

# Unit 14 Seed Dispersal: (1) Reasons

## Vocabulary

a chance  
to be crowded

largely

a matter of luck

nature

to plant

to scatter

to space out

A

When we plant seeds, we take care that they are well spaced out, so that the plants are not crowded when they grow. This *makes sure* that each seed *gets enough* light, air, water and food.

5 Nature, also, tries to make sure that seeds are *scattered* over a wide area, away from the parent plant. This is important for two reasons. *The first is that if the parent plant is destroyed, the young ones have a better chance of staying alive. The second is that the young plants will not fight to take away from the parent plant and each other, the things they need to live.*

10 In nature, *the scattering of seeds* is largely a matter of luck. Most of the seeds fall in places which are *not all right for healthy growth*. Large numbers of them cannot stay alive for long. They must *get* four things from the *place around them*: (i) *the right* soil, (ii) the right temperature, (iii) enough water, and (iv) *enough of the other things they require* for growth, e.g. air and light.

B

When seeds are planted, care is taken that they are well spaced out, so that the plants are not crowded when they grow. This (1)*ensures* that each seed (2)*obtains sufficient* light, air, water and food.

5 Nature, also, tries (1)*to ensure* that seeds are (3)*dispersed* over a wide area, away from the parent plant. This is important for two reasons. (4)*Firstly, if the parent plant is destroyed, (5)the offspring have a better chance of (6)survival. (7)Secondly, the young plants will not (8)compete with the parent plant and each other for the (9)necessities of life.*

10 In nature, (10)*seed dispersal* is largely a matter of luck. Most of the seeds fall in places which are (11)*unsuitable* for healthy development. Large numbers of them cannot (6)*survive* for long. They must (12)*obtain* four things from the (13)*environment*: (i) (14)*suitable* soil, (ii) (14)*suitable* temperature, (iii) (2)*sufficient* water, and (iv) (15)*a sufficiency of the other (16)requirements* for growth, (17)*such as* air and light.

Exercise 1 Find the way in which the words and phrases italicised in Text A are expressed in Text B:

- |                            |                                     |
|----------------------------|-------------------------------------|
| 1 makes sure               | 10 the scattering of seeds          |
| 2 gets enough              | 11 not all right for healthy growth |
| 3 scattered                | 12 get                              |
| 4 The first is that        | 13 place around them                |
| 5 young ones               | 14 the right                        |
| 6 staying alive            | 15 enough of                        |
| 7 The second is that       | 16 things they require              |
| 8 fight to take away from  | 17 e.g.                             |
| 9 things they need to live |                                     |

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## Exercise 2 Compound nouns:

Instead of:

(a) dispersal of seeds

We can write:

(b) seed dispersal

Change these phrases in the same way:

- |                           |                                |
|---------------------------|--------------------------------|
| 1 growth of seeds         | 11 development of roots        |
| 2 function of roots       | 12 function of leaves          |
| 3 requirement of water    | 13 survival of green plants    |
| 4 the coat of the seed    | 14 the roots at the side       |
| 5 light of the sun        | 15 seeds of beans              |
| 6 temperature of the soil | 16 rate of growth              |
| 7 planting of seeds       | 17 shoots of beans             |
| 8 a root of a plant       | 18 roots of trees              |
| 9 stems of flowers        | 19 a plantation of young trees |
| 10 the centres of flowers | 20 the growth of leaves        |

## More nouns formed from verbs

VERB	NOUN
a remove	remov-al
disperse	dispers-al
survive	surviv-al
b emerge	emerg-ence
appear	appear-ance
disappear	disappear-ance
assist	assist-ance

VERB	NOUN
c affect	effect
die	death
live	life
grow	growth

## Exercise 3 Complete these sentences with nouns formed from the verbs given in brackets:

- Shortly after the — of the root, the — of the shoot and the gradual — of the seed-leaves can be observed. (emerge/appear/disappear)
- The — of a green plant from the light to the dark will eventually lead to the — of the plant. (remove/die)
- When sunlight reaches the leaves, starch is formed with the — of chlorophyll. (assist)
- The tincture of iodine had no — on the leaf which had been totally covered. (affect)
- Many seeds fall in places where the necessities for their normal — are not available. (develop)
- All seeds require a suitable environment for healthy —. (grow)

