Herd health challenges in springtime

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Springtime in cattle practice still remains by some distance, the busiest time of year for Irish cattle veterinarians. Obviously, with the high prevalence of individual animal disease during this period, allied to the traditional emergency calls of calvings, milk fevers, etc., it can be difficult to find time to address common herd health problems that occur during this period. The challenges of meeting the increasing demands of farmers for herd health services are greatest in smaller practices. Working within the structure of a larger practice, where there is capacity for more available time, facilitates the development and expansion of herd health services and may allow individual specialised vets, or vets with a high level of expertise, to concentrate on dealing with the herd-health requirements of the practice. With the changing nature of the farm animal profession in Ireland, the reduced or less guaranteed incomes from traditional state-related disease control, it is important that farm animal veterinarians respond to meet this herd health demand.

There is potential to reclaim much work that has been commandeered by non-veterinary professionals and technicians over the last 30-40 years, when the veterinary profession concentrated on state work. There is also an opportunity for greater integration within the profession, through interactions between veterinary practitioners and specialist herd health consultants, including the University College Dublin (UCD) herd health team, regional officers of the Regional Veterinary Laboratories, specialist veterinarians within Teagasc and private herd health consultants.

Many specific challenges have arisen as a result of the rapid herd expansion seen in the dairy sector in the last few years, including increased demands for labour, disease resulting from housing deficiencies, increased metabolic and production disease, greater risk of spread of contagious disease due to greater numbers of animals per farm, and the emergence of specific diseases such as *Mycoplasma bovis* mastitis and polyarthritis. This article will concentrate on some challenges likely to be prevalent during spring 2017.

TARGETS FOR DISEASE AT THE HERD LEVEL

Herd health management relies on the measurement of on-farm performance against well-defined targets for infectious, metabolic and production disease incidence. When a problem is identified, ie. when disease incidence exceeds target, the next steps involve an investigation to determine the drivers of disease, the source and method of spread (if infectious in nature), the risk factors that may have predisposed to disease and the patterns of disease (patterns in time, space and animal groups), which help to outline the epidemiology of the problem. Targets for common periparturient diseases are displayed in Table 1.

Herd health parameter	Target
Body condition score at calving	3.0-3.25
Dystocia	<10% assisted; <5% requiring significant assistance
Clinical milk fever	<5%
Retained placenta	<5%
Metritis	<5%
Clinical mastitis (not just post-calving)	20-25 cows affected/100cows/year
Left-displaced abomasum (LDA)	<3%
Right-displaced abomasum (RDA/RVA)	<1%
Lameness (Locomotion score 3 to 5)	<10%
Feed space per cow	0.6m (2 foot/head)

Table 1: Herd health targets in the periparturient period.

METABOLIC AND PERIPARTURIENT DISEASE

The periparturient period and transition period from the pregnant state to the lactating state has always been a metabolic tightrope for dairy cows. Many things impact on a successful transition period, including body condition score (BCS) at calving, the dry cow diet, the supply of minerals and trace elements over the dry period, silage and forage quality, housing quality and stocking density, social stress, and the post-calving diet. There are clear links between and common risk factors associated with the common periparturient and metabolic diseases such as clinical and subclinical ketosis, dystocia, retained placenta, hypocalcaemia, toxic mastitis, toxic metritis, and displaced abomasum. The primary linkages involve abnormalities of energy balance, calcium homeostasis and immunosuppression. Investigation of transition cow problems must consider these three basic underlying factors. For example, we know that the primary pathogenesis of retained placenta is a failure of invasion of white blood cells into the cotyledonary-caruncle junction at calving time to break down the strong attachments allowing the cow to pass the placenta – this is essentially a failure of the immune system. Therefore, on coming across a herd problem of retained placenta (incidence of >5%), one should automatically consider that there is likely to be a problem of immunosuppression in the herd, which may be related to other factors such as incorrect BCS at calving, clinical or subclinical ketosis, clinical or subclinical hypocalcaemia, or trace element deficiencies. Of course, other potential causes, such as dystocia, must also be ruled out.

