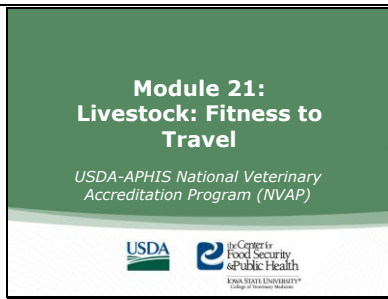
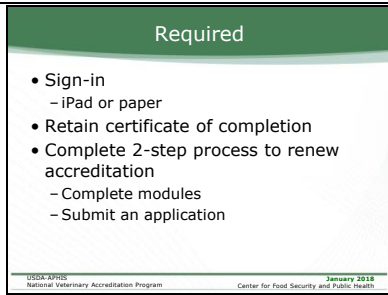


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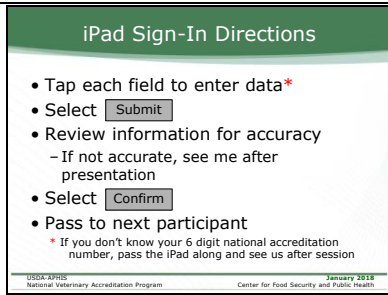
Welcome to Module 21: Livestock: Fitness to Travel. This module was developed as supplemental training for the USDA-APHIS National Veterinary Accreditation Program (NVAP) by the Center for Food Security and Public Health at the College of Veterinary Medicine, Iowa State University. The content for this module was finalized in January 2018. *Presenters: As designed, slide completion time ranges from 30 to 90 seconds each, such that the entire presentation can be completed in 60 minutes.*

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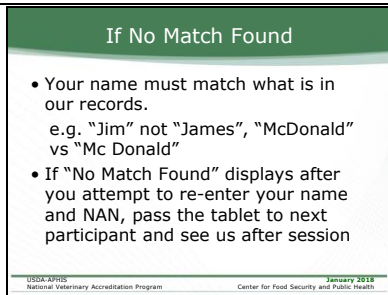
A few important points about the renewal process, first you must sign in to get credit for taking each APHIS Approved Supplemental Training Module. This will either be done using a paper sign in sheet that is being passed around or the iPad that is being passed around. Second at the end of the presentation you will receive a certificate of completion, this is your proof you have completed the module. Please retain this for your records. Do not send it to APHIS as part of the renewal. You must submit an application for renewal as part of the two-step renewal process. This can either be done on-line or via paper. Both processes are described on the NVAP website.

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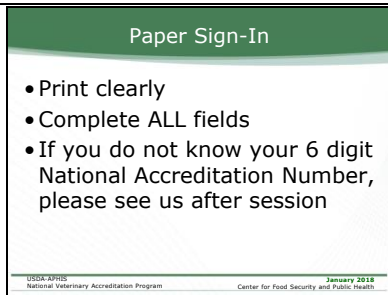
In order for the key pad to display the participants must first tap the first field on the screen (first name field). This will display the key pad. The participant must then either tap the stylus pen or their finger into each subsequent field on the screen. The user must tap into each field. Enter your National Accreditation number including leading 0's.

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If a paper sign in is being used please make sure you print clearly or you may not get credit for the AAST module. It is critical that we have your updated email address to ensure you receive notifications from NVAP. If you do not know your six digit National Accreditation Number (NAN), please see the instructor after the presentation.

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**Supplemental Training**

- Familiarize accredited veterinarians with animal health regulatory concepts and activities
  - Does not supersede the regulations
- For the most up-to-date regulations and standards, please refer to:
  - Code of Federal Regulations
  - OSHA
  - Occupational health specialist
  - Local VS District Office

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*Presenters: Please make sure your audience understands the intent of this information by reading what is written here.* This informational presentation is intended to familiarize accredited veterinarians with animal health regulatory concepts and activities. Information presented here does not supersede the regulations. For the most up-to-date regulations and standards, please refer to the Code of Federal Regulations, contact your state or national Occupational Safety and Health Administration (OSHA), consult with your workplace’s occupational health specialist, or your local VS District Office.

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**Supplemental Training**

- All APHIS Approved Supplemental Training (AAST) modules are also available on our Website with interactive features and links to additional Web resources.
- Type “NVAP” into your search engine e.g. Bing, Google, Yahoo.


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All modules are available on our website free of charge. If you want additional information about any of the presentations you may check them out on our website where additional resources are available. The NVAP website is available by typing NVAP into your preferred search engine.

