



Mirja Holtrop

Organic Gardening

*growing cellular nutrients
for your health*

*School
gardens* ✓

*Community
gardens* ✓

*Kitchen
garden* ✓

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*growing cellular nutrients
for your health*



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Introduction

In today's busy world, knowing about gardening and how to grow your own veggies is becoming more and more important.

Supermarket foods often contain pesticides and herbicides. These are the chemicals that kill insects and weeds. They are toxic and should not be in our food chain.



This book shows you how to grow your own vitamin-rich food so that you and your family can become more independent from the shops.

Just think, if gardening became a part of every school curriculum we would soon have a healthier world!



So let's get started...

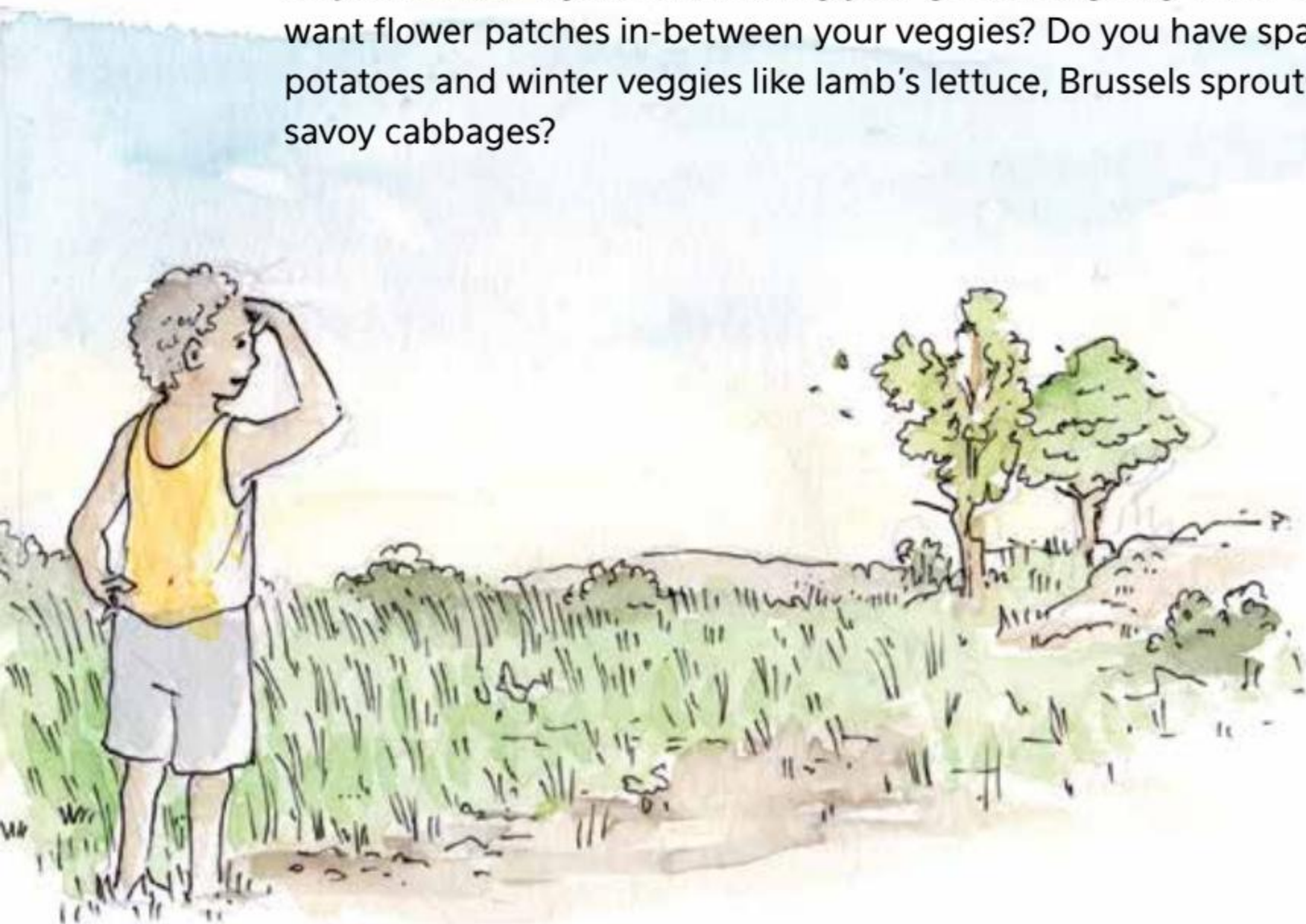
This book will show you step by step how to become a successful organic gardener. It's best if you also connect with other school gardens around the world. There's a forum at www.movement-of-life.org where you can register and upload pictures or videos of your best veggie patches. Each year there is an award for the best garden design. So log on and study the instructions!



Essential things for a healthy garden

We want our plants to grow perfectly, so we need to choose the right gardening place. Things like location, wind and sunlight affect its success.

So you need to figure out how big your garden is going to be. Do you want flower patches in-between your veggies? Do you have space for potatoes and winter veggies like lamb's lettuce, Brussels sprouts and savoy cabbages?



A question of space



Four adults need around 150 square meters to grow enough food to sustain themselves for an entire year. If you don't have that much space, no worries. I will show you how to make full use of every inch. Fast growing salads and herbs are perfect for small spaces.

Natural fertilizer doesn't work overnight and needs to be biologically activated in your garden. Having a regular supply of good compost will help. I will show you later what 'good compost' means. It is all about the right ingredients and how to chop, shred, grind, moisturize and cover.

The quality of your soil is important.



When you put it in your hands, is it sticky? Can you make a little ball without it falling apart?

If yes, then the moisture level is good.

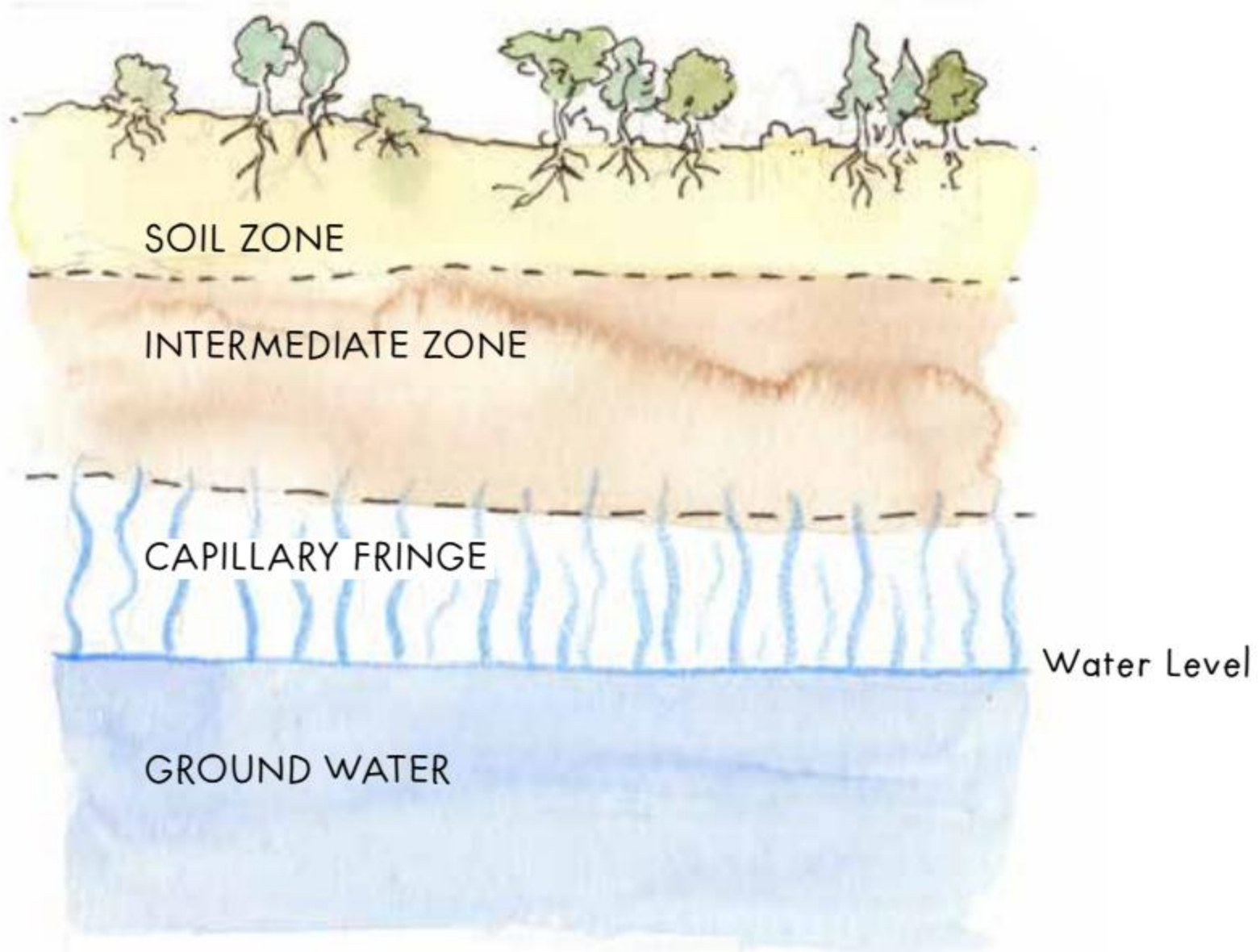


If it's too sandy, and the soil won't stay moist and certain plants don't grow, then we need to add more compost or choose plants that have less demand for water.



We also need to find out about the base water level in your garden. Best idea is to ask your neighbors or the previous owners of the land. A good position for your garden is a place without too much evaporation where the soil can keep moist.

Don't loosen your soil during the winter. Wait until after the winter frosts have ended before you start cultivating your garden.



Soil capillaries are small gaps in the soil that make the base water rise to the top. By regular loosening of the top layer the capillaries are destroyed and more water gets sucked up from the base. The more base water you use, the less additional water you will need.

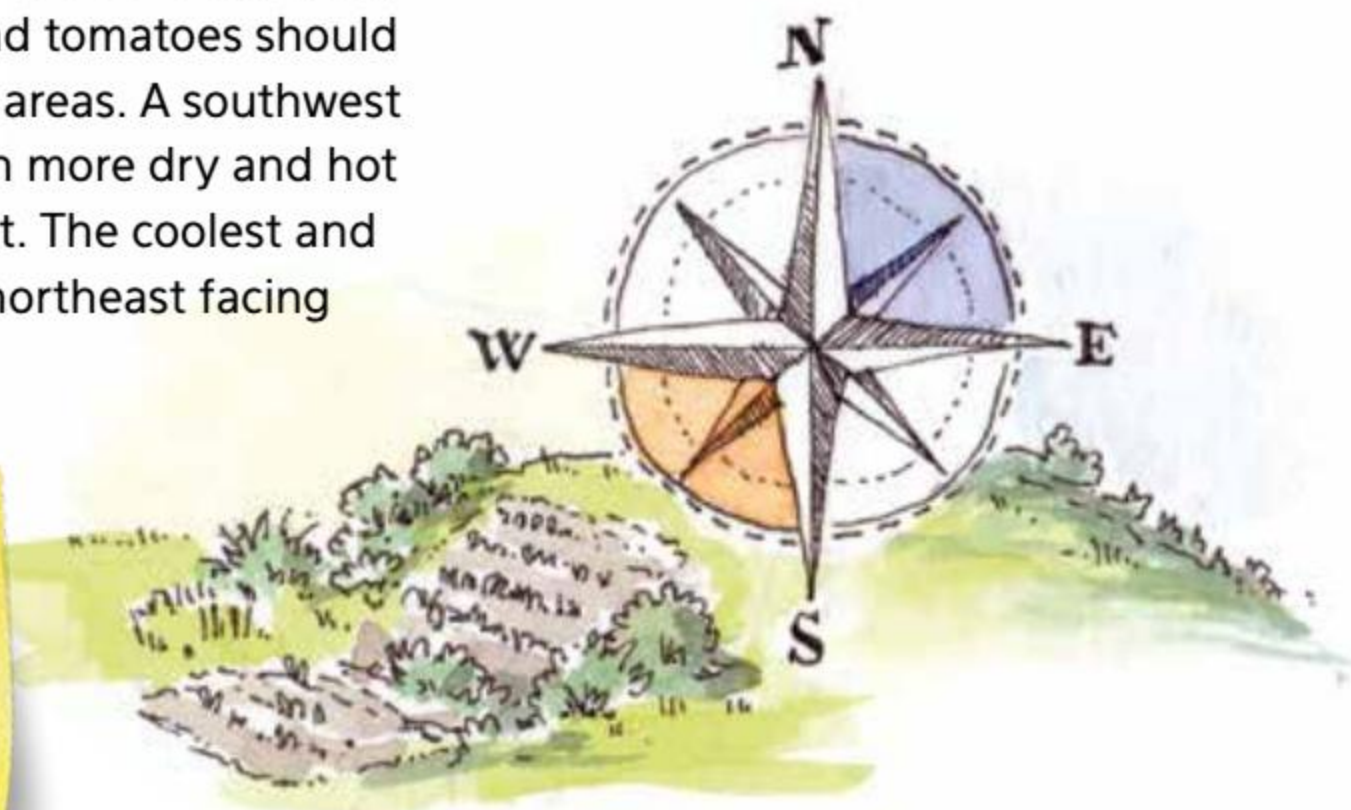
The right position



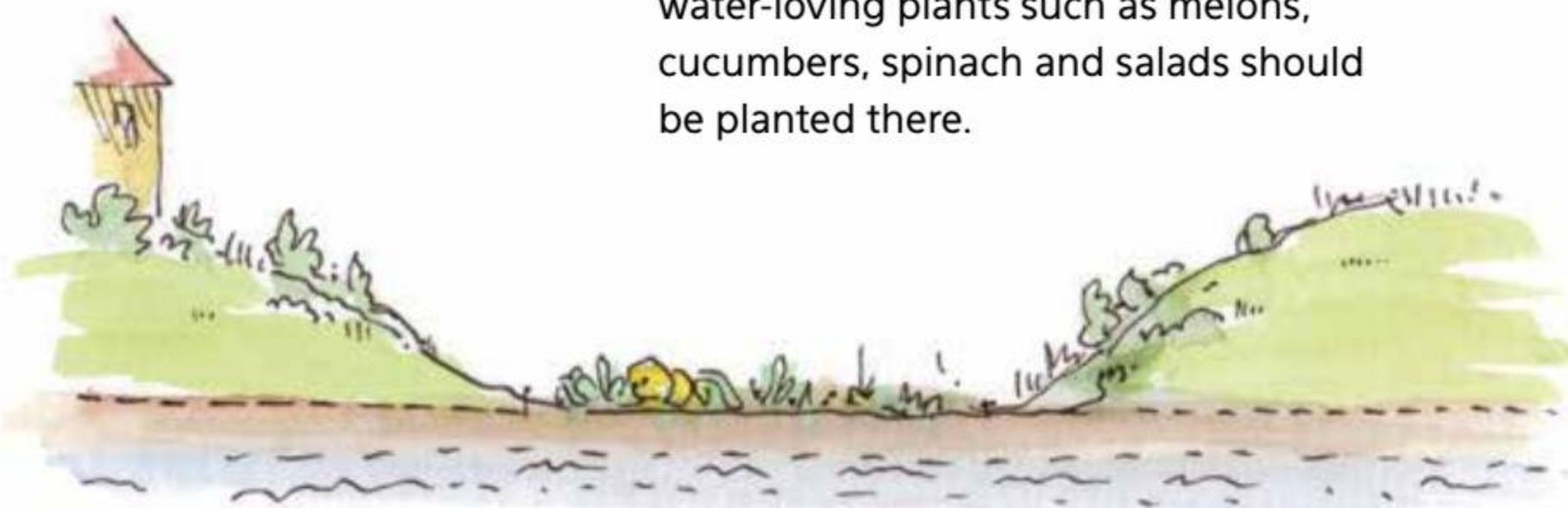
If your garden, or parts of it, are on slopes, your patches need to be transverse to the slope to avoid erosion.

Sun damage is more likely on slopes, so only sun-loving plants such as grapes, butternut, beans and tomatoes should be planted in those areas. A southwest facing slope is much more dry and hot than one facing east. The coolest and moistest place is a northeast facing slope.

It's best to secure your garden with a hedge, as this helps prevent too much wind.



If your garden is in a valley then the moisture level will be high, so only water-loving plants such as melons, cucumbers, spinach and salads should be planted there.



A good cover of compost and regular loosening of the soil will help natural drainage. It's best to check over a period of a few days so you can learn how much sunlight each part of your garden gets and how well protected it is against wind and (too much) rain.

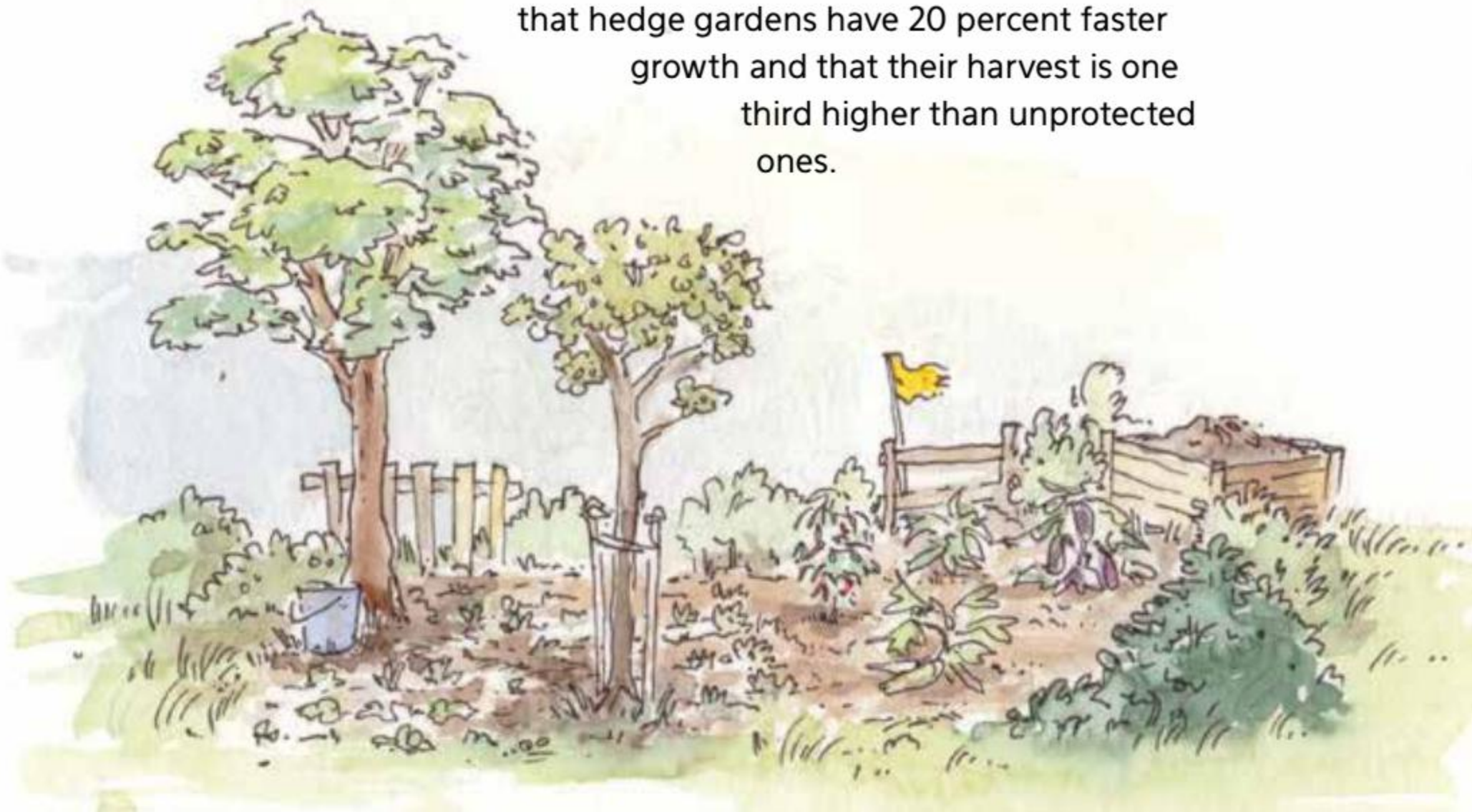
After having gathered this knowledge you can make better decisions about what to plant, and where.

Sun, wind and shade

A sunny and calm space is the best position for your garden. Light and warmth encourage growth and fertilization. Put warmth-loving plants like green peppers, zucchini, aubergines and chilies in the sunniest patch.

A breeze of wind is perfect, it protects against plant diseases and pests, but a stormy environment will result in poor growth as the plants become too cool.

It's best if you can have a few trees in your garden for shady and half-sunny patches. Surrounding the garden with hedges also helps. Research has shown that hedge gardens have 20 percent faster growth and that their harvest is one third higher than unprotected ones.





Berries love half shade

If you have large shady patches in the garden, for example from neighboring houses, then the best thing to do is fill them with berries. Berries are very rich in vitamins and grow very well.

Gooseberries, blackcurrants, raspberries and blackberries are easy to maintain and need no additional watering, as they have a deep root system and become more and more independent the older they get.

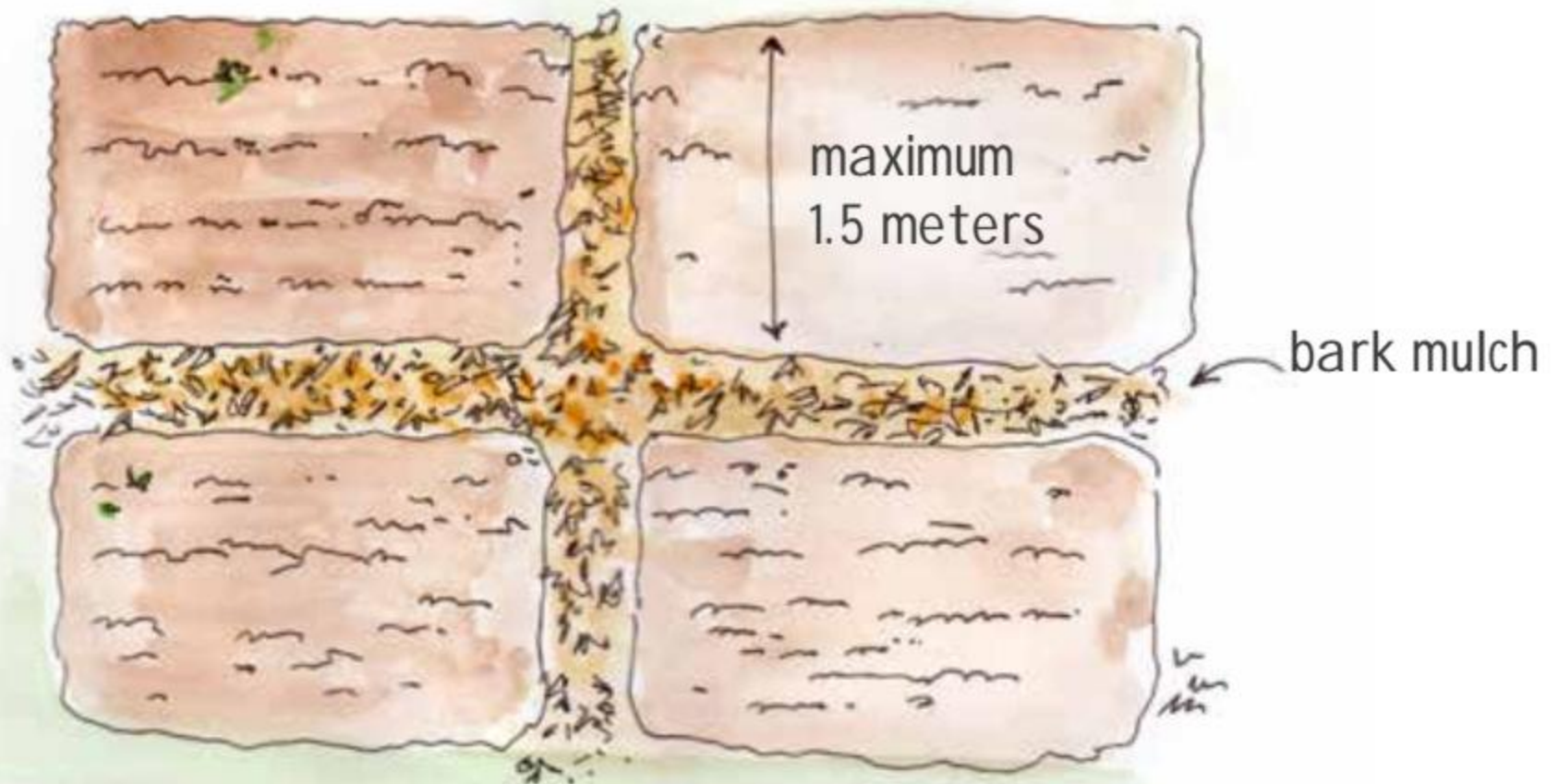
You just have to recut them once a year so they won't fill up your entire space. In autumn all leaves and greenery are welcome under their bushes, they protect their roots and provide moisture.

