

Attitudes to hormone management in dairy cow reproduction



Helen Higgins BSc BVSc CertCHP
MSc PhD MRCVS
School of Veterinary Medicine and
Science, Sutton Bonington, University
of Nottingham, Loughborough
LE12 5RD

The Panel:



Richard Murray
BVM&S DVM&S DBR
DECAR DECBHM FHEA
MRCVS University of
Liverpool Institute of
Translational
Medicine and School of
Veterinary Science



David Black
BVSc DBR MRCVS
RCVS Specialist in
Cattle Health and
Production, Paragon
Veterinary Group
and XLVets



Mike Christie
BVMS DBR MRCVS
Head of Embryo
Transfer Unit,
Lambert Leonard
and May



**Madeleine
Crawley**
BVetMed MRCVS
Veterinary Advisor,
Soil Association
Certification Limited

Oestrus detection in Holstein cows is difficult. Hormones to induce oestrus or for fixed-time artificial insemination are now commonly prescribed to facilitate, or remove the need for, detection of oestrus. The acceptability of pharmaceutical intervention to overcome short fallings in management is discussed, including from the wider perspective of global food security. Public perception and the veterinary profession's engagement with the public over potentially controversial issues are raised.

10.12968/liv.2013.18.6.210

The reproductive performance of dairy cows has been in decline for several decades (Royal et al, 2000; Moore and Thatcher, 2006; Hudson et al, 2012). Over this time period, market forces have driven efficiency savings and led to genetic selection for production traits, particularly increased milk yield. High genetic merit Holstein dairy cows show less obvious signs of oestrus and for a shorter period of time compared with their lower yielding predecessors (Figure 1), making oestrus detection inherently more difficult than in the past (Dobson et al, 2008; Yoshida et al, 2009). Management factors such as sub-optimal housing design, may contribute to poor oestrus expression (and hence detection) per se, or by exacerbating other conditions, especially lameness (Walker et al, 2008). Other factors that may make oestrus detection challenging include: a lack of skilled labour; the time available for oestrus detection (as herd sizes have increased); all year round calving; and the absence of a bull on some farms.

Hormones are now commonly used in many different clinical contexts to aid bovine reproduction (Figure 2). However, this article focuses on using hormones in lactating dairy cattle without reproductive pathology, for two purposes: to facilitate oestrus detection by inducing oestrus, and to remove the need for oestrus detection by allowing fixed-time artificial insemination (AI). Table 1 presents, in no particular order, a summary of some of the potential advantages and disadvantages of prescribing hormones to induce oestrus or

for fixed-time AI (Higgins et al, 2013). Please note Table 1 is not exhaustive.

Acceptability in the face of poor management

In the specific situation where management problems exist that are contributing to poor oestrus expression and are not being addressed, the acceptability of using hormones in the long term to induce oestrus or for fixed-time AI, is controversial. The advantages and disadvantages identified in Table 1 are all relevant to the debate. In addition, it is worth noting that given there is an economic necessity for cows to become pregnant to avoid culling, some practitioners may justify prescribing because they consider it wrong to let some animals be culled that could be saved, especially given they have sworn an oath to 'ensure the health and welfare of animals committed to my care' (Royal College of Veterinary Surgeons, 2012). This may be argued on an individual cow basis, in that culling a cow that is otherwise fit and healthy (just not pregnant) is not in that specific animal's own best interests — given that otherwise she has a 'life worth living'. While fit and healthy animals are routinely culled for meat (which is not in the animal's own best interests), the difference here is that practitioners have a choice over prescribing something (or not) that may alter the outcome in favour of the individual cow they are presented with living for longer. Moreover, some people take the view that culling is the ultimate insult to animal welfare. However, a utilitarian analysis of 'do the



Figure 1. Bulling behaviour, such as chin resting, can be hard to detect in high yielding dairy cows.

'do the greatest good for the greatest number' may favour not prescribing, since this may perpetuate the management problems, and have health and welfare implications for the whole herd. Furthermore, it could be argued that using hormones to improve fertility may mean that there is more choice over which animals to cull, enabling cows with chronic health problems to be culled sooner, thereby improving welfare. Farms with poor management are likely to have more cows with chronic health problems and hence are more likely to benefit from any such effect. Thus, in the face of poor management, using hormones to improve culling choice at a herd level is also an argument against the use of hormones, because it is a mechanism by which poor management is perpetuated.

When management problems exist, do the panel consider it acceptable clinical practice to prescribe hormones (to induce oestrus or for fixed-time AI) to the majority of eligible cows, in the long term?

Richard Murray replies:
The first step should be to determine whether the dairy cow is cycling and, if so, can better ob-

servation of oestrus behaviour within a defined time period suffice. Even in very large herds, this should be the preferred strategy using trained stockmen dedicated to this specific task of heat detection, perhaps using activity monitors as an aid. The definition of 'management problem' should be addressed: in this context, it is a herd where insufficient time and money has been invested in cattle breeding. In herds where a 'problem' involves other risk factors such as inadequate nutrition, poor AI technique or perhaps endometritis, the use of hormones to influence reproduction efficiency will have little impact. Despite the widespread use of hormones in north American dairy herds, to improve productivity, this is not a sustainable strategy for UK dairy herds in the medium/long term.

David Black replies:

Over the past few years, many dairy farms have struggled to maintain profitability at a level that allows appropriate reinvestment. We as vets, have a role to play to ensure that dairy farming improves in profitability, which in turn is largely driven by the health and welfare of the animals. Suboptimal fertility is the ultimate multi-factorial problem, and as such, there will be no 'quick fix'. Therefore we must

use our veterinary expertise to continue supporting our dairy clients by addressing as many of these components as possible. To do this we must use all the appropriate tools available to us which could include the strategic and monitored use of hormones. It can readily be argued that there are more serious health and welfare issues caused by delayed conception. With the majority of management disease in dairy cows occurring at or around parturition, it is important that the dairy cow is managed effectively, which includes re-establishment of pregnancy within a reasonable number of days, so that she can be dried off and calved again in optimal health and body condition. By vets working together with nutritionists and other farm consultants, taking a holistic approach, efficiencies should improve which will allow increased reinvestment in facilities, equipment and training. As we address any structural or management shortfalls on a farm, there will in turn be a reducing requirement to hormonally induce oestrus.

Mike Christie replies:

Current milk price is now averaging 32 ppl. 20 years ago it was 24–26.5 ppl. The costs involved in farming have risen hugely in the