

The Operation of Herd Fertility and Health Schemes

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DAISY - The Dairy Information System

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Introduction

A Fertility Scheme is one where regular visits are made, normally by the same veterinarian, to a herd where routine work is carried out.

Based on records drawn from either a hand kept or computerized recording scheme, the veterinarian inspects such cattle as those that have been served and now need rectal pregnancy diagnosis. The practitioner may also inspect cows for a range of other reasons, especially to carry out postnatal checks on animals not seen in heat, and those that have been repeatedly (but unsuccessfully) served.

The visits are more frequent in the larger herds, often being as much as weekly for herds for 150 cows or more, but only monthly in herds of less than 100 cows.

Genuine Herd **Health** Schemes are not being supplied in the U.K. To qualify for such a name, the service should include a full preventive and treatment service for all diseases, such as mastitis, lameness, milk fever, as well as BVD, Leptospirosis, Brucellosis and Tuberculosis.

Nutritional advice would also be an important part of a full Herd Health Scheme, as would help with the design of the buildings and waste management systems. Calf mortality, rearing and youngstock husbandry would also be included in a full service.

At present in the U.K., no full Herd Health Schemes are carried out. As it is, relatively few Herd Fertility Schemes are operated. Why is this? What changes have occurred in the last 20 years that have been beneficial, and what is holding up future developments?

It may be that the limited approach that is taken has stopped total Herd Health Schemes developing. Farmers may not be seeing enough benefits from the single schemes.

If a veterinarian just does pregnancy diagnosis at, say, 65 days post service, and is only 95% accurate, then uses prostaglandin on one cow (actually pregnant) out of 20 cows thought to be empty, and this causes an abortion, the net result of **all** the effort will be a loss to the farmer.

The effect of such a scheme, even if genuinely empty cattle are effectively treated, are seen in heat and are served more quickly than they would have been, is that the cost of the lost time because of the abortion of one cow is greater than the benefits of shortening the calving interval of the nineteen. Where accuracy is greater, and pregnancy diagnoses are carried out earlier, such a practice can be effective.

Twenty five years ago, only 100 farmers in the U.K. had a regular veterinary visit, mostly for just pregnancy diagnosis. Today, the penetration of such "Fertility Schemes" is still relatively small (only 15.1% of herds: Wassell and Esslemont, 1992: Table 1).

Table 1. Proportion of herds in practices surveyed provided with routine visits and recording schemes (Practices supporting 18,818 dairy herds).

Services Provided	Number of Herds	Percent of Herds
Number of Routine Visits	15,971	84.9
Routine Visits Only	2,259	12.0
Routine Visits plus Recording Scheme	588	3.1
Total	18,818	100.0

However, more sophisticated schemes are now marketed by the leading group of veterinary practitioners. These are still not really fully fledged Herd Health Schemes. A proper Herd Health Scheme needs to have a "holistic" approach to preventing disease, improving and managing fertility, and maintaining cost effective nutrition for profitable milk production. Herd Health Schemes should also cope with infectious diseases such as BVD or Leptospirosis, as well as production diseases such as mastitis and lameness.

But we are making progress; some veterinarians are beginning to market such schemes, and increasing numbers are supplying less sophisticated but nevertheless useful services. However, it seems that farmers have not embraced these schemes - must there be something missing?

The schemes seem to have been developed too much on the technical aspects. Veterinary schools do teach techniques and skills effectively, and after practice in the field, veterinary graduates are very competent in these clinical skills. There appears that there is still a desperate shortage of undergraduate education that deals sufficiently with the aspects of cost benefit, investment appraisal, marketing, the epidemiology of herd health, and of farm management. Topics are dealt with on an individual animal basis, when what is really needed is a herd, farm or whole business attitude.

A proper "Fertility Scheme" is defined as regular visits to the herd to inspect animals suffering delays in insemination or in conception, *and* the keeping of records for the individual animals.

In England and Wales only 3.1% of herds have such a scheme, though 12.0% just receive the regular visits. In terms of veterinary practices, only 31.2% offer a full "Fertility Scheme", with 50.3% practicing regular visits to some herds at least. Nearly one in five (18.5%) veterinary practices with large animal clients do not offer such a scheme at all to their farmers.

