

# Bovine Practice in the Next 25 Years

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As many of you are aware, I specialize exclusively in dairy practice. I am going to use the dairy industry a little bit later on as an example of some of the things that quite possibly could happen in food animal practice. This does not mean to exclude the beef cattle practice or swine practice, either one.

Let us take a look at the food animal industry that we all desire to serve and see what we can find about it, realizing that much of the earth's surface is covered with energy forms that humans cannot consume, but that can be converted into human food by ruminants. Ruminants consume this fibrous feed, waste materials, many times, and byproducts and manufacture food that can be eaten by man. About 60 percent of the world's grazing land is unsuitable for cultivation. Another factor, many humans such as myself, and many of you in this room, prefer some animal products in their diet. I'd hate to know that I had to get by without a good steak once in awhile. Now to take a look at the healthy dairy cow as an example of one of these ruminants, she has the conversion ability to produce human foods that is more efficient than the automobile. She can take a hundred kilocalories of feed energy and convert it into 21 kilocalories of milk energy. She can take a hundred grams of feed protein and convert it into 30 grams of milk protein plus the carcass that she produces. But if you consider only that portion of her diet that could be consumed by humans, the conversion rate on energy is about 119 percent and on protein about 150 percent. The potential for consumers in this country alone is staggering. Our population in 1985 was about 236 million but by the year 2000 we'll be close to 260 million, about a ten percent increase. So there will be people there to consume these products from the food animal industry. Per capita consumption has continued to increase. Based on milk equivalent consumption in 1975, about 540 pounds of milk equivalent consumed, by the year 2000 it has been predicted that we will be consuming about 600 pounds of milk equivalent. This will be the result of increased advertising, lower prices, and emphasis on health and health foods, emphasis such as on osteoporosis that we see on television today, dental caries, hypertension, rectal cancer, and many other phases of human nutrition that we see advertised. These predictions mean that there will be food animals that need health care in the next 25 years. There is no doubt about that.

A closer look at the industry reveals some rather disturbing forecasts as well. The number of dairy farms could be reduced in the next 25 years by as much as 50 percent, with 180 or 181,000 dairies in 1983, predicting less than 88,000 by the year 2000. Herd sizes, however, will increase, from an

average of about 61 cows in 1983, to about 88-90 cows by the year 2000. Using currently available technology, average production per cow should increase by about 100 pounds per year due to genetic improvement, and another 150 pounds per year due to improved feeding and management practices. Those of us in dairy practice realize that our clients must increase their herd averages by about 250 pounds per year per cow just in order to stay even with their peers. This results in a herd average that is, in 1985, approaching 13,000 pounds per cow, to about 16½ thousand pounds per cow by the year 2000. However, if you add new technology such as bovine somatotrophic hormone and others, which will probably be commercially available by 1988 or 1989, 20,000 pound herd averages could be common place by the year 2000. The milk demand by the year 2000 divided by the average production per cow would then predict a dramatic reduction in the number of cows that we have to service — from around 11 million in 1983, down to as low as 7½ to 8 million by the year 2000 or a drop of almost 30 percent.

Other food animal species will probably follow this exact same pattern. This means that increased pressure for maximum individual animal performance further complicated by increased animal density on our livestock farms can lead to increased disease stresses on these animals. It means that the industry will demand and receive the best in health management services available. This service may or may not come totally from the veterinary profession. Some figures have been quoted today on the fact that only 40 percent of the beef cattle farms utilize the services of the veterinary profession, and about 60 percent of the dairies utilize these services. I have some personal concerns. **I am concerned when I see non-veterinary articles pertaining to health matters published in our journals. I have concerns when I see health related articles published in journals of animal science.** Not that I don't use this technology, but because I think to service my clients I'm going to get the best technology I can find from whatever source I can find it. I am concerned that we did not, within the veterinary profession, develop this technology ourselves. And I think we need to look at ourselves from that stand point. I am reminded, as an example, the other night sitting in front of the TV, my wife asked me, "Dear, has the excitement gone out of our marriage?" I said, "Let's wait until the next commercial and we'll talk about it." Well, so often this is the case. But on the positive side. We have our foot in the door. We have the potential to be the delivery group of professionals to provide this health management service to this industry. As has been discussed today in many different forms, we need to provide an economical service. We all agree on that. We must be

