



Cultivea

Ebook

Growing and maintaining your bonsai

English version



Contents

1. A bit of history	1
2. Definition and meaning of bonsai	2
3. Shapes and styles	4
4. Forming a bonsai: the principles	11
5. Choosing a plant	12
6. Growing a bonsai tree: the species	13
7. Growing your bonsai	14
8. Structuring your bonsai	16
9. Shaping bonsai: the golden rules	23
10. The essential equipment	25
11. Location	28
12. Maintaining your bonsai	29

Bonsai is the art of growing a miniature tree in a pot in Japanese culture. Literally translated by its name "potted tree", bonsai cultivation has given rise to the development of a specific art and technique. Indeed, this tree planted in a pot is fragile and requires special care.

Ideal for creating a Zen atmosphere, the bonsai establishes a living relationship between itself and its creator as the latter consolidates his knowledge and listens to the plant. It is a spiritual matter where the tree is the symbol of life. The cultivation of bonsai takes a long time and allows one to experiment with new ideas and create a different approach to art.

We work with an organism that is constantly growing and creating a kind of work that never ends. The art of bonsai combines horticultural and Asian aesthetic techniques to sculpt beauty from a plant in its natural state. Countless styles have emerged over time and the most common are illustrated in the following pages. To create a bonsai tree, you need to implement the right pruning and repotting techniques and know where to place your tree.

This book is your guide to a thorough discovery of the art of bonsai.

1. A bit of history



Almost 2000 years ago, the noble art of bonsai was created and studied in depth within Chinese traditions. It is originally called "Punsai" in Chinese culture, which means potting wild tree seeds.

It was during the Japanese Kamakura period (13th and 14th century) that these traditions were exported to Japan and then introduced throughout the world through trade. The Japanese then began to adopt these techniques of individually grown trees to replace the large compositions that had previously formed their landscapes. These trees are the origin of what we know today as bonsai.

Well cared for bonsai trees will last for a century. They are truly precious objects that are passed on from generation to generation and bring honour to those who care for them. Bonsai trees adapt and evolve to natural changes over the years, they are a testimony to times gone by and it is in this sense that a good bonsai tree becomes the symbol of life.

2. Definition and meaning of bonsai

The bonsai tree symbolises peace, harmony and balance. This miniature tree also embodies determination, patience and resilience. In Japan, receiving it as a gift is a great honour. The art of bonsai is an inexhaustible source of appeasement, a soothing occupation and a means of achieving a state of fulfilment. It also has a spiritual and philosophical significance.

Nature as inspiration

As living beings sculpted by man, bonsai are the translation of our knowledge of nature and our deep understanding of its finesse. They are thus at the heart of the natural world, of which they are the quintessence magnified.

The true beauty of bonsai lies in the imagination of those who contemplate them. It is not only a tree, but it also represents all the space that surrounds it, the one it fills with its distorted branches as well as the one left empty by the person who cultivates it. In this way it awakens an invitation to an imaginary landscape shaped in the image of its creator.

The plant does not have to be old for its sculpture to be considered artistic. What is important is that its character resonates with the heritage of its art from antiquity.

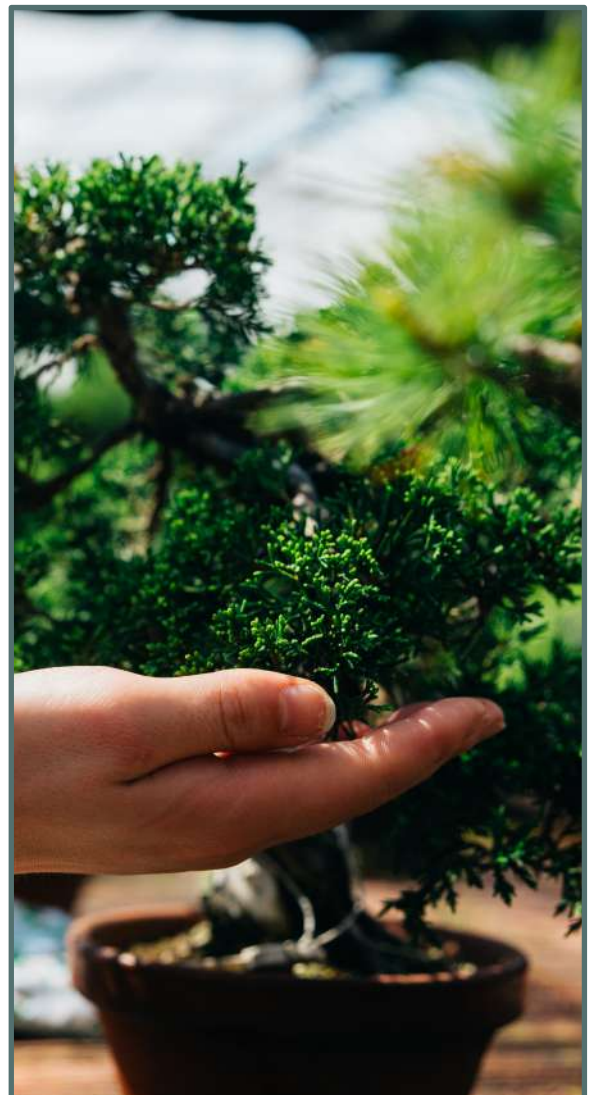
Bonsai has a spiritual significance

The cultivation of bonsai offers a spiritual refuge to those who make it. Like a true form of worship among monks, caring for these small trees installed in temples is a way of strengthening the links with nature, maintaining a Zen attitude and achieving a certain plenitude.