Patches

Your veggie patch can be as long as you want but should not be wider than 1.5 meters. This will ensure it can be reached easily from both sides. It is important to determine pathways, so make sure you only walk on those as this will avoid compacting the soil.

Between the patches it is best to establish a framework made from bark mulch. This works great in preventing weeds growing. You need at least four patches to start with, to ensure a proper crop rotation.

4 patches to start with



Vegetables with a short cultivation time like radishes, herbs or lettuce are best to start with. Those with a long cultivation time, such as leeks, celeries and Brussels sprouts, should only then be planted if the garden has enough space. Or if you have enough patience.

If you have younger siblings, encourage them to help you look after the patches and give them their own little space where they can plant a few carrots and cress, and of course some flowers.

Careful Planning – sketches of patches

The best approach is to start planning your patches by the beginning of each year. At the end of this book you will find a seed catalogue containing planting times, temperatures, and details of where in the patch each veggie needs to be planted.

Some need to be planted in a shady place, and some in a more sunny place, for example. You will also learn which veggies prefer which types of soil.



Instructions on how to draw sketches of your garden can also be found at the end of the book.

Don't forget to store the plans for each year as they will be important for the years to come. I will explain later how you can avoid mistakes in crop rotation.

2

Living soil: Everything about fertile ground

Knowing your ground, its quality and type, is a crucial factor for all successful gardeners. You need to understand the food web of your soil and its many interactions.

Here are some tools that will help you in your garden:



First step: Counting earthworms

Earthworms are the best indicator for finding out the quality of your soil. If there are many, then that's excellent news! Earthworms are the world's most potent fertilizers as they produce precious humus, which is a superfood for plants.

The best time to count your worms is when it rains. Earthworms don't appear at the surface when it is dry, as their delicate skin can't handle drought.

First remove the grass, then take a spade and dig up an area measuring about 12 inches (30 centimeters) square. You will find all sorts of living creatures in there.



Worldwide there are about 3000 different species of earthworm.

Earthworm droppings can be found at the surface or in soil cavities. These excretions – and even the slime that covers earthworms – supply food for microorganisms.



Put the soil from your spade on a plate, then count the worms and their eggs.

less than 80

Your soil needs treatment to improve their proliferation.

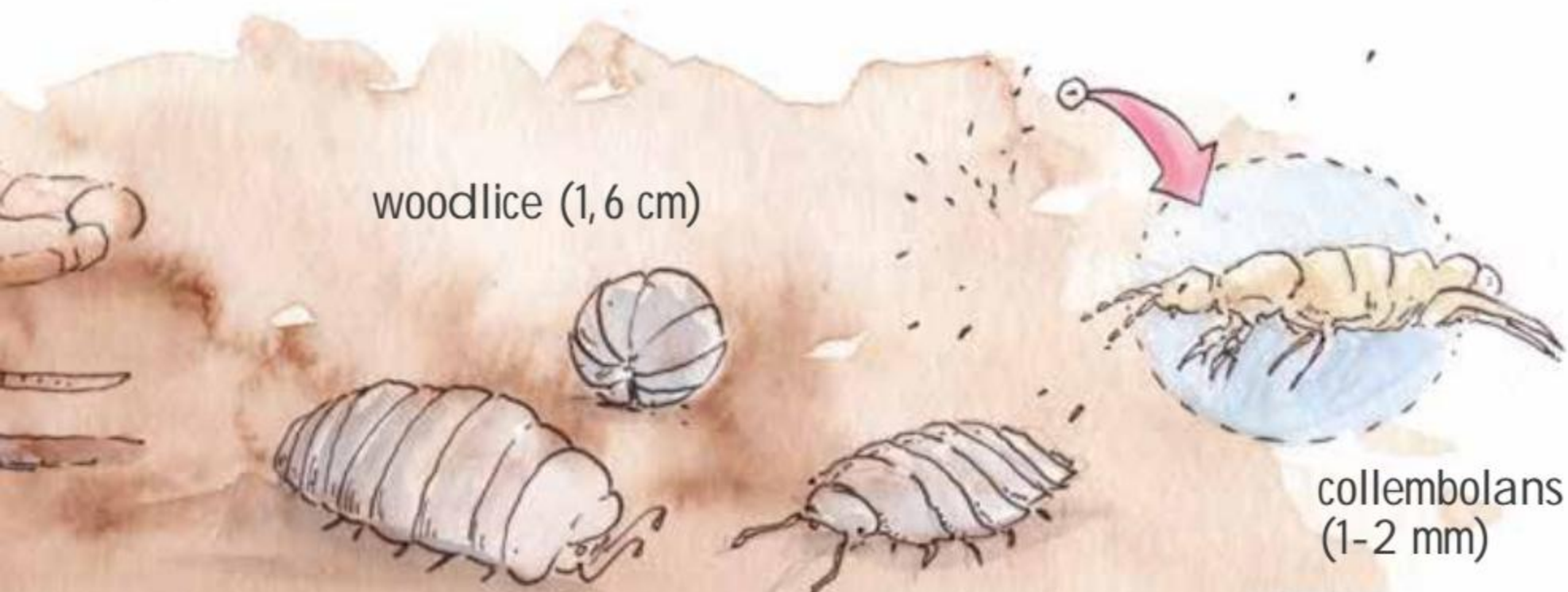
around 150

A reasonable soil, fertile enough to grow most veggies and herbs.

250 or more
your soil is very good indeed!



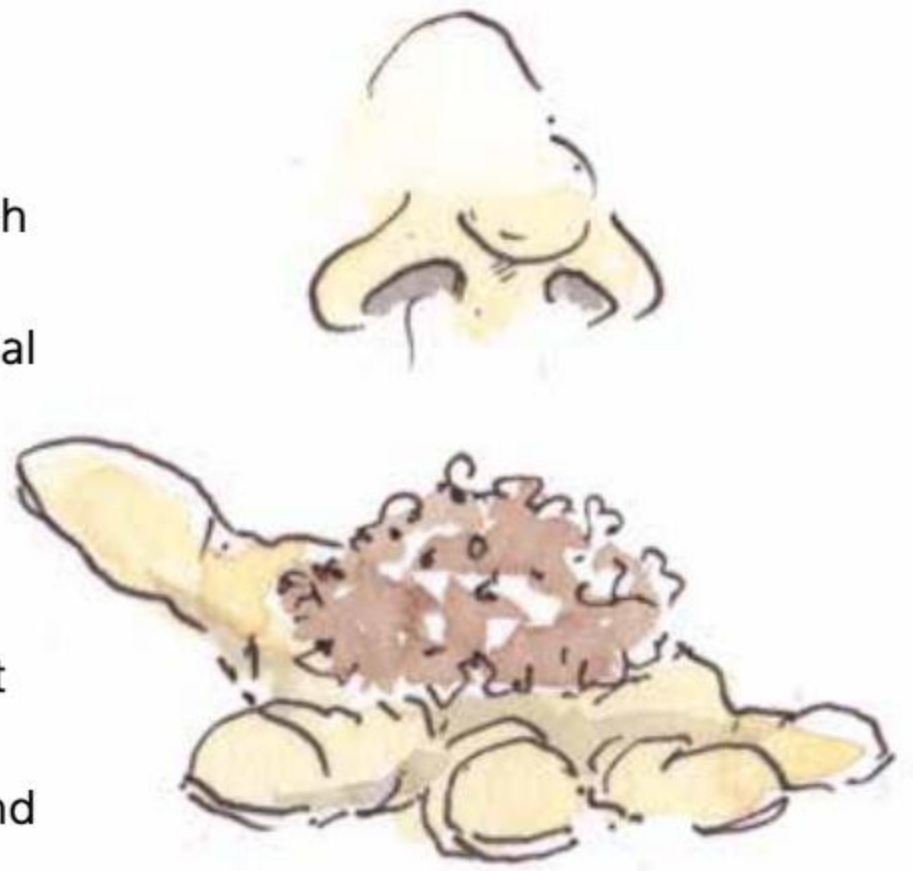
Additionally, in a healthy piece of soil you will find around 300 woodlice, 50,000 collembolans and millions of ciliates. There are also algae, fungus and bacteria living there, but you would need a microscope to see these. All these living creatures help make the soil fertile.



Smelling

The smell of your soil gives you important hints about its quality. A fresh smell of wood indicates healthy soil. Forest soil has the richest microbiological content.

If your soil is black or smells of rotten eggs, this indicates that its decay processes are not running well and that it needs special treatment. In this case, your soil needs immediate loosening and fertilizing with the right compost.



Soaking

Soaking your soil will show how it reacts to rain. If it forms a kind of mash when exposed to water, the water absorbance of yours soil is great! If it contains small stones and is sandy, its water levels are too low.

To measure the water stability of your soil you simply put a handful of it on a plate and add some water. Now shake the plate until the lumps of earth break apart. The less lumps you have, the better. If there are a lot of lumps and they don't dissolve quickly, there is need for improvement. This is best achieved by loosening the soil, adding the right compost and fertilizing organically.

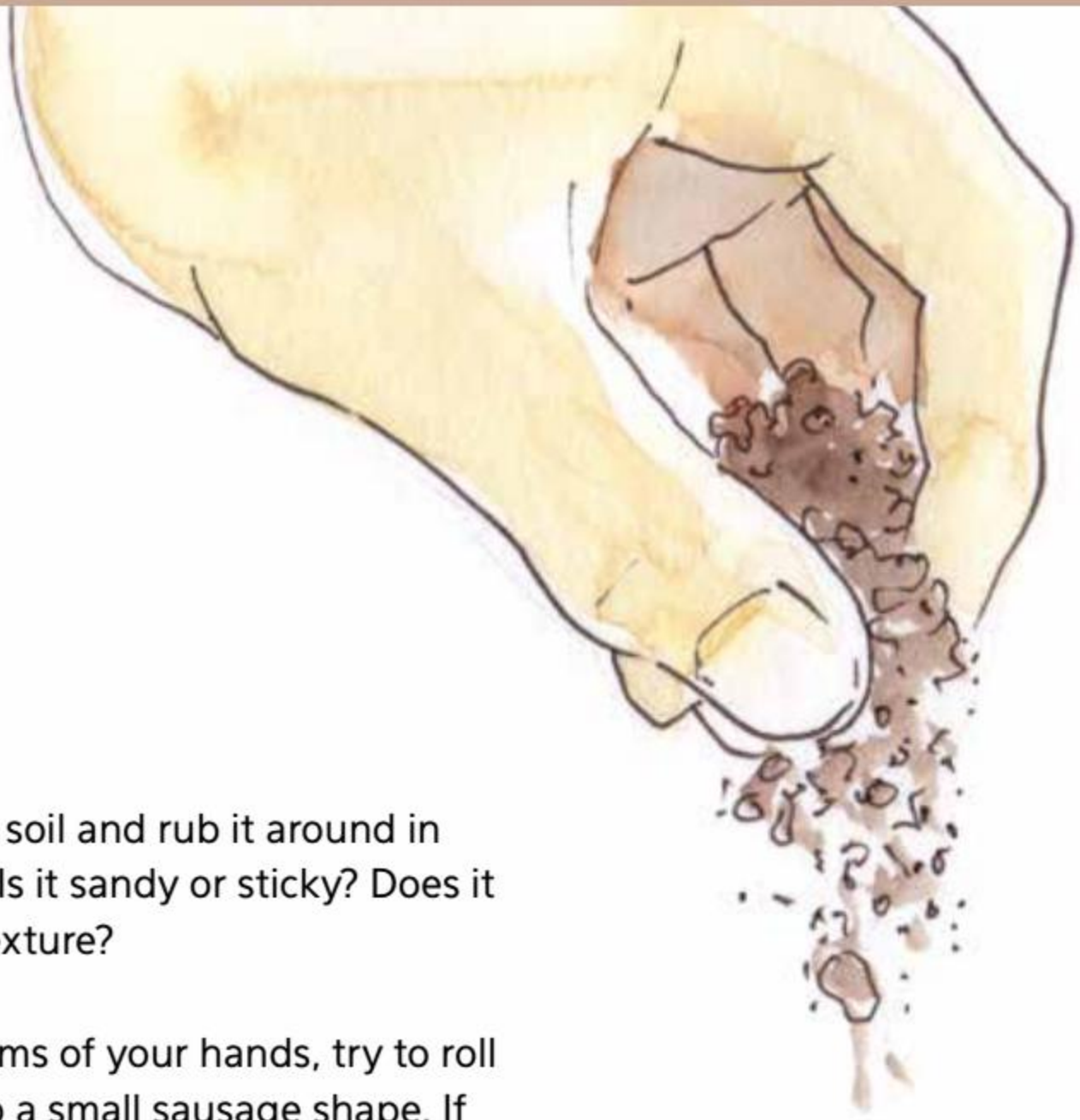


Feeling

Pick up some soil and rub it around in your fingers. Is it sandy or sticky? Does it have a fine texture?

Using the palms of your hands, try to roll some soil into a small sausage shape. If you are able to do this easily, your soil is rich in clay. If your soil won't form this shape easily, it is of a sandy kind.

Both sorts have their own advantages when planting different types of plants. For example, a water-loving plant will always prefer a soil that is rich in clay.



Soil is a highly complex living organism and its quality influences whether or not your plants flourish. So the more you know about your soil, the better.

How to recognize and understand your soil

There are four major types of soil. The quality of each of them depends on climate, human and geographical influences.

1. Sandy gravel (river sand)

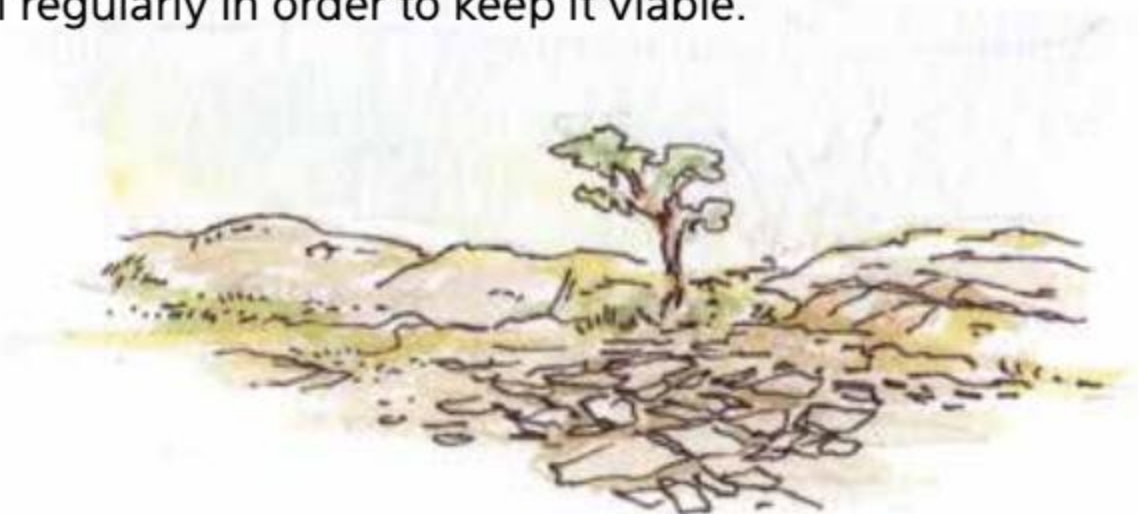
This soil is loose and easy to work with. It retains warmth easily, so you can start loosening it in early spring. Its storage capacity for water is poor, but if you add the right compost it can be managed. This type of soil is found near rivers.



2. Limestone soil

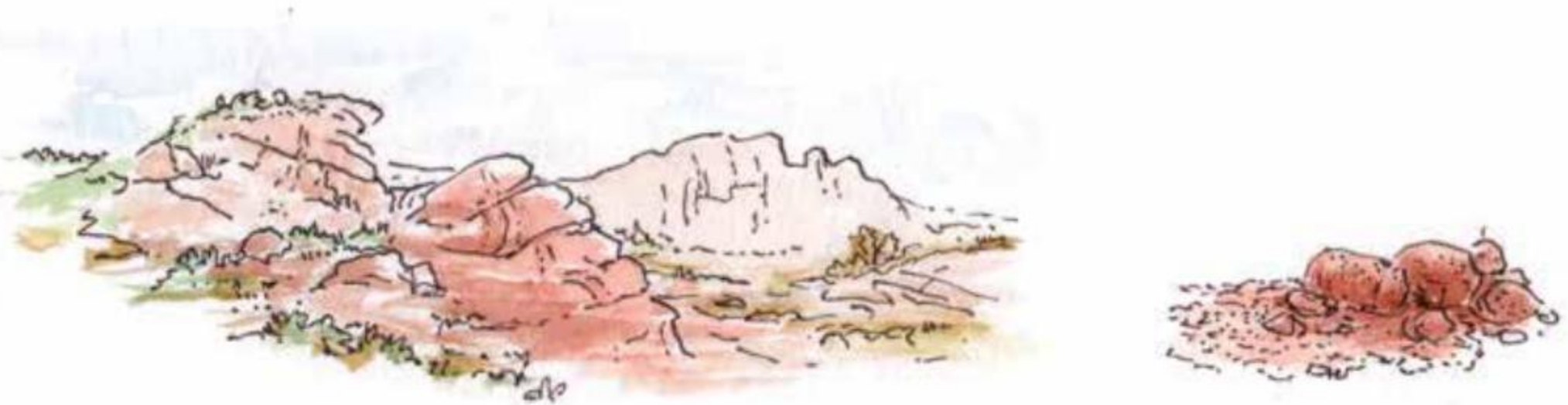
This soil can be identified through its light color. It sticks to the fingers and has a tendency to be lumpy when dry.

It warms up more slowly than other soils. In spring it is dry on top but moist underneath. During summer you have to loosen and water this type of soil regularly in order to keep it viable.



3. Brownstone

This soil is of a reddish-brown color. It varies in its clay-to-sand ratio. The higher the clay content, the better the soil can store moisture. But this also makes it denser and heavier to work with. You often find this type of soil close to mountains.



4. Loess

This is the best and most fertile type of soil. It is full of earthworms and supportive bacteria. It also contains a lot of humus, which is the most powerful organic fertilizer.

Loess has perfect water-storing abilities and doesn't get too wet, or overly dry, too quickly. It is often to be found on hillsides. If there is exceptional natural vegetation on your land, it is very possible that there is a high content of loess.



Natural vegetation – learn about your soil by analyzing natural vegetation...

Here is a table showing which plants grow best in which types of soil, as well as what you need to do to improve your soil's quality. The plants shown here can be grown on all continents of the world, so the table below can serve as a general guideline.

Condition	Natural plants	What to do
Nitrogen-rich	Nettle, Ashweed, gallant soldier, spurge, Chinese cress, cleaver, saltbush, chickweed, boar thistle	Fertilize with the shredded plants that grow there, and plant potatoes to absorb nitrogen
Nitrogen-low	Pigweed, hemp-nettle, stonecrop, vetch, carrot	Add compost and plant legumes such as peas and spinach
Wet	Dock, thistle, meadowsweet, bitter cress	Add compost and sand
Dry	Chamomile, geranium, plantain, pink heronsbill, oxeye daisy	Add compost and mulch
Shady	Ashweed, ground ivy, common wood sorrel	Choose matching plants such as pieplant, wild strawberries or wild raspberries
Acidic	Mint, Chamomile, clover, willow herb, sorrel	Chalk
Alkaline	Mustard, pansies, common foxglove, flax weed, sage, chickweed, geranium	Add wetland soil to lower pH levels
Dense	Mint, horsetail, coltsfoot, plantain	Grow lucerne once per year. Its roots are very deep and will loosen the soil
Waterlogged	Boar thistle, plantain, silverweed, buttercup, wild rye	Grow lucerne once per year. This will help to absorb moisture
Sandy	Heather, pine, poppy, mullein, spurge, chickweed	Add compost and mulch



Humus and compost

Humus is the stable, long-lasting remnant of decaying organic matter. It improves the soil structure and increases water retention. Its nutritive qualities include trace elements and several important organic acids. Humus acts as a veritable storehouse for plant nutrients, something that is especially important if you have soils that are sandy, dry or low in nitrogen.

Compost is organic matter that is in a purposeful state of partial decomposition. That “purposeful” part is important. Dead stuff on the ground is not compost, it’s just decaying organic matter.

It is the controlled, or semi-controlled, conditions that make matter become compost. There are two different types.

Immature compost is compost that has not undergone enough decomposition to be of maximal benefit. It is primarily still in the bacterial stage of decomposition.

Mature compost is compost that has decomposed to the point of maximal usefulness.



The next chapter is all about how we build our own compost heap. The right way!

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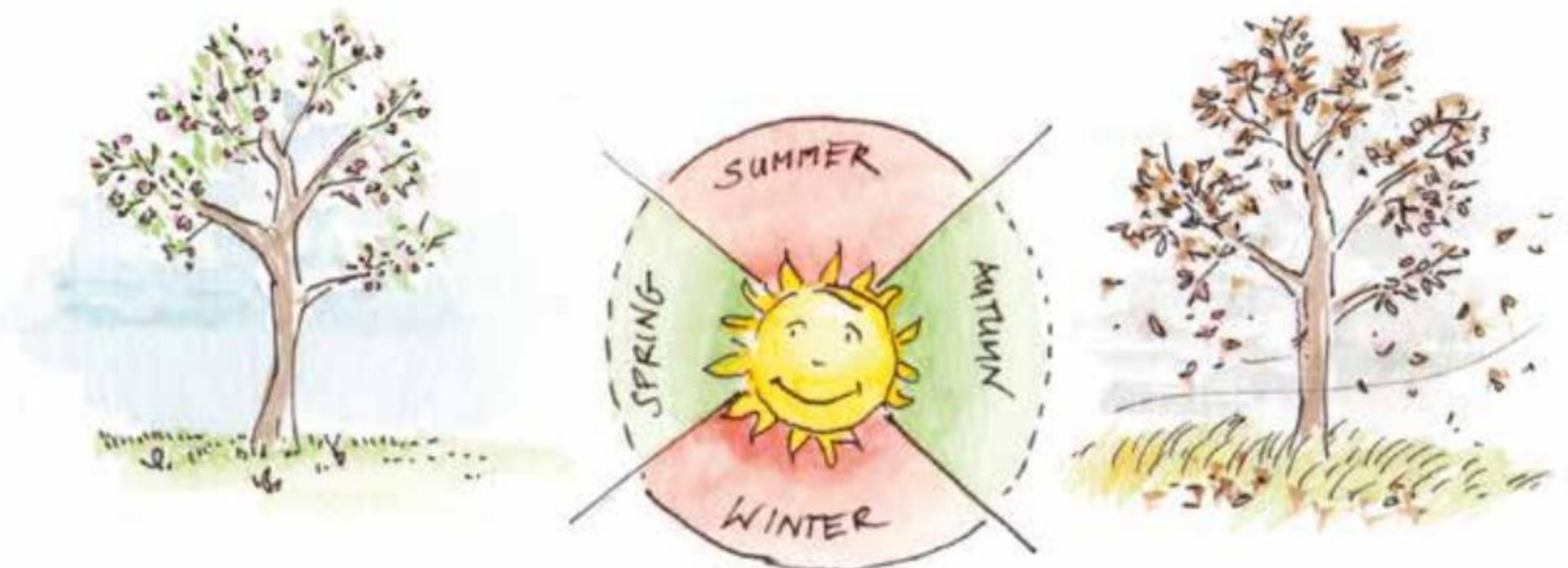
All about composting

Plants grow more quickly on compost-covered soils and experience less damage from pests and diseases. Compost keeps the soil moist, protects it against dryness and is the key to successful gardening. Experienced gardeners know that a well-cared for compost heap is the 'heart of the garden'.



