**Animal Science 5400.02**

**Participation Response – Cape Buffalo**

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Cape Buffalo in Africa are susceptible to a number of diseases such as tuberculosis, foot and mouth disease, brucellosis, and corridor disease. All of these diseases can cross into other species, and many can spill over into the human population. [Seventy-five percent](http://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0003257) of newly emerging diseases are zoonotic, with 2.5 billion cases of zoonotic disease per year Mitigating the spread of these diseases requires a multipronged approach.

The approach I like for dealing with zoonotic disease is [One Health](http://www.onehealthinitiative.com/about.php), a worldwide strategy for expanding interdisciplinary collaboration in all aspects of health care for humans, animals, and the environment. By bringing together professionals from a diverse range of fields, the initiative seeks to accelerate biomedical research discoveries, enhance the effectiveness of public health programs, expand scientific knowledge, and improve medical education and clinical care.

Ohio State’s [Global One Health](https://globalonehealth.osu.edu/home) initiative includes the colleges of Dentistry, Medicine, Nursing, Optometry, Pharmacy, Public Health, Social Work, and Veterinary Medicine. Goals include:

* Prevention and control of emerging zoonotic infectious diseases
* Collaborative approaches to prevent, detect and respond to antimicrobial resistance
* Development and testing of rapid, point-of-care, field-deployable detection systems
* Evaluation of environmental risk factors that impact agricultural food systems, chronic diseases (such as cancer) and other economic and health outcomes
* Development of efficient digital and virtual systems for high impact translational research, training and outreach.

What does this mean in [practical terms](https://www.theatlantic.com/health/archive/2014/11/how-veterinarians-prevent-animals-from-spreading-diseases-to-humans/383118/)? In Ethiopia, Ohio State teams have been working to [vaccinate street dogs](https://globalonehealth.osu.edu/about-us/news/taking-care-ohio-state-alumni-magazine), many of them cared for by people, against rabies. They also teach people about the symptoms of rabies in dogs, and identify and track down bats that give rabies to dogs. They also educate government officials and set up a health care system to treat people with the disease. It is an approach that takes into account people, animals, and environment, and pulls together a comprehensive set of strategies to deal with the disease.

How could the One Health approach be enacted in the case of Cape buffalo? In South Africa, millions of Cape buffalo are bred for game farms. This is a particularly important industry to look at the spread of disease, as bovine tuberculosis and brucellosis are both bacterial and zoonotic, while foot and mouth disease can spread between animal species. Several precautions could be made to prevent this. First, cape buffalo on game farms should be kept as separate as possible from other wild species such as elephants, rhinos, lions, leopards, cheetahs, elands, waterbucks, hippos, and zebras. They also need to be separated from domestic cattle. Second, game farms should not engage in overbreeding for horn size. Overbreeding for one trait weakens other genetic traits such as resistance to disease. Third, people should stay away from bushmeat, which carries diseases that can be transferred between people or between people and animals. Fourth, South Africa should look at a system for pasteurizing dairy products, especially on small-scale family farms. Fifth, scientists could examine the traits of antibodies that keep cape buffalo from becoming sick with foot and mouth disease and use that to develop vaccines for species that are susceptible. Sixth, health and veterinary clinics need to be funded to provide care for people and animals that get sick. Finally, community leaders and government officials need to be educated as to why supporting disease prevention and treatment is important.