UNIVERSITY OF ARKANSAS

This presentation is part of an educational modular program designed to provide new and beginning farmers and ranchers with relevant information to initiate, improve and run their agricultural operations

USDA NIFA

United States Department of Agriculture
National Institute of Food and Agriculture

This program is funded by the Beginning Farmer and Rancher Development Program (BFRDP)

USDA-NIFA-BFRDP 2010-03143

UNIVERSITY OF ARKANSAS

PROTECTING YOUR POULTRY'S HEALTH

BIOSECURITY

It is a set of preventive measures used to prevent the spread of disease and pests to your farm

Biosecurity

- Infectious agents like viruses, bacteria and parasites are present in the soil, water, air and in animals and people
- Some of those agents can cause disease to your birds and so it is important to implement strategies to reduce the risk of those pathogens getting into your farm

Biosecurity

- To prevent the entrance and spread of disease to your farm, there are several things that you need to consider:

  - Who has access to the farm and to the animals?
  - Where do the new animals come from?
  - Where does the food come from?
  - Are there any farms nearby that could be a source of transmission to your farm?
  - Do you know how to recognize disease in your animals?
  - What do you do with sick/dead birds?

Who has access to the farm?

- Neighbors, friends and clients may have the best intentions when they come to visit, but you don't know where they have been or what they have been doing
  - Nobody should get close to your animals, to your pens or the place where you keep the food and farm supplies
  - Keep gates and fences closed at all times
  - Make signs that alert visitors to stay away from your animals

- If you have an open farm day, clearly indicate the visitors where they are allowed to go and where they are not allowed to be
- People need to be aware that they could bring disease to your animals

Who has access to the farm?

- All the people that work/help at the farm need to be aware that they can move pathogens with them
  - They should have clothes and shoes that are used only at your farm
  - They should not work in several farms at the same time
    - Especially if both farms have poultry (there are diseases that can be transmitted to chickens, turkey, ducks and wild birds)

Be aware that every time that you drive your truck/car to another farm or to get feed or other supplies, you can potentially bring pathogens or pests with you.

Where do the new animals come from?

- The best way to make sure that you don't have disease in your farm is to start with animals/eggs that are free of any disease
- Find a reputable hatchery, talk to other farmers in your area or the extension office near you to get names of good reliable places

All the animals that come into your farm must be kept in quarantine separated from the rest of the farm for at least 2 weeks

Where do the new animals come from?

- The boxes and litter that was used to transport the animals must be discarded in a safe way (compost, incinerate) to destroy any pathogen from outside your farm
- Cages, trays, feeders and waterers that you use for the new animals or their trash must be washed and disinfected before reusing, storing or discarding

New birds

- The first weeks of life are the most important in the live of the birds
- It is when they are more vulnerable and it is when they are building up their immune system before being exposed to the outdoors or potential vectors of diseases
- Keep them warm and with clean water and feed available at all times
- Check them at least twice a day to make sure that they are all right
- Building and maintaining the health of the animals is the strongest defense in the fight against disease
- Make sure that they are receiving the right diet, vitamins and minerals and clean water at all times

Where does the feed come from?

- There are several problems that can get to your farm in feed or litter bags:
  - Molds, bacteria, maggots, and viruses can be found in feed bags (Salmonella can be found in chicken feed)
  - Find a reputable and reliable source
  - It is a good idea to have some samples tested when you are trying a new supplier

Trying to save some dollars, you can cause health problems to your animals

- Buying cheap moldy, wet feed or litter can seem like a good idea but the mold produces toxins that can cause serious health problems to your animals
  - Disease signs caused by these toxins include: respiratory problems (aspergillosis is very common), diarrhea, paralysis, reduced feed efficiency, liver and kidney damage
  - Turkeys are particularly susceptible to fungal toxins

UNIVERSITY OF ARKANSAS

Are there any farms nearby that could be a source of transmission to your farm?

