



Community's Perception of Brucellosis by Applying Participatory Epidemiology in Chiang Mai and Lamphun Province, Thailand

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Introduction

- Bovine brucellosis is usually caused by *Brucella abortus*, less frequently by *B. melitensis*, and occasionally by *B. suis*
- Bovine brucellosis is characterized by one or more of the following signs: abortion, retained placenta, orchitis, epididymitis and, rarely, arthritis, with excretion of the organisms in uterine discharges and in milk (OIE, 2009)

Brucellosis as a zoonosis

- Brucellosis, also known as “undulant fever”, “Mediterranean fever” or “Malta fever” is a zoonosis and *the infection is almost invariably transmitted by direct or indirect contact with infected animals or their products (WHO, 2006)*

Objective of study

- Investigation of the perception of communities on brucellosis in Chiang Mai and Lamphun province, Thailand by applying Participatory Epidemiology's tools.

Area information

- Sa-Luang--sub district
 - Area size: 118,389 Km² or 73,993.12 Rai
 - Population: 4,692 (2011)
 - Administration: 8 villages
- Na-huh--village
 - 150 households
 - 17 beef cattle farms
 - 10 public health volunteers



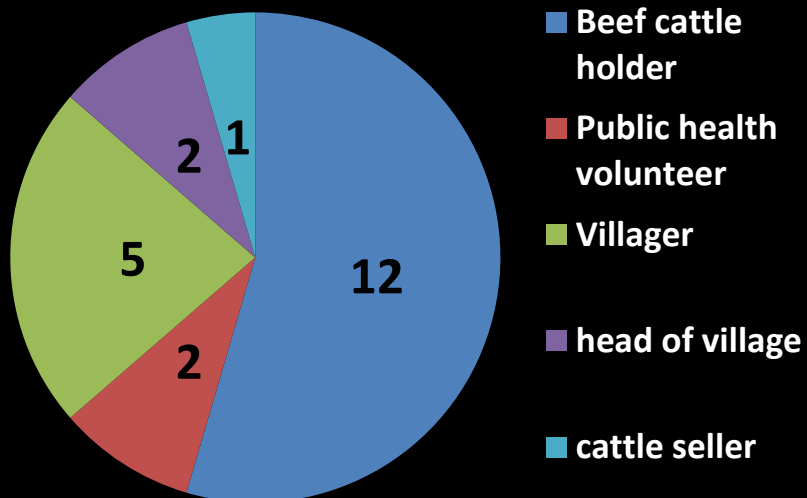
Area information

- **Tha –Pha-Duk--sub district**
 - Area size: 136.163 Km² 85,102 Rai
 - Population: 6,237 (2009)
 - Administration: 15 villages
- **Pa-Tueng--village**
 - 40 beef cattle farms

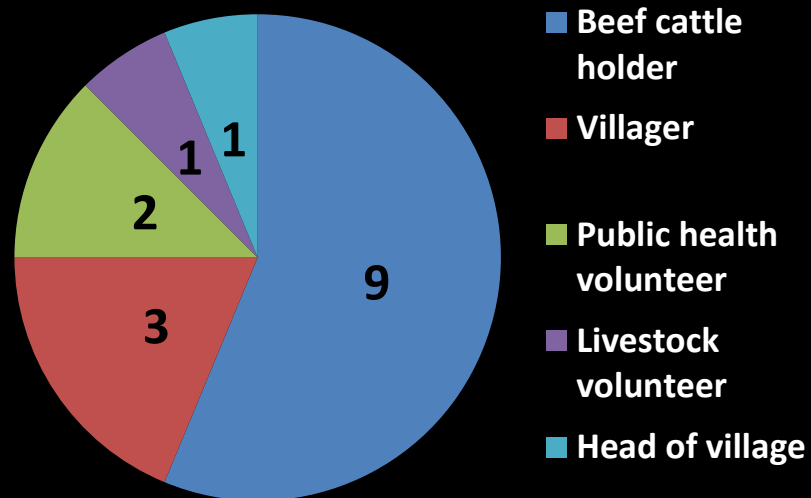


Study population

Na-huh key informants (22)



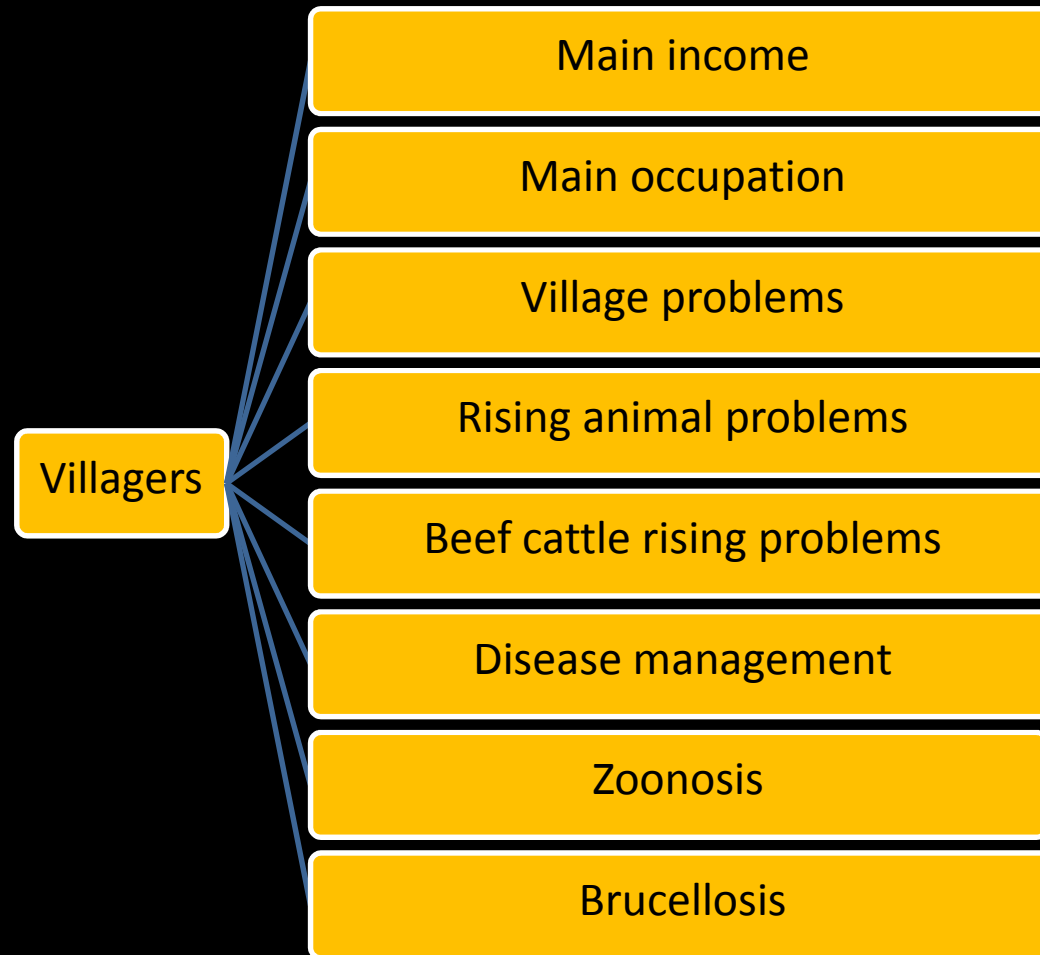
Pa- tueng key informants (16)



