to corn silage. During the 80-day cattle feeding experiment there was no apparent difference in palatability between corn silage and fermented manure when the corn grain component was kept equal.

The apparent digestibility of the ration fed the cattle, plus the fermented manure directly from the stack, was measured with sheep. The fermented manure direct from the stack (without additional corn grain) was higher in crude protein than the other treatments fed. The coefficient of digestion of the crude protein in this material was also higher than any other treatment. The dry matter digestion coefficient for this material was less than the other treatments, which is no doubt a reflection of lower energy content.

In another study group, fed cattle on an all-concentrate ration were bedded with chopped straw (8 lb./head/day). After 60 days' accumulation the manure was directed to a forage wagon where 10% ground shelled corn was added on top of each load. This manure was then blown into an 8 ft. x 40 ft. concrete stave silo for fermentation.

A growing-finishing cattle feeding trial was conducted to determine the role of various roughage sources on a full-feed of whole shelled corn. Corn cobs, corn silage and straw-bedded fermented manure were compared with an all concentrate ration fed to steers. All the roughage sources studied prevented rumen wall abnormalities observed in the all-concentrate fed cattle. The incidence of liver abscesses was high for the all-concentrate fed cattle. This problem was less when five lbs. of corn silage daily was fed or by including 3% pelleted cobs, and the problem was eliminated by feeding 6% or 12% cobs, 15 lbs. of corn silage, or 5 or 15 lbs. of fermented manure.

In the current practice of feeding "high concentrate" or "all concentrate" rations to beef cattle, a large source of energy is lost due to incomplete digestion. There are materials other than energy in cattle manure which probably also have salvage value.

Beyond the economic factors involved is the implication of reduced environmental pollution from animal waste. This problem could be reduced considerably by recycling feedlot residues.

Feedlot residues which are now considered to be waste and an economic liability may be useful as an animal feed. If so, this would result in a more economically efficient method of feeding cattle plus reducing environmental pollution by recycling feedlot residue.

