



The investigator, the light in the farming zone

PRODUCTION GUIDELINE

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OATS (FODDER PRODUCTION)



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INTRODUCTION

Oats are believed to be mainly Asiatic in origin. Different kinds of oats probably came from various parts of that continent or Europe. Oats are a valuable crop which can be used in the development of a year-round fodder flow program because of its ability to produce highly nutritious forage during cool periods of the year when most other fodder plants are dormant. Oats grains are known to be high in protein as well as fat at 13 and 7.5 percent respectively. But they are also a source of calcium, iron and Vitamin B. In general, dry fodder yield may range from 15 to 20 tons / ha under good management.

Classification

Scientific name: *Avena sativa*

Common names: Hawer (Afrikaans), habore (Sotho), oats (English)



Source: Oats Production Guideline 2010 (Department of Agriculture, Forestry and Fisheries)

CLIMATIC REQUIREMENTS

Oats are an annual, cool-season grass which favours a cool, moist environment. It grows in most parts of Lesotho and grow best during spring and autumn when temperatures are below 20°C and moisture not limited. Winter types require very low soil temperatures (3 °C to 4 °C) for at least 10 days to 8 weeks for vernalisation and to reach their tillering potential.

Spring wheat, like the cultivars planted in the irrigation areas and in the Western Cape, does not require low temperatures, but will not be damaged by low temperatures and frost

during the early growth stages. Tillering in spring oats will be lower than in winter types, and therefore much higher seeding rates.

Small grains in the germinating, seedling and vegetative stages are not sensitive to low temperatures

SOIL REQUIREMENTS

Oats are widely adapted to moist soil conditions; they have generally similar soil requirements to wheat with regard to both macronutrients and micronutrients (Fe, Cu, Zn, Mn and Mo) that have a major influence on production. Soil acidity levels of pH 4.8 to 5.5 are regarded as optimal. Oats are more acid tolerant than wheat, but less saline tolerant than wheat and barley.

FERTILIZER

Oats are somewhat tolerant to acid soils, liming may only be necessary if the soil pH is 5.0 or below. The recommended fertilizer rates are 150 to 300 kg/ha of 2:3:2 (22) or 3:2:1 (22). However, it is highly essential that fields be sampled and soil samples sent to the Soils Laboratory at the Department of Agricultural Research in Maseru for the best fertilizer and lime recommendations.

PLANTING

The planting time for oats is from September to October in cooler areas and January to April in warmer areas. For hay production under irrigation, the cultivars Witteberg, and Overberg can be planted from March to June.

Planting activities of oats are similar to those of wheat with regard to depth and row widths used. The required depth for seeding is 2 cm to 5 cm. The row spacing is about 30 cm and 50 cm to 100 cm between the rows, depending on the available soil moisture or the farming method (narrow rows under irrigation and wide under dryland). Broadcasting and disking could be a possible option but results in comparatively lower yields and increases the seeding rate by almost 20%.

SEEDING RATES

The seeding rate (hence the seed quantities) are dependent on the type of oats planted as they vary from the very low seeding densities of 15 to 30 kg/ha to 80 to 120 kg/ha for winter and spring types respectively.

VARIETIES

Consequence to the Oat trials to identify varieties that are best adapted to Lesotho conditions and have the most desirable characteristics; the choice of cultivar by a producer depends mostly on the end-market for the production, e.g. grain, grazing or feed (silage or hay). Yield potential is another very important determining factor, hence it is highly advisable that a seed test be conducted particularly for non-certified seed to ensure that it is weeds, disease and pest free and have a good germination percentage.

Witteberg

High forage producer with annual yields of 10-15 tons dry matter/ha can be expected. Height is 110-130 cm tall which makes it less resistant to lodging. When planted in June, will mature in December. It can be grown in the lowlands and foothills. It is susceptible to crown and stem rusts.

Overberg

This cultivar is not a heavy forage producer, 5 – 9 t/ha/annum but a good variety for seed production. Height is 80cm tall and good in lodging resistance. It is moderately susceptible and moderately resistant to crown and stem rusts respectively.

The following varieties are available in the South African markets Maluti, Drakensberg, SWK 001, Kompasberg, SSH 421, SSH 405 and SSH 491. However, they have not yet been tested for adaptability in Lesotho.

HARVESTING

Generally, oats should be harvested in the late boot to early heading stages in order to maximize the yield of nutritious, palatable forage. As the plant matures past the early bloom stage, the proportion of the stem and fibre rapidly increases and nutrient content and palatability decrease sharply.

Oats can be grazed, used in cut-and-carry or made into hay and silage.



Late boot to early heading stages

UTILIZATION

Oats are grown for grain, forage, fodder, straw, bedding, hay, silage and chaff. Food uses include oatmeal, oat flour, oat bran and oat flakes.

Grazing: Grazing systems are usually practised under dry land conditions, but more success can be achieved under supplemental/ full irrigation.

Hay: Oats make very good hay, due to its inflorescence being softer than that of Rye and Triticale. Spring type oats will give higher production of better quality for hay production.

Silage: Often practiced when double cropping is done with a summer crop like maize. Spring type oats will give higher production of better quality.

Cover Crop: The extensive root system protects soil against soil erosion, while the reduction of nitrate leaching and suppression of weeds makes this crop ideal to include in a cover crop mixture.

PRODUCTION COST

The past studies revealed that the production cost of 9 ton/ha could be plus M610. Hence to minimise the costs, it is recommended that the crop be harvested early enough to avoid any extra labour and additional expenses. Also to ensure good profits, Oats is best fed to animals that have a high rate of return including but not limited to lactating dairy and beef cattle as well as sheep.