The Dairy Herd Health Program Method*

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To give an air of reality to this, I am going to confine my description of the method to one farm, the best one in our group. It is an irrigated, intensively farmed, highly productive unit but requiring some supplementary feeding in winter. *(Dr. Blood presented several color slides of the farm. Ed.)*

The buildings do not include accommodation, but they have adequate yards and a herringbone milking parlor. There is also a special area for insemination, pregnancy diagnosis and the like. The cows are a mixed lot, mostly Holstein. Identification is by a freeze brand on the thigh—this identification being simplest in the milking parlor. That will set the scene for you.

The method actually used is in five steps.

The First Step is that the farmer is advised that we will be making a regular monthly visit on such and such a day, and that we nominate certain cows to be kept in for examination or treatment. The farmer may add others for his own reasons. The reasons for *our* nominations are set out in the advice note. The categories are set out in Figure 14.

Figure 14.

Univ. of Melbourne Dairy Herd Health Service
List of Cows Required _____
Property _____
Date of Visit _____

Cow Ident.	Exam	Cow Ident.	Exam
eg	PD	Pregnancy diagnosis	
eg	NVO	No visible oestrus	
eg	FTC	Failure to conceive	
eg	E	Endometritis	
eg	RC	Recheck	
eg	RCE	Recheck endometritis	
eg	DOX	Drying off examination	
eg	Other	Total	

You will be intrigued by our spelling of oestrus. This a cyclical activity and I'll tell you at the end of the cycle how we select the cows to be examined. The whole process is necessary because everything is pastoral and cows to be examined have to be kept in the yards and miss their milk-making hours at pasture.

The Second Step is to visit the farm and carry out the necessary examination. We have the cow's history with us as we have the history of all the cows, in the shape of last month's printout in a loose leaf binder. The description is cryptic, and I searched for a long time to find one with so much data as this one. I had it typed out so you can read it. If you are used to reading print-outs (Figure 17) you will soon pick up which are events and which are dates. So, this cow calved on 30 Nov. 72. (Oh yes! Besides spelling estrus with an "o" we also put the day before the month!) It was a heifer calf for rearing. On 1 Dec. 72 she had milk fever and was

Figure 17.

(187) 0076 LAC5 *****DUE TO CALVE ON 21/02/74

CALVED0110	301172	METABLF310	011272
MISDRGIV92	011272	HEATNSH000	161272
SERVEDAFSN	160173	SERVEDAFSN	060273
SERVEDAFSN	230373	MASTITF146	290373
NOTPRGR900	170473	MASTITF146	230473
SERVEDAFSN	110573	SERVEDAFSN	140573

MISDRGTF92	011272
HEATNSH000	271272
MASTITF146	140273
FTCFTCV734	170473
MASTITF146	100573
PREGNTR101	170773

treated by the farmer on the same day with a mineral injection!—and treated by a veterinarian on the same day with the same treatment.

She had a heat but was not served on 16 Dec. and again 11 days later. Then there's quite a bit more activity and on 17 April 1973 she was checked for pregnancy but was not pregnant. On 23 April she had mastitis and was treated by the farmer with treatment No. 146. This sequence was repeated on 10th May. She was served artifically by Friesian bull SN on 11th May and again three days later, presumably an oestrus detection error, and was diagnosed pregnant 64 days later. The only thing in her record which suggests that she be kept for examination is that she calved 12 months ago and is due to calve in 2.5 months. She would

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be kept in for a mastitis checkup at drying off.

That examination would be done at the routine visit and the findings recorded. The same thing is done for all other examinations and treatments. These are largely related to reproduction efficiency. Also at the visit we check up on what has happened in management since last visit.

We need to discuss how any recommended procedures in last month's report have worked out.

It's all very serious but every now and again you come across something hilarious in the printout!

Also, at this visit it is necessary to run through a check list of hygiene and other preventive measures. These are extracts from the check list to give you some idea of the question asked (Figure 22).

Figure 22.

Univ. of Melbourne Dairy Herd Health Service
Monthly Management Questionnaire
Interviewer _____
Property _____
Interval _____

BREEDING PROGRAM
Desired calving-to-conception _____days.
Shortest calving to breeding interval permitted _____days.
Reason for breeding deferral.
Any change in use of bulls or A.I.
Oestrus detection by HMD/intensive field/normal field and shed.
Estrus to breeding interval _____hrs.

