

# Milking Equipment and Mastitis Control: How to Make Milking Machine Companies Your Allies

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## General

Mastitis control is a hot topic at this time. Every magazine that you pick up talks about quality milk. Most dairy plants now pay extra premiums for better quality milk. Extension agents throughout the U.S. are promoting quality milk and the dairy farmers are starting to listen. But where is the veterinarian during all this excitement? Has the veterinarian been forgotten, or do most people think of the veterinarian only when a cow needs treatment for mastitis?

I have had the opportunity to be on many quality milk programs throughout the U.S. this past year, and in most cases the only mention of veterinarians is for treatment of sick cows. This really makes my hair stand on end, and I wonder where we made our mistake so that our name isn't first on the list of mastitis control. After all, who better than the veterinarian can look at the total picture at one time and put together a complete mastitis control program?

I think the real problem is the veterinary profession's image of diagnosis and treatment programs rather than management and profitability programs. Part of the blame is our own because our profession has been too busy treating sick cows, pulling calves, cleaning cows and trimming feet to worry about somatic cell counts. As the farmers become more aware of quality milk, they start to ask questions—and if the veterinarian doesn't give an excited and interested response, the farmer will most likely seek advice elsewhere.

## Mastitis Control Programs

Mastitis control has built my practice. The income potential from mastitis control alone exceeds most people's wildest imaginations. More and more veterinarians are getting involved in complete mastitis control programs, and finding out that these programs not only increase the profitability of the dairy farmer but also their own profitability. There is not a dairy operation that we go to that does not experience mastitis in one form or another. By getting involved, we can be the key person in

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every dairy operation's mastitis control program.

## Mastitis Triangle

Getting involved in mastitis control means we must get involved in the total program. We need to look at the MASTITIS TRIANGLE. This triangle is made up of the **cow**, the **man** and the **machine**. The key to our success is to deal with each part of this mastitis triangle and to pull the entire program together for the farmer.

## The Cow

The cow is the easy part. We must make sure that the farmer is keeping the cow clean, dry and comfortable 24 hours a day. Bulk tank culturing and individual cow culturing are areas in which we can help to identify specific problems so that we can design specific solutions. Getting involved in DHIA somatic cell count interpretation is important. I always use the "Graph for Udder Health" as a tool to monitor somatic cell counts (Fig. 1). This simple tool keeps the farmer aware and makes you part of the decision-making process. Using computer programs to evaluate and present useful information to the clients is also helpful. Each month our clients are sent a bulk tank contribution list for them to use in mastitis control (Fig. 2). This simple program has made our dairy producers more aware of the importance of each individual cow to quality milk.

