Planting grass forages in lowland / semi-arid areas

Why planting grass forage?

Stall feeding of a dairy cow in Eastern Kenya

Grass forage species provide the bulk of fiber needed by ruminants (the ratio should contain a minimum of 30% of fiber). For non-dairy animals and animals that are not being fattened, grass forage species also cover most of the energy and protein requirement. However, they must be mixed in the ration with concentrates and legumes to provide a balance feed to dairy animals and animals being fattened.

Gras forage can be an important substitute to cereal residues. Their palatability and digestibility is often higher.

Many grass forage species have a powerful root system and may control erosion efficiently when planted along the contour. Many species can be grown on relatively poor soils, where they don't compete with food crops. Grass forage may also be sown along field boundaries and in other farm niches that are otherwise unutilized.

SELECTED SPECIES WITH:

- High productivity
- Good forage value
- Ease of management
- Ease of inclusion is existing farming systems

Few agronomic tips

Dormancy **-** Many grass species are subject to post-harvest dormancy, that is their germination is inhibited by chemical compounds contained in the glumes (the seed envelop). which means germination improves for up to 12 months after harvest, as germination inhibitors in the glumes break down. Careful removal of glumes can accelerate this process, but can damage seed if tackled with excessive vigour.

Sowing **–** Forage establishment fails more as a result of sowing too deep than as a result of sowing too shallowly. Seed size and soil texture are important in determining sowing depth - the smaller the seed and the heavier the soil, the shallower the planting depth. In general, small seeds should be sown as close to the surface as possible, and larger seeds at 2-5 cm.

Grazing/Cutting intervals **–** Longer intervals between grazing/cutting may result in higher biomass productivity, but it also often result in lower nutritional value and palatability. Indeed, feeding value declines rapidly with age of regrowth, as increasing amounts of lignin are laid down. A green leaf residue should always be maintained after grazing/cutting: the initial rate of regrowth is directly related to the amount of leaf remaining to intercept light and support photosynthesis.

Feeding **–** Palatability and digestibility of grass forage increase when there are chopped and mixed with forage legumes.

CIMMYT's mission is to sustainably increase the productivity of maize and wheat systems to ensure global food security and reduce poverty.

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Andropogon gayanus

Common name Gamba grass
Plant description Perennial, tuffed

USES		CHARACTERISTICS			
Grazing	++	Nutritive value	-	Resistance to heavy grazing	+
Cut-and-carry	++	Palatability	-	Resistance to pests and diseases	+
Hay	+	Productivity	+		
Silage	+	Seed production	-	Spreading (by seeds)	++
Ground cover	+	Ease of establishment	+		
Green manure	+	Adaptation to poor soils	++		
Intercropping	-	Resistance to drought	+		

Cenchrus ciliaris

Common name Buffel grass
Plant description Perennial, tuffed

USES		CHARACTERISTICS			
Grazing	-	Nutritive value	+	Resistance to heavy grazing	+
Cut-and-carry	+	Palatability	+	Resistance to pests and diseases	+
Hay	+	Productivity	+		
Silage	+	Seed production	-	Spreading (by seeds)	+
Ground cover	+	Ease of establishment	+		
Green manure	+	Adaptation to poor soils	-		
Intercropping	-	Resistance to drought	++		

Cynodon nlemfuensis

Common name Star grass
Plant description Perennial, tuffed

USES		CHARACTERISTICS			
Grazing	++	Nutritive value	+	Resistance to heavy grazing	++
Cut-and-carry	++	Palatability	+	Resistance to pests and diseases	+
Hay	+	Productivity	+		
Silage	-	Seed production	+	Spreading (by stolon and seeds)	++
Ground cover	++	Ease of establishment	+		
Green manure	++	Adaptation to poor soils	+		
Intercropping	-	Resistance to drought	+		

Chloris gayana

Common name Rhodes grass
Plant description Perennial, tuffed

USES		CHARACTERISTICS			
Grazing	++	Nutritive value	++	Resistance to heavy grazing	++
Cut-and-carry	++	Palatability	++	Resistance to pests and diseases	+
Hay	+	Productivity	++		
Silage	-	Seed production	++	Spreading (by stolons and seeds)	+
Ground cover	+	Ease of establishment	+		
Green manure	+	Adaptation to poor soils	-		
Intercropping	+	Resistance to drought	+		

Panicum coloratum

Common name Small panicum
Plant description Perennial, tuffed

USES		CHARACTERISTICS			
Grazing	+	Nutritive value	+	Resistance to heavy grazing	+
Cut-and-carry	++	Palatability	+	Resistance to pests and diseases	+
Hay	+	Productivity	++		
Silage	+	Seed production	+	Spreading (by seeds)	-
Ground cover	+	Ease of establishment	+		
Green manure	+	Adaptation to poor soils	+		
Intercropping	-	Resistance to drought	+		

A maize plant growing in a mulch of crop residues

Enhancing productivity in mixed crop-livestock system of Eastern Africa

This IFAD-funded project is focused on resource-poor smallholder farmers in Ethiopia and Kenya. It aims at improving both crop and livestock production by reducing current competition on the use of cereal crop residues. On one hand, cereal crop residues are an essential source of feed for livestock, especially during the dry season. Livestock performs a number of function such as provision of animal traction, provision of manure, income generation and social display. On the other hand, the retention of cereal crop residue as surface mulch has the potential of increasing crop productivity and improving sustainability of cropping systems.