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## Swine erysipelas: why is it important?

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*Erysipelothrix rhusiopathiae* is a ubiquitous organism that has been recorded causing disease in many species of animals, including birds and mammals. However, the disease is notifiable to veterinary services when it occurs in pigs.

Up to 50% of pigs around the world carry the organism, usually in their tonsils. It is excreted in oronasal secretions and faeces, from which it can infect other pigs or contaminate the environment. It survives for a long time in the environment and can also survive in infected meat, though it is destroyed by most commonly used disinfectants.

Owing to the ubiquitous nature of the organism, most piglets are protected by maternal antibodies up until about 12 weeks of age. After this, growing pigs, gilts and younger sows are the most susceptible to disease (if they have not been vaccinated). An infected animal that has recovered from clinical disease develops immunity thereafter.

Outbreaks of erysipelas in the Western Cape are infrequent, with three or four reported per year. Usually, clinical signs are detected in pigs when they are sent to the abattoir, either during pre-slaughter inspection or meat inspection after slaughter, as previously undetectable skin lesions sometimes become apparent after scalding of the carcass.

There are numerous different strains of the bacterium, some of which are pathogenic and others which are non-pathogenic. **Clinical signs** can therefore range from being inapparent to severe.

Acute outbreaks are usually seen in pigs approaching slaughter weight. The disease begins with fever, listlessness and loss of appetite, with reddening or cyanosis of the skin following soon after, especially on the ears, snout, throat and belly. Sometimes the skin lesions in acute cases take on the classic appearance of being raised, red and diamond-shaped (figures 1 and 2). These turn black as they necrose and normally heal within ten days. The bacterium infects the joints, causing pain and lameness, sometimes with visible swelling of the joints. Acute cases may also present as sudden deaths due to septicaemia or heart failure.

Acute infection may also cause infertility as fever and septicaemia damage spermatozoa in boars and cause abortions and small litter sizes in sows.

Outbreaks may be difficult to detect, as usually just a small number of animals become ill with non-specific clinical signs. However, in unvaccinated herds, up to 10% of animals could be affected. The higher the number of infected animals, the higher the likelihood that skin lesions and/or lameness will be seen.

Untreated acute cases may die or recover, but some can become chronically infected. Chronic infection usually manifests as chronic arthritis due to joint infection or vegetative valvular endocarditis. Chronically infected animals are often poor doers.

It is suspected that stress plays a role in whether clinical disease manifests in an infected animal or not. Outbreaks are often seen after mixing of pigs into new groups e.g. at weaning or after sudden changes in temperature and weather conditions.

Other factors that increase the challenge on the immune system, including concurrent infection with viruses such as porcine reproductive and respiratory syndrome virus or influenza, poor hygiene, mycotoxins in feed or heavy parasite burdens can result in clinical erysipelas.

**Diagnosis** of erysipelas is usually based on clinical signs and a good response to treatment with penicillin.

**Figure 1: Pig showing classic diamond-shaped skin lesions (H. Lubbinge)**

However, diagnosis can be confirmed by bacterial culture of kidney, spleen, lymph nodes or blood. Serology is of little use in diagnosing disease, but can be used to demonstrate immune response to vaccination or whether previous exposure has occurred.

Diagnosis of chronic infections is difficult and requires bacterial culture from joint lesions.

**Treatment** is fairly simple as *E. rhusiopathiae* is susceptible to penicillin and usually also tetracyclines, but it is resistant to many other antibiotics. Treatment of individual animals can be done during small outbreaks, but if a large percentage of the herd is infected, medication can be delivered through drinking water .

Chronic cases often don't respond to treatment and should rather be culled from the herd.

**Prevention** in the form of vaccination should be practiced on properties that are experiencing an outbreak or have previously had outbreaks. Piglets can be vaccinated before or at weaning, but it is usually recommended to vaccinate twice from ten weeks of age, two to four weeks apart, depending on the product used. This should provide protection to pigs growing to slaughter weight, but in some herds a booster vaccination during the finishing stages may be necessary, especially if infection pressure is high.

