



PERFORMANCE PRO-BIOTICS
DIRECT-FED MICROBIALS

MANAGING WINTER PASTURES

Last Updated **Nicola Brazier** | May 2011

www.performanceprobiotics.com

Green feed through winter is a luxury compared to many other dairy regions of the world (and a much prettier picture with cows grazing rather than locked in barns!). However, it comes with its own challenges...



Quantity is one factor that requires a little juggling, and while quality is high, it brings its own dramas, primarily in the forms of nitrate overloads and milk fat depression. To manage these, while also looking after rumen health, requires a little understanding of the science behind these factors.

QUANTITY

The fact is that cooler climates bring about slower growth rates. This does not necessarily mean that rotation lengths need to slow down too much. It merely means that there will be less feed available and harvested each grazing. As a consultant I recommend that rotations do not slow more than about 21 – 28 days (shorter for pastures, longer for lucerne and legumes), but this will be highly dependent upon location.

The benefits of these faster rotations compared to the more traditional grazing rotations (60 days or even 90 days) are numerous:

- Maintains quality – NDF will build up with longer rotations, although at slower rates than through spring and summer. Higher NDF pasture restricts intake, thereby limiting milk production and potential for body condition gains.
- More regular grazing opens up the sward, allowing sunlight to better reach the whole plant (remembering the sun is further to the north through winter).
- Shorter rotations also ensure the plants are being grazed before decay begins at the bottom of the sward. Decay effectively reduces potential pasture yields.
- Harvesting less of the plant allows faster re-growth as the roots require less adjustment. The root:shoot ratio remains the same, so that every time plants are grazed, the root system 'dies' back to maintain this ratio.



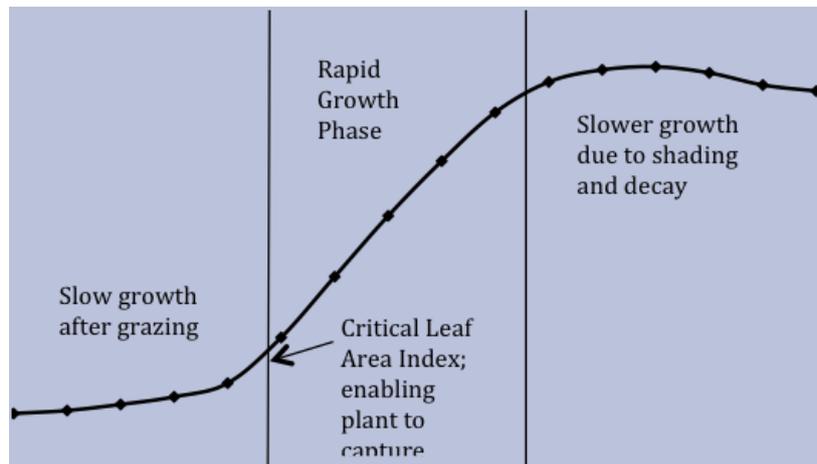
PERFORMANCE PRO-BIOTICS
DIRECT-FED MICROBIALS

MANAGING WINTER PASTURES

www.performanceprobiotics.com

Ideal 'leaf stage' for grazing brings about a bit of controversy – should it be 2.5 leaves, should it be 3 leaves? Reality is that cows need to enter a paddock before decay begins at the bottom of the sward, likely to begin beyond 2000 – 2200 kg DM/ha. The bottom of the plants should not be yellow and slimy. Rotation length as discussed above will help look after this.

Residual when cows exit the pasture should be around 1500 kg DM/ha, usually about 5cm or 2 inches high, but again these figures can be argued. The key is to ensure that there is a little leaf left on the plant to capture sunlight, photosynthesise and begin re-growth. This is called the 'Critical Leaf Area Index'. If cows are not leaving enough behind, regrowth is significantly slowed, so supplements should be used to manage this.



QUALITY

The quality of winter pastures is very high, particularly if rotation lengths are kept to ideal. As mentioned, this can bring about its own set of challenges.

NITRATE OVERLOAD

High levels of nitrogen, pulled into pastures from the soil, are usually converted to plant proteins, as per the following figure:

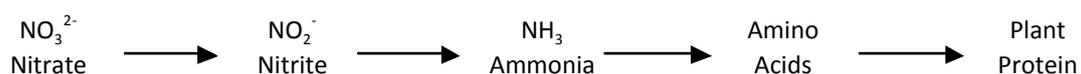


Figure 2. Nitrate reduction in plants

The above reactions (referred to as nitrate reduction) rely on adequate levels of sugars and starches, and when these are not supplied, the process stalls, resulting in plants that are higher in non-protein nitrogen and much lower in true proteins. Plant sugars can be very low under certain climatic conditions, which are common in winter. Frosts, heavy dews, overcast weather and shorter day lengths all



PERFORMANCE PRO-BIOTICS
DIRECT-FED MICROBIALS

MANAGING WINTER PASTURES

www.performanceprobiotics.com

result in less photosynthesis (the process through which dry leaves capture sunlight and synthesise plant sugars). When the above climatic conditions are combined with pasture swards particularly high in legume content, plants quickly become 'toxic'.