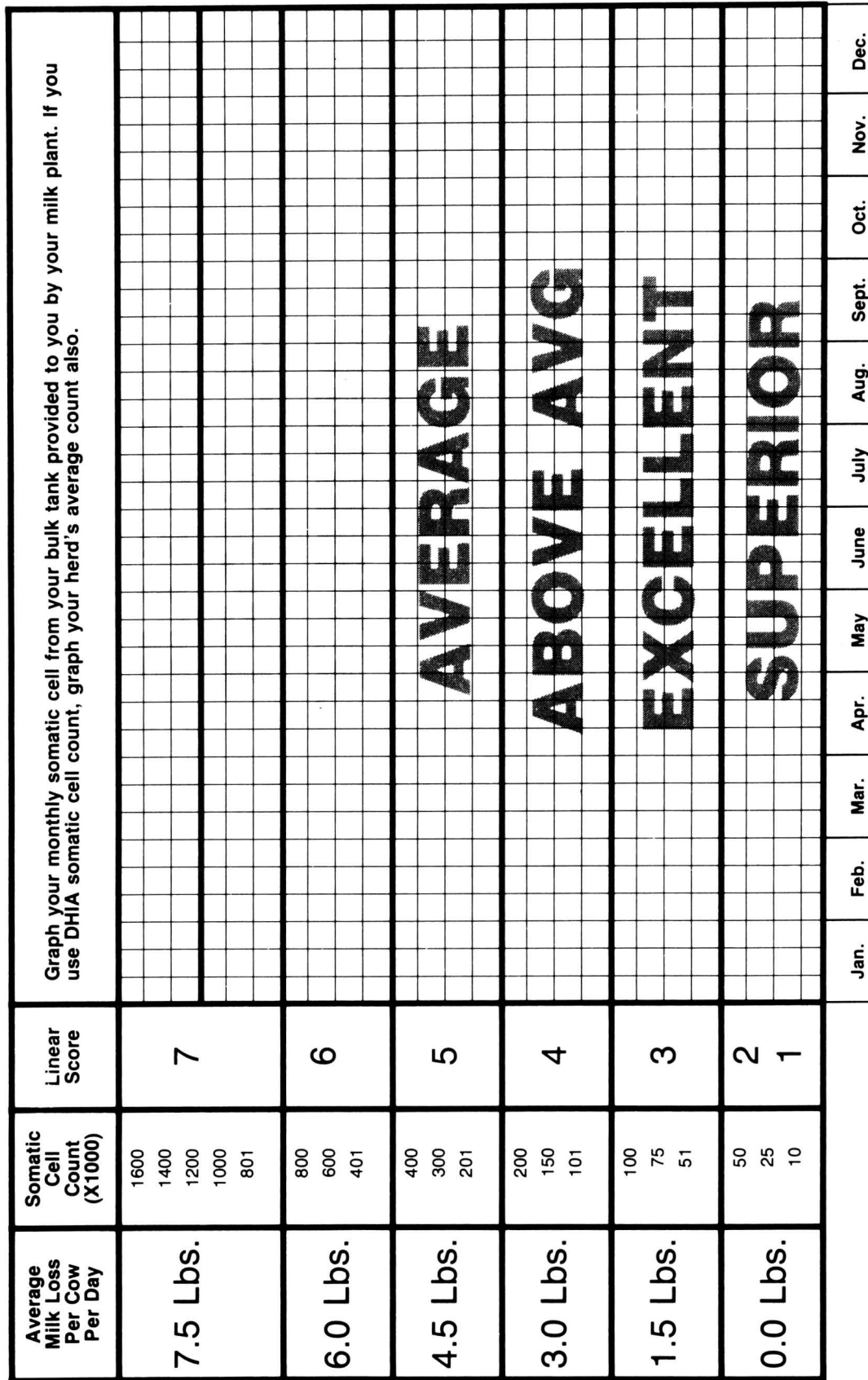
## The Man

The man and his milking procedure is the most important part of mastitis control. Under most situations, milking procedures are over 70% responsible for mastitis control. It amazes me how many veterinarians have been involved in a serious mastitis problem with a herd but failed to ever be at the farm when the cows were being milked. If we don't get to the field in which the battle is actually being fought, the chances are we will never win the war.

Taking the time to attend at milking time is essential to good udder health. I use a mastitis checklist (Fig. 3) to go through the procedures that the farmer is using. I like to use Dr. Panky's GUP as the key to mastitis control. GUP stands for Good Udder Prep and I have a chart (Fig. 4) that hangs in each client's milk house to remind him

Figure 1.

# GRAPH FOR UDDER HEALTH



## TOTAL HERD MANAGEMENT SERVICES

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## Figure 2. Bulk Tank Contribution List

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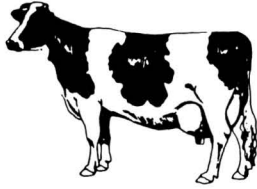
Client:  
 Date: March 1989

