

lilies should be removed since they provide food source for fungal pathogens and serve as a hiding place for pests.

### Viruses

Spotted wilt and dasheen mosaic are two viruses that can attack arum lilies. Spotted wilt causes yellow or white spots or streaks to appear on flower stalks, petioles and leaves.

Dasheen mosaic is virus transmitted through aphids. Virus spread from infected plant to another. It results in loss of physical strength and infected plants develop a mosaic like pattern on the leaves.

#### Control measures

Infected arum lilies plants should be removed right away and discard the debris in the trash so that the virus cannot spread. Weeds near arum lilies should be removed regularly. These weeds act as host plants to aphids and thrips, which can transmit viruses.

### Uses

Arum lily is used as a marginal plant along stream, or on the edge of a pond for decoration.

### Acknowledgements

Appreciation is hereby extended to the South African National Biodiversity Institute (SANBI) and Hadeco's South African site for Gardeners for providing relevant sources of information.

### References

Du PLESSIS, N and DUNCAN, G. 1989. *Bulbous Plants of Southern Africa. A Guide to their Cultivation Propagation*. Tafelberg. Cape Town

JACKSON, W.P.U. 1986. *The Cape white arum lily, Zantedeschia aethiopica in Veld & Flora* 72:44-45

[www.etiennedelport.co.za](http://www.etiennedelport.co.za) Arum Lily (*Zantedeschia aethiopica*). Accessed on 05 February 2015

[www.FlowersBulbs.com](http://www.FlowersBulbs.com) *Zantedeschia* (Calla Lily Bulbs) Tuber Commercial Growing Information. Accessed on 16 February 2015

[www.hadeco.co.za](http://www.hadeco.co.za) *Zantedeschia*. Accessed on 05 February 2015

[www.houseplantsexpert.com/growing-calla-lilly-plants](http://www.houseplantsexpert.com/growing-calla-lilly-plants). Accessed on 24 February 2015

[www.thegardener.co.za/Zantedeschia aethiopica](http://www.thegardener.co.za/Zantedeschia_aethiopica). Accessed on 06 August 2015

Further information can be obtained from

Directorate: Plant Production

Private Bag x 250

Pretoria

0001

Tel: +27 12 319 6072

Fax: +27 12 319 6353

E-mail: [Thabo.Ramashala@daff.gov.za](mailto:Thabo.Ramashala@daff.gov.za)

Website: [www.daff.gov.za](http://www.daff.gov.za)



# Arum Lily bulb flower (*Zantedeschia aethiopica*)



agriculture,  
forestry & fisheries

Department:  
Agriculture, Forestry and Fisheries  
REPUBLIC OF SOUTH AFRICA

## Classification

Kingdom:	Plantae
Family:	Araceae
Genus:	<i>Zantedeschia</i>
Species:	<i>aethiopica</i>
Common names:	Calla lily and arum lily (English), witvarkoor (Afrikaans), magapule (Sesotho), ihlukwe (IsiXhosa), ilabatheka-elimhlophe (IsiZulu)

## Background

### Origin and distribution

*Zantedeschia aethiopica* (arum lily) is native to southern Africa in Lesotho, South Africa and Swaziland. It has become naturalised in Malawi, Zambia, Tanzania, Kenya, Madeira and Australia, particularly in Western Australia, where it has been classified as a toxic weed and pest.

### Description of matured arum lily

Arum lily species are rhizomatous herbaceous perennial plants growing to 1,2 m in height. Its upright arrow shaped leaves are plain green, complemented by broad and are often spotted. The inflorescences are large, produced in spring, summer and autumn, with a pure white spathe up to 25 cm and a yellow spadix up to 9 cm long. The spathe turns green after flowering and covers the ripening berries.

Arum lily blooms with stunning faintly scented flowers which are borne directly from its fleshy stem. The flower stands perfectly vertical and enclosed funnel with a slightly recurved tip. The stems can vary in length, ranging from 10-70 cm, depending on the species.

### Production areas in South Africa

Arum lily flower is produced in Western Cape, Eastern Cape, KwaZulu-Natal, Mpumalanga, Gauteng and Limpopo provinces.

