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PROVINCE OF KWAZULU-NATAL

PASTURES IN KWAZULU-NATAL

Pasture Production Systems

DAIRY ON PASTURES

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INTRODUCTION

Certain types of pastures, if grown correctly, can supply the cheapest form of dry matter for dairy cows. Well managed pastures can supply economical protein and energy for both maintenance and production by the dairy cow.

In parts of Natal where irrigation, soil type, aspect, slope and climate are suited to pasture production, dairy cows should be fed on pastures for 365 days of the year.

In most of the bioclimates of Natal there is no single pasture species that will grow well throughout the year. It is necessary for the dairy farmer to plant those pasture species that will provide sufficient herbage for the cows for the summer period and to plant different species to provide for the winter months.

PASTURE SPECIES AND MIXTURES

The following pastures are the most popular for forage production during the summer months.

- Kikuyu (*Pennisetum clandestinum*)
- Coast cross II, also called K11, (*Cynodon* species)
- Perennial ryegrass (*Lolium perenne*), in cooler areas
- Tall fescue (*Festuca arundinacea*)
- Kikuyu with red and white clover
- Coast cross II with red and white clover
- Perennial ryegrass with red and white clover
- Tall fescue with red and white clover
- Red clover in pure stand
- White clover in pure stand.

For the spring, autumn and winter periods the following pastures are the most popular for dairy farming.

- Italian ryegrass (*Lolium multiflorum*)
- Perennial ryegrass (*Lolium perenne*)

- Italian ryegrass with red and white clover
- Perennial ryegrass with red and white clover.

FEED VALUE

Summer period

Mediocre kikuyu pastures provide sufficient protein and energy for a Friesland cow to produce 12 litres of milk per cow per day. Well-managed kikuyu could provide for a cow producing 14 to 16 litres of milk per day without the need for concentrate feed. Energy and protein, fed in the form of a concentrate, would be supplied to cows producing more than 16 litres of milk per day. In this case, however, it is imperative that there is sufficient well-managed kikuyu available to the dairy cow for both day and night grazing.

Winter period

Well-managed Italian ryegrass/clover has sufficient protein and energy for a Friesland cow to produce at least 18 litres of milk per day. Energy, in the form of concentrate would have to be provided to cows producing between 18 and 25 litres of milk per day. Cows producing more than 25 litres of milk per day would require extra energy and protein concentrate. It is important, however, that there is no restriction on intake of the ryegrass/clover pasture (*i.e.* there must always be sufficient pastures available to the cow).

PASTURE AREAS REQUIRED FOR 120 FRIESLAND COWS IN MILK

The following Friesland dairy herd module is assumed when calculating the pasture areas required for 120 cows in milk, plus their followers.

Class of animal	Animal units requiring pasture*
120 cows in milk	120
30 cows, dry	30
30 x 2 yr old heifers	30
30 x 1 yr old heifers	15
30 female calves	0
TOTAL 240	195

***** A Friesland cow is assumed to be heavier than 500 kg live mass.

Dairy cows on pasture

POSSIBLE PASTURE FORAGE SYSTEMS FOR THE 120 COWS IN MILK DAIRY MODULE

System 1

150 ha of irrigated perennial ryegrass/clover
20 ha of dry land kikuyu
20 ha of dry land tall fescue/clover
20 ha of dry land tall fescue/clover for foggage
20 ha of dry land kikuyu for foggage.

This system is suitable for the extremely cold frosty areas of Natal (*e.g.* Bioclimatic Group 4).

System 2

60 ha of irrigated Italian ryegrass/clover
38 ha of dry land kikuyu
20 ha of dry land tall fescue/clover
22 ha of dry land kikuyu for foggage.

This system is suitable for the very cold, frosty areas of Natal (*e.g.* Bioclimatic Group 4, and parts of 3 and 6).

System 3

50 ha of irrigated Italian ryegrass/clover
38 ha of dry land kikuyu
20 ha of dry land tall fescue/clover
22 ha of dry land kikuyu for foggage

This system is suitable for the warmer areas of Natal (*i.e.* with winters of 120 to 130 days *e.g.* Bioclimatic Groups 2 and 3).

System 4

75 ha of irrigated perennial ryegrass/clover
10 ha of irrigated ladino clover
20 ha of irrigated kikuyu
20 ha of dry land coast cross II for foggage.

This system is suitable for the very hot inland areas of Natal (*e.g.* Bioclimatic Group 10 and portions of 8).

System 5

40 ha of irrigated Italian ryegrass/clover
20 ha of dry land kikuyu
20 ha of irrigated tall fescue/clover
20 ha of dry land tall fescue/clover for foggage.

This system is suitable for the warmer areas of Natal (*e.g.* Bioclimatic Groups 2 and 3).

ECONOMICS

A total pasture system for the dairy herd can lead to high net profits per litre of milk or, alternatively, to high net profits per cow in the herd. The profitability per litre of milk, expressed in cents per litre, can be determined by the following formula:

Formula for calculating profit in a dairy system

Pft = $(A + S) - (P + B + G + W + F + R + E + V + M + Q + L + T + I + C + N + D)$

Where :	*Pft* =	profit per litre of milk in cents/litre	*E* =	Escom
	A =	gross return per litre of milk	*V* =	vet costs, AI, medical and sundries
	S =	gross return on the sale of dairy animals, dairy heifers, bulls and cows	*M* =	management
	P =	purchased feed for cows	*Q* =	equipment hire
	B =	bought feed for heifers and bulls	*L* =	levies (marketing charges)
	G =	grown feed (including seed, fertiliser, irrigation)	*T* =	transport
	W =	wages and rations	*I* =	insurance, licences and telephone
	F =	fuel and oil	*C* =	miscellaneous
	R =	repairs and maintenance	*N* =	interest on loans and operating capital

D = depreciation.

Home grown feed costs (G in the equation) of pastures will be minimised by implementing one of the possible pasture forage systems referred to earlier.

PASTURE MANAGEMENT AND UTILISATION

The establishment, fertilisation, grazing management and irrigation of pastures, and the production and utilisation of foggage is given in this leaflet series:

- (establishment in Natal Pasture Leaflets 1.2 and 1.3;
- fertilisation in Natal Pasture Leaflets 2.1, 2.2 and 2.3;
- utilisation in Natal Pasture leaflets 3.2, 3.3, 3.5, and 3.7;
- irrigation in Natal Pasture leaflet 3.8,
- and foggage in leaflet 3.9).

CONCLUSION

Taking into account the grazing capacities of different pasture species when grown in different areas, it is necessary to establish the correct areas of different pasture species for the different Bioclimates. This will ensure a constant flow, or availability, of pastures for the animals throughout the year.

Both summer and winter pastures, are essential for economic dairying.