

Brucellosis activities reported by CCS veterinarians

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This month we take an introspective look at the involvement of compulsory community service (CCS) veterinarians in the control of brucellosis in the Western Cape compared to the rest of South Africa; bearing in mind that this data is taken directly from unaudited CCS monthly reports from April 2016 to July 2018. Data analysed focuses on samples collected for *Brucella abortus* and *Brucella melitensis* surveillance, various testing methods used for detection of brucellosis and vaccination with S19 and RB51.

Between April 2016 and July 2018 the Western Cape has collected about 3.8% of the total samples collected by CCS vets for brucellosis testing in South Africa (fig 1). According to the current Bovine Brucellosis Scheme, testing for bovine brucellosis is compulsory only for high-risk herds that have been confirmed as or are suspected of being infected. For all other herds and livestock owners, entering into a brucellosis testing scheme is voluntary. Compared to other provinces, the Western Cape has had relatively few farms involved in brucellosis outbreaks, hence the low representation in collection of samples.

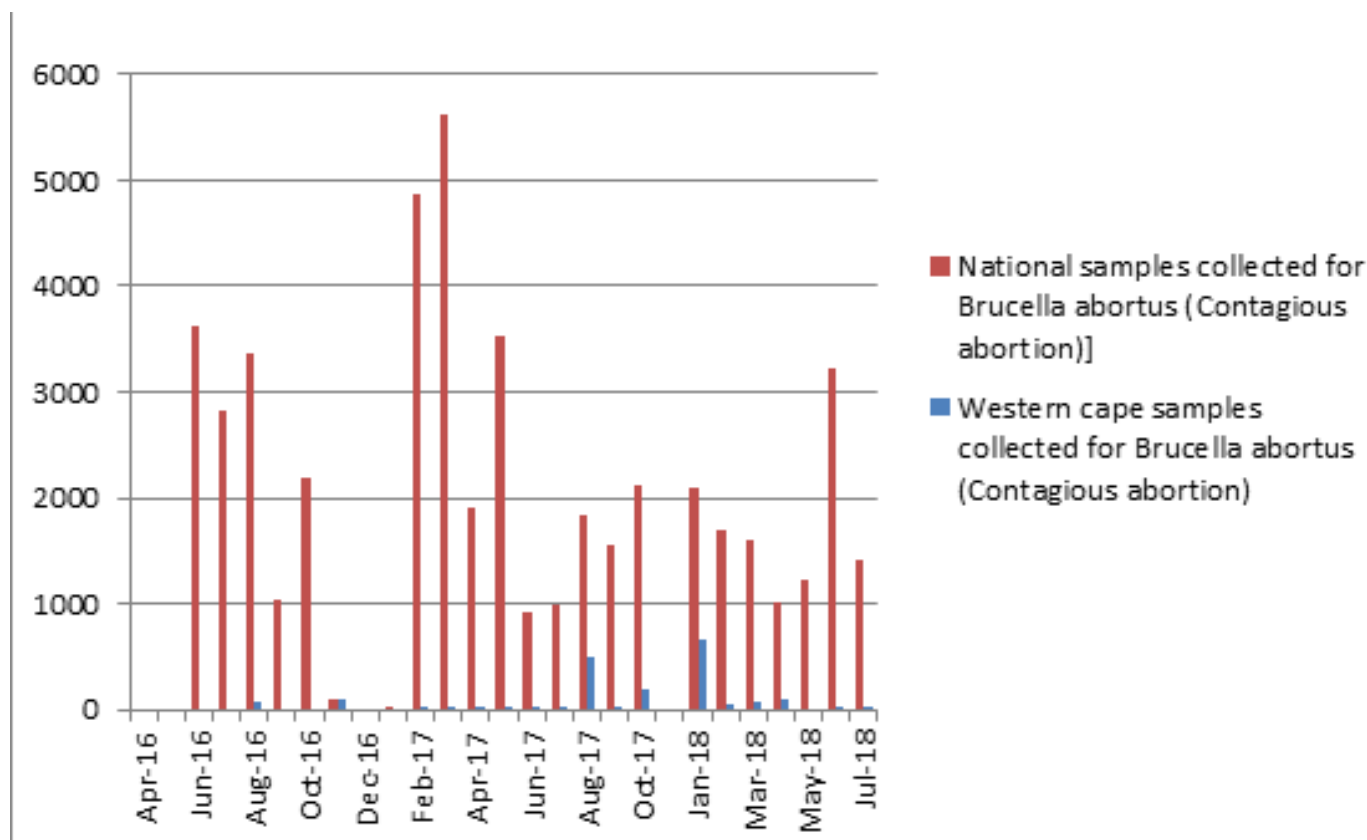


Figure 1: Samples collected for *Brucella abortus* testing by CCS vets in South Africa

Government resources are prioritized to retest and control bovine brucellosis in infected or suspect herds. Therefore, the status of herds not classified as high-risk remains unknown. Livestock owners may not know the status of their herds and inadvertently buy and sell animals from infected herds.

