

Black nightshade

Solanum retroflexum Dun.



◦ PRODUCTION GUIDELINES ◦



agriculture,
forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA



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February 2013

Department of Agriculture, Forestry and Fisheries

2013

Printed and published by

Department of Agriculture, Forestry and Fisheries

Compiled by

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GENERAL ASPECTS

Classification

Scientific name:	<i>Solanum retroflexum</i> Dun.
Family:	Solanaceae
Common names:	Black nightshade, sunberry, nastergal, Umsobo, muxe, umsobo wesinja, umosobosobo, lintsontso

Origin and distribution

Black nightshade originated from South Africa. It was sparingly naturalised on the Eyre Peninsula. The crop was widely distributed throughout the tropics and temperate regions of the world.

Production levels

South Africa

Statistical data on production levels of black nightshade are not known in South Africa. It is consumed at home and marketed locally.

International

Black nightshade is a worldwide weed of arable land, particularly in gardens rich in nitrogen. It is among the major leaf vegetables cultivated in communities. In Kenya, it occurs in many areas and is often cultivated in small gardens and occasionally from the wild for domestic use and sale on the markets. No statistical data on the level of production are available, because the crop is consumed where it is produced.

Major production areas in South Africa

Black nightshade grows almost anywhere in South Africa, often under marginal conditions.

Description of the plant

Mature plant

Black nightshade is a spreading and rounded annual herb that can grow up to 75 cm in height.

Stem

The stems are purplish green in colour, branching, round or angular, smooth or partially hairy and becoming woody with age.

Leaves

Leaves are greyish green in colour, simple, alternate, ovate or ovate-lanceolate. Leaf margins may be entire or with blunt teeth. Leaf hairiness is variable, however, the leaves are most often found to be slightly hairy.

Roots

Plant has a slender tap root with a fibrous root system.

Flower

The flowers are white with a yellow centre. Both the male and female organs occur on the same plant.



Seeds

Seeds are 1,8 to 2 mm long and are light brownish yellow or purple in colour.

Fruit

Black nightshades produce small berries, about 5 to 12 mm in diameter, green when immature and turn purplish black at maturity. They are produced occasionally in small bunches.

Essential parts

Fresh leaves, tender shoots and fruit are essential parts.

Climatic and soil requirements

Temperature

Black nightshade requires optimum temperatures of 20 to 34 °C. The plant prefers full sunlight, but can grow in partially shaded areas. It is sensitive to frost.

Soil requirements

Nightshade will grow in most soil types. The plant prefers light, medium and heavy soils, rich in nitrogen, phosphorus and organic matter. It can also do well in acid, neutral to basic soils. It prefers a well-drained, fertile soil. It grows well under moist conditions.

CULTIVATION PRACTICES

Propagation

Black nightshade is propagated by seeds.

Soil preparation

Preparation of soils can be done by hand or mechanically.

Planting

Seeds can be planted in a nursery or direct in the field. Seeds should be

mixed with sand and/or ash for uniform sowing. Sow the mixture thinly, either by broadcasting or in rows, 15 to 20 cm apart and cover with a fine layer of soil. After sowing, the bed should be mulched with tall grass or a similar material to retain moisture. This mulch can be removed once the plants are 3 cm. The seedlings are ready for transplanting in four to six weeks when they have 4 to 7 true leaves (10 to 15 cm). A spacing of 30 cm by 30 cm is recommended.

Fertilisation

When using a chemical fertiliser, purchase a 2: 3: 2 or 3: 2: 1 mixture. Using a hoe, open a furrow and apply the fertiliser mixture in the bottom of the furrow at the rate of 40 g/m. A normal size teacup takes about 200 g chemical fertiliser and would cover 5 metres. After spreading the fertiliser evenly in the furrow, use sticks to mix the fertiliser with soil. Fertiliser choice and the rate of application vary, however, research indicates that nitrogen and phosphorus are the two most important nutrients that are required by the crop in fairly large quantities. When using a 2: 3: 2 and 3: 2: 1 fertiliser mixture, it is recommended that the mixture be applied in the bottom of the open furrow at 40 g/m. The fertiliser should be mixed with the soil, using a stick. Water the furrow and thereafter dig holes for the transplant.

It is recommended that lime ammonium nitrate (LAN) be applied at 20 g/m when the plants are at the 5 to 6 leaf stage. One teacup of LAN should be spread along a row of 10 m. When applying LAN to the growing crop, open a furrow with a hoe about 10 to 15 cm away from the row of plants, mix the fertiliser with the soil using the stick, water the furrow and close it. After harvesting the plants for the first time, apply LAN again at the rate of 20 g/m. Repeat the application of LAN at the rate of 20 g/m after the second harvest.

When using poultry or pig manure apply 10 ℓ bucket in a band of about for 20 cm wide over a length of 15 m. The same quantity of manure be used even for kraal manure to cover a 5m length area.

Irrigation

Frequent irrigation is needed to avoid water stress and have optimum growth and yield. Irrigation interval of the crop depends on the soils types, i.e. sandy soils will require more water than clay soils. Irrigate at least 4ℓ per m² area until first harvest and increase by 1ℓ after harvest. It is

recommended that sandy soil be irrigated three times a week, sandy loam be irrigated twice a week and clay loam and loam soils once a week respectively. Drip and sprinkler irrigation can be used but drip irrigation is recommended to save water.

Weed control

An integrated control programme combining preventive, cultural, mechanical and chemical methods is most effective. Black nightshade can be a serious agricultural weed when it competes with crops.

Pest control

Major pests of black nightshade are among others, ants, black aphids, caterpillars, grasshoppers, beetle etc. These pests can be controlled by crop rotation or wood ash dusted on leaves. Onion and garlic are natural flea-beetle repellents.

Disease control

The most frequent diseases attacking black nightshade are, among others, early blight, grey mould, bacterial wilt, leaf blight, powdery mildew, leaf curl virus and yellow vein virus. The use of disease-free seeds and hot water seed treatment is recommended to control early blight. Optimum growing condition and good soil conditions can also help in disease reduction.

Harvesting maturity

The crop is ready for harvest 4 weeks from transplanting. Harvest the fruit when it turns into a black/purple colour.

Harvesting methods

The leaves are normally harvested using a knife or hands. The fruit is picked by hand.

POST-HARVEST HANDLING

Cleaning

The leaves are washed to remove the soil immediately after harvesting for preparation for marketing.

Storage

Fresh leaves should be stored in the refrigerator or stored in cool place. Cooked leaves can be dried and stored in plastic containers.

Marketing

Black nightshade should be sold within two days after harvesting. It is normally sold at a local market, particularly by street vendors and some retail shops.

PRODUCTION SCHEDULE

ACTIVITIES	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
Planting										X	X	
Harvesting												X
Marketing	X											X

UTILISATION

Both the fresh young leaves and shoots are used as fresh vegetable. Ripened fruit is edible.

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