



On-farm biosecurity: the responsibility of all

Laura Roberts

We in the veterinary profession all know about biosecurity and hear the word often, but do we actually enforce it ourselves and make sure our farmers understand it and live it? Do they really know what the word means? We need to first make sure that we are not the cause of a breach in biosecurity and then help our farmers understand how important it is and convince them to take responsibility for the disease status on their own properties and in their communities.

Gethmann et al. (2015) reported on a case study of **bovine viral diarrhoea (BVD) in Germany**. Due to the uncommon BVDV-2c strain that caused atypically severe clinical signs, but a low morbidity rate, it took three months from first clinical signs to a conclusive diagnosis and the disease spread to at least 20 cattle farms in the meantime. Detailed epidemiological investigations were performed and the census and movement information from the national cattle registration database was used. The most common, most likely route of spread was person contact in 13/20 cases, 12 of which were probably a vet. In the 13th case, the two farmers were friends. Of the seven remaining cases, six were linked to animal trade and the last to a shared slurry vehicle.

Vets who wore overalls and then changed them when leaving each farm, and cleaned and disinfected their boots, hands and equipment could have halved the number of cases in this outbreak. More difficult, but also important to think about is where the vet's vehicle drove? Did he or she (implied from here on) quickly move the vehicle half way through a visit to an infected farm and contaminate his foot mats? Did he wash his hands properly or did he contaminate his steering wheel, door handle, etc.? Were his calving ropes, nose tongs, dosing gun and stomach tube properly cleaned and disinfected?

Can we really say that we know all the subclinical, chronic diseases on our farms and are doing all we can to make sure they don't spread? Do you make a definitive diagnosis in every case and are you always sure whether or not it is contagious? Do you do enough to clean up if it is contagious?

The OIE defines biosecurity as "a set of management and physical measures designed to reduce the risk of introduction, establishment and spread of animal diseases, infections or infestations to, from and within an animal population" (OIE, 2019). Biosecurity therefore covers everything from vaccination to disinfection, to fences.

Farmers should be taking responsibility and managing the risk of disease entering and spreading within their herds by controlling access of people and animals and contaminated objects. Infected **animals** could be introduced or gain access through poor boundary control. Different species can also pose a risk to livestock health, such as dogs, rats, cats and other wild species. Isolation of new stock, buying stock of known health status and from a reputable source and maintenance of a suitable fence are vital. Indirect contact with other animals via products and waste is the next consideration. Swill and food waste feeding to pigs is very risky, as is allowing access of animals to any manure or slurry.

Any **person or vehicle** that has access to another farm or to livestock is a risk. Grobbelaar (2014) included poor biosecurity as an important reason why poultry farmers fail. Specifically, he mentioned buyers of birds being allowed access to poultry houses. And what about farm workers with their own stock at home? And feed trucks? On intensive poultry and pig farms with proper biosecurity, these trucks are not even allowed onto the property. The trucks pose a lower risk to less intensive



Figure 1: Minimum equipment to allow veterinary professionals to maintain biosecurity: rubber boots and overalls, gloves, disinfectant soap, disinfectant spray, sharps bin and boot washing kit (Photo: L Roberts)

operations but the risk still exists. Lastly, remember that any borrowed or second-hand farm **equipment** could be carrying a pathogen that a farm doesn't yet have (Robertson 2020).

Please also educate your farmers about the use of **vaccines and disinfectants**. A vaccine that is not properly handled and applied may fail. The package insert should be obeyed, including storage temperature and dose schedule. Furthermore, a disinfectant that is applied at the wrong concentration, without sufficient contact time and without consideration of target organisms, may achieve nothing. Very hard water can interfere with disinfectant activity, as can organic matter. A dirty disinfectant solution can either inactivate the disinfectant (especially chlorine and iodine) or can allow micro-organisms to hide. Disinfectant foot baths and wheel baths should be kept clean and accompanied by a bath containing only water to clean off any dirt. Remember though, that wheel arches and vehicle undercarriages can also be contaminated and a wheel bath will not mitigate that risk.

References

- Gethmann, J., Homeier, T., Holsteg, M., Schirrmeier, H., Saßerath, M., Hoffmann, B., Beer, M., Conraths, F.J., 2015. BVD-2 outbreak leads to high losses in cattle farms in Western Germany. *Heliyon* 1, e00019.
- Grobbelaar, J., 2014. Why Poultry Farmers Fail. *Farmer's Wkly*.
- OIE, 2019. Glossary [WWW Document]. *Terr. Anim. Heal. Code*.
- Robertson, I.D., 2019. Disease Control, Prevention and On-Farm Biosecurity: The Role of Veterinary Epidemiology. *Engineering*.
- CDC (2008) Factors Affecting the Efficacy of Disinfection and Sterilization, in Guideline for Disinfection and Sterilization in Healthcare Facilities. Available at: <https://www.cdc.gov/infectioncontrol/guidelines/disinfection/efficacy.html> (Accessed 16 January 2020)

Outbreak events

Two **ostrich** compartments southwest and west of **Oudtshoorn** tested **avian influenza** (AI) sero-positive in October and November respectively. No virus and no H5, H6 or H7 antibodies were detected. The sero-positive group on one of the compartments moved from another compartment in September, which tested positive in late October.

