### Exemplary use of biosecurity measures can:
- Prevent widespread infection by protecting the general public and the people involved in containing an outbreak
- Prevent further disease spread by containing the infectious agent through cleaning and disinfection of contaminated premises, equipment, vehicles, & personnel
- Control the infectious agent and limit the magnitude of an outbreak, should one occur

### Setting Up the CRZ
- The CRZ should be set up to allow personnel to enter/exit the zone without the risk of becoming contaminated or spreading contaminants. The CRZ includes:
  - Decontamination corridor for personnel/PPE
  - Emergency decontamination
  - A slightly sloped impervious surface that facilitates disinfectant collection, such as a plastic ground cover at least 10 x 10 meters
  - A water supply and collection system
  - The assurance that run-off water is collected or flows back into the EZ

### Movement Through the CRZ
- Authorized personnel working in the secured EZ enter and exit into the CRZ via one or two sites
- All other possible entrances remain secured

### Personnel Biosecurity
- Primary movement from the EZ to the CRZ requires:
  - A personnel washing station in an area nearest to the EZ supplied with water and disinfectants
  - Exterior protective clothing must be scrubbed or sprayed off
  - Boots, coveralls, and gloved hands must be thoroughly washed

### Biosecurity (Cont.)
- Secondary movement into an enclosed area near the SZ is where personnel remove PPE as follows:
  - Always remove protective clothing first and discard or secure the clothing for disinfection
  - Remove respirators and goggles
  - Remove gloves last, by turning gloves inside out and using one gloved hand to remove the other glove
  - Place clothing and equipment in prepared bins for disposal or cleaning
  - Properly discard disposable items as infectious waste in accordance with all applicable regulations
  - Clean/disinfect non-disposable items
- The third area of movement progresses nearer to the SZ where personnel:
  - Enter showering facilities
  - Wash hair
  - Wash hands and all body surfaces
- After exiting shower facilities personnel move to a fourth area where clean clothing is stored

### Vector Control
- Openings where wild birds and rodents can gain entry to the house must be eliminated
- Insect and rodent control products must be applied as soon as the flock is removed and while the building is still warm
- Dead insects and rodents must be removed
- Insecticides must be used on the inside and outside perimeters of the building
- Rodenticides must be placed along established runways after all feed is removed from the feeders, prior to cleaning the feed system

### Biosecurity
- To reduce the risk of exposure to HPAI when performing cleaning and disinfection duties, it is important that you wear the proper PPE:
  - Coveralls - must either be disposable or suitable for disinfection by spraying with a disinfectant solution; coveralls/surgical gowns with long cuffed sleeves plus an impermeable apron are preferable
  - Respirators - a fluid resistant N-95 respirator or higher is recommended for personnel at risk of exposure to splash or fluids; a powered, air-purifying respirator (PAPR) is recommended for highly strenuous and high exposure work
  - Boots or shoe covers - rugged impermeable boots that can be disinfected or discarded
  - Gloves - should be capable of disinfection or disposal; chemical-resistant tape may be used to secure sleeves over gloves and coverall legs inside of rubber boots
  - Eye protection should include non-vented eye goggles, indirectly vented eye goggles with anti-fog coating, or alternative respirator with full face piece, hood or helmet
  - Head protection – includes hard hat, hood, and disposable head cover

### Procedures for Cleaning and Disinfection of Al-Infected Poultry Carcasses

#### PPE Requirements
- Head protection – includes hard hat, hood, and disposable head cover
### Cleaning
- The cleaning process includes four basic steps:
  - Dry cleaning
  - Wet washing
  - Rinsing
  - Drying
- **Dry cleaning - advantages**
  - Allows thorough removal of organic debris
  - Aids in efficiency of disinfectants
  - Currently recommended by USDA APHIS HPAI Plan
  - Dust can be controlled by first spraying a disinfectant or water/disinfectant solution
- **Dry cleaning - disadvantages**
  - Potential to create more aerosols and generate dust
  - Greater risk of disseminating zoonotic pathogens through ventilation systems
  - All fans, air filters and ventilation systems must be closed off prior to cleaning
- **Wet cleaning - advantages**
  - Steam cleaning while concurrently disinfecting may decrease aerosols
  - Virus can be inactivated with warm water
  - Warm water aids in removing organic debris
  - Combining water and detergent aids in removing residual dust and organic debris, and decreases viral load
- **Wet cleaning - disadvantages**
  - May require prolonged soaking time
  - High pressure washing may generate aerosols

### Disinfection
- Disinfection methods include:
  - Pressurized spray - most effective method to force disinfectants into wood pores and cracks
- **Disinfection (cont.)**
  - Thermonebulization - utilizes a process of fine fogging and heat
  - Fumigation - not recommended for use, nor commonly used
  - Controlled flame - relatively newer method to disinfect floors
  - Electrostatic - charged sprayed on particles cling to surface of area to be disinfect
  - Foam - clings to surfaces longer than liquids
  - Heat - raising the temperature in an empty house prior to cleaning and disinfection may help reduce AI viral counts and enhance the disinfection process

### Work Zones and Control Areas
- Identifying and designating work zones in the area of operations, and control areas on premises, may help prevent the transmission of the HPAI virus during cleaning and disinfection
- **Work Zones**
  - Work zones are small areas that only apply to specific premises and are identified as:
    - Exclusion Zone (EZ)/Red Zone/Hot Zone
    - Contamination Reduction Zone (CRZ)/Yellow Zone/Warm Zone
    - Support Zone (SZ)/Green Zone/Cold Zone
- **Control Areas**
  - Control areas, in comparison to the smaller work zones areas of a specific premises, are another means of preventing HPAI transmission by monitoring movement around the quarantine zone
  - The quarantine zone may be miles in diameter and may include many premises

### Loading Procedures
- Drivers should wear PPE at all times
- Drivers should remain seated within the vehicle while the truck is loaded with all windows and doors closed
  - Loading bird carcasses: When the container is full or meets the maximum weight limit, the bird carcasses should be sprayed again with Virkon S
  - Loading eggs and carcasses: One foot of wood shavings/sawdust should be alternated with a third of the load until the container is full; one foot of wood shavings/sawdust should then top off the load
- Once vehicles have been loaded, the plastic liner should be folded over itself; use duct tape or tie downs to secure
- Vehicles should be thoroughly inspected before departure to minimize risk of virus dissemination in transit

### Transport Procedures
- Use a prearranged route
- No planned stops are permitted; therefore, vehicles should be fully fueled and drivers should take breaks beforehand
- Vehicle speeds must be kept at a minimum (no greater than 30 mph) to decrease the risk of spreading the virus en route to the disposal site

### Emergency Situations
- Be prepared for:
  - Temporary storage
  - Spills/excess leakage
  - Vehicular problems
  - Adverse weather
  - Terrorist attack