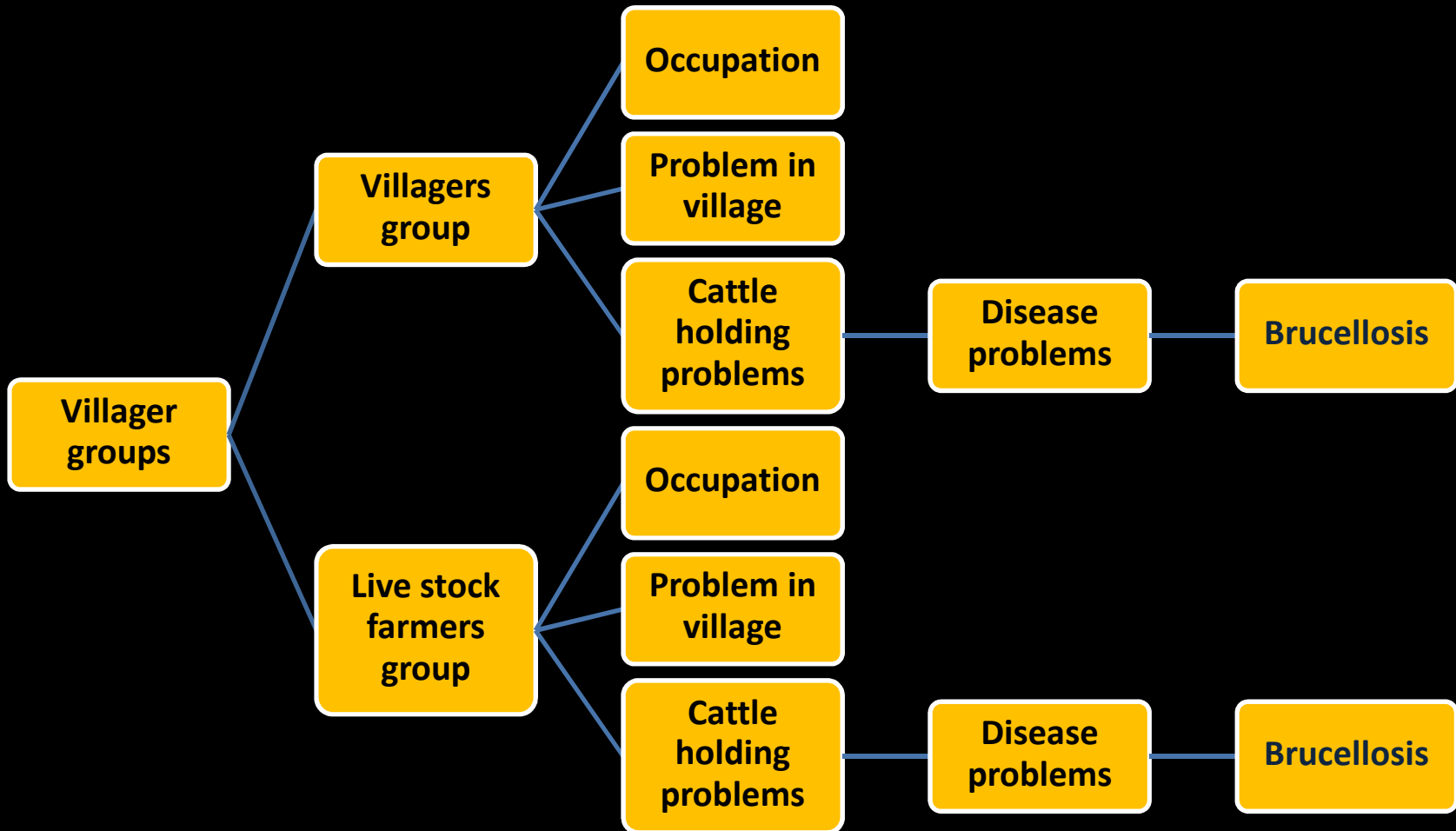
P.E. tools

- Semi structure interview
- Focus group discussion
- Mapping
- Proportional piling

