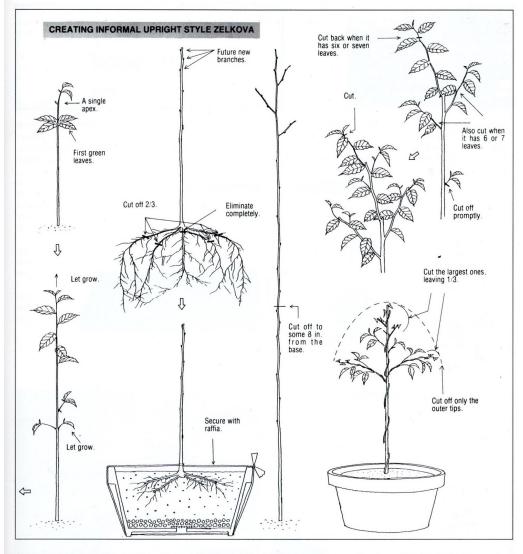




GROWING A BROOM STYLE ZELKOVA FROM SEED



third. Immediately after pruning. tie the branches up as was done in the fall, but only for twenty-four hours.

The third year the same procedures are followed - defoliation, pruning and tying the crown briefly in June and in autumn for the winter season. From this year onward it wi

In the spring of the fourth year the plants may now be transplanted to a bonsai pot that is slightly larger than visually necessary in order to allow greater growth. At this time carefully remove any excessively thick branch.

Starting in the fourth year, transplant every two or three years, cleaning the rootball of soil and carefully pruning and selecting the roots in order to form a rootball that is as ordered as the branch structure.

From this year onward it will be necessary to thin the growth, cutting off branches that cross each other and those that are growing horizontally or toward the interior of the tree.

If it should be necessary, correct the growth of any branch with wire.

Starting with the sixth year, select those plants that have the greatest possibilities and then, armed with patience, wire all the branches and all the shoots one by one.

It is only in this way that the best specimens of zelkova trained in the broom style are achieved - the ones that, in the seventh year, may now be planted in the final bonsai pot. The maintenance of that delicate structure is already the theme for previous articles. vigorous than the other and must be pinched back so that, by the end of the first year, both branches have the same strength.

Let the stronger branch have seven leaves and then pinch back to four or five leaves; when the weaker branch, in its turn, has seven leaves, pinch it back. This first year is crucial for achieving balanced ramification.

If everything goes properly, in Au-

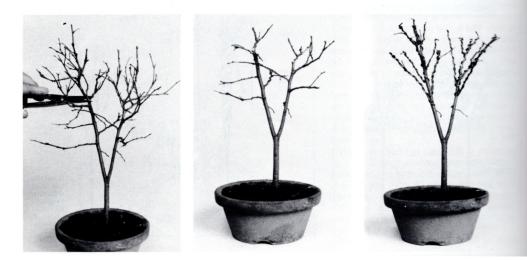
gust the little plants will already have the appearance of mini-brooms. At this time, gathering the branches together with one hand, trim the growth straight across, without worrying about whether leaves or shoots are being cut.

In autumn, tie the branches closely together with raffia or cotton twine as shown in the illustrations, giving it the appearance of a hearth broom. The following spring, before budding begins, untie the crown, remove the plants from the seed flat and, after pruning the roots again, place them in individual training pots.

After the first year, do not pinch the plant back; instead, leaf prune or defoliate it in June. After defoliation is done, again gathering the branches together, prune them straight across. reducing the growth by approximately



This series of illustrations shows a four year old zelkova. After pruning and defoliation, wiring will correct the direction of the branches. In early spring, it will be transplanted into a bonsei pot that is slightly larger than desired.

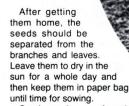


Zelkova serrata from seed Author: Kenji Shibusa

There is no need to emphasize that the best way to achieve the fine ramification that is typical of bonsai zelkovas is to start with seed. In this article I will describe the sowing and training techniques commonly used in Japan for this species.

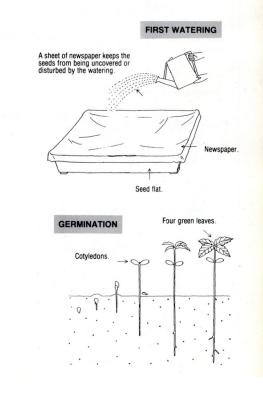
Zelkova seeds must be gathered from trees growing in small groves, but not from single specimens. The best parent trees have dense vertical growth and those with horizontal growth or slight branch density are rejected. Contrary to how it might appear, small sized seeds are the best since the trees that grow from them will tend to have small leaves.