Generally, Herd Health Schemes are operated by the larger veterinary practices in the predominantly dairying areas in the country. It is estimated, on this basis, that about 300 of the practices in the U.K. are likely to be in a position to run a full Herd Health Scheme.

This figure, based on a large survey, is derived by adding together one quarter of the responding veterinary practices with less than 20 herds, one third of those with 21 to 40 herds, all of those with more than 40 herds, and 30% of the 252 non-responding practices (Wassell and Esslemont: 1992).

Herd Health Schemes

What is a Herd Health Scheme? It is time that a Herd Health Scheme was properly defined. There is more to a Herd Health Scheme than carrying our pregnancy diagnosis though, to the majority of dairy farmers, that is practically all that is supplied when such a scheme is marketed.

A proper Herd Health Scheme (HHS) today consists of:

- The appraisal of Herd Resources (including Staff Performance).
- A Plan, with particular Objectives, covering Cows and Youngstock.
- Regular Veterinary Visits, Inspection of the Resources and Examination of the appropriate cows, treating them with Cost Effective Treatments.
- Regular Blood and Milk Testing for Disease.
- Vaccination Routines - worming treatments, etc., organized.

- Buildings and Environmental Monitoring. Inspection of milking machines, parlors, calving boxes, cubicles, gateways, tracks and walkways, as well as calf rearing facilities.
- Computerization of all Animal Records, regular Updating and Reporting - Action Lists, Analysis and Trend Charts; Creation of Interference Levels; Advice when under-performing.
- Indexing Performance, showing the Costs of Under-performance in each of the main Parameters.
- An Annual Report, appraising the performance so far, proving the benefits and indicating the way that the Herd Health Scheme should be tackled in the next twelve months. This should include an Analysis of the cost of the veterinarian's bill, and the value of the benefits of the improved performance.

Who Uses a Herd Health Scheme?

The following factors determine the uptake of a Herd Health Scheme:

- Herd Size (larger ones use more).
- Farm Size (larger ones use more).
- Calving Pattern (Seasonally calved herds use more).
- Education (the more education, the more Herd Health Schemes).
- Progressive nature (Scored by the use of modern treatments and attendance of Technical Meetings).
- Membership of a Breed or Agricultural Society.
- Farm is run by a Farm Manager (who wants to cover himself).

Those farmers who do not use a Herd Health Scheme give their reasons as:

- They "do not have problems."
- The Turnaround of output in the practice is too slow.
- The Herdsmen are "not up to the Scheme", or do not like the computer output.
- Basic Record Keeping is too poor.
- The farmer is making enough profit anyway.
- They do not "perceive" the benefits.

The successful operation of a Herd Health Scheme is dependent on certain features of the Veterinary Practice:

- A Commitment made by the Practice to get involved with a Herd Health Scheme.
- A willingness to Appraise the Practitioners in the practice to see if they have the skills/commitment.
- Market Research; Analysis of the Client's herd, by Size, Calving Patterns, Education - Progressive Score etc.

- Categorization of each Herd into an "Uptake Score" and Identification of the Key potential farms.
- Selling Skills, to get the herd started; the willingness to Enter and Analyze the Backdata.
- Setting up a Pricing System for the new Service.
- Setting up Practice Meetings for users, producing Newsletters, running League Tables, including Training and Interpretation.
- Carrying out Financial Analysis.

One way around some of the resistance to the Herd Health Scheme (both in the practice and on the farm) is to reduce the cost of its provision, by offering neighboring farmers a "split" visit on the same day, so the turnout fee and the travel costs are shared.

Another way is to offer "passing visits", so that farmers are visited at short notice, and offered a Herd Health visit when the veterinarian is going to be in the area on "fire brigade" or other unplanned work.

The farmer may be more receptive to several smaller bills, rather than occasional big ones, so frequent short visits are a good idea.