Semi-structure interview

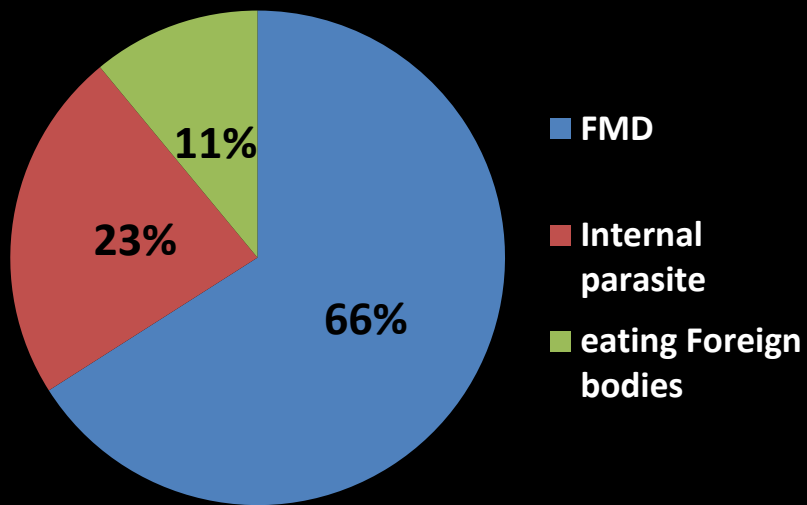


Focus group discussion

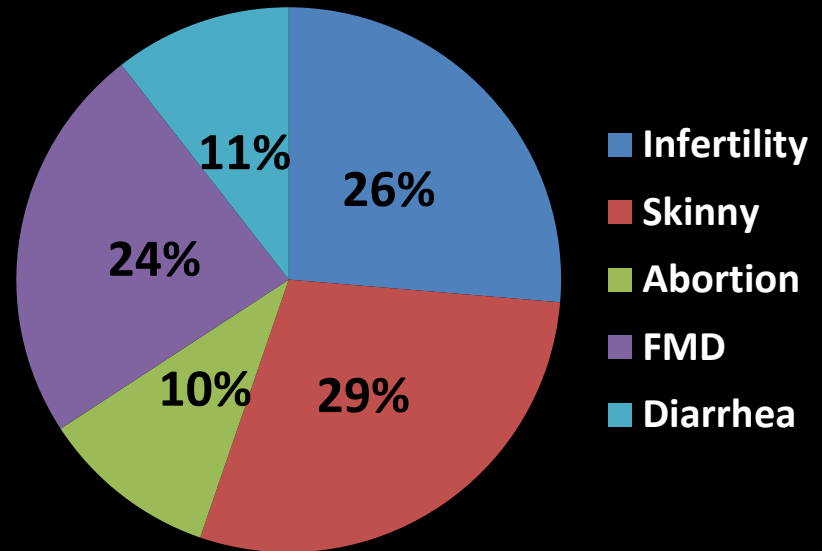


Results

**Villagers :Na-huh , animal
Disease Problems (%)**

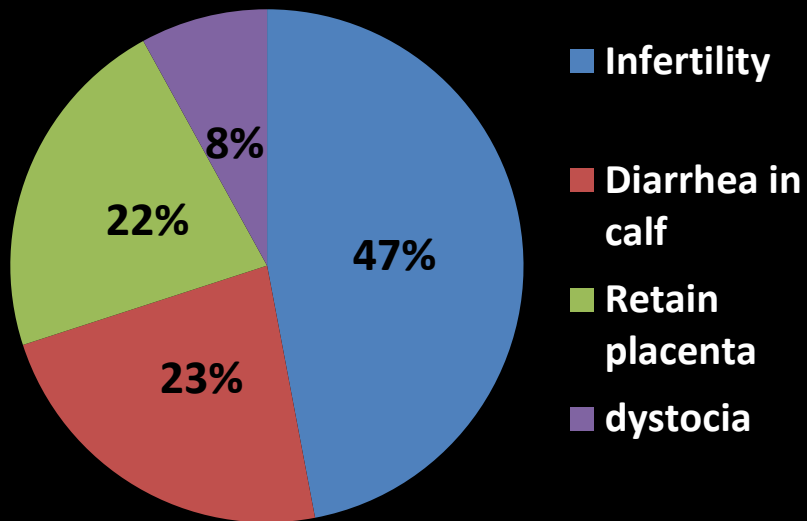