The Western Cape has collected approximately 18.2 % of the samples collected by CCS vets for *Brucella melitensis* surveillance (fig 2). Outbreaks of *Brucella melitensis* in certain parts of the Western Cape caused the spikes seen in

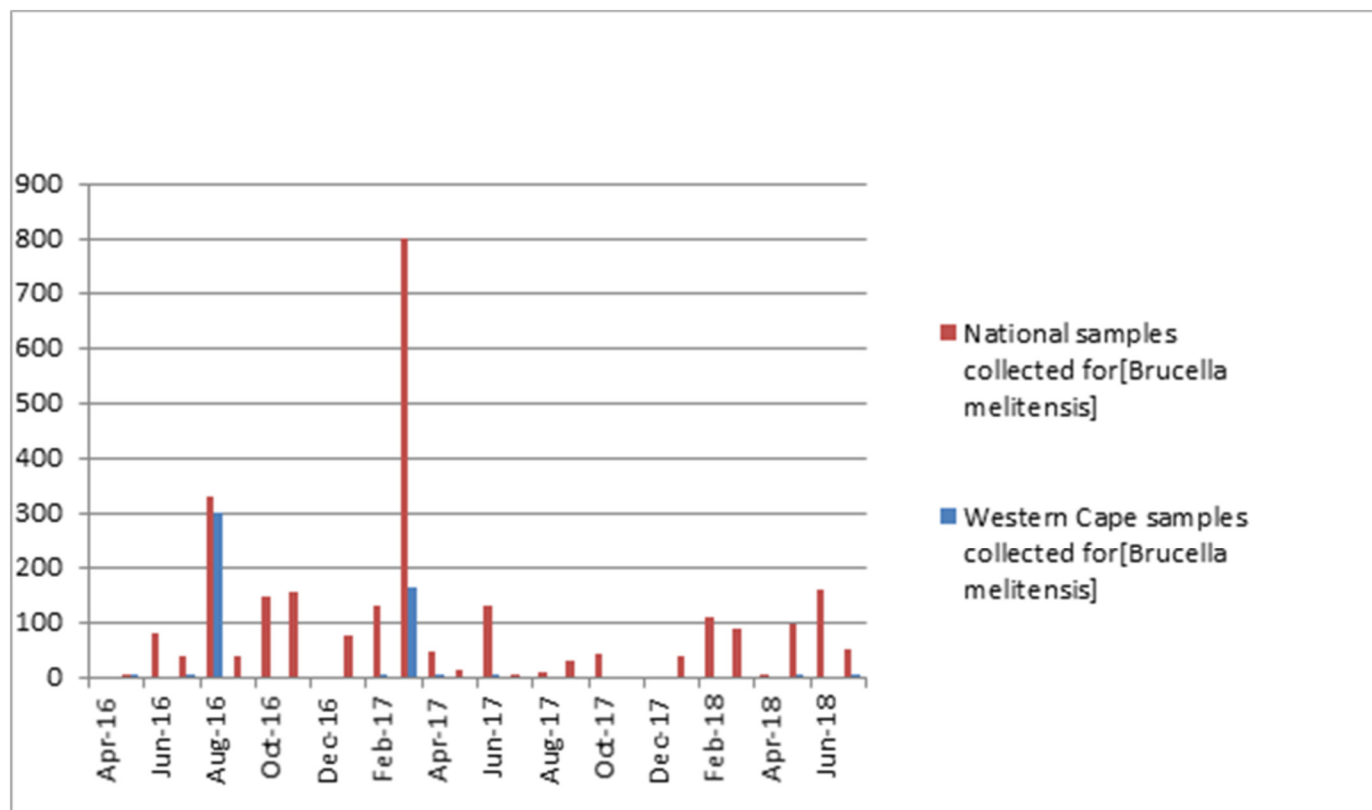


Figure 2: Samples collected for *Brucella melitensis* testing by CCS veterinarians in South Africa

figure 2 in 2016 and 2017, as CCS vets were involved in follow-up sampling in the affected areas. For instance, in August 2016, the Western Cape accounted for 92% of the samples collected (302/328).