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**Introduction**

- Describes how to assess an animal’s fitness to travel
- Explains appropriate actions for animals unfit for transport
- Discusses suggestions for livestock producers to support well-being of animals



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One of your many duties is to evaluate livestock before commercial transport

*Photo source: Alex Ramirez, Iowa State University*

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**Overview**

- Discuss role of accredited veterinarian (AV) in evaluating fitness of animal to travel
- Describe how to perform inspection or examination of animal to determine if fit to travel
- Explain steps to make transportation more comfortable and safer for livestock

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After completion of this module, you will be able to

- discuss the role of the accredited veterinarian in evaluating the fitness of an animal to travel;
- describe how to perform an inspection or examination of an animal to determine if it is fit to travel; and
- explain steps that can be taken to make transportation more comfortable and safer for livestock.

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**Species Covered**

- Bovine
  - Beef, dairy
- Small ruminants
  - Sheep, goats
- Swine



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- Horse transport to slaughter: 9 CFR Part 88 (Commercial Transportation of Equines for Slaughter) or Module 20: Slaughter Horse Transport
- Information on health assessments and infectious disease prevention for poultry, aquatic animals, nonhuman primates found in other NVAP modules
- Additional guidelines for transporting aquatic animals found in Aquatic Animal Health Code

*Graphic illustration: Andrew Kingsbury, Iowa State University*

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**Livestock Transportation**

- Animal transport can vary
  - Travel distance, species, reason
  - Documentation requirements
- Animals assessed prior to loading, must be found fit to travel
- Physical limitations, disease conditions can prevent humane transport
- Transportation for veterinary treatment generally permitted



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- Hundreds of thousands of pigs, cattle, sheep, goats loaded onto trailers for interstate, intrastate transport every day
- Some animals loaded onto trucks, ships, airplanes for international transport
- Some animals ineligible for transport to sales venue may be transported to slaughter

*Photo source: Renee Dewell, Iowa State University (top); Tom Latta, Latta Veterinary Consulting (bottom)*

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**Veterinary Inspections and Examinations**

- AVs uniquely qualified, can recognize signs
- Inspection
  - 9 CFR § 160.1: "visual study of the physical appearance, physical condition, and behavior of animals (singly or in groups) that enables an accredited veterinarian to determine whether any abnormality in physical condition or bodily function is evident"
- Examination
  - 9 CFR § 160.1: "physical study of an individual animal to determine if an abnormality in physical condition or bodily function is suggestive of clinical signs of communicable disease"

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- Veterinarian’s training in normal, abnormal conditions allows them to recognize subtle signs of infectious disease or other conditions that could affect health, well-being of animal or others transported in close contact

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**Standardized Inspections and Examinations**

- Reduces risk of infectious disease spread
- Improves objectivity, evaluation, repeatability
- Increases likelihood that traceable healthy animals walk off trailer at intended destination
- Supports livestock welfare
- Ensures all animals have official identification



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- If animal exported by air or sea, APHIS veterinarian must visually inspect animal within 48 hours prior to embarkation to determine if animal is sound, healthy, fit for travel
  - More details see 9 CFR §91.7

*Photo source: Danelle Bickett-Weddle, Iowa State University*

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**Body Condition**

*Note to presenters: Handouts on BCS (dairy, beef, small ruminant, swine) are available*

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**Body Condition**

- Important indicator of overall health
- Emaciation caused by
  - Stress, illness, parasites
  - Gastrointestinal issues, poor dentition, restricted feed intake
- Emaciated animals likely to collapse, become injured and non-ambulatory
- Obesity may cause animals to overheat
  - Care taken not to overcrowd
  - Ensure appropriate ventilation

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- Extremely thin animals are of special concern
- Emaciated animals lack body fat, which helps sustain, protect animals during transportation
- Non-ambulatory disabled—9 CFR §309.2(b): “livestock that cannot rise from a recumbent position or that cannot walk, including, but not limited to, those with broken appendages, severed tendons or ligaments, nerve paralysis, fractured vertebral column or metabolic conditions”

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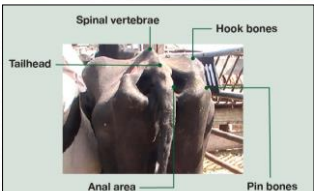
### Body Condition Evaluation

- Evaluation provides a Body Condition Score (BCS)
- BCS number range varies by species
  - Depends on fat cover over specific anatomical locations
  - Dairy, small ruminants, swine range 1-5
  - Beef range 1-9

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### Dairy Cow BCS




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### Dairy Cows—BCS 1

- Unfit to Travel**
- Emaciated
- Prominent vertebrae, hooks, pins
- Sharp short ribs; "shelf-like" loin
- Prominent vulva
- Anal area receded





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*Photo source: Megan Smith, Iowa State University*

