

Mass Depopulations and Disposal: Techniques, Strategies and Considerations

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Eradication Objectives

- To quickly eradicate disease
- To minimize spread
- Intervention alters the epidemic curve

Review of Depopulation and Disposal in Recent Incidents

- 2002 -LPAI in the Cumberland Valley, VA
- 2002-03 – END in Southern California
- 2003-04 – BSE Investigation, WA
- 2004 – HPAI in the Fraser Valley, Canada
- 2007 – Contingency Planning HPAI, Asian Strain

Humane Euthanasia

- AVMA euthanasia guidelines
- Responders under intense Media / Public scrutiny
- Do what's right....

Avian Depopulations

- LPAI Virginia – Response Team works closely with affected companies
- Standard set-up for loosely housed birds= portable panels, birds herded into panels, draped with plastic, Gas fed directly from CO2 Tanker truck
- Caged Layers- labor intensive, birds transferred to spent hen carts, 4 carts draped with plastic sheeting, CO2 gas introduced

LPAI- Virginia (cont.)

- Problems : Company techniques for euthanasia of some turkeys involved blunt force trauma
- Rough handling of caged layers
- Excessive “packing” of the Spent hen carts
- Featured first use of Animal Care veterinarians as Animal Welfare monitors

END - California

- First Backyards then Commercial – Very different environments
- Backyards: Depop Team – 1 Crew cab pickup + 1 Large Cargo Truck, 5-6 personnel
- mixture of caged and loose birds
- Birds hand caught, placed in poly-lined cardboard barrels, CO2 gas applied periodically
- Rate of bird introduction important factor
- Extensively used Wildlife Services Personnel to euthanize loose birds with appropriate firearms

END- Commercial Depops....an Evolution

- 1st Commercial- Mid-December 2002 , Pheasants.... Herded into adjoining building, draped with plastic, CO2 cylinders opened...
- 2nd Commercial.... 22-24 December 2002, Caged Layers, birds hand caught, carried to large covered roll offs... lined with plastic, absorbent materials, CO2 flows constantly, birds added at a constant rate

END- Commercial Depops (cont.)

- > 20 layer facilities affected... size range 1.2 million.... 70,000
- Techniques evolved from large euthanasia vessels to smaller...
- Eventually CO₂ charged rolling garbage cans were the method of choice

HPAI - Fraser Valley

- HPAI in Canada.... Featured whole house depops
- Sealing crew.... Seal openings in poultry building
- Euthanasia crew.... Attach bracket to doorway, clears personnel from building, attach CO2 hose directly from tanker truck, introduce CO2....
- Problems: many birds exposed to extremely cold temps... snow bank across the house from CO2 inlet, not even distribution of gas
- Response: better distribution of gas through improved baffle system

HPAI – Asian Strain ???

- Potential for human transmission
- Renewed interest in whole house depops
- Newer gases (Argon), foam has been recently approved for mass euthanasia
- Caged layers remain labor intensive—proper PPE for responders, limits available workforce

Hoof Stock Depopulations- BSE Investigation

- Extremely high visibility
- Utilized Animal Care Veterinarians to review euthanasia protocols and facilities
- Utilized chemical euthanasia where appropriate and captive bolt



Personnel arrived at the calf facility at approximately 6am.
State Highway Patrol officers were present to provide
security and access control.
Personnel began work immediately.



Calves were efficiently moved in groups from their stalls. Veterinarians and animal welfare personnel evaluated the animals' condition.



As animals left their stalls, they were gathered in pens in the loading area.



All calves that were too weak to move were humanely euthanized. Animal care representatives oversaw all euthanasia. Dead animals were moved to the euthanasia facility in a separate load for identification and sampling.





Livestock hauling trucks arrived and were prepared to load calves.



Response Team personnel, including livestock inspectors, carefully monitored all animals that were loaded.



Humane euthanasia and sampling was conducted at the McInroy Meat Processing facility in Wilbur, Washington. Operations were conducted in the wooden holding structure adjacent to the main building.



The County Sheriff and IES personnel were on site to provide security and access control. All vehicles were stopped before approaching the facility. No unauthorized personnel were allowed near the facility.



The first loaded vehicles arrived at the Wilbur facility at approximately 11am. Response Team personnel, including Animal Care representatives, were on site awaiting the vehicles. The facility had already been thoroughly prepared to receive animals.



After calves were unloaded, they were humanely euthanized in small groups. Identification and samples from each animal were carefully collected.



After each group of animals was humanely euthanized, carcasses were removed from the facility with a front-end loader.



All carcasses were secured in sealed rendering trucks for transport to the Roosevelt Regional Landfill for disposal. Disposal was completed on the morning of Thursday, January 8, 2004 (the facility had been closed on Wednesday due to inclement weather).



Disposal – Flexibility Needed

- Plan ahead But be ready to adjust
- Each Incident (even each site within an incident) has special needs
- Chesapeake Bay watershed restricted the land application of composted birds... limiting options
- The Golden Rule: The closer the better.....

Disposal Options - Landfill

- LPAI Virginia..... Predominate method, required extensive preparation of the transport vehicle... Lining of bed, absorbent material added, birds layered, CD crew continually spraying disinfectant, plastic closed on top and then tarped
- NOT IN MY BACKYARD.... Eventually found a landfill that would accept... High tipping fees, 90 miles each direction....
- Producers generally like this option

Disposal.... Landfill

- END So Cal.... Densely populated, commercial often next to housing developments.... Limits disposal options
- Eventually found a large landfill in the region that would accept the euthanized birds
- Developed standards for disposal that required immediate burial with sufficient cover to minimize exposure to wild birds
- CD crew at the landfill

Disposal - Landfill

- BSE – Washington State Investigation
- Landfill was chosen as the appropriate method.... January in Eastern Washington
- Euthanized carcasses identified (head / body)
- Held on transport until lab results, negative = burial at landfill
- CD trucks at landfill
- If a positive animal found.... Incineration arranged

Disposal - Incineration

- Frequently used for CWD depops in Colorado
- LPAI.... Contract with a debris incinerating company, portable air curtain incineration units utilized.... Sited in a deep quarry
- Problems: throughput limited, high fuel requirements, wet birds = lot's of smoke, ash piles that smolder for many weeks
- Relocated affected homeowner, pool of water... clear to black

Disposal- Composting

- HPAI- Asian Strain contingency planning considers on farm composting as the option of choice
- LPAI – Ag Bag.... Considered a central location... but unable.... Prison, military...
- Finally utilized on farm Ag-Bag option... problems resulted from inexperience = no appropriate site for adequate mixing of carbon source and birds, insufficient moisture
- Result = incomplete composting

Disposal - Composting

- HPAI - Fraser Valley
- CFIA contracted with a local dairy...no poultry producers nearby..
- Set – up a central composting facility
- Euthanized birds transported to site, mixed with carbon source in a building, moisture added from the dairy's adjacent lagoon (3" hose)... experienced personnel manage site
- Commercially marketable product produced











Depopulation / Disposal

- Depopulation = Humane / Efficient / Safe
- Disposal = Flexibility / Preplanning....
- British General frustrated with delays over proper disposal.... Ordered the Depop teams to forge ahead... the result forced officials to quickly approve disposal methods....
- Questions ???????