- Many bacteria and viruses can travel in water, air, soil and animals (pets, wild life)
- It is important to work as a team with your neighbors to control wild life in the area and avoid contamination of soil and water
- Pathogens that can travel in water include the parasites amoebas, giardia, tapeworms, and cryptosporidium. Bacterial diseases like dysentery, *Salmonella, Campylobacter, E. coli*, typhoid fever, and the hepatitis virus can also live and travel in water

Wild animals like birds or rodents are important vectors for diseases like *Salmonella, E. coli* and even Avian Influenza

Do you know how to recognize disease in your animals?

- Whenever there is a health problem on your farm it is important to act as quickly as possible
  - Always take time to observe and listen to the animals
  - Are they coughing?, are they moving normally?, do they look ok?

Always keep records of all the activities in your farm

- By keeping records you will be able to observe changes in feed or water intake
- Egg production
- Mortality
- Pest levels

Common disease signs in poultry

- Generalized depression
- Listlessness
- Poor appetite
- Ruffled feathers, drooping wings
- Lack of energy, lameness, prostration
- Diarrhea (watery, green, bloody)
- Sneezing, gasping for air, coughing, and nasal discharge
- Swelling or lesions around the eyes, neck, or head.
- Discoloration of the wattles, combs, and legs
  - Purple discoloration of the wattles or combs can be a sign of Avian Influenza
- Foul smell in the area
- Drop in egg production, soft- or thin-shelled, misshapen eggs
- Sudden increase in bird deaths in your flock

Common disease signs in poultry

- Signs of nervous problems include:
  - Tremors
  - Drooping wings
  - Circling
  - Twisting of the head and neck
  - Paralysis

Earlier detection will help you prevent the spread of the disease to other animals or to you and your family

Quarantine

- As soon as you find an animal that looks sick, it will have to be isolated from the rest of the group
- Make sure it is protected from drafts and has plenty of feed and water
- A sick animal must be well for at least 2 weeks before it can return to the flock, that means that in general, it will be in quarantine for longer than those 2 weeks

Quarantine

- Also if you find a bird that has been hurt (for any reason) it is important to separate it from the group
  - It is very common that the other birds will start pecking at the lesion and make it worse
  - They can even kill the sick animal and this can also lead to problems of aggression and cannibalism in the flock

Report Sick Birds

- If you have sick birds or are dying, you should contact the nearest Cooperative Extension System Office
- Visit their website to find contact information to the nearest office http://www.csrees.usda.gov/Extension/index.html
- Not only will they be able to determine what to do, but it will help to design programs in your area to control that disease. If everybody does their part, we all help and protect each other

Diseases transmitted from birds to humans

- There are several diseases that can be transmitted from the birds to humans
- Often these diseases do not cause serious problems in the birds but can cause serious illness in humans
  - Especially in people with chronic medical conditions, children and elderly

- Some of the diseases associated with poultry are:
  - Tuberculosis, erysipelas, ornithosis, salmonellosis, cryptosporidiosis and campylobacteriosis
  - Avian influenza H5N1 is a potential threat but is not currently present in bird populations in North America

Diseases transmitted from birds to humans

Erysipela infection

Ornithosis,
Newcastle disease

Gastrointestinal problems caused like colibacillosis, salmonellosis, campylobacteriosis, listeriosis

Campylobacter and *Salmonella* generally cause stomach and intestinal problems in birds and people

But in humans, these bacteria can also lead to chronic diseases like appendicitis, colitis, reactive arthritis, heart problems, and a disease called Guillain-Barre that causes temporal or permanent paralysis

Prevent disease

1. ALWAYS Wash your hands with soap and water whenever caring for, or handling birds, feces or eggs
2. Wash your hands also if you are going from one part of the farm to another (from the brooder to the coops, for example)
3. Install and use a separate sink near the areas where you keep your birds. Use this sink to wash your hands, farm equipment. This sink should be different from the kitchen or bathroom sink in your house

