



agriculture & rural development

Department:
agriculture
& rural development
PROVINCE OF KWAZULU-NATAL

PASTURES IN KWAZULU-NATAL

Pasture Establishment

ESTABLISHMENT WITH VEGETATIVE MATERIAL

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INTRODUCTION

The establishment of a pasture with vegetative material is a costly exercise. The importance, therefore, of a well-prepared seedbed cannot be overstressed. Furthermore, the time and effort spent in attaining a well prepared seedbed is an excellent investment in terms of a good strike by the planting material, a quicker cover and reduced soil erosion.

It should be remembered that, should the area to be established to pasture be virgin land, authority to break such land must be obtained from the Department of Agricultural Development, through the local Extension Officer. Once this authority has been granted the overburden must be removed by heavy grazing, mowing and/or burning before seedbed preparation can commence.

THE SEEDBED

The ideal seedbed should have the following characteristics.

- Firm to facilitate good soil/root contact and to eliminate "caves" below the planting material.
- Smooth and even to aid subsequent application of fertiliser and/or other operations (hay/silage making, topping, etc.).
- Granular and moist to facilitate good compaction.
- As weed free as possible to prevent competition between the pasture plants and weed seedlings.

There is no rule of thumb regarding which implements to use in preparing the seedbed. Almost any combination of implements can be used to achieve the abovementioned tilth. It is, however, important not to overwork the soil, thereby breaking down the soil structure to a powder. This often happens when using a rotary plough.

LAND PREPARATION

A suggested land preparation programme is outlined below.

- If there is overburden then this must be removed by grazing, mowing or burning in early spring.
- The area should then be ploughed or ripped and immediately disced with an off-set disc. On sandy soils an off-set disc, without the need for a plough or ripper, may be sufficient. Discing should then be followed with a Cambridge roller to encourage germination of as many weed seeds as possible.
- At this stage the soil type changes within the land will be most obvious. It is strongly recommended that at this point a good representative soil sample (at least 40 cores to a depth of 150 mm) is taken for each soil type within the land. The soil sample is then submitted for analysis and fertiliser recommendation.
- Once the weed seedlings are about 50 mm high (2 to 3 weeks), the land should be cultivated with a tiller (fitted with duckfoot tines) and a drag harrow to loosen and remove the weed seedlings.
- Should the need for lime be indicated by the fertiliser recommendation, it should be applied at least 6 weeks before planting and disced into the land.
- Should superphosphate and/or muriate of potash be indicated by the fertiliser recommendation, it should be applied one or two days prior to planting and disced in to a depth of 150 mm.

CONVENTIONAL ESTABLISHMENT

Basic guidelines relating to the establishment of "creeping" pasture species, using vegetative material, are as indicated below.

- Planting should commence once the spring rains have settled into their "normal cycle" (to ensure maximum benefit of the rainfall following planting) and once all danger of frost is over.
- The closer the row spacing and the planting interval within the row, the sooner the cover will be complete. It is recommended that rows about 90 cm apart (*i.e.* half a tractor width) be drawn with a single furrow plough and that the moist roots (having been watered with a hose pipe or irrigation sprinkler *en route* to the planting site) be layered in the rows at 60 cm intervals.
- Following layering, the roots should be covered, leaving about 5 cm of green herbage above ground level. Roll at least once, preferably with the rear tractor wheel, while opening the next planting furrow. The recommended planting rate, at this row spacing and interval within the row, is 75 by 50 kg fertiliser bags of roots per hectare. A fertiliser bag holds about 15 kg of roots. Expressed differently, one hectare of pasture should supply sufficient roots to establish 10 ha of pasture and should recover within the same

season, provided of course that the planting material was removed in strips early in the season. Furthermore, kikuyu and coast cross II, planted in late spring-early summer under "normal" conditions and correct management, should form a complete cover by the end of the season.

- It is unwise to reduce the planting rate of roots per unit area. Should there be a shortage of planting material, then it is recommended that a smaller area be established. If, on the other hand, there is an abundance of roots available, they can be spread evenly over the entire area and either disced or worked in with a rotary plough (with the rear flap closed) to a depth of about 5 cm. The area should then be rolled at least once with a Cambridge roller.
- As soon as the roots have established themselves sufficiently, so that they will not be pulled out by cattle, or have the tips of the runners eaten off by sheep, then the pasture should be grazed leniently. This will prevent upright growth and will encourage lateral spreading.

At this point it should be mentioned that most permanent summer pastures, particularly kikuyu and coast cross II, are normally established on the steeper slopes where large scale machinery operations are impractical and often forbidden.

ALTERNATIVE ESTABLISHMENT PROCEDURES

Depending on the steepness of the slope, three basic procedures can be used to establish pastures from runners.

1. Strip establishment

- Remove the overburden by heavy grazing, mowing or burning in early spring.
- Where possible, cultivate the area in strips 2 m wide, following the contour, to achieve a seedbed as described previously.
- Leave a strip of intact veld, also 2 m wide, above and below each cultivated strip, to prevent or reduce soil erosion. The prepared strip can then be fertilised and established as described previously (conventional establishment).
- The same planting rate per unit area still applies. By the following season the established pasture strips should be sufficiently well established to remove the remaining veld and replace it with pasture as before.

2. Spot planting

- Where machinery cannot be used safely, the overburden must be removed in early spring, usually by burning.
- Once the spring rains have settled into their "normal cycle", a series of indentations, roughly 20 cm square and 3 cm deep, should be made with a hoe, at 1 m intervals in

the veld. Two teaspoons of superphosphate fertiliser should then be spread evenly across the bottom of the indentation and, preferably, covered with a thin layer of soil. A 20 cm square divot of roots is then placed in the indentation, covered with soil and compacted by foot.

3. Modified spot planting

- Limited success has been achieved by simply placing a healthy divot of roots over 2 teaspoons of superphosphate at 1 m intervals in the veld, without any soil disturbance.

Irrespective of whether the spot planting or modified spot planting method of establishment is used, it is important to graze the area leniently as soon as the divots have established themselves sufficiently so that they will not be pulled out by cattle or have the tips of the runners eaten off by sheep. Grazing reduces competition from the veld grasses, reduces upright growth and encourages lateral spreading. Thereafter, grazing should follow on a regular basis, primarily to control competition from the veld.

The application of fertilisers, particularly nitrogen, should commence once growth becomes evident in the planted grass. Fertilisation also assists the planted species to compete with the veld grasses. Once the planted species has formed a complete cover, even though there may still be isolated tufts of veld, it should be regarded as a pasture and managed as such.