INCREASING ANIMAL FOOD BIOSECURITY GUIDELINES IN THE PRESENCE OF A FOREIGN ANIMAL DISEASE OUTBREAK: EXOTIC NEWCASTLE DISEASE

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Introduction

Nutritionists have emphasized the importance of quality control and food safety as a routine component of zoo animal feeding programs. Formal programs, including HACCP (Hazard Analysis and Critical Control Point) plans, have been implemented to evaluate the steps food goes through between receipt on-site and consumption by the animals for which we are responsible. However, until recently, zoos and aquaria have not been required to operate as biosecure facilities, as is required of many food-animal production, biotechnology, and research institutions.

On October 1, 2002, the United States Department of Agriculture and the California Department of Food and Agriculture formally declare that Exotic Newcastle Disease (END) had been isolated in several southern California counties. December 30, 2002, END was identified in commercial poultry flocks in San Diego County. For the protection of the animal collections at the San Diego Zoo and San Diego Zoo's Wild Animal Park, measures were implemented by several departments to enhance the existing baseline biosecurity protocols[1]. Guidelines developed specifically for animal foods, feeding programs and related activities are outlined below.

Methods

With the existence of END diagnosed within a 10-mile radius of facilities managed by the Zoological Society of San Diego, biosecurity measures were enhanced for the protection of the animal collections. Initial protocols focused on prevention of fomite transfer into the facility perimeter, and distribution of fomites by employees and equipment within the perimeter. Each of these measures was introduced based on guidelines and input provided by the California Department of Food and Agriculture[2,3].

Upon arrival at the facilities, delivery drivers are queried regarding locations they had previously visited. Vehicles that had recently been on-site at poultry facilities within the quarantine area are restricted from entry. Tires of vehicles permitted to advance are washed down, and drivers are required to treat their footwear, with a peroxygen compound (Virkon® S, Antec International, UK) before proceeding on the premises.

As part of this effort, access to central food storage and preparation areas is restricted to personnel associated with operation of those facilities. Warehouse staff entering these locations are required to pass through a footbath containing the same compound described above. Employee uniforms are provided and cleaned by a contracted service, and are not allowed to be laundered by employees off-

site. Delivery drivers are not permitted to enter the warehouse areas, and public tours of these areas were suspended.

All purchases and donations of foods, edible enrichment and browse (plant materials) used in animal feeding programs are routed through Nutrition for screening and approval before the products can be brought on-site. Specific foods, including all poultry products, were discontinued from the feedings programs based on their potential as a primary source of END infection. Commercially processed and disinfected eggs are still used in limited applications. Although domestic day-old cockerels and bulk poultry feed were not used in animal diets, those foods are banned from entering the premises.

Additional steps are taken to review the security of food items used in feeding programs. These include, but are not limited to on-site inspections of facilities, protocols and equipment of distributors, suppliers, and their agents. These steps are applied to primary, and sometimes secondary suppliers.

Results and Discussion

The biosecurity improvement that perhaps had the greatest impact on the conventional workflow is the restricted access to the central food warehouse and preparation areas. Because of the central nature of these facilities, the potential for animal care staff from all aspects of the operation to introduce detrimental fomites, and the subsequent distribution of those contaminants to other locations in the facility, this modification of established routines was easily justified.

As these procedures were implemented, additional gaps in the biosecurity protocols were, and continue to be, identified. The risk of each "critical control point" must be scrutinized for its potential impact, and ramifications Although improved biosecurity measures were prompted by the presence of END in the region, these measures apply to a number of agents that could be introduced by means of animal foods. Guidelines for appropriate biosecurity protocols are readily available from state and federal agencies[4-6]. Current issues of foreign animal disease and bioterrorism, as well as the safe practices indicated above are rationales for zoos and related facilities to proactively implement routine biosecurity measures.

LITERATURE CITED

1. Janssen DL, Sutherland-Smith M, Papendick R, Lamberski N, Lewins E, Mace M, and Edwards MS. 2003. Exotic Newcastle Disease outbreak in southern California – Biosecurity measures for prevention in zoo collections. Annual Conference Proceedings of the American Association of Zoo Veterinarians. Minneapolis, MN.
2. University of California Recommendations to Prevent the Spread of Exotic Newcastle Disease. http://animalscience.ucdavis.edu/avian/shortENDcontroldocumentenglish.pdf.
3. Biosecurity Foodbaths for Exotic Newcastle Disease Information for Bird Owners. http://www.cdfa.ca.gov/ahfss/ah/pdfs/Footbaths_owner_Dec02.pdf.
4. American Feed Industry Association Guide to Biosecurity Awareness. AFIA, Arlington, VA. http://www.afia.org/img/assets/1108/biosecurity2.pdf.
5. FSIS Security Guidelines for Food Processors. United States Department of Agriculture, Food Safety and Inspection Service. http://www.fsis.usda.gov/OA/topics/SecurityGuide.pdf.
6. Guidance for Industry Retail Food Stores and Food Service Establishments: Food Security Preventive Measures Guidance. http://wwwcfsan.fda.gov/~dms/secguid5.html.