An Approach to Herd Health Programming for the Smaller Cattle Feedlot Operation

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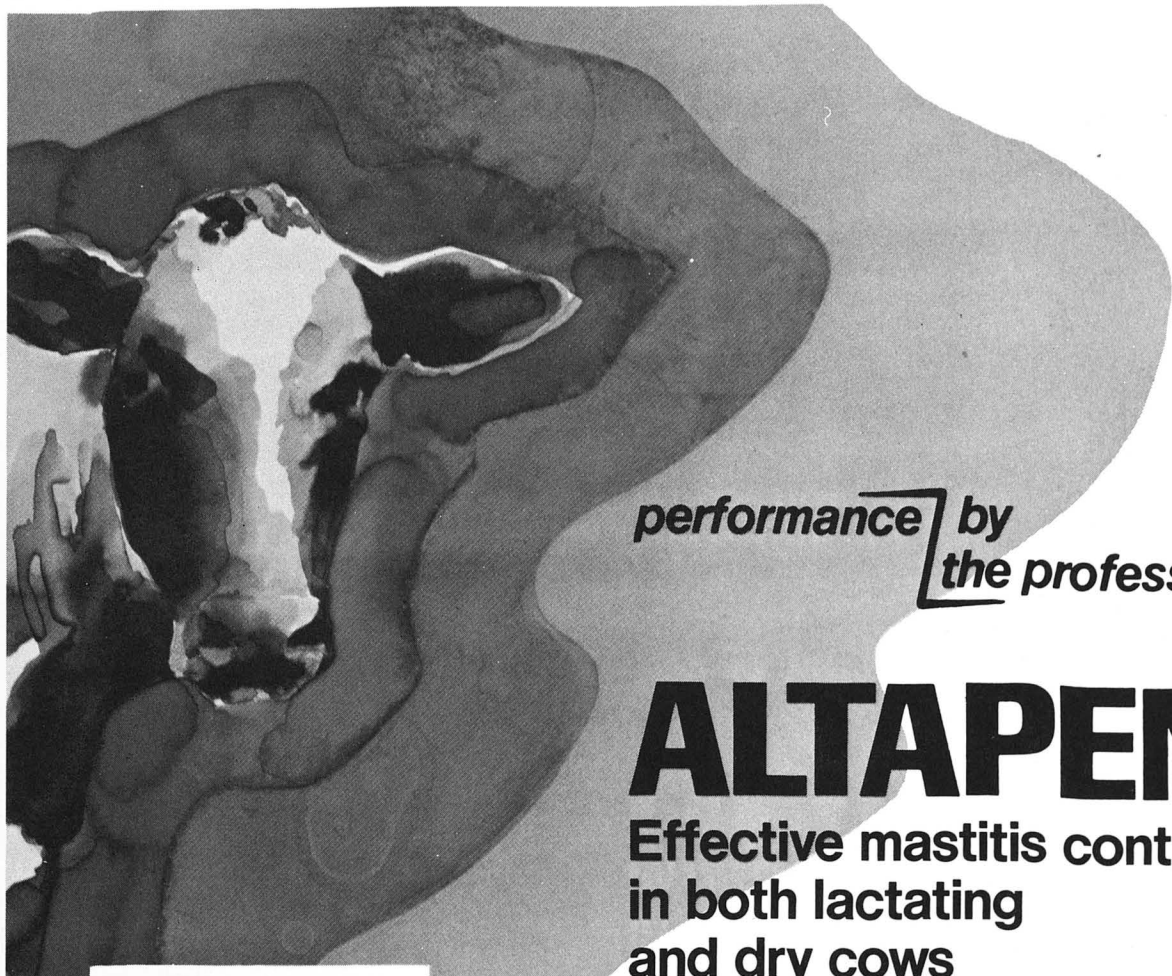
With the livestock production methods changing to larger more complex and costly units, the veterinarian is assuming more of a role in disease prevention and control in cattle feeding enterprises by becoming a staff member or consultant for these units. His services are available on a periodic and regular basis, and he renders continual consultative advice. The following outline is a general approach for such veterinary services to the smaller-sized feedlot operation, which in effect would put the veterinarian on the feedlot's management staff and his services and advice would be available on a year-round basis.

I am deeply indebted to Dr. John Herrick for his advice, counsel and technical assistance when we first embarked on this type of program. Many of these items were initially espoused by him.

Basic concepts of the approach:

1. The veterinarian would schedule regular visits to the feedlot for routine advice and consultation. Unscheduled visits should be made as often as required. During a disease outbreak the veterinarian should visit the feedlot as often as necessary. The veterinarian would also survey all newly-received animals. The veterinarian would be available to the feeder for consultative advice either by telephone or in person whenever the need arises.
2. Treatment of sick animals: Under the advice and supervision of the veterinarian employees of the feedlot would perform the majority of the actual medication of the sick animals. The veterinarian would examine such animals as necessary to make a diagnosis and to advise on re-treatments.
3. The veterinarian would perform necessary surgery. Either on the premises or at his clinic facilities. He would also instruct those laymen assigned the responsibility the proper techniques for handling routine surgical matters.
4. The veterinarian would perform all autopsies necessary in establishing a diagnosis. All observations would be recorded.



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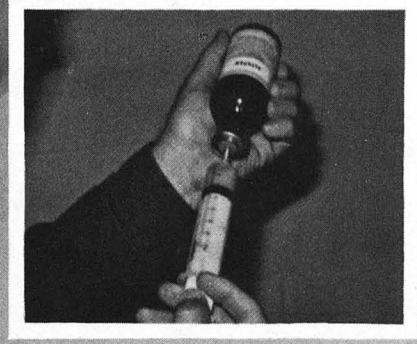

