



**GLW**  
Feeds

# MATERNITY CLINIC



*An essential guide  
to dry cow management for a  
trouble free calving and profitable lactation*

# Are your cows primed and ready?

Correct feed management of the cow through late lactation, the early dry period and transition into the first weeks of lactation is critical to performance, affecting:

- Milk yield – effective dry cow management can increase milk yields by 500 to 1000 litres per cow
- Milk quality – higher milk protein and fat content can be achieved
- Fertility – reproductive performance is improved by dry cow management
- Herd health – 80% of health problems in the dairy herd are related to inadequate management in the dry period – not forgetting the effect on the newborn calf
- Lifetime dairy production – Longevity in the herd is improved through improved fertility and health
- Stress – achieving target performance reduces stress on the cow - and dairyman
- Profitability – getting it right maximises returns

**Investing time, feed and management in your maternity clinic to achieve key targets**

## Key Targets of Maternity Cow Management

1. Prepare the cow – length of the dry period is important
2. Body condition score - targets must be achieved at drying off, calving and into early lactation
3. Rumen - prepared to maximise feed intake and healthy digestion in lactation, whilst minimising disorders such as displaced abomasum
4. Fertility – ready for re-breeding within 100 days of lactation
5. Milk fever - incidence minimised
6. Udder – repaired and prepared for lactation in peak health to avoid mastitis
7. Calf – fully nourished for development and early health
8. Health – maximised to avoid metabolic and infectious diseases

# Prepare the cow - Length of the dry period

## The issue

The traditional dry period is 60 days – and this remains suitable on many dairy units. This time period gives cows the chance to recover and regenerate from the stresses of the previous lactation before the onset of the next. It also allows for the natural variation in the actual calving date without adding undue stress to an early calving cow.



Shorter dry periods have been suggested and used successfully on some dairy units. Forty two days is effective in very carefully managed dry cows but there is a risk if the calving date is not accurately known. Below 42 days dry has been shown to reduce total milk yield in subsequent lactations and the effect on longevity is yet to be ascertained in practice on typical UK dairy farms. The safest option remains at 60 days dry.



# Body Condition Score

## The issue

Achieving target body condition scores (BCS) and the correct change in BCS through the production cycle is critical to successful dairying. It influences milk production and quality, fertility and the avoidance of metabolic disorders and diseases such as ketosis/fatty liver syndrome, mastitis and milk fever. All dairy farms should monitor and record BCS in groups of cows throughout lactation to optimise nutritional inputs and achieve critical targets.



• *Healthy Liver*



• *Fatty Liver*

## Guidelines

	Target at start	BCS change during period
Drying-off	3.0 to 3.5	0
Calving	3.0 to 3.5	0
Early lactation (0-100 days)	2.5 to 3.0	-0.5 to -0.75
Mid lactation (100-200 days)	2.5 to 3.0	0 to +0.25
Late lactation (200+ days)	2.5 to 3.0	+0.25 to +0.50

Failure to achieve these target body condition scores will significantly reduce milk production, fertility and herd health.

Nutritional supplements to minimise ketosis and/or fatty liver have proved to be effective providing they are fed at the correct rate in the latter stages of the dry period. These supplements include propylene glycol and rumen protected choline. Both have a cost impact although trials have shown significant returns on investment when fed correctly. Discussion with the feed advisor is recommended to decide on their suitability of use.

# Rumen

## The issue

Preparing the rumen during the dry period for the onset of lactation is essential to maximise early feed intake and healthy digestion in lactation, whilst minimising disorders such as displaced abomasums.

1. **Dry matter intake** declines in the last 3 weeks prior to calving, which can lead to negative energy balance, excessive back fat mobilisation (measured as NEFA) and increased risk of metabolic disease even before calving.



2. **Rumen size** will decline with lower feed and forage intake. It is important to stimulate rumen fill through the dry period to allow maximum feed intake early in lactation whilst minimising the risk of displaced abomasums associated with an empty rumen or lack of rumen activity due to acidosis.