When nitrate reduction has not occurred within the plant, the reaction can be completed within the rumen, with the end result being Microbial Protein rather than plant protein. This reaction within the rumen also relies upon adequate levels of sugars and starches. Therefore, increasing the level of grain or adding sugar to the ration can be very useful tools. Additionally, one of the bacteria species in Performance Direct Fed Microbials plays an important role in nitrate reduction.

Signs that the rumen is not coping with high levels of non-protein nitrogen include:

- Loose, black manure, often with bubbles on it
- Ammonia smell in the dairy
- Urinating is stop and start rather than a steady stream
- Dribbling urine when putting cups on
- Urine scalds/burns on paddocks

MILK FAT DEPRESSION

The most recognised cause of low milk fat is low fibre, and to a large extent this needs to be remembered. However, we are increasingly seeing very low milk fat levels in high production cows, which otherwise appear healthy. The cause is generally accepted as being due to trans-fatty acids, or CLAs (conjugated linoleic acid). There are three factors required for this to impact milk fat production:

1. High rate of passage through the rumen (which is common with lush pastures)
2. Reduced rumen pH (consequence of grain feeding as well as less scratch factor from lush pastures, so reduced salivation and bicarb production)
3. A supply of unsaturated fats (largely from the pastures, and in the case of CLAs in the form of linoleic acid)

The greatest challenge is that the above factors are also responsible for high milk production. Reducing grain levels and replacing pasture with hay or silage may help fat test but will likely decrease milk yield (decreasing protein and fat yields even if improving fat %).

The following is a summary of tools that can be tried to combat low milk fat caused by trans-fatty acids from pasture.

Each has had varying success on farms to date:

- Include buffers at higher rates to try to protect rumen pH, including bicarb, acid buff, yeasts and direct fed microbials. Eskalin may also be something you can discuss with your vet or nutritionist.
- Digestible fibre sources such as citrus pulp, sugar beet pulp and soya hulls also deliver an energy source that will not have as great an impact on rumen pH. Obviously, their availability will be limited in many areas.
- Protected fats, or bypass fats, deliver fat protected from the rumen and apparently available directly to the mammary gland.
- Minimise subclinical acidosis at all times, not just when grazing hot pastures. Cows who have previously suffered from acidosis will have keratinised papillae in the rumen, leading to faster and more exaggerated drops in rumen pH. Appropriate lead feeding is important for the same reason.



PERFORMANCE PRO-BIOTICS
DIRECT-FED MICROBIALS

MANAGING WINTER PASTURES

www.performanceprobiotics.com

As mentioned above, there has been varying success to the above strategies. My advice to clients is to keep a close eye on production as well as components. Most factories are now paying per kilo of milk solids – a function of both litres as well as test. Additionally, some of the tools listed above can be costly, so stay on top of the economics. Unfortunately milk fat depression may be something we have to live with at certain times of the year, just as they do in the UK and USA.

THE FINAL WORD

Pasture utilisation is still the key profit driver in a dairy business, so increasing pasture utilisation must be the goal of every pasture based farm. While there are challenges with managing pastures through winter, there are options for balancing pasture and still maintaining high intake and optimal regrowth.

Stay in regular contact with advisors as to how best manage pastures. Do not be afraid of shorter rotations, as supplements can manage this effectively (and economically). Ensure that additives are included in the diet at recommended levels, to minimise the impact of problems, and keep an eye out for issues such as nitrates and/or milk fat depression. The sooner these are identified and acted upon, the higher the chance of combating them.

DISCLAIMER Whilst all care has been taken in the preparation of this material, it may contain inaccuracies or typographical errors and may be changed or updated at any time without notice. Performance Probiotics makes no warranties or representations, express or implied, as to the accuracy, quality or fitness for purpose of the contents of this material. Performance Probiotics accepts no liability or responsibility for any losses or damage incurred by any party, including indirect or consequential losses or damage, as a result of the use of this information.

Queensland & North Coast NSW

Steve Lacey
0448 845 343
steve@performanceprobiotics.com

New South Wales & Tasmania

Jason Chesworth
0427 760 136
jason@performanceprobiotics.com

Northern Victoria & Gippsland

Libby Heard
0438 721 242
libby@performanceprobiotics.com

Western Victoria & South Australia

Tom Newton
0439 773 145
tom@performanceprobiotics.com

Head Office

Brisbane
1800 118 872
admin@performanceprobiotics.com