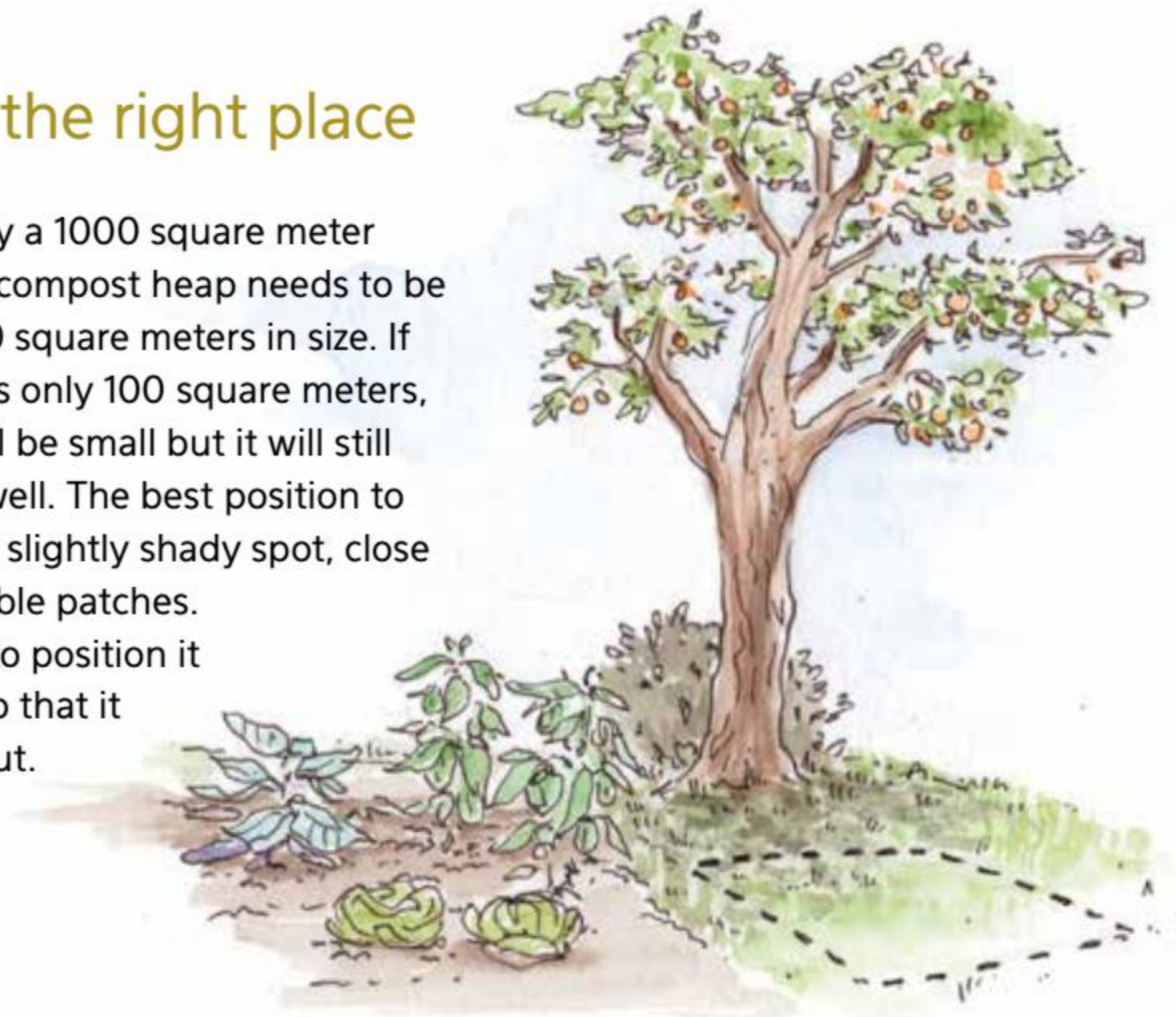
Most organic waste can be composted, but where you put it is important. Don't just throw everything in on top of each other. Putting things in layers, in the right order and the right position is crucial.

It is also important to start your compost heap at the right time. The best time to start building it is in either spring or autumn.

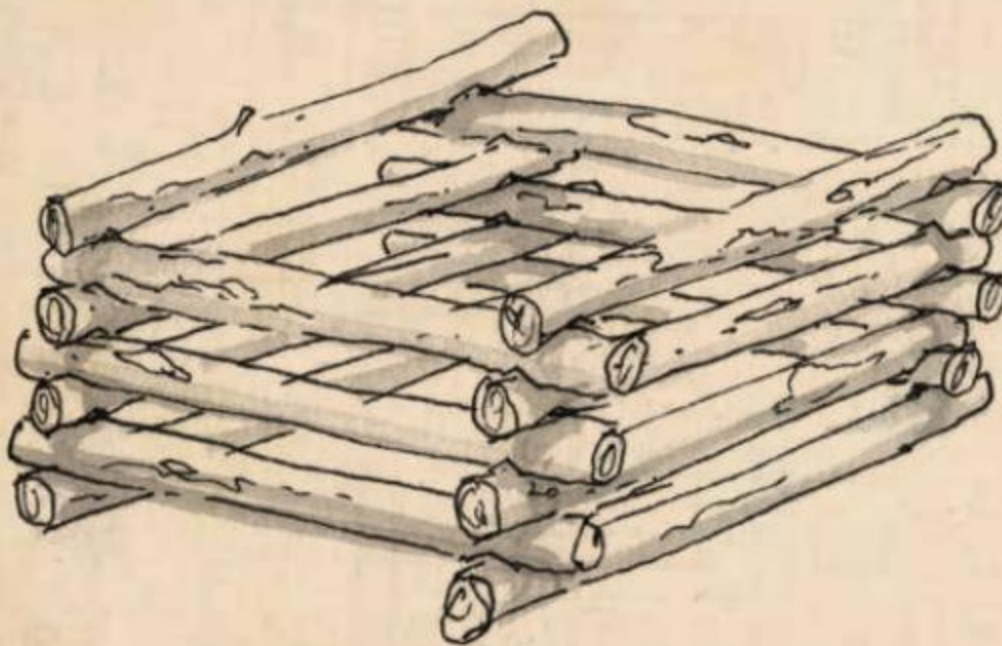


Finding the right place

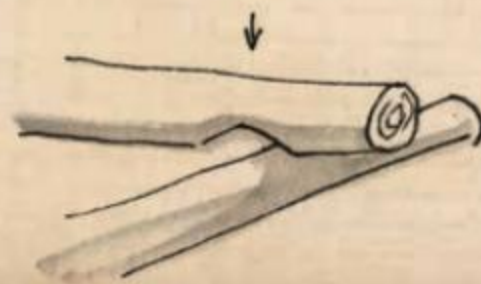
To fully supply a 1000 square meter garden, your compost heap needs to be around 20-40 square meters in size. If your garden is only 100 square meters, your heap will be small but it will still work just as well. The best position to place it is in a slightly shady spot, close to the vegetable patches. It's also best to position it under trees so that it doesn't dry out.



This illustration shows how to build your compost frame, and which raw materials to use.



If you build your compost frame with natural wood, it will attract the right microorganisms and stay well-ventilated.



a kerf helps stabilizing the construct



Manure from animals, ashes, lawn cuttings, hair, feathers, hedge cuttings, fruit peels, sawdust, coffee dregs, straw, eggshells, leaves, kitchen and garden waste all make great compost components!



When the compost heap is full, cover the last layer with soil and straw and let it rest

There is only one golden rule: always make sure that dry materials are alternated with wet materials. This ensures the moisture levels in the heap are well-balanced.

As the illustration shows, the first layer of your compost heap should always consist of bush or tree cuttings. On top of this, a thin layer of chalk or clay is needed. Then you can add whatever ingredients you have available, but always make sure that grass cuttings are well spread so they cannot rot.

What happens in the heap?

There are four major phases:

1. Warming up:

Carbon metabolizes and generates heat of around 45 degrees Celsius. The heat can rise up to 65 degrees. This phase lasts for between 2-4 weeks.

2. Fungi:

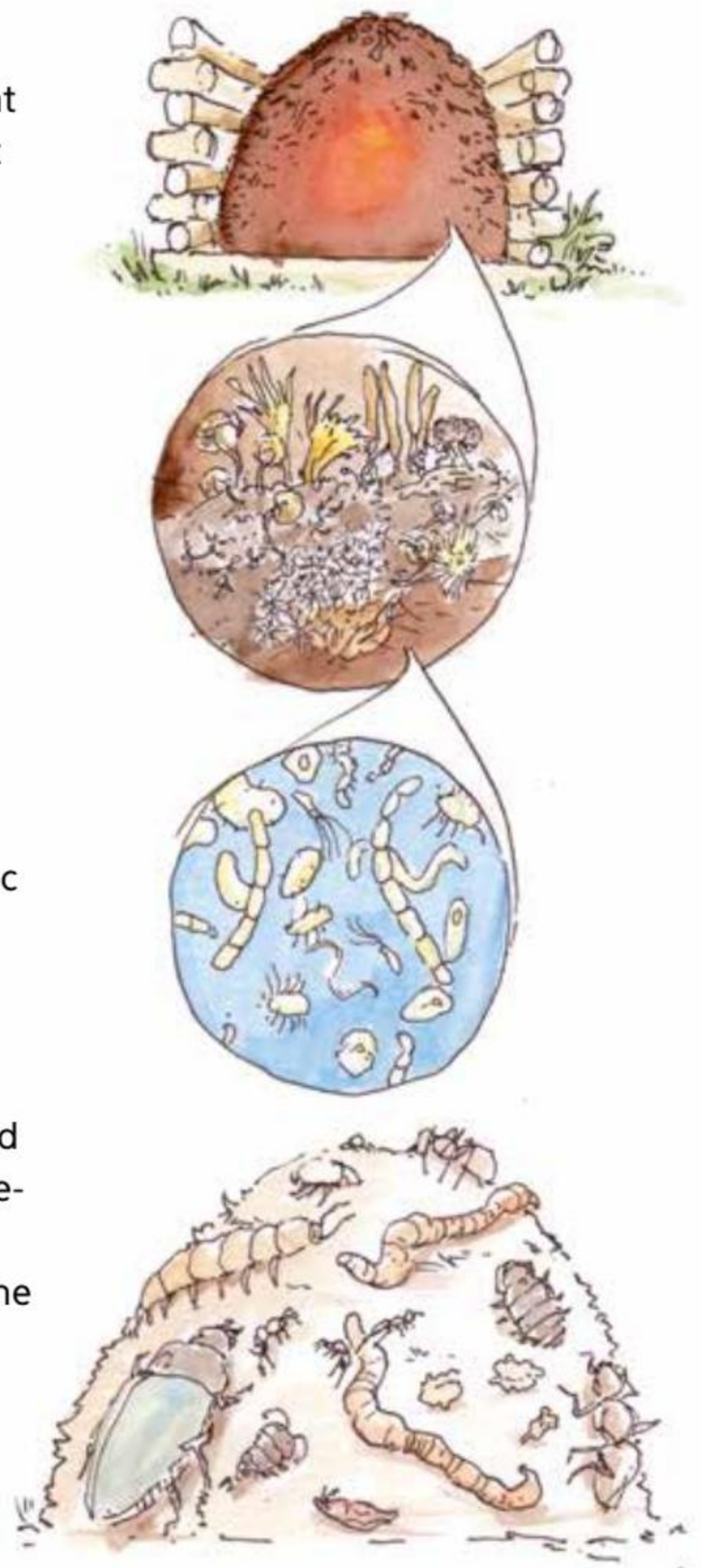
Intensive fungi grow for up to around 5 weeks. This helps provide food for bacteria.

3. Bacteria:

These are the detox products of your compost heap. Within 7-10 weeks they will produce plant fertilizer from organic matter.

4. Small animals:

Worms, caterpillars, mites, woodlice and collembolans are to be found everywhere. Earthworms do an especially great job in producing humus. You can see the compost is ready when the number of worms begins to reduce.

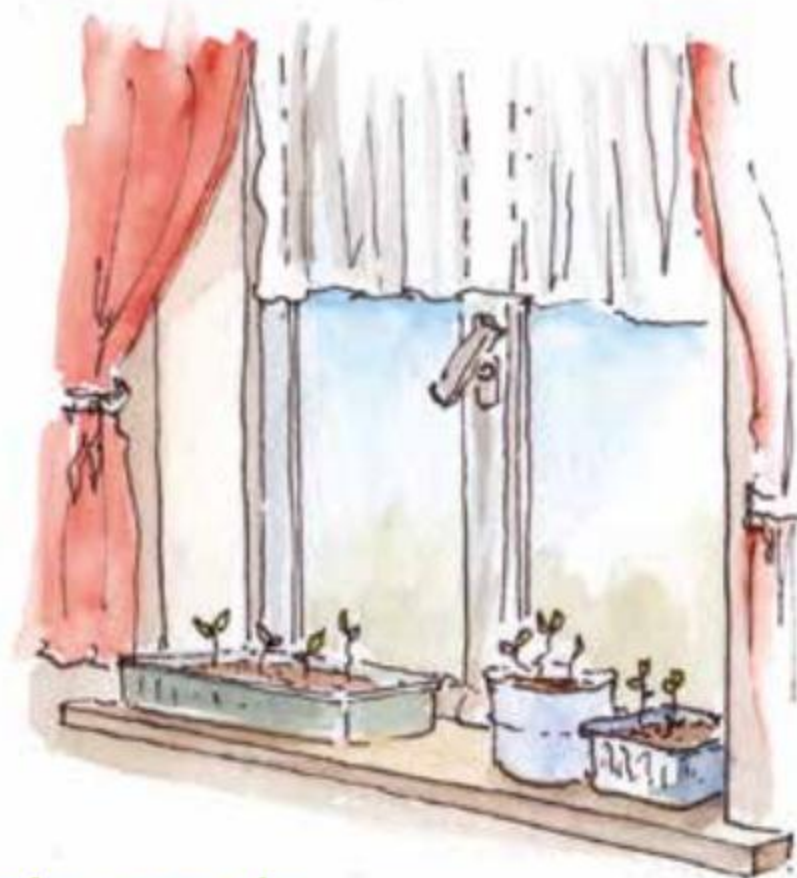


A healthy compost heap does not smell. If it does, this means there is too much rotting matter. You will therefore need to ventilate it with a fork and treat it with dry components such as chalk.

4

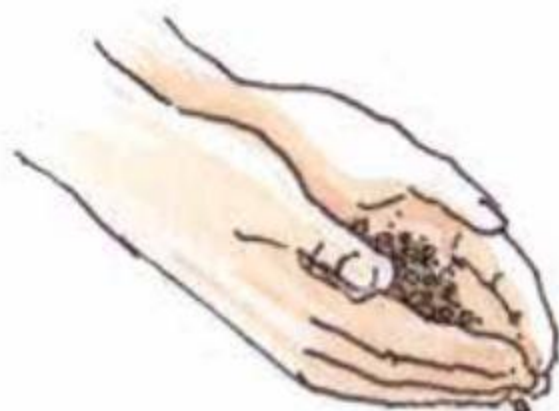
Sowing, Seedlings and Planting

Some plants can go straight to your garden patch, while others need to be sprouted first. High quality seeds are needed for healthy plants and a fruitful harvest.



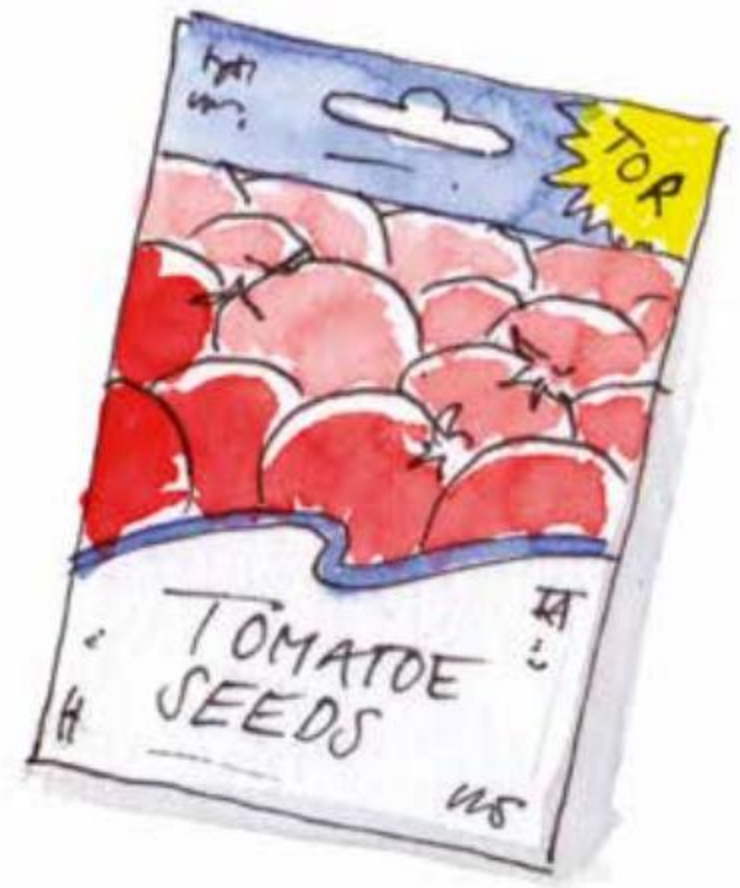
Organic seeds

Always use organic and biologically active seeds. It's best to get them from a fellow organic gardener. These types of seeds develop into plants that have a better genetic code. Not only are they stronger than genetically modified ones, your plants will have a much higher micronutrient content.



Don't use hybrid seeds

Hybrid seeds are artificially bred and can't reproduce naturally. So farmers who use them are forced to buy new seeds every year. This means they are kept economically dependent on the big seed companies. Such a business model only benefits the companies selling the seeds, it doesn't benefit us as gardeners and consumers.



organic seed circle



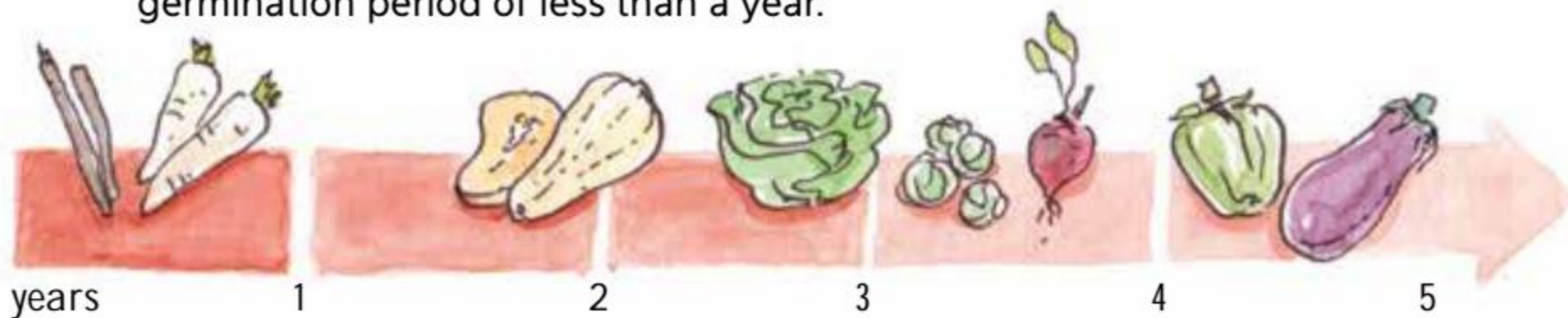
hybrid seed business



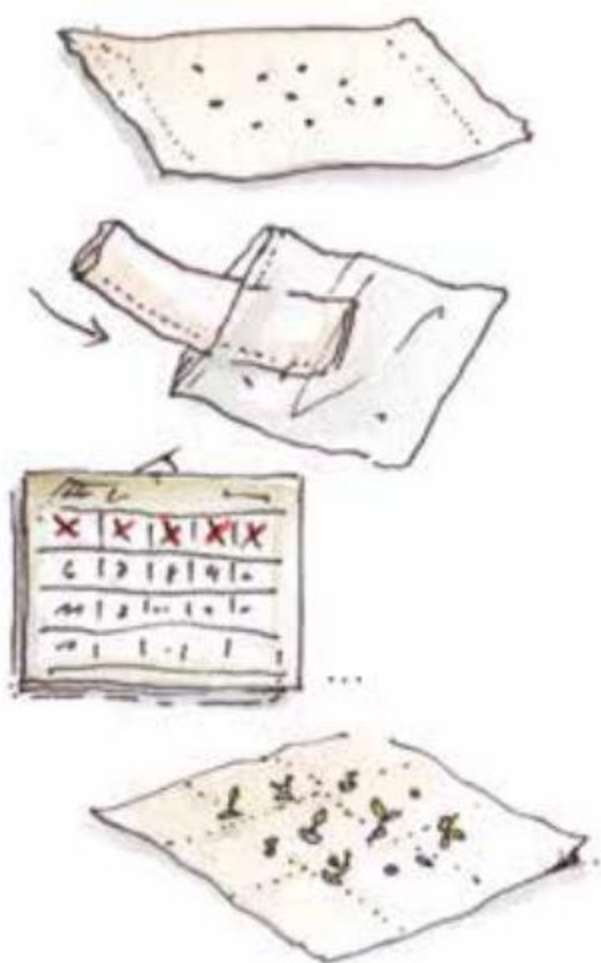
Hybrid seeds produce plants that are low in micronutrients. They have a weak immune system, they taste bland, and don't contribute to a well-balanced diet. When you buy seeds make sure they have a small 'F' after their name. The F stands for 'Filia', which is Latin for 'daughter'. These plants have a natural 'mother' plant and are not genetically modified. It's a sad fact that 70% of all vegetable plants in supermarkets today come from hybrid seeds.

Germinability

The germinability of a plant varies according to its type. For example, eggplants and green peppers have a long germinability; their seeds stay fertile for up to five years. Seeds for cabbage, butternut, cucumber, pumpkin, lamb's lettuce, Brussels sprouts and beetroot stay fertile for up to 4 years. Those for chives, parsnips and black salsify have a shorter germination period of less than a year.



If you have some seeds and don't know how old they are, don't panic! Here are four steps to help you find out whether you can still use them:



1. Take 10 seeds out of the packet and put them on a wet paper towel.
2. Wrap the paper towel carefully and put it in a plastic bag.
3. Store the bag in a warm place.
4. Wait for five days, then open the bag.

About 8 seeds from the 10 should have enlarged or sprouted. If there are 6 or less, your seeds are of low quality and don't have the right germinating power. Low quality seeds develop into weak seedlings and plants.



Seedling soil

The first soil your seeds are planted into should be a mixture of compost, sand and rock flour. To prepare this you will need a sifter, a spade and a wheelbarrow. Slowly push the compost through the sifter. Make sure it gets soft and has no chunky parts in it. Mix one third of sand with a bit of rock flour, this will give you the right mineral level. Congratulations, your baby plant nursery soil is now ready for use!

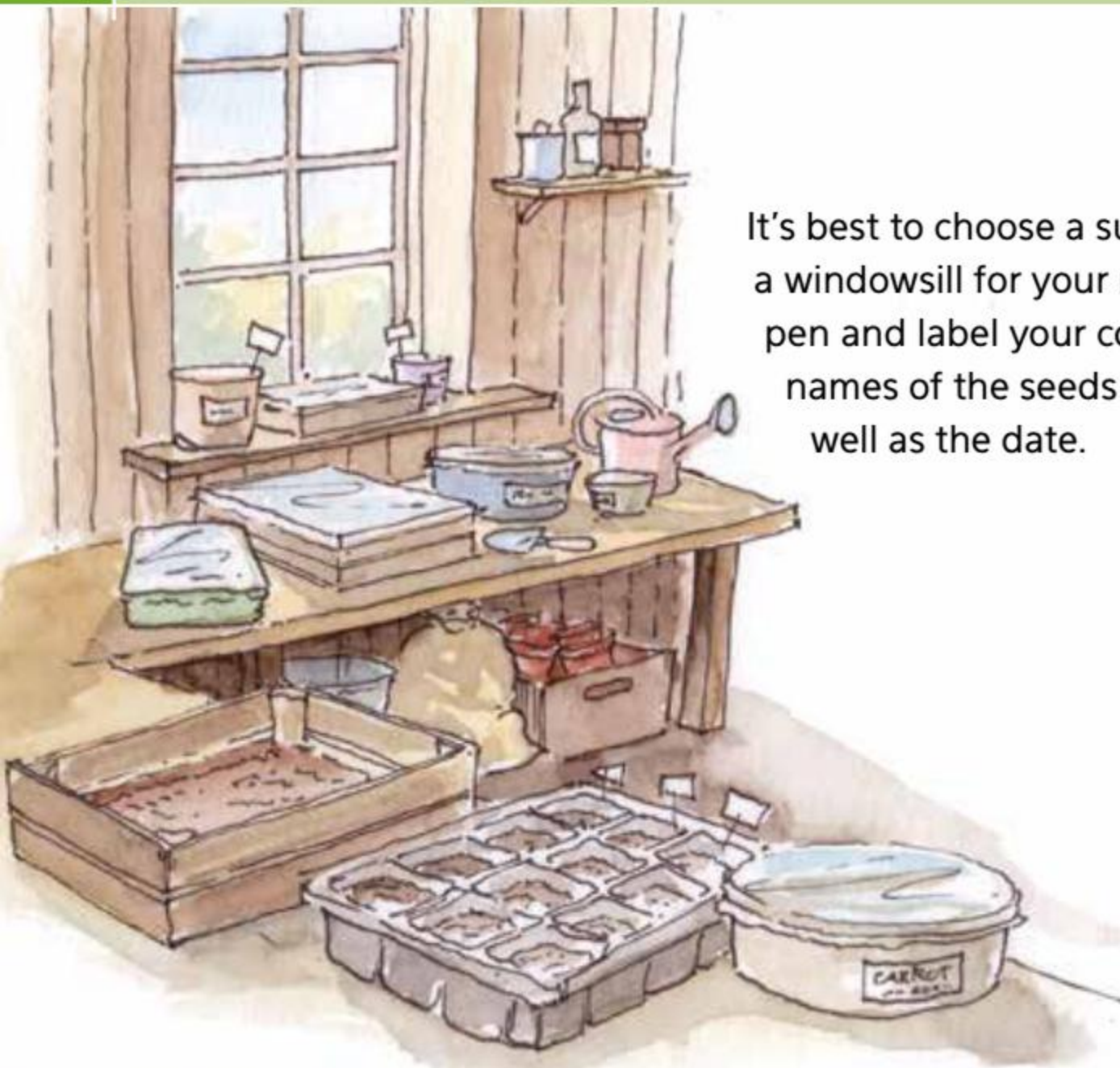


By the way: The soil in molehills is of excellent quality! So if you get molehills in your garden, add the soil from them to your nursery mix.

