

Buchu



Brochure



agriculture,
forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA



Buchu

Directorate: Plant Production

DEPARTMENT OF AGRICULTURE, FORESTRY AND FISHERIES

2011

Printed and published by
Department of Agriculture, Forestry and Fisheries

Design and layout by
Communication Services
Private Bag X144, Pretoria 0001

Contents

Background	1
Climate and soil requirements	2
Uses	2
Agricultural practices	3
Soil preparation	3
Planting	3
Propagation	4
Irrigation	4
Fertilisation	5
Weed control	5
Pest control	5
Disease control	6
Harvesting methods	6
Acknowledgements	6
Reference	7



Scientific name: *Agathosma betulina*, *Agathosma crenulata*

Common names: Round-leaf, oval-leaf buchu (Eng.); berg, ovaalblaar boegoe (Afrikaans); Buchu (Khoi); Ibuchu (Xhosa)



Buchu plants growing wild (Photo: W.S Mokgobu)

BACKGROUND

Agathosma betulina is a member of the family Rutaceae, commonly known as the citrus family, and is a typical component of Cape fynbos. There are 150 species in the genus *Agathosma*. *A. betulina* (round-leaf buchu) and *A. crenulata* (oval-leaf buchu) are the most well-known varieties. *A. betulina* is endemic to the mountains of the Western Cape Province in South Africa, ranging from Clanwilliam in the north to Tulbach in the south. *A. crenulata* is found naturally from Gouda in the north to Stanford in the south and east as far as the Outeniqua mountains.

A. betulina is a small, multi-stemmed shrub, which grows about 1,0 m high.

A. crenulata is a shrub with a single stem with a height of up to 2,5 m.

CLIMATE AND SOIL REQUIREMENTS

Agathosma betulina requires a Mediterranean climate with winter rainfall and temperature of between 6 °C and 17 °C and summer temperatures between 15 °C and 38 °C. *A. betulina* thrives in virgin soil on mountain slopes in highly

leached or sandy, well-drained, gravelly soil with a minimum depth of 600 mm. In nature it prefers the middle slopes, usually south or east-facing which are cool and naturally moist.

Planted mostly in the Western Cape, in the field, this species requires soils with a low pH, ideally 3,5 to 4,5, but will tolerate a pH of up to 5,5. Soil salinity and phosphate should also be low. Phosphate levels should not exceed 15 ppm, but plants will tolerate up to 20 ppm. Soil nitrate levels should also be low. High potash and sulphur counts are found in their natural habitat.



Freshly cut buchu bush



Regrowth after harvesting (Photo: Mike Lane)



USES

Agathosma betulina is mostly used for essential oil. About 80% of buchu essential oils are widely used in the food and flavour industry to enhance fruit flavours. It is widely used in South Africa as a household medicine and the Khoi people had used it for medicinal and cosmetic purposes for centuries. Medicinally, *A. betulina* is used for the treatment of many ailments such

Freshly distilled buchu oil floating on buchu water
(Photo: Mike Lane)

as colds, influenza, digestive disturbance, kidney and renal disorders, chest complaints, arthritis, cellulite, diarrhoea and urinary tract disease, as well as to reduce blood pressure.

The leaves were chewed to relieve stomach complaints. In small doses it is an appetite stimulant and is used as digestive, carminative and antispasmodic. It is still commonly used as an ingredient of over-the-counter medicines to treat cystitis. It is also used as a tea, a brandy tincture or as vinegar. *A. betulina* vinegar was highly regarded for the washing and cleaning of wounds. It can be steeped in brandy for internal use as the famous buchu brandy or 'boegoebrandewyn'.

AGRICULTURAL PRACTICES

Soil preparation

In preparing the land, soil samples should be taken and analysed. Land should be prepared with tined implements only. If needed the soil should be ripped to about 900 mm to improve drainage and root penetration, followed by an ordinary ploughing to a depth of 20 cm to 30 cm. A seedbed should also be prepared before transplanting to discourage weeds which compete with the seedlings for nutrients.

Planting

Seeds are planted from April to June. Seedlings are planted from June to October with enough space to grow. Spacing is advised to be 1,0 m between rows and 500 mm inside rows. To avoid poor yields, especially in warm areas where temperatures exceed 40 °C during summer, plants should be established on south or east-facing slopes as north and west-facing slopes can be too warm and dry.



