of peas, beans and peanuts. The latter do not open and leave their seeds inside, such as nuts.

The botanical definition of a nut is a hard-shelled pod that contains both the fruit and the seed. On the contrary, almonds are not nuts: in fact, an almond is the seed of the fruit of the almond tree.

Nut trees have been grown for thousands of years, providing delicious and nutritious fruits to cultures from around the world. Temperate nuts, such as walnuts and hazelnuts, are indigenous to Northern Europe and the Americas, almonds were first grown in Spain, macadamias are indigenous to the Australian continent and pecans were first grown by the Native peoples of Central America. Unfortunately, the boom years seem to be over, as many nut farmers have to face drought, water shortages, climate change and the rapid expansion of corporate agriculture.

The secret to growing highly productive nut trees is to select the right type of tree for your climate and soil and then apply advanced pruning techniques to increase fruiting, save water, space and have lower operating costs.



Macadamia nuts

- Dehiscent fruits open when they are ripe.
- Nuts let their seeds go away.
- Almonds are not nuts.
- Walnuts and hazelnuts are grown in temperate areas.
- Drought, water shortages and changing climate can compromise nut farming.
- Farmers should choose nut tree varieties suitable to the climate and soil of their estate.



In botanical terms “a fruit is a reproductive structure of an angiosperm which develops from the ovary and accessory tissue, which surrounds and protects the seed”. In other words, fruits are the means by which many plants disseminate seeds, though this may be at odds with everyday usage of the word “fruit”. Botanically, oranges and apples are fruits, but so are “vegetables” like tomatoes and cucumbers. Olives, too, are classed as fruits and so olive oil is nothing but a fruit juice.

| T | F |
|--------------------------|--------------------------|
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| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

PLANT ADVERSITIES AND REMEDIES

to enhance: *accrescere*

host: *(pianta) ospite*

ladybird beetle:

coccinella

outbreak: *attacco*

rodent: *roditore*

slug: *lumaca*

snail: *chiocciola*

to spread: *propagarsi*

thrips: *tisanotteri*

whitefly: *mosca bianca,*

aleurodide

All species of plants, wild and cultivated, are subject to the attack of pests and diseases with a serious impact on the economic output of a farm. The occurrence and prevalence of plant diseases vary from season to season, depending on the presence of the pathogen, the environmental conditions and the crops and varieties grown. Some plant varieties are particularly subject to **outbreaks** of diseases; others are more resistant to them.

Plant diseases can be broadly classified according to the nature of their primary causal agent, which is either infectious or non-infectious.

- **Infectious plant diseases** are caused by a pathogenic organism such as a fungus, bacterium, mycoplasma, virus or nematode. An infectious agent is capable of reproducing within or on its **host** and **spreading** from one susceptible host to another.
- **Non-infectious plant diseases** are caused by unfavourable growing conditions, including extremes of temperature, disadvantageous ratio between moisture and oxygen, toxic substances in the soil or atmosphere, and an excess or a deficiency of an essential mineral.

Climate change and extreme weather events may negatively affect plant health and growth since they can **enhance** the spread of diseases and favour the attack of pests.

Pests are usually divided into two main groups: **parasitic pests**, which damage plants by obtaining their food from the plant (insects, **snails**, **slugs**, birds, **rodents**, etc.), and **non-parasitic pests**, which damage plants mechanically (dogs, cats, lichens).

Farmers should vary their prevention and treatment methods depending on the crops they grow and the pests or diseases they are susceptible to, as they affect crops differently.

Most management practices are long-term activities that aim at preventing pests and diseases from affecting a crop, whereas control practices focus on killing pest and disease. Careful and continuous monitoring of pest and disease levels during critical times of growth of a crop is the key to successful management since it helps the farmer to intervene early enough before the pest and/or disease causes significant damage.

The main curative methods include:

- mechanical control – using light traps to catch night flying insects, colour and water traps to monitor adult **thrips**, yellow sticky traps to control **whiteflies** and aphids;
- biological control – using natural enemies such as fungi, bacteria, viruses, insect predators, and insect parasitoids to manage populations of pests (such as **ladybird beetles** against aphids) and disease. These natural enemies are called antagonists or referred to as microbial insecticides or bio-pesticides. Some commonly used antagonistic microbes are bacteria such as *Bacillus thuringiensis* (Bt);
- natural pesticides – extracted from the plants and applied on infested crops such as the botanical pesticides Rotenone (*Derris sp.*), nicotine (tobacco), and pyrethrins (*Chrysanthemum sp.*).



17 Read the text and write questions for the given answers.

The Potato Famine in Ireland

The potato originated in the Andes Mountains of Peru, South America. In the early 1500s, Spanish conquerors brought it back to Europe and in about 1590, potatoes were introduced to Ireland, where farmers quickly discovered they thrived in their country's cool **moist** soil with very little labour and could feed a large family for a year, with the **leftovers** going to the family's animals.

Ireland in the mid-1800s was an agricultural nation, populated by eight million people who were among the poorest in the Western World and almost totally dependent on one crop: potatoes, specifically, the Lumper variety. Since potatoes could be propagated vegetatively, all of them were clones, genetically identical to one another. But evolutionary theory suggests that populations with low genetic variation are more vulnerable to changing environmental conditions than populations with high genetic variation. That is why the genetically identical lumper potatoes were all susceptible to a **rot** caused by *Phytophthora infestans*, which turned non-resistant potatoes to **inedible slime**. No cure existed in Ireland for the dreaded 'potato blight' and, even if a cure had existed, the people on the land would not have been able to afford it. It was not until 1882, almost 40 years after the famine, that scientists discovered a cure for *Phytophthora infestans*: a solution of **copper sulphate** sprayed before the fungus gained root.

Sporadic potato crop failures had already **plagued** Ireland in the 1700s and early 1800s. In 1844, the blight caused by a fungus had been identified in America, France and in the Isle of Wight, but the wet and mild summer of 1845 had the perfect weather conditions for this disease to spread in Ireland, too.

Diseased potatoes used as **planters** **sprouted** diseased **shoots**. Not all of the potatoes were infected the first year, so farmers replanted the same potatoes during the next few years hoping for better results. However, the situation worsened as the spores spread.

Lasting for six years, the Irish Famine, known as "The Great Hunger," was the great turning point in Irish history. It changed the society forever, reducing the population by 2 million people (25% of the total): half of these died of **starvation** or diseases associated with the famine, and half emigrated to North America or Great Britain.

The famine led to severe poverty and homelessness, which in turn led to unsanitary conditions and diseases such as cholera, dysentery, **scurvy**, typhus and **lice** infestations.

The horrors of the potato famine were worsened by the inadequacy of **relief efforts** by the British Government, which was sharply criticised for its laissez-faire economic policy and particularly because it allowed food to be exported to other countries while Ireland was starving. That was the consequence of the Protestant evangelical belief in divine Providence, and the ethnic prejudice (called moralism) of the educated British middle classes against the Catholic Irish, **guilty** of being lazy, inefficient, violent and responsible for the calamity.

1. Potatoes were introduced to Ireland around 1590.
2. Ireland was essentially an agricultural country.
3. Because the Lumper variety had low genetic variation, so it was more vulnerable to the rot caused by *Phytophthora infestans*.
4. The potato blight was cured with a solution of copper sulphate sprayed before the fungus had gained root.
5. The population was reduced by 2 million people.
6. The most widespread diseases were cholera, dysentery, scurvy and typhus.
7. The relief efforts by the British Government were completely inadequate.
8. The Irish were considered by the British middle class to be lazy, inefficient, violent and responsible for the calamity.



copper sulphate: *solfato di rame*
famine: *carestia*
guilty: *colpevole*
inedible: *non commestibile*
leftovers: *avanzi*
lice (sg louse): *pidocchi*
moist: *umido*
to plague: *affliggere*
planter: *patata da semina*
potato blight: *peronospora delle patate*
relief efforts: *soccorsi*
rot: *marciume, decomposizione*
scurvy: *scorbuto*
slime: *poltiglia*
to sprout shoots: *germogliare*
starvation: *fame*



Answer these questions.

- What different types of oil plants do you know?
- Which Italian regions produce the most olive oil?
- What do you know about the spread of *Xylella fastidiosa* in Southern Italy?

copra: *endosperma del frutto della noce di cocco*

dairy blend: *miscela di derivati del latte*

flax: *lino*

fruitlet: *drupa*

kernel: *nocciolo*

meal: *farina*

monoecious crop: *coltura monoica*

rapeseed: *colza*

silage: *insilato*

spread: *crema spalabile*

TYPES OF OIL CROPS

Oil crops include trees such as olive trees or palms, herbaceous plants such as **flax**, and even fungi. Oil is found in large amounts usually in the seeds of the plants and occasionally in the fleshy part of the fruit, as in the olive and the oil palm **fruitlets**. There are about 40 different varieties of seeds whose oil can be consumed, but only a few are significant in the total world trade. The most important oilseed producing areas are in the temperate zones. America and Europe together contribute to more than 60% of the world production of oil seeds, whereas a small production (<5%) comes from tropical areas such as Africa, Malaysia and Indonesia.

In Italy there are over 500 varieties of **olive trees** and more than 90% of oil production is obtained from some 45 varieties. Eighty per cent of the production of olive oil in Italy is centered around three regions: Apulia, Calabria and Sicily.

Among the oilseed crops, **soybean** is the main contributor in the world oilseed economy: it is also widely consumed as a bean and in the form of various derived products because of its high protein content.

Rapeseed is the second largest oilseed crop in the world oilseed production. Its main production areas are Europe (35%), China (26%), India (14%), and Canada (8%). **Canola oil** ("double-zero" rapeseed variety), developed through conventional plant breeding from rapeseed, is used for the production of margarine, **spreads**, **dairy blends**, animal feed, emulsifiers, vitamin E, healthy cooking oils, etc.

As a source of edible vegetable oil, **sunflower** has become a crop of major economic importance worldwide. Its wide adaptability enables cultivation in different agro-climatic regions and soil types. It can be used as a rotation crop in cereal systems to contrast grass weeds, as a double crop after early harvested small grains or vegetables, as an emergency alternative crop or as **silage** crop. **Peanut**, an important oil and food crop, is currently grown on approximately 42 million acres worldwide. India, China, and the United States have been the leading producers for over 25 years and grow about 70% of the world crops.

Grown for both seed and fibre, **cotton** plant is a source of oil for human consumption, cotton **meal** and minerals for livestock and poultry feed.

Copra is the **kernel** of the fruit of the coconut palm, whose oil is mostly used as livestock feed, while **palm kernel** is the nut of oil palm fruitlets, whose oil is used as a raw material for both food and non-food industries.



1  Find the synonyms of these words in the text.

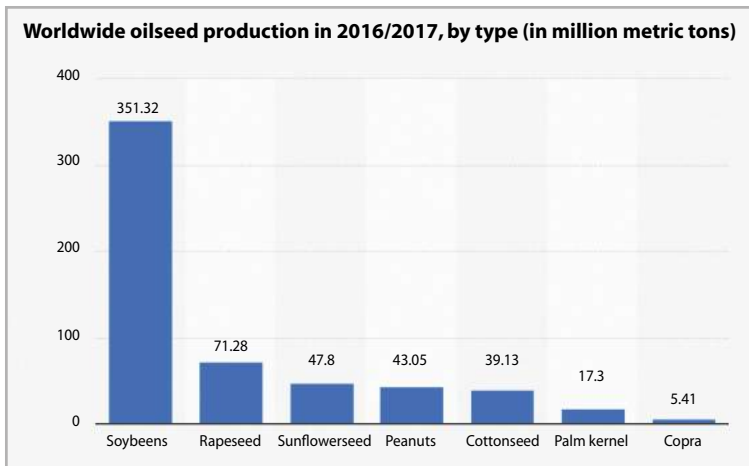
1. Quantities
2. Pulpy
3. Concentrated
4. Eatable
5. Extensively
6. Significant
7. Principal
8. Cattle



2  Describe this bar chart about the global oilseed production in 2016/2017.

Some useful expressions:

according to...; to represent/to show/to underline; to be the double of; one third/fourth/etc.; slightly lower than...; considerably higher than...; the 1st/2nd/3rd/etc. in the ranking; at the very bottom; to be the tail end...



