
Growing Welwitschia mirabilis

Welwitschia is not a true succulent, yet it is the succulent growers and enthusiasts that are most interested in it. It is caudiciform, yet is not often included in accounts of these plants as it belongs in the 'wrong' family! Tree enthusiasts regard it as a tree driven underground. Ernst van Jaarsveld, who has looked after the succulents at Kirstenbosch since 1976 and who has been successfully cultivating welwitschias in this time, regards Welwitschia as a terminally truncated caudiciform, although initially semi-succulent, woody xerophyte. To cultivate Welwitschia successfully, he recommends that its peculiar native environment be simulated.

At Kirstenbosch, a Welwitschia House was custom-built in 1985, containing raised beds with bottom heat, filled with mineral-rich, well-drained, red "Vanrhynsdorp sand". Seed was sown in 1985 and one of the young plants flowered exactly two years and six months later. This was a new record, and Ernst attributes their success to the bottom heat during winter, the sand, and the regular watering.

At first glance it would appear that Welwitschia would be almost impossible to grow, but this is only partly true. Welwitschias can be grown easily, even as pot plants and even on window sills and verandahs in cooler climates. Once established, the plant will grow steadily and is relatively disease free. The most crucial stage is during its first eight months after germination when it is prone to fungal attack. Also, as it is not a true succulent, it should not be treated as one. It is dependant on additional water from its roots and if grown in a pot, care should be taken that the soil does not dry out completely.

When growing welwitschia there are a few important factors to take into consideration: the long taproot, its dependence on extra moisture and the soil used. Plants from arid regions are often lost to fungal infection caused by soil with a high organic content. It is safer to use a sandy mixture, water more frequently and give supplementary feedings. It is also recommended to use sterilized soil. Older plants tend to accumulate organic debris around themselves which enriches the soil and acts as a mulch, helping to retain water in the upper layers of the sand for longer.

Seed should be sown during the warmer months, spring or summer. In habitat the seeds are dispersed in spring, but have to wait for rain to fall before they germinate. It is best to sow seed into a large, deep (at least 30 cm, preferably more) container or into an open bed where the plant is intended to remain, because the taproot grows quite fast in the initial stages. If using a container, remember to place a layer of gravel or rocks at the bottom to ensure good drainage. The soil must be sandy and well-drained, e.g. 2 parts sand : 1 part loam : 1 part compost (leaf mould) with ample bonemeal, well mixed and sterilized. Moisten the soil thoroughly before sowing. If using a container, sow two or three seeds per container, near the centre. If more than one germinates, it can be transplanted in its first month, or left to form interesting graft complexes with its sibling. If you have an open bed, scatter them evenly over the surface. Place the seed on top of the soil and just cover it with a layer of sand. Water well and keep in a warm sunny situation. It is important to add a mild fungicide, like Captan, to the water during the first year as it will prevent fungal attack. Keep the soil moist until the seeds have germinated.

The placement of the ungerminated and germinating seedlings is also important. Choose a well-aerated, warm atmosphere, preferably in filtered sunlight. The plants are very sensitive to sudden changes in light intensity. Never move a plant from a shady situation to full sun, the leaves will burn and the plant may never recover and die. So when moving your plant, make sure that you gradually harden it off to brighter light. Welwitschias in containers can be grown in glasshouses, window sills, verandahs (stoeps) or outdoors in areas with rainfall of below 500 mm per annum. In higher rainfall areas, it may be quite happy on a slope. Also, we do not know its frost tolerance. Just because its habitat is frost-free today, does not mean that it did not have to contend with a colder climate during its evolutionary history.

Germination should occur from 7 days to a few months after sowing. The first sign is the cracking of the soil and the appearance of the two cotyledons, initially pink in colour, becoming green. Initial
growth is very rapid, particularly the growth of the taproot. It is essential that seedlings in a shallow tray be planted out as soon as the cotyledons appear. Take care when transplanting, if the root tip is damaged or broken, the seedling will die. Keep the seedlings well watered during the first season. The warmer the temperature, the faster they will grow. At Kirstenbosch, the temperature in the Welwitschia House varies between 20 and 40 degrees C in summer and growth is good - 20-30 mm high in three weeks with a taproot 50-70 mm long. It is better to give too much water than too little, but remember the fungicide.

Seedlings should be watered regularly, at least once a week at first, and later watering can be reduced to once every two weeks. The amount of water also depends on the climate, cooler climates requiring less watering than hot dry ones. During the natural resting period in winter, watering should be reduced, and increased again in late spring when the weather warms up again.

Welwitschia reacts well to being fed, and 'green up' and grow a bit more rapidly in response to a mild, natural, organic seaweed-based fertilizer added to the water once every three months during the summer. The Kirstenbosch plants also get a dose of inorganic 2:3:4 in the spring.

The cotyledons may last for up to two years in cultivation. They become erect and expand to a length of 27-35 mm and the permanent leaves will then become visible between them. They are always opposite to the cotyledons and it is these two leaves that the plant retains for life. The permanent leaves grow rapidly, soon overtaking the cotyledons. They are upright at first, becoming erectly spreading after 8-12 weeks and eventually diverging. Between the two leaves another pair of what appear to be leaves will appear. These are the cotyledonary buds, also situated opposite the cotyledons. They gradually become swollen and keeled and from here onwards, the peculiar growth habit begins. These cotyledonary buds are in fact axillary buds whose apical growth stops, causing the death of the growing tip. Now, instead of apical growth the buds gradually broaden, eventually merging. The meristematic tissue at the base of the buds now grows sideways, together with the meristematic tissue on the outer sides of the leaf, which causes the leaf groove to deepen and causes the characteristic obconical growth of the stem apex. This growth occurs annually during the warmer months and is visible in concentric rings. Thus age can be roughly estimated by counting these rings, analogous to the growth rings of a tree.

Welwitschia is relatively disease-free, except during its first year or so when it should be watered with a fungicide. They are prone to attack by woolly aphid, but this can be controlled with an insecticide like Malasol. Caterpillars have also been caught on the leaves of the Kirstenbosch plants.

References


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