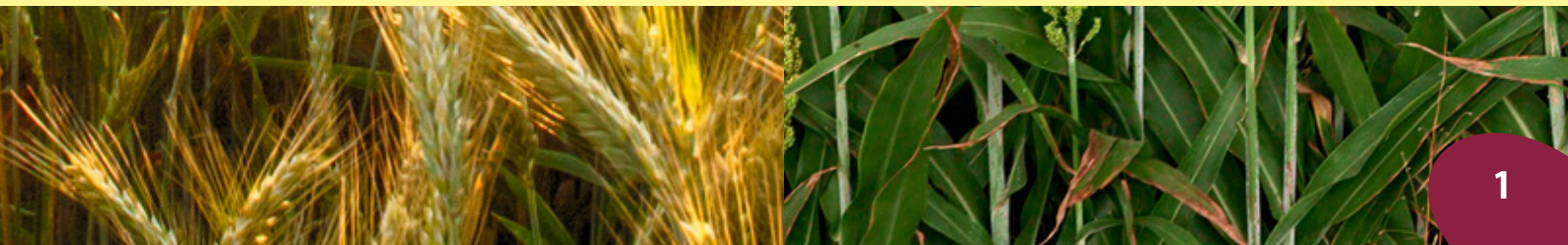




**GROWING
VALUE
TOGETHER**



A Guide to Sorghum and Barley Farming with Kenya Breweries Limited





East African Breweries PLC (EABL) is **committed to creating economic, social, and environmental value** in the communities where we live, work, source and sell.



This vision is entrenched in our sustainability strategy, Society 2030: Spirit of Progress, which is our 10-year action plan to **help create a more inclusive and sustainable world.**



It is anchored on three pillars; **promote positive drinking, champion inclusion & diversity, and pioneer grain-to-glass sustainability.**



EABL seeks to create **shared value through local sourcing of barley and sorghum** that is used in the brewing of our great beers.



The Company encourages farmers to use **sustainable agricultural practices** such as regenerative agriculture.



Regenerative agriculture is an approach to farming that seeks to **improve soil health, increase biodiversity, and reduce environmental impacts**, such as greenhouse gas emissions.



By using regenerative agricultural practices, EABL is able to **reduce its environmental footprint while producing high-quality ingredients** for its beers. These practices include the use of cover crops, crop rotation, and the application of natural composts and manures.



Additionally, EABL has implemented the **use of drip irrigation and rainwater harvesting** to conserve water and reduce its water footprint.



At EABL, we are dedicated to **helping our farmers prepare for and overcome the effects of climate change.** We work to train our farmers in climate-smart agriculture, and we've taken it a step further by investing in research and innovation to guarantee the availability of enhanced varieties that are drought-resistant and have greater and better-quality yields.



As part of our reaction to climate change, we have persisted in **encouraging our farmers to use agroforestry** over the years.

What You Need to Know About Growing Barley for EABL



1.0 General Characteristics

Barley, *hordeum vulgare* is a major cereal grain in the temperate climates. It thrives well in the mid to high altitude zones. East African Breweries Limited (EABL) through its subsidiary East African Maltings Limited (EAML) is engaging farmers to grow barley for use in its brewing process.

- a. Barley matures between 120-150 days depending on altitude, weather condition etc.
- b. It does well in mid to high altitude areas with reliable and well distributed rainfall pattern.
- c. Varieties currently used are moderately resistant to fungal diseases such as Net blotch and Scald.
- d. Potential yields range between 3t/ha to 7.5t/ha.

2.0 Areas of Production

Main barley growing areas are divided into high altitude areas and low to medium altitude areas. The high-altitude areas include Timau and Mau escarpment while the low to medium altitude areas include Nakuru, Moiben and Laikipia. The areas of production will deliver on the potential yields if the rainfall is well distributed.

3.0 Crop Management

a. Land Preparation

Barley requires a fine seedbed. To achieve this, it is recommended to carry out one plough using a chisel plough and at least two harrows or more until the desired soil tilth is achieved. All these operations are tractor driven.

b. Planting

Time of planting - Dry planting is recommended

in order to give the emerging plants a chance to utilize early rainfall and the nitrogen flush.

Seed rate - 40 kg/ acre.

c. Fertilizer Application

It is recommended that you do a soil analysis to determine the pH and nutrient status of your soils before buying your fertilizer. However, as a general guide apply between 75kgs per acre of DAP during planting. When necessary top dress with one bag (50kg) of CAN per acre.

d. Recommended barley varieties

- Grace
- Planet
- Aliciana
- Quench

e. Weed Management

This is done through application of recommended herbicides for use in barley production. The herbicides are for broad leaved weeds and grass weeds. Application is informed by the type of weeds present, stage of growth and weather condition.

f. Crop Protection

- Early-stage insect pests include cut worms. It is recommended that growers use pyrethroid based insecticides to control these early pests.
- Foliar and fungal diseases such as net blotch, scald, fusarium head blight is the most prevalent in barley production. It is advised to apply at least two fungicide sprays for adequate control of these diseases. First application should be done at booting stage and second just at the onset of flowering.

These applications are however also informed based on the disease severity.

g. Harvesting

This is done using the combine harvester and is done when the grain is hard and does not produce 'milk' when crushed between the fingers. This is roughly at a moisture content of about 13.5%. The grain should be hard to pierce with a fingernail on harvesting.

4.0 Marketing of Grain

After harvesting, it is recommended that the grain is delivered directly to EAML stores. This is done immediately to minimize on the post-harvest losses that may arise during storage. Once grain is delivered, it will be weighed, sample taken and analyzed to check for conformance to the contracted quality parameters. The analysis will also advise on the payment.

