How to select the best forages...

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To select the best forages to offer farmers for evaluation, follow these steps:

Step 1 Use Table 1 to choose species which are suitable for the ways farmers want to grow and use them.

Step 2 Use Table 2 to find out which of these species are recommended for different climates and soils.

Blank cells in Table 2 mean that this species is not adapted to this climate or soil. Species receiving two marks (●●) are the first choice for testing in this situation. Those with one mark (●) may also be suitable but are not likely to grow as well as those with two marks (●●). For example, *Brachiaria humidicola*, will grow well in fertile soils but received only one mark (●) as there are other species, such as *Panicum maximum*, which will grow better in these soils.

Step 3 Check the section on 'Special Considerations' to see if any apply to your situation.

Step 4 Read the descriptions of each species (see Section 4 'More about each species') you selected and identify varieties to offer to farmers for evaluation.

These 4 steps are only a guide to make it easy for you to start selecting forages. If you prefer you could use Step 2 before Step 1. As you become familiar with the information in this booklet, you will find it easy to select species to offer farmers for evaluation.

Section 3 only lists major forage species. Other potentially useful forage species and varieties, which may be useful in special situations, have been included in Section 4 'More about each species...'.

Table 1: Suitability of forages for different uses

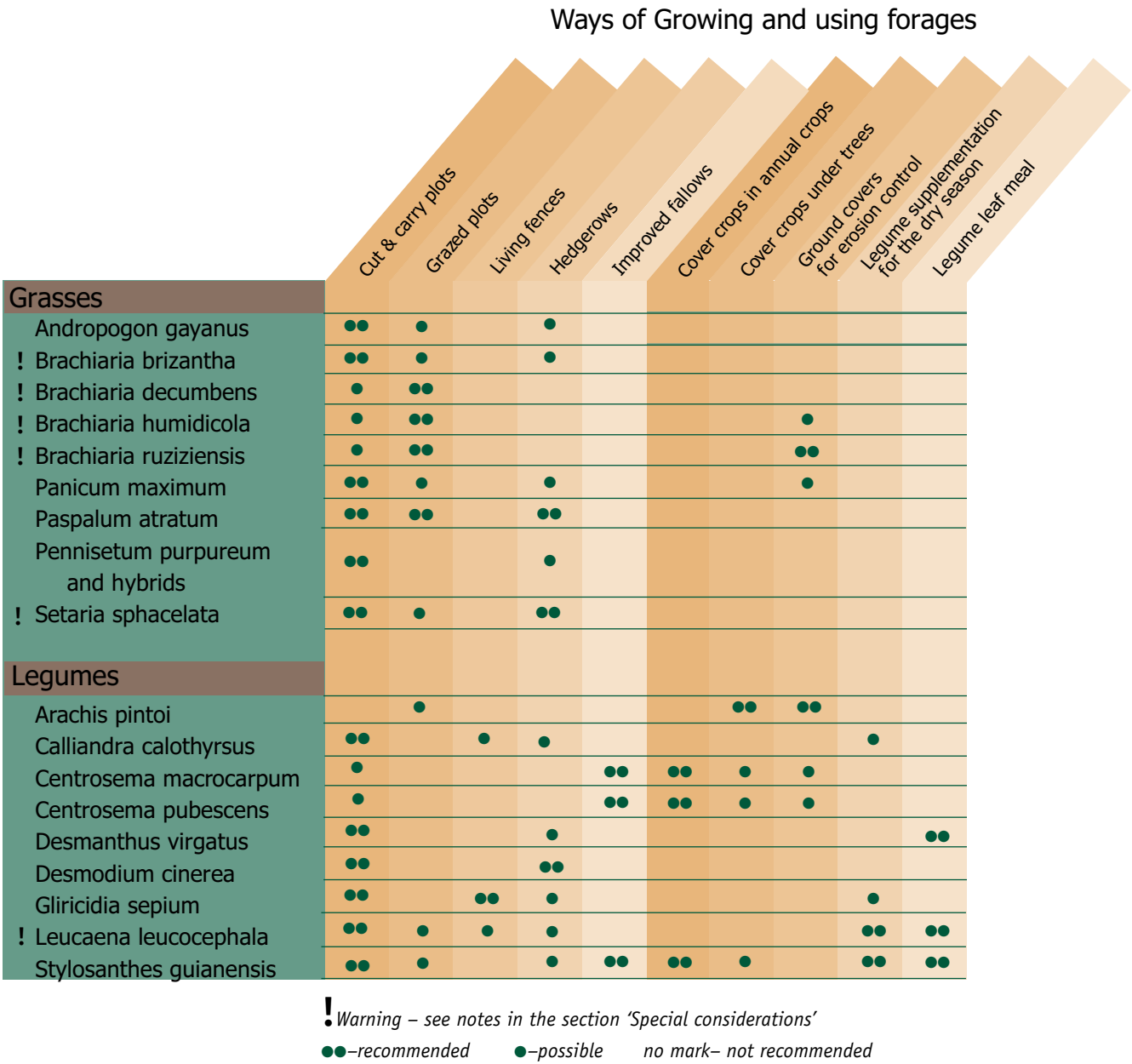
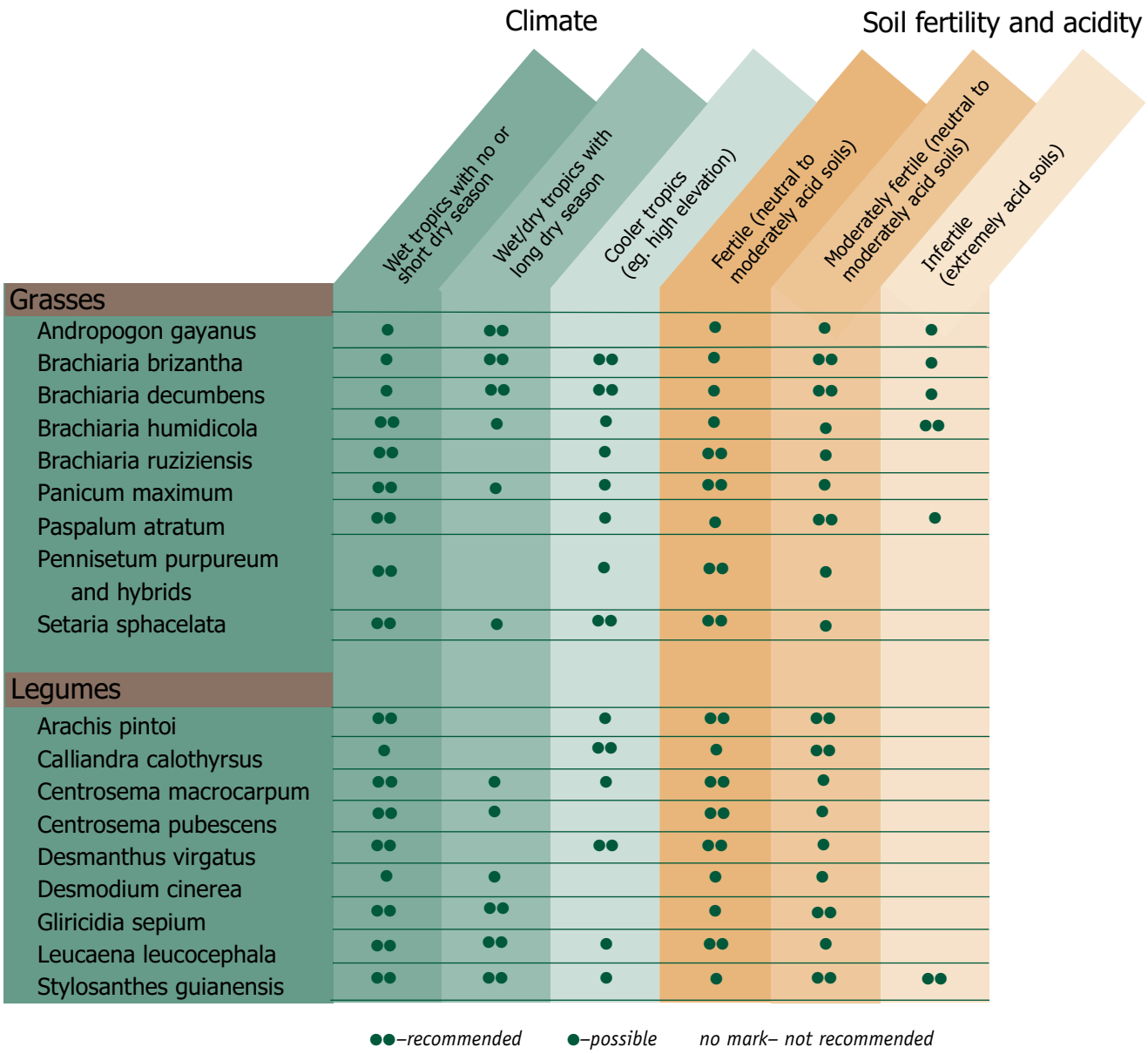