3  Watch the video and complete the sentences.

<https://www.youtube.com/watch?v=jeRXeT7HK1E>

1. Being a **monoecious crop** means having both and flowers on the same tree.
2. Palm trees may be higher than feet.
3. The first fruits appear after of field planting.
4. The weight of a fresh fruit bunch ranges between and kilograms.
5. The maximum yield of the tenera variety is tonnes of crude palm oil.
6. Oil palm yield is greater than other crops.

ONLINE RESOURCES

- Canola oil: ideal for any type of cooking



OLIVE GROVE CONSERVATION AND MANAGEMENT

bloom: *fioritura*
cover crop: *coltura di copertura*
olive grove/orchard: *uliveto*
mulching: *pacciamatura*
pine straw: *aghi di pino*
to prune: *potare*
shoot: *germoglio*



Cover crops

Cover crops and their residues, particularly on slopes, form small dams that help to retain water runoff, reduce soil erosion, and contribute to soil water intake.

Natural cover crops that include grass-legumes improve soil structure, and this is reflected in increased aggregate stability and an associated ability to withstand erosion events.

No one **conservation** and **management** system is suited to all situations. This is because of differences in soil type, topography, type of farming operation, and climate.

Generally speaking, olive trees need mild winters and long, warm, dry summers. As they are sensitive to hard freezing environments, temperatures below -5 °C will kill small **shoots** and branches. It is best to avoid planting olive trees in situations where there is a high risk of frost during **bloom** (late April to mid-May) or where freezing conditions are likely before harvest. Summer rainfall can cause fungal and bacterial infestations. Olive trees need regular watering to thrive, but they require a well-drained soil and a sunny position, where they can receive at least six hours of direct sun per day.

Good soil-management practices are needed to improve olive growth and productivity by providing adequate nutrients and water to the plant. Indeed, poor soil aeration and gaseous exchange rates, limited movement and storage of water, and erosion as a result of structural degradation, reduce plant growth and vigour.

A good indicator of potentially large yields is the intensity of flower induction, which relies on the availability of specific hormones, energy and carbohydrates. Carbohydrate availability depends on climate conditions, variety, and diseases, but also on water and nutrient amounts and physical status of the soil. Once again, soil fertility (physical, chemical and microbiological conditions) is crucial to determining enhanced plant productivity.

In Mediterranean climate conditions, it is of particular importance to determine the best management practices that simultaneously increase soil organic matter levels and reduce wind speed, soil disruption, erosion and carbon loss, while permitting water intake during the rainy season. One of the most common conservation practices are **cover crops**: in **olive orchards** they help to reduce the erosive forces of both raindrops and the wind by

preventing the rain from hitting the soil surface directly and by acting as a windbreak.

Olive trees do not need special olive tree **fertilisers**, but the most recommended ones are nitrogen (N), phosphorus (P) and potassium (K), which should be fed lightly and often during the growing season. As regards **mulching**, **pine straw** is recommended.

Even if the current tendency is **to prune** olive trees as little as possible, this practice is necessary to adjust the trees to the climatic conditions of the area and increase a plantation's productivity.

Olive tree planting **layout** is decided according to the cultivation system applied: intensive for fertile areas or non-intensive for less fertile soils and low rainfall.



4  **Decide if the sentences are true or false. Correct the false ones.**

1. Soil, topography, and climate are crucial when choosing a specific conservation management system.
2. Small wood and branches may be affected by hard freezing.
3. Olive trees should receive less than 6 hours of direct sun daily.
4. Soil fertility influences olive grove yield.
5. Cover crops may act as windbreaks.
6. Intensive fertilising is not recommended.
7. An intensive cultivation system is preferred in areas where it does not rain a lot.

| T | F |
|--------------------------|--------------------------|
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5  **Read and reorder the paragraphs.**

Cover Crops in Spanish Olive Groves

- In recent years, cover crops have been promoted as an alternative to bare soil in olive groves in Southern Spain due to their ability to reduce soil erosion from water, especially in sloping olive groves.
- Several cruciferous species are also being introduced mainly because they have high potential for controlling important olive soil-borne diseases. Regarding the cover crop management, the rows between the trees are planted in autumn, while the area under the **canopy** is kept free of vegetation. Cover crops are killed by mowing or herbicides in early spring before weeds start to compete with the crop for moisture.
- In the Mediterranean basin, rainfall and underground water resources are the only supplies for most of the olive trees. In this area, traditional olive groves were designed with low plant density according to total rainfall. In Spain, around 50% of olive groves is tilled to avoid weed competition for water and nutrients, in order to increase olive tree yield.
- Other potential benefits include improved ground quality, retained and recycled plant nutrients, as well as effective control of weeds and soil-borne diseases. Several species, including barley, **vetch** and **natural grasses**, have been recommended as winter cover crops for olive groves.
- In addition, cover crops contribute to increase biodiversity, by favouring direct and indirect trophic interaction among community components, weeds, arthropod pests, and their natural enemies. Moreover, they provide increased resources such as alternative hosts/prey, pollen or nectar for parasitoids and predators.
- This conventional practice gives rise to a large area of bare soil that is prone to erosion processes, one of the most important land degradation driving processes in Mediterranean areas.

Adapted from: Natural enemies associated with cereal cover crops in olive groves, University of Almería, Spain



canopy: *chioma*
natural grasses: *graminaceae spontanee*
vetch: *veccia*

ONLINE RESOURCES

- Sustainability through use of cover crops

ADVERSITIES AND REMEDIES IN OLIVE TREES

adversely: *negativamente*
buffer zone: *zona cuscinetto*
concern: *preoccupazione*
felling: *abbattimento*
to force a rise: *produrre un aumento*
hence: *quindi*
loss: *perdita*
lure: *esca*
meadow spittlebug: *cicala sputacchina*
to phase out: *eliminare gradualmente*
to rely on: *basarsi su*
scorching: *bruciatura*

The world produces approximately 18 million tonnes of olives every year and the **olive fly** (*Bactrocera oleae*) is the single biggest problem facing the majority of olive plantations around the world.

Olive fly infestation, even at low levels, makes table olives unmarketable and **adversely** affects their acidity, and **hence** the quality and value of the olive oil. Female olive flies inject their eggs directly into the fruit, making it very difficult to kill the larvae, which are never exposed outside the fruit, so fruit-penetrating toxins must be used as a remedy. This is why current control methods against the olive fly **rely on** the use of chemical insecticides. However, several useful insecticides have been **phased out** due to **concerns** about their negative impact on the environment or human health.

Insecticide-resistance is reducing the effectiveness of the chemicals used, whose cost is also high. Alternative control methods – such as pheromone disruption, various **lures** and traps, and the fruit fly parasite, *Psytalia concolor*, which feeds on the flies – have been also adopted, but have generally had little success, especially when the population density of the flies is high.

A more recent dangerous plant bacterium is *Xylella fastidiosa*, which spread worldwide, causing a variety of diseases with a huge economic impact on agriculture, public gardens and the environment. This deadly bacterial pathogen is not harmful to humans, but causes rapid desiccation or '**scorching**' of the plants it infects. Since 2013 it has wiped out more than a million ancient olive trees in Southern Italy, **forcing a 20% rise** in the cost of olive oil across the EU. Widespread amongst Californian vine varieties and Brazilian citrus plantations, the bacterium encountered a large percentage of its many host plants in Apulia and, in olive trees, a new suitable host. Due to the rapid spreading of the disease through the region, and to the lack of ultimate remedies, the Italian government had no choice but to approve the **felling** of 3,000 trees in Salento, trying to create a sanitary **buffer zone** between affected and non-affected areas.

Unfortunately, many other plant species (oleanders, plums, almonds and cherries) remain potential hosts in the European countries, where transmission of the disease takes place through the **meadow spittlebug**, a vector insect that is widespread in the entire Union territory. As a consequence, the risk of this pest spreading further to other areas is very high, unless strict control measures are taken immediately when any new outbreak is detected.



Olive fly (*Bactrocera oleae*)



Meadow spittlebug
(*Philaneus spumarius*)



Workers cut down an olive tree infected with *Xylella fastidiosa*

6 Find questions to the answers.

1. Olive acidity is compromised by the olive fly infestation.
2. Because the larvae are never exposed outside the fruit.
3. Because these chemical insecticides have a negative impact on the environment and human health.
4. Because this bacterium causes rapid desiccation or 'scorching' of the infected plants.
5. The spread of disease among olive groves in Southern Italy pushed up the price of olive oil.
6. The deadly bacterial pathogen came from Californian vine varieties and Brazilian citrus plantations.
7. Because of the rapid spreading of the disease through the region, and the lack of effective remedies.
8. Through vector insects.

7 PAIR WORK. Play the role of a journalist interviewing a farmer in Salento dealing with the outbreak of *Xylella fastidiosa* in 2013.

The farmer should point out the seriousness of the situation as regards the damage to the environment, the local patrimony and the family estate. Make comments about the governmental steps to halt the spreading pest.

8 Write a short report (200-250 words) about the causes of the outbreak of *Xylella fastidiosa*, the government reaction and the economic impact and alternative solutions, if any.

Start by surfing the Net to find information about:

- the spread of *Xylella fastidiosa* infection in Salento
- the removal of olive trees
- the reaction of farmers
- causes
- consequences
- criticism of the Government plan
- future proposals.





Answer these questions.

- Is wine produced in your region?
- What varieties of grapes are grown?

breeze: brezza
bunch: grappolo di uva
cluster: grappolo
frost: gelo
to fulfil: soddisfare
grapevine: vite
harvest: vendemmia
to harvest: vendemmiare
hearty: vigoroso
jelly: gelatina
to prune: potare
raisin: uva passa
site: posizione
slope: pendio
smooth-skinned: liscio
vine: pianta rampicante
vineyard: vigneto

GRAPE VARIETIES

Grapes are small, round, **smooth-skinned**, juicy berries, generally purple, red, or green, growing in **clusters** on woody **vines**. Each **bunch** is attached to the main stem by its own short stem. They contain glucose and fructose, and are a good source of fibre, vitamin C and potassium.



Grapevines are divided into three main groups: *Vitis vinifera*, *Vitis labrusca* and hybrid grapes.

The most common species of **wine grape** is *Vitis vinifera*, which is used for the majority of the wines produced around the world and includes nearly all varieties of European origin. It also includes cultivars such as Cabernet Sauvignon, Merlot, Pinot Noir, Chardonnay, Riesling and Sauvignon Blanc. If **pruned** regularly and trained carefully, grapevines can remain productive for 50 years or longer.

Vitis labrusca is a species of robust and aromatic grape native to North America. It is used as a tablegrape, winegrape, grape-flavoured soft drinks and **jelly**.