### Monthly Production Profile

List #	Cow Name	Lact #	Dim	Daily Lbs Milk	4% FCM	Somatic Cell SCC	Somatic Cell I.Score	Bulk Tank Contrib.	Lbs Milk Loss SCC>100	Action
5	Rita	5		53.50	53.50	5,817	8.86	92,525	7.8	
25	Dana	3		93.30	70.91	1,488	6.90	41,276	9.1	
9	Guce1	4		46.80	46.10	2,777	7.80	38,639	5.6	
50	Allie	1		41.30	38.82	3,070	7.94	37,696	3.1	
26	Mickey	3		46.50	45.11	2,620	7.71	36,221	5.5	
15	Penstat	4		65.10	60.22	1,860	7.22	36,000	6.9	
22	Roseann	4		67.00	60.97	1,552	6.96	30,915	6.6	
13	Cathy	4		85.50	73.96	1,216	6.60	30,911	7.7	
39	Daisy	2		78.30	68.90	920	6.20	21,417	6.3	
1	Inez	8		94.00	82.72	696	5.80	19,451	6.6	
54	Misty	1		45.80	44.43	1,398	6.81	19,036	2.6	
6	Chloe	5		84.10	89.15	710	5.83	17,753	5.9	
10	Wyn	4		34.60	38.75	1,458	6.87	14,998	3.3	
12	Princess	4		90.00	79.20	516	5.37	13,807	5.3	
46	Glory	2		77.60	71.78	548	5.45	12,643	4.8	
21	Cocoa	4		51.60	48.50	734	5.88	11,260	3.7	
44	Helen	2		64.80	40.50	568	5.51	10,943	4.1	
16	Chris	3		35.30	36.36	996	6.32	10,453	2.9	
33	Corliss	2		34.30	31.21	990	6.31	10,096	2.8	
36	Dibble	2		57.50	51.46	547	5.45	9,351	3.5	
42	Maureen	2		73.30	66.70	381	4.93	8,303	3.5	
23	Petunia	3		65.10	80.72	415	5.05	8,032	3.3	
20	Telma	3		65.00	65.00	376	4.91	7,266	3.1	
52	Maid	1		53.30	45.31	387	4.95	6,133	1.6	
2	Darling	7		69.50	62.20	236	4.24	4,876	2.2	
18	Rum	4		74.10	78.55	200	4.00	4,406	1.9	
32	Lucinda	2		44.30	49.62	331	4.73	4,360	1.9	
4	Lovely	5		62.00	56.42	211	4.08	3,889	1.7	
11	Gladys	3		48.10	42.33	197	3.98	2,817	1.2	
45	Mellow	1		58.50	54.99	158	3.66	2,748	0.6	
3	Lacey	6		50.50	49.74	182	3.86	2,733	1.1	
51	Vista	1		64.80	61.88	139	3.48	2,678	0.5	
14	Mugsy	4		102.00	97.41	58	2.21	1,759	0.0	
43	Riga	2		68.30	64.20	69	2.46	1,401	0.0	
38	Ingot	2		60.30	62.11	78	2.64	1,398	0.0	
29	Whitey	2		53.30	46.90	84	2.75	1,331	0.0	
28	Amity	3		61.00	61.00	66	2.40	1,197	0.0	
8	Ione	5		93.80	76.92	42	1.75	1,171	0.0	
53	Della	1		37.00	40.33	104	3.06	1,144	0.0	
19	Cassie	4		76.30	71.72	50	2.00	1,134	0.0	
7	Ester	5		105.00	103.43	36	1.53	1,124	0.0	
49	Josie	1		39.50	44.24	88	2.82	1,033	0.0	
47	Libra	2		62.60	60.72	51	2.03	949	0.0	
27	Clair	2		18.50	20.17	160	3.68	880	0.3	
34	Indies	2		44.30	44.96	66	2.40	869	0.0	
17	Max	3		57.10	59.67	47	1.91	798	0.0	
24	Princes	2		96.50	80.58	27	1.11	775	0.0	

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Figure 3.



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MASTITIS PROBLEM CHECKLIST

Client \_\_\_\_\_ Date \_\_\_\_\_

A. MACHINE (25% Responsible): Manufacturer \_\_\_\_\_

1. Check Rubber Parts

- a) Inflations — one piece 1000-1200 milkings
stretch 600-800 milkings
silicone 8 months

(\_\_\_\_\_ Days X \_\_\_\_\_ # Milkings per day X \_\_\_\_\_ # Cows)
÷ \_\_\_\_\_ # units = \_\_\_\_\_

- b) Slippage or Fall off? \_\_\_\_\_ None \_\_\_\_\_ Occasional \_\_\_\_\_ Frequent
c) Cracks or tears in rubber parts? \_\_\_\_\_ Yes \_\_\_\_\_ No
d) Milk hose length (stanchion pipeline) \_\_\_\_\_ feet
Avoid looping. \_\_\_\_\_ Yes \_\_\_\_\_ No

2. Pump — is it large enough? Rule of thumb is 1 unit per 1 hp motor, i.e., 3 hp motor = 3 units.
Motor size \_\_\_\_\_ hp.