If this is not done, one is apt to miss that changes have been made that could damage reproductive or mastitis or other performance (Figure 23). That terminates the veterinarian's activity, and he returns to base and passes all his information to the data analyst. Some of it goes by the mastitis or general microbiology laboratory.

Figure 23.

MASTITIS CONTROL
Udder wash/back flush/teat dip.
Dry period treat/machine check.
Detection by floor/strip cup/in-line filter/palpation.
Treatments used. Teat dip _____
Dry period _____
Lactation _____
No clinical cases treated _____
Names of cows having repeated attacks.
Other diseases recorded this month.
Investigations in Process.

The data analyst sits down at our terminal and initiates the *third* of five *steps*. He is connected to the main University computer 20 miles away, and he types in, in code, the information we have given him.

That information is added to (a) the individual cow's own personal record—like the one I showed you; (b) the herd's total data bank and simultaneously produces an analysis of the herd's performance for the month, a monthly report; (c) at the end of the year an annual analysis carried out, to produce an annual report; (d) and the total data bank for all the herds in the service.

The Fourth Step. Three days after our visit, the data analyst sends a copy of the monthly printout to us and one to the farmer. This replaces the farmer's previous record which is destroyed, and it contains all data about performance of each individual cow. It also contains all the analyses of performance, like this one on reproductive performance (Figure 27). It also contains a list of cows

Figure 27.

University of Melbourne Dairy Herd Health Service
Monthly Report for the Period 19/6/73 - 17/7/73

Farm Code 001

2 Reproductive Performance

Distribution of the Herd in Reproductive Classes

253 (48.9%)	Cows not pregnant and milking
149 (28.8%)	Cows pregnant and milking
	147 by positive PD
	2 by 60 day non-return
115 (22.2%)	Cows dry
517	Total
0	Calf rearers

Pregnancy Checks

43	Cows examined in the period
0	Require rechecks
1	Pregnant to unrecorded service (2.3% excl. rechecks)
39	Pregnant to recorded service (90.7% excl. rechecks)
1.8	Average serves per conception
71.8	Average calving-to-conception interval

Calving-to-Heat 1 Intervals for Cows Calves in 4/73

90	Cows calved
86 (95.6%)	Showed heat by 60 days

which have had a sufficiently long lactation to warrant their being dried off. To make it easier for the farmer to decide whether he should do it now, we include relevant information on duration of pregnancy (Figure 31). For easier reading, and to

Figure 31.

University of Melbourne Dairy Herd Health Service
Monthly Report for the Period 19/6/73 - 17/7/73

Farm Code 001

4 Productivity of Cows Dried Off in the Period

Average calving-to-conception interval	76.8
Average stage of pregnancy	187.2
Average lactation length	260.8

Cows with a Drying off Examination and Pregnant
Drying off is assumed to be 7 days after the DOX

Name	Calve/Conceive Pregnacy Stage (Ideal 83 Days)	Lactation Length (Ideal 222 Days)	(Ideal 305 Days)
0002	114	204	318
0013	203	140	343
0015	36	158	194
0022	45	216	261
0035	105	213	318
0055	40	176	216
0110	60	214	274
0154	50	215	265
01638	65	278	343
0213	92	203	295
0256	46	207	253
0258	165	144	309

provide the veterinarian with an opportunity to comment and make recommendations where necessary, we provide a summary of the monthly report, and this extract from it shows the kind of comment made (Figure 28). What the veterinarian recommends if he sees a deteriorating situation and seeks to avert it is more or less dictated by a manual of most-favored treatment and control measures.

Figure 28.

University of Melbourne Dairy Herd Health Service
Monthly Report Summary
Reporter
Property. B'lands, Bacchus Marsh.
Interval

2. Calving-to-Conception Interval.
Your calving-to-conception intervals _____ days
Compared to preceding 3 months average _____days.
and target of _____days.
The performance is satisfactory/unsatisfactory due to heat detection/anoestrus/conception rate.

6. Mastitis.
Quarters treated for clinical mastitis _____
Quarters positive at drying off _____%
Compared to preceding 3 months average _____%
and target of less than 10 %
The performance is satisfactory/unsatisfactory due to teat dip/dry period treatment.

The Fifth and Final Step, or phase in the cycle, is initiated when the time approaches for the next visit which will begin the next cycle. We write to the farmer and ask for all the history which he has documented since our last visit. This will enable us to update all the records of individual cows so that when we go on the visit we know everything that has happened to them, particularly reproductive events and farmer diagnoses and treatments.