- Healthy rumen



- Healthy papillae
3. **Rumen function.** The rumen wall is covered in papillae whose function is to quickly absorb rumen acids. They are therefore very important in the control of rumen acidosis. Papillae length declines in high forage diets such as during the dry period, but is stimulated by fermentation of starch and sugars. The re-establishment of rumen papillae can take 4 to 6 weeks and so feeding dry cow concentrates with an adequate content of starch and sugars is important in the early establishment of a healthy rumen at the onset of lactation.

## Guidelines

To achieve the critical balance of energy intake, rumen fill and rumen papillae length, it is important to balance forage intake, both as 6 to 8kg dry matter of 'green forage' and ad libitum straw, with 2 to 4 kg per day of a suitable dry cow concentrate.

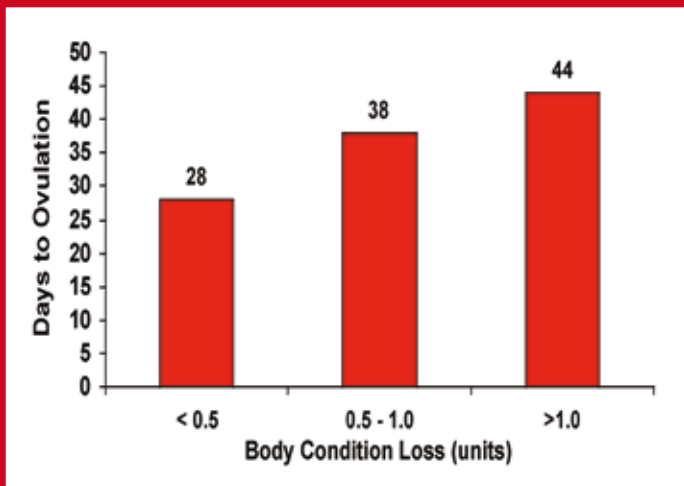
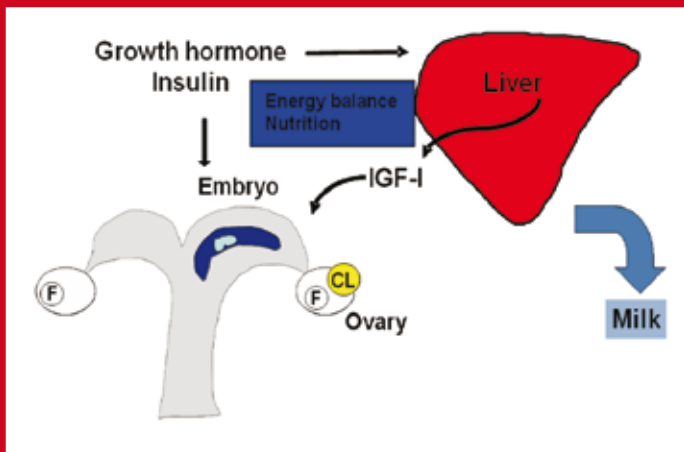


# Fertility

## The issue

Current fertility in the UK dairy herd is declining. Pregnancy rate to first service is below 40%, calving interval of 410 days and an estimated cost of 2 to 3 pence per litre attributable to infertility. Many factors impact on fertility and dry cow feeding and management is one. Correct body condition, energy input, protein supply, mineral and vitamin supplementation are all essential factors in dry cow management which influence fertility. These impact on hormone status and the development of quality follicles which will become the egg for fertilisation in early lactation and the return to positive energy balance which is so critical for re-breeding.

Simply, dry cow management is central to achieving fertility targets.



## Guidelines

Body condition score cows at drying off and ensure correct condition at calving by carefully altering concentrate feeding as needed. Avoid rapid dietary changes and ensure cows are not too thin or overfat at calving. Feeding 2 - 3kg per day of GLW Pre-Calver and/or propylene glycol supplementation will stimulate insulin production for healthy follicles at re-breeding.