3. Plumbing — are there \_\_\_\_\_ 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 lines leaving balance tank?

4. Stainless Steel Pipeline Size \_\_\_\_\_ inch. Units used per slope \_\_\_\_\_.
Pulsation line size \_\_\_\_\_ inch Galvanized \_\_\_\_\_ PVC \_\_\_\_\_
Is there adequate slope \_\_\_\_\_

5. Regulators: Are they clean? \_\_\_\_\_ Yes \_\_\_\_\_ No
Type: Weight \_\_\_\_\_ Spring \_\_\_\_\_ Servo \_\_\_\_\_
Recovery Time: \_\_\_\_\_ seconds (Should be 3 or less)
Is there any override? \_\_\_\_\_ Yes \_\_\_\_\_ No
Properly placed? \_\_\_\_\_ Yes \_\_\_\_\_ No

6. Vacuum level \_\_\_\_\_ inches (Should be between 12 and 15 inches).
Gauge accurate? \_\_\_\_\_ Yes \_\_\_\_\_ No

7. Stallcock and valve leaks in line? \_\_\_\_\_ Yes \_\_\_\_\_ No
Size \_\_\_\_\_ 5/8 \_\_\_\_\_ 9/16
Location \_\_\_\_\_

8. Claw vents checked frequently? \_\_\_\_\_ Yes \_\_\_\_\_ No

9. Has equipment been bastardized? \_\_\_\_\_ Yes \_\_\_\_\_ No
How? \_\_\_\_\_

**B. MAN (70% Responsible)**

- Use proper concentration of effective udder wash? ..... Yes \_\_\_\_\_ No \_\_\_\_\_
- Product used \_\_\_\_\_
- Wet prep with individual paper towels? ..... Yes \_\_\_\_\_ No \_\_\_\_\_
- Start cows (strip cup)? ..... Yes \_\_\_\_\_ No \_\_\_\_\_
- Predip? ..... Yes \_\_\_\_\_ No \_\_\_\_\_
- Product used \_\_\_\_\_
- Dry teats with individual towels? ..... Yes \_\_\_\_\_ No \_\_\_\_\_
- Proper unit attachment? ..... Yes \_\_\_\_\_ No \_\_\_\_\_
- Good unit alignment? ..... Yes \_\_\_\_\_ No \_\_\_\_\_
- Teat dip with proven products ..... Yes \_\_\_\_\_ No \_\_\_\_\_
- Product used \_\_\_\_\_
- Milk infected cows last? ..... Yes \_\_\_\_\_ No \_\_\_\_\_

**BE SURE UDDER WASH AND TEAT DIP COMPLEMENT EACH OTHER!**  
**\*\*REMEMBER, THE HUMAN ELEMENT WITH ATTENTION TO DETAIL IS 70% OF MASTITIS CONTROL!**  
**DRYING TEATS IS THE #1 WAY TO LOWER CELL COUNTS AND**  
**REDUCE CLINICAL FLARE-UPS! DO NOT DISREGARD!**

**C. COWS (5% Responsible)**

- Are they clean? ..... Yes \_\_\_\_\_ No \_\_\_\_\_
- Are udders square? ..... Yes \_\_\_\_\_ No \_\_\_\_\_
- Many 3 quartered cows? ..... Yes \_\_\_\_\_ No \_\_\_\_\_
- Are there mud holes in yard? ..... Yes \_\_\_\_\_ No \_\_\_\_\_
- Stall dimensions adequate? ..... Yes \_\_\_\_\_ No \_\_\_\_\_
- Any signs of stray voltage? ..... Yes \_\_\_\_\_ No \_\_\_\_\_
- Dry treatment of all quarters of all cows? ..... Yes \_\_\_\_\_ No \_\_\_\_\_
- Product used \_\_\_\_\_
- Sterile bulk tank culture done? ..... Yes \_\_\_\_\_ No \_\_\_\_\_

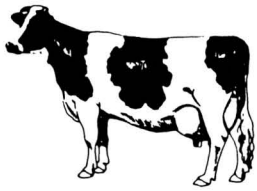
Staph aureus = chronic - milk machine and procedures  
 Strep ag = subclinical - milk machine and procedures  
 Coliforms = environment, procedures and sanitation  
 Non ag streps and nonhemolytic staphs = all of the above  
 High somatic cell count = primarily udder health indicator  
 High bacteria count = primarily a sanitation problem, not an udder health indicator

**D. MILK PLANT milk quality information for past 2 months:**

Present Mo. SCC \_\_\_\_\_ Bacteria Count \_\_\_\_\_  
 Previous Mo. SCC \_\_\_\_\_ Bacteria Count \_\_\_\_\_

Attach recent copy of DHIA Somatic Cell Count Report if available.

**Figure 4.**



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**G.U.P.  
GOOD UDDER PREPARATION**

1. AN INSULATED MINNOW BUCKET FOR A WASH PAIL.
2. CLEAN, WARM WATER ADDED TO WASH PAIL.
3. ADD MEASURED AMOUNT OF QUALITY UDDER WASH TO WATER.
4. USE INDIVIDUAL PAPER TOWELS TO WASH TEATS — KEEP HANDS OUT OF WATER. HOLD TOWEL BY CORNER AND DIP INTO WATER PAIL.
5. WASH TEATS THOROUGHLY FOR 15 TO 30 SECONDS TO STIMULATE UDDER.
6. STRIP SEVERAL SQUIRTS OF MILK FROM EACH TEAT INTO A STRIP CUP.
7. WIPE TEATS THOROUGHLY DRY WITH SECOND INDIVIDUAL PAPER TOWEL.
8. APPLY UNIT TO TEATS 45 TO 90 SECONDS AFTER STIMULATION
9. ATTACH EACH TEAT CUP TO TEATS CAREFULLY SO AIR WILL NOT LEAK INTO THE UNIT. EXCESSIVE AIR LEAKS WILL CAUSE MASTITIS.
10. ALIGN UNIT SO IT HANGS SQUARE TO UDDER WITH A SLIGHT FORWARD PULL. USE HOSE HOOKS AND PLACE CLOSE TO COW'S SHOULDER.
11. LIMIT MACHINE STRIPPING TO 5 SECONDS OF DOWNWARD PRESSURE ON THE UNIT. DO NOT REMOVE INDIVIDUAL TEAT CUPS.
12. SHUT OFF VACUUM TO UNIT BEFORE REMOVING IT FROM THE UDDER.
13. IMMEDIATELY DIP EACH TEAT WITH A QUALITY TEAT DIP.

THE DAIRY FARMER AND THEIR MILKING HABITS ARE UNDER MOST CONDITIONS OVER 70% RESPONSIBLE FOR THE CONTROL OF MASTITIS. MASTITIS IS SIMPLY OUTSIDE BACTERIA GETTING INTO THE UDDER AND CAUSING AN INFECTION. MASTITIS CONTROL IS VERY SIMPLE. THE DAIRY FARMER MUST DO EVERYTHING IN THEIR POWER TO KEEP THE BACTERIA FROM ENTERING THE UDDER.



what good udder prep is. Dairy farmers need to be reviewed on a regular basis as to their milking management. Many times it does not take much of a change to cause serious problems.

### The Machine

The milking machine is the key component to udder health. It is the most important machine on any dairy operation. All the other equipment on the farm is used to supply the fuel to the dairy cows to make milk, but the milking machine is the only piece of equipment that actually harvests the real cash crop called milk. As veterinarians, we need to understand machine function and design so that we can offer an independent opinion as to the function of the client's milking system.

The veterinarian's role in milking equipment can vary tremendously. You can either get involved in complete system evaluation, partial system evaluation, system monitoring or system observation. The key to the veterinarian's success is his independent point of view with nothing to sell.

Many times we can play a key role in helping the farmer decide whether he needs to upgrade his system or if the changes he wants to make are in the correct priority. If a veterinarian never puts a wrench or gauge to the system, he can still play a significant role in how the machine functions.

It is important to assist dairy clients in making sure their milking equipment is not preventing them from producing quality milk. The other factor that must be looked at is that the milking equipment is not holding back or limiting production. Milking equipment does get outdated and can limit milk production. Be sure the milking equipment can harvest the crop efficiently. You can prioritize the changes the farmer needs to make to eliminate any marginal components. Many farmers update the wrong item first and don't see the benefits from upgrading. You can make a difference by offering them an opinion in the upgrading.

