

with each seedling, thus causing less root damage.

Having planted the seed, gently press the seed into the mix with the cheese glass lid (instead of covering the seed with the mix), place a sheet of clear glass over the top of the pot and place in a bright corner of the glasshouse. In approximately five weeks' time, two small leaves from each plant should appear. At this time the glass cover may be removed. During this five week period no watering should be necessary.

From the time the plants reach their leaf stage, it is reasonably safe to transplant them into a 15cm plastic pot, in the same mix as above. Place them in a bright position and water. If some coarse pebbles are placed on one side of the pot, on top of the mix, then the plant may be watered from above without disturbing the surface of the mix. Having watered the pot well, it should not be watered again until the top one centimetre of the mix is quite dry.

Remember these plants grow in semi-arid conditions, not in a waterlily pond!

The big secret in both growing these plants, and in getting the seed started, is in the watering. "BE MEAN WITH IT," and if, as autumn approaches, the plants show any sign of going dormant (leaves going yellow and looking very scruffy), withdraw the water and let them dry out completely. If they do not go dormant, then just water as normal, as they require it. Growth will, however, slow down quite a lot.

My seedlings, grown under the above conditions, reached a height of 40cm in the first nine months and flowered from every leaf. Having seen this beautiful plant in bright light, with all its beautiful colours reflecting from the leaves, I can understand why it is called the Rainbow Plant.

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## Rearing Cobras

by Jennifer Brownfield

These highly prized and unique plants are a must in any C.P. enthusiast's collection. Their incredible bulbous heads and snake-like fangs on top of the twisted stems immediately capture a person's attention and interest. Needless to say, much time can be devoted to ensuring one's plants are in their best health, and due to their relative rarity and high cost, considerable concern is expended over whether what we are doing is best for the plant.

This is the first of a two-part article in which I tell of my methods and techniques for ensuring the proper care and conditions that should be provided for the plant. I initially discuss how to care for mature plants, their likes and dislikes, and complete the submission in the second part, writing about propagating from cuttings of both rhizomes and leaves, and finally about how to raise seeds. At this stage, I would like to make it known that

some of the following are observations only and may not be botanically accurate; even though we at Al Carnivor have been raising cobra plants for around ten years now, we still have an occasional failure.

To continue - For the purpose of this explanation I will consider a mature plant to be over two years old, or a minimum of 7cm tall. This ensures that the early juvenile leaves have ceased forming and the following comments will apply.

For the perfectionist, a cobra should have 14 hours of cool, bright light, good air movement with humidity above normal, and its roots constantly washed by underground cold water seepage that has a temperature no warmer than 17°C. Fortunately, cobras are reasonably hardy and fairly forgiving, allowing us, with a few improvisations, to have reasonable success with these plants.

Definitely the first major requirement to consider is how to ensure a cool root system,





*Darlingtonia californica.*

Photo by Kim Lynch.

hence the tendency to terracotta pots and not black plastic and the like. Terracotta can be kept cooler by frequent wetting on the outside, duplicating a Coolgardie Safe action, or placing the plant's pot into a larger terracotta pot and filling the gap lightly with sphagnum moss which can be kept wet. I have found that the ambient temperature above ground is not a worry and it can rise to above 40°C for a short

time without loss of the plant, so long as the relative humidity is kept high. Other ideas used during peak hot weather entail using ice cubes on the surface or refrigerated water, but I feel all that is really necessary is placing the plant down on the ground under a bench in fairly strong shade and thoroughly watering each day—but be aware that cobras dislike standing in stagnant water. It is better to err on the dry



side than to have the plant too wet, especially during winter, when the plant is dormant.

An inexpensive container suitable for cobras is the foam fruit container. Though it is not as good as terracotta, it has good depth for the growing medium. This is necessary as the plant's roots are very long and coarse. I have found the plant is not particularly sensitive to the growing medium and have used pure peat, peat and riversand 3:1, and sphagnum and river sand 3:1 successfully. Eventually the sphagnum has proven to be the best because it is cooler during summer with less fungal problems and a more even moisture content throughout the year.

Repotting appears to be required no more often than every third year, however a three year old plant may well be sending out "runners" by that age and repotting will be necessary to provide extra room in the pot. The runners mentioned are similar to couch-grass and travel underground from the parent plant for a distance of around 40cm, whereupon they surface and their ends rapidly establish new plants. The growth rate of one of these plants conservatively is 4 to 5 times faster than an individual plant.

The main growth period occurs from October to May, our normal spring to autumn span. Runners begin from around the new year on, flower spikes around late spring, and new leaf growth from early spring. The first leaves tend to be abnormally vigorous and a 3 year old plant around 10cm tall can suddenly grow a 30cm plus leaf, followed by two or three more slightly smaller leaves. The thickness of the base of the new leaf will indicate how tall the young leaf will become. The leaf grows to maximum height first then the head and fangs blow out to their full size.

This is the time to be particularly vigilant, for pests and grubs can cause havoc on the young tender new growth which unfortunately they seem to find particularly delectable. It only takes a micro hole on a developing new leaf to completely ruin it when it matures, for the hole grows with the leaf.

Cobras appear sensitive to many insecticides and fungicides so use caution here. Half-strength trials are wise. New growth suffers first with the new leaf browning and going hard. Older leaves tend to lose colour and wilt over. Carbarul is a particularly nasty spray. Perhaps it's the lead component. Benlate fungicide may not kill the plant, but appears to be harmful to new growth. Natural sprays such as Pyrethrum and/or garlic appear to cause no ill effects. A fungus or brown rot can seriously afflict the main corm or rhizome, resulting in the leaves rotting from the base up. I suggest careful pruning and 2 or 3 weekly half-strength applications of a fungicide will help, but I am eager to hear further comments on this problem.

During winter there will not be any growth so reduce watering, perhaps to just once a week, and keep the plant barely moist. I have accidentally almost dried out plants without too much of a problem, but this cannot be allowed during the growing season.

Finally, the question of humidity. Certainly a high moisture content in the air is most suitable. The fangs and head of the leaf are particularly susceptible to dry air and dry out brown. Devise ways of best placing moist sphagnum around the plant. Standing the pot above the surface of a tray of water may be sufficient.

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Several past issues of CPN included biographical sketches and pictures of our members, but due to lack of input these feature stories have not appeared lately. Don't be modest! Send us a paragraph (or more) about yourself and your interest in CP with a black and white photo or color slide. We'd like to get to know you!



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