



DAIRY HERD FERTILITY

CHALLENGE NOTE 1A - Use of Breeding and Fertility Records

Breeding records should be simple, easy to use and provide the basis for assessing herd fertility performance. Records may be kept in a number of ways ranging from a variety of paper-based systems through to breeding boards and computer software, though many farmers use a combination of these. The aim of this Challenge Note is to review the advantages and disadvantages of the various systems.

Contents

- Paper-based systems
- Circular breeding boards
- Computer software
- Comparison of various herd recording systems

Having clear and unique cow identification is one of the most important aspects of good breeding records. Cow number forms the basis of any herd record. The following information is essential for the assessment of fertility performance:

- Cow number;
- Calving date;
- Heat dates;
- Service dates;
- Pregnancy diagnosis date and result.

Paper-based Systems

Paper-based systems are probably the most widespread form of basic herd recording. The most effective paper-based systems for the recording of breeding/fertility events lists cows in calving date order with columns to write in details of heats, services, pregnancy diagnosis, etc across the same row (see Figure 1). Record sheets similar to this are provided to participants in the Dairy Herd Fertility Challenge.

Cows should be entered as they calve (i.e. in calving date order) with additional information added as cows are seen in heat, served and pregnancy diagnosed. This information can be used to predict drying off dates and calving dates, as well as the production of action lists. For example, the recording of individual cow events across the page allows easy identification of cows due for service, those never been seen on heat or served and those served repeatedly.

Paper-based recording systems laid out in the format described above can also be used to assess fertility performance (see Challenge Notes 1C and 1D: **Submission Rate and Conception Rate**).

DAIRY HERD FERTILITY CHALLENGE

Cow No	Calving Date	Comments	Heat date	Heat date	Service 1	Bull	Service 2	Bull	PD Result
416	2-Sep		20-Oct	10-Nov	1-Dec	Geremjo			
265	4-Sep		30-Oct						
218	5-Sep	Difficult calving							
355	6-Sep		23-Oct	15-Nov	3-Dec	Pericles			
369	8-Sep		10-Oct	1-Nov					
360	10-Sep		25-Oct	15-Nov					
396	11-Sep		17-Oct						
290	15-Sep		12-Nov		2-Dec	Geremjo			
242	18-Sep		5-Nov		27-Nov	Pericles			
305	20-Sep	Milk fever							
230	24-Sep		15-Nov						
240	27-Sep		23-Nov		26-Nov	Pericles			
393	27-Sep		30-Oct		22-Nov	Geremjo			
441	28-Sep								
279	30-Sep		1-Nov		22-Nov	Pericles			
444	6-Oct	Discharge	12-Nov	25-Nov					
395	11-Oct								
423	12-Oct								
375	14-Oct		22-Nov		26-Nov	Geremjo			
324	15-Oct		6-Nov		28-Nov	Pericles			
221	20-Oct								
432	23-Oct								
418	29-Oct								
430	29-Oct		2-Dec						
346	30-Oct		25-Nov						

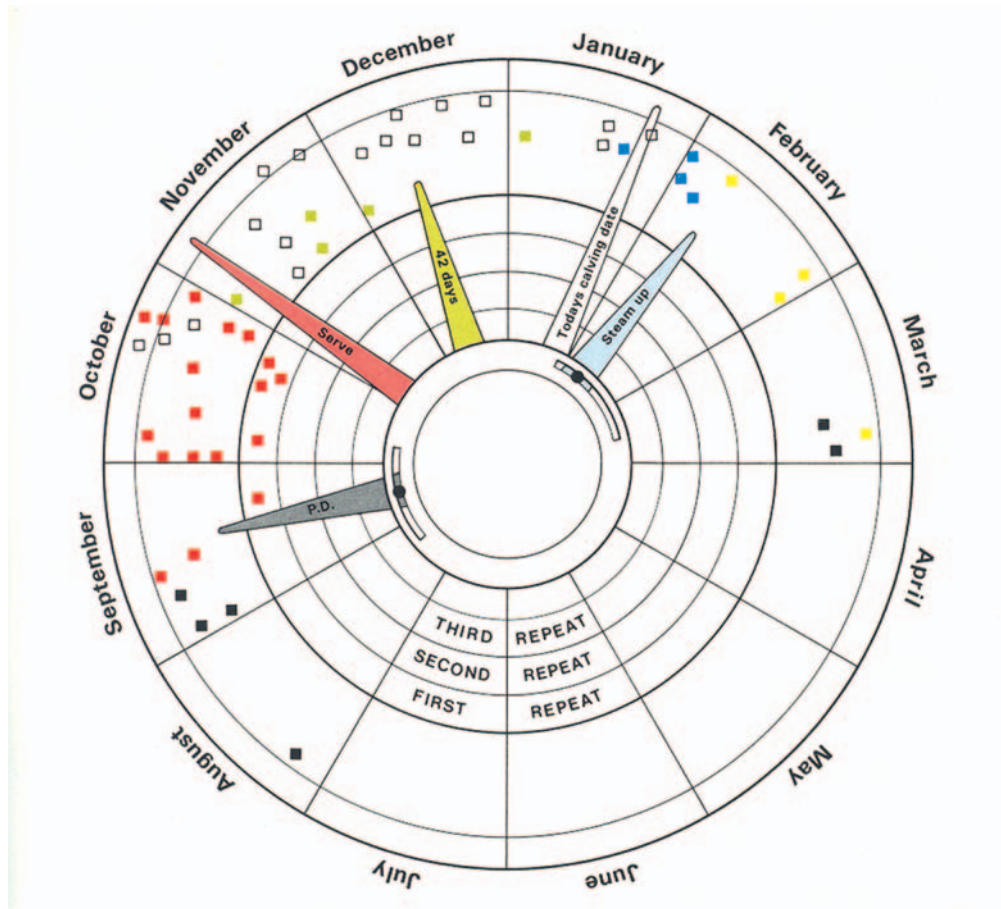
Figure 1: A paper-based herd recording system with cows listed in calving date order and breeding events recorded across the page.

