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Pearl millet

Pennisetum glaucum



agriculture,
forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

Scientific name: *Pennisetum glaucum*
Family: Poaceae
Common names: Leotja, Inyouti, Unyaluthi, Nyalothi

Origin and distribution

Pearl millet originated in central tropical Africa and the plant was domesticated as a food crop some 4 000 to 5 000 years ago along the southern margins of central highlands of the Sahara. It has since become widely distributed across the semi-arid tropics of Africa and Asia.

Production areas in South Africa

The major production areas in South Africa are Limpopo, KwaZulu-Natal and Free State provinces

Description of the plant

Mature plant

Pearl millet is an erect annual plant, up to 3 m tall, and may tiller profusely under favourable weather conditions.

Roots

The roots of pearl millet can be divided into primary and secondary roots. The primary roots are basically an elongation of the radicle. The secondary roots develop from the nodes below the soil surface and can reach a lateral distribution of 1 m.

Stems

Stems are 1 to 3 cm broad, pithy and tiller freely

Leaves

The leaves are long, slender and smooth or hairy, up to 1.5 m long and 8 cm broad. The leaves may vary in colour, from light yellowish green to deep purple.

Flowers

The inflorescence is panicle sized, 12 to 30 cm long and are brownish in colour.

Seeds

The seeds are nearly white, yellow, brown, and grey in colour and weigh about 8 mg on average.

Essential parts

The seeds are the essential part.

Climatic and soil requirements

Temperature

The optimum temperature for growth ranges between 23 and 30 °C.

Rainfall

Pearl millet is mostly grown where the annual rainfall ranges from 250 to 700 mm. Despite its drought tolerance, pearl millet requires even distributed rainfall during the growing season. Too much rain at flowering can cause a crop failure.

Soil requirements

Pearl millet can be grown on a wide variety of soil types, ranging from clay loam to sandy loamy soil. It performs well in soils with a high salinity or low pH of 4 to 5. It performs poorly in clay soils and cannot tolerate waterlogging.

Cultivation practices

Propagation

Pearl millet is propagated by seed.

Soil preparation

Prepare a well-drained soil, free of weeds. Deep till the soil to disrupt any hard pans. No-tillage or conservation tillage is preferable on highly erodible land.

Planting

Pearl millet is an annual summer crop and the optimum planting time ranges from early October to November. Plant densities should be similar or slightly higher (100 000 to 175 000 plants per ha) than for sorghum. Seeds should be planted into a firm, moist seedbed. Shallow planting is recommended to obtain good seed-to-soil contact.

Fertilisation

Pearl millet is generally grown on less fertile soils, but responds well to heavy fertilisation. It is a deep-rooted crop and can use residual nitrogen, phosphorus and potassium. It is advisable to conduct soil tests and follow the recommended applications.

Irrigation

Pearl millet is drought tolerant, but little is known about its response to irrigation during growth. Greater water use occurs during the bloom and soft dough stage.

Weed control

Preventative control options begin with planting clean, weed-free seed. Controlling weeds along ditch banks, roadsides and field margins will also help prevent weed seeds from entering the field.

Pest and disease control

The most common insects for pearl millet are chinch bugs, stink bugs, nematodes and birds. Use recommended registered insecticides to control the bugs and resistant crops for nematode. Early planting and timely harvesting are essential to minimise bird damage.

The most important diseases include mildew, seed rot, rust and grain moulds. Mildew and seed rot can be controlled with a recommended fungicide treatment at planting. It is important to harvest grain as early as possible after maturity, because some grain moulds will increase if harvest is delayed. Cultural control practices such as crop rotation, burning of crop residue or diseased plants have been found to be economically feasible in reducing losses as a result of disease.

Harvesting maturity

Pearl millet can be harvested 40 days after flowering and when seed moisture content drops below 15%.

Uses

Pearl millet is used mainly as whole, cracked or ground flour, dough, or grain-like rice. It is also used as forage, fencing, thatching and making basketry.

References

Board on Science & Technology for Interval Development. 1996. Lost Crops of Southern Africa: Grains, vol. 1. National Academy Press, Washington, D.C.

<http://www.ext.nodak.edu/extpubs/plantsci/hay/r1016w.htm>

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