Samples collected for bovine brucellosis testing can be subjected to several different tests (Table 1). The Rose Bengal test (RBT) is the most commonly used screening test. Samples testing positive on the RBT are then subjected to the complement fixation test (CFT). If the CFT test is negative there is no need for further tests, however, a positive CFT result cannot distinguish between infection with *B. melitensis* and *B. abortus* or between positive results due to infection or vaccination. A definitive species diagnosis will depend on culture, isolation and identification of the agent. As most samples tested are negative, the results show that the majority of *Brucella* testing involves the RBT. In the Western Cape the most requested test reported is the CFT test (Table 2). As the CFT test is almost always done in combination with the RBT, it is likely that this is a reporting error.

Table 1: Tests for brucellosis requested by CCS veterinarians in South Africa (April 2016-July 2018)

	Complement fixation test (CFT)	Rose Bengal test (RBT)	Bacterial culture and biochemical identification	Milk ring test (MRT)	ELISA test
2016	4987	46169	1397	1055	214
2017	5517	15626	66	513	99
2018	620	23314	444	790	1
Total	11124	85109	1907	2358	314

Table 2: Tests for brucellosis requested by CCS veterinarians in the Western Cape (April 2016-July 2018)

	Complement fixation test (CFT)	Rose Bengal test (RBT)	Bacterial culture and biochemical identification	Milk ring test (MRT)	ELISA test
2016	385	0	1	0	2
2017	0	0	0	0	4
2018	0	1	8	0	0
Total	385	1	9	0	6

Vaccination of all heifers against bovine brucellosis between the ages of 4 and 8 months is compulsory according to the Animal Diseases Act (Act 35 of 1984); however, this is the responsibility of livestock owners, who do not always comply. Vaccination is essential to build up national herd immunity and therefore to prevent disease transmission to naïve herds, but state veterinary services cannot conduct vaccinations on a large scale due to limited capacity and resources. The vaccination of herds that do not have access to private veterinary services is therefore prioritised.

A sharp annual increase in RB51 vaccinations is observed in January (fig 3). This might be due to new CCS vets arriving in their posts in January each year and participating in the vaccination of livestock with animal health technicians in their areas. S19 is used once in heifers between the ages of 4 and 8 months, as inoculating an animal older than 8 months may lead to the animal persistently testing positive on blood test results. RB51 can be administered to non-pregnant heifers and cows at any age as it will not cause positive blood test results, hence the data reveals less S19 is administered than RB51.