As well as advantages, all recording systems have some disadvantages. It can be difficult to find individual cows in paper-based systems when listed in calving-date order. They do not allow for easy prediction of cows due on heat based on previous heats or services, unlike a calendar or diary.

A 21-day breeding diary allowing identification of cows in heat three weeks previous has been developed for the Dairy Herd Fertility Challenge for the identification of cows potentially due on heat based on previous heats and services (Figure 2). When used in conjunction with the herd recording sheets, this makes a very effective herd recording system for the generation of action lists and monitoring of herd fertility performance.



Figure 2: 21-day breeding diary.



Circular Breeding Boards

These are divided into 12 sections representing the 12 months of the year as seen in Figure 3. Each cow is represented by a magnetic dice marked with her identity on each side, the colour of the outward facing side indicating her productive/reproductive status. For example, freshly calved, heat observed, served, confirmed in calf, dried off, steaming up, etc.

Circular breeding boards are simple to use. They provide a good visual picture on the current status of the herd and can be used to generate action lists. However, individual cow markers may be difficult to locate in larger herds and are prone to disturbance causing loss of records in the absence of a paper-based backup system. Furthermore, breeding boards do not enable the calculation of fertility performance, for example, submission rate, conception rate, etc.

Computer Software

This is generally the most effective herd recording system but is only as good as the information entered. Systems that are regularly updated and maintained can provide a wide range of reports, including action lists of cows expected to be on heat, cows requiring veterinary observation, etc. A recent study by the Agricultural Research Institute at Hillsborough, established that a regular update of herd records and the production of regular action lists can have beneficial effects on herd performance with results showing a:

- Decreased interval to first service;
- Increased heat detection rate;
- Increased submission rate;
- Increased 100-day in-calf rate (the proportion of cows back in-calf again within 100 days of calving).

However, not all computer software packages can provide this facility.

Comparison of Various Herd Recording Systems

Each system of recording has its advantages and disadvantages as shown in Table 1. Computer-based systems of recording are probably the most effective overall, but are the most expensive and operators require

proper training in their use. A combination of various paper-based systems is much less expensive and can be just as effective.

Irrespective of what system is used, use of herd records can be one of the most beneficial ways of improving herd fertility.

Table 1: Comparison of various herd recording systems.

	Paper - based*	Circular Boards	Computer Software
Routine record keeping:			
Determine time to breed	Y	Y	Y
Monitor cow cycling activity: e.g. cows not seen on heat, repeat breeders	Y	Y	Y
Predict drying off/calving dates	Y	Y	Y
Other e.g. pedigree information	Y	N	Y
Fertility action lists:			
Predict future heats	Y	Y	Y
List animals for veterinary examination: e.g. non-cycling cows, cows for pregnancy diagnosis	Y	Y	Y
Assessing fertility performance:			
Measure submission rate	Y	N	Y
Measure conception rate	Y	N	Y
Assess overall herd fertility performance	Y	N	Y

* Combination of herd recording sheets and 21-day diary

Summary

- Effective use of herd records can be one of the most beneficial ways to improve herd fertility.
- Clear and unique cow identification is an important aspect of herd recording
- Simple paper-based herd recording systems are inexpensive and effective.
- Computer software is often the most effective herd recording system, but can be expensive and operators require proper training in their use.
- An essential element of recording is the easy identification of non-cycling cows and repeat breeding cows.
- Herd fertility performance can be improved by regular use of herd records to anticipate heats and services.