# Milk Fever

## The issue

Milk fever incidence, either clinical or sub-clinical, affects some 8% of UK dairy cows. When all factors are included, such as veterinary costs, loss of milk and cow replacement costs, estimates (DAISY 2002) suggest an average cost of milk fever of £220 per affected cow.

Milk fever is caused by mineral and vitamin imbalance, primarily associated with calcium shortage in early lactation. Magnesium, phosphorus, potassium and vitamin D are also involved. Older cows and/or those that are in excess body condition approaching calving are more prone to milk fever.

The traditional approach to prevention, and the one applicable to most dairy farms, requires the feeding of a low calcium diet (target 30g per day) in the dry period. In this way the calcium absorption and mobilisation system is 'switched on' to prepare the cow for the calcium demands at lactation. Phosphorus, magnesium and vitamin D all have an important role in the hormonal control of this calcium process and must also be in balance. Excess phosphorus is dangerous – supply 32 to 60g per day. A minimum of 40g per day of magnesium is required but high levels of potassium from forage increases requirement by 'locking-up' dietary magnesium.

## Guidelines

Restrict green forage intake to 6 to 8 kg dry matter per day, allowing access to straw for rumen fill, supplement with GLW Pre-Calver at 2 to 3 kg per day and use additional magnesium sources such as magnesium chloride where necessary. Boost the calcium supply immediately prior to calving, particularly with older cows, and offer a rehydrating, high calcium drink to revive cows immediately post calving.

Some units have adopted a Dietary Cation Anion Balance (DCAB) strategy to control milk fever. This can be a highly effective approach to prepare the cow for lactation whilst preventing milk fever. It requires a very high commitment of time for cow management in the transition period or milk fever problems can actually increase. Ensure the DCAB approach is totally correct for your farm before adopting this system. For more details on this system please contact GLW Feeds.

# Udder

## The issue

Mastitis is a significant and costly problem in the UK dairy herd. There are of course many reasons for this problem, each of which requires careful management attention.

## Guidelines

Preparing the udder for the next lactation starts with the correct approach at drying off. These include reducing the energy density, protein content and daily feed intake at 14 days before drying off and once-a-day milking. Never withhold water.

Thereafter, the dry cow environment should be clean and dry and mastitis control procedures in place in conjunction with the veterinary surgeon. The nutritional inputs should be carefully balanced to optimise immunity (such as high levels of vitamin E and selenium), including the feeding of specific dry cow concentrates at 2 to 3kg per day of GLW Pre-Calver.

# Calf

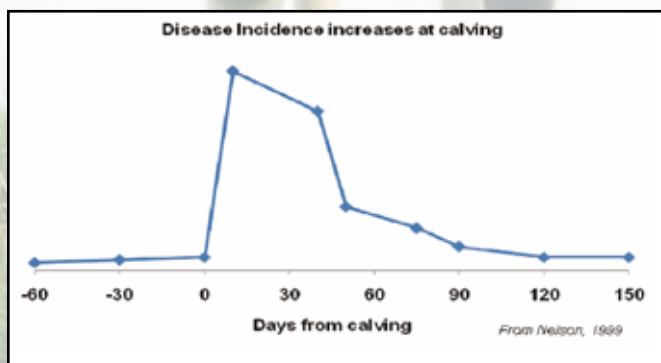
Healthy calves come from healthy mothers. The correct approach to dry cow management will result in calves with the best start in life.