proficient in this service, and beginning this service with being good with individual animal medicine as well as population medicine. So often we get our foot in the door at being good with individual animal medicine, then we get to follow up with some population medicine. We must be aware of and use the latest available technology, as I have already alluded to. This includes the need to identify what this technology is at the level of the institution, and prepare our students to be able to deliver this technology. We must be able to communicate and motivate people. We must be involved with the industry that we serve. Many of us are involved on boards of various breed organizations. We are involved with providing service or providing leadership at county livestock and state and national livestock organizations. We need to be involved in them. The image that we produce, the image that we project to the industry we serve becomes all important. I'll give you an example. Not long ago I was on a client's farm. This outfit milks about 900 cows, and as we were finishing, a car drove up and two gentlemen got out. One was dressed about like I am at the moment with nice slacks, coat, and tie. The other had on a pair of Levis, about a two-day beard growth, and a shirt that was clean but wrinkled. One of these representatives was the area sales representative for this drug company, the other was the in-house veterinarian. I'll let you decide which of these two individuals I have just described. But the man in the coat and tie did not have a DVM. The image that we project is all important to the people that we serve. We must work also with other professional groups — animal scientists, nutritionists, and that group of professionals as well. But I am convinced, and will continue to be convinced, that the graduate, professional, practicing, local veterinarian is still the best person to correlate health management services to the food animal industry. We have the qualifications, we have the training, we have the background to provide this service. An example of this would be the previous speakers on this program today. I get tired of going to dairy meetings and veterinary meetings and hearing gloom and doom. We built this industry that we serve today based on aggressive service. The agriculture industry of which we are a part is the most efficient industry in the world. We feed our population in this country today with less than 5 percent of our population on less than 15 percent of the take home income. We're part of that. We are what we think we are. We are what we think about. I said that in front of a group one night and at the end of the program a gentlemen came up and said, "Doc, that's not quite right. If that were the case, my son would have been a girl by the time he was 20 years old." That will take a minute for that one to catch on. For you Auburn people we'll just wait a minute.

**We are able, we have the background, we have the training, we are in a position to provide this service, and I think with some optimism and application of the technology**

**that is available today, we can certainly do it, but we do it not just being a specialist in one area, but being able to be an accountant, a lawyer, a veterinarian, a nutritionist, a psychologist, all these things rolled into one.** It's a little like this fellow that we have at home that loves to play golf. Now it got to where at one point in time this fellow could not get a golf partner so he went to an animal farm and he bought an ape, a little baby gorilla, and he taught this character how to play golf with him. So after about a couple of years it got to where he and the ape got along real well, the ape got real good playing golf. So one afternoon he decided to go over to the Coosa country club. You've got to realize that in Rome, Georgia, the Coosa country club is the high-heeled tennis shoe place to be. It is the place to be. So he goes in and pays his greens fee and waits for his turn to tee off. And when it is he gets his ape friend and they go up to the first tee. As they are getting ready to tee off the pro is up in the pro shop trying to sell a set of golf clubs to this blonde and he looks out and here's this ape down on the first tee. What in the world is going on? Out the door he went and down the path, up to the guy. "What in the world do you think you're doing?" "I'm just going to play a round of golf." "Not on this golf course you're not, not with that character." "Well, I paid my green fee, I should be able to..." "Not on this golf course. We don't allow animals out there. We don't even allow dogs to go across the fairway." One thing led to another and the guy finally said to the pro, "I'll tell you what I'll do. I'll bet you a hundred dollars he'll beat you playing golf." Well the wheels began to turn, you see, and the pro began to count his money, and he said, "Okay, you're on." And up goes the hundred dollars. The guy says to the pro, "Okay, you tee off first." He stepped up, put the ball down on the tee, backed off, took a couple of practice swings, made sure everybody's looking, arms straight, perfect form, steps up to the ball, whap he hits the ball at a 400 yard hole. He hits it about 350 yards right straight toward the pin. With a smug grin on his face he steps back and says, it's your friend's turn. Here comes the ape. Ball in one hand, club in the other, he sticks the ball down, whap, 400 yards about 10 feet from the pin. The pro was standing there with his mouth hung open and said, "That beats me, it's all over. Here's your hundred dollars. Go on and play the round but don't come back any more. And he turned around and started walking back up to the club house. He got a few feet back up the path, stops, turns around, and says, "Oh, by the way, how does he putt?" The man said, "Just like he drives... 400 yards."

