

FORAGE FOCUS

No. 17 January 2007

For more information call 0800 805 505

PGG Wrightson Seeds

Summer Feeds for Milking Cows

With the ready availability of feeds such as palm kernel and copra at a reasonable on-farm price, it is appropriate to reassess feeding for summer milk production.

Regardless of farm systems or stocking rates, pasture will still form the greatest part of most cows' intakes, except in exceptional circumstances (e.g. drought). Providing the maximum quantity of the best quality pasture possible remains the first consideration for summer milk. In most cases, the 'bulk' of the dry matter intake, and much of the dietary protein intake, will be derived from pasture either grazed or as silage or baleage.

Manipulation of early summer rotation lengths, pre and post grazing residuals, harvesting of surplus (including non-milking quality pasture), strategic use of nitrogen, and pre and post grazing topping/mowing are all management tools available to help set up your farm and your cows as well as possible for the summer. Where applicable, irrigation adds another 'control' mechanism in the quest to provide more feed that is more suitable for optimum milk production, and maintenance of body condition over summer. Management of pasture for these results is proving to be much easier with new ryegrass species; especially later flowering, low aftermath heading varieties. Tetraploids, and/or the inclusion of novel endophytes enhances these properties.

To this end, farm management practices that give the best possible proper establishment of new grasses should be part of your decision process. It has



been well demonstrated that new pasture establishment tends to be more successful as part of an integrated cropping regime, a system that favours the use of summer crops such as Barkant™ turnips. The advantages offered by well-established, well-managed new pastures of the appropriate varieties is a benefit of turnip crops we should not underestimate.

Cows are not heat tolerant. As body temperature rises they try to cope by eating less. A lot of heat is produced from the activity of, and within the rumen. If there is less feed to process, less internal metabolic heat will result and so the

cow uses this mechanism to attempt to maintain normal comfortable body temperature. If the main feed input is of poorer quality, lower digestibility with higher fibre content, the amount of heat generated per unit of nutrient absorbed tends to increase, exacerbating energy and nutrient deficits just when the cow needs more to maintain milk production and body condition, and meet the needs of a higher metabolic rate. Unfortunately our main pasture species, grasses, also do not cope well with summer temperatures, especially if under moisture stress. They do not always provide the most appropriate feed for high performing cows in summer regardless of your management skills.

If the cow is going to eat less, and if poorer quality bulky high fibre feeds are going to exacerbate the situation, we need to provide feeds that are more energy or nutrient dense, that are easy to collect and digest and that meet the nutrient requirements of the rumen bugs and the cow so that she can maintain optimum performance. She needs protein for milk production, often lacking in summer pasture, soluble carbohydrates for maximum rumen function and feed conversion efficiency, and adequate energy to meet the demand of milk production, reproduction (especially maintenance of pregnancy) and maintenance of body condition. High producing cows, even when very well fed, can easily lose ½ condition score in summer because of the effects of heat on metabolism and total dry matter intake.

Turnips can provide an excellent source of readily digestible protein (from the leaves) and carbohydrate (from the bulbs) in one convenient to use package. Carbohydrate in the turnips comes from both soluble sugar and starches and from more complex forms that make up the physical structure of the plant, and so can meet the needs of



the rumen micro flora for a range of fermentation rates. Well-managed turnips are a superb summer milking feed.

Problems arise in a number of ways. Improper introduction, especially where cows have not already been receiving a readily available source of sugar or starch e.g. molasses, maize silage, grain etc. A common problem comes from not feeding enough to make a significant improvement to the nutrient intake of the cow especially when her pasture intake may be of declining quality and/or quantity.

Aim to feed a minimum of a 3kgs DM per cow per day down the throat to small jerseys and 6kgs DM to bigger black and whites. Note – these are minimum intakes – more can be, and often should be, fed successfully.

Barkant™-type turnips have a “use by” date, although at this stage, they may still appear visibly OK. Deterioration occurs from within the bulb out, and via a rapid decrease in protein content and digestibility of the leaf. The target is not to have the biggest turnip bulbs in the district, or to make the crop last as long as possible, but to maximise potential cow performance by feeding appropriately, giving you adequate time to properly establish new pasture for the autumn.

Because the turnip nutrient make-up is great for stimulating milk production, it is important to ensure that enough are being fed, or that the total DM intake per cow is adequate to also meet the maintenance demands of the cow – summer milk production can be at the expense of cow condition. Regaining this condition can cost more than you gained by using it and will have to be made up sometime, either by more feed or less days in milk.

Turnips are an excellent complementary feed to use with other supplements for maximum summer performance. By using turnips as part of the total diet in conjunction with pasture, pasture silage, maize silage, whole crop cereal silage, lucerne, palm kernel etc., a better all round diet can be provided for the cow, meeting all of her requirements plus those of the rumen micro flora. The latter is necessary to maximise feed conversion efficiency and minimise nutrient losses. Do not underestimate how well cows can milk in



summer if fed and managed appropriately.

Silages do not contain any readily available sugars (used up in the fermentation process necessary to properly ensile feeds), turnips do. Soluble carbohydrates such as sugars and starches are required to fuel the rumen bugs for maximum recovery of dietary protein and energy. Most silages are not as readily digestible as optimum quality turnips and so can exacerbate some of the issues regarding total DM intake affecting the cow in summer, if used alone.

Palm kernel (PKE) and copra meals also do not contain soluble readily available sugars and starches, so do not make up a “complete” or ideal ruminant feed on their own. They are however nutrient dense and contain a reasonable amount

of protein to maintain milk production in a mid or late lactation cow. They are readily digestible but not rapidly fermentable so tend to be very “rumen friendly”- not a major risk of causing acidosis as can happen with the too rapid introduction of sugar and starch based feeds or the feeding of too much of such feeds at one time, especially if not accompanied by physically effective fibre. PKE and copra can be easily and rapidly consumed and are essentially “low volume” feeds. However, feeding PKE especially as a “dry” feed on its own tends to limit potential intake – think “dry” weetbix versus weetbix with milk.

A big advantage of PKE and copra is their oil content – they can be used as a source of “cow” energy, enabling the cow to maintain body condition more easily. Fats and oils are not used or changed by the rumen bacteria, and so these are feed sources that can get directly to the cow as fed. For most things that we feed our cows, what the cow herself actually gets to absorb depends on what the rumen bugs do to it first! Fats and oils are amongst the most energy dense things we can feed and are ideal to include in a summer diet provided the quantity being fed does not interfere with digestive and fermentation processes in the rumen, which they can do.

High quality turnips and PKE meal can both be lacking in adequate physically effective fibre to maintain optimum rumen function. Cows need stuff that they have to chew, and pieces that will stimulate rumen activity. Generally, dry stalky summer pasture will be OK, provided there is actually enough of it and it is not lignified. Conversely good quality fast growing summer pasture, especially if under irrigation, may also be inadequate. The trick in summer is having the minimum amount of physically effective fibre to get optimum feed conversion efficiency and function, but not so much that it’s bulky nature exacerbates summer problems.

Turnips and PKE meal together provide a more ideal summer ration than either on its own. Individual farm circumstances will determine what is most practical. For long-term farm performance, and the supply of better quality, more easily managed feed year long, regrassing a significant proportion of your farm annually is recommended.

Note

Information courtesy of Sue Macky BVSc Dairy Production Systems Limited