It is impossible to ensure that each farmer records *every* event that we want him to record, but we encourage him to do so by a device which has worked extraordinarily well. We provide him with a robust pocket diary which just fits into his shirt pocket. Each farm worker gets one. It completely replaces any wall chart or pocket book. The pages are in duplicate and self-carboned. When we call for his information, he pulls out each sheet and sends it to the data analyst but retains his own copy. The information is hand-written onto last month's print-out, and each cow is assessed to determine whether or not she comes into any of the categories on our examination schedule. Each cow that is nominated is included in the list of cows requested with which I began this cycle which now starts all over again. When this list is sent to the farmer just before the visit, we include the other part of the history-getting mechanism, which I have already described, the farm management questionnaire, so that the farmer can have it filled in when we arrive.

Retrospective Reporting

The monthly reports are largely predictive. On the basis of apparent trends in disease prevalence we suggest corrective measures before things get worse. We match this with a retrospective assessment of efficiency in each disease index based on a year's performance and matched against the pre-set target and previous performance (Figure 32). This is the annual report which includes analyses of

Figure 32.

University of Melbourne Dairy Herd Health Service
Annual Report Summary
Property: 01/06 Year: 1972 Date: 10.5.73

1. HERD DISTRIBUTION

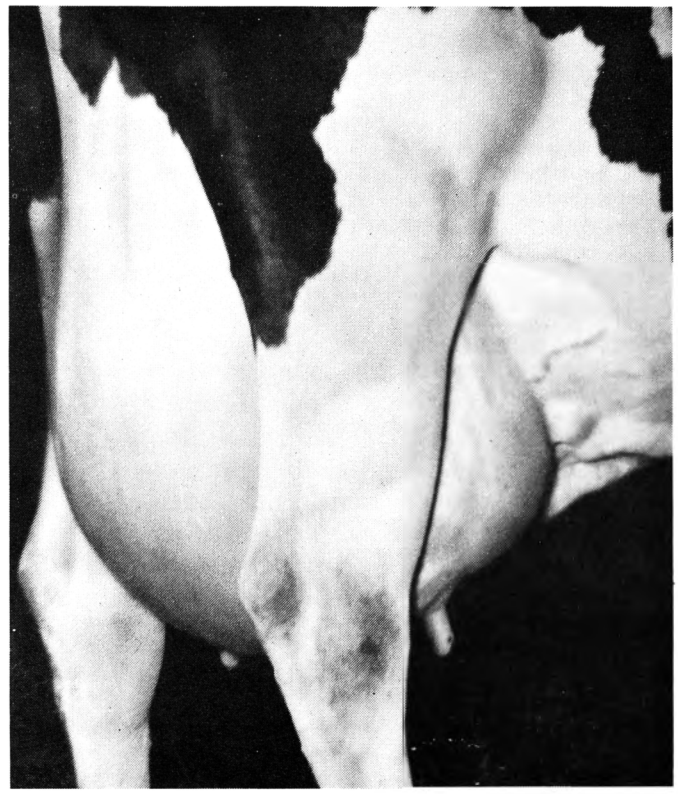
	NP & milking	P & milking	dry	
Your average monthly herd distribution is	40.0	37.7	22.3	% ('72)
Compared to preceding years' results	46.7	30.9	22.4	% ('71)
	48.3	27.9	23.8	% ('70)
and objective of just	40.0	43.0	17.0	%

performance /satisf./unsatisf.(/~~calving-to-conception/~~lactation length/)/ May have been ideal if mass drying off not necessary late last year.

LACTATION LENGTH
Your lactation length is 311.5 days ('72)
Compared to preceding years' results 321.7 days ('71)
307.6 days ('70)
And objective of 305 days
performance / satisfactory / ~~unsatisfactory due to:~~

2. CALVING-TO-CONCEPTION INTERVAL
Your calving-to-conception interval is 74.7 days ('72)
Compared to preceding years' results 108.5 days ('71)
110.4 days ('70)
And objective of 83 days
performance / satisf. / ~~unsatisf. (/heat detection/anoestrus/conception rate/)~~

Edema before treatment.



Improvement after Naquasone.

Both photos taken five hours before milking.

NAQUASONE®

Each bolus contains 200 mg. trichlormethiazide and 5 mg. dexamethasone.

Shrinks swollen udders and gets cows and heifers into normal production quicker.

Cows usually produce up to one-half of their total milk during a lactation period in the first 120 days after calving.

But untreated physiological parturient udder edema (caked udder) can keep first calf heifers off the milking line for weeks.