METABOLIC PROFILE TESTING

In the face of an obvious or suspected problem with periparturient disease incidence, in addition to BCS, it is recommended to carry out metabolic profile testing on dry and early lactation cows in order to aid or confirm your diagnosis. A very useful template for metabolic profile testing is displayed in Table 2.

Dietary and feed space assessment is also very important with respect to metabolic disease. Grass silage analysis, looking at energy and protein content, as well as assessment of the potassium content and the dietary cation anion balance (DCAB), can be very useful in the investigation of energy balance and hypocalcaemia problems.

The use of bulk milk monitoring as a tool to monitor energy status in dairy herds in easy and quite reliable of spring-calving, Holstein-Friesian herds. Advise your farmers to text you updates of their bulk milk solids which they receive a number of times per week from the co-op and you can compare bulk-milk protein percentage against the desired target of >3.2%. Prolonged periods of low, bulk-milk protein percentage should flag a problem of negative energy balance (NEB) in the herd and the need for an investigation.

Remember, however, that herds containing a high proportion of Jersey or Jersey X cows will need to be assessed in a different manner due to their naturally higher milk solids production. In these herds, the calculation of bulk milk fat to protein ratios is more reliable and informative, with a target of <1.4. In all herds, analysis of individual cow milk solids is more desirable but is

Metabolic disease	Recommended cohorts for testing	Test	Target
Ketosis	Test six to 12 dry cows within one week of calving	Non-esterified fatty acids (NEFAs)	≤0.4mmol/L
		-hydroxy butyrate (BHB)	≤0.6mmol/L
	Test six to 12 cows in the first 21 days post-calving	NEFAs	≤0.7mmol/L
		BHB	≤1.2mmol/L
Clinical and subclinical hypocalcaemia	Test six to 12 dry cows within one week of calving	Magnesium	>0.8mmol/L
	Test six to 12 cows within 24 hours of calving	Calcium	≥2.0mmol/L

Table 2: Metabolic profile testing.

dependent on the farmer carrying out regular and timely milk recording.

MASTITIS IN EARLY LACTATION

Clinical mastitis in recently calved cows is a common herd problem at this time of year. In general, environmental or mixed bacteria, eg. *Escherichia coli* and *Streptococcus uberis*, are responsible for these clinical cases. When investigating herd problems of this nature, it is important to concentrate on the common sources of these bacteria, namely the calving area, the dry cow accommodation and the cubicles for the freshly calved cows.

The use of teat sealers in recent years has significantly reduced the prevalence of periparturient mastitis in many Irish herds.

However, if the post-calving environment and the housing areas where the cows lie down between milkings is not hygienic or relatively clean, then problems may arise.

It is important to carry out sterile milk sampling and culture/polymerase chain reaction (PCR) to determine the bacteriological/fungal causes of mastitis in these herds, as this can help to pinpoint the source of infection and aid in formulating a control programme.

CALF HEALTH

Calf health problems in the last two years have often been related to lack of suitable housing for calves in rapidly expanding herds and associated lack of labour input. It is much more common for farmers to increase cow numbers prior to the completion of suitable accommodation for both cows and calves. If the farmer and other workers on the farm are over-extended, due to other work such as calving, milking, spreading slurry, pasture management, etc. it can often lead to a relative neglect of the young calves in the herd. Male dairy calves are likely to be worst affected by problems such as suboptimal colostrum feeding and inadequate daily milk feeding. The spread of contagious disease in the form of calf diarrhoea and calf pneumonia is facilitated by greater numbers of calves in poorer housing facilities. Assessment and attention to these areas forms a critical part of calf health investigations.

Good individual animal clinicians usually make good herd health vets. While it is extremely important to upskill in the area of herd health management, including specific areas such as nutritional, mastitis and fertility management, the missing ingredient to successful herd health management in spring can often be time.