

A SYSTEM FOR RECORDING AND PROCESSING REPRODUCTION AND VETERINARY DATA FOR DAIRY HERDS USING A MICROCOMPUTER.

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SUMMARY

A computer program suitable for use on a small micro-computer has been developed to store and process all useful reproductive details of a commercial or experimental dairy herd. Inputs, recorded as they occur in a field diary, are entered into the computer to provide a current summary of the reproductive performance for each cow in the herd. At the end of the mating season, a final summary of all relevant reproduction parameters is made available. The program also collates data on post-partum anoestrous and conception rates which are of potential use to reproductive physiologists.

INTRODUCTION

Accurate records of the reproductive performance and veterinary history of dairy cows is important if farmers are to readily identify unsatisfactory mating management or poor reproductive performance of individual cows, or of the herd as a whole. With comprehensive record keeping farmers can identify cows which need culling for poor reproductive performance or a poor health record. Moreover the successful operation of feed budgeting is dependent on having readily available, the predicted calving dates of all cows in the coming season (Gallagher and Brightling 1981).

A real practical problem is that the work involved in such record keeping can impose a heavy load on those who do keep records. This can discourage those who do not like, or do not appreciate, the benefits of good record keeping.

For a number of years, computer based recording systems have been available to Australian dairy farmers through the "Whole Herd Health Program", conducted by the Veterinary School of the University of Melbourne and other organizations (Williamson 1982). These systems have been operated on main frame computers. Accordingly they involve processing costs as well as a certain delay in the return of processed data to the farmer.

To make data processing of herd records more convenient and potentially cheaper for farmers, we have developed a program suitable for use on a micro-computer. It offers very convenient input of data while providing a comprehensive output of information needed for good management decisions.

Our program also collates data. Although this information may not be of immediate use to the individual farmer, it can provide a very useful pool of information for veterinarians and reproductive physiologists.

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DATA INPUT

All relevant data is collected by the farmers in the field and is initially entered into a pocket diary. For every entry there is a record of the date, the identity of the cow and the type of event involved, viz :

Calving	(C)
Heat	(H)
Pregnancy Diagnosis	(PD)
Veterinary	(V)
Disposal	(D)

With calving, the sex and identification of the calf is also recorded; when a cow is on heat and is mated, the identity of the bull is entered. With a veterinary entry, the category of disease and minimum details are recorded viz :

Calving Problems	- abortion, dystocia, metritis, artificial induction, retained foetal membranes.
Metabolic Diseases	- Acetonaemia, grass tetany, milk fever, other.
Mastitis	- Identification of infected quarter.
Feet Problems	- Identification of affected foot.
Other	

In the event of disposal of a cow there are three subcategories together with reasons for disposal :

SUB CATEGORY	REASON FOR DISPOSAL
Died	low production, bad teeth, udder problems,
Dried off	temperament, poor feet,
Sold	empty, other.

Additional information of an exceptional nature e.g. "cow fell in creek and got pneumonia", can be entered in the field diary but may be entered in the computer only in a general way under the category "other". However, having both the record of the date and the identification of the cow, the farmer can readily return to the original diary entry to obtain full details. The same will apply to any details of veterinary treatment which are not entered into the computer.

Data can be entered into the computer from the field diary whenever convenient, but weekly is recommended.

The format of the diary and a typical page is shown in Figure 1.

Date	ID	Event	Details
15/7	137	C	M, 826
15/7	T36	H	Captain
15/7	642	H	
16/7	137	V	Milk fever
16/7	356	D	Died of bloat
17/7	243	V	Mastitis, # 1
17/7	342	V	Feet, # 3
19/7	138	D	Sold, bad kicker
20/7	137	V	R.F.M.
23/7	367	P D	Positive
			etc..

Figure 1. Representative page of field diary.

OUTPUT

Each week the program can print out an updated 'wall sheet' which lists identification of cows, calving dates, and dates of oestrous and mating based on three weekly intervals after calving (Figure 2). This output replaces the "wall sheet" currently drawn up manually by most farmers.

Data for week ending 15/1/84
Oestrous and mating (*) dates

Cow #	Calving	Weeks after calving								
	Date	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27
814	14/8	-	-	15/10	-	5/11	6/12*	29/12*		
V2	16/8	-	-	30/9	-	-	2/12*			
										etc..

Figure 2 Sample of "Wall Sheet" prepared by computer.

Also on a weekly basis the program will provide a list of all cows which have reached 42 days post-calving but have not yet been observed in oestrous. It also lists those cows which have had oestrous cycles of abnormal lengths (<18, 24-36 and >44 days) so that they can be examined or treated by a veterinarian.

Every second week a list of cows which have reached two months of pregnancy, based on the date of last mating, is printed so that they can be examined for pregnancy diagnosis.

At the end of the mating season, or at any other time if requested, a summary of the reproductive performance of the herd is prepared. For each cow that has calved, this summary includes :

- * the expected date for her last calving, the actual date, and the difference between the two.
- * her post-partum anoestrous interval.
- * the number of times she was mated and the bull to which she was last mated.

- * her expected calving date for the next season and expected calving to calving interval.
- * details of why and when she was removed from the herd (if applicable).

A list of expected calving dates for next year is prepared in both serial order of the cow's identification and in chronological order.

For the herd as a whole, the following parameters are calculated :

- * average post-partum anoestrous interval.
- * accuracy of heat detection.
- * submission rate after 28 days of mating (only with seasonal calving herds).
- * distribution of inter-oestrous intervals.
- * average number of services per conception, and conception rate.
- * average calving to calving interval.
- * number of empty cows.

A summary of all recorded veterinary problems is also provided on request.

In addition to the above details which are of immediate relevance to the producer, the program is capable of collating :

- * the effect of date of calving on post-partum anoestrous
- * the effects of number of cycles after calving on conception rates
- * the effect of interval since calving on conception rates.

CONCLUSION

This program has been used for several herds at the Dairy Research Institute and found to involve less time than the minimal recording using a manual system. It has also been most effective in readily providing all relevant information for herd management, and in highlighting problem areas that require attention. We believe that it would also be most useful for the managers of other experimental or commercial dairy herds.

REFERENCES

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