# Health

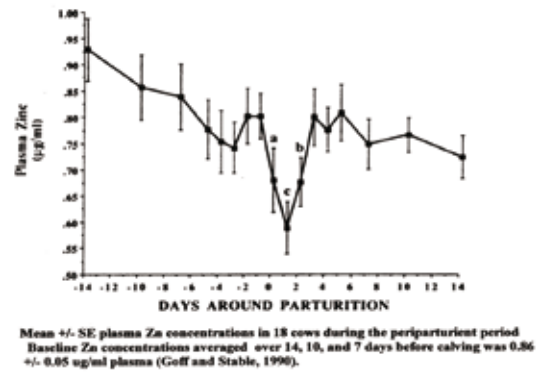
## The issue

Metabolic and infectious disease is a significant issue in early lactation cows. The risk to disease is greatest at calving (Nelson, 1999) when the immune system is suppressed by hormonal changes and the calving cow is least able to fight infection.

80% of metabolic problems, infertility, mastitis and lameness in lactating dairy cows are linked to dry cow management. The recorded 25% incidence of culling of cows from the dairy herd occurs in cows in the first 60 days of lactation and is therefore also directly related to dry cow management.



## Immunological changes around calving



The most recent estimates of incidence and costs of the key disease problems in dairy cows (DAISY, 2002) which can be associated with calving, show that small improvements in dry cow management can result in significant savings.

	Average annual incidence (per 100 cows)	Cost of disease (£ per affected cow)
Milk fever	7.7	220
Mastitis	20.6	218
Lameness	17.4	274

### Fertility issues:

Culling failure to conceive	14.0	681
Retained foetal membranes	3.6	298
Vulval discharge	15.0	166

The incidence of ketosis at 6.7% and displaced abomasums at 2.6% have been separately reported, and will also significantly impact dairy herd profitability.

## Guidelines

Maintaining the immune system for healthy cows at calving requires a balanced diet of energy, protein, minerals and vitamins to cows in optimum body condition. Vitamin E and selenium are key nutrients in fighting disease whilst others with specific functions include biotin against lameness and zinc for healthy udders and feet. Achieving the overall targets of dry cow management in terms of body condition score and nutritional management with accurate balance of forage and concentrate inputs will minimise the incidence of metabolic and infectious disease.

# Summary Management Plan and Feeding Recommendations

	Drying off	Dry Period - far off calvers	Dry Period - close to calving	Early fresh calved cows
	At 300 days into milk	- 8 weeks	-3 weeks	0 to 4 weeks
<b>Target Body CS at period end</b>	3 to 3.5	3 to 3.5	3 to 3.5	2.75 to 3.25

Daily Ration	'Green' Forage	Straw	Concentrate	Farm Mineral
	Ad lib for high intake	Restricted to 20kg fresh intake	Lactation forage (restrict grazing)	Good quality forage
	Offer straw	Ad lib straw for gut fill	2 - 4kg straw for gut fill	Straw only if need for rumen
	Reduce over last 14 days	Maximum 1kg dry cow compound	2 - 3kg GLW Pre-Calver	3kg dairy compound at 3 days then +0.3kg/day to maximum by 25 days
	Dairy mineral	Dry Cow Mineral	Not needed with compound	Dairy mineral

Nutrient targets	Energy (MJ ME/kg DM)	Protein (%DM)	Starch & Sugars (%DM)	Calcium (g/day)	Phosphorus (g/day)	Magnesium (g/day)	Selenium (mg/day)	Vitamin E (mg/day)
	9.5 to 10.0	12	5 to 10	115	57	36	4 to 5	1700
	9.5 to 10.0	12 to 13	3 to 6	30	34	45	3 to 4	2000
	10.5 to 11.0	13 to 15	12 to 16	30	34	45	3 to 4	2000+
	12 to 17	16 to 23	135+	77+	50+	6 to 7	1700	

Key Issues	Achieve target BCS by drying off	Udder dry cow treatment	BCS critical to performance	Early calcium intake
	Do not restrict water to dry off	Maintain gut fill	Prepare rumen for lactation	High quality, high density ration
	Check calving date from records	Mineral and vitamin supply	- gut fill and starch + sugars	Gradual dietary changes - rumen health
			Insulin boost for fertility	Minimize negative energy balance



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