Breeding stock should be vaccinated at least two weeks prior to breeding and booster vaccinations given every six months. Animals should not be vaccinated while on antibiotic treatment, as this will interfere with the immune response to the vaccine.

Good hygiene and biosecurity should be practiced in all herds and chronically infected animals identified and removed.

Given the ubiquitous nature of the organism and usually mild effects of outbreaks, one may wonder why erysipelas is a notifiable disease.

Erysipelas causes a general septicaemia, and for that reason, shares clinical signs with several controlled pig diseases of importance, including classical swine fever, African swine fever and porcine reproductive and respiratory syndrome. The occurrence of these clinical signs must therefore be investigated as part of surveillance for controlled pig diseases. Outbreaks of erysipelas going undetected are an indication of insufficient passive surveillance in pig herds.

Erysipelas is also a food safety issue, in that acutely infected carcasses are condemned as a result of septicaemia. In chronically infected animals with arthritis, limbs with affected joints will be condemned.

**Figure 2: Carcasses like this one showing signs of generalised erysipelas are condemned at the abattoir (H. Lubbinge)**

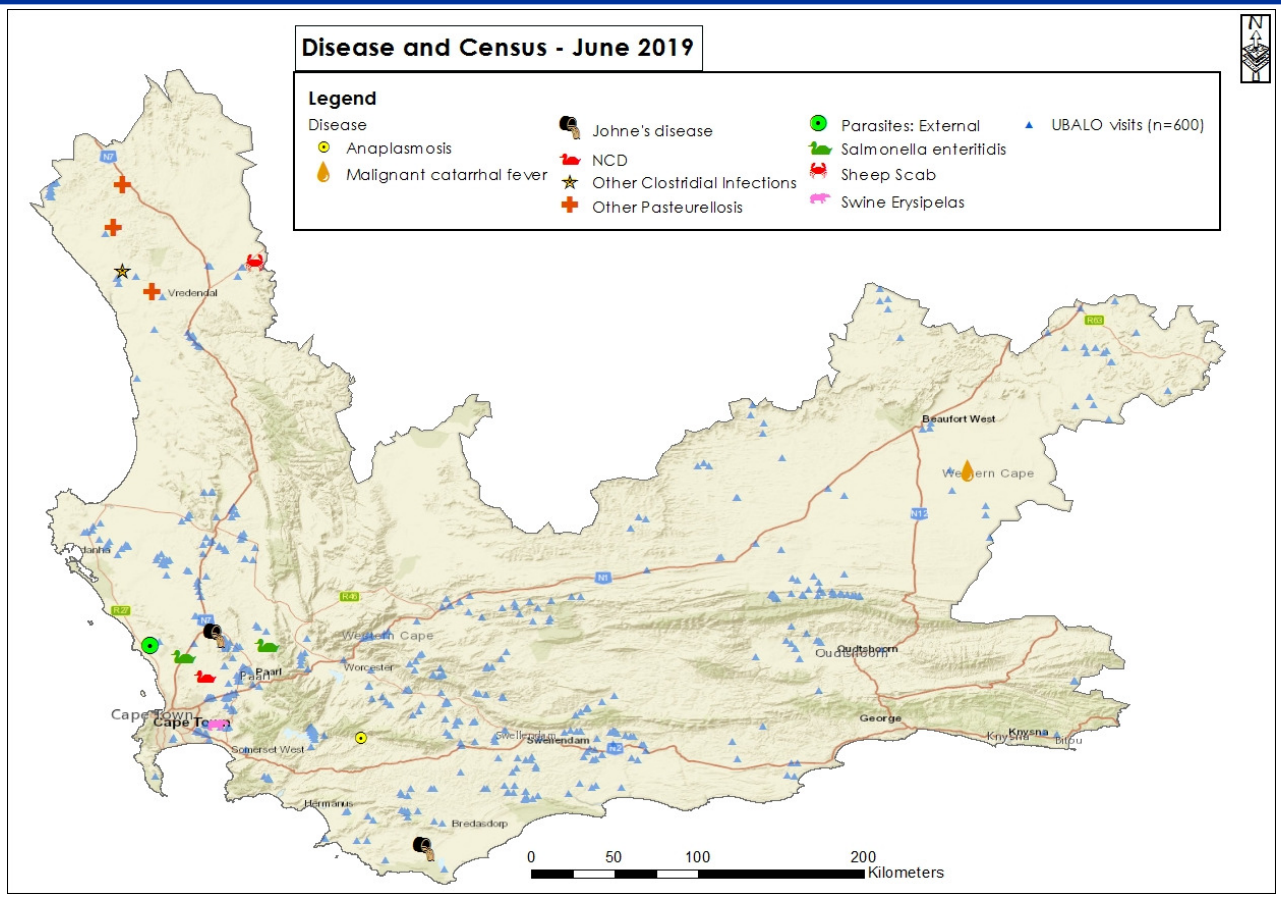
Humans who work with infected animals or products may get erysipeloid, which occurs when *E. rhusiopathiae* enters the skin through small wounds and causes a localized infection with inflammation. However, erysipeloid should not be confused with the human disease, also called erysipelas, which is a streptococcal infection of the skin.

