It has a very good side benefit. It is all capital gains and so most dairymen like that very much!

If we can do all this, I think that we will be a success as practitioners because we will have a very successful and profitable client and that ought to make everybody happy. So, that is the purpose for doing it. The dollar seems to get more attention than anything I know of from most people.

The Implementation

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The implementation of a successful herd health program is dependent upon client education, a record system which permits periodic evaluation of results and disease prevention based on controlled research.

Client Education

Client education provides the foundation for a successful program. It should begin before the actual program and be used to plant the seeds of preventive medicine. Formal education can be provided by holding periodic meetings for all clients to discuss topics pertaining to the science of veterinary medicine (Figure 1). The outstanding clients who are selected for herd health programs can be given informal training in selected veterinary skills on an individual basis.

Client education has the following beneficial effects on practice:

1. Clients are taught the benefits of preventive medicine. As a result they regard herd health as an investment rather than a cost.
2. Clients will utilize higher levels of veterinary skills with the end result being a higher net income for both parties.
3. Practice growth largely depends on client education. Growth will occur in the direction desired by the local veterinarian with client education.
4. Clients are more appreciative of what has been done for their livestock when details of the condition are understood.
5. Educated clients are capable of providing better care for their livestock, which as a result have longer, more productive lives. Clients are also able to do a better job of follow-up on sick animals.
6. Clients use better judgment in making calls for veterinary service. They call earlier for sick animals and make fewer unnecessary calls.
7. Client-veterinary relationships are improved. Clients frequently call for advice on problems that formerly might have gone unattended.
8. Client education programs save the veterinarians time answering questions on the farm since many areas have already been discussed at meetings.
9. The local veterinarian is identified as a resource person interested in community continuing education and the welfare of his clients.

Many clients realize for the first time that the veterinarian who organizes these education meetings is interested in his problems. They become better acquainted, communications are improved, and the veterinarian is able to empathize with the client on common problems. The client realizes that the veterinarian is an equal who is his partner in profit. The net effect is enthusiastic, better educated clients in a more profitable, enjoyable practice. Can you think of a better way to improve your practice?

Records and Evaluation

Good records are essential to document the economic benefits of herd health programs. Clients should be introduced to records as part of the educational process which precedes the initiation of a program. Only those clients who do a reasonable job of record keeping are qualified for herd health programs.

I. Health Records—The system described here consists of a temporary Barn Sheet and a permanent Individual Cow Lifetime Health Record (ICLHR). Although intended to supplement each other, they are quite flexible and may be used either separately or together

to fit the needs of an individual dairyman. (A copy of this system and the records are available from the author).

A. Individual Cow Lifetime Health Record (ICLHR).

This record should be kept on each cow, starting at birth (Figure 2). An 8½" x 11" card that fits into a three-ring notebook is illustrated. At the top of the card are the numbers one through twelve, indicating the months of the year. Blue, white, and red signal tabs are placed over the corresponding number of the month when a cow is examined and found ready to breed; the month of service; and the month due to freshen, respectively. The location of these tabs enables the dairyman to determine at a glance the cows that are due to be dried off in a given month. He is also able to decide quickly which ones should be observed closely for estrus. Located beneath the numbers is a space to identify the individual and to record all the necessary information to complete a health chart at the time of show or sale. The top half of the front page is for recording the pre-breeding examination, estrus, breeding date, sire used, date examined pregnant, date due to calve, and date of calving. The bottom half of the page contains space to record the results of the examination and treatment of the reproductive tract. Columns are provided for entering the information found on examining the vulva and vagina, cervix, uterus, right ovary, and left ovary. There are additional columns for recording treatment and remarks.

The general health information is recorded on the back of the card (Figure 3). Here such conditions as indigestion, mastitis, pneumonia, and traumatic gastritis are recorded with appropriate information under columns for diagnosis, symptoms, and treatment. There is also a space to include the vaccination dates for such diseases as leptospirosis, IBR, shipping fever, mastitis, and bovine virus diarrhea. This record is copied in ink by the dairyman from the Barn Sheet following the veterinarian's visit.