**Like playing golf, we've got to put it all together as health professionals serving this food animal industry. With the right attitude, the use of the right technology, with the use of marketing procedures, but more specifically, what we think about ourselves. Just remember that life's battles don't always go to the strongest or fastest man, but sooner or later the man who wins is the man who thinks he can.**

## Questions & Answers: Spaying Heifers: see papers on p. 156-166

*Answer:* Some of those heifers turned up as bred . . . One thing I did when I was in practice, I had a 20-day certificate. When I pregnancy tested I issued 20-day certificates. When they took a heifer home, if in fact they suspected her of being bred, she was guaranteed open, they had 20 days for them to bring her back to the auction for me to examine or send back the certificate that she had been examined and found pregnant. And then what I did was buy back the heifer at the price that he paid for her because obviously she wasn't worth as much weighed as she was sold by the head. And I think that's the thing that needs to be done.

*Answer:* If you can establish it as a market if there is veterinary service there, when the guy buys the guaranteed open heifer, our auctioneers say to these people, now if you want them checked, check them before they leave the yard. The implication is if you don't do that you just bought them. I don't know to what extent. Now the guy that gets burned on that will come running back. And I suppose if you got into litigation he would still be on pretty solid ground, but it does eliminate some problems. The guys that get scorched they only get scorched one time. Of course there's always this thing that Ed mentioned, if she got exposed three weeks ago or less then the Lord himself is going to call her open. There's that one to worry about.

*Question:* Regarding uniform identification of a spayed animal and particularly in reference to who has done that spay and the credibility of the spay.

*Answer:* I guess I'd rather have picked a different question. I've been sitting here kind of wringing my hands wanting to get into some of this already. I guess my answer to that, in all seriousness, in Texas there are about 8 veterinarians that have lost their licenses because they have signed health certificates and attested to things that were not true. My attitude is that if a lay spayer can sign a certificate and certify that these heifers are spayed, then that particular state has some work to do in their regulatory work. I guess if a veterinarian signs a certificate stating these heifers are spayed just because the rancher he works for says Joe Doe spayed these heifers for me, well then that's the veterinarian's problem. That's the only answer I can see to it. I think if we certify that a group of heifers is spayed and then shipped interstate, if my name is on that thing I want to know they're spayed.

*Question:* Is there any evidence that spayed heifers in the feedlot out-perform non-spayed implanted heifers, basically handled the same?

*Answer:* In the feedlot we had one particular trial that I was involved with that had approximately 720 heifers. It was conducted and finished. The heifers went to slaughter in 1981. Out of that particular group I think we had basically two groups of heifers that were spayed and implanted with Synovex that significantly outperformed two counterpart control intact heifer groups that were the same. We also had three groups that did not perform significantly better. I think that there is better performance. I think it's common but it is so limited. In other words when you're talking one or two percent we're talking about 1 or 2 or 3 hundredths of a pound difference in gain a lot of times. I think there are many things that can affect this. Number one being the spay technique itself. I'm convinced after watching 200 people spay heifers, everybody has their own little technique. I'm absolutely convinced that some people spay them smoother, easier, and with less trauma. Whether that makes a difference I don't know. I

think it's one of the factors that need to be considered. I have seen heifers spayed with our technique that made me cringe. And I don't believe in some of those situations the heifers perform as good. I'm not saying that I'm that much better. The reason that I can spay them a little faster and easier is because 60,000 heifers later helps, you know. And I think John talking about Rich up there has about the same situation. You can't pick up the instrument and go out and spay heifers with the same degree of ability that if you've done it awhile. I think a lot of the trials have been done with spayed heifers that somebody has never spayed heifers by a particular technique before and they jump in there and after 30 these heifers go on trial. I think there are some differences. The performance is very close and what we've had a tendency to say is that they perform as well and slightly better.

*Answer:* I think that this data that I have shows that they perform as well. And that's really about all that I have to base it on. The pasture data of course shows that the spayed heifers did outperform the controls slightly.

*Answer:* Dr. Simmons, The feedlot doesn't really care if you don't do as well. You don't want a negative but equal to is all you need. Where the convenience comes in is on grass. If it happens to rain on the prairie and you want to do something to harvest that grass, those heifers you can run them with steers, you can even run them with the cow herd, if the grass is a little better and you want to concentrate it up. That's what a rancher likes is the convenience and flexibility it gives him with his grass. Then if we can have equal performance in the feedlot you can justify spaying the heifer all over the place.

