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NUTRITION OF THE PASTURE BASED DAIRY COW WITH FEEDTEK

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The modern high producing dairy cow has been bred to produce high levels of milk. This can only be achieved if she receives the correct amount of each essential nutrient. All these nutrients need to be fed in the correct balance to prevent wastage of nutrients and money. Dairy cows are ruminants who have developed over thousands of years in perfect simbiosis with the microflora in their rumens to utilize fibre rich diets. Pasture (be it cultivated or natural) is by far the cheapest and safest source of nutrients for dairy cows. However, pasture alone cannot provide sufficient levels of all essential nutrients for the high producing dairy cow. The role of the nutritionist is to determine which additional nutrients are required, at what levels and what the best and cheapest way is to supply them to the cow.

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To successfully achieve this goal, the nutritionist needs to accurately estimate not only the level of each nutrient contained in the pasture, but also the daily intake of the pasture by the cow. This is not an exact science since pasture quality varies from day to day and from camp to camp. Intake of pasture is influenced by a wide variety of factors, including hours spent grazing, temperature, pasture availibility, grazing pressure, pasture height, pasture quality, pasture moisture content etc. It therefore remains very difficult to accurately predict nutrient intake from pastures taking into account that digestibility of nutrients is also influenced by a variety of factors. Pastures are usually classified according to their organic matter digestibility and protein content as high, medium or low quality pasture.

Pasture quality	Protein content (%)	Organic matter digestibility (%)
High	18 - 20	61 - 65
Medium	15 - 17	56 - 60
Low	12 - 14	50 - 55

Depending on the level of milk production and the quality of the pasture, different nutrients will be first limiting. The main limiting nutrients for dairy cows on pasture is rumen bypass protein, energy, total protein and minerals. The following tabel illustrates the limiting nutrients (in order of importance) for different levels of milk production on different quality pastures.

Pasture quality	High producers	Medium producers	Low producers
High	Bypass protein Energy Minerals	Energy Minerals	Minerals
Medium	Bypass protein Total Protein Energy Minerals	Total Protein Energy Minerals	Energy Minerals
Low	Bypass protein Total Protein Energy Minerals	Bypass protein Total Protein Energy Minerals	Total Protein Energy Minerals

The composition of the dairy meal required will therefore vary according to the quality of the pasture. The table below shows examples of dairy meals for different quality pastures, with the general rule that as the quality of the pasture decreases, the required level of protein within the dairy meal increases.

Ingredient	Dairy 12	Dairy 15	Dairy 17
Maize meal	650	650	650
Molasses meal	80	80	80
Soya oilcake meal	50	100	150
Cotton oilcake meal	50	100	150
Milkmaker 59	32	32	32
Total (kg)	862	962	1062
Composition (%)			
Protein	11.7	14.9	17.5
Bypass protein (% of total protein)	46.5	45.2	44.5
Calcium	0.96	0.89	0.83
Phosphate	0.52	0.55	0.58
TDN (Energy)	76.8	76.8	76.8
ME (MJ/kg)	11.63	11.62	11.62

The maize meal may be replaced by up to 50% with hominy chop if preferred. Should alternative protein sources be available, it would be better to ask a nutritionist to reformulate the meal. The level of dairy meal will not only depend on the quality of the pasture but also on the level of milk production. The table below shows the daily recommended levels of dairy meal in grams per litre of milk produced for different pasture qualities and levels of milk production for cows grazing on pastures throughout the day and night.

Pasture quality	Correct dairy meal	Low production	Medium production	High production
High	Dairy 12	200	250	300
Medium	Dairy 15	225	275	325
Low	Dairy 17	250	300	350

Classification of the level of milk production will depend on the breed as well as solids content of the milk produced. The table below shows the milk production in litre per cow per day required to fall within the different categories of level of milk production.

Breed	Milk Fat %	Low producers	Medium producers	High producers
Jersey	4.5 – 5.5	10 - 16	17 - 23	24 - 30
Ayrshire	3.5 – 4.5	12 - 19	20 - 27	28 - 35
Friesian	3.0 – 3.8	14 - 22	23 - 31	32 - 40

The information given above enables the dairy farmer to accurately determine the correct dairy meal as well as the level of dairy meal required for different levels of milk production. The most important factor will be to correctly determine the quality of the pasture and to ensure that adequate pasture is available at all times.

Why use Feedtek?

The Feedtek macro premixes contains all the critical nutrients required by the modern high producing animal in one handy ready mixed pack without any carriers, fiber, natural protein or energy. This minimizes the transport cost per unit of nutrient. No weighing off of critical nutrients is required and it also enables the farmer to make maximal use of home- or locally produced roughage, energy and protein sources, providing the full benefit of home mixing to the farmer.

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