Pots and sowing boxes

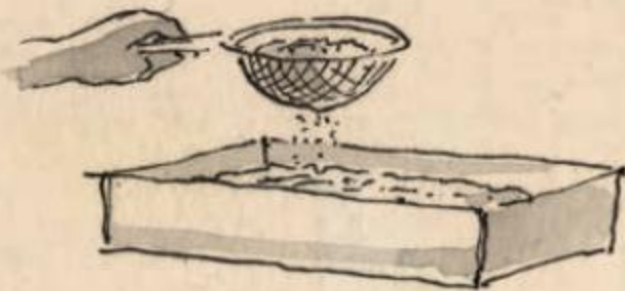
Old wooden boxes make great sowing boxes, just put a few pieces of paper at the bottom to store water. Plastic cans, glass jars or cartons can be used as well.





It's best to choose a sunny spot such as a windowsill for your nursery. Take a pen and label your containers with the names of the seeds they contain, as well as the date.

While filling the containers make sure to firmly squeeze the soil at the edges, as it will sag when watering. Press the soil gently with a piece of wood.



Then take a small kitchen sifter and scatter a thin layer of soil on top.

Next, use your finger to draw a fine line in the soil.



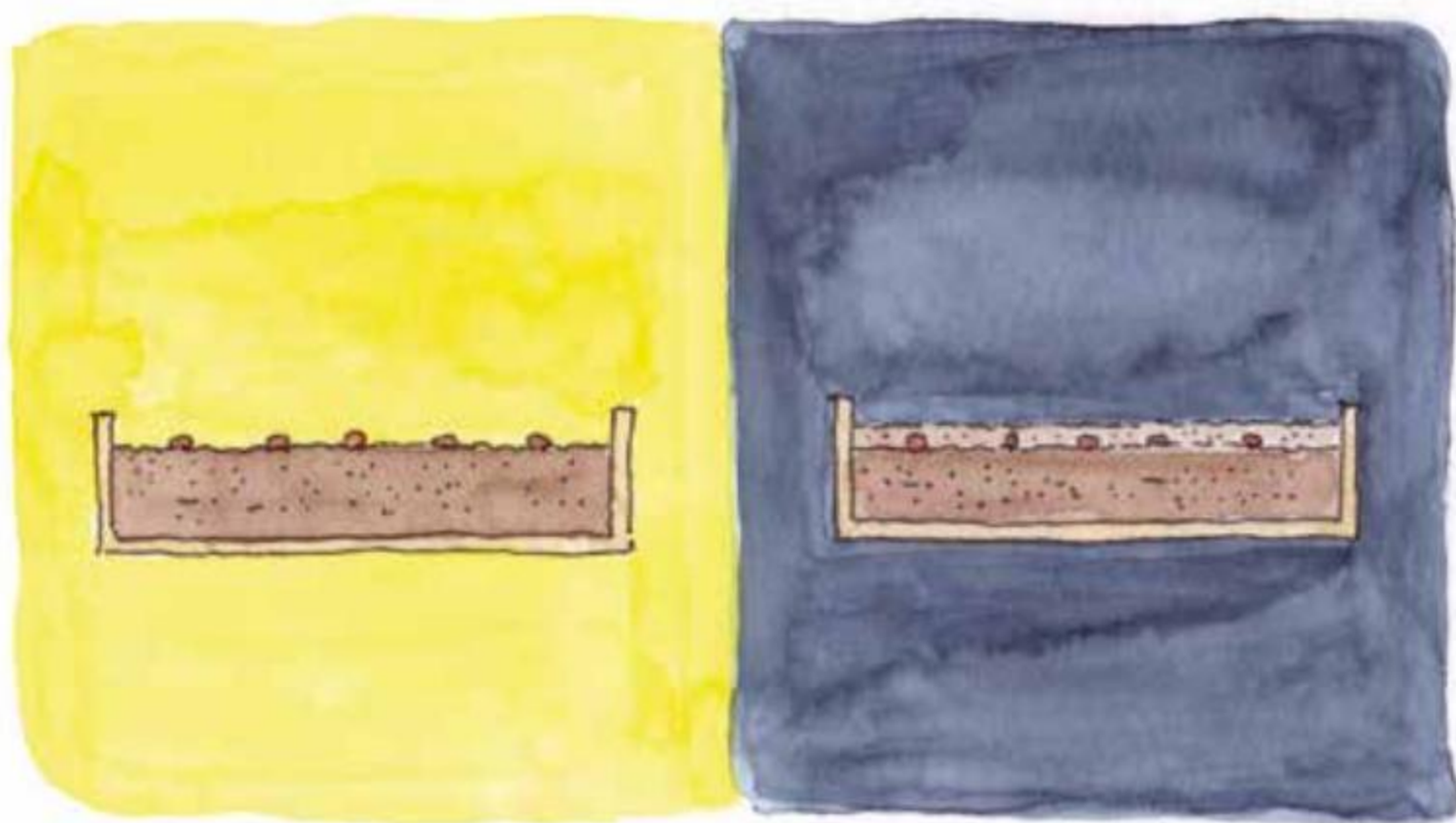
Take the seeds and place them one by one into the line you drew. The correct distance to leave between each seed varies. For example, while smaller plants and herbs such as parsley and chives don't need a lot of space, pumpkins or beans do.



See the table at the end of this chapter for more details.

Light or dark sprouting

There are basically two different types of sprouts: ones that grow best in the dark, and ones that prefer light. The ones that grow best in the dark include green peppers, tomatoes, cabbages, leeks, cucumbers, pumpkins, and flowers such as tulips and lilies. Sprouts that prefer growing in the light include basil, all types of salads, carrots, radishes, celery and peony. You will usually find a set of instructions on the seed packet that give an indication of which growing conditions they prefer.



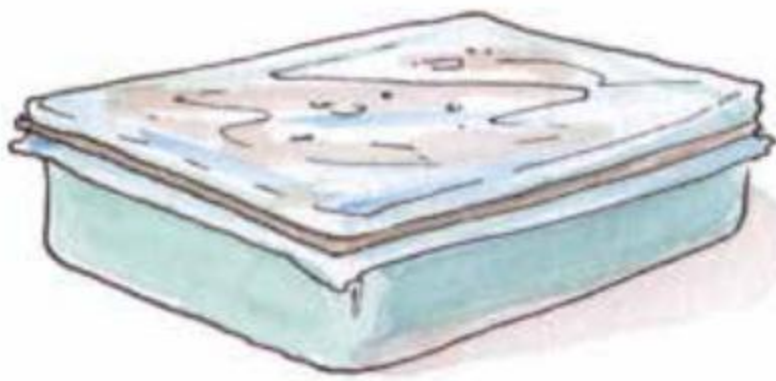
It's important to know that sprouts preferring light are best left uncovered, you just need to sprinkle a bit of lukewarm rainwater on top of them.

For sprouts that prefer the dark, cover them with a thin layer of soil before adding the water.

You will usually find a set of instructions on the seed packet that give an indication of which growing conditions they prefer.

Watering

Adding water to your seeds should be done very gently. You need a small watering can with a soft sprinkler and some rain- or river water. Try to avoid tap water as it often contains chemicals and chlorine, which are poisonous for baby plants.



Only add enough water to make the soil moist, but not wet. After watering, place a thin layer of plastic over the top of the container. This will store moisture and keep the soil warm. These are ideal conditions for sprouting.

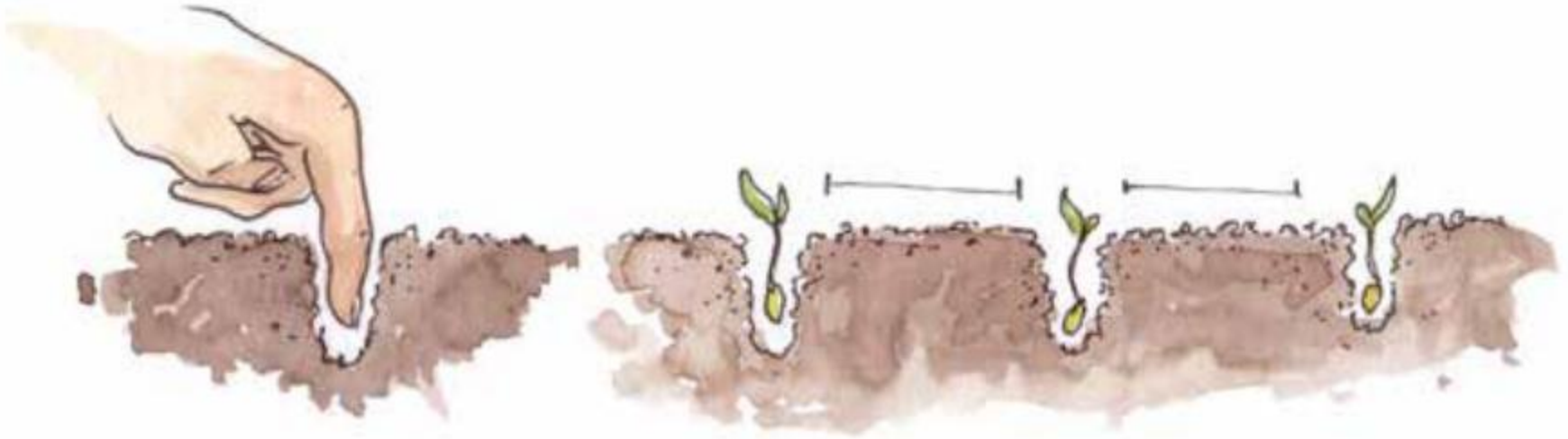
Keep a close eye on your container and check it daily. When the first small sprouts appear, remove the plastic. It takes a lot of strength for young seedlings to push through the soil. Gentle rinsing with water helps to remove soil from their delicate first leaves. Make sure your containers are in a light spot that doesn't have too much direct sunlight.

Selection of seedlings

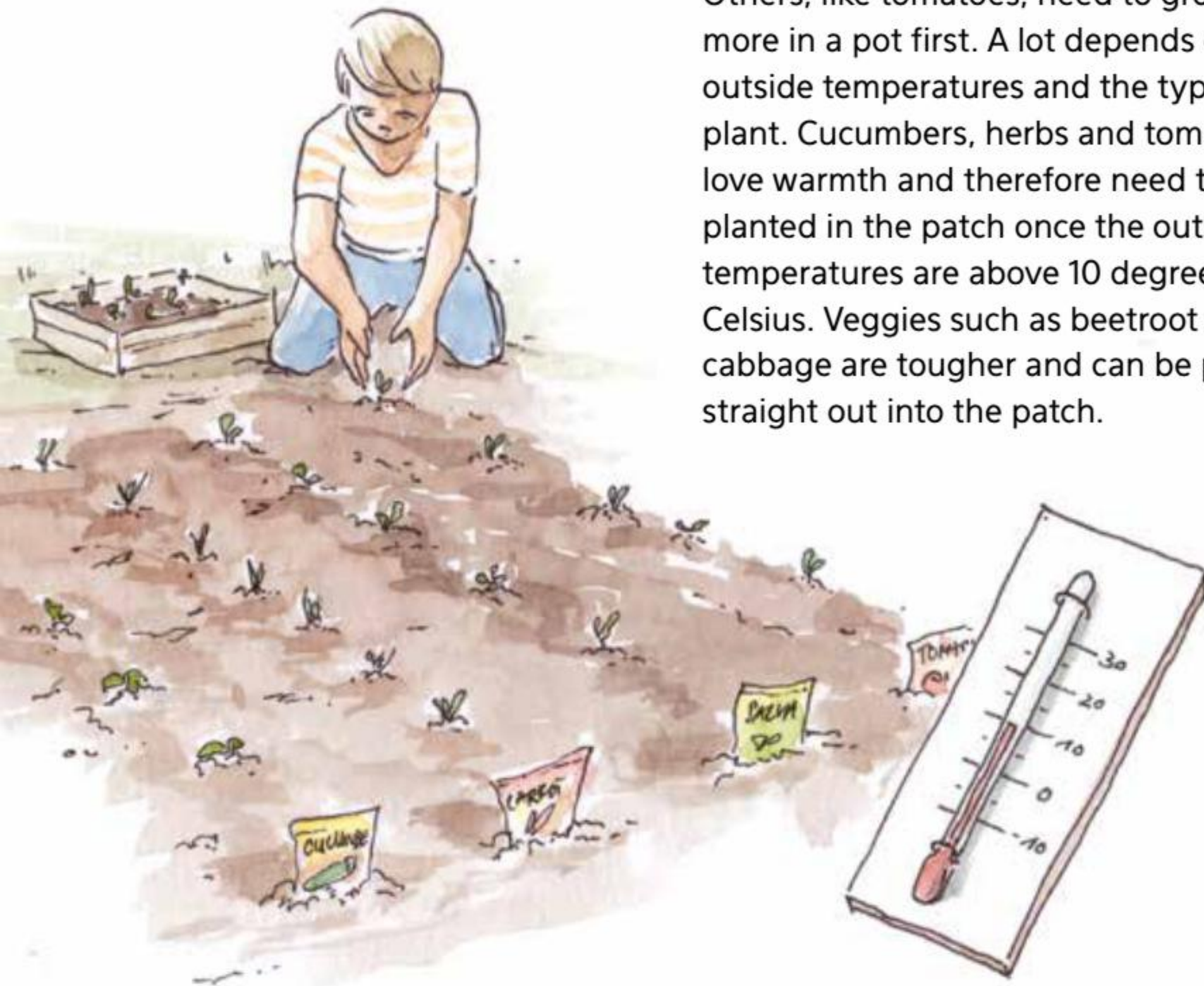
After one or two weeks the seedlings are ready to be selected and planted in bigger pots before moving them into your garden patch. Only use the biggest and strongest seedlings, the rest can be added to your compost heap.



Put two or three seedlings together in one container and make sure they have enough space to grow. Push your finger a few centimeters into the soil to form a hole, then put the seedling in it. Place the seedlings in the same size space they had when they were sprouting.



Some veggies, such as carrots, can be planted straight into the veggie patch. Others, like tomatoes, need to grow a bit more in a pot first. A lot depends on the outside temperatures and the type of plant. Cucumbers, herbs and tomatoes love warmth and therefore need to be planted in the patch once the outside temperatures are above 10 degrees Celsius. Veggies such as beetroot and cabbage are tougher and can be put straight out into the patch.



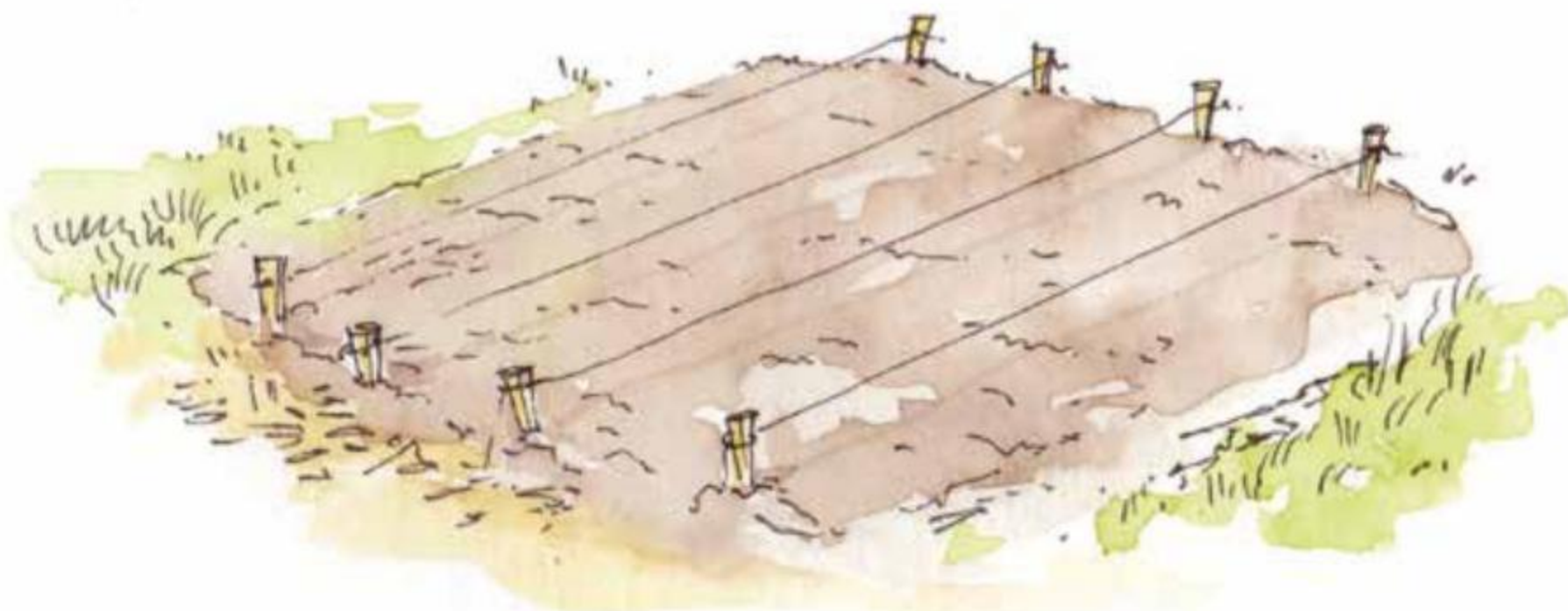
Preparing the patch





Start to clean the patch with a fork and hoe and make sure to remove all the weeds. The deeper roots of the weeds must be removed carefully. If you don't do this the weeds will grow again. Make the entire soil area loose and smooth without any chunks. If you can easily dig your hand into the soil up to the wrist then it is ready for planting. You should begin by sprinkling a thin layer of compost on top.









Rows

Take a large broomstick and make long rows in the patch. Make sure the rows are straight, later on this will help you to differentiate between weeds and plants. If the patch is very large you can use some sticks and stretch a string between them to mark out your rows. Leave some distance between the rows as this will ensure your plants have enough space to develop properly. The table shows the various growing requirements for most common veggies.



Plant	Plant seedlings, or straight to the patch?	Sprouting period -days	Distance between plants / rows	Timeline	Blossoming	Lifespan
Artichoke	seedlings	8-12	39 x 39 inches	February to April sowing; mid May to mid June seedlings	July-September 	annual and biennial
Eggplant	seedlings	6-8	19 x 19 inches	March to April sowing; May to June seedlings	July-August	annual
Cauliflower	seedlings	4-6	19 x 23 inches	February to July sowing; May to June seedlings	July-September 	biennial
Beans	patch	8-14	40 x 15 inches	April to June	June-September	annual
Broccoli	seedlings 	4-6	19 x 15 inches	April to June sowing; April to July seedlings	June-October	annual and biennial
Chinese cabbage	seedlings	4-6	12 x 12 inches	June sowing; July to August seedlings	July-September	annual and biennial
Peas	patch	8-12	15 x 3 inches	March and April	May, June	annual
Lamb's lettuce	patch	5-25	6 x 8 inches	August and September	April, May	annual and biennial
Fennel	seedlings	12-16	19 x 8 inches	May to August	July-October 	annual
Kale	patch	4-5	16 x 18 inches	April to June	August, September	annual and biennial

Plant	Plant seedlings, or straight to the patch?	Sprouting period -days	Distance between plants / rows	Timeline	Blossoming	Lifespan
Cucumber	patch	4-8	16 x 24 inches	April to June	July, August 	annual
Potato	bulb	-	24 x 12 inches	April to May; harvest Sept	June	annual
Kohlrabi 	patch	8-10	14 x 16 inches	March to June	June, July	biennial
Garlic	bulb	-	10 x 5 inches	March to September	June to August	annual
Cress	patch	2	wide sewing	Whole year indoors	June, July	annual
Leeks	patch	14-16	8 x 10 inches	April to July	June, July	biennial
Swiss chard	patch	8-10	10 x 6 inches	March to June and September to Spring	June-September	biennial
Carrots 	patch	21-28	10 x 2 inches	March to May	June, July	biennial
Green peppers	seedlings	8-12	20 x 16 inches	January to April sowing; May and June seedlings	June, August	annual
Turnips	patch	21-28	12 x 4 inches	March to May	August	biennial
Radishes	patch	8-14	5 x 2 inches	March to August	June-August	Annual

Plant	Plant seedlings, or straight to the patch?	Sprou-ting period -days	Distance between plants / rows	Timeline	Blossoming	Lifespan
Rhubarb	patch	-	30 x 30 inches	March to April	May 	perennial
Horseradish	patch	14-21	10 x 4 inches	March to August	August	biennial
Red cab- bage	seedlings	5-6	20 x 24 inches	March to May sowing; May and June seedlings	August	biennial
Beetroot	patch	10-15	12 x 4 inches	March to May	June-October	annual
Lettuce	seedlings	6-10	12 x 12 inches	January to March sowing; April to July seedlings	June-September	annual
Black salsify	patch	15-20	10 x 2 inches	March to April	August	biennial
Celery	patch	12-15	15 x 20 inches	March to June	August- November	annual
Spinach	patch	8-14	8 x 10 inches	March to April and September to October	May, June, October- November	annual
Tomato	seedlings 	6-8	24 x 20 inches	April sowing; May and June seedlings	July-October	annual
Zucchini	seedlings	5-8	24 x 30 inches	April and May sowing, June and July seedlings	August, Sep-tember	biennial
Onions 	patch	14-21	10 x 4 inches	March and April	June to October	biennial