Grape hybrids are generally **heartier** and produce more fruit than native European grapevines, but they are forbidden for use in wine production in most countries.

A **vineyard** is a plantation of grape-bearing vines, grown mainly for winemaking, but also for **raisins**, table-grapes and non-alcoholic grape juice. The science, practice and study of vineyard production is known as viticulture. A vineyard is often characterised by its ‘terroir’, a French term loosely translating as “a sense of place”, which refers to the specific geographical and geological characteristics of its grapevine plantations – its soil and subsoil, its drainage and **slope**, and its microclimate, which includes temperature, precipitation, and exposure to sun, wind and fog – that is everything that contributes to the distinctive character of a wine.

The most important single factor that determines the eventual success of a vineyard is the **site**. The ideal site **fulfils** the requirements of:

- full sunlight
- soil composition (sandy loam soils) and drainage
- suitable moisture (depending on soil types and vinegrape varieties)
- suitable slope (the further from the Equator, the steeper the slope, to get the ideal sunshine exposure)
- proper protection against **frost**
- an open area with a **breeze** which may prevent the fungal diseases.

However, it is the quality of the grapes which determines the quality of the wine more than any other factor. Grape quality is affected by variety as well as by the weather during the growing season, soil minerals and acidity, time of **harvest**, and pruning method. Grapes are usually **harvested** from early September until early November in the northern hemisphere, and mid-February until early March in the southern hemisphere. In some cool areas in the southern hemisphere, like Tasmania, harvesting extends into May.



Grapevine and vine are synonyms: as nouns, the difference between grapevine and vine is that grapevine is the plant, a vine of genus vitis, on which grapes grow, while vine is the climbing plant that produces grapes.

1  Match each word to its definition.

| | | |
|----------------|--------------------------|---|
| 1. Vineyard | <input type="checkbox"/> | a. Climbing plant whose fruit is the grape. |
| 2. Harvest | <input type="checkbox"/> | b. Alcoholic drink made from the fermented juice of grapes. |
| 3. Wine | <input type="checkbox"/> | c. Very small drops of water present in the air. |
| 4. Vine | <input type="checkbox"/> | d. The practice of growing grapes. |
| 5. Viticulture | <input type="checkbox"/> | e. Cutting away a branch or stem from a plant. |
| 6. Pruning | <input type="checkbox"/> | f. Thin, white layer of ice which forms when temperature is below 0 °C. |
| 7. Raisins | <input type="checkbox"/> | g. Area of land planted with grapevines. |
| 8. Drainage | <input type="checkbox"/> | h. The act of cutting and gathering crops. |
| 9. Frost | <input type="checkbox"/> | i. The ability of the soil to remove excess water. |
| 10. Moisture | <input type="checkbox"/> | j. Dried sweet grape. |



2  Answer the questions.

1. What are the main grape varieties?
2. What is meant by 'terroir'?
3. What is the ideal site for a vineyard?
4. What does the site affect?
5. What determines the quality of wine?
6. Which variety of vineyard is forbidden in Europe for wine production?

3  Listen and decide if the sentences are true or false.

1. *Vitis labrusca* has vertical and horizontal branching habits.
2. It is cultivated only in the Southern States of the US.
3. Good drainage is essential for the best growing.
4. It is advisable to protect the vine from winds and frost.
5. It is self-seeding.
6. Humid summer climates are suitable for this plant.
7. It can be grown on different structures to provide cover or shade.

| T | F |
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| <input type="checkbox"/> | <input type="checkbox"/> |



Vitis labrusca



Napa valley vineyard

PRUNING AND OTHER MAINTENANCE ACTIVITIES

cane: *tralcio, capo a frutto*

desuckering: *scacchiatura*

to mess up: *compromettere*

pinching back: *sfemminellatura o scarzolatatura*

to staple: *fissare*

sucker: *pollone*

trellising: *legatura dei tralci ai fili di sostegno*

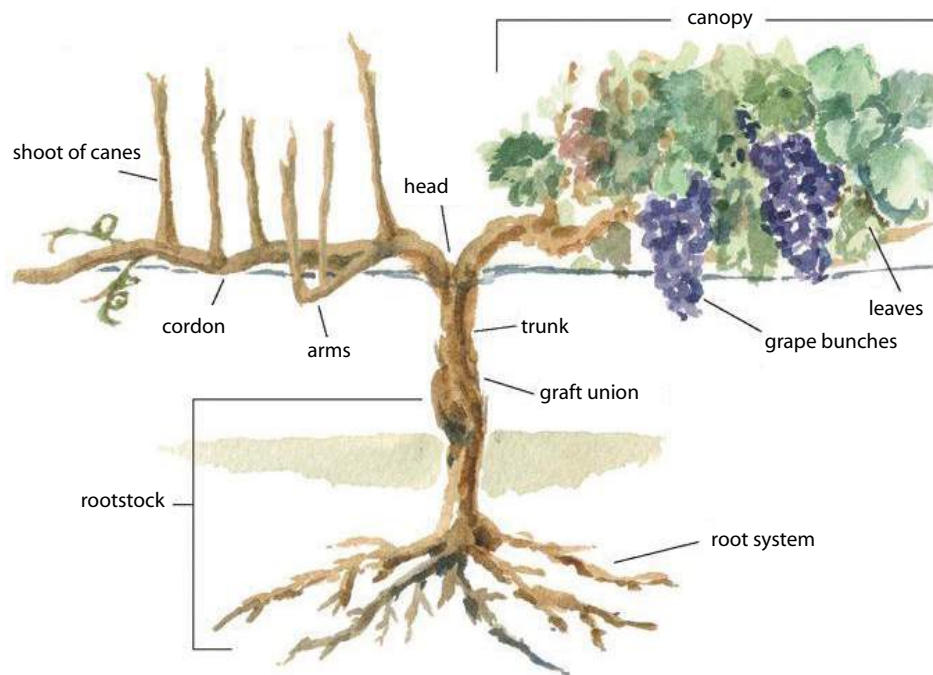
The yearly growth cycle of grapevines varies, depending on climate, weather, variety, and other growing conditions. In spring, grapevines “wake up” and start their yearly cycle with bud burst, ending in autumn with leaf fall, followed by winter dormancy.

Pruning is one of the most important operations in grape production because it regulates both vegetative growth and fruit production: when a vine is under pruned (too many buds left), the vine will produce many small clusters of small grapes that may fail to ripen properly; if the vine is over pruned (too few buds left), the yield will be low and the vegetative growth excessive.

Grapevines are pruned by cutting away most of the vine that is not required for the next season’s growth. In cold weather it is advisable not to prune until late winter or early spring. Summer pruning or pruning while the vine is in a green or growing state can severely weaken its development.

In general, to obtain the most from each grapevine, the main tasks at a vineyard, besides pruning, are:

- **desuckering:** in mid May, any non-fruitful shoots (‘**suckers**’) are removed, encouraging the vine to focus its energies on the fruit-bearing shoots
- **phyto-sanitary treatment:** from April to September growers monitor weather and humidity conditions to contrast any fungal disease which could **mess up** the harvest
- **lifting:** by the end of May, the shoots are 50 centimetres long. They must now be raised from the ground and attached vertically to wires running some 30 centimetres above the main support wires
- **trellising:** in June the shoots are separated and **stapled** to wires, thus allowing maximum light penetration and also encouraging air circulation to prevent rot
- **pinching back:** from mid-June or early July, before or after flowering, shoot tips are removed to prevent the vine from producing foliage at the expense of fruit; it is repeated twice and sometimes as often as four times/season
- **harvesting:** once the grapes reach the optimal stage of ripening, they are harvested: the date is determined by different factors, such as climatic parameters and the vine cycle evolution
- **fertilising:** a post-harvest fertiliser application is important in the dormant season, as the grapevine stores nutrients in the **canes**, stem and roots, in preparation for winter. However, it is difficult to give generalised recommendations, since these requirements can vary widely, depending on vine vigor and crop size.



4 Find the words corresponding to the definitions.

1. The process of cutting off unwanted branches:
2. A group of similar things growing or held together:
3. A period in a plant's life cycle when growth and development are temporarily stopped:
4. Removing some of the shoots that grow from young grape vines:
5. A structure used as a support for vines and other climbing plants:
6. Removing the growing tips on main stems:
7. The gathering of crops:

5 Answer the questions.

1. Why is pruning necessary?
2. What is the consequence of too many buds being left on the vine?
3. When should grapevines be pruned?
4. What happens if the vine is pruned while in a green or growing state?
5. What influences the yearly growth cycle of grapevines?
6. Why is desuckering useful?
7. Why is trellising useful?
8. What determines the harvesting date?



6 Translate.

L'inverno e l'inizio della primavera sono i periodi migliori per la potatura, che è un'operazione delicata e importante. Durante il primo anno la vite dovrebbe essere lasciata crescere, ma nella primavera del secondo anno si possono iniziare a rimuovere i germogli laterali che crescono dal tronco. Poi, la vite viene lasciata crescere durante la terza primavera ed estate; nell'inverno successivo si lasceranno 12 gemme lungo ogni ramo, il quale produrrà frutti durante la quarta estate.



ONLINE RESOURCES

- Pruning basics: spur pruning



Guyot training system

TRAINING SYSTEMS

Not all vineyards look the same. That is because not all grape vines are pruned and grown in the same way, given that each vine training system offers different benefits, according to the specific climate, terroir and vine variety. Even without a fixed rule, growers generally adopt:

- tall vine trunks in cooler climates with high moisture; lifting the grapes higher above the ground increases airflow and sun exposure, which reduces fungal infections
- short vine trunks in hotter growing regions; this system reduces vine exposure to the sun and moderates temperature variation
- widely spaced vines in very dry regions, to increase vine's ability to access nutrients from the soil; in moist or irrigated areas, it also increases the vines production
- closely spaced vines to limit vine vigor, limiting production and improving quality.

The following are just some of the most common pruning methods which give rise to specific training systems.

- **Cordon spur pruning** leaves a permanent horizontal extension of the trunk in place year after year. Cordons can be decades old and achieve diameters of several centimetres. All vineyard operations can be mechanised, including winter pruning.
- The **Guyot** training system is part of a group of systems referred to as a VSP system (vertical shoot positioned). This system trains one or two fruiting arms along a main wire. In single Guyot, only one **spur** and one cane are left, while in double Guyot, two spurs and two canes are retained. Together with Cordon Spur Pruning, it represents one of the most widespread training systems in the world, due to the ease in which vineyard operations can be mechanised, except for pruning, which must be carried out by hand.
- **Gobelet** or **Head Pruning** is an ancient method of vine training which involves no wires or other systems of support, and results in a **goblet** or **bush** shaped growth. The trunk of the vine is kept short, at about 0.5m, allowing for a greater accumulation of heat, which makes this a well-adapted system for warm, dry climates, without fertile soil.
- The **Pergola** training system requires a significant wood or stone support structure which holds up the roof, usually made of iron wires. This system, widespread in all of Northern Italy, is particularly suitable for alpine climatic conditions, as its structure can protect the grapes from the sun's rays during summer and from the winter frost.

bush: *arbusto*

cordon spur pruning:
*potatura a cordone
speronato*

gobelet/head pruning:
potatura ad alberello

goblet: *calice*

spur: *sperone*



The Guyot training system was developed in France in the late 1800s and is named after Dr Jules Guyot, a French physician and agronomist. It is commonly used for commercial vineyards, but is easily adapted for the home gardener.