Price

EAML offers very competitive price for clean and graded barley delivered at designated EAML reception points, or to an EAML appointed collection facility.

5.0 Code of EABL Business Conduct

All farmers, farmer groups, agents, and transporters willing to participate in the EABL sorghum value chain must adhere to the Company's Code of Business Conduct available on www.eabl.com or www.diageo.com.





What You Need to Know About Growing Sorghum for EABL

1.0 General Characteristics

Sorghum, sorghum bicolor is a versatile and climate resilient crop that grows well in a range of climatic and soil conditions. It has superior drought tolerance and therefore better economic prospects with the current climate change phenomenon. East African Breweries PLC through its subsidiary East African Maltings Limited (EAML) is engaging farmers to grow white sorghum for use in its brewing process.

- a. Sorghum is an early maturing crop, typically flowering in 45-52 days and matures in 85-120 days depending on altitude.
- b. It does well in low rainfall semi-arid areas and dry warm mid-highlands.
- c. It is tolerant to insect pests e.g., Stalk Borers, Fall Army Worms and a wide range of fungal diseases.
- d. Grows in a wide range of soils from light alluvial sandy soils to heavy black cotton soils.
- e. Potential yields range between 680-1800kg/acre or (8-20 bags /acre.)

2.0 Areas of Production

Sorghum grows well in areas with an elevation of 50-1800m above sea level and receiving a minimum of 250mm of rain well distributed per season. It is suitable for cultivation in many parts of the country. The areas of production include Meru, Tharaka Nithi, Embu, Kitui, Machakos, Makueni, Taita Taveta, Tana River, Migori, Homa Bay, Kisumu, Siaya, Busia, West Pokot, Elgeyo Marakwet and Baringo.

Most Sorghum varieties recover very well from drought.

3.0 Crop Management

a. Land Preparation

Sorghum requires a fine seedbed. Ploughing can be done either by hand hoeing, tractor or oxen. Ensure that the field has a fine tilth, it is advisable to harrow to the desired tilth as the sorghum seed is quite small. The planting field should be prepared very early. It is recommended that land be ploughed immediately after harvesting the previous crop.

b. Planting

Time of planting - Dry planting is recommended

in order to give the emerging plants a chance to utilize early rainfall and the nitrogen flush.

Seed rate - 4 kg/ acre. Spacing when sorghum is planted as the sole crop is 60cm X 20 cm. Drill in furrows or plant in shallow planting holes. Plant at a depth of 5.0cm when dry planting and between 2.5-4.0 cm in moist soils.

Thinning - Thin when soils are moist preferably during the first weeding. Leave 3-4 seedling per planting hole if above spacing is maintained.

c. Fertilizer Application

It is recommended that you do a soil analysis



to determine the pH and nutrient status of your soils before buying fertilizer. However, as a general guide apply between 1-2 bags of NPK or DAP during planting. When necessary top dress with one bag (50kg) of CAN per acre.

d. Recommended white sorghum varieties

- Gadam (KARI/Kenya Seed/Dryland Seed) thrives in altitudes 0 - 1500 MASL. Suitably adapted for coastal and semi-arid lowlands.
- KARI Mtama 1(KARI) thrives in altitudes of 250 - 1800 MASL. It is tolerant to stem borer.
- Sila (SeedCo) thrives in altitudes of 250 - 1800 MASL. It is both useful forage and grain.
- Advanta Hybrid 23012 (Advanta Seed), high yielding hybrid variety distributed by Kenya Highlands Seed Company.

e. Recommended Brown sorghum varieties

- Seredo
- IESV 24029 SH
- Horus seed-Hytech Kenya
- Advanta Hybrid SWGS3003

f. Weeding

1st weeding should be done within 2 to 3 weeks after emergence. The 2nd weeding should be done 2-3 weeks after the 1st weeding.

g. Crop Protection

- Early-stage insect pests include sorghum shoot-fly and cut worms. It is recommended that growers use pyrethroid based insecticides to control these early pests.
- Later Stage insect pests are mainly the Fall Army Worm, African Army Worm, Stalk Borers. Use multi action insecticides e.g. Coragen.
- The major diseases include stem and leaf rust, smut, charcoal rot and anthracnose. Use seed dressed with a combination of fungicide and insecticide to control most of the diseases.

- Birds are particularly attracted to white sorghum and an appropriate repellent or bird scaring devices to control birds.

h. Harvesting

Harvest the crop when the grain is hard and does not produce 'milk' when crushed between the fingers. The grain should be hard to pierce with a fingernail on harvesting. The heads are harvested, threshed and stored in cool dry conditions.

Ensure threshing is done on tarpaulin to avoid contamination with soil and sand.

Maintain proper grain handling hygiene to ensure that your grain does not develop aflatoxin contamination.

4.0 Marketing of Grain

After harvesting, thresh and winnow your sorghum to make sure it has no rubbish. Ensure it is not mixed with other sorghum varieties and / or other crop grains. Deliver your clean sorghum to the aggregation/collection centre where it will be weighed and ensure quality standards have been adhered to.

Direct Contracts: Pre-Shipment samples will be collected by your field officer who will advise on point of delivery.

Indirect Contracts: Contact your aggregator/sub agent who will advise.

Price

EAML offers very competitive price for clean and graded sorghum delivered at designated EAML reception points, or to a KBL appointed aggregator collection facility.

5.0 Code of EABL Business Conduct

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