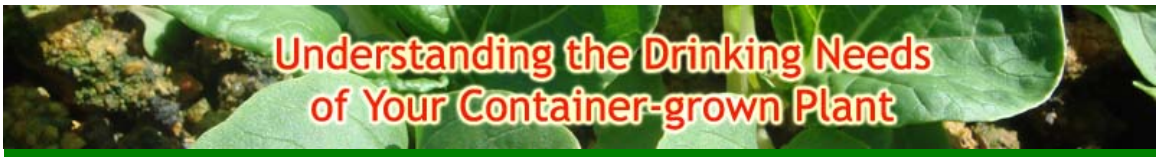

Green Culture Singapore Feature Article for June 2008

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An important fact that all container gardeners need to be aware - a potted plant is entirely dependent on its owner to replenish its supply of water.

In a highrise environment, the most practical way to grow plants is inside containers of soil. Resources that are essential for growth and survival, such as water, are limited for a container-grown plant because the size of the container is fixed. A potted plant's supply of water depletes with time as it gets absorbed by the plant or lost through evaporation and the plant relies entirely on its owner to replenish it.

Each species of plant has its own unique need for water. The thought of having to remember the water needs of each individual plant can be quite daunting for a novice apartment gardener with a diverse array of plants grown in containers. It is not unusual hear from beginners that they have murdered their plants by watering excessively. For others, their plants die from extreme thirst when the watering has been witheld or forgotten for prolonged periods.

As a general rule of thumb, most terrestrial plants prefer to grow in a medium that is moist. After each watering, the growing medium absorbs some of the water. It should not be so wet that one can squeeze water from it. Excess water should be allowed to drain away. The growing medium is then allowed to dry out before the next watering. This process allows air, particularly, oxygen, to get to the roots. Constantly soggy conditions deny plant roots of oxygen, which will cause them to rot and die.

Depending on the growing conditions, the frequency of watering a similar species of plant can differ quite dramatically. In this article, the factors that affect the frequency of watering a container-grown plant, which include the type of plant, stage of growth, type and size of container used, composition of potting medium and the environmental conditions where the plant is grown are discussed.

Type of Plant

Left: To keep your ferns happy, remember to keep their roots moist at all times. Note that the open mixture they are often grown in dries out quite quickly.

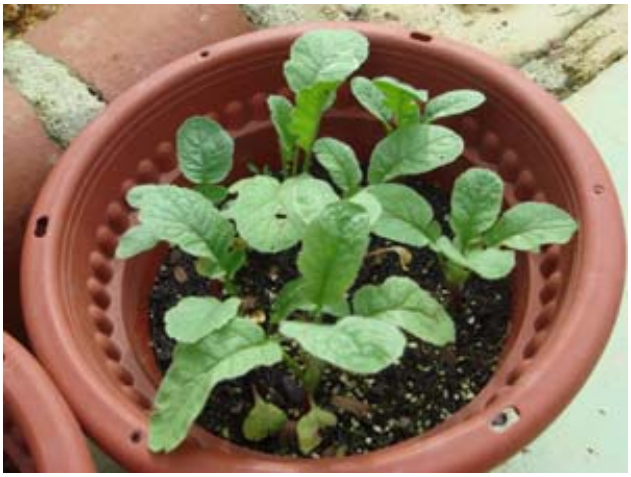
A number of plants prefer to have their roots constantly moist and these usually originate in habitats that are similar to those found in tropical rainforests. Delicate plants such as ferns do not like their roots to dry and they need to be watered quite frequently to keep their growing medium moist at all times.

On the other hand, there are other plants like it dry. Cacti and succulents are well known to be able to tolerate soil that dries out totally. These plants have thick, waxy, stiff leaves or thick and swollen stems, which allow them to store water over long periods and hence require less frequent watering. However, when plants show the first signs of shrinking via the appearance of wrinkling, water must be given right away.

Knowing the extremes – Some plants like the American pitcher plant (*Sarracenia* sp., **left**) likes to grow in wet conditions while succulents (**center**) and cacti (**right**) can withstand dry soil conditions for a short period.

Bog-dwelling and marginal pond plants such as the Venus fly trap and sundews like their roots to be constantly wet. These plants like their pots to be sitting in a tray of water.

Stage of Growth



Seedlings need to have moist soil conditions at all times to prevent them from drying out. Drought can slow down or stunt the growth of seedlings.

Plants that are in their active growing stage require more frequent watering. Examples of rapidly growing plants include seedlings and vegetables. Seedlings with their immature root systems need to be provided with ample water to prevent them from drying out, especially if they are grown in a sunny spot outdoors. Vegetables, in general, are fast-growing plants and they need to be watered regularly as they transpire more during their active growing stage.