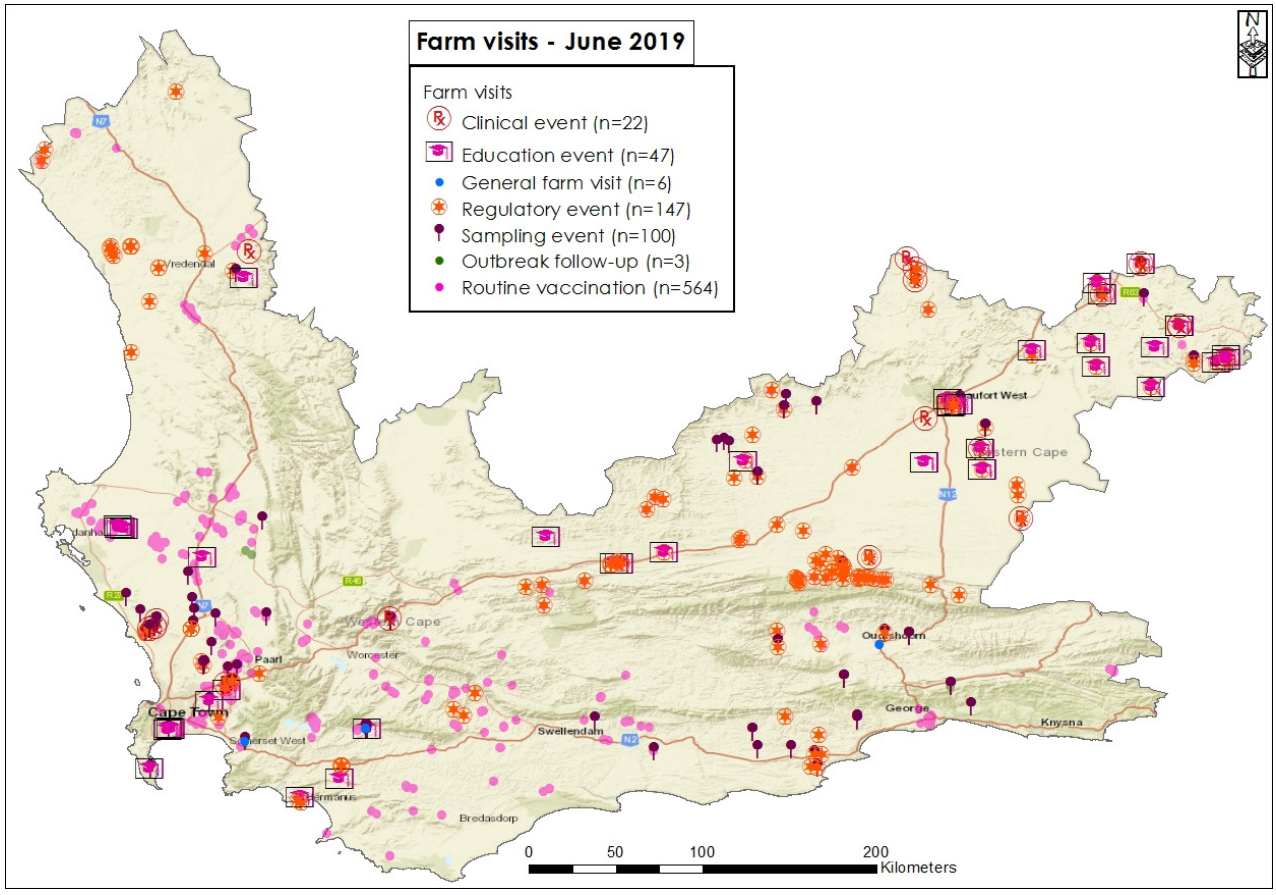
# New publications

Grewar, J.D., Sergeant, E.S., Weyer, C.T., van Helden L.S., Parker, B.J., Anthony, T. and Thompson, P.N. 2019, Establishing post-outbreak freedom from African horse sickness virus in South Africa's surveillance zone, *Transboundary and Emerging Diseases.*

https://doi.org/10.1111/tbed.13279

# Disease and surveillance



# Outbreak events

Itching and loss of wool (fig. 3) was seen in a sheep flock near **Vanrhynsdorp**. Wool samples analysed under the microscope revealed the presence of *Psoroptes ovis* mites, the causative organism of **sheep scab**. The property and all contact properties were quarantined and treatment instituted under official supervision.

Wild **laughing doves** were found dead at several locations in the town of **Klipheuwel** after showing clinical signs of respiratory distress, depression and diarrhoea. Brain and tracheal swabs taken from the dead birds tested positive for virulent **Newcastle disease** and pigeon paramyxovirus.

**Sheep** farms near **Malmesbury** and **Bredasdorp** were diagnosed positive for **Johne's disease** after observations of emaciation in ewes over a long period of time.

Chick box liners arriving on a broiler **chicken** farm near **Wellington** tested positive for ***Salmonella enteritidis***. Cloacal swabs taken from the same group of chickens at day 14 also tested positive. The chicks are being treated with enrofloxacin and their carcasses will be frozen at slaughter.

Boot swabs from another broiler **chicken** farm near **Philadelphia** also tested positive for ***Salmonella enteritidis***. Chickens in the affected house were treated with enrofloxacin and follow-up monitoring will be done before slaughter.

Skin lesions were seen on **pigs** originating from a farm near **Stellenbosch** on arrival at the abattoir. A clinical diagnosis of **erysipelas** was made. Outbreaks have not been seen previously on this farm and no clinical signs were observed in the herd.

A heifer near **Beaufort West** was euthanased after appearing ill and with signs of conjunctivitis for a few days. Sheep-associated **bovine malignant catarrhal fever** (MCF) was diagnosed. This farm has experienced cases of MCF more than once in the past.

Two **cattle** near **Genadendal** were treated for **anaplasmosis**.

Fifteen **lambs** died of **enterotoxaemia** (rooiderm) near **Koekenaap**.

**Sheep** on three different properties near **Vredendal**, **Nuwerus** and **Bitterfontein** experienced outbreaks of **pasteurellosis**.

An outbreak of **sarcoptic mange** was seen in **pigs** in **Mamre**.

**Figure 3: Sheep showing alopecia and crusting as a result of sheep scab (J. Kotze)**

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**Previous reports are available at www.elsenburg.com/vetepi**