How to Operate a Successful Herd Health Scheme

A practitioner (Green, 1993) who has recently tackled the provision of a Herd Health Scheme for his clients (in an area where this had not been attempted before) found the following factors (in addition to those highlighted earlier) were important:

- Develop an "Enthusiasm" (this is infectious).
- Become an Expert in the Service you are to provide, both in the veterinary matters and in communication.
- Learn the operation of the computerized Recording System on a few pilot herds. Use those herds where the farmer is cooperating fully in the trial for the Practice's sake.
- Establish and Record the Farm Background, Objectives, Targets, Aspirations, Staff and Limiting Factors.
- Understand the Financial Constraints if possible (the seriousness of the borrowing, who owns the equity in the farm, etc.).
- Know who else is advising the farmer - will they cooperate, or are they competing?
- What are the "Rules" of the farm? Go through a Checklist and keep a record of:
Calving Season - Dates

Serving Season - Dates

Voluntary Waiting Period (days) - Early
Mid Season
Late Season

Heat Detection Routines - Number of times a day
Heat signs used

Insemination Routines - DIY A.I. (who)
Commercial A. I. (who)
Performance

Insemination Rules - Number of Hours delay after
a Standing Heat
When is a Double Service
used?

Pregnancy Diagnosis - What Routine is used e.g.
Milk Tests - How
Weekly
19 Day
24 Day
Ultra Sound Scanner
Veterinary Practitioner
Treatments safe to use

Cows for the Vet to See - Which Categories covered?
Check List - how is it used?
Milk Progesterone Test

Semen Supplies - Who from?
Where stored?
How often checked?

Feeding Practices - Risk? Stress Periods (e.g.
Summer, Autumn, Christmas, February, Turnout)
Housing in Winter; how is it organized?

Turnout in the Spring - Are the Cows still being
served?
Other Tricky Times
(Harvest, February, Christmas, September)

Natural Service - Which Bulls and Whose?
How are they Inspected,
Health Check?
What practice is adopted in the
use of Natural Service, Hand
Mated?
Running with the herd?
Close Season
Breed?

Ease of Calving of Bull	Ad Lib/Controlled
Time on / Time off	1/2/3 x Daily Feeds
Risk of Damage, Disease or Infertility	Use Mastitic Milk?
	Use Colostrum?
Calving Interference - Rules for Help at Calving	Weaning Age Target - Age (Weeks)
	Weight (kgs)
Retained Foetal Membrane - Action taken by Herdmen and Farm Staff	Weight at Six Months (Target kgs)
	Weight at Service (Target kgs)
Vulval Discharge - Inspection and Action Taken	Age at Service (Minimum)
Postnatal Check - Which Categories Checked?	Bulls used on Heifers:
	A.I. Dairy Breed - How are These Selected?
Pre Breeding Exam - Which Categories Checked?	Natural Service - How are these Selected?
	A.I. Beef Breed - Selected?
Oestrus Not Observed - Inspection Carried out	Natural Service Beef Breed - Selected?
Criteria for inspection	Weight at Precalving and Calving
Failure to Conceive - Criteria for inspection	
Destination of Milk - Time of day of collection	Records and Computer on Farm; Its Management and Use
Number of times per week	Name of Company - Farmplan
Who is it Sold to	Hylton Nomis
Specification of the Contract - High/Low Butterfat	DAISY etc.
High/Low Protein	
? High Somatic Cell Count Band	Other Schemes; Recording Systems - NMR
? High Total Bact. Count Band	Herdwatch
Other Aspects of Specification	SCC
	Datastream
Parlor/Machine Inspection - Who carries it out?	Herdfile
When is it done?	Herdsmen
	DAISY/Merit
Foot Trimming - Who does it?	Milk Minder
When is it done and how often?	Milk Cheque
What Cows are Inspected - all or some?	
How is it done?	Farmers Own Cow Cards
	Veterinary Cards
Breeding Goals - Sire/Cow Selection	Herdsmen/Staff; Education
Breed Society Member or not	Strengths
Objectives at Shows/Sales	Weaknesses
Pins - Objectives	Rotas
Type of Score; Udder, Teats, Feet, Legs, Other Dairy Type	Days of Week when certain Duties are carried out - Vet Day
Longevity Targets	Foot Trimming
	Slurry Movement
Heifer Rearing - Home Reared	Bedding Up
Bought in	Other Duties of Stockmen -
Reared on Agistment	Silaging
Procedures - Calf Milk; Powder/type Hot/Cold	Harvesting
	Bale Carting

Table 2. Herd Fertility Standards and Targets Standards to Aim for in Herd Fertility.

