A focus on management and nutrition during the transition period makes all the difference to performance in the next lactation. We ask a lot of the cow after calving. We need her to reach peak milk and solids yield in the first 60-80 days as this determines her total potential yield for the season, as well as her ability to produce more milk from grazed grass later in the year. She also must get back in calf in the first three months to maintain a 365-day calving interval.

#### **Transition period**

The transition period, which occurs from 3 weeks pre-calving to 3 weeks post calving, is the most difficult time of the lactation cycle. Up to 80% of issues around calving can be controlled or prevented. This critical period can determine the profit for the entire lactation. Even a "normal" transition constitutes a time of challenge for the dairy cow with hormonal changes, immune suppression, dietary changes and nutrient deficits amongst others. One of the major challenges of the transition cow is low calcium levels in the blood at calving causing a number of health disorders including Milk Fever, Retained Placentas, Uterine Infections, LDAs, Mastitis and Weak Immune Systems. These all have a negative impact on dry matter intakes, at a time when intakes are low already post calving.

In the weeks post-calving, cows will produce more milk than their feed intake can provide for, resulting in body condition loss due to negative energy balance (NEB). The main reason a cow is in a NEB is due to a reduced feed intake. A cow will reach her highest daily milk output 6-8 weeks after calving but will only reach her highest intake of dry matter 10-12 weeks after calving. The cow will use energy from her fat reserves ('off her back') to make up the energy deficit for several weeks. However, if the cow loses too much body condition in early lactation, it can reduce her chances of getting back in calf again. The success of the 2024 breeding season is mainly dictated by the severity and duration of this period of NEB during the weeks post calving. Keeping body condition loss to less than 0.5 BCS between calving and breeding has proven to significantly increase conception to first service, with cows that lost less than 0.5 BCS typically shown to ovulate 15 days sooner also. Cows calving onto a grass-based diet will eat a total dry matter intake (DMI) of 8-10kg DM in week one after calving. Intake will increase by 0.75-1.0kg DM every week until they reach peak intake at 16-18kg DM during week 10-12 of the lactation.

If she struggles during the transition period, her ability to reach these targets is compromised, directly impacting herd profitability. Late pregnancy, calving and early lactation put a lot of strain on cows' bodies in a relatively short period of time.

They can cope with higher demands for energy and calcium by mobilising nutrients from their own body reserves, but problems arise when this is compromised or the gap between the supply and demand are too large.

To ensure herds are supported during this stage, management and nutrition should be carefully considered.

#### Meeting nutritional demands

DMI 20 DMI NEB 30 Milk yield (kg) 15 100 Milk 20 5 10 50 10 Bodyweight 5 0 0 50 100 200 250 300 150 Days -50

Requirements for essential nutrients increase significantly from three weeks pre-calving to four days post-calving. Demand for fatty acids increases five-fold, calcium increases four-fold, glucose demand triples and amino acid needs double. However, dry matter intake (DMI) is significantly reduced during this time and insufficient to meet these nutritional needs. Intakes won't catch up for around 10-12 weeks, creating a negative energy balance (NEB). This energy deficit forces the cow to mobilise body reserves to meet maintenance and milk production needs.

While some body condition loss is acceptable, more than 0.5 BCS reduction will severely affect health and performance. Overconditioned cows risk mobilising excessive fat, leading to fatty liver and impaired glucose metabolism. Underconditioned cows, on the other hand, may lack the reserves to fill the energy gap, increasing their risk of clinical ketosis. If NEB lasts for too long during early lactation, this can have detrimental effects on fertility and weaken the immune system. **Spring Nutrition Plan** 

- Prevent BCS loss- Assumption made that we should supply 100% of UFL requirements 1.
- Maximise Dry Matter Intake by ensuring best forage goes to milking cows 2.
- Maximise energy density by feeing a high energy concentrate 3.
- Supply the cow with enough protein 4.

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5. Feed post calving to match forage & milk yields







Silage Di	м		Milk Yield KG							
	20	22	24	26	28	30	32	34		
64	6.3	7.3	8.3	9.3	10.3	11.3	12.3	13.3		
70	5.2	6.2	7.2	8.2	9.2	10.2	11.2	12.2		
74	4.6	5.6	6.6	7.6	8.6	9.6	10.6	11.6		
76	4.3	5.3	6.3	7.3	8.3	9.3	10.3	11.3		
78	4	4.9	5.9	6.9	7.9	8.9	9.9	10.9		

## Appropriate Concentrate allowance for cows in full time on 12kg of grass silage DM intake

# Appropriate Concentrate allowance for cows out by day and in by night

Milk Yield KG										
	18	20	22	24	26	28	30	32	34	
6 kg Grass DM & 6 kg 64 DMD silage	4	5	6	7	8	9	10	11	12	
6 kg Grass DM & 6 kg 70 DMD silage	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	
6 kg Grass DM & 6 kg 74 DMD silage	3	4	5	6	7	8	9	10	11	

### The risks of metabolic disorders

A cow with a metabolic disorder is more likely to suffer from other issues; e.g., a case of milk fever increases the risk of mastitis eight-fold. Approximately 75% of cow illnesses occur in the two months post-calving, often rooted in transition-related issues. The biggest threats include clinical and sub-clinical ketosis, which result from prolonged or excessive NEB, and immune suppression, which heightens susceptibility to diseases like mastitis and metritis.

Clinical signs of NEB or ketosis (down cows) are relatively rare in Ireland, affecting about 2% of cows. However, sub-clinical ketosis impacts an estimated 30% of herds and is indicated by raised ketone levels. Over and underconditioned cows are at greatest risk of this 'silent' condition, which has significant consequences:

- **♦** Twice as likely to be culled within 60 days
- **8x increased risk of displaced abomasum**
- ♦ 5x higher risk of retained placenta
- ♦ 3x higher risk of metritis.
- **6x increased risk of cystic ovaries.**
- ♦ 22-day delay to first oestrus.

### **Optimising nutrition and management**

To navigate these challenges, farmers should focus on maximising DMI and providing energy-dense, balanced diets.

Glucogenic diets, rich in propionate precursors, are particularly effective at boosting milk yields, reducing body condition loss, supporting the immune system and getting cows to show strong heat after calving. In spring-calving herds, managing grass utilisation while ensuring milk solids and fertility is a delicate balancing act.

Inclement weather and grass quality variability add complexity to this, making appropriate supplementation essential to bridge nutrient gaps.

Front-loading concentrate feeding during the first three months of lactation is a proven strategy.

Gradually building up grass intake through techniques like on/off grazing also helps cows and, more importantly, their rumen microbes adapt to dietary changes.

As a rule of thumb, cows can consume approximately 5kg of dry matter in 3 hours on well-managed swards, weather permitting.