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- The seeds must obtain from their environment all the — which they need for —. (require/survive)
- A plant must obtain from its environment the — of —. (require/live)
- Suitable soil, temperature and sufficient light and water are required by a plant for its — and —. (develop/survive)
- There are two main reasons why — over a wide area is important for the — of seeds. (disperse/survive)

## Verbs used as nouns

The following verbs do not change their form when used as nouns:

VERB	NOUN	VERB	NOUN
to decrease	a decrease	to shape	a shape
to increase	an increase	to flow	a flow
to lather	a lather	to supply	a supply
to change	a change	to deposit	a deposit
to split	a split	to need	a need
to cover	a cover	to filter	a filter

## Exercise 4 Complete these sentences using the words given in brackets, either as a noun (singular or plural) or as a verb (in the correct form):

- The water was — through a fine —. (filter)
  - The water was *filtered* through a fine *filter*.
- of natural rubber come from far away to — the industrial areas of Europe. (supply)
  - Contraction causes a — in the volume of a solid, and when it expands it — in volume. (decrease/increase)
  - A cube of lead was — into a bowl and it now floated because in this — it displaced more water. (shape)
  - Drinking water is passed through several — and chlorine is added after it has been —. (filter)
  - Gravity provides some of the pressure for the — of water along the pipes through which it — to the town. (flow)
  - It is easy to obtain a good — with soft water because it — readily with soap. (lather)
  - 'Fur' is a — consisting of the limestone which forms as hard water evaporates, and it is — on the bottom and sides of the pan. (deposit)
  - A — of colour was observed in the uncovered leaf, but the totally covered leaf did not —. (change)
  - One leaf was totally —, another was partially — with brown paper, and a third leaf was given no — at all. (cover)



- 10 The seed-coat was — by the emerging root, and the shoot emerged from the same — a little later. (split)
- 11 The — of a plant for water, soil and sunshine have to be obtained from its environment, but it also — a suitable temperature. (need)



Forest workers inspect young trees in Peru. The trees have been well spaced out and can obtain light, air, water and food (see Exercise 5).

- Exercise 5 Rewrite this passage in the passive form, deciding which passive sentences require an agent and which do not. (The subjects of the passive sentences are italicised).

When we plant *seeds*, we take *care* to ensure that they are well spaced out. If we have planted *them* in unsuitable places, they will not survive for long. Nature disperses *seeds* over a wide area. Each seed must obtain *sufficient light, air, water and food*, and it must obtain *these necessities for life* from its environment.

- Exercise 6 Answer these questions without referring to the Texts:

- 1 What are the two main reasons for seed dispersal over a wide area?
- 2 Where do most seeds fall when dispersed by nature?
- 3 What four things must they obtain for normal growth?
- 4 From where must they obtain these?

- Exercise 7 Questions for further discussion:

- 1 Why does one plant produce thousands of seeds in one season?
- 2 What would happen if all these seeds survived?
- 3 Give examples of disasters which might destroy the parent plant.

Vocabulary  
disaster



# Unit 15 Seed Dispersal: (2) Methods

## Vocabulary

berry  
burdock  
coconut

dandelion  
parachute  
poppy

to shake out  
squirting  
cucumber

to stick  
sycamore  
water-lily

A  
Nature gives plants and trees four ways of scattering their seeds. The first is *scattering by wind*. The seeds of some plants are very light, or, like the dandelion and the sycamore, wings or parachutes are given to them, so that the wind can carry them easily.

5 The second is scattering by birds and animals. Some seeds, like the seeds of burdock, *stick* to the fur of animals, and *drop off* as the animals move about. Others, like berries, are carried by birds.

The third way is *scattering by the plant itself*. The plant itself twists and breaks the walls of the fruit so that the seeds are *thrown out or shaken out*, e.g., the pea, the bean, the poppy and the squirting cucumber.

10 The last is *scattering by water*. The seeds float on the water either because they are very light, or because they *have air inside them*, e.g. the water-lily. The coconut may be carried to land hundreds of miles across the ocean *like this*.

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## B

Plants and trees are (1) provided by nature with four (2) means of dispersing their seeds. The first is (3) wind dispersal. The seeds of some plants are very light, or, like the dandelion and the sycamore, (4) they are provided with wings or parachutes, so that the wind (5) may transport them easily.