This practice, intended to be symbolic, has the gift of bringing a certain tranquillity to an individual. It has been passed down from generation to generation. By taking care of a bonsai tree, a person opens up to inner peace as wisdom would have it.

Spiritually, this miniature nature promotes an optimal flow of energy as the individual practices an exercise in mental concentration through attention to the bonsai tree throughout its cultivation.

Through regular watering and maintenance, bonsai cultivation is a tedious task that also develops certain virtues such as patience in humans.



The philosophy of bonsai

The philosophy of bonsai comes from what is called "Zen" in Japan and "Chan" in China. Over the years, the Zen or chan philosophical trend has greatly influenced oriental art.

The philosophical notions of bonsai

The art of bonsai, requiring patience and technical skill, brings together a number of symbolic notions. The culture of this tree in a pot:

- Symbolizes the search for perfection;
- Represents the introduction of nature into everyday life, in the home by reproducing nature in miniature;
- Promotes access to a state of serenity;
- Contributes to the acquisition and transmission of a large number of values and virtues such as patience, perseverance, spirituality, discipline and humility.

The philosophical virtues of bonsai

Bonsai growth takes time. This slowness represents the progression of the individual towards the evolution of his spirituality. The cultivation of bonsai is also a learning process. It embodies the search for one's deeper self.

The various tasks related to this art, pinching buds, binding, pruning..., require meticulousness and concentration; and thus gives rise to the individual's quest for perfection. Taking care of a bonsai tree becomes an art of living and, over time, allows one to reach a state of inner peace known as "mushin", a word meaning "empty mind" and a state of serenity.



3. Shapes and styles

The size and style of the bonsai tree depends mainly on the imagination of the individual designer, but in most cases just the natural forms are reproduced.

These styles are a reflection of personal interpretation and creativity, so a tree would not necessarily be identical to these styles. By nature, some species lend themselves exclusively to one style while others will be open to all possibilities.

All the styles presented here reflect forms sculpted by nature. The art is to personalise and maintain these styles to continually renew and reveal the immeasurable types of bonsai.

Hokidachi Broom Style

This is the ideal style for trees with dense and fine branching. The straight, vertical trunk does not end at the top of the tree. Its branches radiate in all directions and combined with the leaves form a hemispherical crown that offers a brilliant view during winter.

Zelkova, Fagus, Carpinus and Ulmus species adapt easily to bonsai, especially as they grow naturally in a sweeping pattern. Other species can be adapted to this style, but it will take time to train them.



Formal Straight Chokkan Style

The style is inspired by the appearance of the perfect tree. Solid and senile, also called straight trunk, the bonsai should give a strong impression of maturity.

The characteristic of this style is that the tree is straight and without any movement. It also has evenly spaced branches.

Straight informal Moyogi style

The informal straight style of bonsai is the most common in nature and is subject to the rigours of climate, lack of light and drought.

It has a curved trunk, just enough branching and has many varieties in its curves.



Shakan Leaning Style

This is a reproduction of what the trees experience, such as gusts of wind. Sometimes it bends to find sunlight. All the branches point in the same direction.

It gives an impression of maturity because of its inclination while balancing the movement of the trunk and the branches for a proportionate look.

Kengai Waterfall Style

With many factors, a tree on a vertical cliff may lean downwards. This can be caused by the weight of snow or falling rocks. These stresses cause the tree to grow downwards.

The waterfall style is usually planted in deep pots to compensate for the tilt and weight. The lower branches alternate right and left along a curved trunk and the branching should grow horizontally to keep the plant balanced.



Semi-cascade style (Han-kengai)

The Semi-Cascade style is like the Cascade style, it is found in nature on cliffs and water edges. The growth of the trunk is vertical and reaches a short distance and then bends downwards and sideways.

The Semi-Cascade trunk will not grow below the pot. Its crown grows above the rim of the pot and its lower branches appear below the rim.



Bunjingi Letter Style

This style is the aristocrat of bonsai and is distinguished by its unusual shape. Its name was created by Chinese scholars who incorporated calligraphy into their paintings.

The growth of the trunk is through the top, and it is devoid of branches since the sun only reaches its top. Moreover, it grows in sunny places where it reaches out for the light.

Fukinagashi Wind-Battered Style

This is also an example of a tree fighting for survival. The branches and trunk grow on the same side as if the wind had blown the tree in a specific direction.

The style requires a lot of vigilance because its shape is difficult to maintain if it is devoid of natural elements.



Style Double tronc Sokan

This tree has two trunks from the same stump emerging from the ground or just above. T

he trunks are distinct in height and thickness; the thicker, more developed one grows vertically, while the smaller one is somewhat less visible. The two trunks growing together give a harmonious result.

Kabudachi Multiple Trunk Style

The Kabudachi has a dominant trunk next to two thinner trunks. It has multiple trunks that form a single tree by sharing a root system. The thickest and most extensive trunk forms the top.



Yose-ue Forest Style

The idea here is to reproduce several trees of the same species to create the illusion of a forest.

The largest trees are placed on the highest part and the smallest on the lower sides. They are spaced at intervals.

Barked / hollowed trunk style Sharimiki

Over time, some trees develop barked areas on their trunks. The dry patches usually start where the roots emerge from the ground and taper down the trunk.

The strong sunlight bleaches parts of the tree and gives it a lot of character. Styling is an art that requires a lot of technique and patience.



Style planted on a Seki-joju rock

The roots grow on the rock into the pot. Thus, the tree is planted on a rock. These are planted in turn on sand that can be removed as they grow.