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5. The veterinarian would maintain a "field" laboratory and perform those simple bacteriological, blood, fecal and chemical analyses necessary to arrive at a diagnosis or evaluation. More complicated analyses would be sent to a commercial or institutional laboratory and the cost of the analyses charged to the feeder.
6. The veterinarian would act as purchasing agent for the feedlot in purchasing drugs, medications, and related products.
7. The veterinarian would maintain a disease and health record system.
8. The veterinarian would identify unproductive animals suitable for salvage through slaughter.
9. The veterinarian would offer nutrition counseling and when necessary make those arrangements which are required to provide the necessary additives for all rations. He would work closely with the individual or firm providing the feedlot operator nutritional advice.
10. The veterinarian would act as agent for the feeder in consulting with the various drug, mineral and feed additive salesmen and other technical persons that call on the cattle feeder. The feedlot operator would direct salesmen and other technical persons to the veterinarian who would become advised of the products and help to determine which would be beneficial to the feedlot operation.
11. The veterinarian would be responsible to see that regularly scheduled educational programs would be put into effect which would increase the cattle feeders knowledge regarding animal health and related feedlot matters.

Benefits of the approach:

The cattle feeder will be interested in how a plan such as this would benefit him or be superior to his present method of veterinary services in which the veterinarian is only consulted in emergency situations. Improvements in feedlot operations are particularly difficult to express in dollar returns, but essentially this type of veterinary-management approach would have three basic benefits:

a. Increased profits as a result of the cattle feeder being kept abreast of new techniques and developments.
b. Increased profits in particular groups of cattle.
c. A certain amount of actual dollar savings can be effected in drug and medication purchases. In this approach the veterinarian does not presume to derive a profit from medicine sales, but is relying on his professional services for his income and this savings is passed on to the feedlot.

Drugs are purchased as indicated for each disease condition. Regulation of proper dosage results in savings in that giving unnecessary amounts is an added drug expense, the giving of inadequate amounts is an added expense in delayed recoveries and increased death loss. The veterinarian does not use drugs indiscriminately, and they are prescribed for their known and proven merits; savings are thus effected as the feeder is not tempted to try unproven or useless medication.

Financial arrangements of the approach:

a. A minimum monthly professional service charge would be made.
b. All professional services would be charged on an hourly fee basis. This includes all telephone effort.
c. A yearly per animal marketed charge would be assessed. This is based on the previous years' marketed numbers and is paid on the onset of the professional service year.
d. Travel time and mileage would be charged.
e. A purchasing agent's commission represented as a cost plus percentage would be levied on all purchases.
f. All accounts would be paid by the tenth of the month.

Implementation of the approach:

We have used this approach and put it into operation in our practice along two avenues. One way is to offer this service to individual feedlot operations in our immediate practice area and the second, perhaps more unique, is the program we embarked on over two years ago with the Eastern Michigan Cattle Feeders Cooperative.

Since our activity with this cooperative may be of more interest to you, I would like to go into it somewhat more in detail.

This group, which represents twelve feedyards with a total annual production of somewhere around 15,000 head, came about as a result of the efforts of some individuals who in the spring of 1972 decided that if they pooled their resources, they might be able to hire a full-time veterinarian to serve their veterinary needs. They sought help from the Michigan State University Department of Agricultural Economics and the College of Veterinary Medicine and had in hand when they first met with us a rough draft of a veterinary services proposal. Since it was our intent to remain in private practice, it was necessary to develop a proposal of our own which would be more manageable for us and still serve their needs. That which I discussed at the beginning of this presentation is basically the proposal which was offered to them for consideration.

For those who may wish to refer to it, the April 1974 Beef Extra Section of the *Farm Journal* reported on our activity with this group.

Mechanics of the approach with the cooperative in outline form are:

A. Cattle Feeders
   1. The group is made up of 12 individual feedlot owners varying in annual production from 250 to 3,500 head.
      a. All of the operations are farmer owned and self-managed.
      b. Feedstuffs are fairly well all raised on owned or rented land by the feedlot operator.
      c. The feeding program is based very heavily on

a corn silage program. Protein supplementation is oriented to a non-vegetable protein program.