5 (6) Secondly, seeds are dispersed by birds and animals. Some seeds, (7) such as those of burdock, (8) adhere to the fur of animals, and (9) are shed as the animals move about. Others, (7) such as berries, are (5) transported by birds.

The third (10) method is (11) self-dispersal. The plant itself twists and breaks the walls of the fruit so that the seeds are (12) thrown or shaken out, e.g. the pea, the bean, the poppy and the squirting cucumber.

(13) Finally, there is (14) water dispersal. The seeds float on the water either because they are very light, or because they (15) contain air, e.g. the water-lily. The coconut may be (5) transported to land hundreds of miles across the ocean (16) in this way.

Exercise 1 Find the way in which the words and phrases italicised in Text A are expressed in Text B:

- |                      |                                   |
|----------------------|-----------------------------------|
| 1 gives              | 9 drop off                        |
| 2 ways of scattering | 10 way                            |
| 3 scattering by wind | 11 scattering by the plant itself |
| 4 are given to them  | 12 thrown out or shaken out       |
| 5 can carry          | 13 the last is                    |
| 6 The second is      | 14 scattering by water            |
| 7 like the seeds     | 15 have air inside them           |
| 8 stick              | 16 like this                      |



**Exercise 2** Rewrite these sentences in the passive, using PROVIDED WITH in place of 'gave to', as in example (b):

- (a) Nature *has given* a parachute to the dandelion seed.  
 (b) The dandelion seed *has been provided by nature* with a parachute.

(The subjects of the passive sentences are italicised):

- 1 Nature gives four methods of seed dispersal to *plants and trees*.
- 2 Nature gives various means to *plants and trees* to assist seed dispersal.
- 3 Nature has given very light seeds to *some plants* to assist wind dispersal.
- 4 Nature has given wings to *the sycamore seed* for the same purpose.
- 5 Nature has given means of self-dispersal to *some fruits*.
- 6 Nature has given means of throwing out their seeds to *some fruits*.

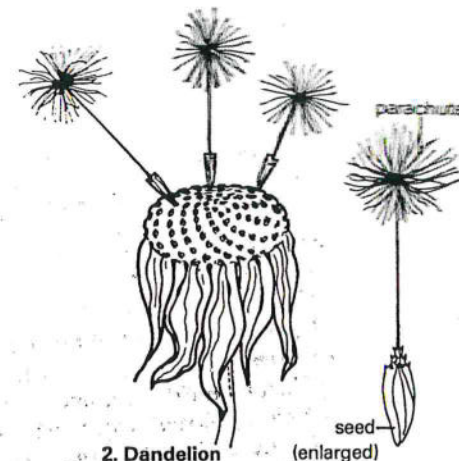
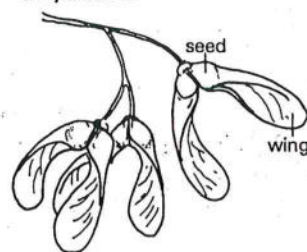
**Exercise 3** Read or rewrite these sentences, avoiding the repetition of the prepositions italicised, as in example (b):

- (a) Seeds may be thrown out or shaken out.  
 (b) Seeds may be thrown or shaken out.
- 1 Nature supplies four means of seed dispersal *to trees and to plants*.
  - 2 Some seeds are provided *with wings or with parachutes*.
  - 3 Seeds may be transported *by wind or by water*.
  - 4 Many seeds are transported *by birds and by animals*.
  - 5 *In peas and in beans*, the walls of the fruit twist and split.
  - 6 The walls of the fruit are broken *by twisting and by splitting*.
  - 7 Wind dispersal of some seeds is assisted *by means of wings or by means of parachutes*.
  - 8 Some seeds adhere *to the fur or to the coat of animals*.
  - 9 The coconut may be transported hundreds of miles *across the ocean, across seas or across lakes*.
  - 10 The seeds of the poppy may be shaken out when it is moved *by the wind or by some animal*.

