

Pasture and fodder production

A guide for small-scale farmers

Guideline for the establishment of pastures and fodders



1 Site selection: Consider the following: (i) land size; (ii) species to be planted - fodder trees (leucaena, gliricidia, calliandra, moringa, etc.) and shrubs (pigeon pea, mulberry, etc.) require less land than pasture grasses; (iii) is the pasture/fodder to be integrated in the crop field; as stand-alone; or in field boundaries; (iv) is the chosen site likely to bring conflict in the community e.g. grazing by neighbor's livestock.



2 Land preparation: The type of land preparation is dependent on the type of pasture/fodder and the level of mechanization. Ploughing or disking can be used for species planted by broadcasting. If planting is by drilling, use riplines. Minimum soil disturbance such as light disking or ripping should always be the preferred option whenever possible.



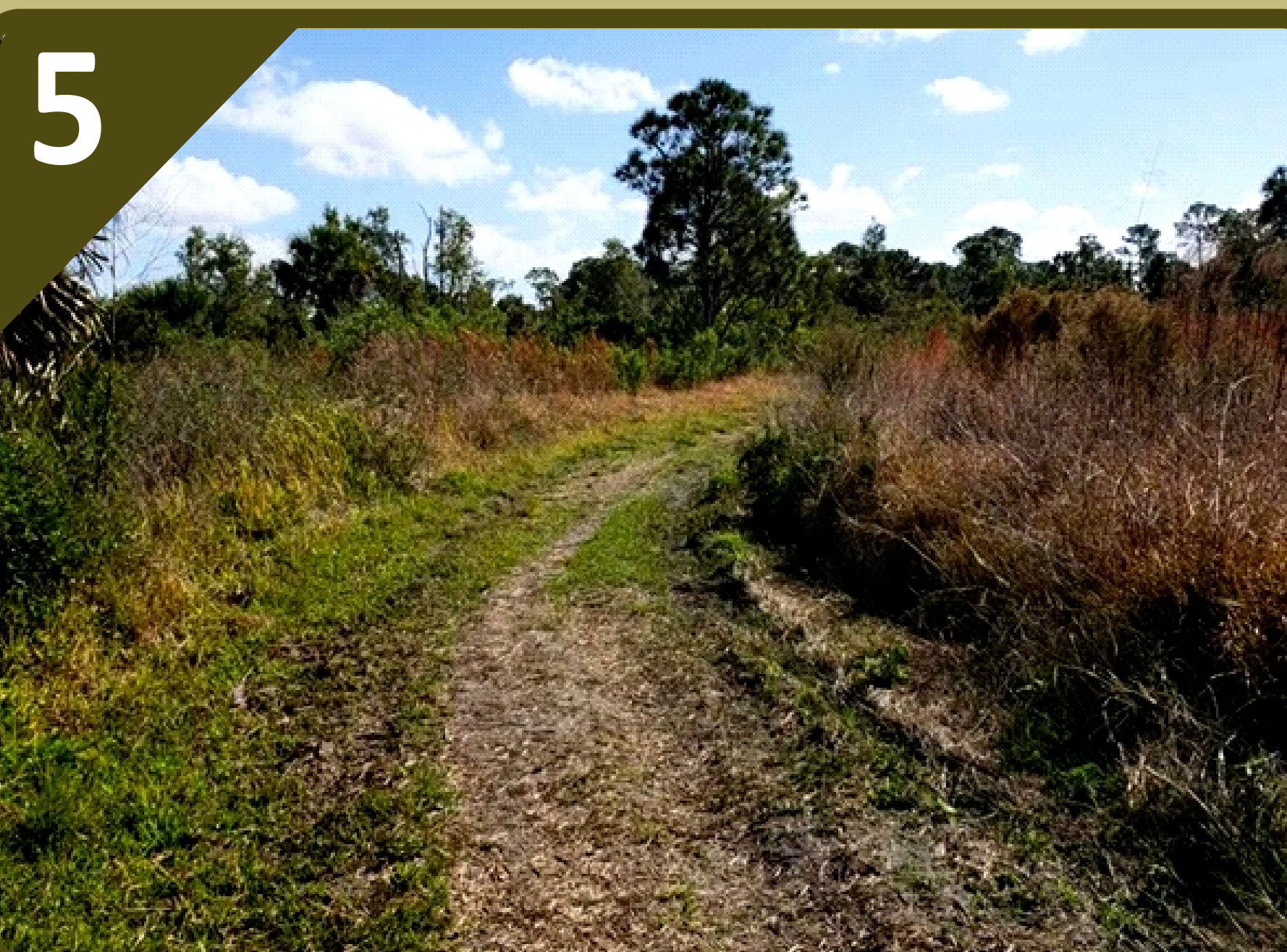
3 Fertilization: Application of chemical fertilizer to pastures and fodders might not be practical and economical for most small-scale farmers. Where soil fertility is extremely low, application of organic fertilizer (manure, compost or Bokashi) could be a cheaper alternative. Fertilization is not necessary for legume pastures/fodders as these can fix their own nitrogen.

