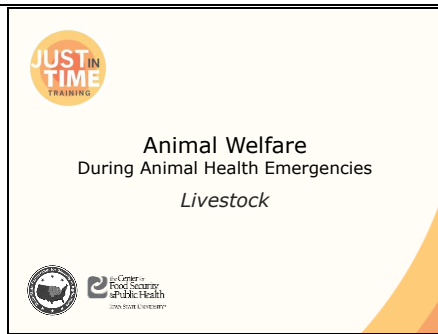


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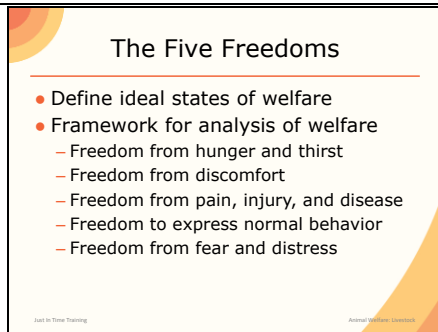
During animal health emergency situations – whether a natural disaster or infectious disease outbreak response – animal welfare issues must be considered and addressed. This Just-In-Time training will overview some of the pertinent animal welfare considerations for livestock during animal health emergencies.

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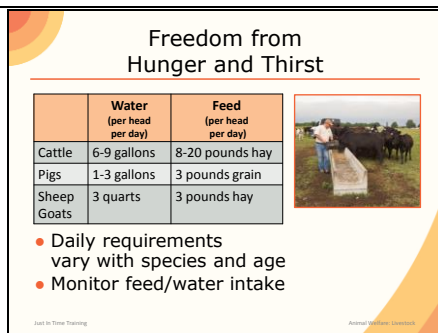
Animal welfare is the ethical responsibility of ensuring the well-being of animals. It refers to the physical and mental state of the animal and includes consideration of the animal’s health, behavior and biological function. [Definition source: AVMA and American College of Animal Welfare] Responders should continuously evaluate animal welfare issues throughout the response and refine situations when indicated. [Photo: (Top) Bull, cow and calf. Source: Sunny Ripert/Flicker Creative Commons ; (Bottom) Pigs resting in the mud. Source: EvelynSimak/www.geograph.org.uk\_CreativeCommons]

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The “five freedoms” are internationally recognized ideal states of the welfare of animals. These principles can provide responders valuable guidance and a framework for determining and assessing animal welfare situations during animal health emergencies. The five freedoms include freedom from hunger and thirst, freedom from discomfort, freedom from pain, injury and disease, freedom to express normal behavior, and freedom from fear and distress.

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Freedom from hunger and thirst addresses the provision of ready access to fresh water and diet to maintain health. During animal health emergencies, livestock will require food and water. Daily requirements will vary with species and age of the animal. Cattle will require forage, such as grass or hay. Cattle will consume 8-20 pounds of hay per head per day and 6-9 gallons of water per head per day, depending on age. Pigs will require 1-3 gallons of water and 3 pounds of grain per head per day. Sheep and goats will need 3 quarts of water and 3 pounds of hay per head per day. Water consumption for animals will increase with hot weather conditions. Feed consumption will increase with extreme cold temperatures. Younger animals may have additional nutritional requirements. Animals may not eat in stressful situations. Feed and water intake should be monitored daily. If animals are stabled in large groups, several water sources and feed sources should be available to reduce territoriality and exclusion among the animals. For specifics on nutritional requirements of various species during animal health emergencies, see the AVMA Emergency Preparedness and Response Guide at <https://ebusiness.avma.org/login.aspx?rid=03&sid=193>. [Photo: Cattle being fed. Source: Bob Nichols/USDA; Data source: Preparing the Farm and Farm Animals for Disaster. <http://www.nal.usda.gov/awic/pubs/IACUC/dis.htm> ]

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**Freedom from Discomfort**

- Appropriately sized confinement space
  - Stalls or outdoor pens
  - Protect from elements
  - Appropriate temperature for time of year
  - Ventilation
- Bedding
  - Saw dust
  - Wood chips
  - Straw
- Waste management



Freedom from discomfort involves providing an appropriate environment, including shelter and a comfortable resting area. If animals are housed indoors, sufficient ventilation and temperature control within the building are critical in order to prevent discomfort or even mortality. Any sheltering facility should provide protection from the elements, including inclement weather and predators. Housing areas should be large enough to accommodate laying down and turning around. Stalls should be bedded with saw dust, wood chips, or straw and cleaned daily for hygienic purposes. Attention to ventilation will be important to maintain adequate air flow throughout the building. If animals are housed outdoors, adequate wind protection and shade should be provided. Be sure to account for the seasonal temperature changes and provide fans, shade, and heaters, if needed. Heat stress is a significant concern for pigs. Overcrowded conditions should be avoided to avoid stress to the animals as well as to decrease potential for disease transmission. Before placing animals in the housing area, check for any items that might cause physical injury (e.g., nails, sharp objects, hazardous materials). Lactating dairy cattle will need milked routinely to ensure comfort and prevent health impacts. Dairy breeds of goats will also require milking. [Photo: (Top) Ewe and lambs. Source: Stephen Ausmus/USDA ARS; (Bottom) Pigs in an indoor facility. Source: Alex Ramirez/Iowa State University]

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**Freedom from Pain, Injury, and Disease**

- Examine upon entry/exit
  - Illness
  - Injury
  - Nutritional well-being
- Treat appropriately
  - Medical, surgical
  - Euthanasia
- Monitor
- May have delay in showing signs
  - Stress analgesia