B. Barn Sheet.

Before the visit, the dairyman organizes the work on the Barn Sheet (Figure 4). In stanchion barns, the records of cows due for reproductive tract examinations are placed on the front of the work sheet in the order in which they stand in the barn. The cows to be examined can be rapidly determined by the color and location of the signal tabs on the ICLHR. The dates of parturition, time of estrus, and pregnancy examination information are recorded under the appropriate column from the front of the ICLHR. At the time of examination, the dairyman accompanies the veterinarian and records the findings.

On the back of the Barn Sheet (Figure 5) are recorded the sick animals and their location in the barn, along with the pertinent history and symptoms observed. There is also a space for the veterinarian to record his findings, leave instructions to the owner, and indicate if milk is to be withheld due to antibiotic therapy. The barn sheet is usually kept on a clipboard beside the barn desk so that the veterinarian can quickly locate sick animals on emergency or routine calls.

II. Estrous Expectancy Chart. All estrous periods, regardless of when they occur, should be recorded on this chart. This information is helpful in estrus detection both before and after breeding.

III. Barn Breeding Chart. All cows should be listed in chronological order at parturition on this chart. The estrous and breeding dates should be added as they occur. This procedure facilitates the rapid detection of anestrous and repeat breeder cows.

The information recorded on the ICLHR, Estrous Expectancy Chart and Barn Breeding Chart should be summarized periodically to evaluate the results of the herd health program. They will be a reflection of the quality of management and veterinary care provided. Ideally an analysis should be conducted before the program is initiated in order to demonstrate program benefits.

The following factors should be evaluated and compared to the goal:

Criteria	Goal
1. Reproductive Efficiency	
A. Interval to First Service (days)	< 75
B. Services per conception	< 1.5
C. Repeat Breeders (%)	< 10
D. Calving Interval (months)	< 13
2. Calf Mortality (%)	< 5
3. Age at first parturition (mos.)	< 26
4. Culling Percentage (%)	< 20
5. Replacement Cost per Cow	< $25
6. Veterinary Cost per Cow	< $25

Top priority should be given to the areas causing the greatest economic losses. Certain areas such as the culling percentage should be investigated in detail to determine the reasons for culling. Less than 25 percent of the animals should be culled for disease conditions. The majority should be elective culling for reasons such as low production, poor type and dairy purposes.

Preventive Medicine Programs

After the seeds of preventive medicine are sown with client education and records, several outstanding clients should be selected for the program. It is a good idea to work for a client for at least one year prior to initiating a program. This gives the client time to develop trust and confidence in his veterinarian who can become familiar with the farm resources during all seasons of the year.

After using the records to evaluate the disease conditions on the farm, plans should be made to prevent and control the economically most important problems first. In a dairy herd, mastitis, reproductive disorders and/or calf diseases are frequently most important. The ideal time to initiate a mastitis control program is at the end of the lactation while reproductive and calf health programs should begin with proper feeding during the dry period combined with good sanitation and management at parturition.

When preventive medicine is established successfully in these high priority areas, the program should be expanded to include all areas of disease prevention. A complete program should be tailored to prevent disease for a whole herd on an individual farm basis, depending on the farm goals, management and resources.

The recommended veterinary procedures for dairy cattle are as follows:

I. Calves

1. All calves should receive colostrum within 30 minutes of birth.
2. Provide dry, draft-free housing with a clean feeding area.
3. Scours and pneumonia can be partially prevented by good nutrition, housing, sanitation and management.
4. Dehorn at two to eight weeks of age with an electric dehorner.
5. Vaccinate for brucellosis at three to four months of age if indicated and for IBR and BVD at 8 to 14 months.
6. Remove extra teats at the time of vaccination.
7. Toxic materials such as lead should be kept away from calves.
8. An internal and external parasite control program should be used when indicated by veterinary examination.
9. Calves should be examined periodically for ringworm and warts.