(In the Determining Factors marked *, the Targets have to be achieved in all parameters to achieve the Fertex Score of -5 or better)

Determining Factors:	
Factor	Target
Proportion Served After Calving (%) *	92 or more
Mean Interval to First Service (Days) *	65 or Less
Proportion Served at < 40 Days Post Partum (%)	Not important on its own, 7% is normal, but check the Pregnancy Rate and 24 Day Submission Rate
Proportion Served at > 100 Days Post Partum (%)	7% or Less
First Service 24 Day Submission Rate (%) *	More than 55%
Returns to Service Heat Detection Rate (18 - 30 Days)	More than 55%
First Service Pregnancy Rate (%)*	More than 52%
All Services Pregnancy Rate (%)*	More than 52%
Returns at 25 - 30 Day Intervals (%)	Not important on its own, but see the 18 - 30 Day Returns, and the Pregnancy Rates
Standards:	
Resulting Performance	Target
Proportion Conceived of Served (%)	91% or More
Proportion Conceived of Calved (%)	83% or More
Proportion conceiving at more than 120 Days Postpartum (%)	< 20%, but see Proportion Conceived of Calved
Mean Number of Serves per Conception	1.9 or Less
Cows Completing a Normal Lactation (%)	80% or More
Proportion Dried Off of Calved (%)	83% or More
Mean Lactation Length (Days)	293 Days or More
Proportion of Herd actually Recalving	82% or More
Mean Length of Dry Period (Days)	60 Days or Less
Mean Calving Interval (Days)	370 Days or Less
Proportion of Herd Culled in Total (%)	18% or Less
Calving - Interval - Adjusted Recalving Rate (%)	80% or More
Fertex Score	- 5% or Better

Table 3. Levels of Health Problems in Dairy Herds.

Nine Health Problems in the Dairy Cow are considered; Twinning, Dead Calves, Aid at Calving (Dystocia), Milk Fever, Retained Fetal Membrane, Vulval Discharge, Oestrus Not Observed, Mastitis and Lameness. The Mean Incidence of the Health problems and their Quartile distributions are seen below.

	Mean	Lowest Quartile	Second Quartile	Third Quartile	Highest Quartile
Grade		A	B	C	D
Twin (Cases / 100 Cows)	3.89	1.97	3.06	4.16	6.33
Dead Calves (Cases / 100 Calves Born)	7.29	3.66	6.32	8.22	10.9
Aid Calving (Calves / 100 Cows)	9.51	1.96	4.7	9.25	21.83
Retained Fetal Membrane (Cases / 100 Cows)	3.87	0.83	2.05	3.42	9.07
Milk Fever (Cases / 100 Cows)	6.26	1.42	3.78	6.73	12.97
Oestrus Not Observed					
% of Herd Affected	32.19	12.18	26.51	37.72	52.02
No. Treatment / Affected Cow	1.47	1.19	1.13	1.53	1.83
Treatments / 100 Cows	50.66	14.6	34.26	56.88	95.87
Vulval Discharge					
% of Herd Affected	14.92	3.71	10.51	18.23	26.94
No. Treatment / Affected Cow	1.42	1.13	1.42	1.46	1.68
Treatments / 100 Cows	21.76	4.27	13.83	24.63	43.81
Mastitis					
% of Herd Affected	22.02	7.98	17.82	25.9	36.12
No. Cases / Affected Cow	1.56	1.18	1.41	1.61	2.02
Cases / 100 Cows	37.12	9.52	24.85	40.4	72.96
Lameness					
% of Herd Affected	20.43	5.4	12.24	24.44	39.13
No. Cases / Affected Cow	1.45	1.18	1.29	1.48	1.8
Cases / 100 Cows	35.57	6.19	16.03	36.16	74.79