VALUE OF BIOSECURITY IN SAFEGUARDING ANIMAL HEALTH AND IN ENHANCING PRODUCTION

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Biosecurity is basically a process taken to maintain a population that is free of infection from microbiological agents (bacteria, viruses, etc.). The extent of biosecurity varies depending on when the population was certified free of the infection. In the United States, infections such as hog cholera and foot and mouth have been eradicated for over 50 years. By imposing restrictions on the movement of animals from countries that are known to have animals infected by these agents minimizes the risk of introducing these infections to the U.S. The control of animal movements can also be applied at the regional level and at the farm level. At the regional level the testing of animals for bluetongue and equine infectious anemia are considered most important in maintaining states free of the infection. At the farm level, biosecurity is a concept that gets confused with disease control efforts, and becomes even more complex when the infection being controlled does not cause overt disease, but effects production, such as bovine leukosis (leukemia) virus (BLV).

The confusion generated by the differentiation of an infection from disease is one of the major barriers in communication between producers and veterinarians. In order for biosecurity to work, there must be a basic understanding of the economics of the infection in the population. Does the infection lead to the animal being disqualified for movement to another region declared free of the infection? Does the infection lead to the animal products, such as milk, cheese, semen, etc., being disqualified for sale? Does the infection pose a risk to other animals by crossing species? Does the infection pose a risk to humans?

sensitivity and specificity are critical in the determination of accuracy. With knowledge of the prevalence of an infection in the herd, population, region, state, etc., a positive and negative predictive value can be determined.

7. Which infections have the greatest potential economic impact?
   - Disease costs
   - Treatment costs
   - Zoonotic potential costs
   - Export/important sales costs

8. Addendum (see www.afia.org, click on 'publications' and then BANM)
   - An Introduction to Infectious Disease Control on Farms (Biosecurity)
   - Biosecurity of Dairies and Feedstuffs Biosecurity

References of interest:

Abdel-Azim, G.A., Freeman, A.E, *et al.* 2005. Genetic basis and risk factors for infectious and noninfectious diseases in US Holsteins, I. Estimation of genetic parameters for single diseases and general health. J Dairy Sci. 88:1199-1207.

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Chigerwe, M., Dawes, M.E., *et al*. 2005. Evaluation of a cow-side immunoassay kit for assessing IgG concentration in colostrum. J. Am. Vet. Med. Assoc. 227:129-131.

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Websites of interest:

www.wsu.vetmed.edu (specific contacts)
www.dairyherd.com (good general info)
www.agctr.lsu.edu/eden (click on 'agrosecurity')
www.aphis.usda.gov/us/ceah/cahm (Salmonella, E. coli 0157, Listeria updates)