Animal welfare should also address freedom from pain, injury and disease. Animals entering and exiting the shelter should be examined upon arrival by a veterinarian for any signs of disease or injury. When illness, injury, or other conditions threatening an animal’s welfare are noted, appropriate actions should be taken. This may range from medical treatment to surgical treatment; some situations may warrant humane euthanasia. Be aware some animals may show a delay between the time of actual injury and showing signs due to a phenomenon known as stress analgesia. Therefore, awareness and monitoring of animal health before, during, and after transport and sheltering is essential. [Photo: Examination of a cow. Source: Danelle Bickett-Weddle/CFSPH Iowa State University]

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**Freedom to Express Normal Behavior**

- Livestock
  - Herd animals
  - Prey animals
  - Anxious when isolated
  - Pigs: Inquisitive nature and strong natural urge to escape
  - Goats: Difficult to keep confined




Another animal welfare state is the freedom to express normal behavior, both individually and in groups. Animal behavior can be abnormal in times of stress, such as animal health emergencies. New surroundings coupled with an increase in handling and transport may raise stress on animals and alter the way an animal acts. Livestock are herd animals, tending to gather in groups. Animals that become separated from the group can become agitated and dangerous in its attempts to rejoin the herd or group. Swine will establish a social order within their group, with one animal becoming the dominant individual for the group. The removal or addition of new animals will require re-establishment of the social order, usually through fighting. Swine also have an inquisitive nature and spend much of their time in forage-related activities, such as rooting, grazing and exploring with their snout. They also like to chew on objects, including each other’s ears or

tails at times. Livestock species are also prey animals, so they will have a natural heightened flight response in stressful situations. Pigs have a strong natural urge to escape. Small gaps between pens, alleys, ramps, side gates, chutes, or anywhere else may encourage a pig to try to escape. Goats are also notoriously difficult to keep confined, so appropriate fencing options must be considered. [Photo: (Top) Cow and calf. Source: Renee Dewell/CFSPH, Iowa State University; (Bottom): A pig trying to escape. Source: Alex Ramirez, Iowa State University]

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**Freedom from Fear and Distress**

- Recognize normal vs. abnormal
  - Elevated stress – unpredictable
  - Experienced handlers
- Safe transport
  - Avoid overcrowding
  - Familiar groups
- Group by species, age, gender, farm of origin, pregnant animals




Finally, the freedom from fear and distress addresses the conditions and treatment which avoids mental suffering, including humane handling and humane euthanasia. Appropriate handling can minimize stress and leads to better overall health and welfare. Disaster situations or animal health emergencies, will elevate the stress of livestock. Animals in stressed situations can become unpredictable and should be handled calmly. Knowledge and understanding of normal and abnormal livestock behavioral patterns can help determine and anticipate reactions seen in emergency situations. Only trained individuals experienced with livestock should handle these animals in animal emergency situations. If livestock are to be transported from one site to another location welfare issues must be addressed. Only transport vehicles appropriate for the species should be used and should not be overcrowded. Ramps, trucks, and other equipment used in transporting livestock should be safe so that the animals do not injure themselves. Separation of animals can directly affect animal welfare. In order to protect the well-being of all animals during an emergency situation, livestock should be separated according to species, age, and gender. Animals should be grouped based on farm of origin and pre-established herds. Mixing herds should be avoided. Young livestock should not be separated from their mothers; the strong maternal instinct can make the mother stressed and difficult to handle if she feels her young is being threatened. [Photo: (Top) A flock of sheep. Source: United Nations at Flickr.com Creative Commons; (Bottom) Cow and calf. Source: Renee Dewell/CFSPH Iowa State University]

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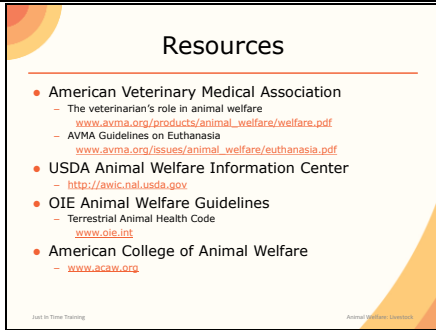
**Responders: Mental Health and Animals**

- Response stress
  - Can affect responder mental health
  - May affect animal welfare
    - Responder apathy
    - Responder fatigue
    - Uncompleted tasks
    - Carelessness of tasks
    - Forgetting overall welfare needs



In times of emergency, stress is on the rise for all involved; emergency responders are no exception. Their mental health can be adversely affected by long hours, emotional stress, and the seriousness of the disaster. When responders begin to succumb to these factors, it can adversely affect animal welfare. This may manifest itself in responder apathy, fatigue, uncompleted tasks, carelessness of tasks, and forgetting the overall welfare needs of the animals involved. Know how to recognized signs of stress and fatigue in yourself and others. Take appropriate actions to reduce stress. [Photo: Veterinarian interacting with horses in a stressful situation. Source: Jessica Kennicker, Iowa State University]

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**Resources**

- American Veterinary Medical Association
  - The veterinarian's role in animal welfare
    - [www.avma.org/products/animal\\_welfare/welfare.pdf](http://www.avma.org/products/animal_welfare/welfare.pdf)
  - AVMA Guidelines on Euthanasia
    - [www.avma.org/issues/animal\\_welfare/euthanasia.pdf](http://www.avma.org/issues/animal_welfare/euthanasia.pdf)
- USDA Animal Welfare Information Center
  - <http://awic.nal.usda.gov>
- OIE Animal Welfare Guidelines
  - Terrestrial Animal Health Code
    - [www.oie.int](http://www.oie.int)
- American College of Animal Welfare
  - [www.acaw.org](http://www.acaw.org)

Just In Time Training Animal Welfare: Livestock

In this presentation, we briefly reviewed some of the livestock animal welfare considerations during an animal health emergency. For additional information on this topic, consult these additional resources.

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**JUST IN TIME TRAINING**

**Acknowledgments**

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