II. Heifers

1. Breed according to size rather than age (Holsteins 750 - 800 lbs.).
2. Breed to a registered dairy bull and grow heifers out properly to prevent calving difficulty. Insert magnet at time of breeding.
3. Provide well-drained pastures free of poisonous plants and metals.
4. Pastures should also contain fresh water and facilities for supplemental feeding, trace mineral salt, and minerals.
5. Try to prevent foot rot by eliminating mud holes and sharp objects from pastures and dry lots.
6. Continue parasite control program begun for calves.
7. Vaccinate for leptospirosis, black leg, and malignant edema in areas where present.
8. Follow the suggestions for calves that apply to heifers.

III. Cows

1. Build mastitis control around the dry cow with treatment at last milking. Teat dipping should be performed routinely after each milking.
2. Keep foot problems to a minimum with routine trimming.
3. Follow brucellosis and tuberculosis testing recommendations for the area.
4. Prevent hardware by keeping wire and nails away from cows. Be careful with field choppers.
5. Isolate all animals entering herd from shows or sales to prevent spread of disease.
6. Follow sound feeding practices to keep milk fever and ketosis to a minimum. Be careful not to overfeed the dry cow.
7. All animals that are purchased or offered for sale should be examined by a veterinarian for soundness.
8. Prevent bloat and indigestion with sound feeding and management practices.
9. Provide a well-bedded box stall at calving and observe closely.
10. Follow the suggestions for calves and heifers that apply to cows.

Prevention and Control of Reproduction Problems

The most important part of a herd health program is the one dealing with reproductive

problems. Much of the breeding trouble begins at calving. The examination schedule is designed to keep reproductive disorders to a minimum and have cows approach a 12-month calving interval. All cows should receive the following examinations which usually can be performed on a monthly basis.

1. Cows with a retained placenta should have special attention. They should be examined one to two times prior to breeding and treated as indicated.
2. Cows should be examined at 30 days after calving prior to breeding to make sure that the tract is free of gross infection and undergoing involution at the normal rate.
3. Cows with an abnormal discharge or cloudy mucus during heat should be examined to determine the source of infection and treated as indicated.
4. Cows not showing heat 45 to 60 days after calving should be examined so that a normal cycle will be present at breeding time.
5. Cows with abnormal heat cycles and heats should be examined to determine the nature of the hormone imbalance.
6. Cows bred two to three times should be examined the day after service to determine the cause of the breeding difficulty.
7. Cows should be examined for pregnancy 30 to 45 days after service to detect the open cows. All pregnant cows should be re-examined in 60 to 90 days after breeding to detect costly embryonic mortality in approximately 5% of the cows.

In conclusion, the following guidelines are proposed for the successful implementation of prearranged bovine herd health programs.

1. Initiate a client education program to plant the seeds of preventive medicine and maintain interest in the program.
2. Establish a record system and evaluate results to demonstrate economic benefits, management efficiency, and quality of veterinary care.
3. Select only outstanding clients for herd health programs.
4. The herd health program should be designed to prevent disease for a whole herd on an individual farm and be consistent with the farm's goals, management and resources.
5. Initiate a program in the area producing the greatest economic loss. Develop a complete program as rapidly as possible.
6. Base disease prevention and control procedures on controlled research and modern diagnostic techniques.
7. Provide good veterinary service at reasonable cost.

Figure 1. Client Education Meeting. Over 100 dairymen attended this meeting to learn about reproduction in cattle. It was sponsored jointly by the agricultural extension service and the local veterinarians.

1 2 3 4 5 6 7 8 9 10 11 12 Herd No. 44

INDIVIDUAL COW LIFE TIME HEALTH RECORD

Name HILLSIDE SUPERIOR'S SALLY Born 7-15-63 Reg. No. 2231126

Sire IDEAL'S PATTY'S SUPERIOR Date Vac. 1-25-64 Ear Tag No.

Dam HILLSIDE SENSATION'S MELBA Vac. By R.A. JONES Vac. No.

