Weston Animal Nutrition

Summer 2007

Welcome to the final edition of the Weston Animal Nutrition Seasonal Newsletter for 2007. We have covered a lot of topics and certainly hoped you have enjoyed reading it throughout the year.

At this stage we would like to take the opportunity to wish you and your family a very merry Christmas and a profitable new year. I hope Santa brings you some rain (a whole years worth, beautifully spread out over 2008).

Changing with the seasons – stop the drop

General Comments

Depending on where you farm, you will probably have already experienced one, if not all, of the following: hot days, flies, pasture quality and quantity dropping off. This presents us with a real challenge - to try and maintain production (and get cows in calf for those of us that have Spring calvers) at a time when there are a lot of things working against us.

Protein content

As the pasture quality drops off, or as you run out of pasture and start to feed silage or hay, you will need to think about increasing the crude protein content of the pellet that you are feeding. Check out the protein article below for the signs to watch for that signal your cows are short of protein.

Basically you are likely to need a 16-18% crude protein pellet over summer if you haven't got pasture. Having said this, every farm is different and we strongly recommend that you discuss your ration with your local sales rep, or one of the Weston's nutritionists.

Energy content

You will need to maintain a high level of energy in the pellets to ensure that the cows can minimise the drop-off associated with the arrival of summer. Protein test will be an excellent indicator of energy balance over summer.

You will need to watch for pastures thinning out, especially if you have cut them for hay or silage. If this is the case you will need to offer bigger areas of pasture, or otherwise supplement with hay or silage as well as pellets.

Feeding levels
To make the equivalent out of grass (high quality forage) from hay/silage (poor to medium quality forage) you may need to add extra pellets to the diet. The rule of thumb is for every 1 kg dry matter of hay/silage added in place of grass, add an extra 1/3 kg of pellets. This should help maintain steady milk production. Do the numbers on extra milk production and the dilution of maintenance this year. The margin over feed cost is almost always bigger with more milk per cow.

Summary
Over summer, the best results will come from ensuring that the herd has enough dietary protein, whilst also maintaining energy levels, and while trying to maintain intake.

Heat stress

There are two strategies for dealing with heat, cooling the cows off, and managing the nutrition to account for the effect of heat stress.

Cooling the cows off

There are really only two ways to cool cows off over summer, sprinklers and shade.

- Sprinklers – put the cows under the sprinklers morning and night. They will need at least 1 hr to cool down enough, so make sure you bring the herd home well before you want to start milking. Remember that the highest producing cows (and therefore the hottest) could also be the cows coming into the dairy first, and if the sprinklers are only on while the cows are waiting to be milked, these cows may not be cooled off at all.

  There is a good chance that by mid-afternoon the whole herd will have stopped eating and be looking for some shade or water somewhere anyhow, so you won't lose anything by bringing them home to cool off. Big droplets are best, particularly if it is humid as well as hot.

  Let the cows walk straight down to feed after milking (don't waste the effect of cooling them off by holding them in the yards).

  The use of sprinklers also helps to keep the flies away.

- Shade – the obvious suggestion is to hold the paddocks with shade for day feeds. If you are using sacrifice paddocks with shade, you will need to be careful to keep rotating them to avoid somatic cell count and mastitis issues. If the cows have to go to a paddock without shade during the day, wait until they have finished eating after the morning milking and then shift them to a shady loafing paddock with some good quality hay or silage.

- Dams and channels – keep the cows out of these where possible to avoid SCC issues and environmental mastitis.

Feeding the cows

There are several things to consider from a feeding perspective:

- Milking times – milk early AM and PM to give the cows the best chance of eating while it is cool and in daylight. Keep the milking times constant from day-to-day. Ie. don't milk early one day and late the next.

- Feeding times – remain consistent with feeding times. Cows love routine.
- Grazing – Offer 24 hrs worth of grass during the night feed so the cows can compensate for what they didn't eat during the day. They can then go back into the same paddocks early the next morning with hay or silage. Remember that every time cows have fresh feed in front of them they will start eating again. So, maybe it is worth splitting the hay and feeding it in two feeds a couple of hours apart to keep the cows stimulated to eat.

- Kikuyu/paspalum – consider topping paddocks after grazing on hot days. Chances are the cows won't have cleaned them up well and by the next rotation the feed will be too rank to eat. Alternative is to use heifers or dry cows to clean them up, to save feeding them hay or silage. Probably need a maximum of 10 day rotation during the summer.

- Forage quality – the best results come from feeding a good quality forage such as vetch, clover or lucerne hay during hot periods (we are well aware that these feeds aren't readily available at a realistic price, but for those fortunate to have some, they are a great option on hot days). If you have a mixing wagon and are using some poor quality forages, ensure that they are well chopped to avoid sorting.

- Water – see the section on water in this newsletter.