An **ostrich** compartment south of **Beaufort West** tested **AI** sero-positive in late November. No virus was detected on follow-up and after single-antigen H5 antibody reactions on the initial positive test and first follow-up, with no cross-reactions to indicate H5 virus infection, the second round of follow-up sampling was sero-negative.

Another **ostrich** compartment in the **Heidelberg** area tested **AI** sero-positive in late November. No virus was detected and though initial H5 antibody reactions were concerning, the titres on the two antigens were too dissimilar to constitute a cross-reaction and follow-up testing showed no HI reactions at all on one occasion and only single-antigen H5 HI reactions on the second follow-up test.

An **ostrich** compartment east of **Oudtshoorn** tested sero-positive for **AI** in early December. One bird was sero-positive, but no tests for H5, H6 or H7 antibodies were positive. The only positive result on the first round of follow-up testing was the same bird again and the second round of follow-up was completely negative, including the previously-positive bird.



Figure 2: Ostriches (Photo: L van Helden)

Epidemiology Report edited by State Veterinarians Epidemiology:

Dr Lesley van Helden (lesleyvh@elsenburg.com)

Dr Laura Roberts (laurar@elsenburg.com)


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

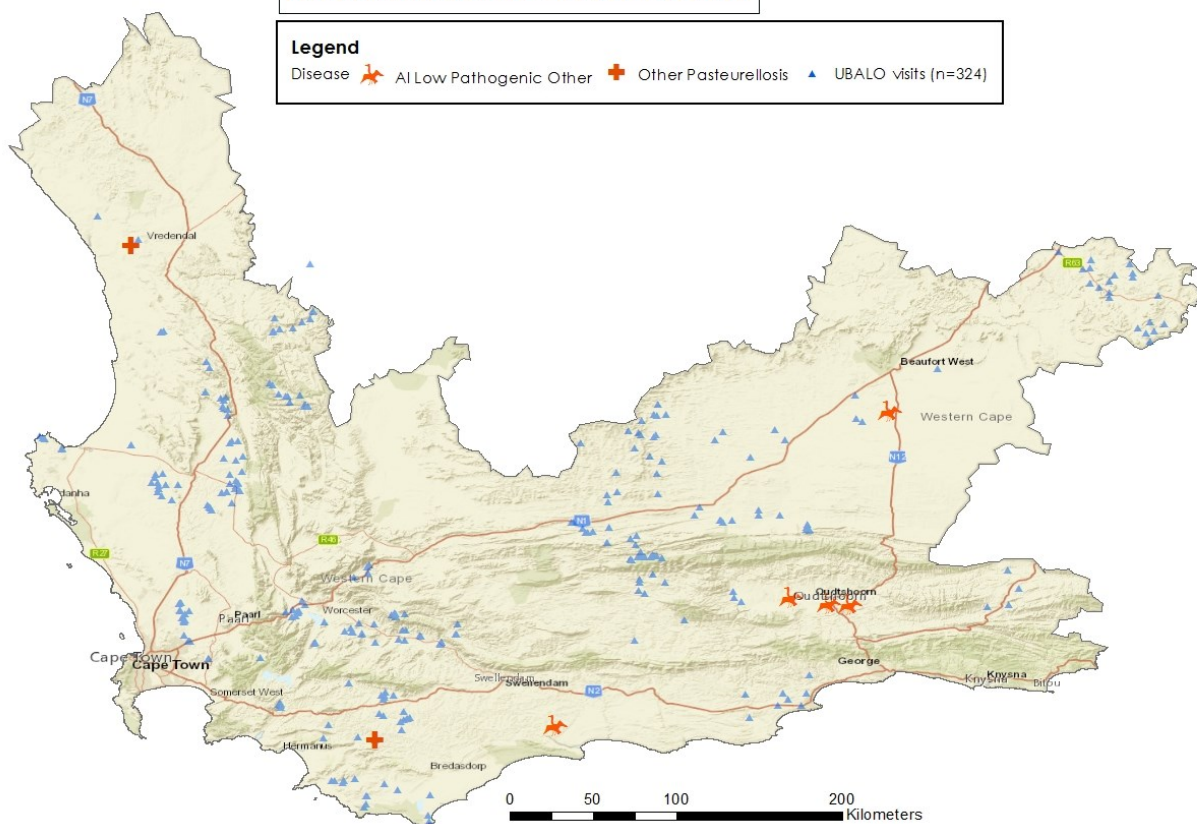
Disclaimer: This report is published on a monthly basis for the purpose of providing up-to-date information regarding epidemiology of animal diseases in the Western Cape Province. Much of the information is therefore preliminary and should not be cited/utilised for publication

Disease and surveillance

Disease and Census - December 2019








Legend

Disease  AI Low Pathogenic Other  Other Pasteurellosis  UBALO visits (n=324)



Farm visits - December 2019

Farm visits

-  Clinical event (n=14)
-  Education event (n=17)
-  General farm visit (n=17)
-  Regulatory event (n=120)
-  Sampling event (n=37)
-  Outbreak follow-up (n=2)
-  Routine vaccination (n=278)