7 ^{4.5} **Listen to the conversation between a customer and Mr Dotto, an agronomist of CAREMA grapevine nursery. Then, complete the sentences.**

1. The customer's garden is
2. The customer an expert in training systems.
3. According to the function of the pergola, Mr Dotto can suggest the suitable grape
4. The pergola training system allows the grapevine to be kept under control during
5. Less disease is due to more effective and
6. The disadvantages concern the and for building this trellis system.
7. Mr Dotto suggests starting with a number of grapevines.
8. A pergola should be sturdy enough to withstand
9. At the end, is the customer going to carry out his/her project?



8  **Read the passage and decide if the statements are true or false. Correct the false ones.**

Preserving Sicily's Heritage

Viticulture in Italy is likely to date back to 6,500 years ago, after archeologists from the University of South Florida have found residues of wine at the Copper Age site of Monte Kronio, on the southwest coast of Sicily. This may be justified by the island's unique terroir – mineral-rich soils, rolling hills, and Mediterranean climate – which makes it an ideal growing environment for the grapevine. Monte Kronio is located in the surroundings of Sciacca which, along with the communes of Contessa Entellina, Menfi, Montevago, Santa Margherita and Belice, belongs to the Terre Sicane district, “The Golden Triangle” of Sicilian wine growing. In this area, the early 1990s witnessed a growing trend to import international varieties, such as Merlots, Cabernets and Chardonnays. However, some forward-thinking producers have been working for many years to preserve the island's native grape varieties and differentiate their wines from those in the rest of Italy.

Today, the best Sicilian wines are being produced from the nearly 50 existing, indigenous vines and are being enjoyed in restaurants and homes across the world.

Sicilian wine producers are focusing on the opportunities provided by the Mediterranean landscape: the island's climatic conditions are perfect for producing healthy grapes and extraordinary wines with distinctive flavours at incredible value. Research projects are also being undertaken across Sicily to identify clonal material and ensure the diversity of the island's native *Vitis vinifera* is both preserved and celebrated.

The indigenous vines, which, over the centuries, have adapted to these lands, non-irrigated Gobelet cultivation and organic agriculture are fundamental in respecting what has been inherited.

1. Sicily's environment is not suitable for viticulture.
2. In the last decade of the 20th century, international varieties used to be imported.
3. Following a different trend, some winemakers started to re-evaluate indigenous vines.
4. Merlot is one of the 50 native varieties.
5. Traditional viticulture relies on non-irrigated Gobelet cultivation and organic farming.

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DANGERS IN THE VINEYARDS

coating: *patina*
copper sulfate: *solfato di rame*
downy mildew: *peronospora*
gall: *galla, escrescenza*
to graft: *innestare*
grey mould: *muffa grigia*
leafhopper: *cicadella*
lime: *calce*
noble rot: *muffa nobile*
to overwinter: *svernare*
pilfering: *piccolo furto*
powdery mildew: *oidio*
red spider mite: *acaros rosso*
rootstock: *portainnesto*
soft rot: *marciume molle*
to stunt: *inibire, bloccare la crescita*
thrip: *tisanottero*
to turn out: *risultare*
to wipe out: *eliminare*
to wither: *appassire*

Grapevines are tough plants that thrive after being severely cut back, re-bloom after snowy winters and produce masses of fruit even when neglected. Nevertheless, there are several pests and grapevine diseases that can minimise the vigour of these plants.

The sweet, succulent fruit is a magnet for rodents, insects and especially birds. Insects that can affect grapes include the *grape phylloxera*, grape **thrips**, the **red spider mite**, and grape **leafhoppers**. Some, such as **grape leafhoppers**, feed on the leaves, placing significant stress on the vine and reducing the plant's ability to produce fruit; they **overwinter** in the dropped leaves beneath the vines and can be controlled with good sanitation practices.

Grape thrips can seriously damage leaves, and flowers become sterile in case of heavy infestation. **Red spider mites** infect the leaves, damaging photosynthesis and causing decreased sugar storage in fruits. To contrast these three pests, farmers use natural insecticides or predators.

Grape phylloxera is the world's worst grapevine pest. This tiny aphid-like insect feeds on *Vitis vinifera* grape roots, causing **galls** on them. It lives on the surface of the root galls, **stunting** the growth of the vines or killing them. This pest destroyed millions of hectares of vineyards in Europe in the 1800s, nearly **wiping out** the French wine industry. There is no cure or treatment for vines infested with *phylloxera* – apart from removing all infected vines and replacing them with vines **grafted** onto *phylloxera*-resistant **rootstocks**.

In an effort to control *phylloxera*, resistant grape rootstocks were introduced to Europe from North America in 1878.

Unfortunately, at the same time, these imported rootstocks carried the **downy mildew** pathogen (*Plasmopara viticola*), spreading it widely throughout Europe. Grapes are very susceptible to various fungal diseases, which can be prevented by choosing a windy site for the vineyard or applying a copper-based fungicide:

- **Downy mildew** is a highly destructive disease of grapevines in all grape-growing areas of the world with rainfall in spring and summer at temperatures above 10° C. Foliar symptoms appear as yellow circular spots with an oily appearance (oilspots), white downy fungal growth will appear on the underside of the leaves and other infected plant parts;
- **Powdery mildew** (*oidium*) causes a white dusty **coating** on leaves, buds, young shoots, fruits and flowers. Leaf infection reduces plant vigour. When fruits are infected, they split as they expand and this allows secondary infection by grey mould;
- **Grey mould**, caused by *Botrytis cinerea*, is a **soft rot** on fruit and leaves, easily infecting plants that are already damaged or beginning to die.

Grapevine attacked by red spider mite



Grapevine attacked by grey mould



9  **Complete the sentences.**

1. Grapevines are vigorous plants which...
2. Leafhoppers live through the winter in...
3. Grape phylloxera is an insect...
4. A lot of European vineyards...
5. The only efficient treatment against phylloxera...
6. Rootstocks of American varieties were introduced...
7. The downy mildew was introduced from...
8. Fungal diseases are favoured by...
9. Plants infected with powdery mildew show...
10. Grey mould is a disease caused by...



Grape phylloxera

10  **Listen to the text and fill in the blanks. Then, say if the statements are true or false and correct the false ones.**

Remedies

Two of the most important diseases of grapes in the world are (1) and downy mildew. The former is a fungus which gives rise to two different kinds of (2) on grapes. The first, grey rot, is the result of consistently wet or (3) conditions, and typically results in the loss of the affected (4) The second, **noble rot**, occurs when drier conditions follow wetter, and can result in distinctive sweet dessert wines.

As regards (5), its first symptoms are usually seen on the leaves as soon as 5 to 7 days after infection. Infected parts of young fruit bunches turn brown, **wither**, and (6) rapidly. The infection of young shoots and leaves can lead to significant crop loss and affect (7) accumulation and growth in the following season.

Disease can be prevented by establishing grapevines in (8) sites with good air movement and using pre-infection (protective) copper-based (9), such as Bordeaux mixture and the dithiocarbamates, applied prior to an infection event. Post-infection fungicides are more costly and should be applied as soon as possible after infection.

In 1885, P.M.A. Millardet first used (10) to control downy mildew. It is said that a farmer had applied this mixture of **copper sulfate** and **lime** to produce a chemical residue on grapes along the (11) to discourage **pilfering** by passers-by; it **turned out** to be particularly (12) against this disease. Millardet's extensive experimentation led to the development of Bordeaux mixture as the first widely used chemical to (13) plants from fungal infections.



Plasmopara viticola

1. Grey mould can be positive in particular weather conditions.
2. Downy mildew first attacks the fruit.
3. No farming measures can prevent fungal infections.
4. Bordeaux mixture was discovered by chance in France.
5. Bordeaux mixture is the best fungal treatment for plant infections.

| T | F |
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Answer these questions.

- If you had to design your garden, which plants would you choose? Why?
- Have you ever heard of vertical forests?

to affect: *influenzare*

cactus-dotted:

punteggiato di cactus

dam: *diga*

deciduous: *caducifoglio*

ditch: *canale*

landform: *morfolgia*

yard: *giardino, cortile*

LANDSCAPE

Garden and landscape design deals with the development and decorative planting of gardens, **yards**, grounds, parks, and other types of areas. It is one of the decorative arts and is allied to architecture, city planning, and horticulture. Efforts to design gardens and to preserve and develop green open space in and around cities, are efforts to maintain contact with the original rural landscape and create continuity in space with the structural urban landscapes.

According to the **European Landscape Convention**, the term “landscape” refers to an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors. In other words, it consists of the geographical features that are characteristic of a particular area and, at the same time, it is characteristic of the people who made it. For this reason, we can have natural or cultural landscape, rural or urban landscape.

A **natural landscape** is made up of different **landforms**, such as mountains, hills, plains and highlands, lakes, streams, soils and natural vegetation. A desert landscape, for instance, usually indicates sandy soil and few **deciduous** trees. But even desert landscapes can vary: the hilly sand dunes of the Sahara desert landscape are very different from the **cactus-dotted** landscape of the Mojave Desert of the American Southwest.

A landscape that people have modified is called a **cultural landscape**. People and the plants they grow, the animals they care for, and the structures they build make up cultural landscapes, which can be very different. Since 1992 UNESCO has protected cultural landscapes from damage, and identifies them as tourist destinations, such as the Roero Vineyards and the Botanical Garden of Padua. The growth of technology has increased our ability to change a natural landscape. An example of human impact on landscape can be seen along the coastline of the Netherlands: water from the North Sea was pumped out of certain areas, later used for farming and protected from water with **dams** and **ditches**. By studying natural and cultural landscapes, geographers learn how people’s activities **affect** the land. Their studies may suggest ways that will help us protect the delicate balance of the Earth’s ecosystems. Thus, it is important to establish a **landscape policy** by the competent public authorities: general principles, strategies and guidelines aimed at the protection, management and planning of landscapes, in order to maintain the significant features of a landscape, justified by its heritage value derived from its natural configuration and from human activity.



Ayers Rock (Uluru, Australia)



Is Arenas Biancas (Sardinia)



The European Landscape

Convention – also known as the Florence Convention – promotes the protection, management and planning of European landscapes and organises European co-operation on landscape issues. The convention was adopted on 20 October 2000 in Florence (Italy) and came into force on 1 March 2004 (Council of Europe Treaty Series no. 176). It is open for signature by member states of the Council of Europe and can be accessed by the European Community and European non-member states. It is the first international treaty to be exclusively concerned with all dimensions of European landscape.



The term *landscape* comes from the Dutch word **landschap**, the name given to paintings of the countryside. Famous Dutch landscape painters include Jacob van Ruisdael and Vincent van Gogh.



1 **Answer the questions.**

1. What is a landscape?
2. What is a natural landscape made up of?
3. What kind of landscape can be considered a “cultural landscape”?
4. What is the role of UNESCO?
5. What support has the growth of technology given?
6. What is the aim of landscape policy?

2 **Read the text and fill it in with the given words.**

cultural • diversity • environment • external • Heritage • land-use • natural nature • physical • regions • society

The Cultural Landscape Protection

In 1992, the World Heritage Convention became the first international legal instrument to recognise and protect (1) landscapes. The Committee, at its 16th session, adopted guidelines concerning their inclusion in the World (2) List.

The Committee acknowledged that cultural landscapes represent the “combined works of (3) and of man” designated in Article 1 of the Convention. They are illustrative of the evolution of human (4) and settlement over time, under the influence of the (5) constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both (6) and internal.

