

4. Establishment and management

Proper establishment and management of pastures leads to high yield and good quality grass that results in high livestock productivity. In this section, we will discuss about the establishment and management procedures for Brachiaria grass as a pure stand to enable smallholder farmers to produce high amount of quality biomass in their farms for enhanced livestock productivity and economic benefits. However, it can also be established in mixtures or intercropped with forage legumes. Like other forages, Brachiaria grass establishment success and productivity depend on various factors including cultivars, local agro-climatic conditions, and agronomic practices such as land preparation, sowing rates, time of planting, spacing, fertilization and weed management.

4.1. Land preparation

As the grass seeds are small, a well-prepared seedbed is required for good establishment of Brachiaria grass that subsequently reduces weed infestation, as well as the cost of weed control. The land should be cleared from bushes and perennial weeds before ploughing. If tractor or oxen-plough are used for land preparation, the land should be ploughed and then harrowed twice to a fine tilth. If hand hoe is used, the large soil boulders should be broken down.

4.2. Seed rate

Brachiaria grass can be propagated by seeds and vegetative materials i.e. rooted tillers. Planting using seeds is convenient for large scale

production. About 5 to 7 kg of good quality seeds are required for one hectare. Higher seed rate is required if planting is carried out by broadcasting. Alternatively, seeds can be sown in the nursery bed then transplanted into main field when seedlings are 8 to 10 weeks old. In this case seed rate can be reduced to 2.5 to 3.5 kg per hectare. The use of rooted tillers (root splits) is the best option to establish *Brachiaria* grass, especially when seeds are not available. Root splits can be obtained from an old stand of *Brachiaria* grass pastures. About 2 to 3 tillers/root split are good for planting per hole. It is important to ensure that the root splits are in good condition with actively growing roots to develop into new plants.

4.3. Spacing

For establishing pure stand from seeds, seeds are sown in rows with spacing of 50 cm apart and drilled by hand or mechanized planter. Roots tillers should be spaced 20 - 30 cm within a rows and 50 cm between rows to maximize on yield. Planting the grass in rows facilitates weed control and other intercultural operations.

Table 1: Recommended *Brachiaria* root splits spacing and rates

Between rows spacing	Within row spacing	Root splits/hectare
50 cm	20 cm	100,000
50 cm	30 cm	67,000



Figure 1: Brachiaria grass seeds (left) and rooted tillers (right)

4.4. Sowing depth



Figure 2: Spacing and sowing depth of Brachiaria grass

Appropriate depth of sowing is very important with small and light seeded forages like Brachiaria grass for successful seedling emergence and establishment. Brachiaria seeds can be sown by drilling the seeds within a depth of 0.5 to 1 cm and lightly covered with soil. Where the

seeds are broadcasted, covering of seeds can be achieved by light harrowing and rolling. Alternatively, seeds can be covered by pulling a tree branch over the area planted. Proper covering protects the seeds from direct exposure to rain and sun, as well as from harvester ants and birds.

Root splits are planted in holes. The size (depth and width) of holes should be sufficient to accommodate roots splits. After planting holes should be covered with soil and well pressed to bring a good contact between roots and soil.

4.5. Sowing time

The sowing time determine successful establishment of *Brachiaria* grass particularly where forages are planted under rainfed conditions. Sowing of seeds and planting of root splits should be carried out at the onset of rainy seasons to ensure soil has adequate moisture for seed emergence and seedling establishment. Due to different rainfall patterns across Africa, different sowing times have been recommended for the different regions, therefore, the sowing time vary within a country. *Brachiaria* plants are slow to establish and there should be sufficient moisture in the soil for about 2 months for the successful establishment. For example, in Kenya and Rwanda, *Brachiaria* grass establishment is successful when seeds are sown during the March/May long rains and October/December short rains in humid and sub-humid regions such as western and central highlands. In the semi-arid region such as eastern midlands, the most suitable sowing time is during the October/November short rains.