

General Session

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Current Status of Brucellosis Eradication

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Thank you very much for this privilege to present to you a report on the status of the cooperative brucellosis eradication program. I always appreciate an opportunity to discuss the brucellosis eradication effort with a group of professional people who have had and will continue to have a vital part in the outcome of this program. It is also a privilege to visit Columbus again. I lived here for almost a year back in 1954. It was one of the most stimulating experiences of my career as a veterinarian. I had the opportunity to participate in a well organized and vital effort to control and eradicate livestock diseases from this state.

I have a few tables and figures which will show the current status of the brucellosis eradication program and the trends in recent years.

You will note from the information on the slides that there has been an increase in the rate at which brucellosis has been disclosed among livestock during the past two years. There are several apparent reasons for this increase.

1. **Emergencies.** There has been a slowdown in the effort directed toward this program due to emergencies which have occurred in the past few years. We stepped up our efforts to complete the eradication of hog cholera. This required organizing and dispatching task force groups to various sections of the country. Also, we had an outbreak of VEE in Texas which required the services of a large number of professional people. In addition to the work in Texas, many people were involved in organizing and conducting horse vaccination campaigns in the southern states. I am sure you are aware that exotic Newcastle (VVND) entered this country and involved a large segment of the poultry industry in California which required a tremendous effort to bring it under control and eradicate it. These and other emergencies have taken their toll on the manpower available for

veterinary services programs and in particular, the brucellosis program. On the other hand, I believe that the success of the emergency efforts speaks for itself in protecting the livestock and poultry industry from these diseases.

2. **Inflation.** Inflation has decreased the amount of work we can do with the funds which are made available to us on an annual basis. Based on the Consumer Price Index, and using 1967 as a base, our ac-

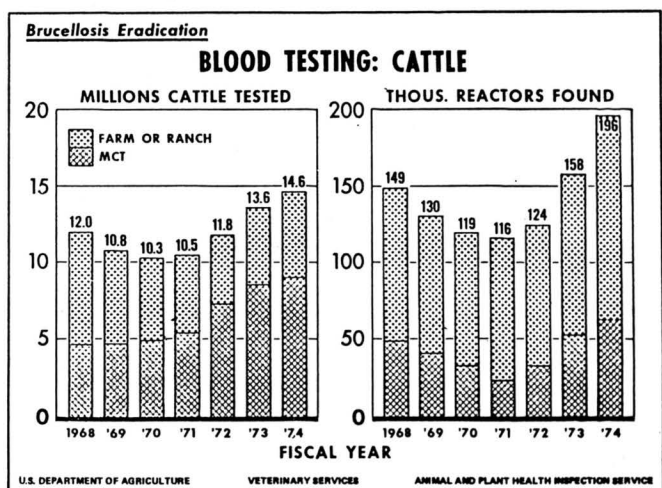


Figure 1. Blood Testing Cattle. The total number of cattle blood tested in FY 1974 was over 14.6 million. This is a 7 percent increase over the previous year and includes an additional 420,000 cattle tested on farms or ranches and 529,000 more under the MCI program. However, this increase was offset by a 24 percent rise in brucellosis reactors to 196,000. This includes 133,000 reactors (28 percent increase) disclosed on the farm and 63,000 MCI reactors (17 percent increase). The upward trend in the overall reactor rate continued in FY 1974 with 1.34 reactors per 100 blood tests compared to 1.16 in 1973 and 1.05 in 1972. It must be concluded that the rate of spread of brucellosis exceeds the effect of program activities to detect and contain the disease. In reality, the disease is only being controlled—but at a higher national infection rate during each of the past three years.

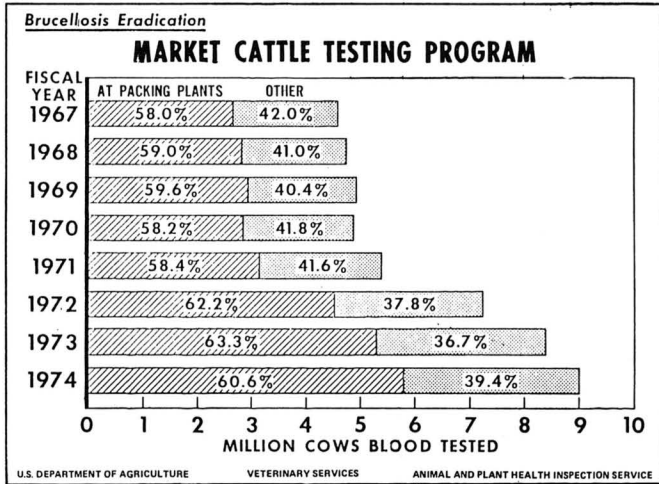


Figure 2. Market Cattle Identification Program. The 8.99 million tests conducted under the MCI surveillance program in FY 1974 continues the upward trend since 1970. The 529,000 increase includes an additional 13,000 animals tested at packing plants and a 516,000 increase at livestock markets. Again, however, this 6 percent increase was accompanied by a sharper rise in the number of MCI reactors. The 63,000 MCI reactors is 17 percent greater than the previous year. The upward trend in the reactor rate established in 1973 continued with an increase from 0.46 in 1972, 0.63 in 1973, and 0.70 in 1974.

Fifteen thousand nine hundred and twelve (15,912) herds of origin were identified and tested from tracing these reactors. Additional infection was disclosed in 5,607 of these herds (35%). The animal infection rate in infected herds was 14 percent—the same rate identified during the previous year.

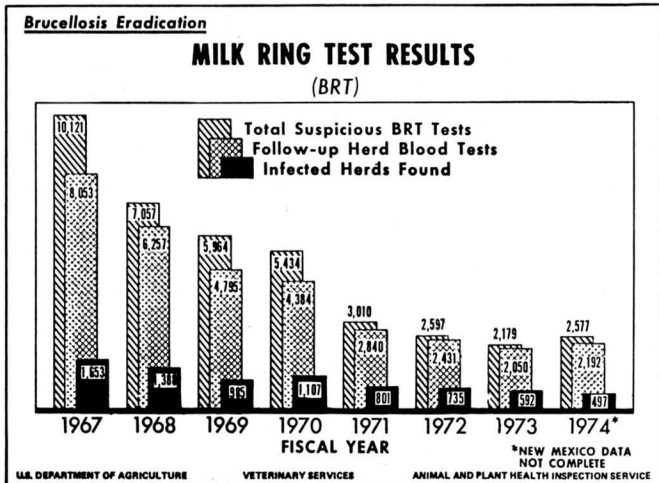


Figure 3. Milk Ring Tests Results. Surveillance data on dairy herds indicates that progress toward eradication has also slowed in this segment of the susceptible livestock population. The previous downward slope of annual brucellosis data reported on dairies has leveled to the point where eradication efforts are not exceeding reinfection factors.

The 2,597 dairy herds which reacted to the BRT in FY 1974 represents 0.28 percent of the herds sampled, an increase over the BRT positive rate of 0.23 percent in 1973 and the highest rate in the past 4 years. Of the 2,192 herds blood tested as a result of a BRT positive test, infection was disclosed in 497 (23 percent). In those herds where brucellosis was detected, 4.0 percent of the animals tested were reactors on the initial herd test compared to 4.4 percent the previous year.

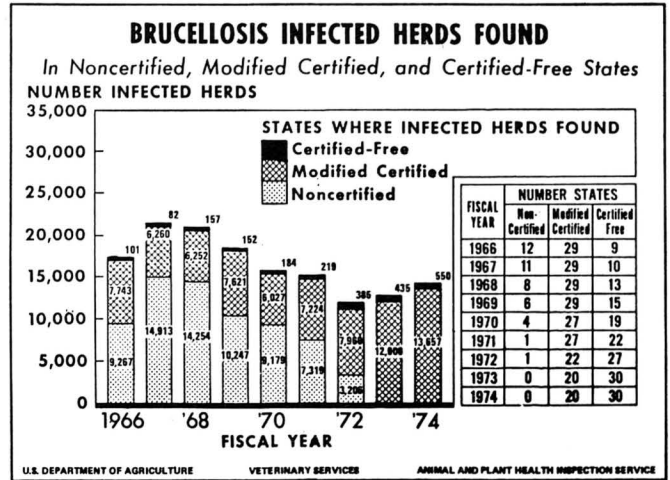


Figure 4. Brucellosis Infected Herds. The 14,207 infected herds identified in the 50 states in FY 1974 represent a 12 percent increase over the previous year. This compares unfavorably with the 8 percent increase in 1973 over the previous year and should be cause for deep concern. Not only have the total number of infected herds detected increased during each of the past 2 years but the rate of increase has also magnified. Five hundred and fifty (550) infected herds were identified in the 30 certified-free states compared to 435 in the same states the previous year. There were 13,657 infected herds in the remaining 20 modified certified States, an increase of some 1,700 in these same states in 1973.

tual purchasing power has been reduced one-third since that time. At the same time, the program has been strengthened and intensified in some of the southern states where the infection is the heaviest. This has substantially increased the amount of money spent for indemnity. All of this added together has given us fewer dollars with which to strengthen our effort to stop spread and to look for new foci of infection.

3. Program Procedures. Another reason for the increased infection rate is ineffective program procedures blamed partially on complacency of people involved in the program. We have recently completed a review of the programs in the southern and southeastern states where the incidence of the disease is the highest. We believe that the review teams have pointed out some very important deficiencies which must be corrected in order for the programs to be successful. At the present time, meetings are underway and in some cases have already been completed with program officials in the affected states to work out procedures which will strengthen the programs and correct the deficiencies. We have to improve the program procedures in every state where there are any deficiencies at all. An inefficient program not only fails, but it continues to waste valuable dollars of taxpayers' money.

4. Cattle Movement. There has been a continuing increase in the number of grade beef cows for many years. At the same time, there has been a changing herd ownership. This means that as high as 20 percent of the people who own cattle this year will sell out and will be replaced by other owners. This causes

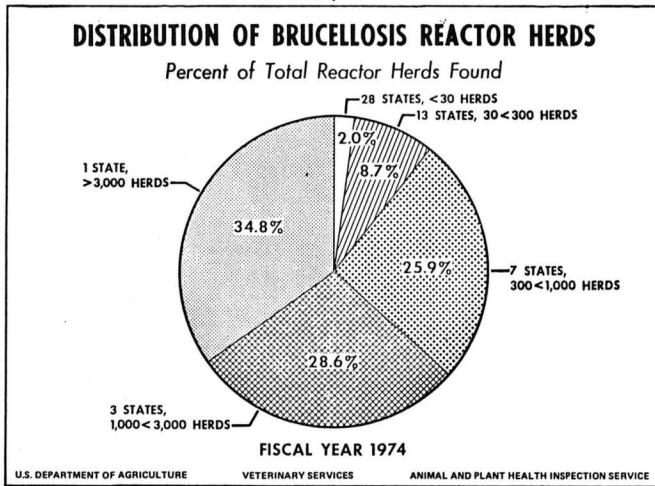


Figure 5. Brucellosis remains predominantly concentrated in the central and southern regions of the United States. Thirty-four and eight tenths (34.8) percent of the infected herds (4,953) were identified in Texas. Although this is an increase of approximately 1,600 over 1973, it reflects the recent dramatic strengthening of program activities in Texas. Continuing increases in the number of infected herds should be expected in Texas in the near future. Twenty-eight and six tenths (28.6) percent of the nation's infection was identified in Louisiana, Mississippi, and Oklahoma. Each of these three states has reported a relatively constant number of infected herds (between 1,000 and 1,700) each year during the previous five-year period in spite of efforts nationally to strengthen program activities. Seven states reported infected herds within the 300 to 1,000 range and collectively account for 25.9 percent of the total. These include Alabama (1974-688; 1970-490), Arkansas (1974-556; 1970-237), Florida (1974-378; 1970-600), Georgia (1974-437; 1970-334), Kentucky (1974-409; 1970-386), Missouri (1974-326; 1970-407), and Tennessee (1974-898; 1970-492).

Not one of the 11 states which collectively reported 89 percent of the infected herds in FY 1974 has significantly reduced the level of infection in their respective states during the past three years.

Twelve (12) states and Puerto Rico had 8.7 percent of the infected herds and are in the range of 30-300 infected herds reported. Of these states, only Nebraska and South Dakota showed a decrease from the previous year. Twenty-eight states reported less than 30 infected herds. No infection was detected in six states and the Virgin Islands.

extensive movement of breeding type cattle, many of which are either infected with or exposed to brucellosis. In the past, our programs have not been effective in dealing with this kind of spread. We must be willing to take an honest look at this and see if we are ready to do the kind of things necessary to stop this spread. This will involve knowing the status of the entire herd of origin before animals move for breeding purposes, or a less effective procedure is to test all animals before movement, allow movement, if no infection is disclosed then isolate and retest at destination before adding to the herd.

5. Surveillance. Our system of surveillance is not effective enough to pick up new infection before it has spread. When infected or exposed animals are added to a susceptible herd, the possibility of a new infected herd is very real. This new infected herd may remain infected for as long as two or three years before our present surveillance system will pick it up. In the meantime, infection has not only spread within the herd but also to other herds due to movement and

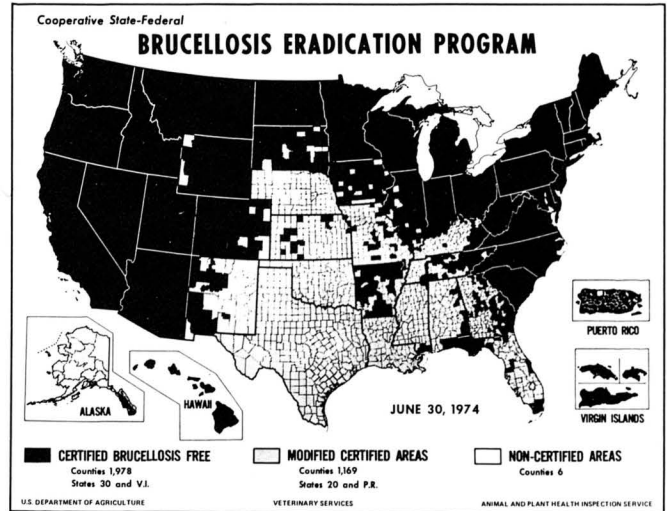


Figure 6. Certification Status / June 30, 1974. Only 32 counties achieved Certified Brucellosis-Free status during the year. The total of 1,978 such counties represents 63 percent of the nation's counties and includes 53 percent of the adult cows. No states qualified for statewide-free status. One thousand one hundred and sixty-nine (1,169) counties in 20 states and Puerto Rico held Modified Certified Area status at the end of FY 1974. One county in Oklahoma, one in Missouri, and three in Texas were listed as non-certified areas because of program deficiencies. Action to remove certification status from 27 additional counties for similar program deficiencies was required in 1974.

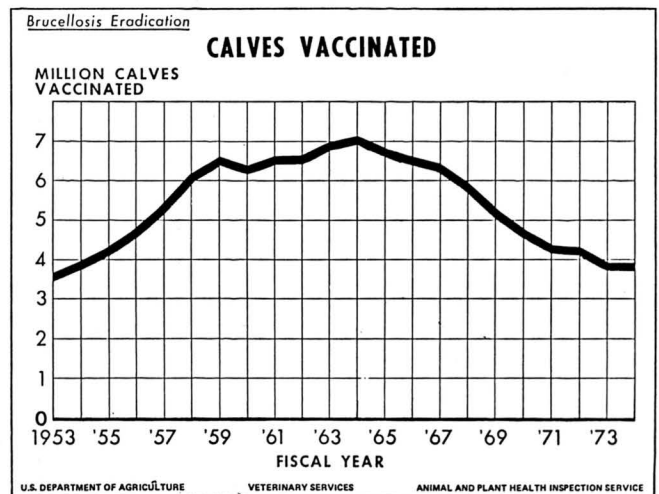


Figure 7. Calfhood Vaccination. The previous downward trend in the number of calves vaccinated annually was halted in FY 1974 with 3.8 million vaccinations / the same number as reported in 1973. Fifty percent of the calves vaccinated were in the 30 Certified Brucellosis-Free States. This is approximately 27 percent of the eligible calves in these free areas. Sixteen percent of the eligible calves in the 20 modified certified states received Strain 19.

association. We have not adequately used the information the surveillance program has provided. We have not done the necessary study of new infected herds to locate other herds which need testing as a result of exposure. Some states do not have authority to provide for this necessary work.

6. Herd Testing. All cattle are not always included in a herd test. Entire groups are missed and individual animals within groups or herds are missed. The other major problem with herd testing is that too

many infected herds are not tested at regular intervals. Either of these deficiencies may delay or even prevent the elimination of infection from a herd.

7. Education. There is enough knowledge concerning brucellosis to finish the task. It is a matter of educating the people who are affected the most and getting them involved in a program that is sound. We must honestly deal with industry and industry organizations regarding brucellosis and what is required to eradicate this disease. We must tell them all we know about it, the damage it does to their livestock, the conditions under which it spreads, as well as the cost of living with the disease. On the other hand, we must make them fully aware of the tremendous job involved in eradicating brucellosis as well as the cost and inconveniences connected with eradication. I realize this is a very large educational task. However, if everyone of us who have an interest and a responsibility in this endeavor will accept our responsibility, we can do it. This involves attitude changes on the part of regulatory workers, both state and federal, cattle owners, marketing people, those

involved in transportation of livestock and most important every segment of the veterinary profession who has any contact at all with cattle and swine producers.

8. Funding. We must have adequate funding. By this I mean enough money to judicially carry out the procedures which are sound and must be followed not only for one year but over a continuing period of time so that we can have some assurance of operating at a level of effectiveness that will work and that will continue without interruption until the job is complete. The agricultural appropriation bill before Congress for the current fiscal year has in it a \$9 million increase for the brucellosis program. If this increase becomes a reality, we will be able to strengthen the Program on a continuing basis.

The time has come to make a choice whether we intend to eradicate brucellosis or continue to live with it. It is my firm belief that an informed livestock industry is the only group that can make that choice. We need your help to get the correct information to the cattle owners and other segments of the industry.

Thank you for the opportunity to meet with you.

Comparative-Cervical Retest of Tuberculosis Suspects

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The tuberculin test has proven its value as the principal tool for the detection of bovine tuberculosis in cattle throughout the world (1). Since the early 1920's the intradermal tuberculin test, applied in the skin of the caudal fold of cattle, has detected over four million tuberculin reactors in the United States and provided a means of eliminating this disease from all but a few hundred tuberculous cattle herds. In spite of this remarkable record achieved through the use of the caudal test, it is well-known that no skin test procedure is perfect, as evidenced by the high number of no gross lesion (NGL) reactors in recent years. As the prevalence of *Mycobacterium bovis* infected herds decreases (30 in fiscal year 1974), the relative importance of false-positive tuberculin responses increases. It is generally agreed that most false-positive responses in cattle are a result of the animal having been infected by microorganisms that contain some antigenic characteristics similar to *M. bovis* which causes the host to show some degree of heterospecific response (2,5).

Since the early 1940's procedures employing more than one type of tuberculin have been used to help differentiate *M. bovis* infected cattle from cattle showing heterospecific sensitivity due to other microorganisms (6,8). The procedure which has given the most reliable results to date involves the use of avian and mammalian purified protein derivative (PPD) tuberculins injected simultaneously at different sites on the neck. Animals which show a greater response to the mammalian tuberculin are considered possibly infected with *M. bovis* (9,14). Huitema (6) has presented data to suggest that when PPD's of equal biologic potency are used more specific results are achieved.

In 1971 the United States Department of Agriculture conducted a field trial to evaluate the use of the comparative-cervical (C-C) tuberculin test as a supplemental diagnostic test for the clarification of the status of caudal fold tuberculin test "suspects." The results of this field trial were presented at the 77th annual meeting of the United States Animal