4	Seed rate (kg/ha)	Spacing (inter-row x intra-row) (cm)		When to plant		Planting depth (cm)
		Sole crop	Intercrop	Sole crop	Intercrop	
Velvet beans	30 to 50	50 by 20 to 30	Inter-row - depends on main crop; intra-row - 20 to 30	Plant with first consistent rains	Plant when main crop is at knee-high	4 to 5
Black sunn hemp	25 to 50	Broadcast; 20 to 30 inter-row if drilled	Drilling in shallow furrows intra-row - 20 to 30	Plant with first consistent rains	Plant when main crop is at knee-high	2 to 3
Cowpeas	20 to 40	50-75 by 5	Inter-row - depends on main crop; intra-row - 5 to 10	late Dec or early Jan	Plant when main crop is at knee-high	2 to 3
Pigeon pea	30 to 35	50-100 by 30-35	Inter-row - depends on main crop; inter-row - 50 to 100.	Plant with first consistent rains	Plant with first consistent rains	2 to 3
Leucaena	11 to 30	50-100 by 10-15	150-180 by 50-100	Early Dec	Early December	2
Rhodes grass	3 to 7	50-100 inter-row drilled	-	Nov to Jan	-	0.5
Buffel grass	1 to 2	Broadcast; 50 inter-row if drilled	50 to 75cm dependent on the legume inter-crop	Nov to Jan	-	0.5
Braccharia grass	4 to 6	Broadcast; 50 inter-row if drilled	-	Nov to Jan	-	1 to 2

5 Planting: Different pasture and fodder species have different planting dates. The planting date is largely determined by the time to maturity. Early maturing species are planted late, while late maturing species are planted early. However, due to uncertainties regarding the onset and patterns of the rainy season as a result of climate change, early planting is recommended for most species. Planting time is also determined by whether the pasture or fodder species is to be a single stand or an inter-crop. If fast-growing legumes (velvet beans or sunn hemp) are to be inter-cropped with slow-growing cereals such as maize or sorghum, the legume has to be planted a bit late to give a head start to the cereal.



5 Weed management: Planting on a weed-free field is one effective way to control weeds. Timely weeding is very important to reduce weed competition. To maintain the quality of the pasture, it is necessary to continuously weed-out undesired species. For species planted in riplines, there might be need for at least one weeding prior to the full establishment of the pasture. Interplanting fodder trees or shrubs with cover crops is another way of managing weeds..



5 Fire control - Establishment of pastures and fodders is an expensive venture in monetary terms, labour and time. It is important to have a buffer (area with very little or no dry vegetation) around the pasture of at least 4 meters to protect the pasture/fodder against uncontrolled fires.



6 Harvesting and feeding forages to livestock: There are different ways that forage can be fed to livestock: (a) cut-and-carry - here the fodder is fed to livestock while still fresh. The fodder is cut while still young and taken to the animal, not grazed; (b) hay - the forage is cut and preserved for periods of shortages. A mixture of leguminous biomass, crop residues, and grasses is recommended to improve the quality of the forage; (c) Silage is fermented, high-moisture and compacted fodder stored in airtight conditions. Silage can be made by compacting and covering forage in a ditch lined with a plastic; (d) direct feeding - livestock can be herded in a field of standing forage.

What is a pasture?

Pasture is land on which livestock such as cattle can be kept for feeding i.e. land covered with grass and other low plants suitable for grazing animals.

What is fodder?

Fodder is food such as hay, silage or grains that is cultivated, harvested and at times stored for animal consumption.

Why pasture and fodder production?

Pastures and fodders are important for the following reasons:

- ▶ To overcome shortages of quality livestock food especially during the dry season (May to November).
- ▶ Compensating poor quality of natural pastures.
- ▶ Pastures and fodders are a cheaper alternative to provide necessary nutrients to livestock as compared to commercial stock-feed.
- ▶ Pasture and fodder production can be a source of income through direct sales of the fodder and seeds to livestock farmers.
- ▶ Some pasture or fodder species can contribute to soil fertility improvement and control erosion.
- ▶ Some fodder species are multipurpose and can be used to mark farm boundaries or as windbreaks.

Factors to consider when establishing pastures and fodders

- ▶ Environmental factors (climate and season; rainfall distribution; soil condition; etc.)
- ▶ Animal health - some pastures can present animal health problems such as bloat in cattle.
- ▶ Economic considerations - pasture and fodder establishment can be an expensive venture in terms of labor and finances and farmers need to include the cost of pasture/fodder production in their overall farm budget.
- ▶ Type of pasture/fodder - the species or combination of species to grow for pasture or fodder depend on:
 - ▶ The environment - the pasture or fodder should be adapted to local conditions.
 - ▶ The intended use of the pasture or fodder - is it for weaners or finishing animals; is it for filling an identified feed gap; or to provide multiple benefits e.g. erosion control, soil fertility improvement, etc.
 - ▶ The water source - will the pasture/fodder be rain-fed or irrigated.

Promotion of agroforestry supported by:

With support from Federal Ministry of Food and Agriculture

by decision of the German Bundestag

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