The term “cultural landscape” embraces a diversity of manifestations of the interaction between humankind and its natural (7) Cultural landscapes often reflect specific techniques of sustainable land-use, considering the characteristics and limits of the (8) environment they are established in, and a specific spiritual relation to nature. Protection of cultural landscapes can contribute to modern techniques of sustainable (9) and can maintain or enhance natural values in the landscape. The continued existence of traditional forms of land-use supports biological diversity in many (10) of the world. The protection of traditional cultural landscapes is therefore helpful in maintaining biological (11)

Adapted from <https://whc.unesco.org> › Culture › WHC

3 **4.7 Listen to a text about the different kinds of landscape and complete the table with the missing details.**

| NAME | LOCATION | KIND OF LANDSCAPE | NATURAL FEATURES | MAN-MADE FEATURES |
|--------------|----------|-------------------|------------------|-------------------|
| Yellowstone | | | | |
| Bergen | | | | |
| Ayers Rock | | | | |
| Langhe | | | | |
| Galapagos | | | | |
| Amalfi Coast | | | | |

HISTORY OF GARDENS

to advocate: *farsi promotore di*
avenue: *viale*
box: *bosso*
box honeysuckle: *lonicera*
to come into being: *nascere*
gravel: *ghiaia*
hardy: *resistente*
hedge: *siepe*
hideaway: *rifugio*
holly: *agrifoglio*
lawn: *prato rasato*
long-running: *di lunga durata*
reflecting pool: *piscina riflettente*
shape: *modellare*
smooth: *armonioso*
swing: *oscillazione*
trellis: *graticcio*
yew: *tasso*

Even though the design of gardens has changed dramatically over the centuries, following trends in art, politics, religion, philosophy, planting, construction, and many more, two of the **longest-running** competitors for gardeners' attention have been formal and informal gardens, represented by the Italian/French and English styles, respectively.

Influenced by the Roman garden with its formal layout of beds, borders, walks and **avenues**, the **Italian Renaissance garden** emerged in the late 15th century, inspired by classical ideals of order and beauty, and intended for the pleasure, contemplation, and enjoyment of the sights, sounds and smells of the garden itself. Flowers were few; plants were mainly evergreens and conifers, manicured into geometric **hedges** or topiaries, whose main motives were balls and cubes. In the late Renaissance, the gardens became larger, and more symmetrical, filled with fountains, statues, **hideaways**, grottoes, and water organs to amuse and impress visitors.

The **French garden** style developed after the impact of the Italian Renaissance. It adopted many principles from the Renaissance gardens, but incorporated a style of its own, reaching its best expression in the 16th and 18th centuries under Louis XIV and Louis XV, with the gardens of Vaux-le-Vicomte and Versailles, designed by André Le Nôtre. The main goal was to make an extravagant impression on the viewers, while giving order to the chaotic nature and **shaping** it into regular forms and **smooth** lines.

Italian/French gardens are also called **formal gardens** as they follow very strict geometric and symmetric layouts. The home is often the centre point of the design with large paths – often paved with **gravel** – that provide axial views. Other key elements are parterres, terraces and a **reflecting pool** in circular, oval and rectangular shapes, adorned with fountains or sculptures. The **English garden** **came into being** in the early eighteenth century but reached its height with the Romantic movement in the late 18th and the early 19th century, with a **swing** from Renaissance formality to a more “natural” look. This style usually included ponds or a rounded lake, wilder foliage, imitation ruins and grottos, **lawns** and groves of trees. Finally, in the 20th century, W. Robinson and G. Jekyll laid the foundations of the **modern informal garden** by mixing native and exotic plants, **advocating** a wilder garden of mixed herbaceous borders of **hardy** perennial plants, which was built on the tradition of the “**cottage garden**”, with its profusion of flowers wherever space permits, and climbers on **trellises** and walls.



A French garden



Never Go against Nature

The most famous gardening Englishman in Italy must be Thomas Hanbury, who, in the 1860s, created *The Botanical Gardens* in La Mortola village, Liguria, close to the French-Italian border. Exploiting the temperate climate and the natural beauty of the area, Hanbury mixed exotic and rare plants with stands of pines, wild tufts of cistus, rock roses, and succulents, everything which could tolerate the salty and moist sea air.



4 Read the text and answer the questions.

Topiary

Topiary is the horticultural practice of training perennial plants and shrubs into artificial, decorative shapes. Thickly leaved evergreen shrubs are used in topiary; the best subjects are **box**, cypress, and **yew**, although rosemary, **holly**, and **box honeysuckle** are used with success, too.

The word topiary is derived from the Latin 'topiarius', which describes an ornamental landscape gardener; this art is said to have been invented by a friend of the ancient Roman emperor, Augustus. Earlier references to it are lacking, but the art probably evolved over a considerable period from the necessary trimming, pruning, and training of trees. The earliest topiary was probably the simple shaping of dwarf-box edging and the development of cones, columns, and spires of box to give accent to a garden scene. This architectural use gave soon way to elaborate realisations; shrubs were shaped, for example, into ships, huntsmen and hounds.

In the 18th century, topiary was called the art of the tree barber; but its practitioners say it is, rather, the art of the tree mason and leafage sculptor. It has always been of limited application in places where sculpture in stone was cheap; the best examples are seen not in Italy or the aristocratic gardens of France, but rather in England and the Netherlands, where suitable plants flourished and where stonework was costly. The fashion reached its height in England in the late 17th and early 18th centuries, but was disregarded with the rise of the so-called natural garden.

In today's gardens, topiaries are likely to be clipped into birds, animals, mythical creatures or geometrically-shaped shrubs.

Adapted from <https://www.britannica.com/art/topiary>

1. What is the root of the word *topiary*?
2. What shrubs are used in topiary?
3. What does topiary mean?
4. Can topiary be considered an ornamental evolution of trimming, pruning, and training?
5. What shapes were used to emphasise a garden scene?
6. When was topiary called the art of the tree barber?
7. Where did topiary particularly develop? Why was this?
8. When did topiary lose popularity?



5 Listen and complete the sentences.

1. Formal French garden originated in in
2. was essential in the arrangements of the various elements in the French garden.
3. The garden design included borders,, reflecting pools, statues, and topiaries.
4. The French gardening style was very across Europe.
5. Informal English garden originated in in
6. Capability Brown created gardens all over the UK.
7. In the English tradition of nature was highly appreciated.
8. The French style represents confident rationalism and
9. The English style represents men's ability to adapt themselves to what
10. In our lives we need to balance the English and French to cope with different situations.

A TURNING POINT IN ENGLISH GARDENING

advocate: *propugnare*
bedding: *pianta da aiuola*
dot: *macchiolina*
enroll: *iscriversi*
faithfully: *fedelmente*
groundcover: *tappazzante*
unfailing: *infallibile*



Walter Jekyll, Gertrude's brother, was a good friend of R. L. Stevenson, the author of *The Strange Case of Dr Jekyll and Mr Hyde*, who is thought to have "borrowed" their family name for his book.

Gertrude Jekyll (1843-1932) was one of the greatest British landscape architects and garden designers whose ideas and influences are still felt today.

When she was 18, Gertrude **enrolled** in the South Kensington School of Art in London, where she was deeply influenced by the major British landscape painters and developed an **unfailing** sense of colour effects.

Significant was her friendship with the Irish gardener W. Robinson, whose innovative gardening theories she agreed with. This new approach to gardening rejected the standard Victorian designs in favour of more informal planting and the use of hardy plants, rather than seasonal **beddings**, thus giving a picturesque and natural appearance.

Not only were plants appreciated for their beauty, but they were combined in form, colour and effects. Instead of the usual tropical plants grown in greenhouses, she **advocated** less formal-looking patterns of hardy perennials, shrubs, climbers and native plants as well as dense plantings of colour-themed perennials and **groundcovers** that exposed no bare soil. This talented painter, photographer, designer, musician, composer, garden writer, botanist and craftswoman spent most of her life in Surrey, England, and later moved to Munstead Wood, where she established one of her most famous gardens, breeding many new plants. True to her principles, she ensured the house and garden features were built from the local stone, with simple sand paths between the borders.

Here, Miss Jekyll developed her ideas on colour-graded planting, where each colour group was balanced by **dots** of the relevant complementary colour and stabilised by groups of grey and white.

During her long career, she created plans and designs for around 300 gardens in Britain, France and the US, some of which have been **faithfully** restored, wholly or partly, and can be visited.

Munstead wood shrub rose



Typical cottage garden



Gertrude Jekyll

6  Match the items on the left with the definitions on the right.


| | | |
|------------------|--------------------------|--|
| 1. To agree with | <input type="checkbox"/> | a. Open to view. |
| 2. Bare | <input type="checkbox"/> | b. Introducing something new. |
| 3. Craftswoman | <input type="checkbox"/> | c. To have the same opinion. |
| 4. Feature | <input type="checkbox"/> | d. Artisan. |
| 5. Hardy | <input type="checkbox"/> | e. Woody plant smaller than a tree. |
| 6. Innovative | <input type="checkbox"/> | f. To bring back to a former condition. |
| 7. Native | <input type="checkbox"/> | g. Originating in a certain place. |
| 8. Reject | <input type="checkbox"/> | h. Able to withstand the winter in the open air. |
| 9. To restore | <input type="checkbox"/> | i. Characteristic. |
| 10. Shrub | <input type="checkbox"/> | j. Refuse. |



7  Decide if the statements are true or false. Correct the false ones.

- Gertrude Jekyll was a person with many skills and interests.
- She has had a great influence on garden design until now.
- The teachings of the major British landscape painters were meaningless to her.
- She did not share W. Robinson's gardening practices.
- Seasonal beddings were common in Victorian-style gardens.
- Form, colour and effects are significant elements of Jekyll's gardens.
- She lived mainly abroad.
- All gardens she created are open to visitors.

| T | F |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
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| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

8  **PAIR WORK.** Surf the Net to find more information about planning a cottage garden. Then, in turn, play the role of a nursery gardener and a customer asking for suggestions on the arrangement of his garden.

- If needed, follow these hints:
- Indicate the location of the garden, sun exposition, soil composition.
 - Highlight the importance of creating harmony in the arrangement.
 - State your preference for specific varieties, and chromatic effects, if any.
 - Specify if you are interested in hedges, paths, medicinal/aromatic herbs, or what plants you would avoid.



HORTICULTURE AND FLORICULTURE

carnation: *garofano*
corm: *cormo*
cut flower: *fiore reciso*
cutting: *talea*
foliage plant: *pianta da fogliame*
lawn turf: *prato a rotoli*
nursery: *vivaio*
pot plant: *pianta da appartamento*
potted plant: *pianta in vaso*
shrub: *arbusto*
slow-worm: *orbettino*
tell-tale slime trails: *traccia del passaggio della lumaca*



Harmful enemies

Slugs and snails are the number one garden plant pest problem and their damage is most severe during warm humid periods, especially in spring and autumn. They attack a wide range of young and tender garden plants, especially annuals, perennials – particularly hostas – and vegetables. Slugs and snails eat irregularly shaped holes in leaves, stems, buds and flowers, as well as bulbs, **corms** and tubers. Most slugs feed at night, although not exclusively, and **tell-tale slime trails** are often present. Ducks, frogs, toads, hedgehogs, **slow-worms** and ground beetles may be adopted as natural slug predators.



Horticulture is the branch of plant agriculture dealing with garden crops, generally fruits, vegetables, and ornamental plants. It covers all forms of garden management, but in ordinary use it refers to intensive commercial production.