Yr	Pre Breeding Exam	First Heat	Second Heat	Third Heat	First Service	Sire	Second Service	Sire	Third Service	Sire	Preg	Due	Date Calved
1965					1-22	52	2-13	61			9-1	11-23	11-21-65 BS
1966	1-1-OK	12-15	1-3		1-27	T.C.	2-21	T.C.			9-10	11-30	11-30-66 Hr.
1967	1-3 OK	12-21	1-11		2-3	94					9-25	11-13	11-10-67 Hr.
1968	12-20 OK	12-1	12-18		1-10	94					2-25	10-20	

Genital Tract Exam and Treatment

Date Mo.	Date Da.	Year	Vulva & Vagina	Cervix	Uterus	L O	R O	Treatment	Remarks
1	1	66	OK	OK	GOOD TONE	1/4" FOL	1/2" C.L.	NONE	HEAT 5-7 DAYS
1	3	67	OK	OK	OK	1" C.L.	OK	NONE	
11	12	67	OK	OK	RET PLAC	-	-	I.G. TERRAMYCIN	RECHECK
12	20	67	OK	OK	POOR TONE	OK	OVULATED	30 cc FURACIN	

Figure 2. Individual Cow Lifetime Health Record. The front of the card is used to identify the cow and record her complete breeding history (top). Notes from reproductive tract examinations and treatments are recorded (bottom).

General Health Record

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Extra teats removed 1-25-64 Magnet

Date Mo	Day	Year	Diagnosis	Symptoms	Treatment	Vaccination Dates
1	20	65	INDIGESTION	T 100.5, OFF FEED	3 CARMILAX	Lepto 5-1-66
12	10	66	KETOSIS	TPR NORMAL, KETONE 4+	500 cc DEXTROSE I.V. DRENCH PROPYLENE GLYCOL	5-5-67
12	25	66	KETOSIS	TPR NORMAL, KETONE 3+	500 cc DEXTROSE I.V.	IBR 1-1-67
						H.S. 7-1-64 7-7-65 8-1-66 8-5-67

LH 1	LF 2	RH 3	RF 4	Dry Treat	Mastitis Treatment Schedule		Mastitis
				11-1-66	ABN. DRY	10 cc FURACIN-PEN GEL	
				10-4-67	ABN. DRY	10 cc FURACIN-PEN GEL	
							V.D. 1-1-67

Figure 3. Individual Cow Lifetime Health Record. The back of the card is used to record general disease conditions (top), mastitis (bottom), and immunizations (right).

Record of Cows for Monthly Reproductive Examination

Name HILLSIDE Date 8-8-67 Barn Sheet

	Cow	Fresh	Pre-Breeding	Estrum	Bred	Pregnant	Remarks
1							
2	SONJA	6-29	8-8 OK	7-10, 7-28			O.K. TO BREED
3							
4	GRACE	6-10	7-15 OK	6-27			CYSTIC L.O. 10,000 CHORIONIC
5							WATCH HEAT 2-3 WEEKS
6	SUE	1-9	2-15	1-20	4-7		
7					5-14		
8					6-23	PRH	
9							
10	POLLY	2-16	3-20	3-21, 4-15	5-5		
11					6-1	PLH	
12							
13	LADY	4-7	5-12	4-20, 5-10	6-21	PRH	RECHECK
14							
15							
16							
17							
18							
19							

Figure 4. Barn Sheet (front). The dairyman records the reproductive history of each cow from the Estrous Expectancy Chart (Figure 1) and the Individual Cow Lifetime Health Record (Figure 2) prior to the veterinarian's arrival for the monthly reproductive examination. If a permanent record system is not kept, each cow is recorded on the Barn Sheet at parturition.

Record of Sick Animals

Cow	Fresh	Estrum	Bred and Pregnant (P)	Symptoms Noticed	Instructions to Owner ACUTE MASTITIS
NOVA	2-25	3-9		OFF FEED HARD QUARTER	✓ TREAT QUARTER P.M. 17900
MARY	3-1			OFF FEED DRY MANURE	KETOSIS DRENCH PROP. GLYCOL
PATTY	6-10	7-12 7-30	8-19 (P)	LAME REAR LEG	FOOT ROT - KEEP IN BARN
LUCY	8-4	8-24 9-12	8-5 (P)	DROP IN MILK	INDIGESTION - GIVE TONIC

Figure 5. Barn Sheet (back). General health problems are recorded by the dairyman. The veterinarian may enter instructions for aftercare. This record should be located on a clipboard near the entrance to the barn. It is especially valuable when the veterinarian comes and the dairyman is not home.