**Cattle holders : Na-huh , animal
disease problem (%)**

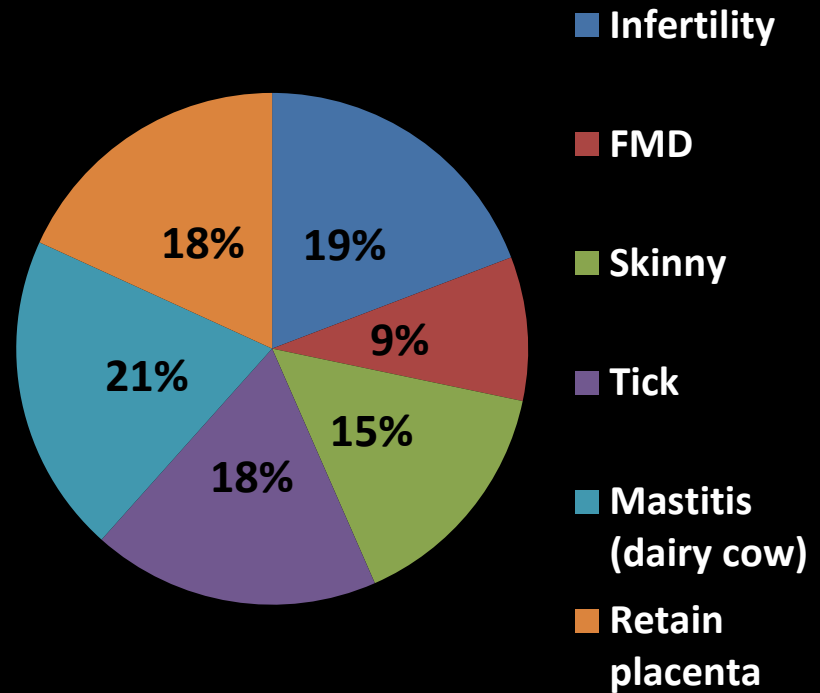


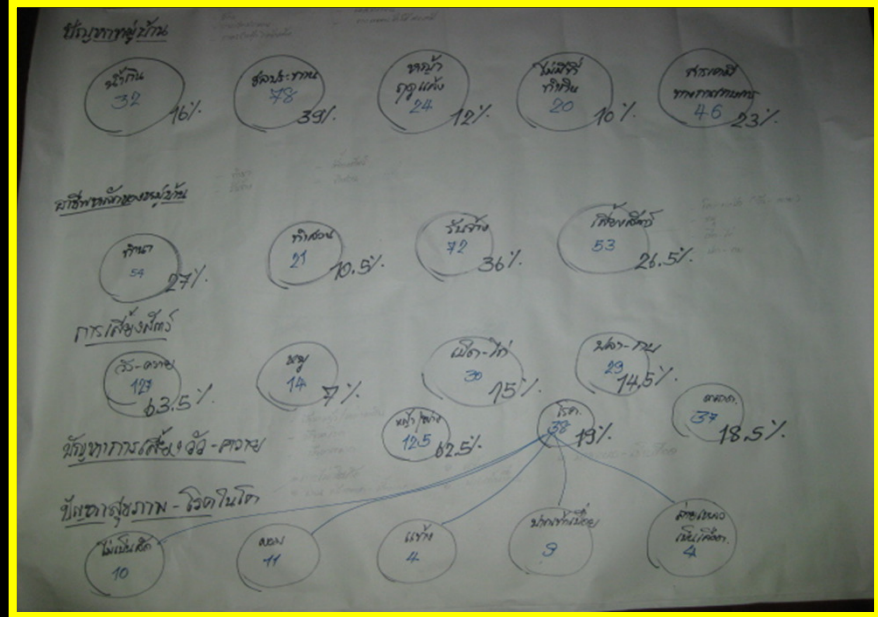
Result

Villagers : Pa-tueng, animal disease problem (%)



