Ministry of Agriculture, Land and Fisheries
Extension Training and Information Services Division
FACT SHEET
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Forage Production - Mulberry

INTRODUCTION

Mulberry (*Morus spp*.) is a fast growing woody plant that has a deep root system and belongs to the Moraceae family. It is easily propagated and grows rigorously in fertile soils. It originally came from the temperate zone of Asia and has now spread across the world adapting itself well in our tropical climate.

Figure 1: Mulberry leaves

Mulberry is used for its fruit, as a delicious vegetable, for medicinal purposes, landscaping and the leaves and stems are used as animal fodder.

Mulberry, in its young shrub stage, is excellent forage for ruminant animals such as sheep and goats and monogastrics such as pigs. The leaves and stems are delicious for animals and very digestible. The crude protein and mineral content of mulberry is very high as shown in Table 1.

Table 1. Nutritional Content of Mulberry

Component	Quantity
Crude Protein	15-20%
Minerals	25%
Dry Matter	25-30%
Digestibility	70-90%
Palatability	High

Note: Feeding Mulberry to ruminants can cut commercial grain use by up to 50 % or more once grown and fed properly.

CROP ESTABLISHMENT

Soil Type

Mulberry grows well in fertile soils that are flat, deep, well drained, loamy to clayey, and porous with a good moisture holding capacity. The ideal range of soil pH is 6.2 to 6.8.

Land Preparation

- Remove all vegetation by brush cutting or spraying with a systemic herbicide.
- Plough the soil to a depth of 30 - 35 cm (1 ft) then primary rotavate the soil.

- Make cambered beds 6 meters (18 ft) wide.
- Broadcast the following treatments on top of the soil followed by secondary rotavation.

  ◊ Apply 1000 kg/ha (892 lbs/ac) of hydrated limestone. This is equivalent to twenty 50kg bags per hectare.

  ◊ Apply 500 kg/ha (446 lbs/ac) of well-rotted animal manure. This will improve the structure of the soil and provide much needed nitrogen which is important for mulberry growth.

  ◊ Apply a granular fertiliser high in phosphorus such as 12-24-12 at a rate of 200 kg/ha (178 lbs/ac).

Planting

Mulberry can be grown from both seeds and cuttings. Mulberry plants grown from seeds will produce a stronger and more developed root system than using stem cuttings. The seeds are however not readily available and their germination rate is very low. Propagation from seeds is also a costly operation.

Establishment by Cuttings

- Use cuttings from mature branches that are more than three months old and cut into 30 - 35 cm (1 ft) long pieces with no less than 3 buds on it. These may either be planted directly into the ground at a depth of 8-10 cm or may be set in grow bags with a growing medium of 3 parts manure and 1 part sharp sand. Cuttings should be dipped in a suitable rooting hormone for quicker root development before planting.

Establishment by Seed

Seeds can be sown individually 3 - 4 cm (1.5 in) deep in grow bags filled with growing medium of 3 parts manure and 1 part sharp sand. This is placed in a nursery with 50% shade after which it is transplanted out in the field at 2 - 3 months after germination.

Adequate moisture must be available when establishing mulberry plants whether by seeds or cuttings. It is therefore recommended that in the absence of irrigation, planting should be done at the beginning of the rainy season.

Spacing

High density planting of mulberry is recommended for maximum production. This can be achieved by single row and double row planting.

Single Row Planting

Plant cuttings 60 cm (2 ft) within rows and 45 cm (1.5 ft) between rows (Figure 2). This would require approximately 9,600 plants per hectare (4,000 plants/ac).

