

Sisal

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Background

Agave sisalana is a tall perennial monocotyledon with knife-shaped leaves that form a rosette close to the ground. These fleshy, rigid leaves are usually greyish-green to dark green. The plant grows slowly, attaining a height of only 15,2 cm in 9 months after planting and 0,6 m at the end of 2 years and it completes its life cycle after 6 to 8 years.

Origin and distribution

Sisal originates from the semiarid zones of central and South America, especially from the Yucatan Peninsula of Mexico. Sisal is produced in Limpopo Province (Polokwane), KwaZulu-Natal (Pinetown, Hluhluwe, Mtubatuba and Port Shepstone) and North West Province.

Climatic and soil requirements

The plants are sensitive to frost and produce the best in areas with an annual rainfall of not less than 1 000 to 1 500 mm and higher per annum. It is ideally grown at altitudes from sea level to 1 800 m where temperatures do not fall below 10 °C, or rise above 32 °C.

Sisal prefers well-drained, light, sandy soils because it has a superficial root system and does the best on a deep red loam or black cotton soil, if well drained and grows poorly in waterlogged soils. Soil with pH values of between 6,0 and 6,9 is also important.

Uses

Apart from ropes, twines and general cordage sisal is used in both low-cost and specialty paper, dartboards,

buffing cloth, filters, geotextiles, mattresses, carpets and wall coverings, handicrafts, wire rope cores and macramé.

Cultural practices

Planting

Transplanting of sisal into the field can be done any time of the year as it is a succulent with good drought resistance. Transplanting is done by hand and the planting depth should be 5 to 10 cm. The optimum plant population is approximately 4 000 plants/hectare. If the rainfall is above 700 mm, plant at 1 m by 750 mm, between 500 and 700 mm at a square metre and 300 to 500 mm alternately 1,5 m and 1 m by 1 m.

Propagation

Bulbils are preferred as planting material as these are homogeneous and produce vigorous plants. The bulbils are planted in nursery beds at a spacing of 25 to 30 cm apart in rows of 50 cm apart and subsequently transplanted into the field. The plant produces about 4 000 bulbils/plant, and this is therefore the preferred means of propagation.

Fertilisation

Fertilisation is generally unnecessary when sisal is planted on a virgin land. It is also recommended that, after the leaf has been decorticated, the waste material should be ploughed back. Application of a liming material is necessary where soil pH values drop below 6,5. Soil testing is necessary to obtain the correct quantity of fertiliser.

Irrigation

It is grown in dryland conditions.

Weed control

Weed control is normally carried out by hand-hoeing when the crop is young and mowing or slashing when the crop is large enough to cut.

Pest and disease control

SISAL WEEVIL (*SCYPHOPHORUS INTERSTITIALIS*)

The most obvious symptom of an attack by weevil on sisal plants is the presence of brownish-grey speckled patches, usually elliptical or rounded, each from 3 to 10 cm in length, on the undersurfaces of the leaves, mostly in the proximal half.

The best way to control the weevil is to carry out sanitation measures and this means the destruction of breeding sites such as senescent plants and rotting boles. Weevils inhabiting rotting boles can be killed easily, irrespective of their stage, by injecting or pouring insecticides, or even diesel oil, into the tissues.

ASPERGILLUS NIGER DISEASE

The principal sisal disease is bole rot, a fungal disease caused mainly by *Aspergillus niger*. It causes spots that are fairly large, roughly circular, and vary from 5 to 10 mm in diameter. These occur at random on both sides of a leaf. Lesser numbers occur on the upper side towards the base of the leaf. Resistant cultivars are recommended for control and regular removal of weeds is important.