Cattle holders: Pa-tueng, animal disease problem (%)





The informants listed rabies (40%), Avian Influenza (24.4%), Leptospirosis (8.9%), Tuberculosis (6.7%), Anthrax (6.7%), and *Streptococcus suis* (4.4%) as known zoonoses

Results

- The important problems for raising cattle in this areas are **infertility**
- Only one person has knowledge of brucellosis
- They received zoonosis information by government campaigns (Ministry of Public health Campaigns)

Conclusion and discussion

- The knowledge and perception on brucellosis is very poor in the beef cattle small holders and villagers in the study areas
- There are not the same perception between villagers and cattle holders

Conclusion and discussion

- The disease experience of village has effect on villager's perception
- Need further investigation to classify the causes of “infertility”
- Rapid response necessary to control and prevent the disease

Remaining questions

- Would be the correct priority level of investment for brucellosis in beef cattle at the national level?
- How different of Participatory Epidemiology disease investigation comparing with classical disease investigation and laboratory test of brucellosis on the same area?.

Acknowledgement

- VPHCAP CMU
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- Rockefeller foundation

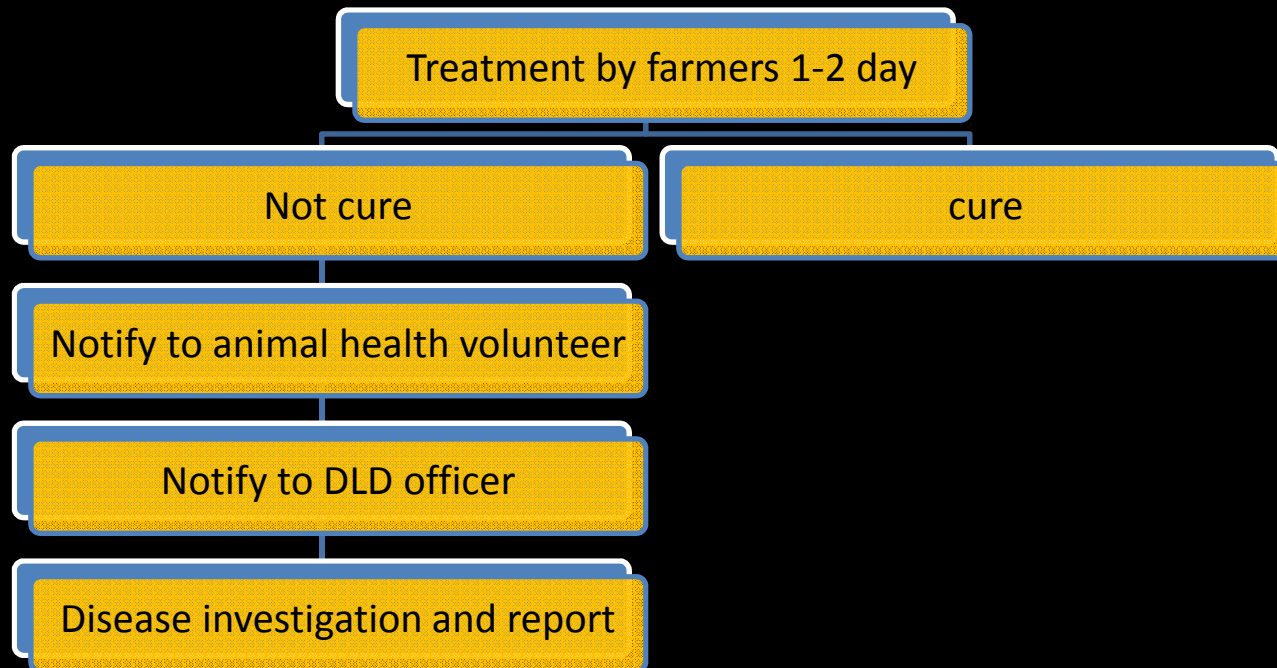
Thank you for your attention

References

- OIE (2009) BOVINE BRUCELLOSIS
- WHO (2006) *Brucellosis in humans and animals*, Geneva, WHO press.

Conclusion and discussion

- Disease response



Government Brucellosis's control policies and methods

- “Emergency disease” : mandatory report to Department of Livestock Development with in 72 hrs
- Weekly report until disease disappear
- Declare epidemic zone and control animal movement
- Summit vaccination plans for epidemic area with in 72 hour
- In normal herd: Serum Rose bengal test (twice a years)

Table 1. Symptoms and signs in 500 patients with brucellosis due to *B. melitensis*.

Symptoms and signs	Number of patients	%
Fever	464	93
Chills	410	82
Sweats	437	87
Aches	457	91
Lack of energy	473	95
Joint and back pain	431	86
Arthritis	202	40
Spinal tenderness	241	48