It is divided into the cultivation of *plants for food* and *plants for ornament*, namely *floriculture* and *landscape horticulture*. The former deals with the production of flowers and ornamental plants, such as **cut flowers** or **pot plants**; the latter is a broad category that includes plants for the landscape, including **lawn turf**, but particularly **nursery** crops such as **shrubs**, trees, and climbers.



Floriculture, or flower farming, is the study of growing and marketing flowers and **foliage plants**. Floriculture includes cultivation of flowering and ornamental plants for direct sale or for use as raw materials in the cosmetic and perfume industry and in the pharmaceutical sector. In simpler terms, floriculture can be defined as the art and knowledge of growing flowers to perfection.

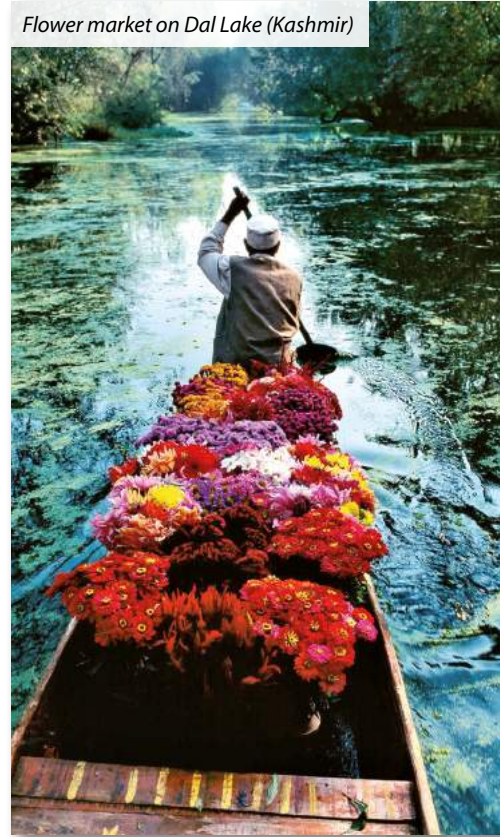
Worldwide, more than 140 countries are involved in commercial floriculture. The leading flower producing country in the world is the Netherlands and Germany is the biggest importer of flowers.

The floriculture industry comprises the flower trade, production of nursery plants, **potted plants**, seeds and bulbs, micro propagation and the extraction of essential oils. Floriculture products mainly consist of **cuttings**, pot plants, foliage plants, seeds, bulbs, tubers and dried flowers or leaves. The important floricultural crops in the international cut flower trade are roses, **carnations**, chrysanthemums, gerberas, gladioli, orchids, anthuriums, tulips and lilies.

Floriculture has emerged as an important agribusiness, providing employment opportunities and entrepreneurship in both urban and rural areas, therefore it represents a great opportunity to farmers in terms of income generation and offers careers in production, marketing, export and research.

Due to the increasing demand for cut flowers, early vegetables and off-season crops, modern horticulture is supported by greenhouses, which provide suitable environmental conditions for optimum plant growth. A greenhouse is made up of glass or plastic film which allows solar radiation to pass through, but traps thermal radiation emitted by plants inside and thereby provides favourable climatic conditions for plant growth. It is also used for controlling temperature, humidity and light intensity inside.

Flower market on Dal Lake (Kashmir)



9  **Find the words corresponding to these definitions.**

1. Something intended for embellishment or decoration:
2. Flowers usually removed from the plant for decorative use:
3. A plant which is grown in a container, especially indoors:
4. A place where plants are grown, nurtured and sold:
5. The basic substance from which a product is made:
6. A thick, fleshy underground stem:
7. Person who brings in goods from a foreign country:
8. The act of buying, selling or exchanging goods:
9. A piece of a plant used for vegetative propagation:

10  **Listen to the text and answer the questions.**

1. Why does modern horticulture use electronic devices?
2. What kind of plants are grown in greenhouses and nurseries?
3. What are greenhouses usually made of?
4. What is a greenhouse for?
5. Where can young plants be propagated?
6. What systems can a greenhouse be equipped with?
7. What is the advantage of growing plants in a greenhouse?
8. Can production in greenhouses be carried out without human labour?

11  **Fill in the gaps with these words. There is one extra word.**

cheaper • final • maintain • optimal • over • period • refrigerating • started • wet • will • while

Flower Transportation

The market for fresh cut flowers (1) in the mid-1960s when international trade became bigger, mainly in Holland. Between the 1980s and 1990s growers from all (2) the world started to move their growing farm to Colombia, Israel, Ecuador, Kenya, and Zimbabwe, where it became much cheaper to grow floricultural products and transport them to the (3) consumption markets. The question was how to pack and safely transport highly perishable fresh crops. The most efficient ways of transporting flowers are by water or air. Transporting flowers by water is a (4) option, but cargo plane has an ultimate speed advantage.

Right treatment during the postharvest (5) is essential for the further stages of delivery.

Two crucial points that influence the floral shipment quality are time and temperature. Cooling is needed before the transportation. The (6) temperature for transportation is close to 6°C, depending on the type of flower. It is hard to maintain the required low degrees, but there are some solutions, used mostly for aircraft, like dry-ice (7) systems, or insulated containers. It is also important to keep the level of humidity between 80-85%. Hydration is another key factor that helps to (8) the flowers in decent shape. Loss of water causes the breakage of functionality and, in extreme cases, it can even lead to the death of the plants. Another important thing is the level of carbohydrates. Flowers use them as a nutrient (9) growing. Cut flowers still need sugar to maintain the necessary level of metabolism. Lack of sugar will lead to the lack of energy, consequently flowers (10) start drying up.

Adapted from: www.flowercompanies.com

ORNAMENTAL PLANTS IN GARDENS

bent grass: *agrostide*
bluegrass: *fienarola*
climber: *pianta rampicante*
daffodil: *narciso giallo*
fescue: *festuca*
delphinium: *delfinio*
ground-cover: *pianta tappezzante*
honeysuckle: *caprifoglio*
hydrangea: *ortensia*
ivy: *edera*
lilac: *lilla*
lily of the valley: *mughetto*
maple: *acero*
periwinkle: *pervinca*
spruce: *abete*
wallflower: *violaciocca*



The production of roses is probably the most specialised of all shrub growing; the grower often deals solely in rose plants. Most are bud-grafted onto rootstocks (typically *Rosa multiflora*). This is the only way to achieve rapid and economical increase of a new selection to meet market demands.

Gardening deals with the laying out and care of a plot of ground devoted partially or wholly to the growing of plants such as flowers, herbs, or vegetables. Gardening can be considered both as an art concerned with arranging plants harmoniously in their surroundings, and as a science, including the principles and techniques of plant cultivation derived from plant physiology, chemistry, and botany, modified by the experience of the planter.

There are many classifications of ornamental plants on the basis of their growth habit (herbs, vines, shrubs and trees), life cycle (annual, biennial, perennial), leaf characteristics (evergreen or deciduous), or growing season (winter, summer or all-season flower).

However, the most significant classification is based on their use: if they are permanent or transitory elements in the garden design.

The **permanent plants** available for any garden plan are various grasses for lawns, **ground-cover** plants, shrubs, **climbers**, and trees.

- The main **grasses** used in cool areas for fine-textured lawns are **fescues** (*Festuca* species), **bluegrasses** (*Poa* species), and **bent grasses** (*Agrostis* species), often in mixtures.
- **Ground covers** are perennial plants used as grass substitutes such as common **periwinkle** (*Vinca minor*), **lily of the valley** (*Convallaria majalis*), and many **ivies** (*Hedera* species).
- Smaller woody plants, such as **shrubs** and **bushes**, have several stems arising from the base. Their cultivation requires less labour than that of herbaceous plants. Among the popular garden shrubs are **lilac** (*Syringa vulgaris*), **honeysuckle** (*Lonicera species*), forsythia (*Forsythia species*), **hydrangea** (*Hydrangea species*), azaleas and rhododendrons.
- **Climbers** are often useful in softening the sharp lines of buildings, fences, and other structures. Among the many woody perennial climbers for the garden are the ivies, clematis (*Clematis* species), and climbing roses.
- **Trees** are the most permanent features of a garden plan. They range from shrubby dwarf trees to giant shade trees, from slow to rapid growers, from all tones of green to bronzes, reds, yellows, and purples. The most common are evergreen trees, such as pines and **spruces**, and deciduous trees, such as oaks, **maples**, and beeches.

Transitory plants are the herbaceous plants and bulbous plants which can survive in a semi-dormant state over long unfavourable seasons, either cold mountain winters or long droughty summers. **Herbaceous** plants are divided into three categories: the short-lived annuals (petunia and lobelia), the biennials (**wallflower**), and the perennials (**delphinium** and lupine). The **bulbous** plants include those plants that have true bulbs (**daffodil**), those with corms (crocus), and a few that have tubers or rhizomes (dahlia or iris).



Clematis



Honeysuckle



Crocus

12 Match each word to its definition.

| | | |
|---------------|--------------------------|---|
| 1. Herb | <input type="checkbox"/> | a. A woody plant which has several main stems arising at or near the ground. |
| 2. Annual | <input type="checkbox"/> | b. Any plant that grows along the ground by means of extending stems or branches. |
| 3. Biennial | <input type="checkbox"/> | c. A plant that retains green leaves throughout the year. |
| 4. Perennial | <input type="checkbox"/> | d. A fence or boundary formed by closely growing bushes or shrubs. |
| 5. Evergreen | <input type="checkbox"/> | e. Any seed-bearing plant which does not have a woody stem. |
| 6. Deciduous | <input type="checkbox"/> | f. A plant shedding its leaves annually. |
| 7. Creeper | <input type="checkbox"/> | g. Living for several years. |
| 8. Hydrophyte | <input type="checkbox"/> | h. A plant which grows only in or on water. |
| 9. Shrub | <input type="checkbox"/> | i. Taking two years to grow from seed to fruition and die. |
| 10. Hedge | <input type="checkbox"/> | j. A plant living only for a year or less, perpetuating itself by seed. |

13 Answer the questions.

ONLINE RESOURCES

- Saffron: Abruzzo's red gold

Garden Maintenance Tips

Often, plant problems occur when a plant is not able to adapt to the site in which it is planted. For instance, junipers are extremely drought-tolerant, but they cannot tolerate poorly drained soils, whereas shade-loving plants like azalea and rhododendron often have problems when planted in areas that receive hot, mid-afternoon sun.

Moreover, some plants, such as annual flowers and roses, are more demanding than others and must be kept well-supplied with nutrients and water at all times, pruned and groomed routinely, and monitored regularly for pests if they are to flower abundantly. On the other hand, plants such as ornamental grasses, hollies and junipers, when properly planted on a good site, require little care once established and are considered good low-maintenance plants.

New concepts in low-maintenance landscaping are more popular than ever before. The idea of putting less effort into the landscape without sacrificing quality and beauty is very appealing to a growing number of people. By applying lower amounts of fertiliser, water and pesticides, it is possible to have a beautiful landscape while saving time, effort and money.

1. How can you prevent plant problems?
2. What kind of soil do junipers prefer?
3. What are annual flowers requirements?
4. What plants need low maintenance?
5. Why are low-maintenance practices becoming popular?



Petunia



Daffodil



Azalea

NEW TRENDS IN GARDENING

Over the past decade there has been a growth in interest for greening up our environment with **Green Roofs**, encouraging birds and insects (especially essential pollinators) to populate these otherwise **drab** spaces. Green roofs can also provide the benefit of added **insulation** to houses.