Edema can also shorten a cow's productive life by as much as three years, and can lead to permanent udder damage and infections such as mastitis.

NAQUASONE, the No. 1 medication for swollen udders, extends the productive life of your cows.

And it works fast. You usually see results in 24 to 48 hours, with the udder returning to normal in 3 to 4 days.

The diuretic in NAQUASONE quickly drains excess fluid trapped in the udder and prevents damage to suspensory ligaments, while the steroid reduces swelling and inflammation.

At the first sign of a swollen udder, start treatment immediately with NAQUASONE bolus. Your veterinarian has it. Just ask for the "big yellow pill." If mastitis is a problem in your herd, ask your veterinarian about our new MASTADOSE™ in MISCABASE™ syringe or our exclusive METIBIOTIC® Foam aerosol mastitis product.

Schering Corporation, Animal Health Division, Kenilworth, N.J. 07033.

Clinical synopsis: Response: visible in 24-48 hours; average recovery in 3-4 days. *Precautions:* veterinarian should be aware of the possible side effects of dexamethasone such as suppression of inflammation, reduction of fever, increased protein degradation and its conversion to carbohydrate leading to a negative nitrogen balance, sodium retention and potassium diuresis, retardation of wound healing, lowering of resistance to many infectious agents such as bacteria and fungi, reduction in numbers of circulating lymphocytes. *Contraindications:* animals with severe renal functions, impairments and untreated infections. *Warnings:* Milk taken from dairy animals during treatment and for 72 hours after the latest treatment must not be used for food. Clinical and experimental data have demonstrated that corticosteroids administered orally or parenterally to animals may induce the first stage of parturition when administered during the last trimester of pregnancy and may precipitate premature parturition followed by dystocia, fetal death, retained placenta and metritis.

Schering

Available only through veterinarians.

Figure 33.
Extract From Annual Report. Summary. Herd 01/06.

2. CALVING-TO-CONCEPTION INTERVAL

Your calving-to-conception interval is	74.7 days ('72)
Compared to preceding years' results	108.5 days ('71)
	110.4 days ('70)
And objective of	83 days
Performance/satisfactory.	

3. PREGNANCY AT PREGNANCY CHECK

Cows pregnant at D.O.	99.6 % ('72)
Compared to preceding year's results	98.9 % ('71)
	94.1 % ('70)
And objective of	100 %
Performance/satisfactory.	

4. COWS ON HEAT BY 60 DAYS

Cows on heat by 60 days	93.0 % ('72)
Compared to preceding years' results	62.5 % ('71)
	59.0 % ('70)
And objective of	100 %
Performance/satisfactory	

5. FIRST SERVICE CONCEPTION RATE

Conception rate at first service is	47.1 % ('72)
Compared to preceding years' results	55.9 % ('71)
	61.1 % ('70)
And objective of	> 65 %

Performance/unsatisfactory due to:? Earlier breeding will be playing a part in reducing conception rates, but the intercalving interval is what really counts.

6. MASTITIS

Quarters treated for clinical mastitis: 82

Quarters positive at drying off	15.5 % (72)
Compared to preceding years' results	26.1 % ('71)
	17.3 % ('70)
And objective of	< 10 %
Performance/unsatisfactory due to:?	

10. OTHER DISEASES

Sporadic calf deaths are the only diseases of any significance other than mastitis and infertility.

Figure 34.
Extract From Annual Report. Summary, Herd 01/06.

10. OTHER DISEASES

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11. VETERINARY EXPENSES

The total herd health visit fee was	$1062.90
At standard fee rates would have been	$1175.47
Other veterinary costs for the year were	$ 342.07

12. RECORDING EFFICIENCY – Satisfactory.

13. PROFITABILITY FOR 1972

Based on a comparison of current performance with the situation in your herd prior to the introduction of the herd health program, the estimated net profit of the service in your herd is:

Mastitis control	$16.00 per cow
Fertility management	$20.00 per cow
Control of other diseases	$nil per cow
Total:	$36.00 per cow

SIGNED: There is a marked improvement in reproductive performance since 1971, and it is now ideal. – Norm Williamson

reproductive efficiency (Figures 33 and 34), mastitis index, and other diseases. These are usually minor in our environment, but the report may include a high prevalence of a disease and indicate where to concentrate disease control efforts next.

This report also contains information of emergency treatment costs, herd health costs, and an estimate of profitability.