**Exercise 4** Rewrite this passage, using passive forms. Each passive sentence will require an agent. (The subjects of the passive sentences are italicised):

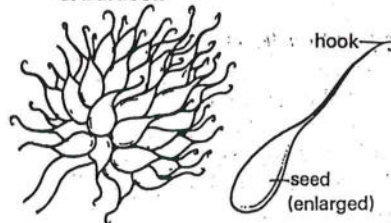
Nature provides *plants and trees* with four means of seed dispersal. The wind may transport *some seeds* very easily because they are light. Nature has provided *the dandelion seed* with a parachute. Nature has also provided *the sycamore seed* with wings. Birds and animals transport *some seeds*, and they shed *the seeds* as they move about. In some plants, the plant itself twists and breaks *the walls of the fruit*. Water may also assist in *seed dispersal*. Water may transport *the coconut* to land hundreds of miles away from the parent tree.

1. Sycamore

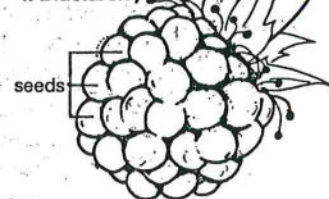


2. Dandelion

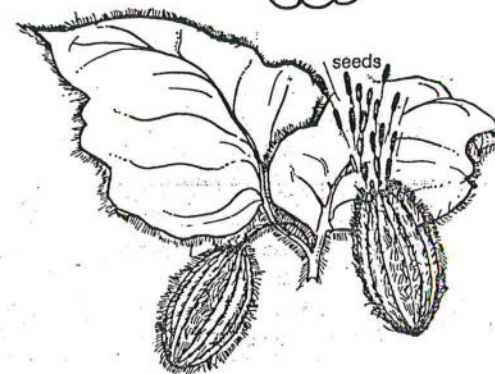
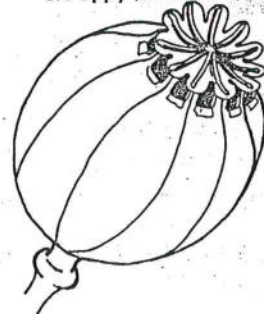
3. Burdock



4. Blackberry



5. Poppy (seed-case)



6. Squirting cucumber



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# Revision Exercises III (Units 11–15)

**Exercise 5** Rewrite these sentences, using ONE word in place of each phrase italicised:

- 1 Nature provides vegetation with four methods of *scattering* their seeds *around*.
- 2 Many seeds are *carried away* long distances by wind or water.
- 3 Others *stick on* to the fur of animals and are *dropped off* as they move about.
- 4 Some seeds, *such as* the water-lily, float because they *have air in them*. (One word only.)

**Exercise 6** Answer these questions with complete sentences, without referring to the Texts. (Do not number your answers, but write them as a paragraph, which will contain the main ideas of the Texts):

- 1 How many methods of seed dispersal are there?
- 2 What are they?
- 3 Why are some seeds provided with wings or parachutes?
- 4 How do animals help to disperse seeds?
- 5 How are berries dispersed?
- 6 How do some plants help themselves to disperse their seeds?
- 7 Why do some seeds float?

**Exercise 7** Questions for further discussion:

- 1 How does a forest renew itself in nature?
- 2 In what ways can man help to renew forests and look after them?
- 3 What do you know about efforts to enlarge forests in your country, or in other countries?
- 4 Many different kinds of plants will begin to grow in places where no one has planted them (e.g. ruined walls, bomb sites, garden paths, etc.). How does this happen?

Vocabulary

bomb site      to renew      ruined

**Exercise 8** Suggestions for further activities:

- 1 Try to find the seeds pictured in Figure 9, or collect different kinds of seeds and make labelled drawings of them, using a magnifying glass, if necessary.
- 2 Find a dandelion clock (see Figure 9) and blow on it. Observe how the seeds float away.

I Give the meaning of these words in your own language:

- |            |                 |                 |             |
|------------|-----------------|-----------------|-------------|
| 1 root     | 7 a chance      | 13 berry        | 19 to stick |
| 2 seed     | 8 starch        | 14 coconut      | 20 a shoot  |
| 3 soil     | 9 description   | 15 water-lily   | 21 leaves   |
| 4 certain  | 10 nature       | 16 tube         | 22 to plant |
| 5 function | 11 to scatter   | 17 saucer       | 23 skin     |
| 6 stem     | 12 to disappear | 18 to space out | 24 damp     |
|            |                 | 25 cotton-wool  |             |

II Explain the meaning of:

