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G93-1147 Preventing Bacterial Contamination, Medication and Other Chemical Residues in Poultry Meat and Eggs

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Preventing Bacterial Contamination, Medication and Other Chemical Residues in Poultry Meat and Eggs

This NebGuide deals with food safety in home broiler or table egg production flocks.

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Food safety issues such as drug and pesticide residues and bacterial contamination have received a lot of attention from the media lately. While this attention has focused predominantly on practices by the large commercial livestock and poultry industries, procedures to assure food safety and quality should be practiced by home flock producers as well.

The home flock producer occasionally uses medications in broiler or egg production to treat or prevent diseases and enhance production. These are usually added to the feed or water. In general, growth promotants and preventative drugs are added to the feed, while treatment medications are frequently added to the water.

Growth Promotants

Residue prevention when using growth promotants is first accomplished by carefully reading the feed tag labels. For instance, feeds containing organic arsenicals should say on the label, "Withdraw 5 days before slaughter; not for laying hens; as sole source of arsenic." This tells the producer to remove all medicated feed at least five days before slaughter. An additional day withdrawal is advised as added protection to ensure no residues will be present in the bird's tissues. It is equally important that any spilled feed be cleaned up the same day as the start of the medicated feed withdrawal. The feed tag in this example also states that the medication is not approved for use in laying hens, probably because it is excreted in unacceptable amounts in the egg. It would be illegal to sell eggs from birds which have been

fed the medication, since these eggs may pose a health risk to people consuming them. Always be sure to check feed labels before buying the feed. If in doubt, check with the feed manufacturer who usually has a complete list of regulations regarding feed additives for food animals.

Treatment Medications

Many of the same principles apply when using medications in the feed or water for disease treatment. If a disease is suspected, an accurate diagnosis is the first step in deciding which medication to use. Diagnosis of the problem can be accomplished through the use of a veterinarian, Extension agent and/or the Extension poultry specialists at the University of Nebraska-Lincoln.

Most medications are available "over-the-counter" through livestock supply businesses. It is recommended to always use a poultry-approved product since it will have exact instructions on the label. The label should indicate the species for which the product is approved, directions for usage and drug withdrawal times. No deviations from the label directions are allowed without direct veterinary supervision.

Use of products with no poultry label should **always** be under the direct supervision of a licensed veterinarian. In these instances the veterinarian takes direct responsibility for the effectiveness of the treatment and appropriate drug withdrawal times. This is called "**extra label drug use.**" The dosage and length of treatment time should be followed exactly. Failure to do so may affect the drug withdrawal time and lead to illegal drug residues. Increasing dosage or treatment times may also result in unwanted or harmful side effects, or even death, in the birds.

Preventing Other Chemical Residues in Poultry Meat and Eggs

In addition to medications, poultry may be exposed to other chemicals which may result in residues in the tissues or eggs. These include insecticides, rodenticides, herbicides, disinfectants, cleaners, paints, solvents, wood preservatives, natural toxins, etc.

Insecticides are frequently used to treat poultry external parasites and darkling beetles, and to control flies. Only a few of the many available insecticides are approved for use directly on the birds and leave no residues. Granular insecticides for agricultural insect control are readily consumed by poultry with often lethal results. **Only approved products** should be used in buildings where animals are being housed. Again, the product label will clearly indicate the intended method for use. Ideally, poultry buildings should be placed away from crops which will need spraying, or at least be upwind of fields.

Rodenticides are dangerous chemicals and should never be placed near birds. Birds are ingenious at finding even the most concealed baits. The highly visible, often colorful pellets are extremely attractive to birds and will be consumed. Birds will also readily consume rodenticide treated grain. The entire flock may have to be destroyed if there has been a history of even potential rodenticide consumption.

Herbicides are occasionally used for weed control around poultry premises. While most of these products dissipate quickly from the environment, there may be some residue danger if poultry consume freshly sprayed plants. In general, it is always safer to apply these chemicals prior to housing the animals or a good distance away from the pens.

Disinfectants are frequently used to clean and sanitize poultry buildings and equipment. While this is often done prior to housing the birds, feeders and waterers are sometimes disinfected with the birds

present. Thorough rinsing with water to remove any residual disinfectant is the best way to prevent unwanted bird exposure to any chemical. Some of the older compounds, such as certain coal tar derivatives, are no longer approved for use when animals are present. Use of these products may result in condemnation of the meat or eggs. If there is any doubt about product approval, don't use when the animals are present.

Be aware of where the feed was formulated and by whom. Avoid commercial feed mills that incorporate high proportions of grain screenings in poultry diets. Screenings are more likely to contain toxic plant parts or weed seeds, and mycotoxin-contaminated, broken and low test weight grain kernels than are high quality grain sources. Quality control procedures in feed manufacture should prevent carry-over contamination from previously mixed batches of medicated feed. As a preventative measure, rendered byproducts incorporated into poultry diets should be regularly checked for contamination with PCBs and chlorinated hydrocarbon insecticides. Care should be taken during manufacture so that other toxic compounds such as hydraulic fluid and lubricants from processing equipment do not contaminate the prepared feed.

Preventing Bacterial Contamination

The first step in preventing bacterial contamination of poultry meat and eggs is to raise the birds in a clean and dry environment. Frequent removal of wet caked litter, cleaning of waterers, adding fresh bedding as needed, and good ventilation are very important. Providing adequate space per bird will also help maintain cleanliness and prevent many of the common diseases.

Basic sanitary husbandry is very important in broiler production as most birds are processed with the skin on. Raising birds with clean skin and feathers is very helpful in reducing surface contamination. Proper scalding to remove feathers, as well as careful evisceration, is also important. Bacterial contamination can also occur through accidental rupture and spillage of the gastrointestinal contents during evisceration. If obvious contamination occurs, trimming of that portion of the carcass is preferred. Frequent hand washing and dipping of cutting utensils in hot water will also minimize cross contamination.

Producers raising birds for their own consumption should be familiar with signs of disease, both in live and in freshly slaughtered birds. Obvious sick birds should either be treated or culled from the flock prior to slaughter. It is absolutely necessary to have a good working knowledge of the normal anatomy of the bird to detect disease in the carcass. Any change from the "normal" in the carcass should be discarded.

Even with the most careful husbandry and processing practices, the final product is **never** sterile. Shelf life of freshly processed refrigerated chicken is seldom greater than seven to ten days before spoilage occurs. The authors recommend immediate freezing for prolonging shelf life and for food safety purposes.

Preventing bacterial contamination of eggs is also very important. Eggs most frequently become contaminated by coming in contact with dirty surfaces soon after they are laid. Keeping the nesting area clean and dry and frequently replacing nesting material are extremely helpful. Frequent gathering of eggs is also important. If the eggs are to be washed, they should be washed in water with a temperature warmer than the egg, around 110°F. The wash water must also contain a certified egg sanitizer. Washing of eggs removes an important outer protective layer called the cuticle. Removing the cuticle reduces shelf life and may result in an increased incidence of rotten eggs. Therefore, it is preferable not to wash eggs if they are visibly clean.

While bacterial contamination of the typical egg is rare, mishandling of this perishable, raw protein product can sometimes lead to food poisoning in people. Eggs should be refrigerated at 40°F until consumption. They should be completely cooked before serving. All utensils coming into contact with raw eggs must be completely cleaned and rinsed in soap and hot water. In certain highly susceptible groups of people (nursing homes, hospitals, day care centers), it may be preferable to purchase previously pasteurized liquid egg products for complete assurance of safety.

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