The Condition and treatment

1. Introduction

Two surveys of organic dairy herds in the UK give limited information on reproductive performance of these herds but the calving intervals reported suggest that no major problems are experienced (Weller *et al.*, 1996; Hovi and Roderick, 1999). The latter survey reports an average calving interval of 384 days in a group of 16 organic dairy farms. The survey also reports a very varied calving pattern among these farms, with no block-calving herds among them. Similarly, reports from other European countries seem to suggest that organically managed herds do not suffer from reduced fertility in comparison with the conventionally managed herds. No information on the reproductive performance of organic beef suckler herds in the UK has been published.

The organic milk-pricing does not include seasonality payments at the moment (2000), and the profitability of spring calving herds has tempted many organic and converting farms into looser calving patterns, moving away from autumn calving. All this could contribute to a higher calving interval. On the other hand, lower production levels in the organic herds may contribute to better fertility after-calving, allowing reasonable average calving intervals.

As far as the seasonality of calving and calving intervals are concerned, organic suckler herds are likely to be under same constraints as conventional ones, i.e. a 365-day calving interval is required and short calving period is favourable.

Under organic management, feeding practices and certain prohibited or restricted practices may influence the herd fertility. These factors will be discussed below. The rest of this chapter deals with specific reproductive problems and their treatment under organic standards.

2. Feeding

a) Energy deficiency

It has been suggested that organic dairy farms might suffer from poor fertility due to a metabolic energy gap in early lactation (home grown feed, young forage crops with limited concentrate). With relatively low average herd yields in organic herds (Hovi and Roderick, 1999: 5900 litres/305 days; Weller *et al.*, 1996: 5125 litres/305 days), this is not likely to be a problem unless herds with high yielding cows convert to organic production.

The main preventive approaches to energy deficiency are condition maintenance and monitoring (condition scoring, metabolic profile tests) during dry period and early lactation and supplementary feeding when needed. Under organic management, a preventive approach must be implemented to avoid calving difficulties, ketosis and ovarian dysfunction, instead of treatment of these cases. This approach includes:

- Condition scoring of cows before drying off and avoidance of fat cows at calving (condition score of ~2.5 at calving, no weight changes during drying off).
- Maintenance of energy balance in early lactation (no breeding for high yields, maintenance of condition during early lactation: use condition scoring and/or metabolic profile tests).

b) Mineral deficiencies

Organically grown forage is likely to have a higher mineral content than artificially fertilised grassland. However, as routine mineral supplementation is prohibited and bulk of the concentrates are likely to come from home-grown products, it has been suggested that organic dairy and suckler

cows may suffer from mineral deficiencies, particularly in the regions where soils are deficient in certain minerals (Roderick and Hovi, 1999). The minerals considered essential for reproduction are cobalt, copper, manganese, phosphorus, iodine and selenium.

In the UK conditions, copper and selenium are the most likely minerals to be in shortage in dairy cow diets. It has been suggested that secondary copper deficiency, caused by high levels of molybdenum in the forage (>500 µmol/5 mg molybdenum/kg DM), and selenium deficiency in growing heifers are the only likely mineral/trace element deficiencies likely to cause reproductive problems in cattle in the UK (Whitaker, 1999). Under organic management, forage could initially contain high levels of molybdenum at sites where soil molybdenum levels are high but molybdenum has not been extracted from the soil by conventionally managed, highly fertilised crops (personal communication, Steve Truner).

If a known mineral deficiency exists in the area, permission for supplementation needs to be obtained from the certifying body. In most cases, the certifying body will require either blood or forage sampling to be carried out before permission is granted. All forms of supplement administration are acceptable under organic standards but some certifying bodies consider some more acceptable than others. When an application for a supplementation practice is made, the form of intended supplement should be stated on it.

c) Phytoestrogens in clover

The organically grown forage is likely to contain large quantities of clover (and sometimes lucerne), that contains phytoestrogens (Francos et al, 1992). There are no reports on the effect of phytoestrogen on the reproductive performance of cattle in the UK, but this may be a differential diagnosis worth considering when all other options have been ruled out.