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### Dairy Cows—BCS 3, 5

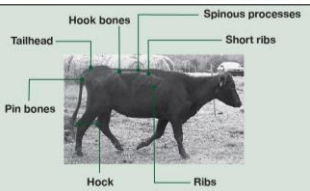
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- BCS 3: Average:
  - Short ribs palpable
  - No shelf-like appearance
  - Spine, hooks, pins rounded
  - Anal area filled out
  - No evidence of fat deposits
- BCS 5: Fat
  - Spine, hooks, pins, short ribs not discernible
  - Fat deposits around tailhead, over ribs

*Photo source: Megan Smith, Iowa State University*

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### Beef Cattle BCS




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**Beef Cattle—BCS 1**

- **Unfit to Travel**
- Emaciated
- No palpable fat over spinous processes, short ribs, hooks, pins
- Tailhead, ribs, vulva prominent
- Depressed anal area




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Source: Parish J, Rhinehart J. *Body Condition Scoring Beef Cattle*. Mississippi State University Extension Service.

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**Beef Cattle—BCS 3, 5, 7, 9**



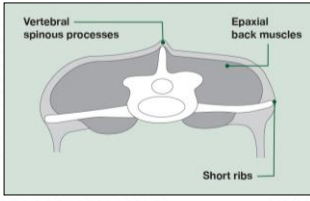
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- **BCS 3: Thin**
  - Individual ribs noticeable
  - Fat palpated around tailhead, spinous processes
  - Thin layer of backfat over ribs close to vertebrae
- **BCS 5: Moderate**
  - Fat cover palpable either side of tailhead
  - Spongy fat over ribs
  - Lean fit appearance
- **BCS 7: Good**
  - Considerable fat cover
  - Spongy, palpable fat over ribs, around tailhead
  - Fat deposits forming around tailhead
- **BCS 9: Extremely Fat**
  - Fatty tissue covers hocks, tailhead
  - Excessive fat between pin, tailhead
  - Bone structures no longer visible, palpable
  - Blocky, fat deposits impair mobility

Source: Parish J, Rhinehart J. *Body Condition Scoring Beef Cattle*. Mississippi State University Extension Service.

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**Small Ruminant BCS**



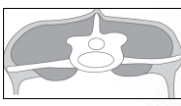
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Graphic illustration: Dani Ausen, Iowa State University

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**Small Ruminants—BCS 1**

- **Unfit to Travel**
- Emaciated
- Spinous processes sharp, easily palpated
- No fat cover on epaxial back muscles
- Short ribs sharp, able to pass hand underneath ends of processes

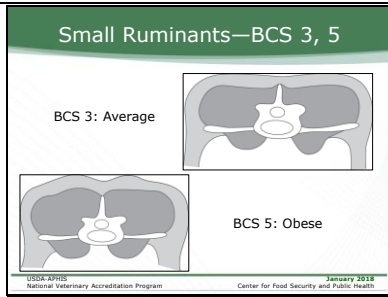


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Graphic illustration: Dani Ausen, Iowa State University



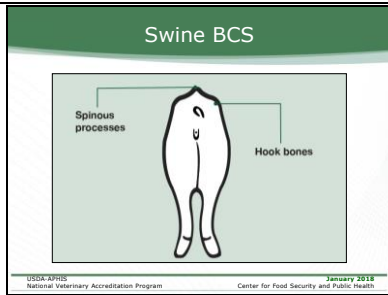
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- BCS 3: Average
  - Spinous processes smooth, rounded over
  - Short ribs smooth, well covered
  - Epaxial back muscles fully developed, slight covering of fat
  - Pressure needed to feel processes
- BCS 5: Obese
  - Spinous processes unable to be detected
  - Depression between fat where spinous process normally palpated
  - Transverse processes unable to be felt
  - Epaxial back muscles developed with very thick fat covering

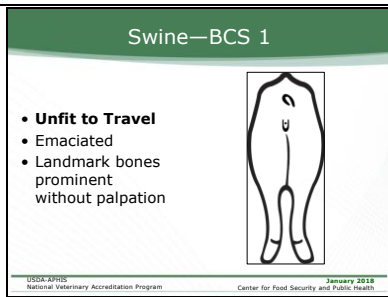
*Graphic illustration: Dani Ausen, Iowa State University*

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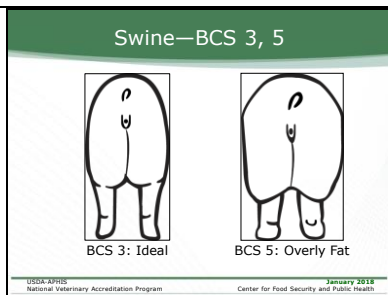
*Source: Coffey R, Parker G, Laurent K. Assessing Sow Body Condition.*

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*Source: Coffey R, Parker G, Laurent K. Assessing Sow Body Condition.*