- Grain – increase pellets on hot days to keep energy and protein intake up. We still need to maintain a 7% decline per month. Maintenance will be increased due to the cows trying to dissipate heat. A good option is to try to feed 60% of the days grain intake in the morning feed and 40% in the night feed (for those that have the option). While pellets may actually heat the cow up a bit more it is still better to ensure that they get some energy from somewhere, rather than letting them lose weight, and drop milk production and components. The important thing if you take the extra grain approach is to ensure there is a source of good quality fibre readily available to avoid potential acidosis issues. It may well be worth feeding Tylan during summer to help with this extra grain load.

- Protein - extra protein is required in the pellets during periods of hot weather. For those with a mixing wagon, sugar, molasses, or citrus pulp may also be handy as plant respiration will be increased, meaning soluble protein levels in the grass will be higher (silage and lucerne can also be high in soluble protein). Adding some source of sugar will help the rumen bugs make use of the soluble protein.

- Additives – adding extra buffering capacity, along with some yeast culture (eg. Diamond V or Yeasacc) and bypass fats (eg Energizer RP10, Bergerfat etc..) will also be helpful in keeping the cows milking. You might also like to talk to your Westons rep about adding extra bicarb to the pellets to help reduce the size of the slug. And don't forget salt. Ad lib salt at the dairy is also a good idea.

Who wants a nice cool drink of water?

Ever wondered how much water a cow can drink in a day? On a hot day (say over 30 degrees) 1 cow can drink up to 200 L of water (equivalent to 22 slabs of beer), double the normal daily consumption.

One of the major issues over summer is ensuring that the herd has access to enough good quality drinking water. Water intake has a major effect on dry matter intake (food intake), so without enough water to drink, the cows won't eat as much as you would expect them to either. This results in a loss of production, drop in fertility and a host of other potential cow health issues.

Remember that around 87% of milk is water. If there isn't enough water for the cows to drink, there won't be enough milk in the vat for you to sell.

Water considerations include:

1. Access to water – there needs to be access to water troughs in every paddock. Don't expect your herd to walk out of the paddock for water in summer and still maintain production. There also needs to be enough access for cows to have a drink when they want to. US data suggests 20% of the herd should be able to drink at any one time. The water really has to come from a troughing system, rather than from dams, creeks or rivers. This not only gives you more control over the water quality, but it also minimises the risk of mastitis (often associated with cows wading into waterways) and it keeps the greenies off your back.

2. Shear volume of water – it isn't just about having enough water troughs dotted around the farm. The troughs need to be able to fill quickly to keep up with demand. This might mean upgrading to a 2 inch line. There are good government grants available through Rural Finance at the moment to help pay for these sorts of developments.

3. Cleanliness of water – troughs should be cleaned out before summer (in fact they should always be clean – in a perfect world). This might mean setting aside a day or two to go right around the farm, ensuring that the troughs are clean and free from algae before it gets too hot. This will be time well spent when you consider the massive benefits of increasing water intake. The rule of thumb is "If you wouldn't drink it, then don't expect the cows too".

4. Water quality - If you haven't tested your water for a while (6 monthly testing is recommended), it might be worthwhile to send a sample in to your local milk factory. You don't want poor water quality (high levels of salt, various minerals or E coli) to reduce your potential milk yield this summer, through dropping water intake.

Using a mixing wagon this summer?
If you are making up a mix in a mixing wagon to replace pasture, you will need to add water to it. This makes the mix a lot more palatable to a cow. It slips down a bit easier and they don't have to keep stopping to go and get a drink.

An ideal moisture content of a mix is about 40-50%. So, if you only have hay and grain to go into the mix, you will basically need to add a litre of water for every kg of hay or grain you put in.

Maintaining an acceptable milk protein test

Causes of low protein percentage:

- Low food intake – lack of vitamin F guarantees a low or dropping milk protein percentage as the cows are in negative energy balance. Ie. whenever cows are losing weight, they will always have a lower protein test than when they are gaining weight. ANSWER = increase total feed allocations.

- Lack of glucose and fermentable carbohydrates – these are needed in the growth and reproduction of rumen microbes (that do a lot of digestion for the cow). We need the soluble carbohydrates to match up with protein in the rumen and then the process needs glucose to build the microbial protein. ANSWER = feed more pellets for extra energy

- Lack of protein, soluble protein SIP, rumen degradable protein RDP (keep rumen healthy) or bypass protein RUP (keep production high) – need to feed the bugs and then top up with additional amino acids. Targets are 16-19% crude protein depending on production, 13 g RDP per MJ ME required, and 1% CP of RUP per litre of milk. ANSWER = change to a higher protein pellet

- Low rumen pH – bug activity slows down or they may be killed altogether. Comes from too much concentrate, or not enough functional fibre, or overprocessed concentrates, or uncoupling of the ration etc.. ANSWER = consider additives such as bicarb, Tylan, Diamond V or Yeasacc.

- Lack of functional fibre – need the rumen mat to support bug activity. ANSWER = offer some cereal hay or straw, or simply increase the hay content of the diet

- High fat diet – too much fat slows down bug activity and drops intake. ANSWER = dilute the high fat ingredients in the ration with low-fat ones. This could require testing some of the key ingredients.