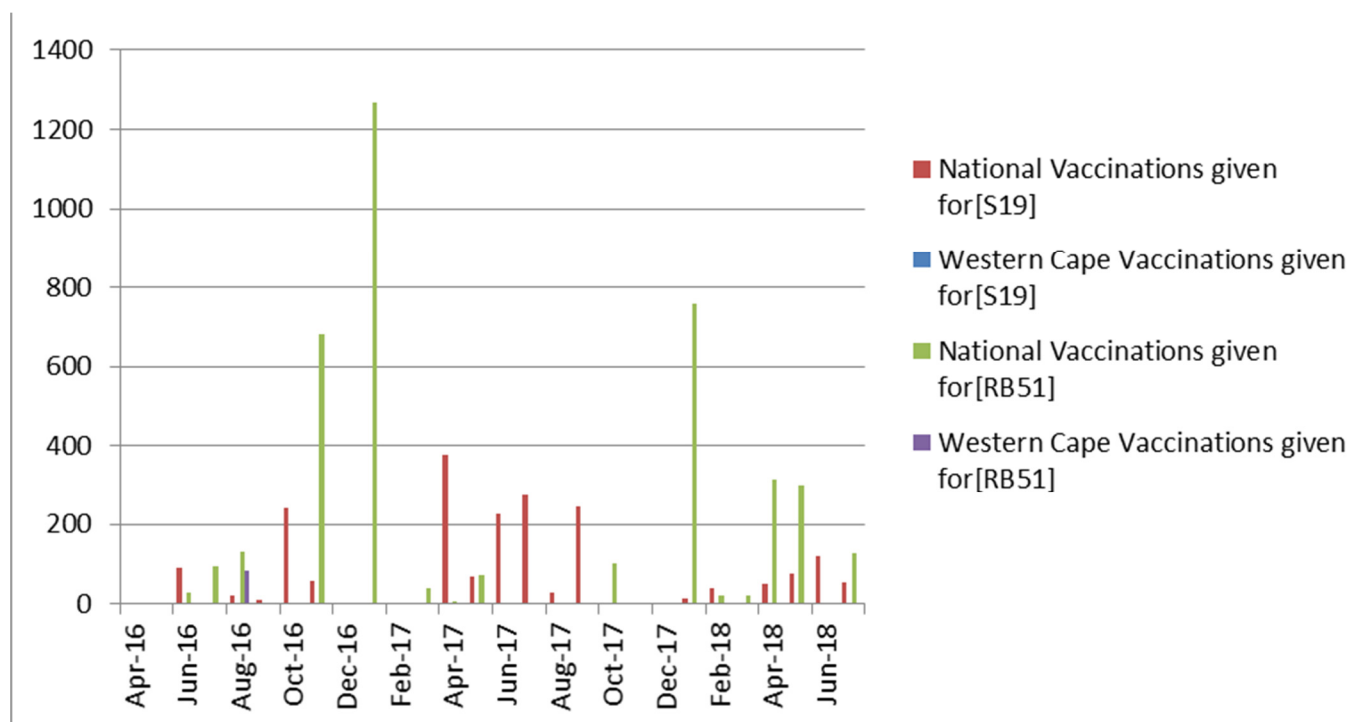
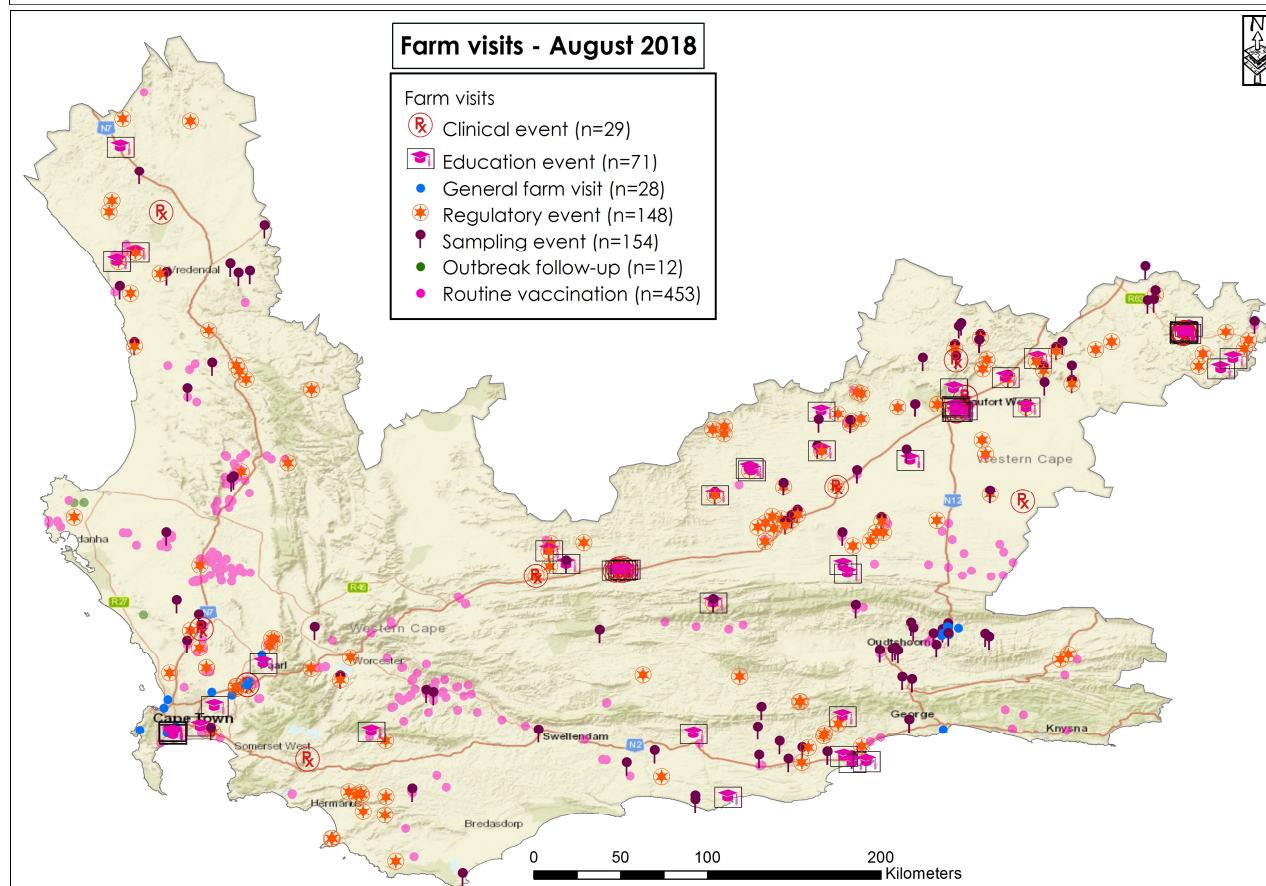
