

Guidelines for Aviary Sanitation (prevention against contamination)

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One of the strongest impressions that I have been left with, as a result of flock health testing for aviaries as an avicultural veterinarian, is something that I have known for over 10 years. This is the concept of disease spread and contamination which is something our mothers warn us about from the day we start preschool. It even gets put into a more accurate and intense form in the first year of veterinary college as courses on veterinary microbiology, public health and epidemiology are blazed into eager skulls.

The impact that this concept has is greatest when it is experienced as a hands-on, documented event, rather than as a statistic on paper. I know, as well as every conscientious aviculturist, that dirty flights, spoiled food and free ranging rats do not make for a healthy flock. The problem here is assigning a priority level to each step that may prevent a disease outbreak later. Unfortunately, most efforts to deal with disease are still done on an after-the-fact basis in avian medicine today and these are assigned the top priority. Second, the visibly dirty or filthy areas such as piled up droppings or moldy, spoiled food on cage wire are attended to next. What is really needed is for sanitation to be a routine effort where the problem never gets to the point of being seen. The reason this is not routine is that humans never seem to be motivated to work on something they can't see, smell or hear, especially when the task requires both effort and money.

I am in a unique position to be able to medically "see" what happens when aviculturists don't use good sanitary practices through the use of blood testing, cultures and fecal analysis.

A standing aviary health exam will involve blood testing (serum titers) for psittacosis, several viruses and general blood cell counts. Cultures of fresh droppings, water bowls, feed

cups and water sources are also routinely done, as well as fecal exams. I try to assess an average of 25-50% of the flock depending on the number of birds, to obtain a significant overview of aviary health patterns.

Several aviaries have shown widespread levels of internal parasitism (nematode worms), external parasites (mites), and unacceptably high concentrations of Gram negative bacterial pathogens recovered from the droppings, food dishes and drinking water sources. The appropriate antibiotics have been employed at the recommended dosages and higher for up to three weeks. Follow-up cultures have continued to produce additional and even more pathogenic bacteria from these very same sources during the second and third week of treatment with the medicated food or water being directly cultured (i.e., *E. coli* being eliminated, but an overwhelming growth of *Pseudomonas* bacteria infecting the same source). Birds dusted for mites with a 5% carbaryl powder (Sevin™) will reveal feather mites 90 to 120 days later despite a closed (no additional stock) flock policy.

These undesirable results demonstrate the great need to accurately identify the source of the problem, not just one site where it exists. In these two cases, the original diagnosis was treated appropriately as per testing results, but because the process of contamination had not been arrested, the same health threat existed. The bacterial infections being passed from flight to flight were being made possible via unwashed hands, fecal contaminated shoes, switching water bowls after collective refilling, common single layer wire walls allowing for fecal passage from pair to pair, and a contaminated water line. These bacterial cultures (approximately 40 per aviary) revealed identical bacterial types and antibiotic sensitivities (12 antibi-

otic types tested per culture) which confirmed our original suspicions. In the case of the mites, the owners had failed to clean out the nest material and/or replace wooden boxes.

The solution for these two situations included a second treatment program to halt the disease processes and an environmental evaluation to identify the source. In the case of the feather mite the infested nest material, debris lining the aviary floors, and the nest box seams were responsible. In the case of the *Pseudomonas* bacterial problem, several items were found to blame. Most of them were involved with people, not the birds. A full time aviary helper was found to be using the same baby feeding syringe for all the babies in the aviary, a chlorhexidine (Nolvasan™ - Fort Dodge) was being used as a nursery equipment disinfectant (will not kill *Pseudomonas*), no disinfectant foot pans were being used between aviary buildings and/or the nursery and two pet birds were being allowed to fly freely between the pet cages, breeding area and the nursery. All of these conditions will provide a super freeway access for bacteria (viruses, fungi, etc.), considering the relative size of shoes to bacteria. This is an excellent example of the need to implement education into real practice. The aviary owners were aware of the proper preventative techniques, but the hand feeder did not place the same priority on the recommended protocols and infectious agents do not practice discrimination in their vectors.

Since this health review, the aviary has established strict sanitation controls, foot pan use, glutaraldehyde (Wavecide-01™) use instead of Nolvasan™ for syringes, food bowls and countertops, and has returned to personally hand feeding all babies.

The following is a list of suggestions to help control, confine and/or eliminate the spread of infectious diseases in an aviary:

1. Use concrete flooring under suspended cages or flights.
2. Suspend wire floors three to four feet above dirt, gravel, sand, etc., to eliminate contact with feces, old food and parasites.
3. Rake, sweep or hose aviary floors daily to three times weekly as is possible, especially in the warm months.
4. Utilize foot pans between aviaries, bird rooms and pet bird areas. Disinfectants of value include quar-

tenary ammoniums (Cetylclide™, Roccal™, etc.) with some limitations, chlorine bleach (Purex™, Chlorox™, etc.) replaced fresh once to twice daily, iodophors (Prepodyne™, Betadyne™, etc.) or glutaraldehydes (Wavecide-01™, Cidex™, etc.).

5. Wash hands in an effective disinfectant detergent such as Betadyne Scrub™ between bird groups or tasks (i.e., cleaning vs. feeding).

6. Scrub and soak water and fresh feed bowls daily. An overnight soak in bleach or glutaraldehyde with a second set of bowls being used while the first set is soaking is optimal. New bowls are cheaper than new birds.

7. Feed fresh foods early in the morning or early evening and remove them a few hours later if not consumed. Spoiled food can carry high levels of fungi, yeasts and/or bacteria.

8. Separate food and water bowls by at least several feet for these species that insist on dunking their food. Food contaminated water bowls have been shown to carry exceptionally high concentrations of bacteria.

9. Keep all perches away from water and food bowls.

10. Do not place food/water bowls at the bottom of wire as birds that hang over them will foul them with droppings. Move them back 6" to 12", and place a cover 6" to 12" above them. An alternate is to create wire bowl holders *outside* the walls with feeding ports.

11. Separate babies from adults and minimize the risk of contaminate contact. Babies have less natural disease resistance than their parents.

12. Use a clean, boiled or properly disinfected syringe for each hand fed baby. Soaking overnight in bleach or glutaraldehyde is also effective.

13. Use fresh baby feed for every feeding.

14. Use distilled (not spring or bottled) water for baby formula. This is a sterile source.

15. Let tap water run two to three minutes freely before using as a drinking water source. Many in-house pipes (esp. PVC types) will harbor bacteria and high population growth can occur between faucet uses.

These steps can be as profitable as they can be dreary. The payoff is more babies, less vet bills, and less anxiety. The above-mentioned aviary is enjoying a massive upswing in baby production this season, including some species which never showed any sexual activity before. ●

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