The underground organs of deciduous plants need to be kept barely moist when they are dormant. The picture on the **left** shows a newly awakened *Cornukaempferia aurantiflora* (a ginger).

Plants have a resting period such as dormant deciduous gingers, orchids and flowering bulb plants require less water. Such plants prefer to have their potting medium kept just barely moist. A wetter potting medium will lead to rot of their underground stems or bulbs. Resume normal watering when plants show new growth.

Type and Size of Container Used

A plant grown in a pot made of a fired clay material (**left**) generally requires more frequent watering than a similar plant grown in a plastic pot (**right**).

Plants that are grown in clay pots require more frequent watering because clay is porous and water is lost at a more rapid rate via evaporation from the sides of the pots compared with plastic pots, which are impervious. A clay pot that is glazed usually on the outside and sometimes inside is not porous.

Environment-friendly gardeners may sometimes use recycled baskets made from plastic or bamboo to grow their plants. Plants grown in such containers often require more frequent watering than those grown using conventional ones. Spaces in the basket provide an additional avenue for moisture to be lost to the surroundings. Epiphytic orchids are grown inside basket pots so that their roots dry out quickly after each watering.

The size of the container also matters. A larger container holds more soil and hence more water compared to a smaller one. Plants that are grown in a much larger pot than they should be, referred to as “overpotting”, will usually need less frequent watering, due to the lower demand for water by a smaller plant as well as a larger water reserve present in a much bigger pot. The danger of overpotting a plant is because the growing medium can stay wet for too long.

Conversely, plants that are potbound need to be given water at a more frequent rate. In such a case, there is hardly any more potting medium to retain water for the plant.

Composition of Potting Medium

Potting mixtures for container gardening are made up of organic and inorganic components.

The amount of organic material that is incorporated into growing medium determines how much water it can hold, which in turn, affects the frequency of watering a plant that is grown in it.

The inorganic components in imported, artificial, soil-less growing media are most commonly vermiculite, perlite and sand, which are often added to improve aeration and drainage. In this part of the world, potting mixes composed of burnt earth are also used. Burnt earth, which makes up the inorganic portion in such a growing medium is essentially clay soil that has been baked at high temperatures to yield particles with an inert but porous structure.

These inorganic components, with the exception of sand, will absorb water quite rapidly but also dry out quite quickly.

The organic component of most artificial soil mixtures that makes up the bulk of the composition is peat moss. In burnt earth mixes, chopped coconut husk is often used as a cheaper alternative to peat moss as it is more readily available in this part of the world. Both types of material absorb and retain more water compared to the inorganic components.

Hence, the greater the portion of organic components in the mix, the longer the water will last inside the container.

‘Groundcovers’ & Mulch

Creeping plants that are grown to cover a pot surface can help to reduce the evaporation of moisture from the surface of the potting mixture

For decorative purposes, some container gardeners may either grow a small creeping plant, which acts somewhat like a ‘groundcover’ plant or use decorative sand or pebbles to cover the surface of the potting medium. Such surface covers, living or non-living, will help to reduce evaporation of moisture from the surface of the potting medium and hence, decrease the need for frequent watering.

Environmental Conditions

The rate at which water is lost to the surroundings is dependent on how high the ambient temperature is, which is in turn, affected by the amount of sunshine that is available.

Windy growing areas will also lead to higher evaporation rate. Plants such as ferns that are not suited for growing in windy areas can experience “wind burn” or dessicate badly that they die in serious cases. Protect such plants from wind or choose wind-tolerant species.

The Prayer Plant (*Calathea* sp.) is one good example of a plant that cannot take windy conditions that are often encountered in highrise apartments. Plants protest by rolling up their leaves. Leaves can also develop ugly, dry blotches. In severe cases, leaves will die away.

Plants that are grown in an environment with following conditions would need to be watered more often as the water evaporates faster.

- A breezy area with frequent air movement.
- A well-lit area with direct or filtered sunlight.
- An air-conditioned room with low humidity.

On the other hand, plants that are grown in the following conditions need to be watered less frequently:

- Cool and gloomy weather during the rainy season with frequent overcast skies and downpours.
- A shady area with little air movement.

If plants grown in the above areas experience prolonged wet feet, they can succumb to bacterial and/or fungal diseases such as crown or root rot.

References

Hodgson L., & Editors of the National Gardening Association. 1998. Houseplants for Dummies. IDG Books. Foster City, California.

Virginie F. & Elbert G.A. 1989. Foliage plants for decorating indoors: plants, design, maintenance for homes, offices, and interior gardens. Timber Press. Portland, Oregon.

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