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PROVINCE OF KWAZULU-NATAL

PASTURES IN KWAZULU-NATAL

Pasture Establishment

ESTABLISHMENT OF SEEDED PASTURE SPECIES

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INTRODUCTION

The establishment of a pasture can be 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 increased herbage production.

It must 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:

- fine and firm, to facilitate good soil/seed contact and to eliminate "caves" below the seedlings;
- smooth and even, to facilitate even placement of the seed at the required depth;
- granular and moist, to facilitate good compaction and subsequent germination;
- as weed-free as possible since weed seedlings are notoriously aggressive, invariably surviving at the expense of the desired pasture seedlings.

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

LAND PREPARATION PROGRAMME

A suggested land preparation programme is outlined below.

- The area should first be ploughed or ripped, at least four months before planting, 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. This should be followed with a Cambridge roller to encourage germination of as many weed seeds as possible.

- At this stage any changes in soil type will be most obvious. It is strongly recommended that at this point a good representative soil sample (40 cores to a depth of 150 mm) is taken for each soil type within the land. The soil sample(s) is then submitted for analysis and fertiliser recommendation.

- Should lime be required, as indicated by the soil analysis recommendation, it should be applied as soon as possible and worked in to a depth of at least 150 mm. It should be remembered that for the lime to react and become effective both moisture and time are required. This subject is discussed in greater detail under "Lime requirements" (Natal Pastures Leaflet 2.1) in this leaflet series.

- Once the weed seedlings are about 50 mm high the land should be cultivated with a tiller (fitted with duckfoot tines) and a drag harrow to loosen and remove the weed seedlings. It may be necessary to repeat the tiller-drag harrow operations at 14 day intervals to ensure a weed-free seedbed before the optimum planting date.

- Should the need for superphosphate and/or muriate of potash be indicated in the fertiliser recommendation, it should be applied one or two days prior to planting and disced in to a depth of 150 mm.

- At planting the seedbed should be moist, but not wet. One should be careful not to create a "cap" within the top 10 mm of soil. A "cap" can develop if clay type soils are worked while too wet.

- One should avoid planting the seed too deep. Fine, small seed (*e.g.* clover, *Eragrostis*) should be placed just below (3 mm) the soil surface. Larger seed (*e.g*. ryegrass, tall fescue) should be planted no deeper than 10 mm in clay soils and 15 mm in sandy soils. As a rough guide, seed should not be placed deeper than 2,5 times its width.

TABLE 1. Suggested seeding rates for pastures in Natal.

GRASS SPECIES	SEEDING RATE (kg/ha for 150 mm row planting)*
TROPICAL SPECIES	
Blue buffalo grass(*Cenchrus ciliaris)*	2 - 3 **
Rhodes grass (*Chloris gayana)*	8
"Kweek" (*Cynodon* spp.)	3
Smuts finger grass (*Digitaria eriantha)*	6 **
Weeping love grass (*Eragrostis curvula)*	2 - 3
Teff (*Eragrostis teff)*	10 - 12
Guinea grass (*Panicum maximum)*	7

Dallis grass (*Paspalum dilatatum)*	20 -30 **
Kikuyu (*Pennisetum clandestinum)*	2
TEMPERATE SPECIES	
Oats (*Avena sativa)*	70
Cocksfoot (*Dactylis glomerata)*	20
Tall fescue (*Festuca arundinacea)*	25
Italian ryegrass: diploid (*Lolium multiflorum)*	20
Italian ryegrass: tetraploid (*Lolium multiflorum)*	30
Perennial ryegrass: diploid (*Lolium perenne)*	20
Perennial ryegrass: tetraploid (*Lolium perenne)*	30
LEGUMES	
Lucerne (*Medicago sativa)*	8
Red clover (*Trifolium pratense)*	5
White clover (*Trifolium repens)*	3

NOTES

1. Whenever legumes are used the recommended quantity of seed per hectare should be washed, inoculated with the correct bacteria and pelleted with pelleting lime. When grasses and legumes are mixed do not reduce the seeding rate of either species.
2. Purchase only certified seed and insist on an official certificate of purity and viability.

* For broadcast planting use from one and a half to twice as much seed as for row planting. Seeding rates for dry land plantings and for irrigation are the same in bio-climates 2, 3 and 4. In bio-climates 6, 8 and l0 seeding rates for dry land pastures can be reduced by 20 % and wider row-spacings (> 150 mm) used.

** For species thus indicated do not use fresh seed, rather use seed from the previous summer.

SEEDING RATES AND ESTABLISHMENT PROCEDURE

For broadcast planting use from one and a half to twice as much seed as shown for row planting in Table 1. Seeding rates for dry land plantings and for irrigation are the same in bio-climates 2, 3 and 4. In bio-climates 6, 8 and l0, seeding rates for dry land pastures can be reduced by 20 % and wider row-spacings (> 150 mm) used.

"Row planting" is normally done using a suitably calibrated (wheat) drill with a row spacing of 150 mm between rows. "Broadcast" planting usually makes use of a fertiliser distributor, preferably a spinning disc or pendulum action type, calibrated to deliver the correct quantity of seed. When making use of spinning disc or pendulum action type distributors, great care must be taken to ensure that the 'overlap' between passes is correct. This is done by taking the "distribution pattern" of the distributor into account.

Once the land has been planted it should be rolled twice with a Cambridge roller.

Where irrigation is available, the application of water should commence immediately after the pasture has been rolled.

SEED AND SEED QUALITY

As regards seed and seed quality two points must be stressed.

1. Purchase only certified seed and insist on a certificate which shows purity and germination percentage.

Whenever legumes are used the recommended quantity of seed per hectare should always be washed, dried and inoculated with the correct bacteria and then pelleted with pelleting lime before planting. This is recommended even if the area was previously established to the same legume. Should a molybdenum requirement be indicated by the soil test, it should be added to the pelleting lime and thoroughly mixed prior to pelleting the seed.