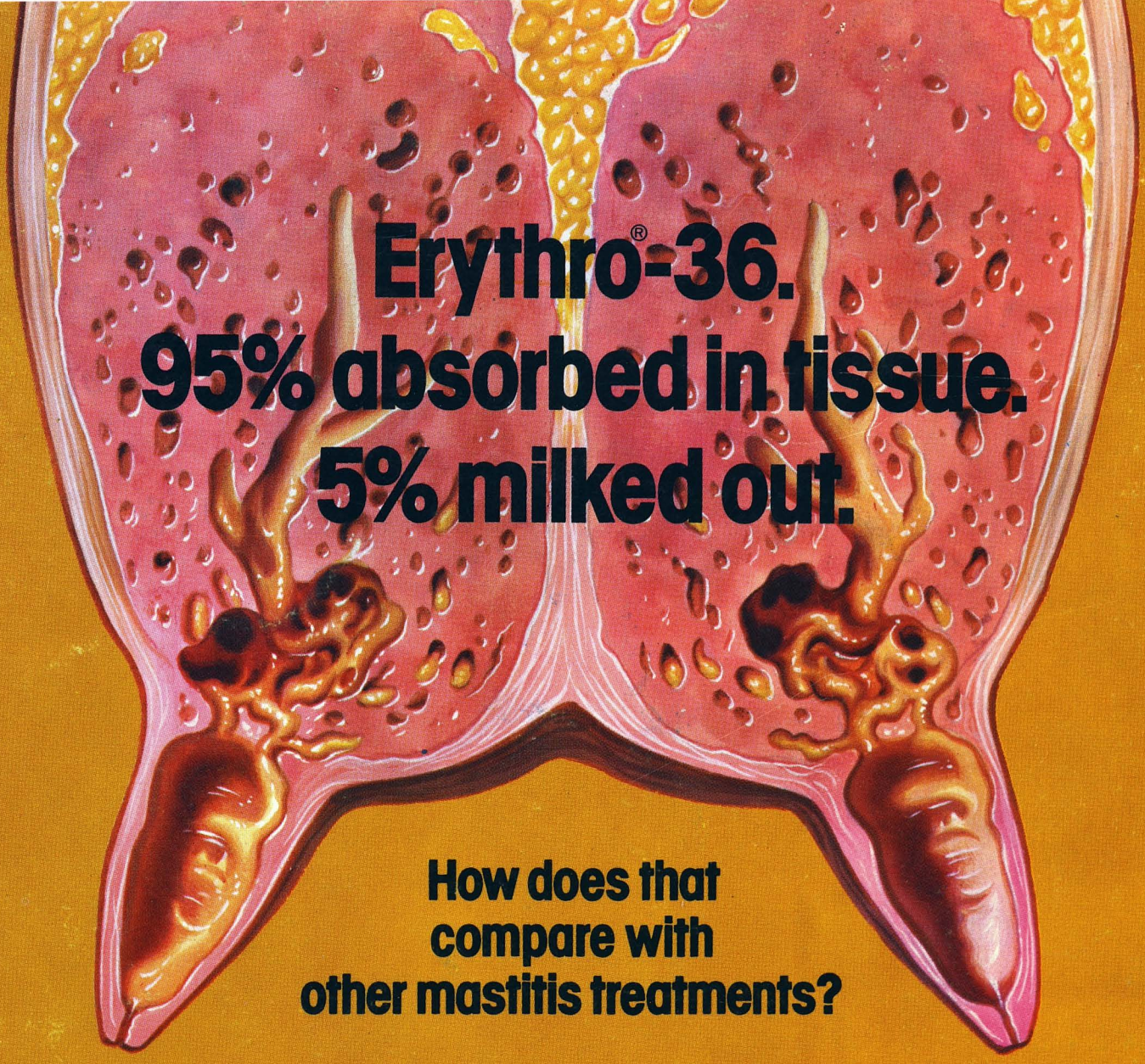
d. The feeder cattle originate from all parts of the country and in about one-third of the group. They are moved into the yards on a monthly basis.

e. The group happens to be situated such that three or four of the lots are in close proximity to one another. This permits us to handly visit three or four yards in a single day.