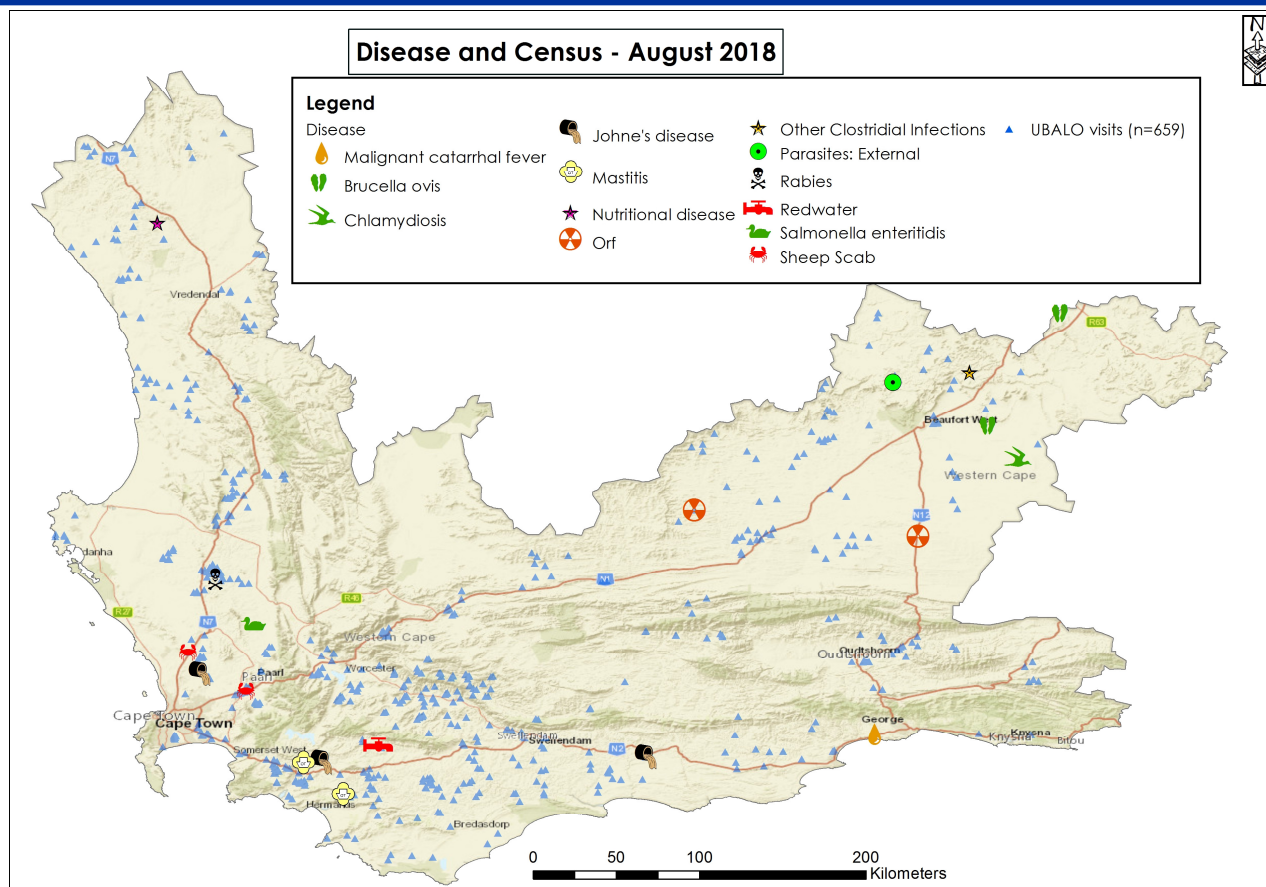