*Answer:* I'd like to add a little bit to that discussion. I've spayed a fair amount of heifers with the KR technique myself and I think and I know Dr. Rupp will agree that with the KR technique a person also needs to do a minimum of 1,000 heifers with that technique to get up to optimum efficiency. Under that you don't feel as comfortable and I don't think your technique is as good and it's going to have an effect on gain. Other questions?

*Question:* Dr. Rupp, I noticed you had in your slides your heifers that you had spayed were still coming in heat, a fair amount of them. I wondered if you implanted those with Synovex-S instead of Synovex-H or something if that would help decrease the amount of riding?

*Dr. Rupp:* I guess I would not like to say they were still coming into heat. I think they were still showing some riding and I think there is a difference there. Yes, I do think there's probably a difference in implants in terms of the amount of bulling. I don't have any data on that. Again we're getting into the area of performance where I can't give you statistical trials but I think there's a trend of better improvements with Synovex and Ralgro. I also think there is a trend for more riding with Synovex than Ralgro. So you can take it or leave it. If you're interested in believing that that trend in better performance is worth a little bit of extra riding, I think those are probably true, and that's based on kind of a personal subjective opinion and probably some other people have influenced me slightly. Yes, I think that's a possibility.

*Question:* What about the riding?

*Answer:* As far as the riding I really couldn't answer that all in terms of whether it would be better to go with H or S. We did run one trial, the one that I mentioned a little bit ago that we finished in '81 and in that particular group we had a better response with the Synovex-S. Whether there was a

difference in riding I have no idea.

*Question:* What about death loss in spayed heifers?

*Answer:* I can't answer the death loss in spaying pregnant heifers to any degree at all because I probably have not spayed enough and I really just flat can't answer it. I'm sure it would be higher, not only from the spaying technique being a little bit more difficult, but also from the fact that you do have a heifer that's going to abort and so you've got all the problems you have with any other abortion technique. So I think the death loss would be expected to be a little higher with that. As far as the KR technique, I personally spay them up to about 80 days pregnant. For sure no more than 90. After that I quit, not because I don't want to do it anymore, but because it's borderline impossible to hold the ovary up high enough. Now with other techniques we have spayed heifers clear up to 7½, 8 months pregnant, and believe me they do carry right on through just like they had ovaries sometimes. So don't be caught in that.

*Question:* Is there any differences in prolapses between spayed and non-spayed heifers on feed and/or any different implants?

*Answer:* When you see prolapses you always want to blame something. One particular pen of heifers that I showed you that were autografted had a high rate of prolapses. It was interesting that the same heifers were fed from the same range at the same feedlot the year before. Going back and checking the records they had almost the same amount of prolapses. As far as the different implants used, we did not see any in this particular trial. We used H and S in all the different ones we used in the feedlot on this particular trial and did not see any difference.

*Question:* How do you handle them?

*Answer:* Just replace them, put a suture in them, that's our usual way of handling a prolapse in the feedlot. Replace them early, put a good tight suture in them, and put them back on feed. Hopefully, unless the cowboys miss it for a little while and they end up being too traumatized and the heifer just has to be realized, generally those heifers have been going back on feed.

*Question:* Yes, I'm from southern Alberta and we've kind of gone full circle on this. Now my question is, has there any data been done on a double Ralgro. We've got the clients of the smaller herds that they've got maybe a half a dozen or a dozen that they want to turn out with the cows and a bull and we went with, in other words, upping the Ralgro dose. It's been my experience that it really fries the testicles on the bulls, intact bull calves, so is there any data or any experience on that? I had another question, too. I assume you shrunk these out. How long do you want to shrink them before you go in and do the spay?

*Answer:* I like to have heifers held off feed about 30 hours provided they're just brought in off good grass or brought in from some decent feed. If they're hauled in off a truck, well obviously that thirty hours is a lot more than you need, so it depends. So I would say in most cases under normal circumstances, heifers in good shape, bring them in and dry lot them for 30 hours. I think that helps. The double Ralgro I have no information on. Dr. Upps, do you want to address it this time on grass, implants, and the effect of implants in causing prolapses?