1. Veterinary manipulation of reproduction

The following practices are **prohibited** in the reproductive manipulation of organic cattle:

- Routine manipulation of reproductive cycle on a herd basis (i.e. heat synchronisation with injectable or vaginal implant hormones, routine administration of GnRH to improve conceptions rates etc.)
- Embryo transfer
- Cloning

The **withdrawal periods** for hormonal products used on individual animal basis should be twice the legal withdrawal period. Where there is no legal withdrawal for milk or meat and a licenced drug is used, a 48-hour withdrawal has to be implemented under UKROFS and Organic Farmers and Growers standards. The Soil Association-certified producers have to use a 14-day minimum withdrawal for milk in connection with all POM-hormonal products.

Examples:

- The treatment of a cow with cystic ovary/ovaries would be allowed with e.g. Receptal™ , followed by a 48-hour milk withdrawal (N.B. 14-day milk withdrawal for Soil Association-certified producers).
- Induction of oestrus in a non-cycling cow would be allowed e.g. with Estrumate™, followed by a 48-hour milk withdrawal (N.B. 14-day milk withdrawal for Soil Association-certified

producers).
- The use of Prid™ would not be allowed under any circumstances.
- Use of prostaglandins as a treatment for chronic metritis or endomertritis would be allowed, followed by the above specified withdrawal times.

1. Specific reproductive problems

The reproductive performance of a dairy herd can be affected by problems associated with ovarian dysfunction, a series of reasons leading to low conception rates, abortions or calving problems. All these issues will be discussed below under separate headings.

1. Ovarian dysfunction

a. Cystic ovaries

Cyst formation in the ovaries is common during early lactation and is diagnosed in about 4% of all dairy cows, but more rarely in beef suckler cows. The causes of cystic ovaries are not well established but there is evidence to suggest that the condition is more common in daughters of cows that have had cystic ovaries. The factors that affect the normal reproductive cycle in cows can all cause cyst formation, particularly nutritional stress in early lactation in high-yielding dairy cows. Fatty liver syndrome, acidosis and phytoestrogens in forage have been associated with cystic ovaries.

Irregular bullying, frequent urination and nymphomaniac behaviour are signs of cystic ovaries. Rectal palpation by a veterinarian will confirm the diagnosis in most cases.

Treatment of cystic ovaries is usually hormonal. Once the condition has been diagnosed the use of e.g. buserelin injection is acceptable under organic standards. It is, however, important to implement a twice the statutory milk withdrawal or a 48-hour milk withdrawal if the statutory withdrawal is nil (14 days on Soil Association-certified farms in both cases). The use of intravaginal implants is prohibited. Homeopathic treatment of cystic ovaries has been recommended (Hansford and Pinkus, 1998).

b. Failure to cycle/non-cycling cows

Both dairy and beef suckler herds always have some cows that have not started cycling by 60 days after calving. As heat detection in early lactation can be difficult due to short heats/night heats/silent heats, a diagnosis of failure to cycle has to be carried out by rectal palpation and detection of inactive ovaries.

Suckling is the main cause for true anoestrus and failure to cycle is most commonly seen in in suckler cows with calf at foot. The condition can also be seen in dairy herds (especially in first calved heifers), where energy deficiency or high milk yields are associated with non-cycling cows.

Treatment of genuinely non-cycling cow with hormonal injection is acceptable under organic standards with e.g. gonadorelin injection. It is, however, important to implement a twice the statutory milk withdrawal or a 48-hour milk withdrawal if the statutory withdrawal is nil (14 days on Soil Association-certified farms in both cases). The use of intravaginal implants is prohibited. Homeopathic treatment of anoestrus has been

recommended (Hansford and Pinkus, 1998). Gentle massage of ovaries during palpation has also been suggested as a non-medical treatment for anoestrus. This should be carried out by a veterinary surgeon.

c. Repeat breeders

A 60% conception rate to 1st service is considered an average performance in a dairy herd. Subsequently, many cows need more than one insemination to conceive. On average, two cows out of 100 would need more than 5 services to conceive. If the number of these "normal" repeat breeders is higher, the situation should be investigated to diagnose possible endometritis, cystic ovaries or other pathological reasons for non-conception.