Alongside this is the development of Green or **Living Walls**. The vertical garden or “Vegetation Bearing Architectonic Structure and System”, was invented by Professor Stanley Hart White at the University of Illinois in 1938, but the modern innovator of the green wall was Patrick Blanc, a botanist working at the French National Centre for Scientific Research, who is responsible for modernising and popularising the garden type.

His first installation of a green wall was in 1988, at the Museum of Science and Industry in Paris. More recent years have seen his work **proliferate** around the globe with Berlin, Dubai, Bali, London, New York, Singapore, San Francisco and Hong Kong installations.

Blanc describes his vertical garden as follows: “On a **load-bearing** wall or structure is placed a metal **frame** on which are **stapled** two layers of polyamide which support the roots of many plants. A network of pipes controlled by **valves** provides a nutrient solution containing dissolved minerals needed for plant growth. The **felt** is **soaked** by capillary action with this nutrient solution, which flows down the wall by gravity. The roots of the plants take up the nutrients they need, and excess water is collected at the bottom of the wall by a **gutter**, before being re-injected into the network of pipes: the system works in a closed circuit. Plants are chosen for their ability to grow on this type of environment and depending on available light.”

The recent trend of vertical gardening is becoming increasingly widespread as gardeners **channel** their inspiration to new heights of creativity. No longer limited to the ground underneath their feet, gardens are taking shape in a range of unique directions, from **repurposing** old furniture into **planters**, to transforming **birdhouses** and teapots into **thriving** miniature garden spaces. Today, vertical garden ideas are about **showcasing** the textures, colours and **vibrancy** of plants in fresh, new ways. While not limited to small spaces, vertical gardens are ideally suited to these areas because they offer the ability to maximise space artfully and efficiently. Creating a vertical garden can be as simple or complex as desired; gardeners are only limited by their imagination.

alongside: *insieme a*
birdhouse: *cassetta nido per uccelli*

to channel: *incanalare*

drab: *monotono*

felt: *feltro*

frame: *telaio*

gutter: *grondaia*

insulation: *isolamento*

load-bearing: *portante*

planter: *vaso*

to proliferate: *diffondersi*

to repurpose: *convertire*

to showcase: *mettere in vetrina*

to soak: *inzuppare*

to staple: *pinzare*

thriving: *rigoglioso*

valve: *valvola*

vibrancy: *vitalità, brillantezza*





14  Find synonyms of these words in the text.

1. Colourless
2. Pioneer
3. Multiply
4. Tendency
5. Direct toward
6. Recycle
7. Interconnected structure
8. Flourishing
9. Brightness
10. Skilfully

15  Translate.

Il giardino verticale permette di coltivare ortaggi, piante, erbe e fiori dove il terreno è limitato. Le piante coltivate verticalmente sono più accessibili, e lavori di giardinaggio quali piantare, togliere erbacce, fertilizzare e raccogliere sono molto più facili. Malattie e animali nocivi vengono notati prima su piante che crescono a livello degli occhi, per cui le misure curative possono essere prese subito.

Tuttavia non tutte le piante si adattano bene al giardino verticale: devono avere certe importanti caratteristiche per uno sviluppo ed una crescita appropriati. È essenziale prendere in considerazione le condizioni di crescita quando si scelgono le piante. Quasi tutte le piante che possono adattarsi ai contenitori possono essere utilizzate in un giardino verticale, ma alcune piante vengono meglio di altre. Le rampicanti hanno una naturale predisposizione al giardino verticale: queste piante che amano il sole si arrampicano verso la luce su qualsiasi supporto disponibile, sia esso un'altra pianta, una staccionata o un muro.

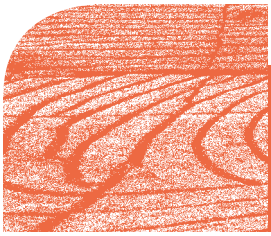
16   Listen and decide if the statements are true or false. Correct the false ones.

1. Vertical gardens produce less in reduced space.
2. They can mask unpleasant structures.
3. They can only be installed outdoors.
4. You should grow plants with the same needs.
5. Herbaceous plants are better because they are less flexible than woody varieties.
6. Potting soil is good at retaining moisture.
7. A usual in-the-ground garden needs less maintenance than a vertical garden.
8. More frequent watering is necessary in vertical gardens.

| T | F |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
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| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |



 **ONLINE RESOURCES**
 • NYC rooftop farms



VOCABULARY

1 Answer the questions.

a. Label these cereals.



1.



2.



3.



4.



5.



6.



7.



8.



9.

b. Label these training systems.



10.



11.

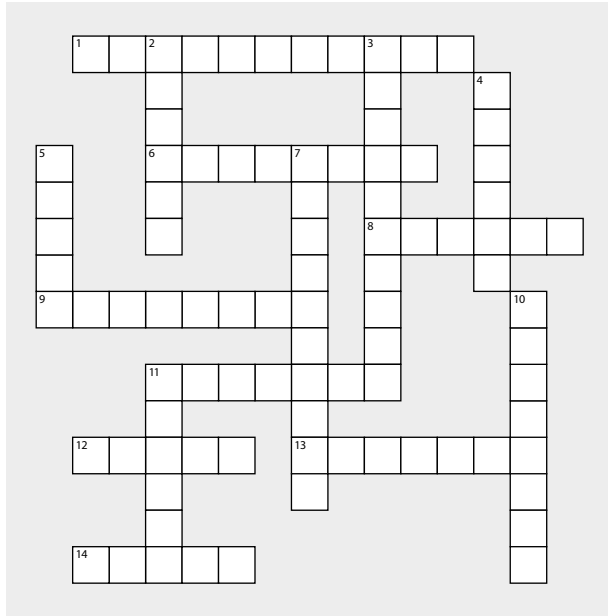


12.

2 Circle the odd one out in these groups of words. Give reasons for your choice.

| 1 | 2 | 3 | 4 | 5 | 6 |
|------------|------------|-------------|---------|------------|---------------|
| Strawberry | Grapefruit | Apple | Turnip | Peanut | Desuckering |
| Blackberry | Lime | Quince | Leek | Broad bean | Trellising |
| Mulberry | Orange | Pomegranate | Shallot | Chestnut | Gobelet |
| Raspberry | Plum | Pear | Garlic | Lentil | Pinching back |

3 Complete the crossword.



ACROSS

- 1. Removing non-fruitful shoots.
- 6. They contain toxic substances such as solanine and chaconine.
- 8. It can be both a vegetable and a fruit.
- 9. Their pheromones attract wildlife.
- 11. These plants may have bulbs, corms, tubers or rhizomes.
- 12. The Roman goddess of the harvest.
- 13. Its proteins are excellent substitutes for animal proteins.
- 14. A VSP training system.

DOWN

- 2. The most commonly or regularly eaten food in a country.
- 3. Diseases caused by a pathogenic organism.
- 4. Gardens characterised by strict geometric and symmetric layouts.
- 5. Its flour is used to make bread.
- 7. Poisonous mushrooms.
- 10. The second largest oilseed crop.
- 11. It is used to make whiskey or beer.





COMPARATIVES AND SUPERLATIVES

| | COMPARATIVE | RELATIVE SUPERLATIVE |
|---|---|---|
| | MAJORITY | |
| One-syllable adjectives or adverbs | adjective/adverb + -er + than → Oil palm trees may be higher than date palm trees. | the + adjective/adverb + -est + of/in → The common cultivated mushroom (Agaricus bisporus) has the greatest global production in the world. |
| One-syllable adjectives ending in -e | adjective + -r + than → Legume hay has a larger content of protein, calcium and vitamin than grass hay. | the + adjective + -st + of/in → Rapeseed is the second largest oilseed crop in the world production. |
| One-syllable adjectives/adverbs ending in one vowel + one consonant | adjective/adverb + double consonant + -er + than → Short vine trunks are adopted in hotter growing regions. | the + adjective/adverb + double consonant + -est + of/in → The olive fly is the single biggest problem of olive plantations. |
| Two-syllables adjectives/adverbs ending in -y, -ow, -er, -le | adjective/adverb without -y + -ier + than → Grape hybrids are generally heartier than native European grapevines. | the + adjective without -y + -iest + of/in → Cereals were the earliest cultivated plants. |
| Adjectives/adverbs with two or more syllables | more + adjective/adverb + than → Humid climates are more suitable to this plant than dry ones. | the + most + adjective/adverb + of/in → The most important factor for the success of a vineyard is the site |
| Irregular forms | good → better bad → worse far → farther/further old → older/elder | good → the best bad → the worst far → the farthest/furthest old → the oldest/eldest |
| | EQUALITY | |
| Adjectives/adverbs with one or more syllables | as + adjective/adverb + as → Good drainage is as essential as a nutrient soil. With negative verb: as/so + adjective + as → This variety of grapevine isn't as resistant as the other one. | |
| | MINORITY | |
| Adjectives/adverbs with two or more syllables | less + adjective/adverb + than → Oats, wheat and barley are less rich in protein than soybeans and lupins. | the + least + adjective/adverb + of/in → That farm is the least competitive in the area. |

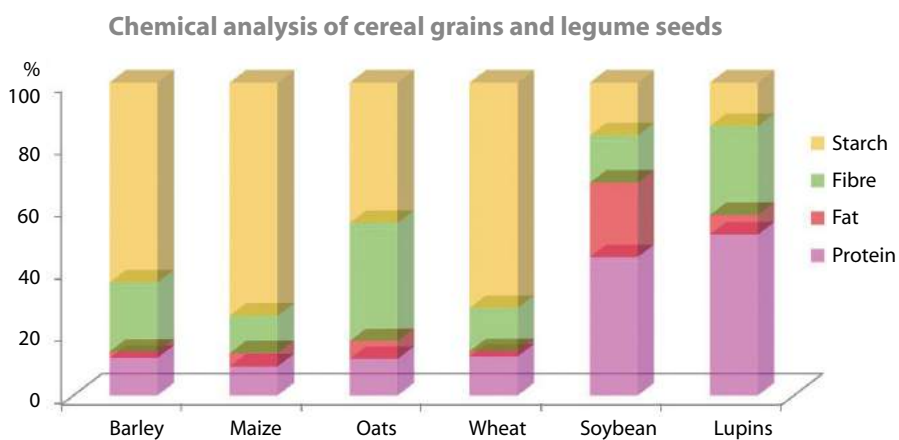
4 Complete with the correct comparative or superlative form of the given adjectives or adverbs.

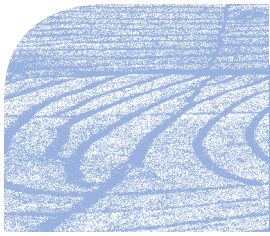
1. (good) Sicilian wines are being produced from 50 indigenous vines.
2. *Grape phylloxera* is the world's (bad) grapevine pest.
3. Pruning is (important) part of vine cultivation.
4. (common) species of wine grape is *Vitis vinifera*.
5. Oil palm yield is much (great) other crops.
6. The leguminous protein quality is not (good) that in meat.
7. (high) concentrations of toxic substance occur just underneath the skin of potatoes.
8. Some plant varieties are (resistant) to diseases because of their vulnerability.
9. The protein content is (high) in dried beans.
10. Buckwheat is one of (good) sources of high quality protein in the plant kingdom.

5 Rewrite the sentences so that they mean the same.

1. I've never seen a taller tree than this.
2. The phyto-sanitary treatment wasn't as efficient as we expected.
3. My garden is not as big as yours.
4. Grapes are more susceptible to fungal diseases than roses.
5. Grape hybrids are generally more productive than native European grapevines.