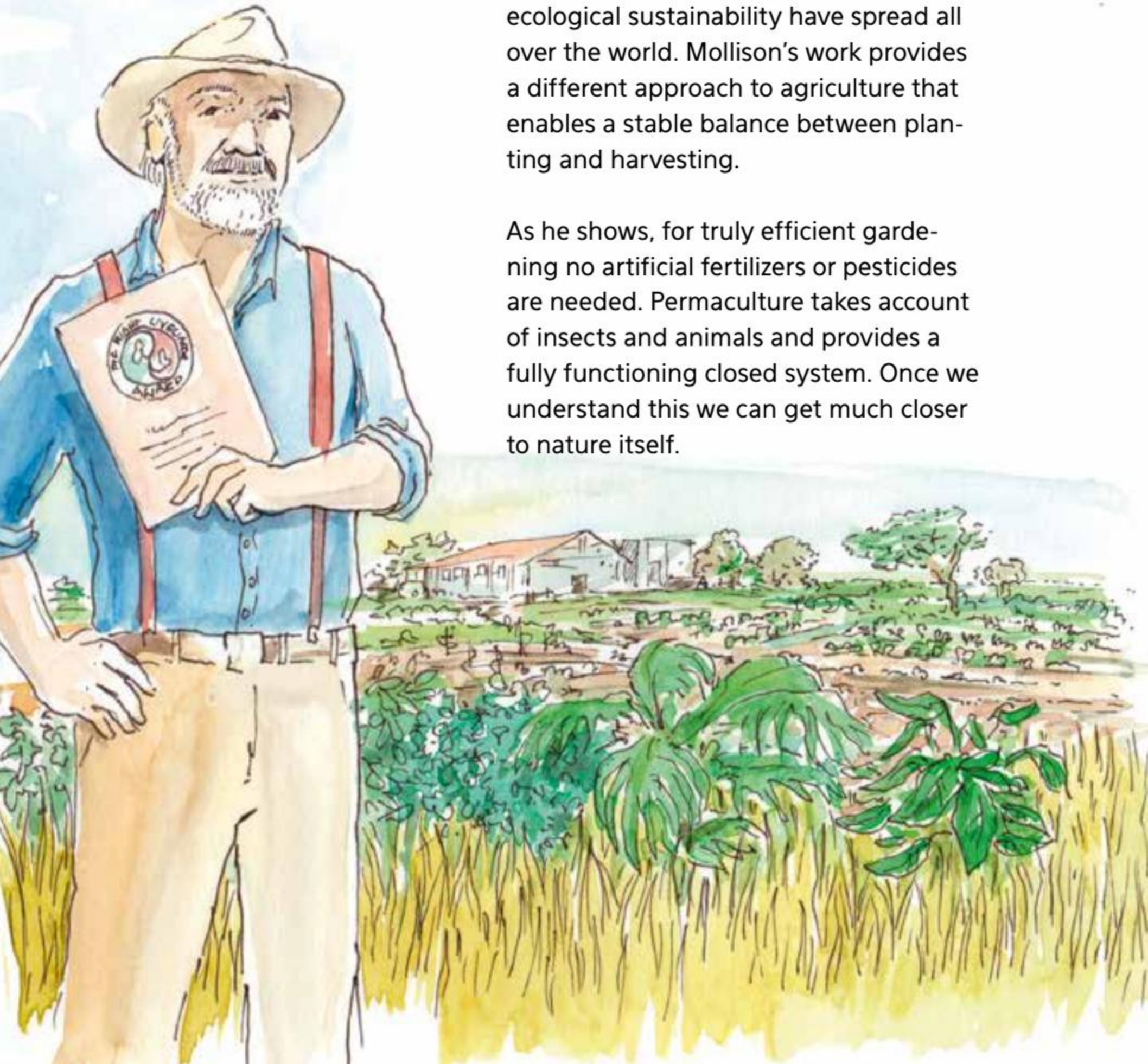
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Efficient gardening: How to plant what, and where

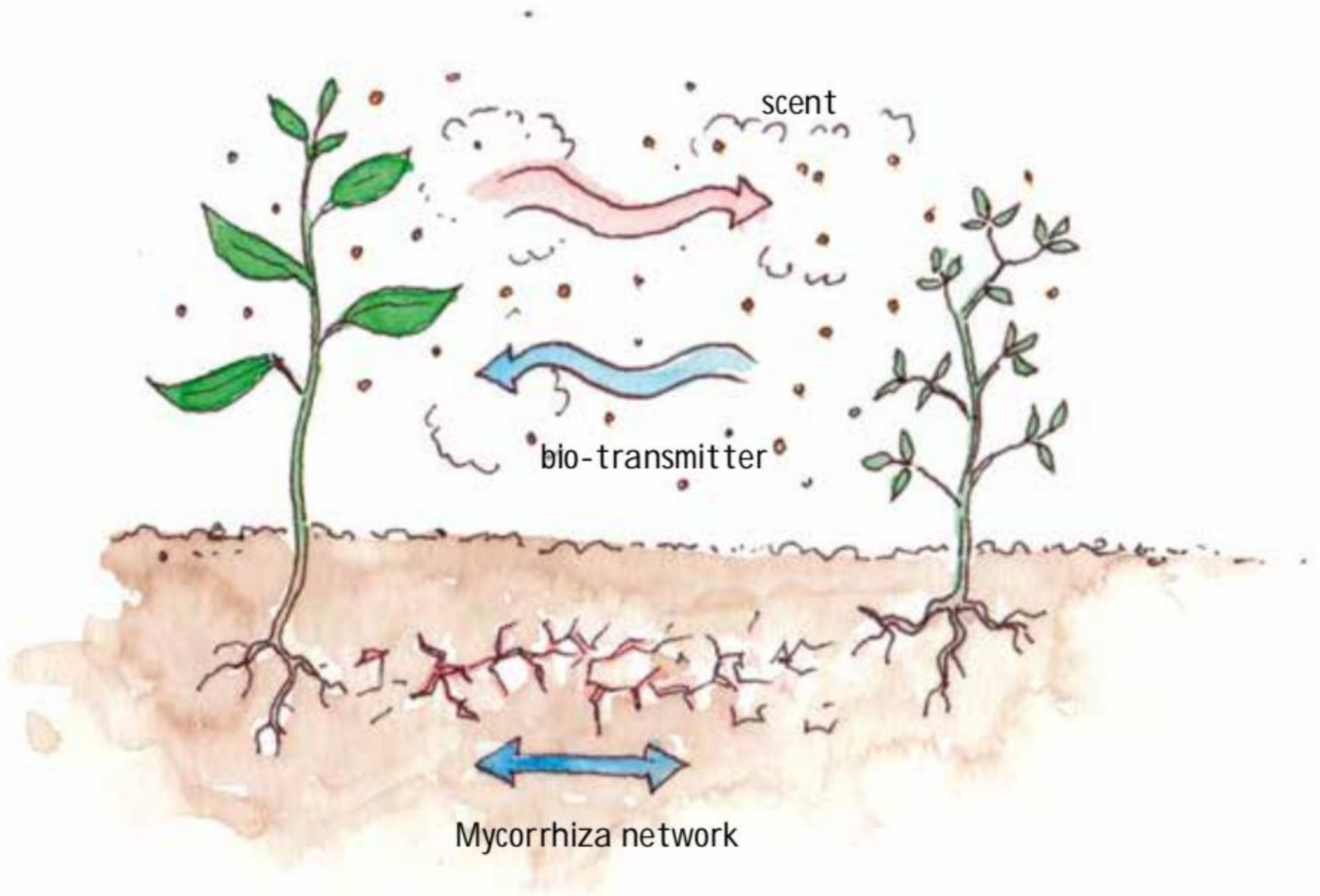
In 1981, following his developing a ground-breaking model of permanent agriculture (“permaculture”), the Australian Bill Mollison won the prestigious Right Livelihood Award (also known as the Alternative Nobel Prize).

Today, his revolutionary ideas about fully ecological sustainability have spread all over the world. Mollison’s work provides a different approach to agriculture that enables a stable balance between planting and harvesting.

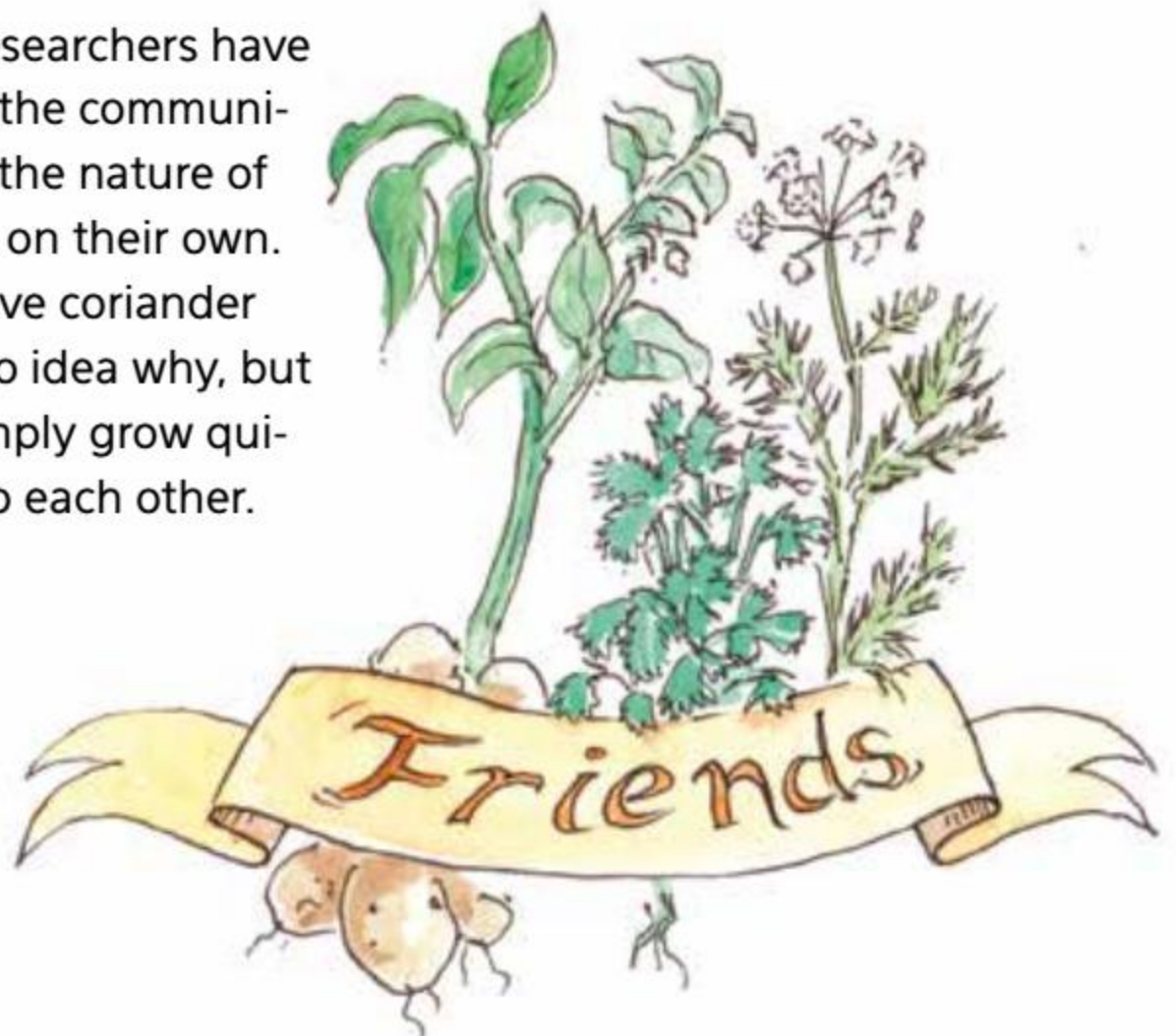
As he shows, for truly efficient gardening no artificial fertilizers or pesticides are needed. Permaculture takes account of insects and animals and provides a fully functioning closed system. Once we understand this we can get much closer to nature itself.



It is important to understand how different plants influence each other. Plants are living beings and communicate via scents and biological transmitters on a level that our senses cannot reach.



Even top international researchers have not yet fully deciphered the communications between plants, the nature of which are a whole world on their own. For example, potatoes love coriander and caraway. We have no idea why, but it works; these plants simply grow quicker when placed next to each other.



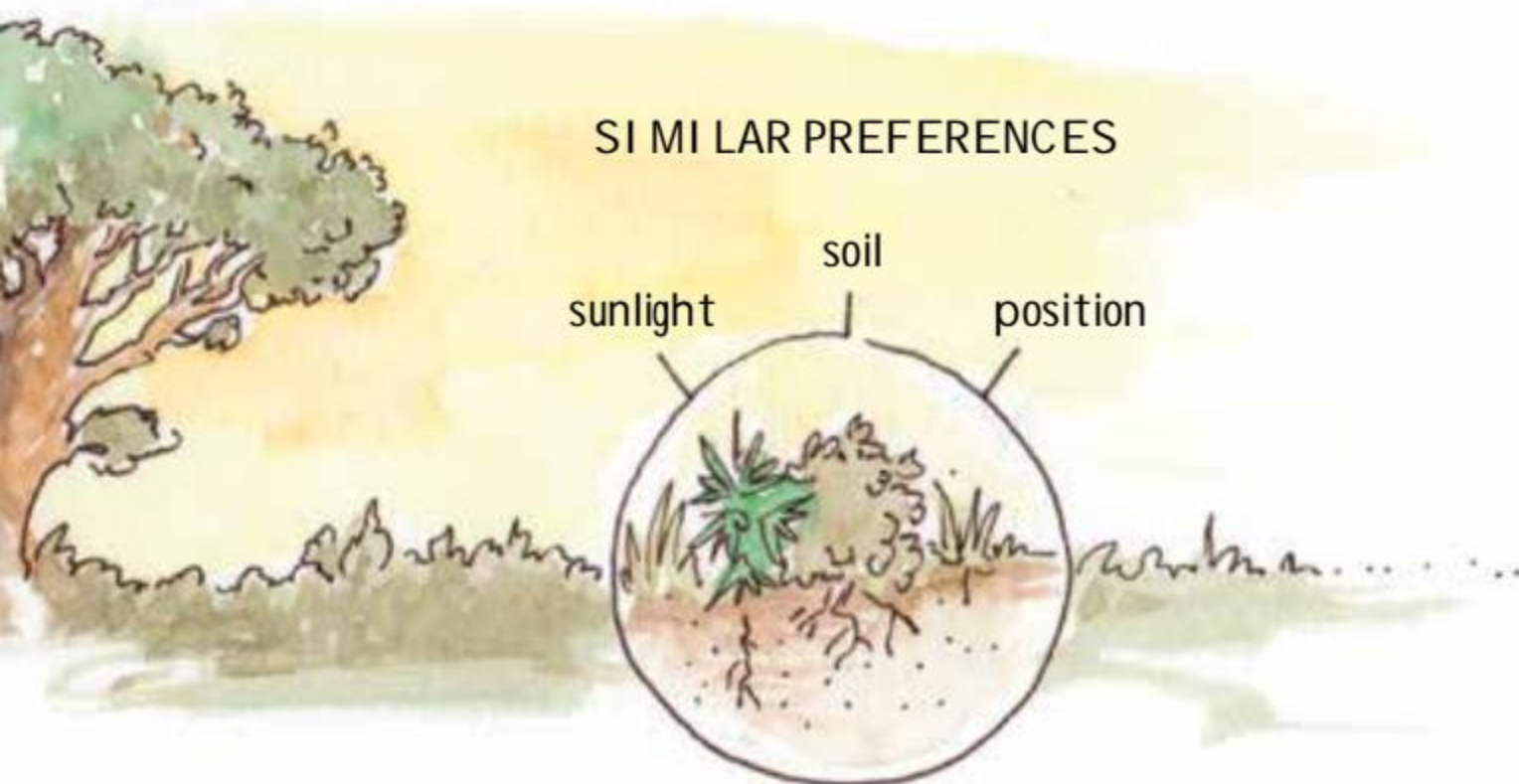
For us as gardeners it is important to realize that nature consists of much more than our minds can grasp. Nevertheless, there is a way to observe, study and learn from it. Experience helps a lot and successful gardeners spend almost every day close to their plants.



In doing so, they gain knowledge about nature that is deeper than anything one can learn from a book. They won't be able to tell you why garlic dislikes cabbage. But they will be able to tell you exactly how they found out.

Good neighborhoods versus bad neighborhoods

If certain plants are grown close together they jointly benefit from being near each other. Incompatible plants, on the other hand, cannot be grown together. In nature you only find plants growing together that have similar preferences regarding soil, sunlight and position. They release root excretions into the soil and absorb micronutrients. If well combined, they fertilize each other and don't disturb their neighbor's leaves or growth. This knowledge is crucial for establishing a healthy plant community in your garden.














Pest control is another important factor. We need to avoid putting plants together when they are sensitive to the same vermin.

EXAMPLE: white cabbage butterfly caterpillar loves brokkoli, cabbage and cauliflower. Best not to place them next to each other.















Here is a list of good and bad plant neighbors to provide you with a basic guideline when planning your patches.

Plant	Good neighbors	Best not grown with
Beans 	Savory vegetables, strawberry, cucumber, celery, beetroot, lettuce, cabbage, tomato	Peas, fennel, garlic, leeks, onion
Endives 	Fennel, cabbage, leeks	Beans
Peas 	Dill, fennel, cucumber, cabbage, corn, carrots, kohlrabi, lettuce, radishes, zucchini	Beans, potato, garlic, leek, tomato, onions
Strawberry 	Beans, starflower, garlic, lettuce, leeks, radishes, spinach, onions, chives	Cabbages
Fennel	Endives, peas, lamb's lettuce, cucumber, lettuce, sage	Beans, tomato
Cucumber	Beans, dill, peas, fennel, cabbage, lettuce, caraway, leek, corn, beetroot, celery, onions	Radish, tomato
Potato 	Beans, cabbage, kohlrabi, caraway, corn, spinach, coriander	Kale, pumpkin, tomato, celery, sunflower

Plant	Good neighbors	Best not grown with
Garlic	Strawberry, cucumber, raspberry, lilies, carrots, roses, fruit trees, tomatoes, beetroot	Peas, cabbage, beans
Cabbage 	Beans, dill, endives, peas, potato, lettuce, leeks, celery, spinach, tomato	Strawberry, garlic, onions, mustard
Kohlrabi	Beans, peas, potato, lettuce, tomato, radish, beetroot, celery, spinach, leek	(No special preferences)
Lettuce	Beans, dill, peas, strawberry, cucumber, cabbage, leek, carrots, tomato, onions	Parsley, celery
Leek 	Strawberry, carrots, cabbage, lettuce, celery, tomato	Beans, peas, beetroot
Carrots	Caraway, peas, garlic, leek, radishes, tomatoes, onions, chives	
Radish 	Beans, peas, cabbage, lettuce, carrots	Cucumber
Celery 	Spinach, beans, cucumber, cabbage, leek, tomato, kohlrabi	Potato, lettuce, corn 
Tomato 	Beans, garlic, cabbage, kohlrabi	Peas, fennel, potato
Zucchini 	Lettuce, leek, carrots, parsley, radish, beetroot, celery, spinach, beans, onions	
Onions	Savory vegetables, strawberry, lettuce, carrots, beetroot, dill	Peas, beans, cabbage

Supportive plants and their uses

Plant	Supports	Use for
Basil 	Tomato, cucumber, cabbage	Preventing blight
Caraway	Beans	Keeping black bean aphid away
Starflower 	Cucumber, zucchini	Attracting bees
Nettle 	Fruit trees, berry bushes	Killing plant lice
Buckwheat	Celery	Increasing nutritional content of the soil
Dill	Carrots, beetroot, cabbage	Helping carrots sprout
Southernwood	cabbage	Keeping white cabbage butterflies out of the patch
Oat	beans	Keeping black bean aphid away
Indian cress 	Fruit trees	Improving immune systems of plants, keeping lice off
Chervil	lettuce	Keeping lice away
Garlic	Strawberry, roses	Killing bad bacteria and fungi in the soil

Plant	Supports	Use for
Lavender	Roses	Keeping ants away 
Horse radish	Peach, cherry 	Preventing leaf curl
Peppermint	vine	Preventing blight
Radish	leek	Preventing leafmining moth and beet-leafminer in onions
Calendula 	Potato, cabbage	Controlling nematodes
Tarragon	Tomato, cabbage, potato, strawberry	Antiviral, antifungal
Wormwood 	Blackberries, leeks 	Antibacterial
Onions	Strawberries, carrots	Controlling spider mites
Sage	cabbage 	Controlling white cabbage butterfly 
Rosemary 	Cabbage, carrots	Controlling carrot moth and white cabbage butterfly

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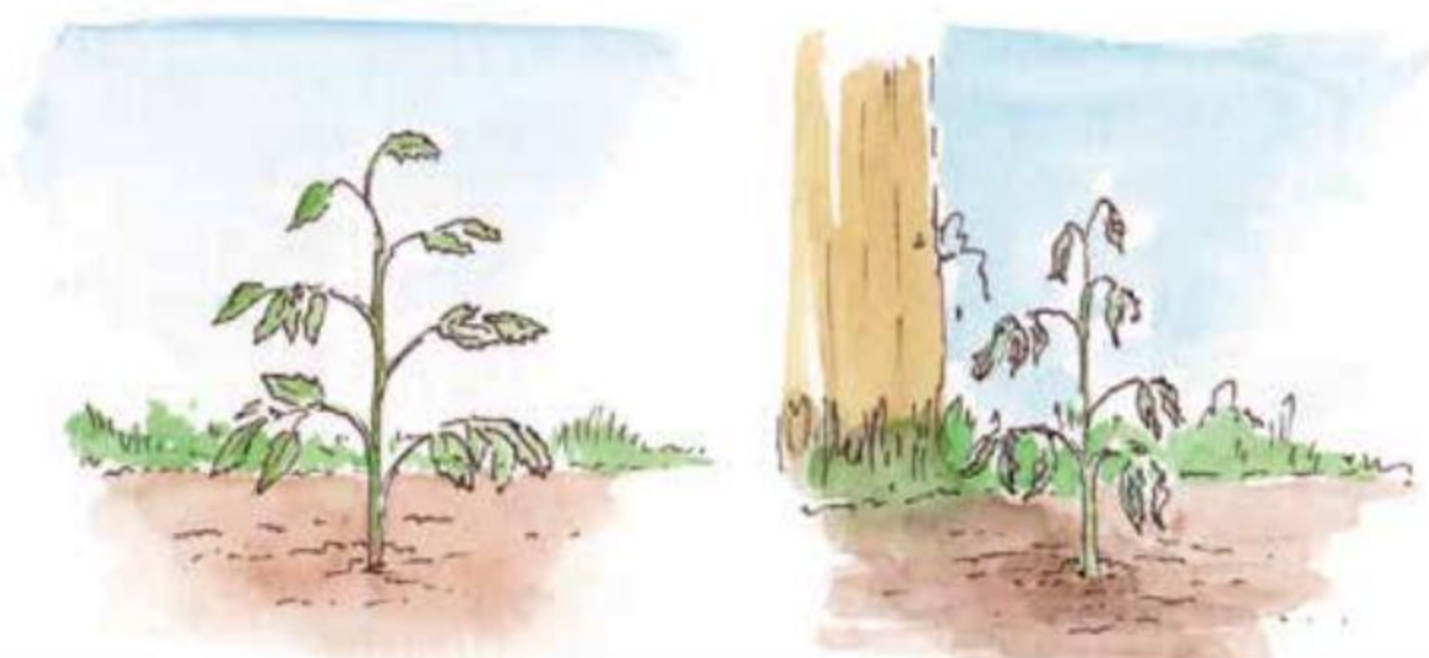
All about healthy plants,
pests and diseases

Nobody wants to share their carefully grown harvest with mice and greenflies! So this chapter is about how we can turn our garden into a little paradise – with as few unwanted little visitors as possible!



The first step is to accept a small number of pests. They belong to nature and are part of the ecosystem. However, we need to deal with them in a clever way and ensure that their numbers never get too large to manage.

Diseases occur mostly in plants that have weak immune systems. Your plants might be planted in the wrong spot, with bad neighbors, or they might be kept too moist or too dry. All of these things weaken plants and make them more prone to diseases. So gaining knowledge about the individual needs of each specific plant is the best way to keep them healthy.



The best approach is to lay out your garden in such a way that it regulates itself. Plants that attract useful little creatures need to be grown close to plants that consider them as pests. So while one plant has the problem, the other can provide the solution. You remember we talked earlier about good and bad neighbors?