Prevent disease

4. Everyday spend time cleaning waterers, feeders, nest boxes and shelter
5. Make sure that there are no water or mud puddles where your keep the birds
6. Take time to observe the birds each day to make sure that they look fine
7. Never smoke, eat or drink in areas where birds are kept, or where you keep or handle feed, litter, waste or body products (including eggs and carcasses)

Prevent disease

8. Quarantine all new and sick animals. Separating them from the others is the first step to spreading the disease (usually a quarantine of 2 weeks will be enough to determine how serious is the problem)
9. Never keep the newly arrived chicks or sick animals inside your house (they can bring disease to your house). Instead keep them in the porch, barn, garage or consider adding a small area just for them
10. Keep a change of clothes and shoes that you use when working with the birds and always change before you go into your house

Prevent disease

11. Always limit access to your farm
12. Restrict access to your birds, keep gates and fences closed around your birds and where you keep your equipment
13. If there is a real reason for somebody to come into your farm, ask them to use the footbaths
    - If you don't have footbaths, ask them to wear some kind of protection over their shoes (they sell plastic booties or you can tie a plastic bags over their shoes)

- This is particularly important if they come from another farm where they keep any kind of birds
  - Many diseases start with a visitor and dirty shoes

Prevent disease

- When cleaning equipment, it is important to first remove all manure, dirt, feathers or feed
- Most cleaners and disinfectants will be inactivated by any of these residues

Be careful when using bleach!

- If you use bleach around the coops, it can mix with the ammonia from the chicken poop and it can produce a very dangerous and toxic gas called "chloramine vapor"
  - This gas irritates the lungs, eyes and skin, and can cause suffocation and even death
- If there is a lot of ammonia, then a hot liquid called hydrazine also gets produced, it reaches very high temperatures and can cause scalding lesions

Prevent disease

- Do not share any kind of equipment with other farmers
- If you have to buy or borrow equipment, always wash and disinfect it before they get to your property and before returning them

Many species birds share the same diseases

- Keep your birds separated from wild game birds or migratory waterfowl
- It is especially important to control migratory waterfowl on and around your farm due to concerns about Avian Influenza
- Migratory waterfowl has been linked to the transmission of this disease

Vaccines

- When you vaccinate your birds you are actively preventing and reducing health problems and other risks for your birds and for your farm

- Most diseases can be treated with antibiotics or antiparasitics, but in the case of diseases caused by virus the only real defense is vaccination
  - Some of the diseases that can be prevented with vaccination are:
    - Marek's disease
    - Newcastle's disease
    - Laryngotracheitis
    - Avian Pox
    - Avian cholera
    - Encephalitis and encephalomyelitis

Vaccines

- Vaccination is particularly important if:
  - You take your birds to shows
  - You buy live birds or eggs from hatcheries or from other producers
  - You have had problems with the disease in your farm in the past
  - There is an epidemic of the disease in your area

- Unfortunately, few small and medium size producers vaccinate their birds and many have problems to sell their chicks or birds to other farms, to participate in animal shows and most importantly are exposed to serious health and financial problems
- Some vaccines can be applied to the chicks while they are still at the hatchery or even in the egg. When you buy your chickens you can ask the hatchery to sell you birds that have already been vaccinated. This will be easier and less expensive than having to apply the vaccine yourself

Vaccines

- Talk to your veterinarian, extension agent in your area, or with other producers and ask which diseases are more common in your zone

- Always follow the directions for storage and usage of the vaccines to obtain the best results

Mortality

- A few animals die because of disease, injury or other causes
- Catastrophic mortality can occur if an epidemic infection or a natural disaster (flood, fire) strikes your farm
- There are also other incidences when an entire flock will have to be destroyed to protect human health or other farms in the area (for example, Avian influenza)
- Acceptable ways for managing mortality include:
  - *Composting*
  - *Incineration*
  - *Burial*
  - *Disposal pits*

Mortality

Composting

- It is the controlled decomposition of organic matter into a stable, humus-like product, called compost
- Decomposition is enhanced by mixing organic waste with other ingredients in a manner that optimizes microbial growth