Figure 3: Bovine brucellosis vaccinations performed by CCS veterinarians in South Africa

CCS veterinarians in the Western Cape are not involved in the vaccination of production animals because this task is the responsibility of animal health technicians (for farmers who do not have access to vaccine), private veterinarians and livestock owners. Currently in the Western Cape there is no specific post for a CCS veterinarian that primarily works with production animals, as most clinical work for production animals is outsourced by the state to private veterinarians. All CCS vets in the Western Cape are involved in companion animal work and spend at least 50% of their time working in animal welfare across the province. To increase involvement of CCS veterinarians in production animal work a CCS post could be applied for at DAFF, however, there is a lack of funding and infrastructure for such a post. CCS vets in the Western Cape are currently posted in positions where there is a need in the community, as well as an established facility and mentor(s), such as state vet offices, abattoirs and animal welfare organisations. The potential exists for a CCS vet to fulfil the clinical and herd health needs of an underserved agricultural community, but a facility already operating in the area would be required to make this possible.

In conclusion, although they are less involved in brucellosis-related activities than in some other provinces, CCS veterinarians in the Western Cape make a contribution to the control of brucellosis, especially in sample collection for detection of *Brucella* infections. There is currently an overrepresentation of CCS vets working with companion animals in our province and an underrepresentation of CCS vets working with production animals. This imbalance should be looked into, as there may be a need for participation of CCS vets in the field to work with farmers to control this disease and provide other primary animal health care services. Additionally, it would be of great benefit to South Africa if all CCS vets gained experience with brucellosis control during their community service year. However, meaningful work can only be done in areas where there is sufficient infrastructure, funding and support personnel.

Disease and surveillance



Outbreak events

A **bat-eared** fox near **Moorreesburg** came into the fenced garden of a homestead and proceeded to fight with two farm dogs. The fox was killed and the two in-contact dogs examined. The dogs had been vaccinated recently against rabies and no visible wounds were found, so both were revaccinated. Testing of the fox's brain was positive for **rabies** virus.

Johne's disease was confirmed on three farms near **Heidelberg**, **Caledon** and **Klipheuwel**. On all farms, **sheep** were observed with chronic emaciation and bottle jaw. The farms were placed under quarantine.

Dead-in-shell chicks at a **broiler chicken** hatchery near **Herman** tested positive for **Salmonella enteritidis** on two occasions a week apart. Increased monitoring for *Salmonella* is in place in the hatchery, as well as increased washing and disinfection.

An outbreak of **bovine babesiosis** (redwater) occurred on a farm near **Greyton** that experiences sporadic cases.

A **cattle** farm in the **George** area experienced a case of **malignant catarrhal fever**, with the affected animal showing weakness, watery eyes and mucus excretions from the nose. The farm is next to a wildlife farm where wildebeest are kept, and the strain of MCF was determined to be wildebeest-associated.

Rams on two farms tested in the **Beaufort West** and **Nelspoort** areas were positive for **Brucella ovis** infection.

An outbreak of enzootic abortion of **ewes** (caused by *Chlamydophila abortus*) occurred in the **Beaufort West** area.

On a farm near **Kalbaskraal**, sheep showed alopecia and pruritis as a result of **sheep scab** caused by *Psoroptes ovis* mites (fig 4). Goats were present on the same farm and both species were treated under official supervision. New sheep had been bought in from an auction near Klipheuwel in June. Trace-back to the seller resulted in the discovery of another infected flock near **Klapmuts**, belonging to a speculator who buys and sells livestock, keeping sheep for 2-4 weeks before selling them again. The sheep and goats of the two tenants who share the property were treated under official supervision.

Pruritic **sheep** on a farm near **Beaufort West** were found to be infested with **red lice** (*Bovicola ovis*).

Sheep near **Nelspoort** were affected by **Clostridium novyi** infection.

Cattle were diagnosed with **mastitis** in herds near **Tesselaarsdal** and **Bot River**.

Outbreaks of **orf** (contagious pustular dermatitis) occurred in **sheep** flocks near **Merweville** and **Prince Albert**. Both outbreaks were controlled using an autogenous vaccine.

An outbreak of **canine distemper** occurred in the **Rietbron** area, resulting in the euthanasia of seven animals.

Milk fever was treated in **sheep** near **Nuwerus**.



Figure 4: *Psoroptes ovis* mite (Photo: A Walker)

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