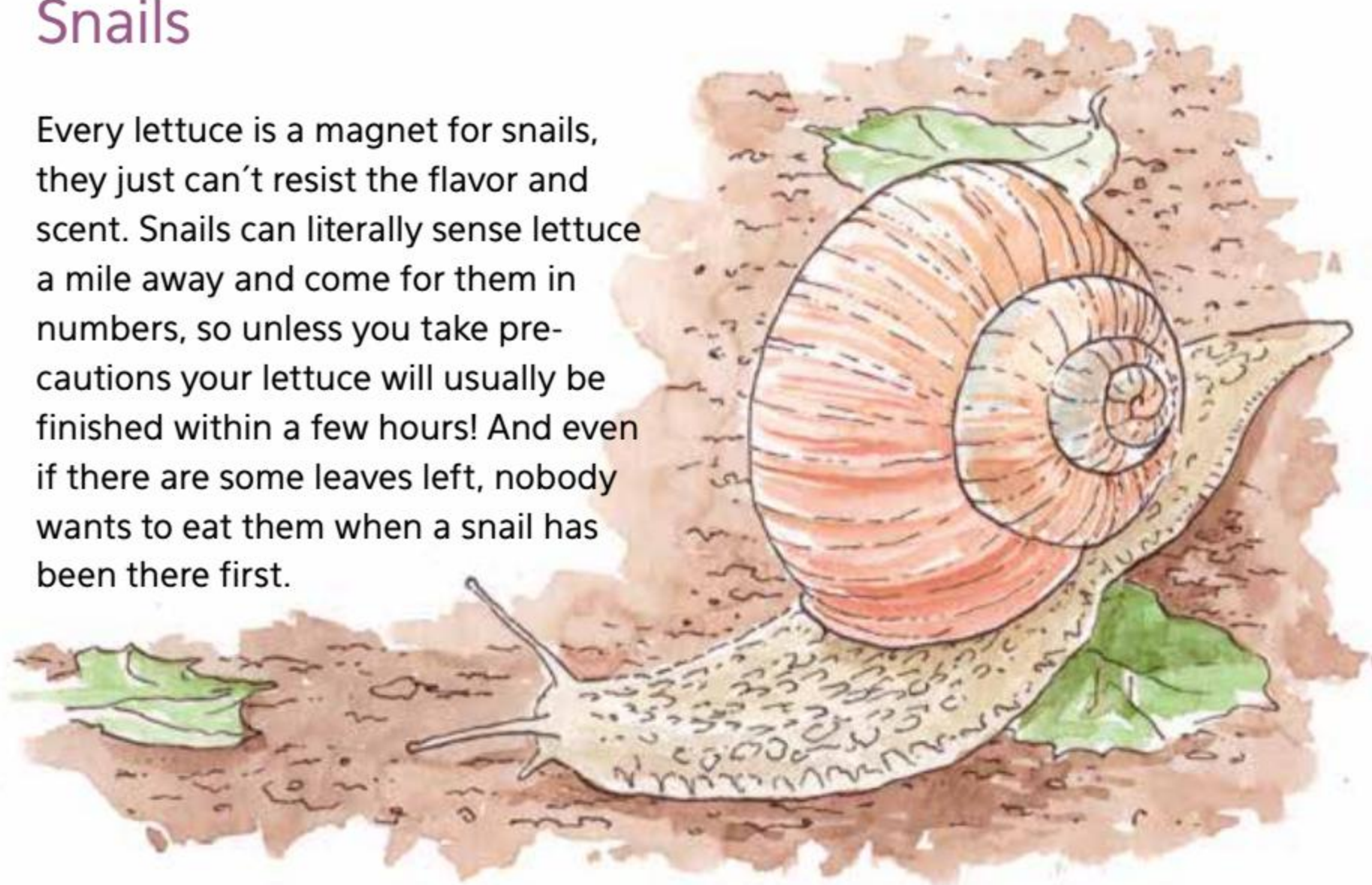


A single ladybug, for example, can eat up to 150 greenflies a day. And white cabbage butterfly, another pest, doesn't like geranium plants.

Having the right insects around can play a major role in keeping your plants healthy. We will leave bees out of our discussion for now, as the next chapter is dedicated to these fascinating little guys. But there are many other very useful creatures that you need to know about.

Snails

Every lettuce is a magnet for snails, they just can't resist the flavor and scent. Snails can literally sense lettuce a mile away and come for them in numbers, so unless you take precautions your lettuce will usually be finished within a few hours! And even if there are some leaves left, nobody wants to eat them when a snail has been there first.



Snails can endanger whole harvests, especially when there is a lot of moisture around and winters are mild. Ducks are the best thing for stopping snails. They will hunt for snails the entire day and not a single one will escape their beaks. Another advantage of having ducks around is that they will fertilize the soil with their droppings. This means they can be very useful little co-workers in your garden patch. However, if you only have a roof garden or live in a big city, ducks might not be the right answer for you. But don't worry, there are plenty of other possibilities!



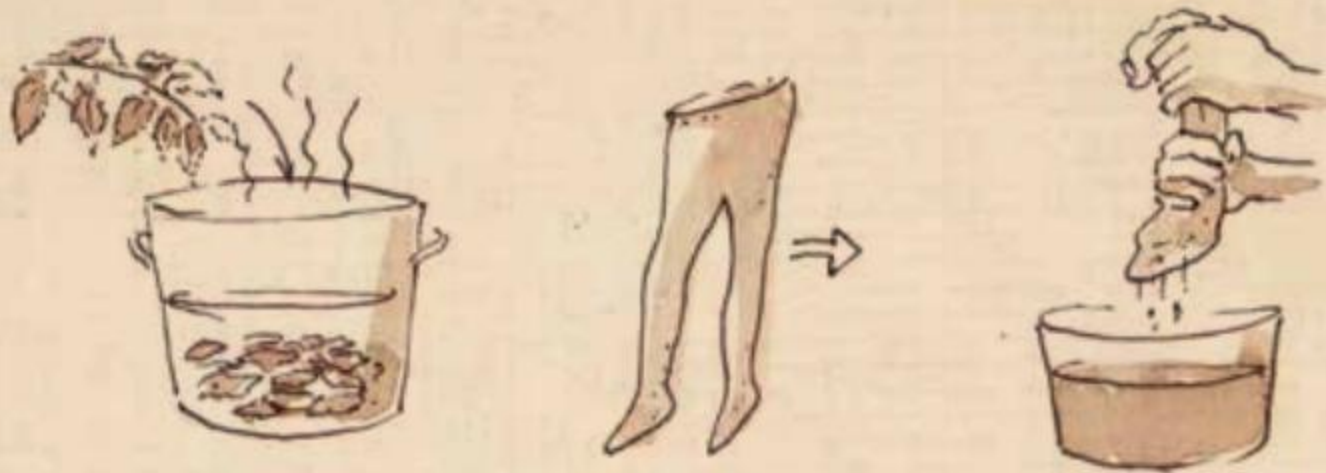
Nettles

Nettles are good for attracting several useful creatures to your garden. For example, they supply food for butterflies and their caterpillars – who then leave your veggies alone as they prefer to snack on nettle instead.

Additionally, nettles provide the base for an effective snail remedy known as nettle water.



How to make nettle water



It's easy to make: Just put a handful of nettles in a bucket of hot water and let them soak overnight. The next morning filter the mixture; an old pair of nylon tights is ideal for this task.

Water your lettuce with nettle water for 3 days. Not only will the snails disappear, the water will strengthen the roots and immune system of the lettuce.

Sawdust

Take a bucket of sawdust and use it to mark out the edges of your entire patch with a 10-inch wide border. Any snails shouldn't be able to cross this.



Ultimately, in order to get rid of snails, you have to figure out what works best for you. But at least you now have some options. However, there are still some other pests and diseases that might challenge you.

For example, mole crickets can grow up to 2 and a half inches long. These live in the soil and look a bit like miniature brown aliens. They live in tunnel systems and are fond of the taste of fresh young greenery. They love to dig and are a major threat to young plants and seedlings. So what do we do? Let's build a trap!



How to build a mole cricket trap

You will need: an old grave vase and a flowerpot whose diameter is about 1 and a half inches bigger than the grave vase. You will also need some half rotten cow manure for the bait.

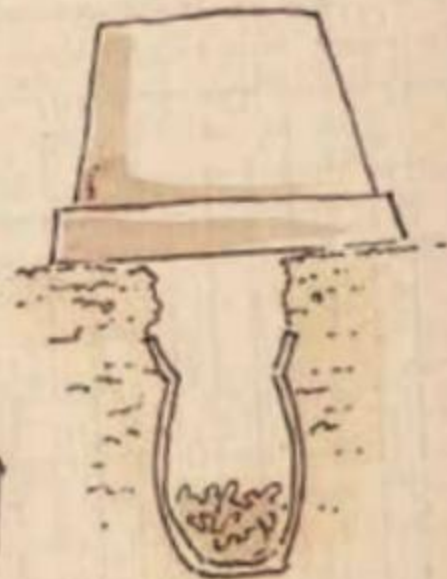
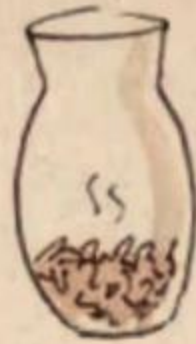
The mole cricket lives about 2 inches down in the soil, so the vase needs to be dug in a bit deeper than this. It's best if you take a spade to prepare the hole and then put the vase in there.

While filling the space around the vase with soil, make sure your hand covers the opening so that no soil can get into the vase. Then fill the bottom of the vase with manure.

Put the larger diameter flowerpot on top so that no rainwater can dilute the manure and soften its smell, because this is what will attract any crickets who are within 100 meters of your patch. And yes, you guessed right, crickets must have very sensitive noses!

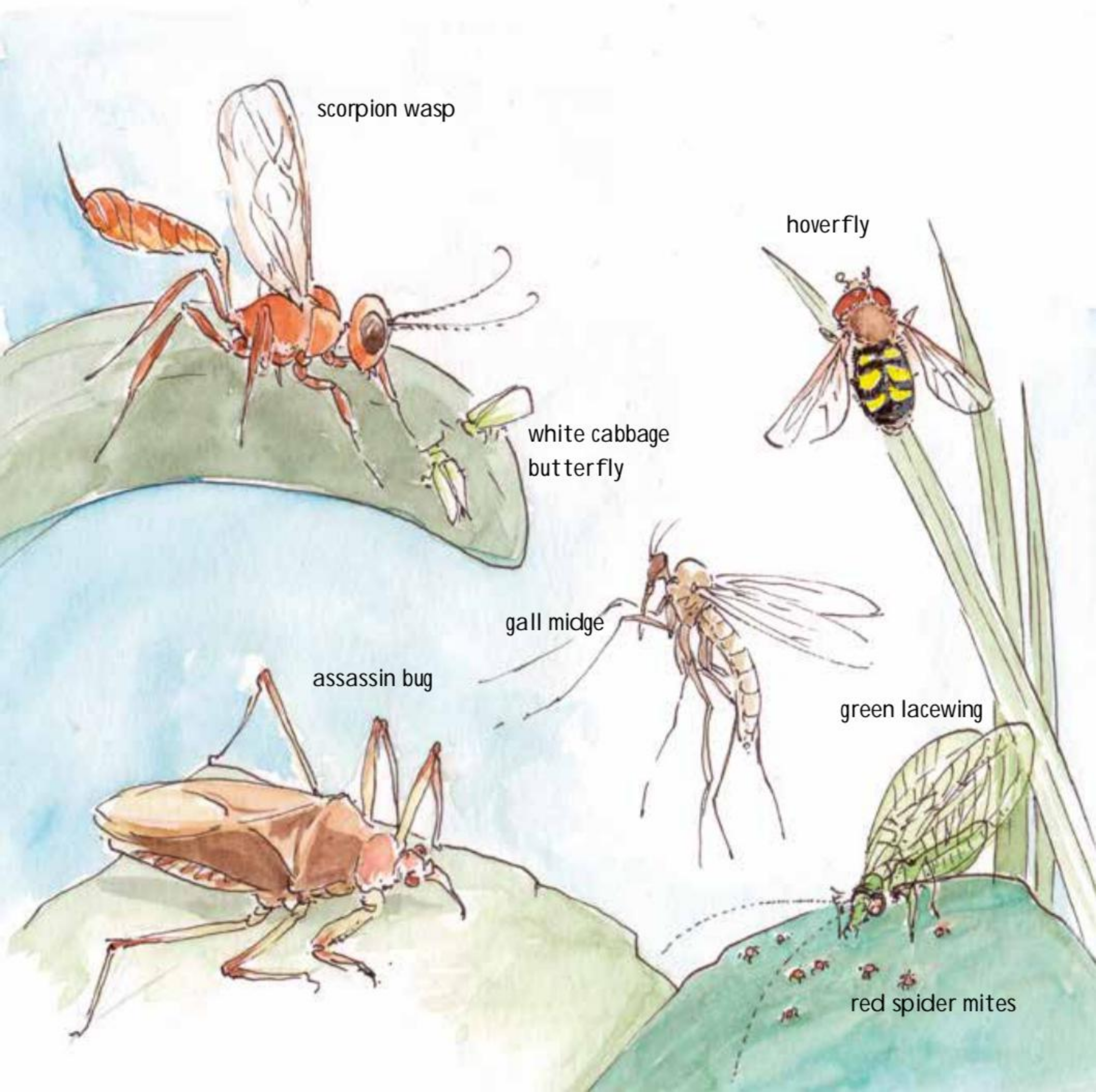
Leave your vase alone for a week.

When next look inside you will find a lot of mole crickets in it. They will survive in there because they've had lots of their favorite food. If you decide to free them, look for some far, far, far away spot.



The right insects

Attracting the right insects, such as hoverflies, gall midges, green lacewings, assassin bugs, predator mites and scorpion wasps, will help you keep pests under control. White cabbage butterflies, for example, get eaten by scorpion wasps. Green lacewings, meanwhile, hunt red spider mites (a species that attacks fruit trees). To attract these insects it is important to plant flowers in between and around your patches.



Flowers

Beautiful flower seeds are available all the year round. Examples include geranium, gladiola, aster, forget-me-not, amaranth, hollyhocks and daisies in all colors. These are usually very easy to grow, just sow them between your veggie patches and keep the soil moist. Some flowers, such as tulips and gladiolas, have bulbs and last for more than one year.



A hideout for animals

It's best if you let some nettles grow next to your compost heap. And keep your nettle patch during winter, don't clean it! Small larvae and useful creatures will hide in there and will be protected against the cold, so they survive to the next spring.

Additionally, a large wood heap will offer insects and lizards (both of whom love to eat snails!) a shelter for winter. Small fitches and polecats get attracted by protected areas and will hunt the bulb-eating voles. Plant protection is animal protection. It all works hand in hand.



Here is a summary of common pests and plant diseases – and what you can do about them!

Pests

Colorado beetle

Appearance: Yellow-red with patches of black, around 1 cm in length.

Attracted by: Tomato, eggplant, potato.

Likely damage: Quick consumption of the entire plant.

Cure: Difficult. These critters are quite tough! Your best approach is to regularly collect beetles and eggs.



Flea beetle

Appearance: Very lively black beetles, around 0.4 mm in length.

Attracted by: Radishes, cabbage.

Likely damage: Big round holes in leaves, kills young plants.

Cure: Keep the soil loose and moist, and plant with other water-loving plants as this beetle prefers things to be dry.



White cabbage butterfly

Appearance: White fly with long wings, around 2 mm in length.

Attracted by: Kale, green peppers, cucumbers, tomato and basil.

Likely damage: Juice deprivation and poisonous excrements make leaves turn yellow.

Cure: Plant flower patches to attract insects such as scorpion wasps.





Leek moth

Appearance: Larvae is yellow-green with black spots and brown head. Fully grown they reach around 12 mm in length.

Attracted by: Onions, leek, chives, garlic.

Likely damage: Burrows into leaves, resulting in withering of the entire plant.

Cure: Plant flowers to attract Ichneumon wasps

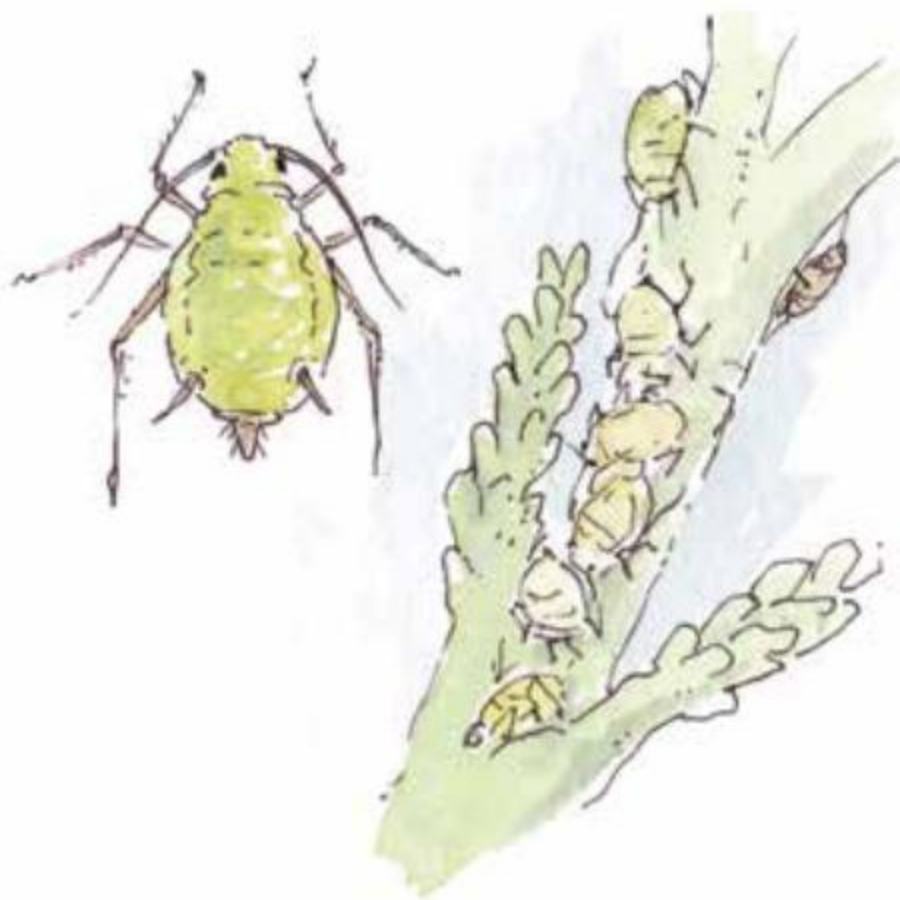
Plant lice

Appearance: There are around 800 different species, mostly green, some with wings. They reach about 7 mm in length.

Attracted by: Lavender, savory, nasturtium.

Likely damage: They suck out the leaves of the plants, resulting in them dying.

Cure: Plant flowers to attract ladybugs and greenflies.



Leaf mining moth

Appearance: Small brown black larvae and caterpillars.

Attracted by: Apple and cherry trees.

Likely damage: Damage to leaves.

Cure: You need to attract tachinids, scorpion wasps and bats. Flowers will provide a home for the tachinids and scorpion wasps, while bats love old rotten fruit or oak trees.



Diseases

Peach leaf curl

Appearance: Yellow curly leaves.

Occurs on: Peach, plum.

Likely damage: Entire leaves are destroyed.

Cure: Remove all leaves – and DON'T put them into your compost heap!



Blight

Appearance: White fungus on top of the leaves.

Occurs on: Carrots, cucumber, apple, gooseberries, roses.

Likely damage: Nutrition is removed from the leaf.

Cure: Remove all afflicted leaves, apply nettle water to strengthen the plant's immune system.

Pea rust

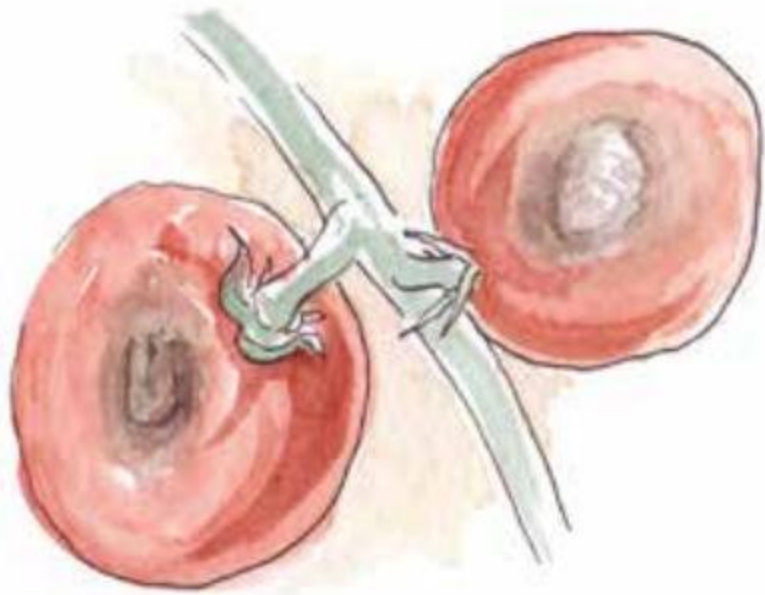
Appearance: Small brown pustules.

Occurs on: Radishes.

Likely damage: Leaves turn brown and die.

Cure: Remove all leaves – and DON'T put them into your compost heap!





Brown rot

Appearance: Grey brown patches on leaves and fruit.

Occurs on: Tomatoes.

Likely damage: The entire plant can die.

Cure: Remove all affected leaves and keep the remaining leaves dry. Only apply water to the soil surrounding the plant, don't touch the plant itself.

Septoria

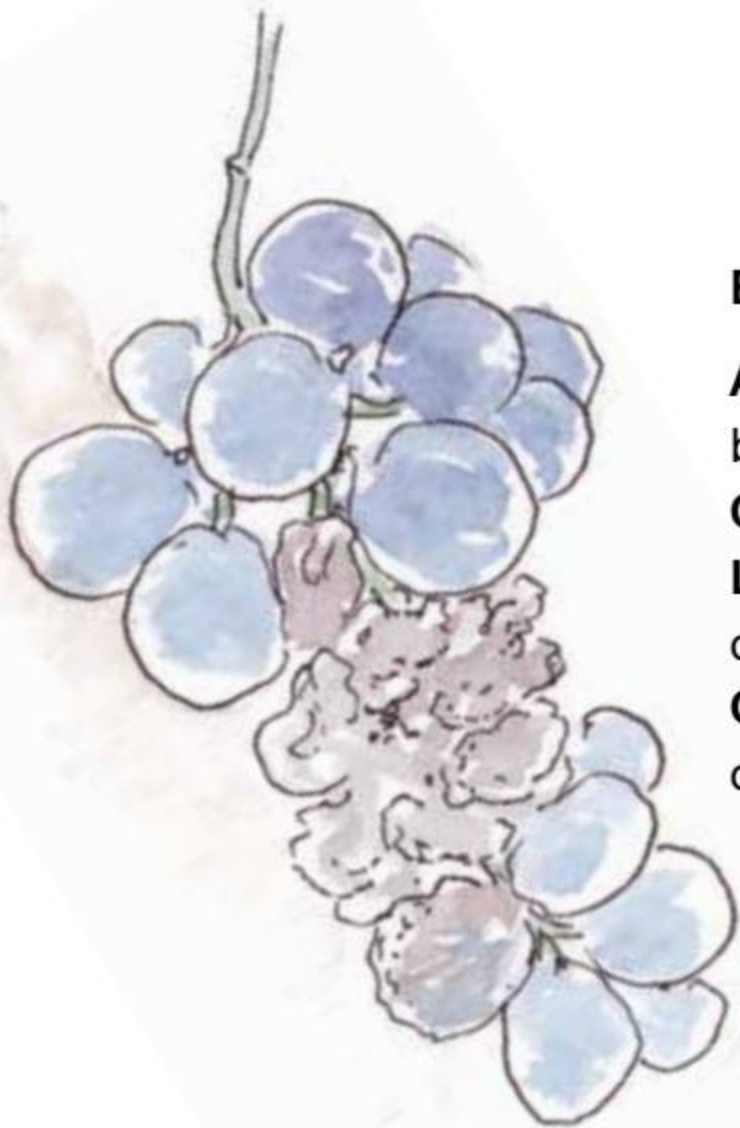
Appearance: Fungus, which sucks out the juice from the plant.

Occurs on: Celery, kale, spinach.

Likely damage: Necrosis of entire leaves.

Cure: Remove all leaves and burn them.

Septoria is highly infectious!



Botrytis bunch rot

Appearance: Grey fungus on top and bottom of leaves.

Occurs on: Strawberry and grapes.

Likely damage: Leaves and fruit are destroyed.

Cure: Keep plants dry, plant strawberries on straw.

Mycosis

Appearance: Wart-like patches on leaves and fruit, bacterial infection.

Occurs on: Apples, potatoes, carrots, radish.

Likely damage: Fruits don't mature. If the root is infected this results in the death of the entire plant.

Cure: Remove infected plants, increase the pH level of your soil with horn meal (you can get this from farmers or fellow gardeners, just ask around).



Lettuce downy mildew

Appearance: Grey white fungus on the bottom of the leaves.

Occurs on: Lettuce, radish, spinach, cabbage.