- Heat stress – drops intake and cows lose weight. ANSWER = see section on heat stress

- Poor rumen function – bugs aren't functioning properly, maybe due to a lack of food, or a lack of rumen mat, or toxins etc.. ANSWER = more fibre from cereal hay etc.. and check the protein content of the pellet. Also consider the use of a mycotoxin binder or deactivator if this is your problem. Ask your local Westons rep about these.
- Fast rumen flow rate – bugs don't have time to get enough out of the feed ANSWER = add more fibre

- Poor body condition at calving or poor condition management during the lactation. ANSWER = more food, particularly pellets or bypass fat to help to manage weight loss and to ensure that cows dry off in adequate condition for next lactation.

Strategy for maintaining protein test over summer

- Keep cows full
- Maintain energy intake, including starch and soluble carbohydrates
- Maximise microbial protein production and then top up with bypass protein
- Maintain minimum NDF (and ADF)
- Limit fat intake to 5% of the dry matter of the diet
- Manage heat stress

Steps for maintaining protein test throughout the lactation

- Dry cows off in body condition score BCS 5-5.5 and maintain them during dry period and then leed feed with an effective program that suits the goals (14% CP, 1/3 RDP, 1/3 SIP, 1/3 RUP, 110 MJ energy and full on fibre). Maintaining target protein percentage starts in the dry cow (12% CP diet) and springer paddocks.
- Design a ration that delivers enough energy and protein during the fresh period and restrict weight loss to less than 1 BCS.
- Monitor production and fat percentage as well as protein percentage over time
- Examine the dung – looking for consistency, colour and amount of food left in it
- Check urine pH's regularly – aiming for 7.5
- Weigh each new pellet load – variations in grain can have a huge impact on intake.

Troubleshooting for protein test

Hungry cows (even the grass clumps have been levelled and you can't see where the hay or silage was fed, and there's a few chewing at fence posts)? – add food, pellets are the supplement of choice until the next kg starts to upset the forage:concentrate ratio. Then add a high quality forage.

Protein deficient cows – If your cows are any of the following you need to increase the protein content of the pellet:

- Lazy and lethargic cows
- Cows that chew a lot (aiming for ½ cows that aren't eating to be chewing, no more)
- Cow dung is very firm and fibrous

Fertility

Summer can have a major influence on fertility also, with reports of conception rates dropping by up to 22%. So, it is worth having a think about what you can do to maximise your conception rate over summer. You might firstly like to compare the conception rates of your Spring/Summer calving cows to your Autumn/Winter calving cows. There could be a major difference.

There are several issues involved with the fertility problems seen over summer. The first is one we have already discussed: energy balance. Ideally we need all cows to be gaining weight to give us the best possible chance of holding incalf. If a cow is losing weight it effects her hormones which means that the follicles (eggs) that are released can be smaller, and also that the heat may be weaker (meaning that you may miss it).

Energy balance

If it is too hot (heat stress) and the cows are camped under the shade, or the quantity or quality of the paddock-feed has declined, there will be no doubt that cow intake will drop, resulting in a loss of body condition (or milk production). And energy balance can be an issue for the bull team as well as the milking herd, so don't forget about the bulls. The tips for keeping intake up can be found earlier in the newsletter. Remember that if the intake is going to be down, we need to ensure that every bit of food they do it contains plenty of energy and protein, so matching the right pellet to the forage will be critical.

Heat stress will occur when it is hotter than 30 degrees or in humid areas (50% plus) when it is hotter than 25 degrees. Heat stress can effect foetal survival (cows less than 3 weeks incalf may abort) and growth rates (mid-pregnancy cows may have smaller calves). Check out your Incalf book for more tips and ideas.

Bull management

The second issue revolves around bull management. If you are bringing new bulls onto the farm they need to be there at least 2-3 months before they are required to work. This gives them time to adapt to the local conditions. The bull team also require plenty of cool water and shade. It is a great idea to rotate the bulls more frequently – say every 2 days give them a rest for 3-4 days. The optimum temperature for sperm production is 33-36 degrees, which is easily exceeded during periods of hot weather, and the effects last for up to 2 months. This could explain why in the really hot summers, lots of herds struggle to get anything incalf to the bull team.

Heat detection

There are a couple of potential effects on heat detection: silent/shortened heats, flies, sprinklers, paddock checks.

- Cows are far more likely to have silent and/or shortened heats if they are heat stressed. For this reason it may be an idea to use bulls rather than AI during summer. The bulls can be working early in the morning before it gets too hot, and they can always detect cows on heat better than humans can. However it is essential to ensure that they are working well (get them vet checked), fed adequately, kept cool, and rotated regularly.
- Flies can cause cows to rub against trees etc.., potentially setting off kamars and scratchies.
- Sprinklers can effect the use of tailpaint.
- Paddock checks tend to drop off when it is hot so heat detection intensity isn't as good.