Repeat breeders with no obvious problems can be treated with a hormonal preparation (GnRH) either at service or 12 days after insemination, taking into consideration the above outlined withdrawal periods for milk. A routine hormonal treatment of repeat breeders should, however, not be adopted, but reasons behind conception failure should be investigated.

1. Poor conception rates

Poor conception rates are primarily a problem in dairy herds. Fertility of dairy cows in the UK has fallen steadily in the past 30 years, and it is suggested that the average conception rates to 1st service in the UK are now less than 50% (Lamming *et al.*, 1998).

The main causes of poor conception rates are:

a. Post calving complications

These include conditions like retained placenta, endometritis, chronic metritis, endometritis and are described elsewhere in this compendium.

b. Embryo loss after conception/Poor embryo recognition

Embryo loss, failure by the embryo to attach itself onto uterine wall, is considered an important cause to poor conception rates. One of the main causes of embryo loss are post calving complications that prevent uterus from recovering and recognising the embryo. Similarly, if a healthy cow is served too soon after calving, the uterus might not have recovered sufficiently to recognise the embryo.

c. Social stress

It is suggested that stress in animals leads to poor conception rates (Blowey, 1999). Social recognition in herds larger than 50 cows is difficult, leading to poor establishment of hierarchies and continuous stress. Heifers are likely to suffer from this more than older cows.

d. Nutritional factors

In addition to causing prolonged anoestrus after calving, energy deficiency can also affect conception rates. Trace element deficiencies may reduce conception rates. Stress caused by inadequate feeding space may cause embryo loss. Any nutritional factors that might cause other diseases like acidosis, ketosis, lameness, fatty liver syndrome etc. are likely to depress conception rates.

e. Husbandry factors

General husbandry factors causing stress (aggressive handling, wrong building design, lack of heifer care, herd size and grouping etc.) can be significant causes of poor conception rates in some herds. AI-skills can vary between herdsmen and may be reflected in conception rates. Whilst heat detection skills/routines are not directly reflected in conception rates, they do affect the overall reproductive performance of a herd.

1. Abortion

Abortion incidence on a farm affects the reproduction parameters on a farm and is often linked to other reproductive problems. A summary of causes for abortions and approach to abortion diagnosis and prevention is presented elsewhere in this compendium (LINK).

4.4 Calving problems/Dystocia

Calving difficulties are usually reflected in the number of assisted calvings or in the level of calf mortality at calving (born dead or died during calving). Both these incidences should be carefully recorded and assessed after each calving season in order to make sure that animal welfare is not jeopardised by allowing calving problems to increase. As calving difficulties and calf mortalities vary significantly between breeds, crosses and herds, it is difficult to set target figures for these parameters, and each herd should be assessed separately (see Good Practice-section).

The main causes of calving difficulties in both dairy and beef cows are similar. Calving difficulties are much more common in first-calving heifer cows than in later parities. Heifers served below a recommended weight for the breed are likely to have more calving difficulties than heavier heifers. Fat cows and heifers (condition score more than 3) have more calving difficulties than well-conditioned animals (condition score around 2.5). Use of semen from bulls that give large calves with heifers or small cows is not common, as awareness of this problem has increased. When investigating an increase in difficult calvings, this possibility should, however, be taken into consideration. There is a wide variation in recorded calving difficulties between farms, suggesting that management and husbandry is an important factor.

For most recent information on different sector body requirements on withdrawal periods for livestock products following medicinal use please see Withdrawal of Products following medication.