These styles of trees cling to the rocky forests to support their life needs.

Ishisuki Rock Planted Style

The bonsai in this style is placed in a shallow pot. It also represents a tree growing on a rocky island in the centre of a lake.

The bonsai illustrates the perseverance of nature. It is important to feed and water it well, as it has no storage space for water and nutrients.



Ikadabuki Raft Style

This tree, blown over by strong winds, lies on its side and forms roots. In the same way, the bonsai tree lies on its side to form a raft. The tree that lies down survives by pointing its branches upwards.

Over time, new roots begin to grow, replacing the function of the old roots. The old branches point to the sky and grow to the trunks.



Bon Kei landscape style

This style frequently represents the landscape. Rocks, caves, bonsai and other plants are integrated.

The aim is to keep everything at the same scale to maintain a real landscape look.









Neagari Rooted Tree Style

This tree is characterised by its exposed roots which extend over the trunk.

The roots are exposed by raising the plant at the time of repotting so that the water carries the soil between them.

Here are some types of bonsai with their adapted styles

Type of bonsai	Style of bonsai
<p data-bbox="375 421 491 454">Albizia</p> 	<p data-bbox="906 600 1428 633">Formal straight chokkan style</p>
<p data-bbox="272 900 587 934">Norwegian spruce</p> 	<p data-bbox="991 1079 1332 1113">Ikadabuki raft style</p>
<p data-bbox="320 1344 555 1377">Cornus kousa</p> 	<p data-bbox="922 1467 1412 1500">Kabudachi multi-trunk style</p> <p data-bbox="949 1523 1385 1556">Double trunk Sokan style</p> <p data-bbox="1050 1579 1284 1612">Leaning style</p>

Type de bonsai	Style de bonsai
<p data-bbox="331 344 544 389">Red Mapple</p> 	<p data-bbox="954 528 1385 573">Double tronc Sokan style</p>
<p data-bbox="316 822 560 866">Chinese cercis</p> 	<p data-bbox="991 1032 1337 1077">Bunjingi Letter style</p>
<p data-bbox="256 1359 619 1404">Juniperus communis</p> 	<p data-bbox="887 1503 1453 1581">Barked and hollowed trunk style sharimiki</p>

4. Forming a bonsai: the principles

In the forest, many species of trees can make magnificent bonsai. However, for purely technical reasons, some should be avoided when creating your bonsai.

Unity and harmony

Harmony occurs when each element contributes to the unity of the composition. One should focus on the overall effect and see if any element unbalances the composition.

Proportion

In all works of art, proportion must be determined.

The tree should be about 6 times the diameter of the trunk, but there are exceptions. The trunk occupies 1/3 of the height and the remaining 2/3 is for the crown.

- The width of the pot should be at least 2/3 of the height of the tree if the tree is wider than it is tall.
- The depth of the pot should be consistent with the diameter of the trunk at the base.
- The lowest branch should be the thickest.
- The first branch should start at 1/3 of the height of the plant
- 2 branches should not start at the same level on the trunk.
- It is best if the foliage is in a fictitious triangle

Balance

Rigorously related to proportion, balance is important in the creation of bonsai. The triangle is the most balanced and perfectly stable shape. It is frequently used to define the shape of a bonsai tree. Avoid the symmetrical shape and place the trees so that they fit into an asymmetrical triangle.

Shape and size

Bonsai is all about illusion. For this reason, the impression of space can be created in a plantation by placing the larger pots in front. You can also create a perspective effect in a landscape by incorporating a small building or a person in miniature.

Age

The impression of age and maturity will come from a broad trunk that tapers towards the top or a gnarled trunk that has a lot of character. With careful pruning, these effects will be achieved over the years.

5. Choosing a plant

Several factors make a shrub or tree suitable for bonsai training.

Response to pruning

The ability of the plant to withstand regular pruning is essential as the branches and roots will be subjected to severe and regular pruning as it grows.

Flexibility

The flexibility of the bonsai is very important in the criteria for choosing the plant knowing that the branches may need to be bent, especially in conifers.

Growth

Being grown for most of their lives in pots, it is essential that bonsai have the ability to grow in a confined space and that they are favourable to miniaturisation. Fast-growing trees and shrubs that produce offshoots and new growth at the base prove difficult for miniaturisation, as they produce a good amount of wood in one season and do not tolerate repeated severe pruning.

Leaf pruning

Smaller leaves will always look better on bonsai. Proportionate to a small plant, they will look more natural, unlike large leaves that will never look right for the height of the tree. To get small leaves, you need to prune them repeatedly over the years.

This pruning is done during the growth period and consists of cutting off $\frac{3}{4}$ of the leaf with a scissor, leaving only the petiole and the beginning of the leaf. When the leaves grow back, they will be smaller.

Texture

The texture of the trunk and branch helps to age the bonsai and give it character. The trunk should have a good taper and be thinner as you move up towards the pointed end. The lower branches should be taller and the higher ones thinner as they are younger.

6. Growing a bonsai tree: the species

The art of bonsai, being the cultivation of a wild tree in a pot, any plant with a trunk and branches can be used to cultivate a miniature tree. However, some species are used more than others. To grow a bonsai tree, there are 3 categories of trees to choose from: deciduous evergreens, deciduous trees and conifers and pines.

Deciduous evergreen bonsai trees

- The wild olive tree. This is a hardy plant that is easy to grow and produces remarkable bonsai trees. It can be grown outdoors as long as it is protected from frost. The wild olive tree is recommended for those who wish to learn the art of bonsai.
- The ficus. This is the best known bonsai species. It is distinguished by its small, hidden flowers.