*Answer:* I don't know of any real hot data on it, but the thing you see over and over is you turn intact heifers out or any kind of heifers and you get a certain amount of prolapse. You never know whether the prolapse is caused from the

technique or whether it was caused from inborn thing in the genotype of the heifer or whether she has some access to some type or estrogenic substances in the forage. You never know. I keep reading through these things that there isn't any good evidence that you have higher percentages of prolapses between spayed and intact heifers but it is a fact that I think implanted heifers will have an increase in the number of prolapses. The advantage of this, however, I think outweigh it. Again I don't have any hard data on that. It would be my opinion and I think these guys opinion, that the advantage in the implantation will outweigh the trouble it causes. The other thing is, without implants there's no point in spaying heifers. It takes the economy out of it.

*Question:* Are any implants superior to others?

*Answer:* No, I don't know of anything that says this particular implant is superior. But I think everybody would agree that if implanting any kind of a female animal would increase the number of prolapses you have in that group.

*Answer:* I'm a pretty poor person to comment on that. I do think there are some people in the audience out there that have used it and I'd guess that Don Hudson and Jerry McAffey, if you guys would come forward and make a comment on that it probably would be worthwhile. Anything I would say probably shouldn't be said.

*Dr. DeGroth:* I could comment on it. We've found that in our trials at the university with all that go to slaughter that we really found less reaction and less possible follicle development in our Willis heifers over the KR, but it wasn't significant. The only thing we did notice, all the implanted heifers showed more reaction around that tissue where the ovary was removed. The implant did stimulate some small follicular or some kind of growth there. Jerry McPhee is very fast with that. He can spay about 75 an hour with his little willow stool and he started out with the Kimberly-Rupp, went to that, and it's just like anything else. If you do a lot of them it would be pretty good. But you can get a chunk of intestine wound up in it! I've done a few but I haven't done enough to be proficient. I think there's less chance of leaving a piece of ovary, especially for the novice maybe with that. But I think with the work that we've done and we've used several veterinarians in these trials, it doesn't matter which way you do it just as long as you do it right. And they all perform about the same. One thing you want to be sure is to have a good technique and to be clean. You can get flank space really messed up. You can go out on a bad day, a really windy day, the wind comes up and you don't quit spaying, and you may lose some, and then they go to slaughter and they get all these abscesses and spaying gets a bad name. So technique with any method is good. Do it right and they're all going to work.

*Answer:* I'd like to emphasize being clean. One of the things that I had the most trouble with in getting started with cow spaying is the three bucket technique of cleaning the instrument and cleaning the heifer is absolutely critical to success in spaying. I had heard all the cautions about avoiding intestine, etc., etc., but was trying to clean my instrument with just one bucket. The three bucket technique is critical.

*Question:* What about the size of the heifer?

*Answer:* I'll tackle that first and then I'm going to listen to John, because he's made a couple of remarks that I really wished I had written down as soon as he said them and be able to quote them back right now. As far as the size of the heifers, let me speak to that first. We're starting to spay heifer calves now. For about eight years I said don't touch them until they're a year old and weigh at least 500 or 600 pounds. We have a

fair number of calves that probably weigh below 400 pounds that are between 8 months and 12 months that we're starting to spay. I started doing it, not because I wanted to, but because of a brucellosis project that's going on at A&M and they weren't willing to wait until they're a year old. They said you spay them or forget it. And I thought well under those circumstances I'll give it a try and it's worked better than I thought. If you have a tendency to work out at Nautilus frequently you have a good sized forearm, you're good at arm wrestling, you

have definite forearm strength, I would say there are limitations with the instrument. I wouldn't recommend anybody that has a powerful forearm and hand to even start, especially in smaller heifers. When heifers weigh 900 to 1000 lbs. it's more difficult to get by with the KR technique. So there is some physical limitation with the KR technique. I don't consider myself having small hands. I don't think there's a great limitation but for some people there definitely is.

## Abstracts

### Continuing presence of rinderpest virus as a threat in East Africa, 1983–1985

P. B. Rossiter, W. P. Taylor, B. Bwangamoi, A. R. H. Ngeresa, P. D. S. Moorhouse, J. M. Haresnape, J. S. Wafula, J. F. C. Nyang, I. D. Gumm

*Veterinary Record* (1987) **120**, 59-62

The re-emergence of rinderpest virus in East Africa in 1979 caused widespread outbreaks of disease and subclinical infection throughout the region until mid-1983. Subsequent massive emergency vaccination campaigns have been successful in eliminating clinical rinderpest from Tanzania and preventing its spread southwards. Unfortunately the virus is still endemic in north-eastern Uganda and has recently caused epidemic outbreaks with high mortality in cattle in that country. In Kenya, buffaloes (*Syncerus caffer*) in and around the Masai Mara game reserve have developed antibodies to rinderpest virus as recently as late 1984. Although there have been no outbreaks of clinical disease in Tanzania or Kenya from April 1983 to the end of 1985 this serological evidence plus the increasing incidence of clinical outbreaks in Uganda indicate that rinderpest virus still threatens East Africa. The substantial aid which has been provided to the region for rinderpest control must be maintained.

### Testing for antibiotic residues in milk

J. M. Booth, F. Harding

*Veterinary Record* (1986) **119**, 565-569

Milk from dairy farms in England and Wales has been tested regularly for antibiotic residues since 1965. The sensitivity of the test organism was 0.02 iu/ml penicillin or equivalent until the change to 0.01 iu/ml in January 1986. In 1984–85, 99.6 per cent of the 2,000,000 milk samples tested passed the test and there was an average of 695 failures per month. From 7500 on-farm investigations over the two years 1983–85 the most frequent reasons suggested by farmers for their test failures were not withholding milk for the full withdrawal period (19.3 to 16.5 per cent) and accidental transfer of milk (16.3 to 16.7 per cent). Lactating and dry cow intramammary antibiotic preparations were held responsible for rather over 50 per cent and 25 per cent respectively of the failures in both years.

### Oestrus prediction in dairy cows using an ELISA progesterone test

R. G. Eddy, P. J. Clark

*Veterinary Record* (1987) **120**, 31-34

The commercially available test kit for assaying milk progesterone was used in the practice laboratory on samples taken daily from cows 17 to 24 days after service. Improved oestrus detection rates and accuracy were achieved by predicting the onset of oestrus. Similar results were obtained by sampling on days 18, 20, 22 and 24 or on days 19, 21 and 23 after service. Calving to conception intervals improved from 115 to 84 days in one herd and from 85 to 74 days in another and the potential economic benefits in these two herds outweighed the costs by 7.4:1 and 3.4:1, respectively.

### An assessment of the economic benefits of a mastitis control scheme

R. W. Blowey

*Veterinary Record* (1986) **119**, 551-553

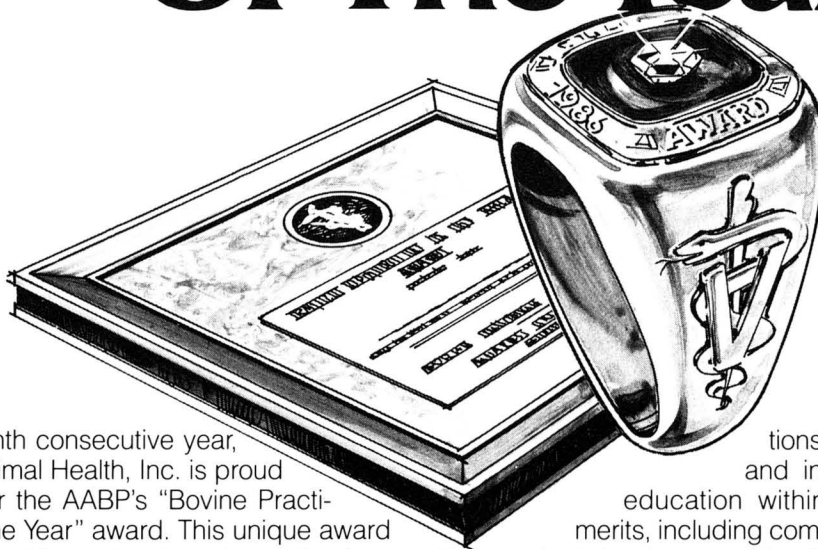
Over a six-year period from 1979 to 1985 the incidence of mastitis among dairy herds being recorded in a veterinary practice in Gloucestershire decreased from 26.5 per cent to 19.6 per cent of cows affected each year and from 51.0 to 31.7 cases per 100 cows per year. Over the same period the rolling mean herd milk cell count fell from 346,000/ml to 243,000/ml and the usage of intramammary antibiotic tubes fell from 2.6 to 2.1 per lactating cow per year. The proportion of cases needing repeat treatments in a 12-month period also fell from 25 per cent to 10.6 per cent. Possible causes for the decrease in the incidence of mastitis are given. The cost of an average case of mastitis was estimated to be £40, and on this basis the farms involved reduced their losses from mastitis by £772 per 100 cows per year, a more than 12-fold return on their investment in veterinary services.

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