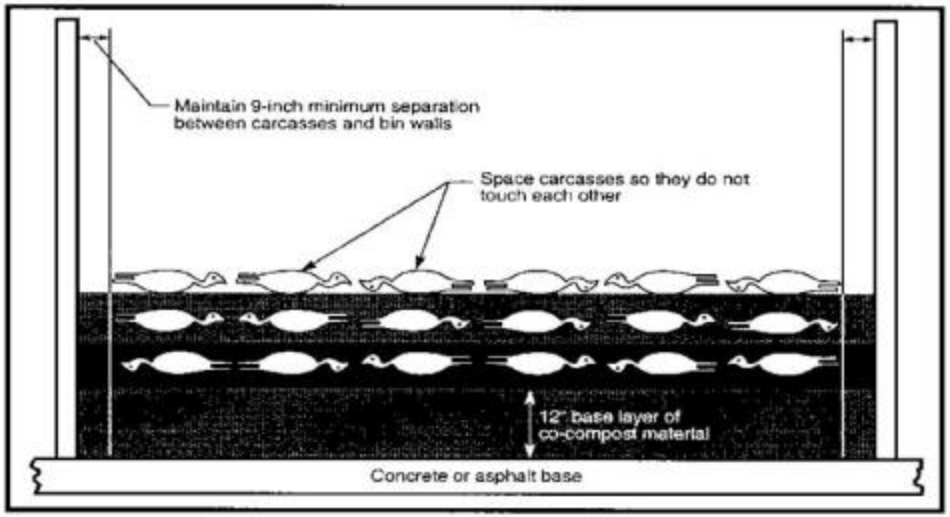

Figure 1. Compost bin diagram, layering of bulking material and carcasses.

http://www.extension.purdue.edu/extmedia/ID/ID-302.pdf

Mortality

- Incineration
- This is a method commonly used to eliminate carcasses that is also very appropriate for controlling disease transmission and pests (flies, rodents, etc.)
- The use of incinerators is regulated by the offices of environmental protection. Talk to your nearest extension office to find out the requirements and regulations in your area for this purpose

Mortality

Burial

- It is a common method of handling dead animals. Some states allow burial only in situations of massive die-off
- In general do not bury carcasses:
  - When conditions exist to create a potential public health hazard
  - At sites with permeable soil, fractured or cavernous bedrock or a seasonal high water table to prevent ground water contamination
  - Within a specified legal minimal separation distance from wells and surface water bodies
  - Take precautions to avoid smells that could be a nuisance to the neighbors or attract scavenging animals (lime will help with both problems)

Mortality

Disposal pits

- Of the methods commonly used, disposal pits or lined pits are the least desirable method for managing mortality form an environmental protection perspective
- Dead animals take a long time to decompose in a disposal pit because of limited aeration
- Due to a high potential for groundwater contamination, adequate separation distance from drinking water supplies is necessary
  - *Check with appropriate regulatory authorities to determine if pits are legal in your area*

Mortality

- Dead chickens or offal from chicken processing should never be fed to other animals unless it has been thoroughly cooked
- Outbreaks of diseases like “Mad cow disease” or “avian influenza” are triggered from this practice

This presentation was prepared by:

Dale Bumpers College of Agricultural, Food and Life Sciences and the Division of Agriculture; University of Arkansas, Fayetteville

Dan Donoghue
Ixchel Reyes Herrera

Poultry Production and Product Safety Research Unit, ARS, USDA

Annie Donoghue

This presentation is part of an educational modular program designed to provide new and beginning farmers and ranchers with relevant information to initiate, improve and run their agricultural operations

United States Department of Agriculture
National Institute of Food and Agriculture

This program is funded by the Beginning Farmer and Rancher Development Program (USDA-NIFA-BFRDP)

USDA-NIFA-BFRDP 2010-03143

This project is the result of the collaboration of these institutions: