BRUCELLOSIS AND RESEARCH UPDATE

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There have been several significant events in the battle against brucellosis since the last Dairy Production Conference. In the short time available we can discuss a few of these and their possible impact on the future effort, to control this complex and often frustrating disease.

Report of the Brucellosis Technical Commission

During 1975 a number of organizations requested that a study be conducted of the national bovine brucellosis eradication program. The members of a commission were to be selected on the basis of expertise in brucellosis, economics, public health and the cattle industry.

A five member commission was formed in 1976 and a report was published in August 1978. Below are listed some of the general and pertinent findings:

1. Effective control leading to local eradication of bovine brucellosis is biologically feasible. State and federal governments and industries affected should support a cooperative program.

2. Biological knowledge essential to accomplish control leading to local eradication is available. However, levels of understanding and current knowledge are low in many places and programs of education should be supported.

3. Investment of funds in sound modifications of the present program targeted to varying requirements of herds will produce a favorable return.

4. Administrative problems in disbursing indemnity payments engender antiprogram sentiment. A method of correlating claims with replacement values and prompt payments should be instituted.

5. Research funding should be adequate to assure adequate scientific knowledge as new problems arise.

6. There is additional need for knowledge on the dynamics of dairy and beef cattle industries and how these affect disease control including brucellosis. Various government agencies in cooperation with the Land Grant Universities should conduct research in this area.

7. There is inadequate data to provide evaluations of brucellosis program performance and priority should be given to an adequate data collection system.

8. A nonduplicative individual animal identification system should be developed so that all cattle changing ownership after 1981 can be traced to herd of origin.

9. Serious consideration should be given to the prospect that Occupational Safety and Health Standards may be imposed in the packing industry on slaughter of reactor cattle.

10a. That a warranty on all changes of ownership be considered.
b. That classification of herds, states or regions be based upon sound principles.
c. That systems of individualized herd management be adopted.
d. That information from research be used to permit increased resistance in herds (adult cattle or herd vaccination).

11. That the Market Cattle System should not be used as the sole or primary method of surveillance or classification of areas.

Adult Cattle Vaccination

The studies which generated data which supported the adoption of this procedure began in late 1975 in selected Florida dairy herds. These studies had shown that:
1. A reduced dose of Strain 19 provided resistance at least equal to that of the calf dose regardless of method of administration;
2. Methods are available to, with a high degree of accuracy, differentiate vaccinal and field strain infection titers, especially where the reduced dose is used;
3. Adult cattle vaccination resulted in dramatic reductions of reactors removed from herds when compared to pre-vaccination levels using test and slaughter methods;
4. That vaccine induced abortions were less than the 1% of the vaccinated population and constituted no serious problem in the program;
5. That Strain 19 udder infections were less than 1% of the vaccinated population but would result in condemnation of some cattle since bacteriologic methods are the only form of differentiation of these from other infected cattle.

In October, 1978, a report was made to the United States Animal Health Association which summarized results of adult vaccination in dairy herds in Florida and Puerto Rico up to August, 1978. Among 95 herds in Florida and 68 in Puerto Rico, there was an 87% and 86% reduction in reactors, respectively, by the third post-vaccinal test. Many of these herds are now free of brucellosis.

To date, there have been 180 herds (108 dairy and 72 beef) which have been adult vaccinated in Florida.

Research

During the past few years there has been a renewed interest in research on brucellosis. This is because of the increase of brucellosis during the early and mid-seventies and an increase in federal funds.

Some of the major areas of research and where conducted are:
1. Improved diagnosis - Minnesota, Wisconsin, Texas, Alabama, Florida, California, New Mexico
2. Vaccine Evaluation
   a. Dose - USDA (Ames, Iowa)
   b. H38 - California
3. Latent Infections - Alabama, Texas
4. Wildlife - Wyoming, Alaska, Texas
5. Responses of the fetus - Louisiana
6. Cell Fraction - Wisconsin, USDA (Ames), Virginia
Needed Areas of Research

1. Incubative Infections
2. Diagnostic Tests, especially for vaccinated cows and for high volume test procedures
3. Optimal Dose of Vaccine
4. Chemotherapy

In Florida we would like to continue work on the indirect hemolytic test and initiate studies on dermal antigens and chemotherapy.

Program Changes

In my opinion, there are major changes which should be made in the national and state program. (Some of these are receiving consideration)
1. County certification should be eliminated
2. Card test should only be a screening method
3. Individual herd plans
   a. Should include prerogative for temporary retention of reactors under certain circumstances
   b. Flexibility in test schedules; vaccination
4. Wider use of whole herd vaccination without the serious restrictions which now exist.
5. Prerogative to vaccinate imported dairy replacements into negative herds.