Cleaning and Disinfection: Overview

Cleaning & Disinfection (C&D)
- Stop the spread of pathogens
  - Inactivate or destroy microorganisms
- Vital for animal health emergencies
- Premises, equipment, vehicles, personnel
- Personnel must be knowledgeable
  - C&D methods, procedures, limitations
  - Safety issues

C&D Methods
- Reduce, remove, inactivate, destroy
- Methods vary in level of destruction
- Physical
  - Heat, UV light
- Chemical
  - Sanitizers
  - Disinfectants
  - Sterilants

Disinfectant Regulation
- Registered and regulated by EPA
  - Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)
  - "Antimicrobial pesticides"
- Use in manner inconsistent with label
  - Ineffective application
  - "Misuse" of product

Efficacy Considerations
- Microorganism Considerations
  - Vary in susceptibility
- Environmental Considerations
  - Organic load
  - Water hardness
  - Temperature
  - Surface type
  - Other chemicals

Basic C&D Protocol
- Cleaning
  - Dry Cleaning
  - Washing
  - Rinse and dry
- Disinfection
  - Application
  - Contact Time
  - Rinse and dry
  - Downtime
Cleaning

- Importance
  - Can remove 90% of microorganisms
  - Improves disinfection efficacy
  - Prior to application of disinfectant
- Three steps
  - Dry clean
  - Wash
  - Rinse and Dry

Cleaning: Dry Cleaning

- Removal of gross contamination
  - Organic material
    - Soil, manure, bedding, feed
- Moisten to control dust
- Air blowers should not be used
  - Risk of pathogen spread
- Disposal should minimize spread
  - Burning, burial, composting

Cleaning: Washing

- Most overlooked step
- Detergent
  - Reduces microorganisms
  - Removes oil, grease, exudates
- Shut off, remove or cover electrical equipment
  - Covered tightly with plastic
  - Electrician may be helpful
- May need pre-soaked

Cleaning: Washing

- High pressure water is very effective
  - Avoid if highly infectious or zoonotic
- Warm to hot water should be used
- Scrubbing may be necessary
- Steam
  - Effective for cracks, crevices, pipework

Rinse/Dry

- Rinse with cold water at low pressure
- Surfaces should be inspected
  - No beading should occur
- Surfaces should allow to dry completely
  - Overnight if possible
- Fans can be helpful in drying
- Do not use with zoonotic pathogens

Disinfection

- Application
  - Physical
    - Heat, UV light
  - Chemical
    - Disinfectant
- Contact time
  - Most important
  - May need reapplication
- Rinse after contact time
Downtime

- Free of any animals or activity
- Reduces pathogens by drying
- Time varies based on pathogen
  - Three times expected incubation period
- Block of area

Assessment and Planning

- Identify pathogen
- Determine areas & items
- Select proper disinfection method
- Identify & address hazards & safety issues
- Determine personnel, equipment & supplies needed

Site Selection

- Adjacent to entrance points
- Two scales
  - Small scale for personnel/small equipment
  - Large scale for vehicles, machinery
- House C&D components
  - Disinfection station
  - Water supply/waste water containment

Biosecurity Work Zones

Disinfectant Preparation

- Only EPA-registered products
- Fresh solutions only
  - Old solutions may have reduced efficacy
- Test kits
  - Determine chemical degradation of active ingredients

Evaluation

- Areas properly cleaned/disinfected
- Personnel aware of/implementing C&D measures
- Proper disinfectant selected
  - Appropriate concentration
  - Correct contact time achieved
- C&D Waste
  - Minimize or avoid environmental impact
Safety

- Chemical Hazards
  - Skin, eye, respiratory irritation
  - Ingestion (animals)
- Physical Hazards
  - Slips, trips, falls
  - Heat injury
  - High pressure sprayer
- Personal Protective Equipment (PPE)
  - Gloves, masks, eyes

ICS: C&D Group

- Part of Operations Section of ICS
  - Establish C&D protocols
  - Set up disinfection stations
    - Vehicles
    - Equipment
    - Personnel

C&D Team

- C&D Group Supervisor
  - C&D implemented effectively
  - Personnel know proper procedures
  - Identifies team members with required expertise
- C&D Team Leaders
  - Supervises on site activities
- C&D Team Members
  - Implement C&D procedures

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