## Climatic and soil requirements

*Zantedeschia aethiopica* grows naturally in marshy areas and is only deciduous when water becomes scarce. In areas where temperature and water are adequate, the plant is evergreen, normally grows continuously when watered and fed regularly and can survive periods of minor frosts. It is a very strong plant that is being able to grow in many soils.

## Temperature

Arum lily grows well under full sun near water, but prefers a semi-shaded environment where there is no permanent water nearby. The plant should be kept in a light, cool place at a temperature of 16 °C by night and 18 °C during the day. The plants do not tolerate severe frost.

## Soil requirements

Arum lily prefers a well-composted soil containing generous amounts of well-decomposed plant matter. It grows best in loose, free draining soils with a pH of 6-6,5. This applies to both natural soil and soilless growing media. Plants also prefer the soil that is humus rich and enriched with manure.

## Cultural practices

### Soil preparation

When moving arum lily plants, new bed should be prepared and holes of 5 cm should be dug for the plants before lifting them from the old location. Soil should be loosened with a fork before transplanting arum lilies seedlings. Application of compost is important as it enriches the soil and improves moisture holding capacity.

### Propagation

Propagation method is through division of rhizomes and seed. Division of rhizomes are propagated in spring. Small rhizomes that have been overwintered in pots under cover can literally be cut into sections, each with a visible bud. Arum lily plants can also be propagated from seed, sowing a seed at 5 cm deep within 8 cm spacing and maintaining a temperature of 20 °C.

### Planting

Arum lily bulbs are planted at about 5 cm deep with inter-row spacing ranging from 30 to 40 cm. If arum lilies are planted from seed then it is best to start them indoors. The seeds should be soaked in warm water first, then sown on the soil surface at the start of spring. It takes 1 to 3 months for the seeds to germinate at a temperature of 21 to 28 °C under light and plants will not flower for two or three years. Prior to spring seeds can be sown in seed trays and placed indoors. Once the arum lily seedlings are ready, they should be transplanted during spring after the last chance of frost.

### Fertilisation

High nitrogen fertiliser should be applied to arum lily plants fortnightly when the plants are in active growth but withhold application during flowering of arum lily plants. A high potassium fertiliser can be applied once a week after flowering. Slow-release fertiliser with 3:1:5 (NPK) is applied to plants during spring and again in summer. Continued fertilisation for long periods of time can harm the plants.

## Irrigation

At the vegetative leaf growth phase, the plant grows quickly and water uptake increases greatly. Consistent watering is important as arum lily is easily stressed by too little or too much watering. Drip and overhead irrigation can be used to keep the soil moist. At the end of growing cycle when the plant senescence begins, water should be withheld.

## Weed control

The best time to control weeds is during soil preparation. Registered pre-sprouting herbicides can be applied for weeds that appear before planting but herbicides label instructions should always be followed to avoid contamination.

## Pest and disease control

### Pest

Thrips and aphids are the main pests attacking arum lilies. Control is important to prevent the spread of viruses and fungi. A preventative spray program is recommended as flower spikes emerge, to be repeated at 7-10 days interval during flower production. Insect control through chemical application may be necessary following flowering as well due to increased disease pressure and its concurrent spread with the presence of thrips and aphids. Porcupines, wild pigs and birds are also troublesome in the arum lily field, the chasing devices must be in place to minimise damage.

### Disease

Several forms of rot can affect arum lilies, resulting in poor growth, wilting and possibly death. Crown rot, root rot and pythium rot are caused by separate different pathogens that typically take hold in poorly drained soil.

Crown rot causes infected plants to develop a yellowing colour on the leaves. The above-ground symptom of root rot typically shows up as yellowing colour at the leaf margins. Symptoms of pythium rot include water-soaked lesions that appear on the leaves of infected arum lilies.

Soft rot is a bacterial disease that affects the rhizomes of arum lilies and infects the plant through injuries. All four rots are prevalent in warm, moist conditions. Arum lilies are also susceptible to powdery mildew, gray mold, blight and leaf spots.

### Control measures

Arum lilies should not be over-watered. They should be planted only in well-drained soil. Dead and decaying debris from around arum