2. The twelve lots function as a cooperative which is a legal corporate entity.
   a. It has the usual officers who are the executive committee and can make interim executive decisions.
   b. Each feedyard has one vote on all major decisions.
   c. Monthly meetings are held.
3. Finances are the responsibility of each individual feedlot.
   a. All bills are paid by the tenth of the month.
   b. In the event of financial default, the cooperative is responsible for payment of the account.
   c. The cooperative, through assessment, has established a fund which has been lent to our professional corporation interest free for the purpose of purchasing drugs to have in inventory for their use.
   d. Our fee is calculated on an hourly rate.

B. Veterinarian
1. Professional Activity
   a. Each feedyard is visited at least once each month on a regular basis. Visits are about the same time each month and the professional activity is primarily of a consultive nature, but we do whatever is necessary.
   b. If the need arises, the feedlot operator may request additional visits to the yard if a problem arises.
   c. Feedlot operators, as required, may consult via telephone with the veterinarian.
   d. It is our responsibility to offer an educational program at the monthly meeting of the cooperative. We plan these meetings ourselves or on occasion invite outside experts to speak.
2. Drugs
   a. When requested we furnish drugs and supplies. In the event that there arises a wide discrepancy in the price of a particular product, efficacy becomes the primary consideration. No effort is made to restrict purchases. We have found in most instances they are satisfied to delegate this responsibility to us.
   b. Drugs are covered by a cost plus minimum percentage mark up. All of our invoices indicate our cost with the overhead percentage added.
3. Travel
   a. Travel expenses are calculated on a mileage and time basis.
   b. When visiting more than one feedlot, travel expenses are shared equally between those lots visited on that trip.

In working with this group, we have found it to be stimulating and worthwhile for all concerned. In fact, the mechanics of working with a single entity composed of a number of operators has some advantages over working with the individual feedlot operator. This is particularly true from the standpoint of the educational endeavors that this type of consulting practice requires. We feel that through this collective effort our potential to supply professional veterinary service has been greatly enhanced.



Erythro®-36. 95% absorbed in tissue. 5% milked out.

How does that compare with other mastitis treatments?

To find out, milk-out tests* were performed for the four drugs commonly used to treat mastitis. The results were enlightening.

Drug	% Milked-out
Penicillin	52.6
Streptomycin	56.1
Neomycin	58.8
Erythromycin	5.0

If an antibiotic remains in milk, it's not doing the best possible job against hard-to-reach Staph organisms found deep in udder tissue.

Erythro-36 (erythromycin, Abbott) is absorbed into tissue at effective levels much faster than other antibiotics. So it begins working faster.

Affective against organisms causing more than 95% of mastitis.

In-use tests* conducted by several universities showed how effective Erythro-36 really is.

Organism	Total No. of Confirmed Cases	Total No. of Cured** Cases
Staph aureas	174	112
Strep Agalactiae	211	184
Strep non-agalactiae	53	36

Even drug combinations used in other mastitis treatments may not achieve the same results. Here's why.

Erythro-36 puts more active drug at the infection site.

Erythro-36 contains 300 mg of erythromycin—the single drug that works on every important mastitis bacteria.

On the other hand, the syringe of a combination product contains several different ingredients. Each of these ingredients is effective against only certain kinds of mastitis bacteria. You may not get more 150 mg of any one drug.

So you can be more confident of getting effective drug concentrations at the infection site with Erythro-36.

Erythro-36. The mastitis treatment that does it all with one single drug.

*Test results available upon request.

**Based on absence of original pathogens at one and three week post-treatment culturing.

WARNING: Milk taken from animals during treatment and for 36 hours (3 milkings) after the latest treatment must not be used for food.

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