Deciduous bonsai

- Chinese elm. This species of elm is the most commonly used for growing bonsai. It likes the sun and can therefore be placed outside during the summer months.
- The Japanese palmate maple. This plant is appreciated for its balanced and noble habit as well as its robustness. It can be recognised by its 5-lobed leaves, which resemble the shape of hands.

Conifer and pine bonsai

- Juniperus sargentii and juniperus chinensis. These juniper species are suitable for outdoor bonsai cultivation. Below -10°C, however, they need protection against frost.
- The redwood. This majestic and immense tree in the middle of nature makes it possible to cultivate a large bonsai. The species most used for this practice is the Chinese Metasequoia.

7. Growing your bonsai

1. Choice of seedlings

Nowadays, a wide range of bonsai seedlings are available worldwide. The autumn harvesting method is another solution for planting, but it requires a special technique for the seedling to develop into a bonsai.

Layering

Most of the time, seeds need to be stratified. Stratification consists of putting your seeds in the cold for a period of time. To do this, place the seedlings in a suitable bag and pot, then place them in the refrigerator.

Sow the seeds in a tray or pot in the spring and add a normal sized layer of fertiliser to the bottom and a thin layer to the surface, which will help germination. Water and wait one year.

Some types of seedlings

The Red Maple or Red Mapple is a species from eastern Canada and the United States. Its small, bright red flowers bloom in spring followed by red fruit. Germination in winter is 1 or 2 months after stratification.

The Chinese Cercis is a spectacular flowering bonsai species. It is suitable for small gardens. This variety is particularly appreciated for its heart-shaped flowers which offer a beautiful pink cherry. Sowing should be done in spring or at 18-20°C and a source of light should be provided.

Albizia Julibrissin is a species from East and South Asia. Also known as the 'silk tree', it is covered with clusters of pink flowers that give a feathery, delicate appearance. Germination is usually 2-4 months.

Cornus Kousa Chinensis is an Asian species. It has white flowers that are delicately placed on the foliage. This elegant plant brings an oriental touch to the room or garden. In spring, place the seeds in the soil, which should be moist but not soggy. Germination takes 2 weeks to 2 months.

The Norway Spruce is the most traditional of the Christmas trees and is native to Europe. It is appreciated for its very decorative dark green foliage. Sow in spring or at 18-20°C.

2. Choice of substrate

All species require a suitable soil structure. The substrate is the support for the crop. It must therefore be watertight, aerated and rich in nutrients, not forgetting that the substrate must also be able to retain water well.

Bonsai grow well in mixtures containing granules. A granular fertiliser facilitates the circulation of air in the pot and the flow of watering, while retaining the right amount of water the plant needs. Species such as conifers and Azaleas require an acidic substrate.

3. Choosing the right fertiliser

Fertiliser for bonsai

Bonsai cultivation is a meticulous art. The bonsai enthusiast expects so much from his little potted tree that the result does not always live up to his expectations.

The right fertiliser for the bonsai tree provides the necessary nutrients for its characteristics. However, it must be dosed carefully, as irregular application of the fertiliser could harm the plant. On the other hand, the wrong amount of nutrients can be fatal.

It is normal for this small plant in a small container to have only a small amount of soil. In bonsai cultivation, the amount of soil is not very important, but the plant must be fed properly.

The most important thing is to feed it a little, but regularly. Be careful not to overfeed your bonsai, as this can have many negative effects on the plant.

Types of fertiliser

Fertilisers are divided into two categories, organic and mineral fertilisers:

- Organic fertiliser is from a natural source, but is often processed. It is ideal for long term action as it will take weeks to work.
- Mineral fertiliser comes from natural deposits conducted by the chemical industry. Prefer it for fast-acting treatments.

Fertiliser acts according to the vital needs of the plants it feeds. Fertilisers that are beneficial to bonsai are organo-mineral since they combine the virtues of the different types of fertiliser. It is important to know the right time to apply fertiliser to bonsai.

Fertiliser requirements

In spring, as soon as the first leaves appear, fertilisation is encouraged.

In summer, it is advisable to reduce the amount of fertiliser applied during very hot periods. For outdoor plants, however, this is a good time to introduce organic fertiliser, as it works through the rain.

By the time autumn arrives, the leaves should be mature. The trunk should now be strengthened and the plant should be given the necessary nutrients before it rests.

In winter the bonsai is at rest. It is important to remember to feed it sufficiently so that it is ready for this period without its seasonal dose of fertiliser.

4. Repotting your bonsai at the right time

As the bonsai tree grows, the roots take up more space in the pot until the space is completely filled. To keep the tree bright, regular repotting is essential to eliminate overgrown roots.

The soil is depleted of the nutrients needed by the bonsai. Repotting gives the opportunity to renew the weakened fertiliser and provides new nutrients so that it can continue to grow and form new shoots.

Repotting is usually done every 2 to 3 years in the spring, depending on the species and age of the bonsai. Repotting does not mean putting the bonsai in a larger pot, but rather pruning the roots and renewing the fertiliser.

8. Structuring your bonsai

Properly controlling the size of your tree is crucial in bonsai cultivation. This step allows the tree to maintain its shape and style throughout its life. There are two types of pruning: structural pruning and maintenance pruning. Here, we will start with the structural pruning.

1. The different types of pruning to be carried out

Structural pruning

This method consists of giving style to your bonsai. It also involves pruning the large branches and the trunk of the tree.