Headache	403	81
Loss of appetite	388	78
Weight loss	326	65
Constipation	234	47
Abdominal pain	225	45
Diarrhoea	34	7
Cough	122	24
Testicular pain/epididymo-orchitis	62	21 ^a
Rash	72	14
Sleep disturbance	185	37
Ill appearance	127	25
Pallor	110	22
Lymphadenopathy	160	32
Splenomegaly	125	25
Hepatomegaly	97	19
Jaundice	6	1
Central nervous system abnormalities	20	4
Cardiac murmur	17	3
Pneumonia	7	1

Adapted from MM Madkour. *Brucellosis Overview*. In: Madkour's Brucellosis, 2nd edition. Springer, Berlin

^a Among 290 males

Table 2. Animals affected by *Brucella* spp.

HOST	<i>B. abortus</i>	<i>B. melitensis</i>	<i>B. suis</i>	<i>B. canis</i>	<i>B. ovis</i>
Cattle	+	+	+(rare)	-	-
Buffaloes	+	+	-	-	-
Bison	+	-	-	-	-
Sheep	+(rare)	+	+(possible)	-	+
Goats	+(rare)	+	-	-	-
Swine	+(rare)	+(rare)	+	-	-
Dogs	+	+	+(rare)	+	-
Camels	+(rare)	+	-	-	-
Caribou/Reindeer	-	-	+(biovar 4)	-	-
Elk	+	-	-	-	-
Horses	+	+(rare)	+(rare)	-	-
Rodents	+(rare)	+(rare)	+(biovar 5)	-	-

- **The RBT** is currently the recommended rapid screening test, but the results should always be confirmed by other tests detecting agglutinating and non-agglutinating antibody and by bacteriological culture, particularly in areas where there is a high incidence of animal brucellosis
- The sensitivity of RBT is over 99%

- **The serum (tube) agglutination test (SAT)**, or micro-titre plate variants of this, using heat/phenol-killed whole S-cells, detects antibodies to the S-LPS. Antibodies reacting against S-LPS can also be detected by other tests – e.g. enzyme-linked immunosorbent assay (ELISA)

- **The SAT** is a very useful test for the diagnosis of human brucellosis when it is performed with a standardized antigen preparation, and titres which can be expressed in International Units (IU) can be correlated well with clinical stages of infection

- **The milk ring test (MRT)** is a simple and effective method, but can only be used with cow's milk. A drop of haematoxylin-stained antigen is mixed with a small volume of milk in a glass or plastic tube. If specific antibody is present in the milk it will bind to the antigen and rise with the cream to form a blue ring at the top of the column of milk.