Newly planted seedling

Propagation

Agathosma betulina is easily grown from seed. Propagating vegetatively from cuttings takes a bit longer and is difficult. The formation of calluses responsible for the development of roots is slow and cuttings tend to drop their foliage. Seedlings have the advantage of developing a strong taproot to penetrate deeper and survive dry conditions.

Irrigation

Plants should be irrigated when needed, from planting, throughout summer and to the first winter rains. It is better to start with regular watering and then increase the volume of water given, but also increase the interval between waterings. Mature plantations do not need more than 5 ℓ of water per plant, once a week, in the evening (after 18:00). Irrigating at night reduces the risk of fungal diseases and improves water absorption.

Drip irrigation is recommended as it provides control of water volume and locality of water at each plant and reduces evaporation loss in windy areas. Enough water is required for seedling establishment and therefore it is best to transplant after good rains. Irrigation water should be of good quality, with low chlorine and salinity.

Fertilisation

Buchu should be fed twice per season with balanced nutrients, i.e. 3:1:5. (Autumn and Spring). The yellowing of leaves can be treated with an application of iron chelate. Pelletised chicken manure could also be used.

Weed control

The plant rows should be kept clear of weeds (by hand) without disturbing the roots of the buchu plants. Hand-hoeing and mechanical weeding with a tractor-drawn cultivator is not recommended as the roots are easily damaged. Organic mulching is not recommended as *A. betulina* develops a subterranean stem (thickening or lignotuber) which becomes susceptible to root rot in older plants.

Chemical weeding can be done

- Broadleaf annual weeds: Use Sorgomil Gold or Tyllanex at 2% dosage (400 *ml* on 20 *l* water).
- Narrow-leaf grasses: Use Gallant or Focus at 2% dosage (400 *ml* on 20 *l* water)

Please note: The chemical treatments are recommended at a very low dosage and effects can only be seen after 3 to 4 weeks. Results can be determined after 6 to 8 weeks. At these dosages they can be applied over the plants, without fear of damage to the crop.

****NB!** (Never treat a crop closer than three months before harvest!)

PEST CONTROL

The major pests or insects identified on *A. betulina* plants are soft scale, hard scale ("dopluis"), plant-lice, ants, cutworms, stem-borer beetles, snails, leaf-miners, root-knot nematodes and harvester termites. These can be controlled reasonably well with registered pesticides.

DISEASE CONTROL

Fusarium wilt disease could lead to damage of the plant. The diseased plants should be removed immediately. A weak solution of Jeyes fluid should be made and poured into the hole to kill any remaining spores. Infected plant material must be burned.

This disease is usually only found when soils are not ideal (structure too fine). The soil needs good aeration to allow drying off after watering. It is important not to overwater as buchu is a drought-resistant plant and does better with less water rather than with too much.

Stem rot: The precautionary measure to control the fungus and to protect adjacent plants is to remove infected plants and let the soil dry off between waterings. Treat plants with a fungicide prior to planting out.

HARVESTING METHODS

The plants are ready for harvesting some 18 months after planting. Plants are harvested once a year. The harvesting activity usually takes place during the months November to April, and normally lasts for several weeks.

Harvesting of *Agathosma betulina* for essential oil extraction takes place from January through to April and the plants are never harvested while in flower. *A. betulina* is hand-harvested. The plants should be cut about 5 cm above the ground.

Agathosma crenulata is harvested from November to January, also by hand, and the plant is pruned into a lollipop, about 40 cm from the ground to protect the central stem.

The average yield for both species is between 3 to 4 t/ha in mature plantations.

ACKNOWLEDGEMENTS

The ARC-Elsenburg is acknowledged for the information provided.

Mr. Allen Harris from Buchu Moon farm for the information provided and editing of the document and Mr. Mike Lane for the pictures provided. www.

buchumoon.co.za.

REFERENCE

BLOMERUS, L. 2003. Buchu (*Agathosma* spp.) cultivation. Agricultural Research Council (ARC). Roodeplaat, Pretoria.

ONLINE: <http://www.buchumoon.co.za>

NOTES

[illegible]



CONTACT INFORMATION

Directorate: Plant Production

Division: Industrial Crops
Private Bag X250
Pretoria
0001

Tel: +27 12 319 6072/6079

Fax: +27 12 319 6372

E-mail: DPP@daff.gov.za