Structural pruning is usually done at the end of the idle phase. Some branches grow in directions that distort the bonsai.

Maintenance pruning

This is done during the entire growth stage of the tree and optimises branching. It also maintains the existing gradual shape.

Also known as green pruning, this pruning consists of cutting off branches that compromise light penetration, dead branches and twigs that burden and distort the style of the bonsai.



2. Ligation

The method of tying a bonsai is used for creation, maintenance and shaping. It changes the position and orientation of certain branches. The technique consists of wrapping the binding wire around the branches to position them in the desired direction.

The wires will be removed over the months, the new shapes will be maintained. This is a maintenance method that can be practiced all year round for most species. However, care must be taken during the growth phase. Branches can grow very suddenly and the binding wire will become embedded in the bark and may leave unsightly scars.



3. Cutting

Cutting bonsai is a simple and quick vegetative growth technique. The method consists of growing roots from a retained branch of a plant and allows it to grow independently. All plants in a suitable condition can be cut.

Direct contact of a plant chain with water could lead to the manifestation of roots. To check this, just put a branch in a glass of water. This experience is favourable for plants with a strong anchoring power. In order to achieve a lasting anchorage, specific arrangements must be made for woody branches.

4. The Jin and Shari technique for bonsai

This technique is just to give your bonsai more character. These phenomena occur naturally when the tree has been struck by lightning. The effect of the intense sun causes the wood to bleach and die.

This technique is used on evergreen trees, because on other trees the fallen wood rots immediately. This technique can be used in early spring and late summer. It is a common style, but requires a lot of skill to perform.



Jin

The jin is the stripped bark on the branch, removing the bark from the branch. Jin is pale in colour on conifers as if it has been bleached by the sun and wind. It should be mainly small so as not to cause any risk to your plant.

You could use concave pliers to make the jin and cut at an angle against the direction of the branch support. You can use concave pliers to cut at an angle opposite the base of the branch.

The branch should then be broken off at the incision and pulled towards the base. It is best to do this technique out of the sun to prevent the product from yellowing.

Shari

The shari is the part that is scraped off the trunk in this case, you will need to choose the right place to shape it on your plant. Draw the precise shape for your shari before removing the bark from the trunk.

Work on your shari over several months or even years to avoid risks to your tree. Start with a narrow strip and widen it over the months.

As soon as the desired shape is obtained, dig in slightly with the concave pliers.



Prune and grow, a method of growing bonsai

Prune and grow is a method of creating a bonsai tree more quickly by structuring its main or primary branches and its main roots (roots forming the base of the trunk). This promotes the growth of the base of the trunk.

This technique applies to both young plants and miniature trees that need to be completely restructured by reducing them to a single stump or trunk.

Its implementation requires courage and perseverance throughout the creation period, during which the branches may develop disproportionately, until the tree is transformed into a structured bonsai to be refined over time in the search for perfection. The implementation of this method of bonsai cultivation is based on a few basic principles.

Choosing the structuring agent

The choice to be made concerns the height of the bonsai desired in the end. This is mainly a matter of taste, but also depends on the species of tree being grown. The leaf size of some species is easier to reduce than others. The final height of a bonsai from a chestnut tree will be greater than that of a bonsai from an elm.

The width of the final pot will depend on the desired final height. In principle, the pot should be $\frac{2}{3}$ the height of the tree and allow for good root development. Pots usually have a width/length ratio of about $\frac{3}{4}$ if the width of the root ball is at most half the height of the tree. Thus, it is important to take into account the final height of the tree and the final width of the root ball which is half the final height for the creation of the bonsai.

Interventions

The interventions to be made for the cultivation of bonsai according to the "prune and grow" technique vary according to the species of tree to be worked on.

For deciduous trees

For deciduous trees, the work is done during repotting in February or March, depending on the season for the species, if the young plant has reached its final height. For deciduous trees, work is done on the roots and branches of the tree.

If the plant exceeds the desired height, its vertical growth must be stopped by pinching its apical bud. If, on the other hand, the plant has not reached the target height, wait another season and let the tree grow without repotting or pruning.

For pines tree

Pines develop in a single annual shoot and grow more slowly, which makes them more difficult to manage. The interventions to be made on this species of conifer consist of encouraging them to create buds at strategic points at the end of each spring. Between the end of March and April, repotting is triggered by the condition of the substrate and the growth of the tree.

The creation

The creation stage involves 2 processes, the creation of primary branches and the work on the roots accompanied by repotting. As the growth mode of the trees is different, so are the approaches and techniques to be used.

For deciduous trees

1. The creation of primary branches

The creation of the primary branches of deciduous trees consists in positioning the first branch, then the second branch and so on. The main branch which forms the trunk must be cut at a precise distance in order of intervention according to the target height by measuring from the roots.

- For a target height of 7.87 inches : 2.75 in, 4.33 in and 5.51 in;
- For a target height of 11.81 in: 3.94 in, 6.7 in, 8.26 in and 9.44 in;
- For a target height of 17.71 in: 5.90 in, 9.84 in, 12.59in, 14.17in and 15.35 in
- For a target height of 23.62 in: 7.87 in, 13 in, 16.53 in, 18.89 in, 20.47 in, and 21.65 in
- For a target height of 35.43 inches : 11.81 in, 19.68 in, 24.80 in, 28.34 in, 30.78 in, 32.28 in, 33.46 in.

