

# Nutribio Management Information – Sheet 2

## Dry & Transition Cow

Research has shown that a dry period of 50 to 60 days appears to be the most economical and optimum for health, reproduction and milk production. While a cow is milking into the bulk tank it is easy to pay attention to nutrition and management, she is contributing to cash flow. But when dry and seen as not contributing to cash flow less attention is paid to her nutrition needs. The next lactation starts at dry off, research shows that nutrition and management during the dry period and in particular the transition period –21 days pre calving dictates productivity in the next lactation.

### Physiological Changes that Occur During the Dry Period:

- Regeneration of mammary tissue lost during the previous lactation.
- Nutritional requirement for fetal growth – 60% of fetal growth occurs during the last two months of the dry period. Nutrients will be drawn from the cows body **if they are not present in adequate amounts in the transition period.**
- Drop in dry matter intake in the last three weeks can be as high as 30% (Grummer 1998).

### Management Objectives need to take account that:

- Cows must calve in an optimum calcium status. There is a fourfold increase in the calcium requirement of the cow just dried off to the cow at calving.
- The immune system must be maximized for calving.
- The rumen papillae need to be stimulated to elongate in the transition period to maximize nutrient absorption post calving.

The cow needs to dry off at a condition score of 3.0 to 3.25 achieved over the last 100 days of her lactation. Maximizing dry matter intake is critical and depends mainly on the quality of the forage. The total diet should have an energy value of 10MJ/kg DM a crude protein of 14% at the start of the dry period and increasing to 15% depending on condition score in the transition period. One objective of the dry period is to reduce the potassium(K) intake to 1.2% and sodium(Na) 0.1% on a dry matter basis, as these two elements will predispose cows to milk fever which can result in secondary disorders as per table 1 'Management Information Sheet – 3.

At these levels incidence of milk fever occurred in 2 of 20 cows, where the dietary K increased to 2.1 the incidence increased to 10 of 20 cows (J.P. Goff & R.L. Horst 1995). Calcium did not significantly affect the incidence of milk fever or degree of hypocalcemia experienced by cows, the potassium and sodium increased the blood and urine pH suggesting that bone resorption of calcium is inhibited in cows fed high K&Na diets.

This is a problem that can arise with dry cows on grass silage and autumn cows grazing well managed grass swards. Where a farmer is experiencing metabolic disorders post calving he should note the number of incidences, as the economic ramifications of the loss of cows in early lactation together with the comprehensive costs associated with the occurrence of the various metabolic disorders in both clinical and subclinical is large.

**Nutribio Nutrition Solutions** can suggest programs to reduce the incidence of metabolic disorders with our '**Transition Cow**' mineral.

**Maximising calcium status** is critical in preventing a large number of problems at calving and in early lactation, these are outlined in table 2 below. The calcium status will vary with forages for example, grass silage Ca 0.45% to 0.7%; maize silage 0.18% to 0.25%. The total diet should have a reading of Ca 0.5% to 0.75%. The total diet calcium can be increased to 1.2% where anion salts are used for example with the transition mineral.

One important causal factor of **impaired immune function** in peripartum cows is the cows vitamin A and E status. **Research has shown that colostrum can contain 19mg of vitamin A and E, this corresponds to an estimated 47% drop in the cows levels for both vitamins.** A reduction in the vitamin A and E near calving reduces the functional efficiency of neutrophils which are responsible for the expulsion of the placenta. The neutrophils are protected from oxidative damage with high levels of vitamin E. Maximum neutrophil function is critical. Increasing vitamin A levels is reported to have a role in resistance to infectious diseases, particularly mastitis. There are other important components one of which is energy supply for immune function.

Table 2:

Calving and early lactation problems related to a non-optimum calcium status at calving. (Stallings 1998; Goff & Horst 1997; Goff 1999)

<b>Acute milkfever</b>	<b>Digestive upsets</b>
<b>Subacute milkfever</b>	<b>Rumen acidosis</b>
<b>Retained afterbirths</b>	<b>Poor reproduction efficiency</b>
<b>Metritis</b>	<b>Decreased peak milk production</b>
<b>Reproductive tract infections</b>	<b>Decreased total lactation milk production</b>
<b>Distocia (difficult calvings)</b>	<b>Displaced abomasums.</b>

Dry cow management is not simply a situation of dry the cow off and forget about her, a planned program should be put in place based on the records of the problems from the herds previous lactation. Once the program is decided on the proper quality mineral should be selected.

The mineral for the dry cow should be low in sodium(Na) high in magnesium (Mg) and high in vitamins A,D,E along with adequate trace elements some of these chelated or protected. Although vitamins and minerals comprise on a small amount of the daily dietary intake, the proper balance and bioavailability are critical for health, reproductive efficiency and milk production.

**Dairy Solutions Formulations:**

**Dry Cow:**

1. Code – Superchoice Gold
2. Code - Nutribio- Precalver Super
3. Code - Transition Cow (formulated to supplement the cow pre calving and minimize metabolic disorders post calving)