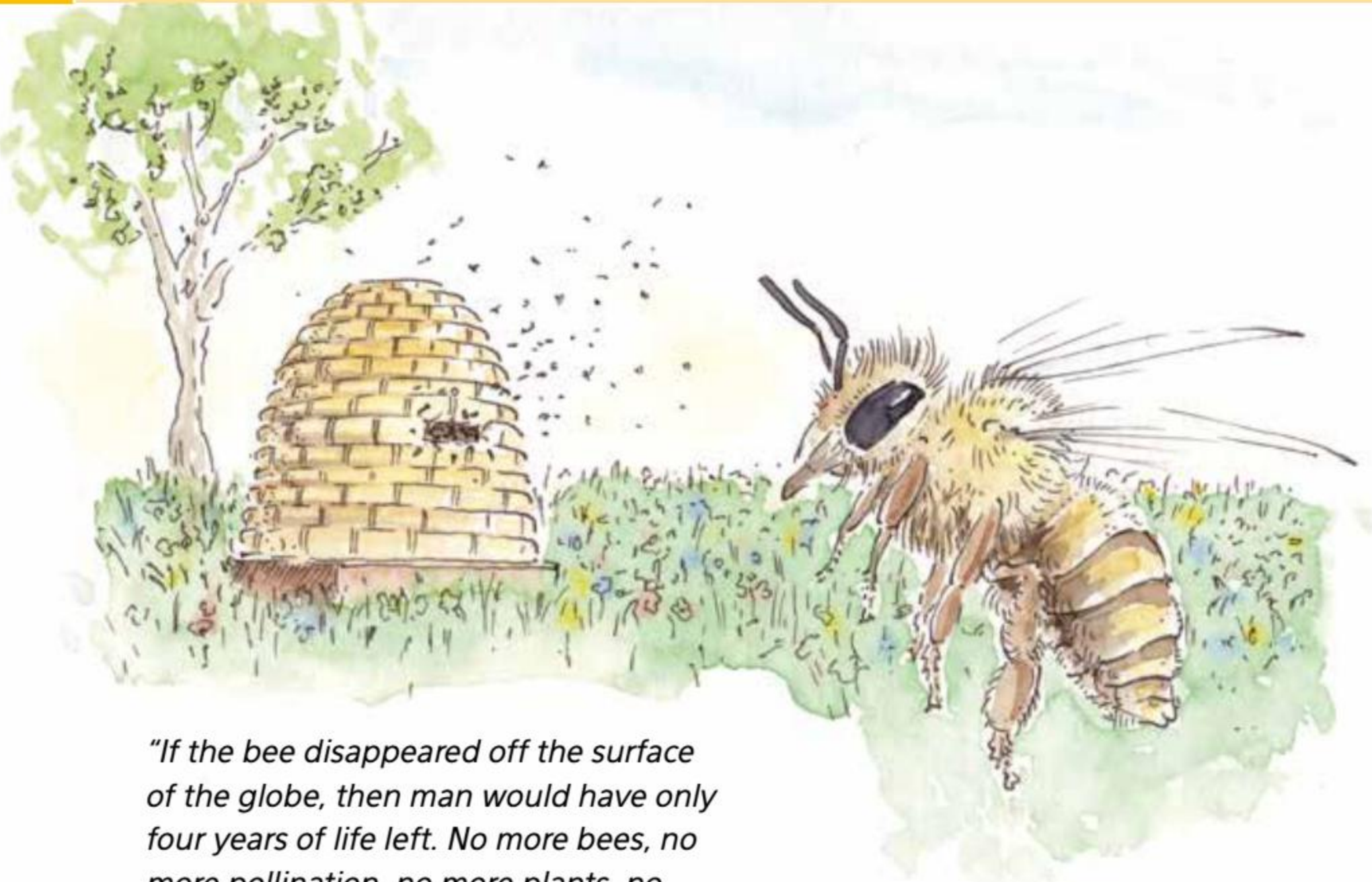
Likely damage: Nutrition level of plant suffers, leaves rot.

Cure: Remove all leaves – and DON'T put them into your compost heap!



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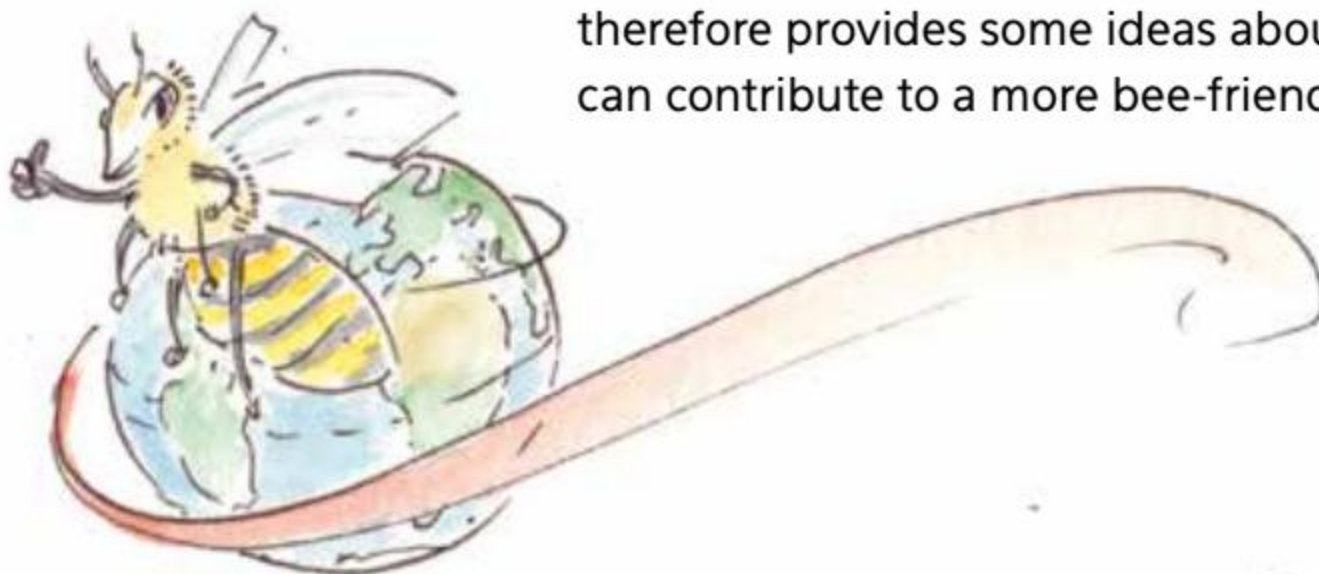
All about bees



"If the bee disappeared off the surface of the globe, then man would have only four years of life left. No more bees, no more pollination, no more plants, no more animals, no more man."

Albert Einstein

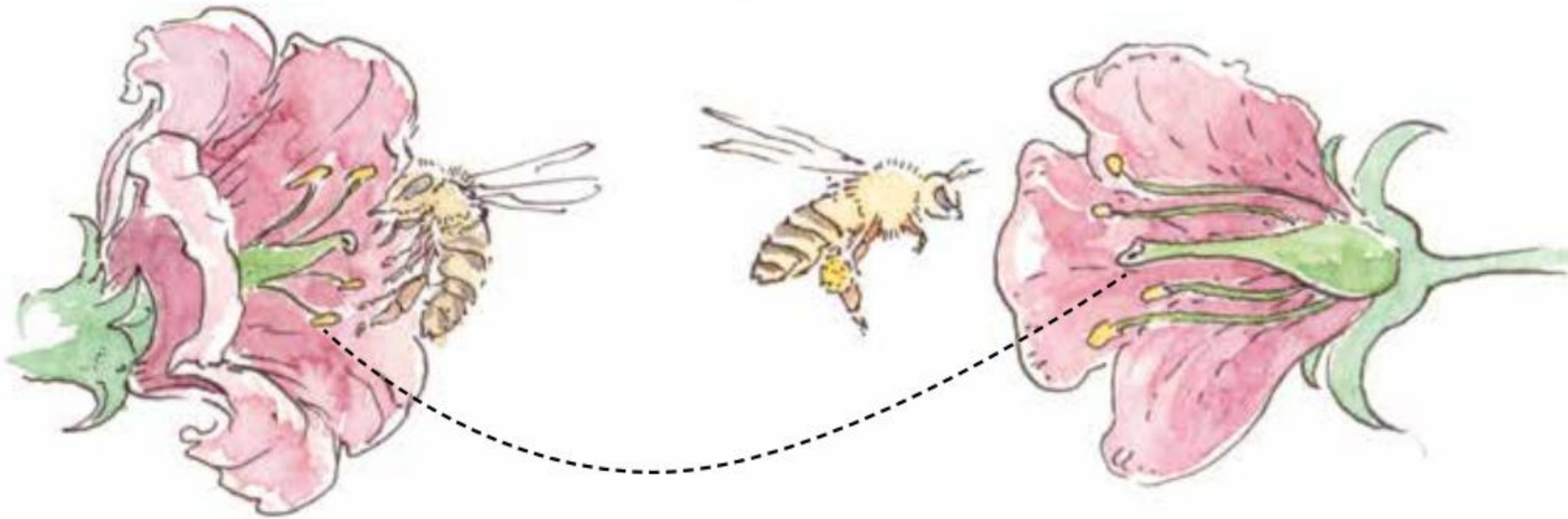
Reading the above quote makes us realize just how important bees are. The following chapter therefore provides some ideas about how we can contribute to a more bee-friendly world.



Bees feed on the pollen and nectar produced by flowers. Female bees gather pollen to feed their offspring by storing it in pollen baskets on their legs.

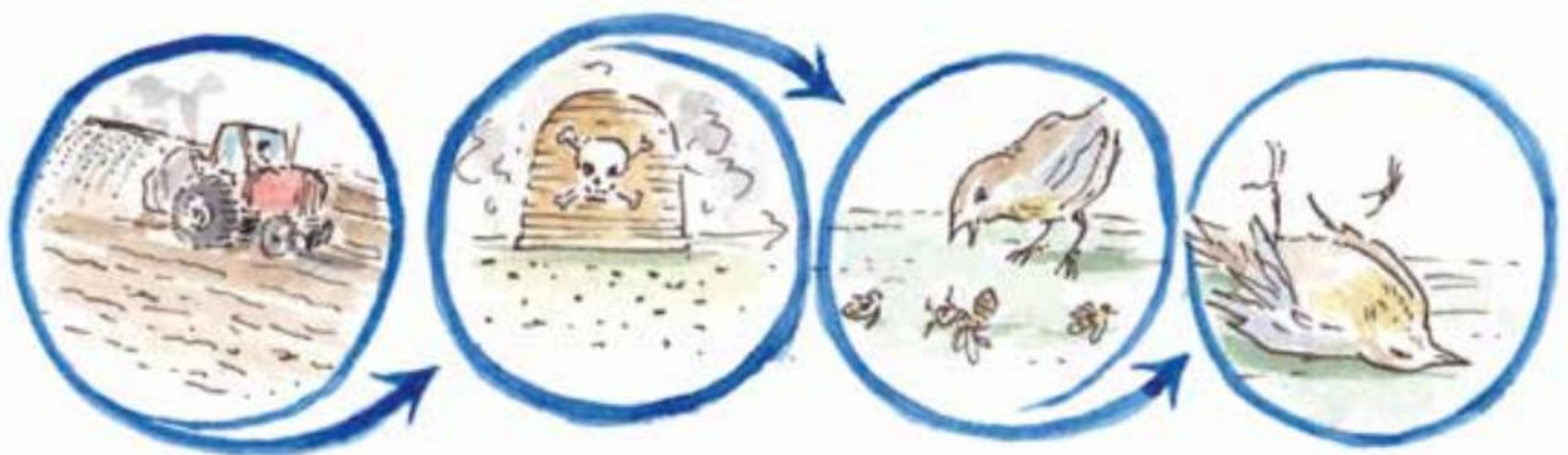


As they travel from flower to flower, they leave behind some of the pollen they have collected. Some of this pollen may land on the female parts of other flowers of the same species, resulting in cross-pollination. This process is one of the keys of life.



Pesticides killing bees

Over the past few years, the increasing rate of colony-collapse disorder among the bee population has become global news. In this syndrome, the bees' nervous systems become severely damaged. This leads to them becoming disorientated and eventually dying. The birds that feed on the affected bees then get sick themselves too.



Researchers have linked the development of colony-collapse disorder to so-called 'neonicotinoid' insecticides, which are used in non-organic agriculture as pesticides.



GMO means
„genetically modified organism“

The leading global supplier of neonicotinoids is a multinational company known as Monsanto. This company also produces genetically modified seeds such as 'Roundup Ready corn'. The genetic structure of this corn is modified in such a way that it contains a very powerful insecticide. Researchers suggest that when bees come into contact with the pollen from this corn it poisons them. As a result, many people are highly suspicious of Monsanto and accuse it of being responsible for colony-collapse disorder.

In 2012 Monsanto surprised the world with the news that it had bought 'Beelogsics', the world's largest bee-research company. Curious isn't it, that one of the largest producers of chemicals believed to be linked to colony-collapse disorder suddenly buys a company that had apparently wanted to save bee colonies? To many organic farmers and advocates of natural food production, it seems rather like the fox buying the chicken coop!



However, despite their known dangers, there has still been no global ban on neonicotinoids. So the fact that bee colonies are continuing to die is seen by many people as hardly surprising.

Thiacloprids are another example of a class of pesticides suspected by researchers to be dangerous to bee colonies. Developed by Bayer CropScience, their advertising claims they are 'bee-friendly'. Nevertheless, there is evidence to suggest they could potentially be toxic to bees.

Fortunately, there are plenty of online petitions you can sign to help get these types of pesticides taken off the market.



The information in this chapter has been included in the book to give you an insight into the threats faced by organic farmers and gardeners. If you are reading this and wondering how these issues affect you, keep in mind that if your neighboring farmer uses toxic pesticides your bees might be poisoned by them and wouldn't return. This would directly influence your harvest. And our options here are limited: we cannot lock our insects in the garden with fences or warn them where not to fly.



Understanding the bee

Worldwide there are around 30,000 different species of bees. Domesticated honeybees have been used for thousands of years for honey and wax production. Beekeepers make sure they have access to large flower fields so that their colonies can grow. The more food the bees have, the more honey they produce.



red mason bee

Old World sweat bee

Carpenter bee

There are also species of bee that do not group together in colonies and instead live in small hideouts. It's a good idea to offer a nesting aid and a large variety of hiding spaces in your garden, as this will encourage all kinds of bees and insects to make their homes there.



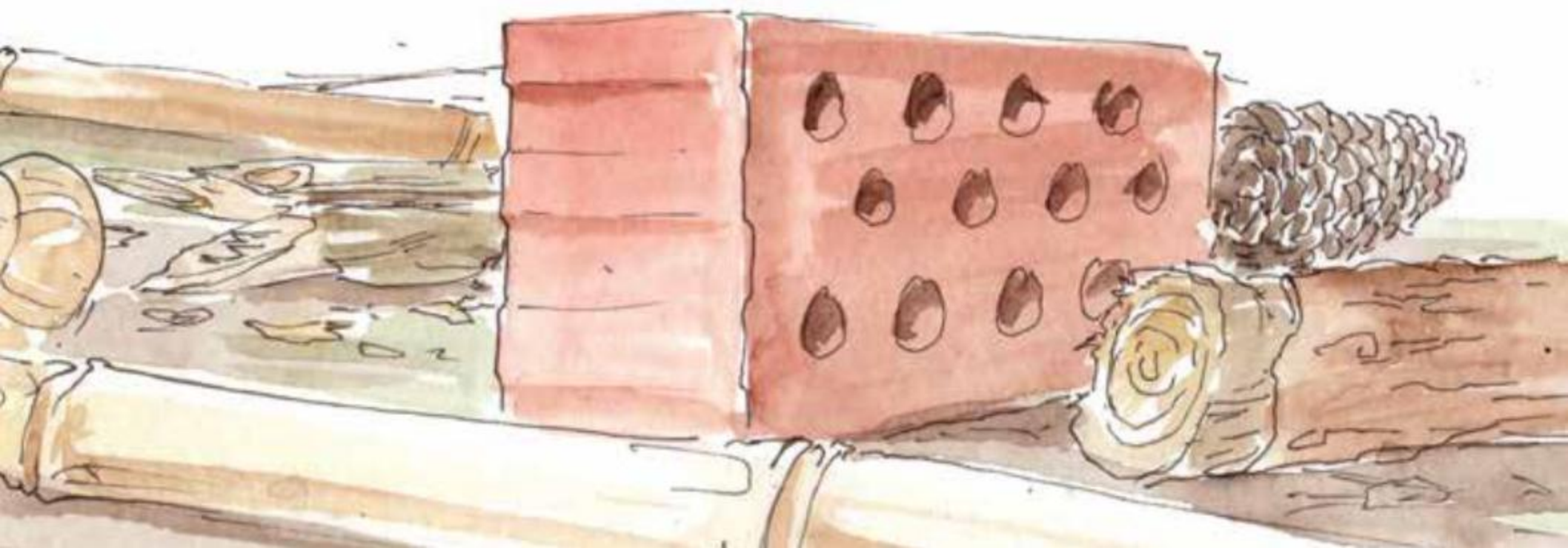
Plant stems such as reeds or cane can be dried and bundled. Empty snail houses, hollow bricks, bamboo sticks, rotten wood, straw, pinecones and sawdust all make perfect boltholes for bees and insects. A large wooden box on sticks – placed near the compost heap in the shade of a large tree, where it can be protected from excessive moisture or heat – is perfect. Placing a few drawers in the box, with open fronts where the different substrates can be inserted, is also a good idea.

Such a box can offer a home to a large variety of helpful creatures. It will also be interesting for children as they can easily explore lots of different insects in one place and learn about their natural habitats and behaviors.



When do wasps fly out and when do they return? What do green lacewings eat and how does the wild bee build its nest? Answers to all these questions, and more, can be found by studying your box!








Gaining experience by exploring is always better than relying solely on knowledge from textbooks. And it's good to get small children into contact with a working ecosystem as early as possible, as this will give them a feel and respect for nature.



Food plants

To keep your insects healthy we need to plant flowers and herbs. Plants from the Composite family are like magnets to insects. Examples include calendula, daisy, marguerite, yarrow, bluebottle and sunflower. Umbellifers such as carrots, fennel, dill, parsley, lovage, chervil and coriander all help support the insect's immune system.

Here are some of the most efficient bee feeding plants, which are very easy to grow:

	Family	Height	Flower	Blossoms	Sowing
Abelmosk 	Cotton family	8-30 inches	Smells of musk, white and pink	June to October	April
Sunflower 	Composite	Up to 80 inches	Green or brown inside, with yellow petals	July to October	April to July
Crimson clover 	Papilionaceae	8-20 inches	Bright red small flowers	June to August	March to September
Calendula 	Composite	Around 24 inches	Orange and yellow	June to October	April to October
Bluebottle 	Composite	20-35 inches	White, pink, purple and blue	June to September	March to June
Field poppy 	Poppy	Around 24 inches	Deep red	May to August	March to August
Summer lilac 	Papilionaceae	80-120 inches high and wide	Blue, purple, white	July to September	July to September

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Springtime – a new life cycle is starting...

Gardening teaches you that nature has a yearly rhythm. Getting in touch with that rhythm will give you a feel for when your garden needs enhanced attention and when it needs a rest. In Springtime it needs lots of TLC (tender, loving care)!

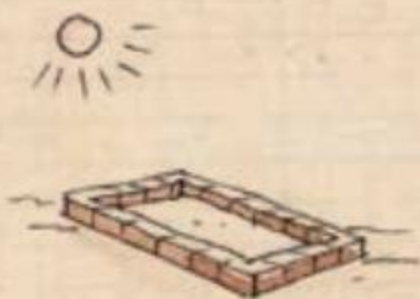


Building a hotbed

A hotbed is a place where your seeds can grow into young plants that can later be moved to the patch. The hotbed stores moisture and warmth. You can easily build your own hotbed. All you need is an old window frame, a few bricks, a spade and some wooden sticks that are strong enough to support the window frame when it is open.



Hotbed step by step



Choose a sunny spot that is protected from wind. Loosen the soil where you want to put the hotbed. Define the outline with the bricks.



Remove soil from inside the hotbed to a depth equal to the digging end of your spade.



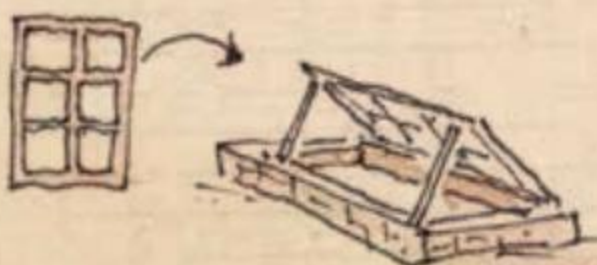
Then fill the hotbed with horse manure. Put compost on top.



Next, take a broomstick and mark out grooves ready for sowing.



After sowing, sprinkle some water on top.



Finally, gently lay the window frame on top of the bricks. Use the wooden sticks to keep the window frame open. You can adjust the height of the frame according to the outside temperature. If it's warm outside, open the frame wide. If the weather suddenly gets cold, close it. At night, put a thick layer of straw on top of the frame to protect your plants.

Prepare your garden patches

Later, some of the plants in your hotbed will be planted in the garden. But others can go straight outside. So to prepare your garden patches, let's give them some attention.

First remove all the leaves and dry branches, and get rid of the winter dirt. When you're finished this important task, your compost heap will be very glad to take the waste for you!



Put a lot of compost on the clean soil. Compost keeps the moisture in and activates the microorganisms that are necessary for root development. Keep a regular look out for weeds. Spring is the time when they start growing, so get rid of them now before they start to cause you problems! When removing weeds always make sure to pull up the entire plant, including its root system. Otherwise they will just grow back!





If there are too many of them or your garden is too big, it might be time to consider bringing in some ducks. Remember, ducks love snails!

By the way: springtime is also snail time. So keep a close eye on the spots where they like to go. Where are the slightly shady and moist areas in your garden? Don't plant your lettuce there! Check for those slimy creatures and collect them.



In early spring, your fruit trees need a good trim. First, cut all the dead branches off, then remove some of the thinner ones. The tree can then put all its energy into the remaining ones. Raspberries and blackberry bushes need a trim too, and some might need assistance from additional sticks to ensure they can support their own weight.



Veggie-care

When you loosen the soil in your patch don't turn it upside down, as this would disturb the microorganisms. Instead, just loosen it gently and mix in the compost. Lambs lettuce, leeks, kohlrabi, rhubarb, lettuce, black salsify, chicory, kale, spinach, cress and parsnips are hardy and grow quickly, so start with those. You can find how to grow them in the table on page 37.



Don't forget that young plants always need a moist environment. They cannot store a lot of water yet so never let them dry out, the damage to them would be too severe. Rain water is always best as it is soft and contains no chlorine or other chemicals. So try to collect as much rainwater as you can.

Herbs












For thousands of years, herbs have helped humans and animals to treat their diseases. If wild horses have colic, for example, they search for chamomile fields. Sheep look out for thyme if they need to deworm themselves. A working knowledge of herbal healthcare comes naturally to animals!















For humans, fresh herbs are not only tasty, they enrich every meal and strengthen the immune system. Most herbs can be planted in spring. Keep in mind however that they are sensitive to cold. So make sure you put some in the hotbed first, until you can be sure there are no more temperature drops. Peppermint and Melissa can be easily multiplied by dividing them at their roots, thus giving you two plants out of one. They make a good neighbor for most plants, so you can plant them on almost every patch.



Here is a selection of herbs that are healthy and easy to grow:

Name	Sowing	Groove depth (inches)	Distance between rows (inches)
Basil 	February: hotbed, May: outside	0.1 to 0.2	15 x 10
Winter savory 	March, outside	Flat	12 x 9
Savory 	April to June, outside	Flat	12 x 9
Borage 	April to June, outside	0.2 to 0.4	12 x 9
Dill 	April to June, outside	0.8 to 1.2	12 x 4
Oregano 	February: hotbed, May: outside	0	15 x 10
Fennel 	March to April, outside	0.4 to 0.8	15 x 10
Chervil 	March to June, outside	0	12 x 4
Coriander 	March to April, outside	0.4 to 0.8	12 x 4
Caraway 	March to June, outside	0.4 to 0.8	12 x 4
Lavender 	February: hotbed, May: outside	0	15 x 10

Name	Sowing	Groove depth (inches)	Distance between rows (inches)
Lovage 	March: hotbed, April: outside	0.4 to 0.8	16 x 20
Sweet majoram 	April to May, outside	flat	15 x 10
Pimpinella 	March, outside	0	15 x 10
Sage 	March: hotbed, May: outside	0	15 x 10
Common sorrel 	April, outside	0	15 x 10
Chives 	February: hotbed, April to July: outside	0.8 to 1	15 x 10
Black cumin 	End of April, outside	0.4	15 x 10
Crown daisy 	April, outside	0	15 x 10
Thyme 	March: hotbed, May: outside	0	15 x 10
Cress 	February: hotbed, April to September: outside	0	12 x 9
Hyssop 	Middle of March: hotbed, April: outside	0	15 x 10
Balm 	Middle of March: hotbed, May: outside	0	16 x 10

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Summer – Gardening from June to September

During these months of the year, your spring flower patches can be cleaned and newly sown. The new seeds need daily water, especially during dry periods.

Summer is also the time when pests are active. Leek moths are a danger for leeks, they eat through the leaves and leave a fungus that destroys the entire plant. But what should you do if the helpful creatures you attracted with your flowers don't get rid of the moths? In this case, the best approach is to give your plants some additional protection by covering them with thin nets. You can also use nets for carrots to protect against the carrot fly.



