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Farming in South Africa

HARRISIA CACTUS

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Harrisia cactus, *Eriocereus martinii* Lab., formerly known as *Harrisia martinii* (Lab.) Britton, family Cactaceae, is one of the most noxious weeds in parts of Queensland, Australia, where an area of 57 000 ha is already infested. Although its occurrence in South Africa is still largely restricted to a few isolated infestations in the Transvaal, the Eastern Cape and Natal, the danger exists that this plant, with its very effective means of propagation, could rapidly spread to other parts of the country. It forms dense, impenetrable thickets resulting in the loss of valuable grazing and it is extremely difficult to eradicate.

The common Afrikaans names are 'harrisia-kaktus' or 'kabelkaktus'. In English the names moon cactus, moonlight cactus, moon-flower cactus and torch cactus - all of which refer to the fact that it flowers at night - are also used.

MORPHOLOGY

Harrisia-cactus is a fast-growing succulent with long, thin, cylindrical, prostrate or creeping stems, about 2 to 4 cm in diameter, and 1 to 2 m long. The multi-branched bright-green stems are characteristically ribbed and resemble plaited rope. In cross-section they appear either square or pentagonal. The stems are covered with hairy, raised tubercles, the so-called areola. One or two long, central spines, about 3 cm long, arise from each areola and they are surrounded by a number of shorter spines. The older stems are spineless.

The plant tends to clamber up low-branched trees to a height of some 3 m. In open spaces the stems sometimes arch downwards and root wherever they touch the ground. In this way dense, impenetrable masses of stems, covering areas up to 40 m², are formed. However, dense stands of harrisia cactus are rare in South Africa - the plants usually occur singly.

The plant has a tuber-like root system consisting of thickened segments separated by thin strips of vascular tissue. The roots rarely grow deeper than 50 cm. The fibrous feeding roots which are shallow and ramified, enable the plant to benefit from light precipitations.

From November to January the plant produces large, solitary funnel-shaped, nocturnal flowers. The outer petals are slightly green and the inner ones

↑FIG. 1 - Infestation of harrisia cactus in Ashburton

← FIG. 2 - Long joint with flowers

→ FIG. 3 - Harrisia cactus infested with the woolly aphid *Hypogeococcus festerianus*, showing clear deformity. Note the fruit with black seeds

white, with a slightly pinkish tinge. The tube of the flower is about 20 cm long and 5 cm in diameter.

The flower develops a bright-red fruit, about 5 cm in diameter, and the fruit matures in winter. The fruit is covered with small scales and the wilted petals adhere to it for quite some time. The fruit contains between 400 and 1 000 small, black seeds with a diameter of about 1,5 mm which are scattered in the whitish, sugary pulp.

DISTRIBUTION

Harrisia cactus is a South American plant indigenous to Argentina and Paraguay.

It was probably imported to South Africa as an ornamental at the beginning of the century. The present infestation probably originated from a few plants that stood in a farm garden at Ashburton near Pietermaritzburg for many years and the plant spread from there to the surrounding Valley Bushveld where colonies were formed. Birds feeding on the seeds are primarily responsible for its spread.

It is known that succulent collectors have taken parts of the plant from Ashburton to many parts of Natal. Although many of these plants have been traced and destroyed, each remaining plant is a potential source of infestation and all plants should be destroyed without delay.

The worst harrisia cactus infestations are concentrated around Ashburton and Muden in Natal, although it now also occurs in patches in the Free State, the Eastern Cape, the Northern Cape and in Northern Transvaal near Thabazimbi. Because the plant has become a national problem in Queensland, Australia, the possibility exists that is could also become a major problem in parts of South Africa with climatic conditions similar to those in Queensland. Such areas are, for example, Greytown, Ladysmith, Dundee and Melmoth. Harrisia thrives particularly in dense thorn bushes on northern slopes. These thorn bushes provide shelter for birds that are responsible for the spread of the seed. The plant is seldom found in open grassveld. The reason for this is probably not that conditions in such spots are unfavourable, but rather because birds avoid grass plains.

GROWTH AND PROPAGATION

Harrisia cactus propagates vegetatively and also by means of seed. Each fruit can contain as many as 1 000 seeds which remain viable for several years so that each plant in a garden could give rise to a vast infestation. Birds, especially the black-eyed bulbul (*Pycnonotus barbatus*), regularly feed on the fruit and the seeds are spread in this way. The seeds remain in the bird droppings until the summer rains occur and then develop into seedlings. Seeds that adhere to the birds' beaks and are rubbed off on branches and fences also help to spread the plant.

There are three ways of vegetative propagation: by means of segments that break off and form new plants; by means of the soft stems which arch downwards and root wherever they touch the ground; or the fleshy roots may sprout after the aerial parts of the plant have been destroyed. These roots serve as storage organs and they are divided into segments, each of which can give rise to a daughter plant. Furthermore, these roots are not easily damaged by herbicides since herbicides cannot be translocated past the constrictions between the segments. The result is that the dormant buds on the root tubers are stimulated to sprout. This phenomenon makes it virtually impossible to completely eradicate the plant by either mechanical or chemical means.

LEGISLATION

Harrisia cactus has been proclaimed a weed under the Conservation of Natural Resources Act (Act 43 of 1983). This means that the plant may not be spread or be allowed to spread. In addition the weed may not occur in any urban area and if it occurs on any farm unit in the Republic, it must be effectively controlled.

BIOLOGICAL CONTROL

Harrisia cactus presents no problem in its country of origin, namely Argentina and Paraguay, since it is kept under control by a complex of natural enemies. Since 1970 South African and Australian researchers have identified the three most promising natural insect enemies of harrisia and, after making quite sure that the insects cannot develop on other plants as well, they were first imported into Australia and later into South Africa and released for biological control of harrisia cactus. Biological control has been a tremendous success in Australia and all chemical control programmes - which amounted to an annual expenditure of R700 000 - have been stopped.

The most promising insect, the woolly aphid, *Hypogeococcus festerianus*, was released on harrisia infestations in South Africa in 1981, and it has established well. Infested plants are malformed and eventually die. All new harrisia infestations should be reported to the Officer-in-Charge, Plant Protection Research Institute, P.O. Box 330, Uitenhage, 6230. He is responsible for distributing and releasing these insects where they are required.

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