6 Here is again the graph you studied in Unit 9. Use as many different forms of comparative and superlative as possible to describe it.





LISTENING



RICE: A STAPLE FOOD

1 ^{4.11} Listen to the recording and fill in the chart.

| | |
|---|---|
| 1. First people growing rice | |
| 2. Areas where rice is a staple food | |
| 3. Percentage of the world's dietary energy supplied by | <ul style="list-style-type: none"> • rice: • wheat: • maize: |
| 4. Lapse of time between seeding and transplantation | |
| 5. Rice varieties | |
| 6. Varieties with the highest food value | |

2 Listen again and tick true or false as appropriate and correct the false statements.

1. The Greeks introduced rice cultivation into India.
2. Rice has been cultivated in China since 4,000 BC.
3. Rice cultivation means agriculture in classical Chinese.
4. Rice is a staple food for nearly half of the world's population.
5. It represents the main source of energy for eight countries in North and South America.
6. Maize supplies more energy than rice.
7. Today rice is still harvested by hand in most eastern countries.
8. Rice is threshed 25 days after harvesting.
9. The nutrient quality of the soil may affect the nutritional value of rice.
10. Proteins and minerals are contained in the outer brown coating of rice.

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SPEAKING



CAREER OPPORTUNITIES FOR GARDEN DESIGNERS

- 3**  **PAIR WORK.** The famous magazine, **MY GARDEN** has a section dedicated to new talents in the floricultural and horticulture sector. Play the role of a journalist (A) interviewing a young garden designer (B).

Hints: ask about a garden designer's skills, design trends, the young designer's tastes, how to deal with customers.

A: Introduce the guest

B: Greet

A: Ask about his passion

B: Explain how his family's interests have influenced his passion. List the skills necessary to be a good gardener

A: Ask about new trends in gardening

B: Explain

A: Ask about relationships with clients

B: Explain how to manage communication

A: Say goodbye

- 4**  **Describe this picture.**





WILD MUSHROOMS

- 5**  **Reorder the sentences given in scrambled order, then summarise the passage in less than 200 words.**

I Nearly Died After Eating Wild Mushrooms

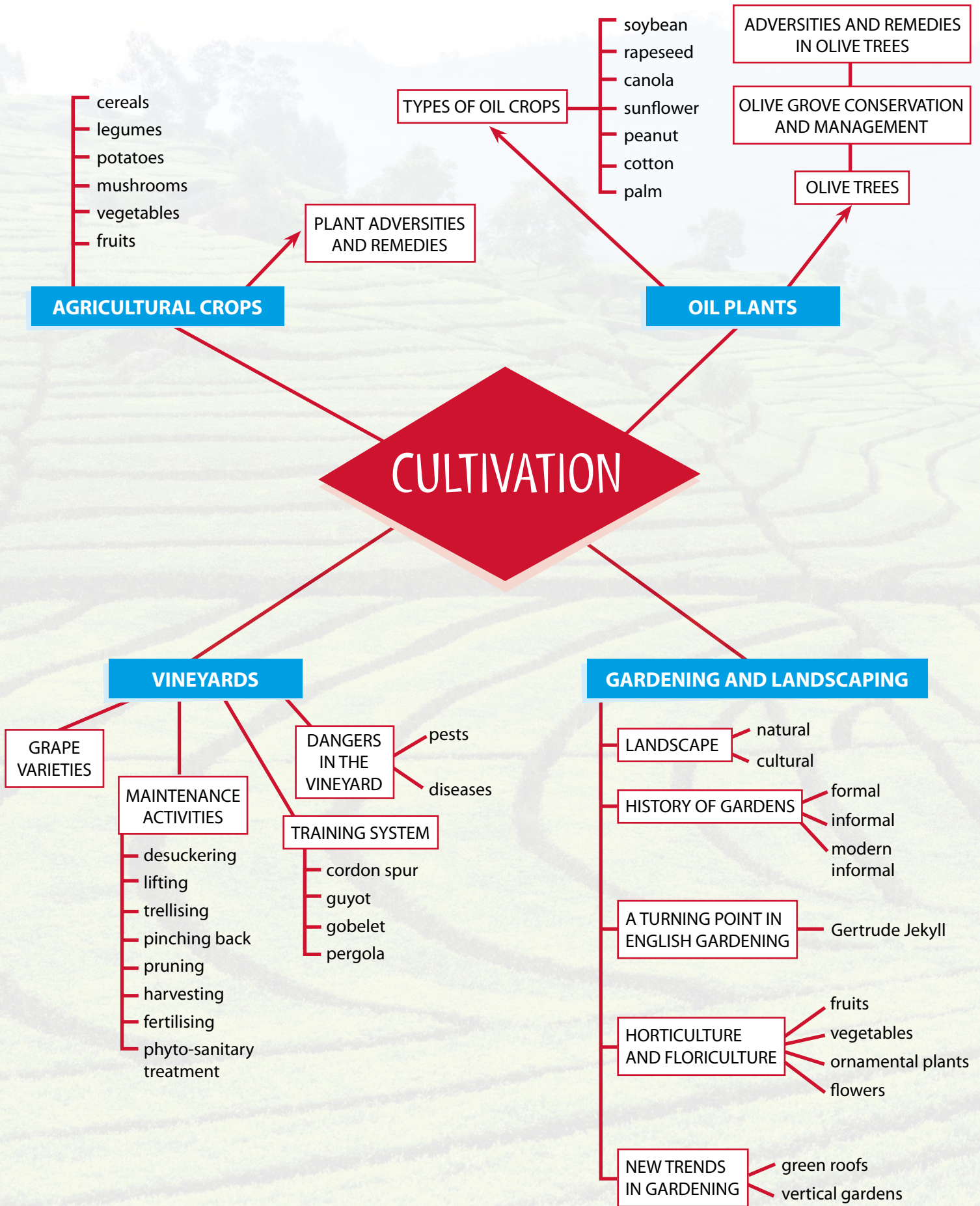
- a. The doctors ran some tests and confirmed I'd eaten the destroying angel. I was the third person that year to be admitted after eating one. The two before me hadn't survived. Three days after I'd eaten the mushrooms, I went into intensive care.
- b. At home, I spent some time looking for my mushroom book to identify what I'd picked, but couldn't find it; so I thought: "It's OK, I know what I'm doing." I fried them with butter and ate them as a side dish. However, they didn't taste great, which should have been my first clue that they weren't what I thought they were.
- c. The next morning, I woke up about 4am, ran to the bathroom and started throwing up. Then the diarrhoea began. I went again to look for information in my mushroom book. And then I found it: the picture of the destroying angel with the description of my exact symptoms: eight hours after eating, it will cause vomiting and diarrhoea. And then it destroys your liver – there's no antidote and 60-80% of people don't survive. I realised I'd made the biggest mistake of my life. The scary thing about the destroying angel is that it tricks you into thinking you are making a recovery. After vomiting and diarrhoea, you start to feel better. Knowing this, I acted quickly and drove myself to the hospital.
- d. That summer had been hot and humid, and there were mushrooms everywhere. I saw some small, white ones on the ground that I thought were edible. I also spotted a bigger mushroom nearby with its cap open – it looked poisonous to me. I should have remembered that mushrooms grow in colonies: the small versions were likely to be poisonous too.
- e. I was given high doses of penicillin and the next morning my liver began to recover. I didn't need a transplant, but my kidneys were badly damaged. All I know is that I survived: one doctor said it was a miracle.

- f. But I didn't think. It was a glorious day and I felt invincible. I picked three or four of the small ones and took them home. At college, I'd taken a course in mushroom hunting. I didn't consider myself an expert, but I knew that there was a very toxic mushroom called the "destroying angel", one of the deadliest mushrooms in the world.

Abstract from: <https://www.theguardian.com/lifeandstyle>



Destroying angel (Amanita ocreata)



A LITTLE CHAOS



- PRODUCTION USA 2014
- DIRECTOR Alan Rickman
- STARRING Katie Winslet (Sabine De Barra), Matthias Schoenaerts (André Le Notre), Alan Rickman (King Louis XIV), Stanley Tucci (Philippe, the king's brother)



A SYNOPSIS

The year is 1682. Sabine De Barra is a talented landscape designer who works in the gardens and countryside of France. One day, she is unexpectedly invited to the court of King Louis XIV. The King's landscape artist André Le Notre is initially disturbed by Sabine's distinctive eye and forward-thinking nature, but then he chooses her to build one of the main gardens at the King's new Palace of Versailles. With time, Le Notre recognises the value of a little chaos in Sabine's work. While pushing herself and her workers to complete the Rockwood Grove as an outdoor ballroom, Sabine has to face the rivalries and intricate etiquette of the court. As she challenges gender and class barriers, she surprisingly gains the trust of the King himself and is supported by the King's brother, Philippe. As she gradually comes to terms with a tragedy in her past, Sabine's professional and personal interactions with André bring out honesty, compassion, and creativity.

BEFORE VIEWING

1 Answer the questions.

1. After reading the synopsis, surf the net to find information about King Louis XIV.
2. The Royal Gardens of Versailles are among the most famous in the world, but there are some beautiful and well-known gardens in Italy too. Can you name any of them?
3. What kind of activities do you think took place in the Royal Gardens of Versailles?



WHILE VIEWING

2 Watch the film clip and decide if these statements are true or false.

1. Le Notre agrees with Monsieur Sualem's and Monsieur De Ville's opinions on the King's demands.
2. The soil is rich in water at Versailles.
3. Madame De Barra will not need much help with the project.
4. Le Notre has implemented Madame De Barra's sketch.
5. Madame De Barra knows about the intended use of the area.
6. Le Notre is confident about Madame De Barra's skills as a gardener.
7. Madame De Barra will have as much as time as she needs.
8. Madame De Barra will have to keep to the budget.

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3 Watch the video again and fill in each blank with one word.

Le Notre: Madame de Barra – Monsieur Salem and De Ville. They are building the Marly (1) and an aqueduct from there to Versailles, which we hope will alleviate the severe water shortage here.

Monsieur Salem and De Ville: Madame.

Madame de Barra: Gentlemen.

Le Notre: Madame de Barra will be constructing the Rockwork Grove here at Versailles. Water, or rather the (2) of it, will be a pressing concern.

Sualem: Master, the King's (3) are already...

Le Notre: ... are vast and ever changing and our (4) is to meet them.

De Ville: But, with respect, no man can meet infinite (5)

Le Notre: The King's command are not infinite, De Ville, they are the King's command.

De Ville: Well, quite so, but the aqueduct can only do so much.

Sualem: When we began (6) I was under the impression that...

Le Notre: The past is history. Our task is to suppress (7) to our will, according to the present plans.

Sualem: But, Monsieur, the (8) being spent...

Le Notre: The aqueduct will carry sufficient water to the gardens of Versailles because it must. That is your brief. – Madame? – It is essential your (9) number six in your submission, I believe. This part is entirely original to myself. You see? It fits onto this end of your plan. Now you can see the extent of the (10)

Madame de Barra: Yes. It's a large, flat area.

AFTER VIEWING

4 Watch the film clip again and answer the questions.

1. What are Monsieur Sualem and Monsieur De Ville building? Why?
2. What will Madame De Barra have to consider in her work?
3. What is the attitude of Monsieur Sualem and Monsieur De Ville to the requests of the King?
4. What does Le Notre say about the landscape?
5. What number is Madame De Barra's project?
6. Is the area concerning the project a hill?
7. What kind of garden do they want to build?
8. How will the area be used?



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