The pruning should be done above the bud closest to the target height in each case. For species with alternate buds, care must be taken to ensure that the direction of the bud above which the pruning was carried out also defines the direction of the trunk. For species with opposite buds, it is necessary to tie one of the two branches that are growing with the same strength horizontally in order to slow down its growth. The other branches can, on the other hand, grow freely to give the bonsai depth.

2. Root work

Deciduous trees usually develop taproots to anchor the tree deep in the ground. In the art of bonsai, these roots are not very useful and even hinder the development of a fine network of rootlets that allow the tree to benefit from a supply of nutrients and water. Repotting is therefore necessary.

3. First repotting

The first repotting consists of cutting the roots, leaving only a few rootlets necessary to feed the young plant. This operation is similar to a root cutting. It will allow new roots to develop at the place of the cut, starting from the same point. These will form the future base of the bonsai and will be taken into account when measuring pruning distances.

4. Next repotting

The next repotting operations consist of cutting the downward growing roots, which will become increasingly rare as the operations progress. They also involve cutting the lateral roots in sequence, always taking into account the target height of the tree and the recommended distances from the trunk.

- Target height of 7.87 inches : cutting of the pivot, 0.78 in and 1.18 in
- Target height of 11.81 inches : pivot size, 1.81 in, 1.96 in and 2.36 in
- Target height of 17.71 in : Pivot size, 1.57 in, 2.36 in and 3.14 in
- Target height of 23.6 in : Pivot size, 1.96 in, 3.14 in and 3.94 in
- Target height of 35.43 in : Pivot size, 3.14 in, 5.11 in and 6.3 in

The cuts should be made at rootlet branches to encourage branching. It is also important to ensure that the width of the growing pots is suitable for the roots. In principle, at least three root prunings in addition to the initial pivot pruning are needed to obtain a good foundation for the creation of bonsai.

For pine trees

1. The creation of primary branches

The positioning of primary branches of pines follows the same principle as for deciduous trees. For this species of conifer, however, it is necessary to ensure that there are still intermediate branches, especially at the back. The first operation is carried out after the buds have opened and the first needles have spread in late spring. The procedure will be determined by observing the distance between the previous main branch and the new main branch to be positioned and the growth of the buds. Three different cases can be observed:

- **1st case:** bud size less than $\frac{2}{3}$ of the distance between the previous main branch and the new main branch to be positioned. No operation is required.
- **2nd case:** Distance between the previous main branch and the new main branch to be positioned greater than the bud size, no back branch from the previous main branch. The bud must be cut to $\frac{2}{3}$ of the distance between the previous branch and the theoretical location of the next main branch using scissors.
- **3rd case:** Distance between the previous main branch and the new main branch to be positioned is greater than the bud size and a back branch develops from the previous main branch. The bud should be cut to the height of the new main branch using scissors.

Bud pruning is often accompanied by multiple budding at the pruning site. If this is the case, it is necessary to select the two best positioned buds and remove the others in the autumn. As for the height of the main branches, the following dimensions should be taken (measured from the roots):

- Target height of 7.87 inches : 2.75 in, 4.33 inches and 5.51 inches;
- Target height of 11.83 inches : 3.93 inches, 6.69 in, 8.26 in and 9.44 in;
- Target height of 17.71 in : 5.90 in 9.84 in, 12.59 in, 14.17 in and 15.35 in;
- Target height of 23.62 in: 7.87 in, 13 in, 16.53 in, 18.89 in, 20.47 in and 21.65 in.
- Target height of 35.43 in: 11.83 in, 19.68 in, 24.80 in, 28.34 in, 30.70 in, 32.28 in and 33.46 in.

2. *Root work*

The aerial development of pines and the fact that the roots are not really remarkable in nature mean that this species has a delicate root growth pattern to control. Pruning does not necessarily result in the desired root division and may even cause the root to die. The operations are therefore more often concentrated on the development of the root ball.

The roots of pine trees are more flexible, however, which makes it possible to position the plunging roots horizontally when repotting. If not, they should be cut off, making sure that the tree still has some roots to ensure its nourishment. It is then necessary to keep the remaining roots closest to the trunk by cutting near a natural division.

For other species

The work on the tree will depend on the species chosen. In general, the procedure is more or less the same as for deciduous trees or pines.

1. *Azaleas*

The creation of primary branches is done in more or less the same way as for deciduous trees. Azaleas develop fine rootlets, which makes the root work different. It is sufficient to work the rootlets into the mass.

2. *Epiceas*

The creation of branches and the root work are identical to that of pines.

3. *Junipers*

The creation of primary branches is similar to that of deciduous trees, but the growth is continuous throughout the season. In order to promote branch growth, the branches should not be pinched. The same procedure as for pines should be followed for root work.

4. *Larch trees*

The creation of branches is close to that of deciduous trees if the work on the roots is similar to that of pines. Indeed, larches are deciduous conifers that easily bud backwards.

9. Shaping bonsai: the golden rules

The creation of bonsai is similar to the sublimation of nature in miniature. It requires a thorough understanding of the species to be worked on and of the art of bonsai. The latter is based on a few principles that aim to avoid improbabilities in the development of the miniaturised tree.

Avoiding inconsistencies

Harmony is at the heart of the art of bonsai. Inconsistencies should therefore be avoided when working on the branches and roots.

Working with the branches

Branches develop in such a way as to favour photosynthesis by optimising light capture in nature; and those that do not follow this approach are neglected by the tree and may die. In bonsai cultivation, which is in the form of a natural, aged tree, inconsistent branches are cut off as soon as possible in order to achieve the desired objective.

Root work

The roots guarantee the coherence of the tree during the construction of a bonsai. By applying various techniques, they are distributed harmoniously around the trunk and usually emerge from the ground to become visible. Roots that emerge from the ground and grow a little deeper are usually destroyed by the elements or animals. When shaping the bonsai :

- The absence of visible roots is only acceptable on conifers which rarely allow roots to emerge from the ground during its growth.
- The presence of aerial roots is only acceptable on certain species that produce them naturally, such as ficus.

Respect the species

Each species is unique. It is therefore necessary to know the natural tendencies and physiologies of the tree when growing a bonsai. Apical dominance occurs in many species except azaleas and some varieties of pine and juniper.

Generally speaking, the conservation of dead wood over time is easier on conifers than on deciduous trees. As far as branches are concerned, deciduous branches are more horizontal and hardly ever point downwards to maintain the structure of the sap flow channels.

The branches of conifers are more flexible and tend to bend towards the ground, which allows for 'cascade' formations when shaping tree species in this family. When shaping the bonsai, it is important to take into account the characteristics of the species in order to obtain an aesthetic coherence and a harmonious whole.

Choose the main viewing angle

A bonsai is usually three-dimensional and has a privileged viewing angle from which it shows its best aspect. The existence of a main viewing angle makes it possible to put in the background any defects that may be hidden by a part of the foliage, a trunk or branches. When contemplating a bonsai, which is generally done from the roots to the top, one hopes to admire :

- The harmoniously distributed roots of the bonsai, which show a solid anchorage in the soil;
- The trunk of the bonsai with mature bark that allows one to appreciate the age of the tree and the coherent movements of the trunk with the branches;
- A strongest and oldest branch that highlights the movement of the trunk;
- Another hidden, but visible branch that gives depth to the bonsai;
- A branch that balances the stronger branch;
- Branches with spacing and diameters that decrease towards the top. They are well distributed around the trunk;
- The top of the bonsai is rounded, a sign that the tree is mature.

Balancing foliage and gaps

The three dimensions of the tree are shaped in such a way as to create trays that allow the tree to maximise the exposure of its foliage to the sun. This shaping is also a matter of tradition in Japan.

The volume of foliage on each branch, from the first branch to the top, should gradually decrease. Whatever the angle of view, the whole must fit into a scalene triangle. The shape of the bonsai can be based on the Japanese codified styles, the styles observed in nature, personal inspiration or the styles proposed in books or other documentation.



10. The essential equipment

Bonsai enthusiasts have a variety of equipment at their disposal that is adapted to this culture. However, it is important to note that very beautiful bonsai can be obtained using household tools. However, it is preferable to use improved tools, especially as they facilitate the application of many techniques. Here we will look at the most common and useful ones.

Tools to use

Leaf clamp

These are used for maintenance pruning of leaves and for delicate leaf removal work. It is designed to cut the stalks. Its small blades and spring handle are perfect for dusting bonsai trees.



Branching scissors

These are used for complex pruning in branching, branchlet and petiole pruning. They have long handles to penetrate the branches without damaging them. Their pointed ends provide great precision when cutting.

Round scissors

These are used to trim branches larger than 10 mm in cross-section. This steel tool is one of the most useful tools used in bonsai cultivation. The handles are rounded and springless.



Wire cutters

These are just designed to cut the wires at the ligature that leads the branches.

Concave knot cutters

The concave cutter is used to cut the branches in such a way as to leave a hollow mark on the wound that will lead to active healing of the tree.



Rakes with a spatula

The rake with a spatula is used to remove needles from conifers, remove buds and remove weeds from the foot of the bonsai.

The coconut broom

It is used to clean the surface of your bonsai's stand. It can also be used to remove excess soil and achieve an intact result without damaging the root.



The dosing cylinder

This is used to add soil to hard-to-reach areas after repotting. It is usually made of stainless steel and comes in different sizes.

Tying wire

Its main function is to roll up the branches to perfect their position and to give movement to the trunk. A wide range of diameters is available, but the choice depends on the part of the branches to be tied. For the most frequent shaping, wires with a diameter of 1 to 4 mm are used.



Pots

As said before, the bonsai pot plays a big part in the design of the plant. No pot, no bonsai. It is the accessory that will be used to present the tree with a capital L. It must be chosen with care to highlight the bonsai without stealing the show and becoming the headliner.

Care must be taken to maintain a visual balance between the plant and the pot. The size, shape and colour of the pot should be chosen according to the bonsai, its style and the colour of its foliage throughout the seasons.

The size of the pot

It is important to choose the right pot for the bonsai tree, since in order to be healthy, the bonsai tree must be well adapted to its pot:

- If the pot is too small, growth would be difficult ;
- If the pot is too large, the crop will grow too fast.

In general, the depth of the pot is twice the base diameter of the trunk. Bonsai with a large root system (such as those pruned in the waterfall style) require a deeper pot, while those with multiple trunk styles are presented in flat pots.



The colour of the pot

The colour and design of the pot should not be overlooked either. Certain rules must be followed so that the colour reinforces the right character of the tree. Especially since the pot serves to highlight the bonsai tree without overpowering it.

The choice of material for the pot is also important. The difference between glazed and unglazed pots is that unglazed pots are more suitable for wild species and glazed pots are more suitable for deciduous, fruit and broadleaf bonsai.

The shape of the pot

The choice of shape is very wide and does not really influence your culture most of the time. However, you should choose a shape that will be in harmony with your bonsai.