Table 2: Recommended forages for different climates and soils

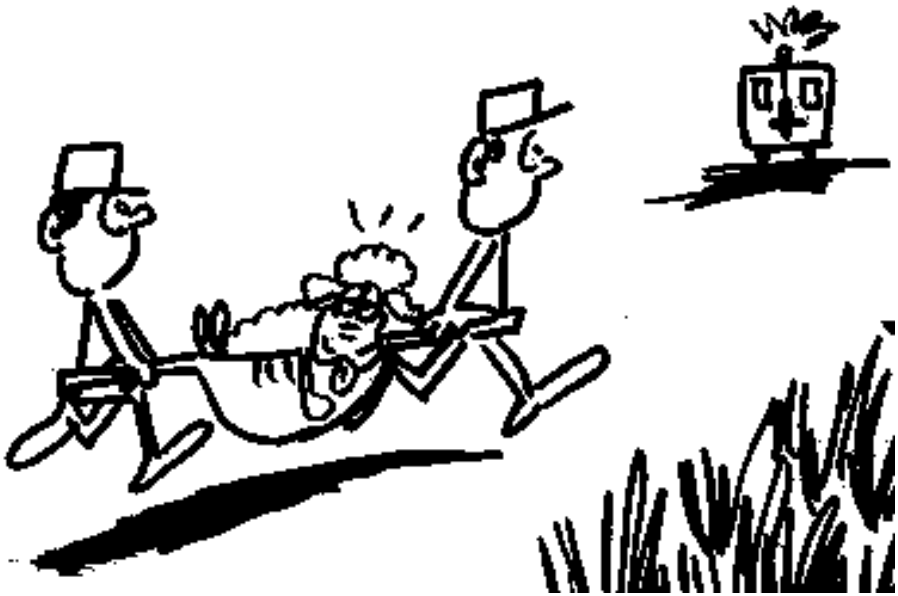


Special considerations

In addition to the information presented in Tables 1 and 2, there are particular situations which require special consideration when selecting forages to offer farmers:

Forages for sheep, goats and young cattle

Do not feed *Brachiaria brizantha, Brachiaria decumbens, Brachiaria mutica* or *Brachiaria ruziziensis* to sheep, goats and young cattle. If fed large amounts, these animals can suffer from photosensitization which often results in death. *Brachiaria humidicola* can be fed to sheep, goats and young cattle but only in small quantities.