### Equipment Tests

The veterinarian can offer a service on a monthly basis that becomes part of his herd management visit. The veterinarian can do a recovery time test and the regulator performance test and monitor the equipment's function. These tests are simple to do and actually do the most good for the client as well as increasing your practice's income. I use a chart (Fig. 5) that records the regulator performance. This chart is a log of what is actually going on. Since the regulator is the key component of the milk system and the most common malfunctioning component found, someone needs to monitor its function. This program has been very well received by the dairy producer.

I do the regulator tests each herd management visit as well as offer complete milk time analysis to really know

whether the system is working properly or not. You can miss a serious equipment malfunction by not checking the system under load. I will not check a system unless I check it under load.

### Equipment Dealers and Manufacturers

As the veterinarian gets more and more involved with equipment, a new problem develops. The dealers and the equipment manufacturers start to grumble. They don't like it when someone comes in and tells the farmer that the equipment is not working properly and is causing the mastitis problem. It embarrasses them and makes them look like they are not doing their job. Unfortunately for most dealers, they have sold their soap routes as a way to keep the machine analyzed properly and most farmers are realizing that this program does not work.

The key to making the milking equipment dealers and the equipment manufacturers our allies rather than our constant enemies is to get them involved. The first step is to stop in and introduce yourself to the dealers. Make them aware of what you are doing and what you want to accomplish. Tell them that you are always trying to learn and you are always open to discuss disagreements that they might have.

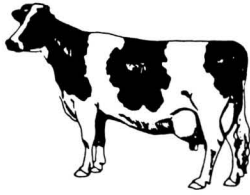
Take the time to have all the dealers in your area into your office and have a brain-storming session. Explain new ideas or installation ideas that will benefit the farmer and everyone in the room. If an installation is made for easy evaluation, everyone can do a better and more complete job. Don't wait for the dealers and equipment people to knock at your door since you have D.V.M. behind your name, but instead take the time to initiate the meetings. Be sure that everyone is singing from the same terminology.

Another way to form this ally relationship is to become aware of what each company has to offer. You must know the specifics and the differences of each company's equipment. I would recommend attending each company's training seminars to become acquainted with their equipment and to meet the people that work in the main office.

Make it a point to invite the area representative from each company to your office and tell him what you are doing. Make the representative aware that your door is always open for criticism and information. Let him know that you want to be updated on new items and changes as they occur. The better you are informed, the better you can inform your clients.

I have found an important way to develop an outstanding relationship with milking equipment dealers and manufacturers—to be sure that the current manufacturer can make the changes that I recommend to the farmer. I have seen reports that the veterinarians have made that were so restrictive that the veterinarian could just as well have mentioned the brand to buy. If one is not careful and does not know what each company has to

Figure 5.



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## REGULATOR FUNCTION TEST

DATE TESTED	CFM TO DROP VAC 1/2 INCH	OPERATING CAPACITY	PERCENT >90%	COMMENTS

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offer, the recommendations can be such that you are really telling the farmer to change companies. I think every company can meet the needs of any dairy operation that we have.

The most important way to develop the relationship with the dealers and the milking machine companies to be creditable and accountable for what you say and do. It is important beyond any doubt that you must do the tests the same way each time, and that your opinions do not change from farm to farm or from brand to brand of equipment. You are an independent consultant that has to be honest and accountable. If your opinions vary from farm to farm, it does not take long for your reputation to become damaged. This is something that is hard to fix.

I have seen equipment companies take veterinarians to court for statements that were made about their equipment. Before you condemn someone's equipment,

be sure you know what is normal for that equipment and what is not. You will be in serious trouble if another veterinary expert comes along and says the opinions that you made on that system were not applicable to that brand of equipment. There are many new systems available now that do not go by the same set of standards that we have been using. Be prepared and know every brand of equipment before making an opinion.

You can't let the fear of causing a controversy stop you from keeping your client's profitability in mind. If it weren't for controversy, I would have an easy life. To be successful you usually will make some waves and have some battles to fight, but keep an open mind and admit when you are wrong. Remember that if your client survives, everyone survives, and it is in everyone's best interest to have the dairy farmer producing the maximum quantity of quality milk as efficiently as possible.