So for a touch of aestheticism you can prefer :

- The rectangular pot for the styles: straight formal Chokkan and double trunk Sokan.
- The oval pot for the styles: broom, multi-trunk, forest style and maple.
- The round pot for the styles: conifers and deciduous.
- The deep round pot for the styles: waterfall and semi waterfall.

11. Location

Indoors

This small shrub is linked to the distinctive calm and serenity of the atmosphere emanating from the Asian regions, it also offers a touch of aestheticism and freshness.

It is important that the bonsai plant captures as much light as possible. The solution is to place the plant behind a window. In winter, it is best to place it in a south-facing window and in summer it is best to place it in an east or west-facing window.

To maintain a balanced foliage, it is necessary to turn it towards the sun without neglecting the temperature, since strong heat or cold can make the bonsai suffer and even harm their development.



Outdoors

Ideally, you should choose a place sheltered from the wind and storms. It is not advisable to put the bonsai in a place that is too exposed to the sun, as its terrine dries out quickly and this could lead to the death of the plant.

Not all bonsai fertilisers require the same care and the health of the plant depends on the care given to it.



12. Maintaining your bonsai

Bonsai, like many other natural species, live and need regular care to help them survive. The care of bonsai is essential as they are not immune to disease and harmful pests. Plants must be properly cared for and healthy to avoid any risk of infection.

1- Watering

Like all living things, bonsai plants need resources and dehydration can be fatal for them. Excessive watering is also not beneficial. The bonsai container is small and the soil will dry out quickly.

If a bonsai is dry, replenish it with a small amount of water and start again later with a good amount. To prevent the soil from settling and suffocating, it is best to water it by rain.

Indoor bonsai plants need to regain their natural moist climate. Daily watering is therefore preferable to spot watering..

Bonsai should only be watered when the base of the plant becomes dry and should not be watered out of habit. A plant will not dry out if it is still wet, so there is no need to spray it with water every day. You can run your fingers through the substrate and feel if it is still wet before each watering.

It is best to water the bonsai early in the morning before the sun shines, as in the afternoon the substrate is heated by the sun and may cool down suddenly during watering.

Water generously until the water runs into the drainage holes when the tree needs water. It is best to water over them with a watering can from a fine spray head. Rainwater is preferred to tap water which will be more beneficial to your bonsai, but if this is not feasible, tap water would be fine.

2- Hygiene

As explained earlier, watering in the form of rain or a shower is essential for bonsai trees. This is especially useful for dusting and removing all kinds of bacteria from the tree. You can use adjustable pressure sprays, watering cans and Chinese brushes with plant fibres for this. If you use an adjustable pressure spray, you should be careful to adjust the pressure to avoid damaging the leaves, but increase the pressure when the species is larger.

Increasing the pressure will help to remove unwanted bark where the mites remain. Brushes will help you clean the base of the tree and highlight the taper of the tree. There are also softer brushes that remove limescale deposited on the plant during the plant during watering. Remove fallen leaves when they are devoid of autumn colours.

Pots also need to be cleaned and maintained, for example you can rub Vaseline on the earthen ones to get a nice patina.

3- Parasites on bonsai trees

Several bacteria can take up residence on your bonsai. Over time, they can harm the health and development of your plant, so it is important to avoid them and eliminate them as soon as you see them. They appear on the leaves and trunks.

To avoid them, it is first of all essential to put your bonsai in the right substrates. It is also important to maintain good hygiene and watering of the bonsai.

But when these pests persist despite care, insecticides and acaricides should be applied to the bonsai. You should also consider isolating the infected plant from your other plantations.

4- Summer and winter bonsai maintenance

Winter maintenance of bonsai

For indoor bonsai

This is a rather severe and complicated season for indoor bonsai. They can really suffer from drought due to lack of light, short days and different winter heaters.

The perfect location for bonsai during this period is a bright, unheated spot, such as on a veranda.

Dryness in the air is possible, so spraying to maintain humidity is the solution. It is also advisable to water properly and to be attentive to the needs of the bonsai.

When it is time to ventilate, care should be taken to ensure that the bonsai is not attacked by the draught, as this could result in the loss of the leaves.

For outdoor bonsai

During this period, outdoor bonsai should be limited in terms of watering, while closely monitoring the weather because of the risk of root freezing. As a precaution, they should be watered during mild weather during the day.

Care should also be taken with frosts and strong winds. If it is not feasible to place it in a bright location and protect it from winter blows, it would be better to use a horticultural lamp system to increase the lighting of your bonsai.

Repotting and un-potting the bonsai can be resumed in early spring. For some species, such as conifers and deciduous trees, this period is favourable for tying, structural pruning and treatments, while other species are at rest during this period.

Summer bonsai maintenance

For indoor bonsai

It is always essential to water bonsai regularly and according to its demand. Fertilisation could continue without exceeding the limit of fertiliser per month.

In order for your bonsai to develop fully, it is advisable to put them outdoors for a period of time.

Constant care should be taken to ensure that pests do not take hold during this period, as it is more favourable for them to manifest themselves under these conditions.

For outdoor bonsai

Watering is always essential before any other kind of maintenance during the summer. It is the latter that will lead to the development and good health of the bonsai during periods of heat or just with the increase in temperature. When the flow of watering increases, watering should be done almost daily, but care should be taken to check the humidity level so that there is no excess water.

It is best to reduce the amount of fertilizer during hot weather. This is because this environment gives rise to pests and diseases. To avoid these, it is best to apply fungicides and insecticides in advance.

During this season, the defoliation of certain species such as maple trees can create a second spring. Repotting is not necessary at all for the summer days.





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