

# Bovine Practice in Hawaii

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This is Parker Ranch, the biggest ranch under single ownership in the United States. It was probably on this type of land that the cattle that Capt. Vancouver brought were put. After they got there, King Kamehameha the Great, who was a famous chief and ruler of all the Hawaiian Islands, laid down a taboo. He said that no one was allowed to molest these cattle. So within ensuing years the cattle grew great in population. By the 1830's to 1850's there were a lot of cattle in Hawaii. From 1850 to 1900 the cattle were improved by bringing in the British breeds.

There are over 1,000,000 acres of land that are used for ranch land in Hawaii which comprise about 25% of the total area of the state of Hawaii. There are 750 cattle operations in the state. Over 400 have over 20 head. There are 5 feedlots in the state—one on the big Island of Hawaii, three on Maui, and a large feedlot on Oahu which has a capacity of 16,000 head. Inventory last year in the state, showed beef with 230,000 head. There are 52.9 million pounds of beef produced annually and it is the number one livestock enterprise.

There are about 13,000 head on feed at all times in the large feedlot on Oahu which has a capacity of 16,000 head. The first dairy was established on a commercial nature in 1869. There are 23 dairies in Hawaii. They average 9 acres in size. They have a total number of milking cows of 13,000. On Oahu, where I practice, there are 16 dairies and there are 9,500 dairy cattle. An interesting statistic that I didn't know until I started preparing for this presentation was that the average number of cows per dairy farm in Hawaii is 565 and that is the largest average in the United States. The 1981 average production was 11,800 lbs. per cow and that ranked 24th in the nation. There are 17.4 million gallons of milk produced annually in Hawaii and all milk is produced locally—all fluid milk. There are no federal subsidies in Hawaii.

The dairy industry in Hawaii has been beset by some fairly serious problems in recent years, the latest being 1982. You may have heard that there was a heptachlor contamination discovered back in March of 1982, which was traced back to the pineapple greenchop which is the plant that is harvested after the fruit is picked off. It made a very good cheap roughage which is a big problem in Hawaii, but what happened was that when it was traced back they found out heptachlor was sprayed on the ground to help to control an ant that ate up the young pineapple plant. It's the only place in the United States that the EPA allowed heptachlor to be used. It got into the milk, unknown to the dairymen, of course, and when it broke at one point there were no dairies producing any milk and then after a couple of days there were several dairies and then some weeks and months later,

finally all the dairies came back on line. When it was all over there was in excess of a 10 million dollar loss to the dairy industry. It got so bad that they couldn't sell their milk, but they couldn't sell their cull cows either, because the cows had the heptachlor in them too and they wouldn't let them slaughter for beef. As if that weren't enough, at the beginning of 1983 we had a little bout with antibiotic residues but that got straightened out fairly quickly. Perhaps by far the most serious threat to the dairy industry in Hawaii is that during this past few months, a grocery chain which is a large chain of stores, at least in the west and also in Hawaii has applied to the Board of Agriculture to import fresh fluid milk. There is a ruling going down whether they are going to allow them to bring in fresh milk. They expect that if they bring in fresh milk that will take about 10% of the market. The problem is that there are other food chains in Hawaii that can tap the mainland markets and so if this goes through, you are very fortunate to have invited me this year because next year it may be...!!!

Relative to veterinarians, in the late 1800's the first veterinarians were in the Hawaiian Islands and they were mostly involved with private practice on mules and horses which were used in the pineapple and the sugar cane industries. In 1903 a Dr. Fitzgerald, who was a pathologist, came from the mainland and advised the state of Hawaii to set up some quarantine facilities and some control facilities, diagnostic facilities, to try and see what diseases were in the state and to control and eradicate them. He was very persuasive and he was going to go back after a year but they persuaded him to stay on and they set up a situation where they have deputies on the different islands in the different districts, and by statutory law these deputies are responsible for the entire health of the food producing animals in their district. This enabled them to eradicate glanders early in this century and later on bovine anaplasmosis and brucellosis were eradicated. Bovine TB has been eradicated, except in the Island of Molokai, which is very rough and has a lot of deer population and they just haven't been able to get the TB out of a couple of herds there. These veterinarians were allowed to practice privately on the side to supplement their other meager incomes and in the 50's and 60's there were some private veterinarians that came into the state and this created an awkward situation because the deputy veterinarians were subsidized. After a time and along in the 70's the problem was resolved and the private veterinarians were doing entirely the private work and the state veterinarians were only allowed to do the state regulatory work. There are presently about ten veterinarians doing bovine practice. Three are AABP members and there is another AABP member that works at the University of Hawaii.

Veterinarians in beef practice are concerned with several problems. One of the things they have in Hawaii is a lot of marginal soil, particularly low in phosphorus. There are different elevations to contend with. Because there is a trade wind system and there are a lot of high mountains, the wind patterns change so that there can be different soil types and much different rainfall even on the same ranch. This creates a lot of problems with nutrition and management. Intestinal parasitism is a problem because there is a certain type of fluke in the wet areas. Grubs are also found in certain areas. The beef veterinarian's main thrust is herd health programs. Vaccinations for IBR, leptospirosis, blackleg, malignant edema are necessary. They also have parasite control programs, breeding, which involves pregnancy checks, sterility programs and bull checks. There is some estrous synchronization starting and there has been some embryo transfer work done on the big island on some purebred herds but there are no local veterinarians presently involved with embryo transfer. I tried a little but I have not had much success and there is not much need in the dairy practice right now.

The veterinarians working in dairy practice amount to three or four working on the different islands. I happen to be the one that has the largest dairy population and therefore I spend the majority of my time on the dairies. Problems we find in the dairy include nutrition. The biggest problem we have is a lack of low cost high quality roughage. When they took the greenchop away that really created an additional problem. Another major problem, and I think the people from Florida can appreciate what I'm talking about, is the environment. The temperature and humidity rise at certain times of the year to the point that cows are tremendously stressed. Their feed consumption goes down. As you would expect their production goes down. They stop showing heat. They get so miserable that they don't want to move from one place to another, let alone show heat. The ones that do show heat very seldom conceive. Of course along with the

temperature and humidity there is quite a lot of rain and so the pens get muddy and there is a tremendous increase in mastitis, particularly the environmental kind. Another problem that the dairies have in Hawaii involve the facilities. They need to have more environmental control. Management is always a problem. Education is a big factor. Mainly, we do herd health and reproductive programs which is the mainstem of all other programs. We're getting into mastitis. I have a mastitis laboratory in my clinic that is patterned after Dr. Bob Bushnell's. I do some diagnosis, treatment and surgery. A lot of the dairy staff do the day to day treatment and I get called or I consult when I am out there on particular problems.

I need that extra arm to palpate. I get very tired with a lot of these animals. I use Nicholson pouches that you can pick up at the hardware store that the carpenters use. They work very well to hold a lot of things...chalk, guns, vials, syringes. I keep my used pipettes in an OB speculum. That works pretty well if you put it in your boot because it is rather soft and tends to melt down into your ankle better. You just tape off the one end and that way you can carry around your used pipette and you don't litter up the place which I think is something veterinarians should consider carefully. Being a professional person, you ought to have a professional image and I don't like to leave anything behind.

I use a Cooper automatic drench gun that I think Burroughs Wellcome markets. There are a couple of other improvements but I happen to like that one if you take care of it. I wanted to show you one thing.

**I think the more times I go into the office and sit down and talk with that manager the better job I am doing in a herd health program in that dairy. You can go out there and show a lot of action and be around behind those cows and stooping here and there, but unless you get in and sit across the table from the manager and make him listen to you, you're not getting the job done.**

## Isoniazid Therapy in Bovine Practice

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Isoniazid, a hydrazide of isonicotinic acid, is a synthetically produced white, odorless, crystalline powder or tablet. It is water soluble and is slowly affected by exposure to air and light. From human medicine we know that it is rapidly absorbed (1-2 hrs.) and is diffused readily into all body fluids, including cerebrospinal and pleural; body tissues, organs and excreta (including saliva and urine). Isoniazid is excreted via the urine with 50 to 70% of the dose being excreted within 24 hours.

**Isoniazid, widely used since 1953, is the most effective known drug for the treatment of human tuberculosis. The**

**drug has been employed with some success in the treatment of non-tuberculosis diseases in man, including actinomycosis.**

The mechanism of action of Isoniazid is unknown. Presumably, it is an anti-metabolite, it acts directly against the TB bacillus therefore it is known as antibacterial. Maximal blood levels are achieved in approximately one hour after oral administration. When the drug is administered in the normal dose range, side effects from Isoniazid therapy in man are infrequent and only rarely serious.

Initially I was looking for an effective drug for use in