



agriculture & rural development

Department:
agriculture
& rural development
PROVINCE OF KWAZULU-NATAL

PASTURES IN KWAZULU-NATAL

Pasture Utilisation

HAY

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INTRODUCTION

Hay is one form of conserved feed that can be fed to farm animals when other forms of forage are in short supply.

In the main, hay is fed during the winter months (May to August). Hay is made from pastures during the summer months (November to February). Certain grass crops are grown specifically for hay conservation purposes, whereas grazed pastures could be mown for hay, should there be surplus growth. Hay can also be made from veld, cowpeas and soyabeans.

PASTURE SPECIES

Pasture species that could be used for making hay include the following.

High rainfall areas (> 700 mm)

- Teff (*Eragrostis teff*)
- Weeping love grass (*Eragrostis curvula*)
- Smuts finger grass (*Digitaria eriantha*)
- Coast cross II, also called K11 (*Cynodon* species)
- Lucerne (*Medicago sativa*)
- Tall fescue (*Festuca arundinacea*)

Low rainfall areas (500 to 700 mm)

- Weeping love grass (*Eragrostis curvula*)
- Coastcross II (*Cynodon* species)
- Rhodes grass (*Chloris gayana*)
- Teff (*Eragrostis teff*)
- Blue buffalo grass (*Cenchrus ciliaris*)
- Guinea grass (*Panicum maximum*)
- Lucerne (*Medicago sativa*)

All pastures, whether for grazing or hay making purposes, should be fertilised according to soil sample recommendations.

MACHINERY REQUIRED

Before embarking on a hay making operation the farmer (operator) should be conversant with the types of machinery needed and the relevant purchase and running costs.

The following tractors and machines could be used in the making of hay:

- two, if not three tractors
- mower
- tedder
- side-delivery rake
- baler
- trailers.

Furthermore, it is usually necessary to store square bales under cover.

MAKING HAY

The aim of making good hay is to stop all life processes in the cut grass as quickly as possible. This is achieved by cutting the grass and then reducing the moisture content of the cut grass, as quickly as possible, to below 12 % to 15 % by exposing the cut grass to the sunshine.

Stage of growth at cutting

Grass should be mown when there is sufficient material to warrant the cost of mowing. However, it is important not to allow the hay crop to become too mature before mowing. The reason being that the feed value of the forage declines as the fibre content of the crop increases with age of regrowth.

Nutritious, high leaf content grasses are highly desirable for hay making purposes. Stems take longer to dry than do leaves and poor quality hay usually results from too much stemmy material relative to leaf material.

Hay making operations

It is important to reduce tractor operations to a minimum to reduce costs and soil compaction.

- Mow the pasture early in the morning. Cut only as much as can be handled, baled and stored in one day.
- Crimping or conditioning (possibly by means of a tedder) of freshly cut material speeds up drying, especially when hay is being made from succulent pastures.
- Windrow the cut material with a rake. Windrows allow for more rapid and more even drying.
- When there is 12 % to 15 % moisture left in the herbage, bale the material.

- Remove bales from the field. Square bales should be stored under cover (in a shed), while round bales should be stored in a convenient place off the pasture.

Note:

While crimping and conditioning speeds up the drying, or curing process, it is important to reduce the number of tractor operations to a minimum. Not only is "excessive handling" of the mown material expensive, in terms of tractor and implement costs, but it can also result in shattering of the material and in so doing can reduce the leaf content, and thus quality, of the hay.

CHARACTERISTICS OF GOOD HAY

- Colour

A predominantly green colour denotes satisfactory curing. Bleaching of the hay is undesirable. Bleaching is recognised by a straw colour in the hay and is the result of over-exposure to the sun. A brownish appearance, as a result of weathering and rain damage, is also undesirable. A brown colour with a caramel smell indicates overheating and is to be avoided. Caramelised hay results from baling or stacking hay that is too wet.

- Leafiness

Leafiness is desirable since the leaves contain more digestible nutrients than do the stems.

- Aroma

There should be a pleasant hay aroma.

- Mouldiness and weeds

Hay should not be mouldy. Excessive mouldiness makes the hay unpalatable and could cause digestive disturbances in animals. Weeds should not be incorporated in the hay.

ADVANTAGES AND DISADVANTAGES OF MAKING HAY

Advantages

- **Relatively low transport costs since most of the moisture has been removed.**
- Good quality hay leads to a desirable dry matter intake by animals.
- Hay can be fed to all classes of cattle, sheep and horses.
- Seasonal surpluses in production can be conserved for times of feed shortage.

Disadvantages

- **Tractor operations result in soil compaction and reduce water penetration and thus can reduce future pasture production. It may be necessary to periodically break the soil crust to facilitate water and fertiliser penetration.**

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- For certain classes of animals the energy value of hay may be too low, thus necessitating supplementation of meal or molasses which could be costly.
- The digestive crude protein value of certain hay crops is not sufficient for maintenance plus production.
- Hay does not keep indefinitely.
- Hay can be destroyed by fire.
- Hay making requires optimum weather conditions.
- Nutrients are leached out if the material is rained on after cutting and before baling.
- Wastage can be high (30 %) if proper "feeding out" facilities are not provided.
- Unless the hay is fed back on the land from which it was made, high levels of potash (K) need to be topdressed annually.

SUMMARY

The basic principles of hay making are:

- The life processes of plant cells must be terminated as soon as possible.
- The cut pasture should not be rained on before it is baled.
- Mown material should be handled as little as possible.

The processes employed to apply these principles are aimed at achieving the following results:

- Reduction of the moisture content to less than 15 %.
- Rapid and uniform drying throughout the layer of mown material.
- Dehydration of the leaves and stalks, at more or less the same rate.

Hay making is a costly process and the product should be stored carefully and fed judiciously.