

chemical control is the most effective way of weed management.

Harvesting

Barley is ready for harvest in about 4 months after sowing; some varieties in 60 days. It should be harvested as soon as it reaches the moisture content of 13 %. Swath when the heads have lost their green colour and with moisture content below 30 %. Barley can be harvested manually under small scale or combine harvesters can be used in large production scales.

Uses

Human uses: It is used for making beer and bread.

Livestock feed: Barley plants are fed green or as hay to livestock. Dry stalks and leaves collected during threshing are also used as cattle feed. Straw is used as roughage and bedding for livestock.

Industrial uses: Straw is used for making hats, packing and for manufacturing of cellulose pulp.

Acknowledgements

ARC—Grain Crops Institute.

Further information can be obtained from:

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Barley

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Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

Scientific name: *Hordeum vulgare* L.

Common name: Barley, Gars (Afrikaans)

Family: Gramineae



Background

Barley is considered as the oldest cultivated cereal crop. Excavations in Egypt have indicated that barley was already cultivated 18 000 years ago. It is probably native to the Middle East, from Afghanistan to Northern India and it is now widely cultivated in all temperate regions from the Arctic Circle to high mountains in the tropics.

Production areas

Western Cape Overberg
Northern Cape Frances Baard, Karoo
North West Dr Ruth Segkomotse Mampati

Small quantities are reportedly produced in the Free State, Eastern Cape and KwaZulu-Natal.

Agronomic requirements

Climatic requirements

It requires a shorter growing period and needs an average temperature of 15 to 17 °C during flowering. The annual temperatures required range from 5 to 27 °C (low temperatures and high temperatures during ripening). It tolerates high temperatures.

Rainfall

The seasonal water requirement for barley depends on the variety, targeted yield and crop management. Barley is a drought resistant crop and requires 390 to 430 mm of rainfall for optimum yield. Maximum water use will occur for 21 to 28 days.

Soil requirements

Barley can be grown on a wide range of soil types; ranging from heavy clays to light or sandy loam soils. It grows well on fertile, deep loam soils with a pH of 6 to 7, 5. Soils with a pH lower than 6 may induce aluminium toxicity, leading to poor growth. Barley is more sensitive to very wet conditions but more tolerant to alkaline soil than the other small grains.

Cultural practices

Propagation

Propagation of barley is made through seeds.

Fertilisation

The type of fertilisers to be applied depends on soil test results. Rainfall and crop rotation are important factors influencing the nitrogen requirements for barley. Nitrogen increases protein quality of the grain, which is desirable for feeding barley but not for brewing barley. First, nitrogen should be applied prior to or during planting. Split applications of nitrogen fertiliser are more beneficial on lighter sandy soils than on heavier soils. Topdressing is recommended later

than 65 days after emergence of the barley to avoid the danger of too much nitrogen levels in the grain. Where topdressing is recommended, lime ammonium nitrate (LAN) is apparently the best source of nitrogen. Accessible nitrogen and adequate phosphorus and potassium are essential for high yields.

Planting

Barley types are planted mainly from early April until early June. Earlier plantings generally have a higher yield potential and barley types are planted over a relatively short period. Late planting results in greater risk in terms of yield and quality.

Irrigation

Irrigation scheduling must be done according to evaporation and as per growth stage, because barley is more sensitive to stress during jointing, booting and heading. To optimise yield, soil moisture levels should remain above 50 % of available moisture in the active root zone from seeding to the soft dough stage.

Pest and disease control

Barley is vulnerable to various pests (oats and wheat aphids; Russian aphids and black sand mites) and diseases (leaf spot, rust; blotch and powdery mildew) that may lead to decrease in yield and poor quality. Heat together with high humidity encourages the occurrence of diseases such as rust. There is a need for pest and disease control in order to maintain good yield and quality, using different measure ranging from chemical, biological and other cultural practices. Use of resistant cultivars, certified and disease-free seeds as control mechanisms for pests and diseases is encouraged.

Weed control

Barley is very sensitive to competition from weeds and early control measures will therefore enhance the yield potential. Integrating chemical and non-