

### General Discussion on Brucellosis

**Chairman: Shibata, S.** (Japan): I would like to express my appreciation to the foreign guest-speakers for the effort made by their governments in eradicating brucellosis in their respective countries. The recent finding of *Brucella canis* reported by Dr. Isayama was most interesting as well as his classification work on the various *Brucella* organisms by gas chromatography. Mention should be made of the history of eradication of brucellosis in Japan over the past 60 years as outlined by Dr. Hashimoto. Indeed, Japan is the first country in the world to succeed in controlling completely brucellosis through the "test and slaughter" method. I would like to invite the participants to make a few comments on the problems relating to vaccination against brucellosis.

**Joseph, P.G.** (Malaysia): In Malaysia, live vaccine strain 19 is being used in female calves between the ages of 3 to 6 months (hole punched in the right ear), as it affords protection for about 7 years. Strain 45/20 (killed adjuvant vaccine) has been used in 1972 - 1973 in adult cattle at a government farm to reduce the abortion rate in infected herds. The use of this vaccine is also indicated when the disease is rampant. It appears that the immunogenicity and protection rate of strain 45/20 are lower than those of strain 19 which is presently used for the vaccination of cattle (no other animals are vaccinated). Vaccination is carried out because the incidence rate is high in certain areas so as to build up immune herds and remove infected animals. However, we plan to discontinue the vaccine once the eradication program brings the reactor levels to very low values.

**Srihakim, S.** (Thailand): We used to vaccinate adult cattle with *Brucella* vaccine strain 45/20 (negative for blood testing). Presently, we are using strain 19 for female calves between the age of 3-6 months, as the vaccine is produced locally.

**Gatapia, S.L.** (Philippines): In the Philippines only the commercial farms are vaccinating the animals, particularly in using strain 19 vaccine.

**Carlos, R.S.** (Philippines): Could you explain to us how you successfully eradicated brucellosis in Japan and what method you would recommend us to apply in our country?

**Hashimoto, K.** (Japan): At first, you should vaccinate cattle with strain 19 vaccine and separate the infected animals from the healthy ones. Thereafter, the "test and slaughter" method for infected cattle should be applied.

**Chairman:** I would like to propose now to take up problems pertaining to the diagnosis of brucellosis.

**Joseph, P.G.** (Malaysia): The diagnosis of bovine and porcine brucellosis is based on:

1. Serological tests: a) Rose Bengal Plate Agglutination Test (RBPT) b) Serum Agglutination Test (SAT) by tube method. c) Complement Fixation Test (CFT) by micro-titre method and d) Milk Ring test (MRT) for bovine only.

Of these tests, the CFT is the definite test and the RBPT is used as a screening test.

2. Bacteriological tests: culture of tissues, discharges, milk, semen on serum dextrose agar with Polymyxin B, Bacitracin and Actidione (SDA).

3. Biological test in guinea-pigs.

4. Biotyping of *Brucella* isolates. In serological testing, the antigen used for the SAT and CFT is standardized with the 2nd. International Anti-*Brucella abortus* serum. It is essential to standardize serological tests for brucellosis and have clear-cut guidelines for the interpretation of titres in vaccinated and non-vaccinated cattle. In carrying out serological surveys it is also essential to have representative sampling if the surveys are to indicate State or National incidence rates. Abattoir sampling in Malaysia, at least, will not give national reactor rates as the majority of the animals slaughtered are males in which the incidence of the disease is naturally low.

**Carlos, R.S.** (Philippines): For the diagnosis of brucellosis the rapid plate agglutination test and tube agglutination test are being used. We would like to set up a national testing program so as to establish a national program of vaccination, as soon as we have a standardized antigen.

**Koh, J.G.W.** (Singapore): Singapore implemented a voluntary brucellosis eradication program for pigs in 1972. Two problems were encountered .1. Some farms could not be accredited because of the persistence of a small number of reactors. 2. Some farms which were accredited had

relapses of brucellosis of unknown origin. It was suspected that the 2 tests used, namely Rose Bengal plate test and tube agglutination test were not sensitive enough to detect certain infected animals but were also non-specific in certain cases. The 2-Mercapto ethanol test was introduced in 1976/1977. Since then those farms with low reactor rates to the RBT or SAT could become accredited based on negative 2-MET. To date, none of these farms have had relapses of brucellosis. The 2-ME test is therefore very useful in the sero-diagnosis of *Brucella* infection in farms where the incidence of brucellosis is very low or negative.

**Chairman:** At the end of this discussion we could perhaps consider some problems relating to public health.

**Gupta, B.K.** (India): In a study carried out in India, a few cases of brucellosis have been detected in people associated with the animal industry.

**Joseph, G.P.** (Malaysia): Serological tests have been carried out on personnel working in pig farms and laboratories and some of the tests were positive. In man, it would be preferable to perform the Coombs test. Isolation of *Brucella abortus* has not been achieved from blood cultures obtained from patients.

**Isayama, Y** (Japan): A few cases of laboratory infection are documented in Japan, involving *Brucella suis* and *Brucella melitensis* and more recently, *Brucella canis* (in Hokkaido and Tohoku).