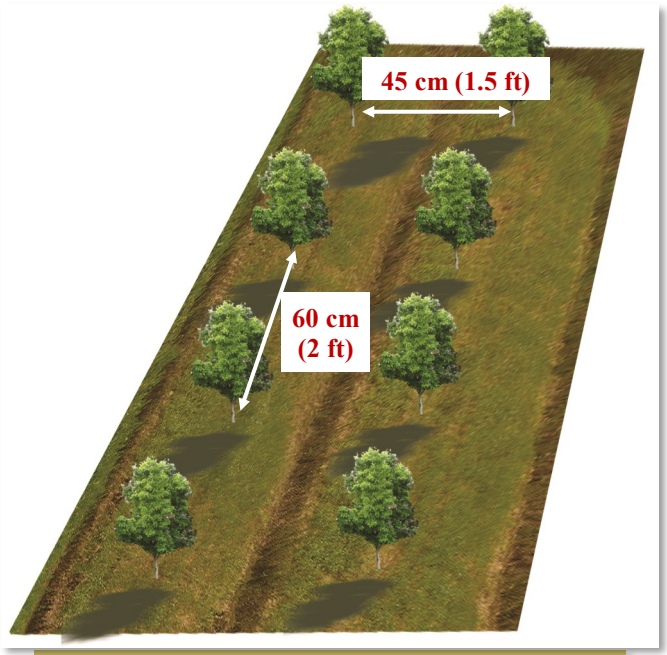


Figure 2: Single row planting

Double Row Planting

Plant two cuttings in one row using a spacing of 30 cm (1ft) between rows and 60 cm (2 ft) within rows. Each row should be established 1.5 m apart (Figure 3). This would require approximately 19,200 plants per hectare (8000 plants/ac).

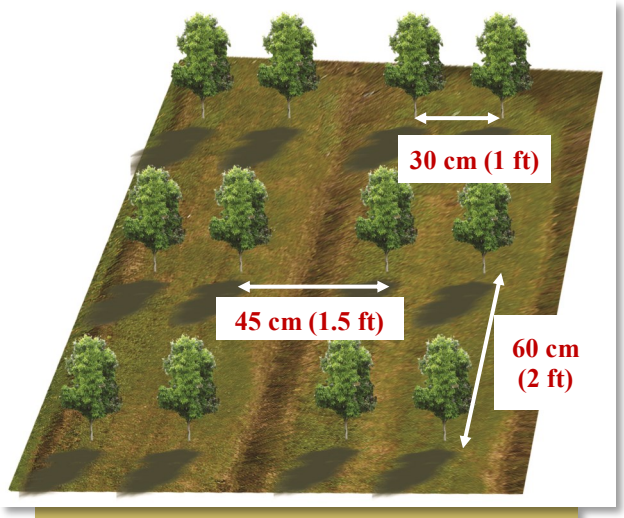


Figure 3: Double row planting

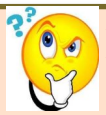
CROP MAINTENANCE

Fertiliser application

Most of the nutrients supplied from fertilisers that are needed by the plant should have already been made available in the soil during land preparation. However further application of fertilisers are needed to replenish the nutrients taken up by the plants especially after harvesting which should be done every 6 - 8 weeks.

After harvesting, apply an NPK fertiliser high in nitrogen example 20-10-10 at a rate of 300 kg/ha (267 lbs/ac) or 1500 kg/ha (1338 lbs/ac) of well-rotted animal manure and incorporate into the soil this will encourage rapid re-growth of plant foliage for maximum yield. Ensure irrigation is provided when applying fertilisers.

In cases during the dry season where irrigation is limited, a foliar applied fertiliser high in nitrogen such as liquid litter can be substituted.



Did you know?

Legumes like gliricidia add nitrogen to the soil and can be intercropped with mulberry. This system allows mulberry plants to produce more crude protein content in its herbage which lowers long - term fertiliser cost.

Weed Control

A selective post emergent herbicide should be used to control grass weeds. Manual control such as the use of a weed whacker can also be used to control weeds between rows. Organic mulch such as dry grass can be applied on the surface of the soil to control weeds. After a year of growth there would be no need to control weeds since mulberry trees would shade out the emerging weeds.

Harvesting

Mulberry plants are ready for harvesting (cutting) at 3 - 4 months after planting, and at intervals of 6 - 8 weeks. Harvest mulberry trees by cutting the branches in an upward direction to prevent stripping of the bark that will cause fungal infections. Cut two thirds of the plant and feed to animals in its fresh state. This will include branches and leaves. A brushing cutlass can be used for this type of harvesting.

One hectare (2.4 acres) of freshly cut mulberry can yield 30,000 – 35,000 kg per year this is equivalent to 26,000 - 31,000 lbs of foliage (fresh) per acre per year provided that proper management practices are done.

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