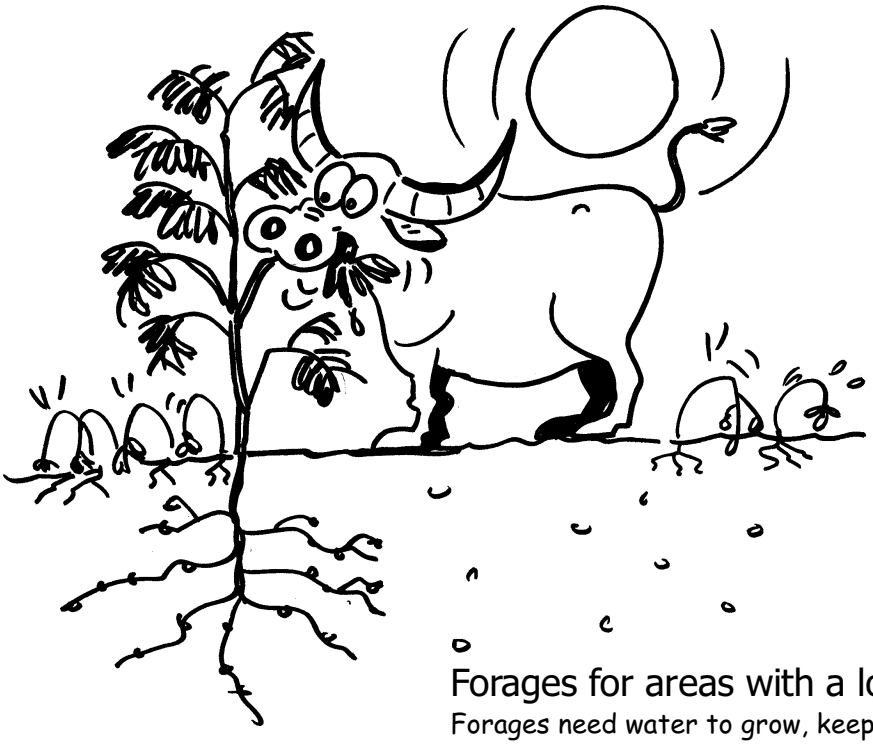
Forages for monogastric animals

Some species can be toxic to monogastric animals when fed in large amounts. *Setaria sphacelata* can be toxic for horses, since it contains oxalates. *Leucaena leucocephala* may be toxic to monogastric animals, since it contains the chemical compound mimosine. It is generally recommended that the diet of monogastric animals should contain no more than 10% of *L. leucocephala*. However, it can be fed in large amounts to ruminants (eg. cattle and goats) since they are able to break down mimosine in the rumen.

Forages for shaded areas

Most forage species will grow as well in lightly shaded areas (such as under old coconuts) as they do in open areas. Species which are often used for grazed plots in light to moderate shade are *Brachiaria humidicola*, *Stenotaphrum secundatum* and *Arachis pintoi*.

Farmers occasionally ask for forages to grow in heavily shaded areas. There are no species that will produce high yields in such situations, but some species are better adapted to surviving in moderate shade. *Arachis pintoi*, for example, can be used as a ground cover to suppress weeds in shaded areas. Other species that can survive in moderate shade are *Centrosema pubescens*, *Centrosema macrocarpum*, *Paspalum atratum*, *Panicum maximum*, *Setaria sphacelata*, *Brachiaria brizantha*, *B. decumbens*, *B. humidicola* and *Stenotaphrum secundatum*.



Forages for areas with a long dry season

Forages need water to grow, keep cool, and to take up nutrients from the soil. While there are no miracle forages that are productive throughout a long dry season, some species are better adapted to dry environments than others (see Table 2). Some tree and shrub legumes, such as *Leucaena leucocephala*, have root systems that can reach moisture deep in the soil. This allows them to grow and retain their leaves longer into the dry season than other forages. Some grasses and herbaceous legumes, such as *Andropogon gayanus* and *Stylosanthes hamata,* are also able to maintain green leaf long into the dry season.

Forages for acid, infertile soils

All forages grow well on fertile or moderately fertile soils. Some forages, such as *Pennisetum purpureum* and hybrids, will only grow well on fertile soils.

Many of the forages recommended in this booklet will grow on infertile soils and some (such as *Brachiaria humidicola* and *Stylosanthes guianensis*) will grow even on very acid, infertile soils (see Table 2). However, no species will produce high yields on infertile soils unless manure or fertiliser is applied. On extremely infertile soils, forages may not contain enough nutrients for good animal growth.

Forages for very alkaline soils

Most forage species can grow in alkaline soils. Some are particularly suited to high-pH soils. These are *Leucaena leucocephala, Desmanthus virgatus* and *Brachiaria humidicola*. One species which does not grow well on very alkaline soils is *Stylosanthes guianensis*.

Forages for waterlogged soils

Most forages will tolerate a few days of waterlogging but few can grow well in soils which are waterlogged for extended periods. Some forage species that can tolerate waterlogging better than others are *Brachiaria mutica*, *Paspalum atratum, Setaria sphacelata, Brachiaria humidicola, Macroptilium gracile and Codariocalyx gyroides*.

Forages for areas that are burnt regularly

Most forage grasses will tolerate burning as their growing points are close to the ground (eg. *Brachiaria* species). Most forage legumes have all their growing points high above ground and are easily killed by fire (eg. *Stylosanthes guianensis, Centrosema pubescens*). However, these legumes often regenerate from seed after fire. One legume which can survive even severe fires is *Leucaena leucocephala*.