We have an *annual meeting with each farmer* to discuss the performance as set out in the annual report. If necessary the targets are adjusted. Long-range plans for disease control measures may be introduced. We do this largely by checking with the farmer a list of management procedures on his breeding management (Figure 35) and on his milking procedures (Figure 36).

Figure 35.
University of Melbourne Dairy Herd Health Service
Annual Farm Profile Questionnaire
Property: Interviewer:
Address: Date:
For Year:

Private Veterinary Practitioner
Name:
Address: Phone No.:

BREEDING PROGRAM
/stud/commercial/
/AI all cows, bull heifers/AI part cows, bull heifers/bull for all/
/all dairy bulls/% beef bulls_____/
/all replacements home-raised females brought in/bulls brought in/
male calves sold at average_____days.
females calves_____% sold.
female calves sold at/less than one week/weaning/joining/springing/
female calves _____% reared for replacement.
heifers joined at _____months.

desired calving pattern	J	F	M	A	M	J	J	A	S	O	N	D
heifers												
cows												

desired calving-to-conception interval_____days.
shortest calving-to-breeding interval permitted_____ days.
oestrus-to-breeding delay_____ hours.
oestrus detection/HMD/intensive field/normal field and shed/

Figure 36.
Extract From Annual Farm Profile Questionnaire
MILKING PROCEDURE
am milking _____ a.m.; p.m. milking_____ p.m.
number of men in shed_____.
average duration of milking per day_____hours.
number of sets_____
machine brand_____; maintenance/annual/as required/

shed	(herringbone)	single)	low line)	
	(walk-through)	doubled-up)	high line)	
	(other)			
udder wash	(hose)	fed in bail / yes / no /		
	(common cloth)	water supply	(excellent)	mains)
	(paper towel)		(moderate)	bore)
			(meagre)	dam)

MASTITIS CONTROL
/udder wash/back-flush/teat dip/dry period treatment/detection method/floor/strip cup/in-line filter/palpation/
Products used: dry period treatment:
lactation treatment:
teat dip:
udder wash:

This is a more detailed exercise than the one we conduct in five minutes at each monthly visit. It

(Continued on page 56)

accessibility to cattle. Insecticides, herbicides, and fungicides are routinely and haphazardly applied to animal and environmental surfaces alike. Drugs are considered to have therapeutic effects; but disregard for recommended dosages can result in poisonings.

Failure to provide satisfactory storage facilities for animal feeds and the improper preservation and handling of feedstuffs allow the development of a variety of mycotoxins.

The dependence of animals upon their owners for the total environment makes these animals susceptible to environmental pollutants. Exposure to noxious gases, irritating and hazardous industrial materials and wastes, water contaminants, and casually discarded compounds of man's own use can result in illnesses and death. As long as such potentially toxic materials exist and are utilized, the hazards for cattle will be a prominent concern of the bovine practitioner.

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The Dairy Herd Health Program Method

(Continued from page 14)

enables us to find out exactly what the farmer is doing in his management, or conversely, to convey to the farmer exactly what we suggest he do in his management.

At an annual meeting with all the farmers in the group, the average performance of all herds is discussed, and an anonymous list of individual herd performances. Each farmer can see where he is in the efficiency order, learn what the potential is, and in the discussion, what are the techniques which are best used to achieve it. These are good meetings for us to measure consumer resistance to new procedures we would like to introduce, like a rise in fees.

Conclusions

Well, that is the system and I hope you were not too confused. It is a difficult subject to describe in detail in a few minutes, but I could see no point in discussing the subject only in generalities. Consideration of the detailed workings of a program such as this is one of the two important ways of conveying whether or not it is practicable. The other important way of demonstrating practicability is by demonstrating that the desired results can be achieved. I think I have done that in the mastitis paper and I hope to add to that in the talk on fertility tomorrow (see other paper). Those results should convey the impression that in our hands it is a practicable program. However, in spite of anything I may have said or may still say about its virtues, and I am inclined to exaggerate to make a point, the cold fact is that it is a provisional program and very much on trial in a full commercial situation.

We have every confidence in it in the rather narrow limits of a high-priced liquid milk production system.

Although we think it can be readily adapted to dairy herds producing milk for processing into other dairy products, especially butter, and to beef herds, we have not had enough experience in these areas to say how the adaptation should be done.

Editor's Note: For an extensive discussion of this and other programs, please refer to pages 13-26, Proceedings of the 1973 AABP Convention.

Embryo Transfer in Cattle

(Continued from page 26)

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