- |                        |                               |
|------------------------|-------------------------------|
| 1 to soak in water     | 10 is given as follows        |
| 2 in its absence       | 11 with the aid of sunlight   |
| 3 exterior skin        | 12 compete with each other    |
| 4 a tiny shoot emerges | 13 unsuitable for development |
| 5 whichever way        | 14 seed dispersal             |
| 6 they cannot survive  | 15 some seeds adhere          |
| 7 a flowering stem     | 16 transported in this way    |
| 8 a magnifying glass   | 17 the surrounding air        |
| 9 we examined it       | 18 is provided by nature      |

III Give ONE word for:

- |                              |                              |
|------------------------------|------------------------------|
| 1 slowly, step by step       | 11 to move very slowly       |
| 2 most important and largest | 12 staying alive             |
| 3 partly, not completely     | 13 things which are required |
| 4 place in which it lives    | 14 dropped off               |
| 5 the young ones             | 15 without colour            |
| 6 to grow longer             | 16 dry up                    |
| 7 to get soft                | 17 comes out                 |
| 8 made sure                  | 18 scattering by itself      |
| 9 in the usual way           | 19 across the width          |
| 10 at last, in the end       | 20 which are in the middle   |

IV Answer these questions without referring to the Texts:

- 1 What is the seed-coat?
- 2 What is chlorophyll?
- 3 Can starch be formed by leaves during the night?
- 4 Which emerges first, the root or the shoot?
- 5 Why does a plant eventually die if grown in the dark?
- 6 How do plants obtain water?
- 7 Do roots take up substances which are dissolved in the water?
- 8 What colour does starch turn with iodine?
- 9 What four things must a seed obtain if it is to survive?
- 10 What are the two main reasons why it is important that seeds should be dispersed?
- 11 How many methods of seed dispersal are there in nature?
- 12 Give the name of a plant which uses each of these methods.

V Find the correct word or phrase to fill in the blank in each sentence:

- 1 The shoot cannot — without sunlight.  
(a) soften (b) emerge (c) turn green (d) compete
- 2 The roots of a plant take up water together with the substances which are — in it.  
(a) condensed (b) dissolved (c) examined (d) magnified
- 3 Chlorophyll dissolves in heated —.  
(a) tincture of iodine (b) water (c) starch (d) methylated spirit
- 4 One reason why seeds are dispersed over a wide area is to — their chance of survival.  
(a) increase (b) decrease (c) compete for (d) destroy
- 5 Coconuts may be carried to places hundreds of miles away by —.  
(a) wind dispersal (b) adhering to the coats of animals (c) transport by birds (d) water dispersal
- 6 Plants must obtain all their requirements from the —.  
(a) seed-coat (b) sunlight (c) environment (d) temperature
- 7 — assists the leaves to make starch with the aid of sunlight.  
(a) methylated spirit (b) chlorophyll (c) the root (d) the environment
- 8 Some seeds — to the fur of animals and are shed as they move about.  
(a) disappear (b) transport (c) disperse (d) adhere

- 9 — is required by plants to make them green.  
(a) sunlight (b) water (c) starch (d) the dark
- 10 Chlorophyll — in water.  
(a) dissolves (b) does not dissolve (c) boils (d) melts

VI Replace each dash (—) with a noun (in the singular or the plural) formed from the verb given in brackets:

- 1 Contraction is a — in volume. (to decrease)
- 2 Chlorine has little — on the taste of water. (to affect)
- 3 A seed must obtain its — for — from its environment. (to require/to grow)
- 4 Seed — ensures a better chance of — for the plants. (to disperse/to survive)
- 5 In the leaf, starch is formed with the — of sunlight and chlorophyll. (to assist)
- 6 Wind and water are two of the means to ensure the — of seeds away from the parent plant. (to remove)
- 7 The hard — at the bottom of the pan is known as fur. (to deposit)
- 8 Being crowded may cause the — of many young plants. (to die)
- 9 Soft water gives a good — with soap. (to lather)
- 10 A reservoir ensures the water — of a city or town. (to supply)
- 11 The — of the root and shoot, and the — of the seed-leaves, may be observed. (to appear/to disappear)
- 12 A suitable environment will ensure the — of the plants. (to live)
- 13 There are many disasters which may cause the — of plants. (to destroy)
- 14 The — of the root occurs before the shoot appears. (to emerge)
- 15 Seed dispersal increases the offspring's chances of —. (to survive)