Maintenance

To set up a net

To set up a net, the first step is to loosen the soil in the area around the plants.

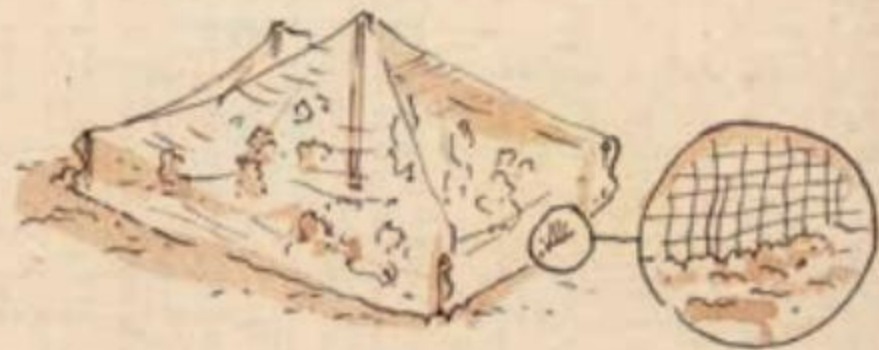


Then put a thin layer of lawn cuttings on there. Lawn cuttings fertilize the ground and provide food for essential microorganisms, which support the plants' immune systems.



Then put five sticks in the patch; you need to place one in the middle and one in every corner.

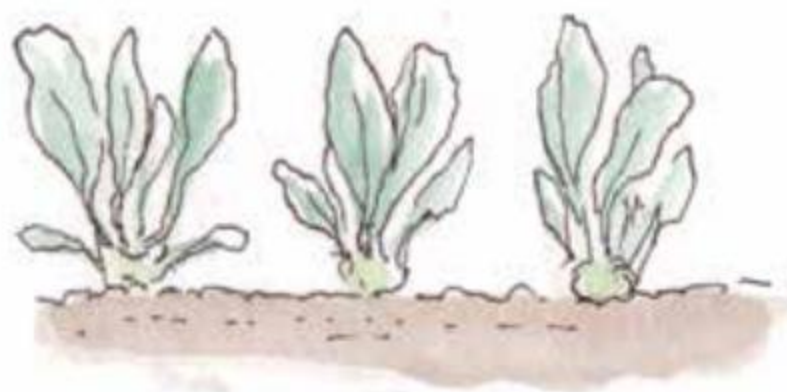
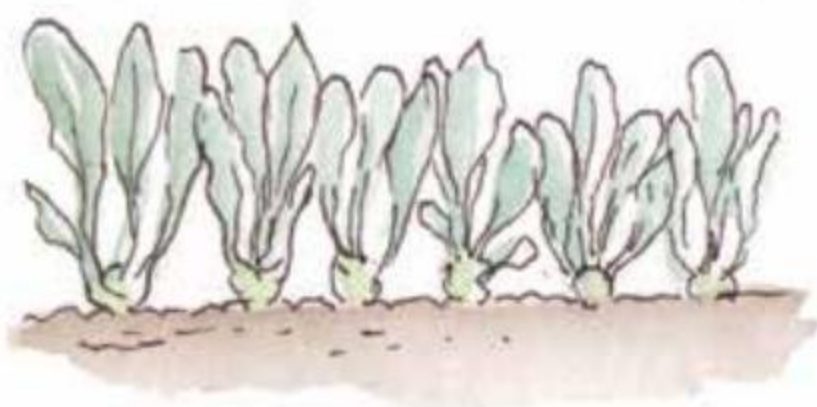
Put the net on top of these sticks.



Make sure the net is nicely dug into the ground to ensure nothing can crawl underneath it. The ideal net is soft enough that it doesn't restrict your plants from growing, and thin enough that it doesn't block out sunlight.

Raking your patch regularly puts oxygen into the soil and helps young plants to develop. It is also easy to remove some weeds while raking – just make sure that all their roots are removed too!

Check your patches for plants that need more space. Always make sure to accommodate your plants' growing demands as this will ensure you gain more harvest from them.



Green peppers will begin to flower now, but it's best if you remove their very first flower. While this might seem cruel, the plants will develop many more flowers afterwards and you will obtain more fruit.

Winter veggies such as savoy cabbage, cauliflower, lamb's lettuce, kale, Chinese cabbage and endive should be sown now. Berry bushes need a lot of water as they begin to develop fruit.



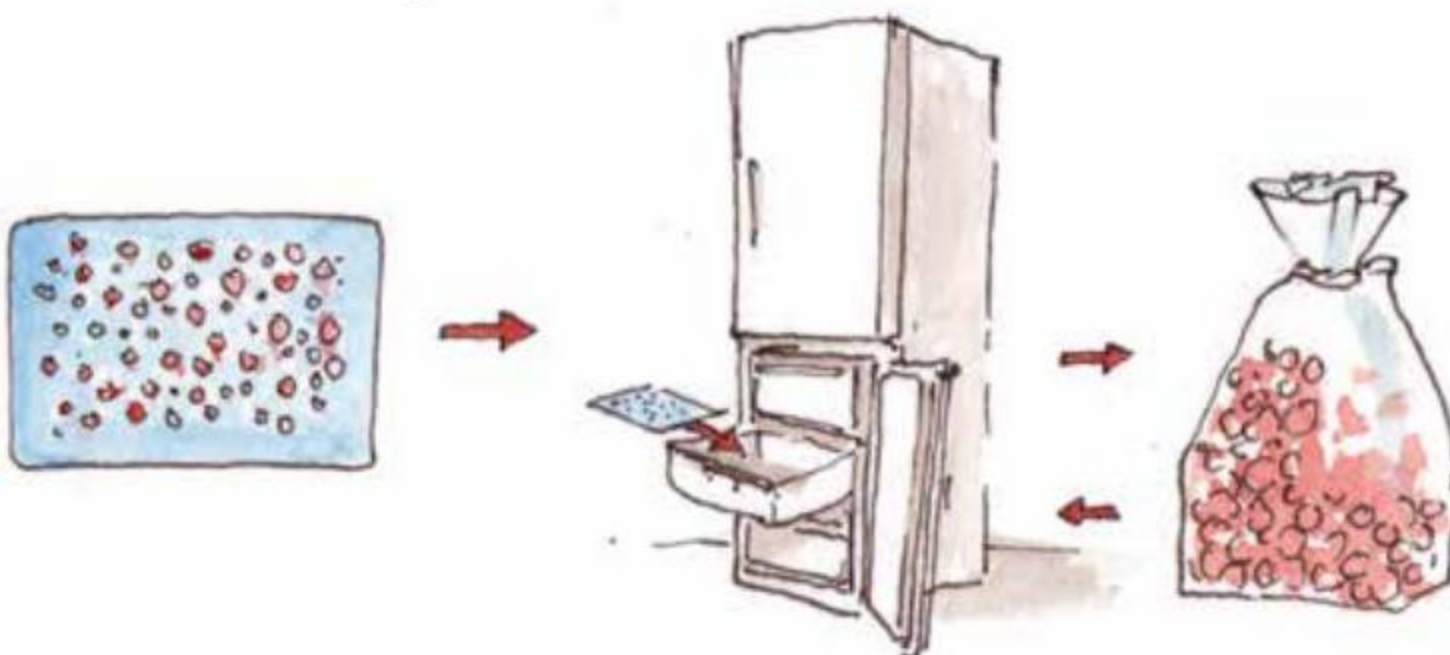


Check whether you have put enough straw on the ground under your strawberry plants, to keep the warmth in the soil. Grapes need climbing aids, and herbs need to be harvested and dried. Withered stems and blossoms need to be removed.

Preservation

We can only consume a small amount of fresh berries and herbs. And their shelf life is short. So we need to find ways to preserve them. Freezing, for example, is a good way to store berries for a long period of time. To prevent them being squashed during storage, use the following trick.

Place the berries one by one onto a kitchen board. The size of the board is important as it needs to fit into your freezer. Leave the board – with the berries still on it – in your freezer for 2 hours. After this period of time the berries will be frozen and you can take them off the board and store them in a freezer bag.

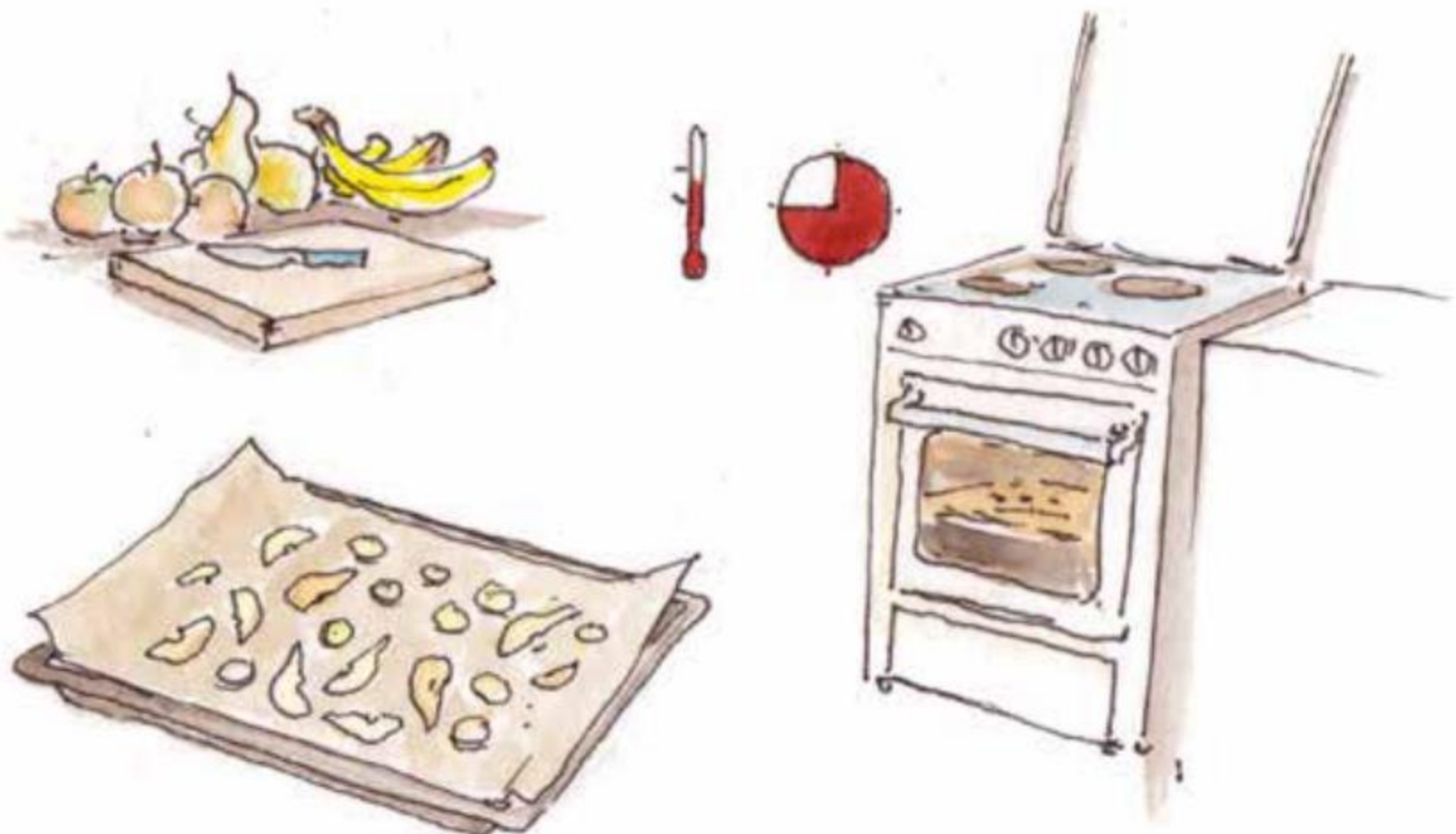


When you're ready to defrost them again you should place them carefully one by one back on your kitchen board, unless you are planning to make a fruit sauce or cook some jam.



Herbs are perfect for freezing too. Basil, parsley, chives and dill are tasty for most dishes and survive the freezing process well, without losing too much flavor. Just put them in a thick freezer bag and use them quickly after defrosting.

Another common way of preserving fruit is to dry it. Apples, peaches, mangoes, bananas or pears can all be dried easily. First cut them into thin slices. Then put them in the oven on some baking paper. Most fruit dries best at a temperature of between 50 and 60 degrees Celsius for 45 minutes. After it cools off you can store your dried fruit in small plastic bags. However, as plastic is not good for the environment you might want to use tins instead.



An alternative way to store your veggies and fruits is by cooking them and placing them in bottling jars.

When doing this it's important that the cooking temperature is around 100 degrees Celsius. After they are cooked, fill the jars with your veggies or fruit. You should also add a bit of vinegar to your veggies, to help maintain their flavors, and sugar water to your fruit, to maintain their sweetness. Close the jar firmly afterwards, to ensure it is airtight.



Drying herbs in salt

Although adding salt to dishes is not healthy, a tiny bit of homemade herbal salt won't harm you. Let your herbs dry out in a warm and sunny spot. The water in their leaves will slowly disappear, but not the essential oils which create their unique flavors.

Use tarragon, thyme and rosemary, and mix them with sea salt. Grind them in a mortar. This homemade herbal salt is delicious on all kinds of veggies, but especially on pumpkin, zucchinis, cabbages and tomatoes.



If you bake veggie pies or casseroles, any leftovers will last longer if they are kept in the fridge. Just make sure to eat some healthy fresh salad every day.

Here are some healthy recipes for you to try. Any leftovers from your cooking can be safely stored for a few days in the fridge

Summer veggie pie

2 tablespoons olive oil
2 chopped onions
8 ounces mushrooms
1 clove garlic, minced
2 large carrots, diced
2 potatoes, peeled and diced
2 stalks celery
2 cups cauliflower florets
1 cup fresh green beans
3 cups veggie broth
1 teaspoon salt
1 teaspoon black pepper
2 tablespoons cornstarch
2 tablespoons soy sauce

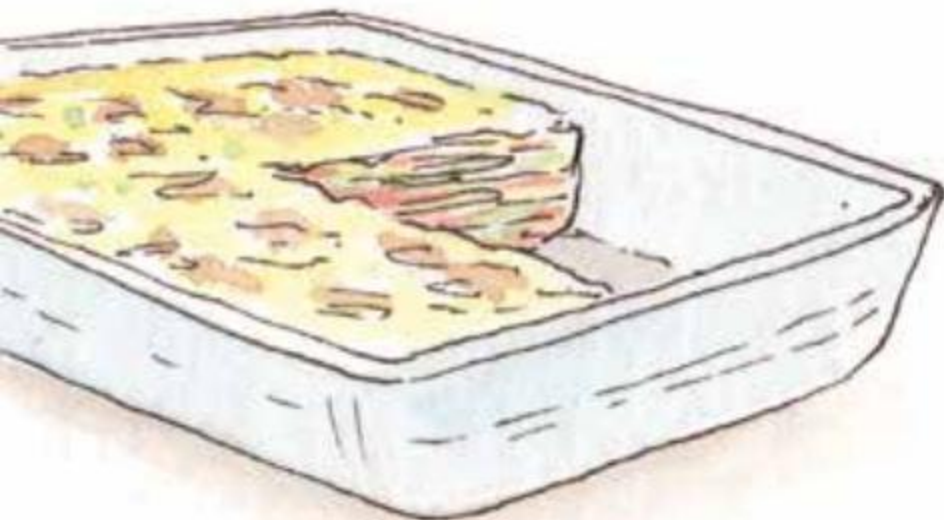


Double crust dough:

2 cups flour, 1 teaspoon salt, $\frac{1}{2}$ cup vegetable shortening, $\frac{1}{2}$ cup water
Mix the cornstarch, the soy sauce and $\frac{1}{4}$ cup of water and add all the veggies. Season with salt and pepper.

Sift the flour and salt together in a bowl. Mix in the vegetable shortening until it looks like coarse crumbs. Add water until the dough forms. Roll out half of the dough to line an 11 x 7 inch baking dish. Pour the filling into the pastry-lined dish. Roll the remaining dough and arrange over the top of the filling, then seal and flute the edges. Put everything into the oven for 30 minutes at 220 degrees Celsius.

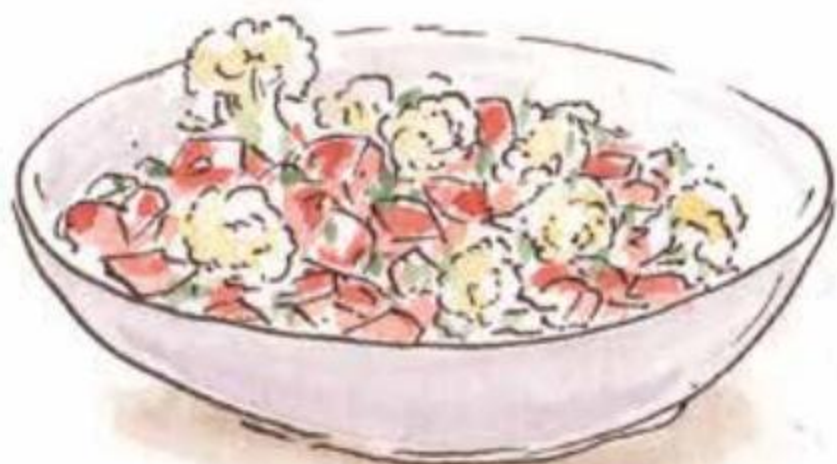
Zucchini bake



- 1 cup cheddar cheese
- 1 teaspoon oregano
- 1 teaspoon basil
- 3 gloves minced garlic
- salt and pepper
- 4 large zucchinis
- 5 tomatoes
- ¼ cup butter
- 2 tablespoons of onion
- ¾ cup fine bread crumbs

Preheat the oven to 190 degrees Celsius. Mix the cheddar and the herbs. Now take a pan and arrange the sliced zucchini in one layer. Cover with the herb and cheese mix. Then cover with the sliced tomatoes. Add another layer of the herb mix. On top of this comes another layer of zucchini. Finally, mix the remaining herb and cheese mix with the bread crumbs and put it on top. Bake for about 40 minutes.

Crunchy cauliflower and tomato salad



- 1/3 cup of linseed or olive oil
- 3 tablespoons vinegar
- juice of one fresh lemon
- 1 teaspoon of herbal salt and pepper
- 1 large cauliflower, chopped small
- ½ cup red minced onion
- ½ cup minced fresh parsley
- 2 garlic cloves, minced
- 4 chopped tomatoes

Mix the oil, vinegar, lemon juice, salt and pepper, and stir until it is smooth. Add all other ingredients, stir well and let it rest for 3 hours in the fridge.

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Autumn and Winter

Autumn is the time for collecting seeds. Assuming your plants originate from organic seeds, their seeds should be especially fertile.

Just select a nicely grown plant and leave it in your patch until it flowers. Then, wait until the plant slowly dies and its seeds become dry. Collect the seeds and remove any remaining shell or peel from around them. This can easily be done by rubbing the seeds gently between the palms of your hands.



Let the seeds dry for a few days by leaving them on a window sill. Next, place them in small envelopes and, on the front of each envelope, write the date and name of the plant. Keep the envelopes in a cool dry place until springtime, when a whole new garden cycle begins!

Veggie storage - vitamins in winter!

Veggies such as beetroot, carrots and potatoes can be stored in a cool dry place. But don't wash them, as a thin layer of soil protects them against drying out. The best approach is to use a wooden box for placing your veggies in, with each of them wrapped in newspaper.



You can also use your hotbed as a storage facility. If there are sunny days, open the hotbed to allow fresh air in. But make sure it is closed during cold spells, rain or snowfall.



Cabbages can be stored in a cellar that is cold, dark and dry. If you hang your cabbages on a washing line down there, they can last the entire winter. Just hang a line from one side of the cellar to the other, then wrap the line around the stems of your cabbages while making sure to keep some distance between each of them. To prevent rotting, it is important that the cabbages don't touch each other.

You can also store root veggies in sand in your cellar. This ancient storage method keeps veggies juicy and fresh. The sand needs to be moist, but not wet. The best approach is to use a large wooden box. Fill the bottom of the box with sand; put some veggies on top of it; then another layer of sand; and so on until the box is full. Put some old plastic bags on top of the box to keep in the moisture.



Your patches still need attention

Aubergine, green peppers, tomatoes and zucchini need to be covered as soon as the nights become cool. Rhubarb needs to be divided and planted. Cover all your patches with a thin layer of compost and gently rake it in under the soil.



Raspberry bushes need to be trimmed and blackberry bushes should be cut back. Remove all the old stems. Be careful of thorns though, to be safe it's best if you wear a pair of leather gloves!






Cold tolerant veggies

Some veggies don't mind the lower temperatures in autumn. Examples of these include onion, pumpkin, white and red cabbages, carrot, potato, savoy cabbage, beetroot, sagebrush, tarragon, savory veggies, fennel, chives and borage.



There are even some veggies that can cope with minus temperatures and frost. Here are some of them, they can be a source of vitamins for you all the year round!

	Lambs lettuce 	Parsnip	Brussel sprouts	Kale 	Palm hearts	Chicory 
Family	Foliate plant	Root plant	Foliate plant	Foliate plant	Foliate plant	Root plant
Appearance	Small rosettes	60 inch plant with flowers	Winter veggie that grows many small cabbages on its stem	Curly, hard leaves	Dark green leaves, can grow up to 40 inches tall	Leaves are normally green. If bleached by growing under a flowerpot, the leaves turn white (but the plant will contain less micronutrients).
Sowing	July and September	Sandy soil so that the root can grow. Start sowing in June, as they take time to grow.	April to May, sowing. Plant the seedlings from June.	May to June	May to June	June
Harvest	Autumn, Spring and Winter	October to February	November to February	October to March	October	November
Edible parts	Entire plant	Roots	Small rosettes	Young leaves	Small and middle leaves	Leaves



If you have wild fruit trees, their berries should be harvested between September and December. Berries are great for the extra doses of vitamins they can give you during the cold season!

	Appearance	Care	Micronutrients	Harvest	Usage
Sea buckthorn	Green bush, up to 20 feet tall. Yellow flowers, deep roots.	Sandy soil, sunny spot	Vitamins C and E; B Vitamins; Essential Amino Acids	September to November	Jam, tea, juice
Blackthorn	Small tree with white flowers; up to 16 inches tall. Long thorns and small black fruits.	Chalky, sandy soil with low nutrient levels	Vitamin C, Phytochemicals, Essential Amino Acids	October to December	Juice, jam, dry leaves as tea
Medlar	Tree, up to 17 feet tall. Blossoms in May, small white flowers.	Loose, clay-containing soils; prefers sunny spots	Potassium, Calcium, Vitamin C	October to December	Jam; wood; extract can be used as herbal remedy
Sorb 	Big red berries, bushy growth.	No special needs, but prefers semi-shade	Vitamins C and A, Phytobiologicals, Malic acid	August to October	Jam, jelly
Baby kiwi	Has male and female bushes, they need to be planted together. Up to 23 feet tall; creeper.	Sunny and semi-shady spot. No special needs for soil but needs to be trimmed every second year.	Vitamins C and E, Essential Amino Acids, Potassium	October and November	Jam, salads, can be eaten raw
Cornel cherry 	Tree, up to 26 feet tall. Yellow flowers and cherry-like fruit.	Sunny warm spots with nutrition-rich and chalky soils.	Vitamin C, malic acid	August to September	Can be eaten raw; jam; juice
Quince 	Medium size tree with pear shaped fruit.	Sunny, warm and wind protected spot. Young plants need to be covered during frost.	Potassium, Zinc, Iron, Vitamin C, Phytobiologicals	October	Jam; juice; baking; raw

You can rest during winter and take it easy, but make sure that:



You cover all your patches with leaves or straw to protect the microorganisms in your soil against the cold.



Get a cat for your storage facility or cellar, to protect your winter veggies from mice and rats. If you can't get a cat, use traps and make sure everything is nicely sealed.



If there is a lot of snow on your trees that stays there for more than three days, take a broomstick and shake it off so that the weight is removed from the branches. Carrying a long-term extra weight load damages trees.

After reading this book and gardening for a year, you now have some experience to use when planning for the year ahead. Take the time to write a garden diary, as this will improve your gardening skills by recording what you learn from year to year. Good luck, and enjoy!

P.S. Send an email to info@movement-of-life.org and attach some pictures of your garden so that we can share your experiences with others.



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Mirja's seventh book shows you step by step how to setup a fully functioning biodynamic garden.

Learn how to grow and harvest your own supply of essential micronutrients!

The information in this book comes from old farmers' knowledge, which can help you understand and become an active contributor to the natural cycle of life. Good nutrition provides the key to opening the lock of health!