The best time for gathering is in October when the seeds are already mature, but have not yet fallen to the ground. The zelkova produces seeds every two years at the tip of the youngest branches.



Seeds may be sown from the first of March until the middle of May although the best results are obtained if they are sown at the end of March or the beginning of April. Twenty-four hours before sowing, soak the seeds in water, the next day rejecting the ones that are floating.

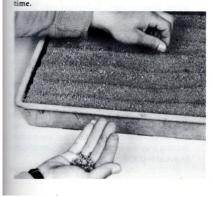
A simple wooden box with plenty of drainage holes may be used as a seed flat. The soil ordinarily used consists of a mixture of equal parts of peat and river sand. Before plant-

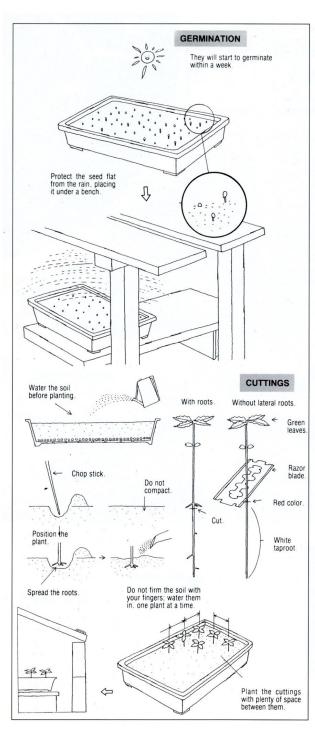




This is what zelkova seeds look like. For bonsai, the smallest seeds are preferable.

Try to plant the seeds with the sharp end pointing downward to keep the stem from curving when it breaks through the seed coat. Plant them one at a





ing the seeds spray them with fungicide. Make parallel furrows in the soil that are about $\frac{1}{4}$ inch deep and $\frac{1}{2}$ inches apart, then put in the seeds.

As much as possible, try to have the sharp tip of the seed pointing downward to avoid the unsightly curve that the trunk acquires if they are planted the wrong way up.

Once they are planted in the seed flat, water them thoroughly. So that the smallest seeds will not be uncovered, place a piece of newspaper over the flat which will permit water to pass through, but at the same time will keep the force of the water from disturbing the seeds.

Until germination occurs the ideal spot for the seed flat is under a growing bench — anywhere where it will not receive direct sunlight or impingement of rainwater; but, once germination has occurred, expose the seed flat to the sun since this produces smaller leaves and shorter stems.

When the recently germinated seedlings have four green leaves, it is time to transplant them.

Remove the little plants and cut off the taproot, down to the first lateral roots. If there are no lateral roots it usually means that the mixture of soil was too compact; in this case, cut back to where the stem begins to take on a reddish color.

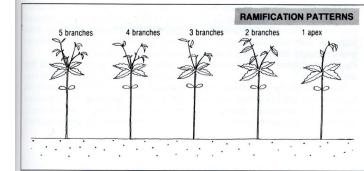
The cut, which is made with a razor blade, must be straight across and should leave only a small amount of white stem. As soon as they are cut, place them in a pail of water in order to prevent them from becoming dehydrated.

Planting is not complicated; the same seed flat is used, providing that the soil has not become too compacted. If it has been, prepare a new mixture, making sure the problem has been corrected this time.

First, dig a small hole with a little stick or chop stick, set in the tiny plant and put soil around it, but do not press the soil down with our fingers; instead gently pour on a little water, plant by plant, to firm the soil. The soil mixture should be moistened before planting. Do not water after transplanting because if the soil is compacted, the seedlings will take a long time to root again, or, in fact, may not root at all. Misting or very gentle watering is however necessary.

With the seed flat placed in a protected spot, the cuttings will have new roots within a week, followed by budding. Generally not all of the plants naturally ramify into two main branches - only about 30%. The remainder, with three, four or five branches, are pruned, leaving only the two innermost shoots in order to avoid a U shape.

Even so, one of the branches will be more



Although the preferable ramification is two branches, ten percent of the plants emerge with one apex, 30% with two branches, another 30% will have three, and 30% will have four apices. Moreover, once in every 60 plants or so a seedling with five apex ramification will appear. Those with a single apex can be trained in the informal upright style, while in the other cases, prune them, leaving only two branches.