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- BCS 3: Ideal
  - Bones barely felt when palpating with firm pressure
- BCS 5: Overly Fat
  - Same palpation characteristics as BCS 4
  - Excessively overweight

*Source: Coffey R, Parker G, Laurent K. Assessing Sow Body Condition.*

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**Eligibility for Transport Based on Body Condition**

- All animals with BCS 1 unfit for travel
- Emaciated animals in negative energy status
  - High risk for exhaustion, becoming non-ambulatory
  - Treat emaciated animals and reassess
  - Humane euthanization may be appropriate
- If emaciated due to reduced feed intake, gradually feed toward healthy body condition

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- Emaciation may be sign of serious illness
- If animal's condition fails to improve, humanely euthanize on farm


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**Lameness**

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**Lameness**

- Do not transport severely lame animals to slaughter
- Non-ambulatory animals will not be accepted for slaughter
  - Euthanized on trailer
  - Detrimental to animal's welfare, lost income and time for producer



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- Lameness can be caused by number of illnesses and conditions
- Lameness is painful medical condition, lame animals suffer during transport

*Photo source: Danelle Bickett-Weddle, Iowa State University*

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**Conditions Causing Lameness**

- Fractures that impair mobility
  - Unable to stand on all 4 legs—treat until recovery or euthanize humanely
  - Special provisions during transport for broken bones of jaw or tailhead
    - Segregate animal to back of trailer
    - Provide extra bedding
- Arthritis
  - If discovered early, treat and send to slaughter
  - If caused by systemic disease, treat or euthanize
    - Will be condemned at slaughter and should not be transported


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- Fractures of spine, pelvis, legs will cause animal great deal of pain, hinder animal's use of one or more legs
- Inflammation of joint can cause immobility
- Severe joint inflammation requires treatment, with postponement of transport until inflammation, pain subsided or euthanasia

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**Conditions Causing Lameness**

- Joint or sole abscesses
  - Treat immediately
- Multiple abscesses
  - Treat
  - Do not send to slaughter until drug withdrawal periods pass
  - If fail to resolve, animal may have internal abscesses
    - Humanely euthanize
    - Carcass condemned at slaughter



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- Localized collections of pus may cause extreme discomfort, inhibits animal's ability to walk
- Animals strongly suspected of having internal abscesses should be considered for humane euthanasia on farm
- Carcass condemned if sent to slaughter and abscesses in multiple body compartments detected

*Photo source: Tara Wellman, Iowa State University*

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Dairy Cow Locomotion

Score	Description
1	<b>Sound:</b> Normal posture and gait
2	<b>Moderate Lameness:</b> Stands well but favors a limb when walking
3	<b>Severe Lameness:</b> Unable to move or barely able to bear weight on affect limb. Other signs include back arch, poor body condition, head bob, inability to flex lower leg joints

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Beef Cattle Locomotion

Score	Description
0	Walks normally with no change in gait
1	Shortened stride; may move head slightly from side to side; no head bob
2	Obvious limp with or without head bob; affected limb identifiable
3	Bears little or no weight to affected limb while standing or walking; reluctant to move; while walking head is dropped, back arched; obvious limp; head bob

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Sheep Locomotion

Score	Description
0	Bears weight evenly on all four feet; walks with even rhythm
1	Steps are uneven but unclear which limb is affected
2	Steps are uneven; shortened stride; affected limb is identifiable
3	Mobility is severely compromised; frequently stops walking or lies down; affected limb clearly identifiable; limb may be held off ground while walking or standing

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Goat Locomotion

Score	Description
0	Places full weight on all four limbs; moves freely with even gait
1	Definite limp but is bearing weight and moves forward freely
2	Some difficulty moving forward; severe limp; bearing little weight; "goose-stepping"
3	Some difficulty moving forward; non-weight bearing; "goose-stepping"

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Swine Lameness	
Score	Description
0	Moves freely and uses all four limbs and feet evenly
1	Weight-shifting when standing; little or no lameness when walking
2	Obvious weight-shifting when standing; limping or adaptive behaviors when walking (head bob, arched back, caudal swagger, quickened step, shortened stride)
3	Reluctant to stand or walk; obvious limp; adaptive behaviors when walking (head bob, arched back, caudal swagger, quickened step, shortened stride)
4	Non-weight bearing when standing or walking

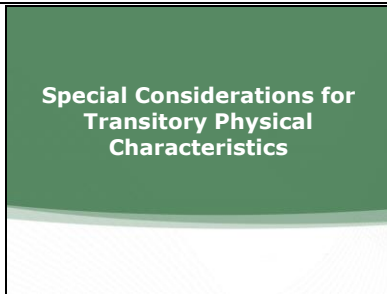
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Transportation Based on Lameness Score	
<ul style="list-style-type: none"> <li>Animal that requires assistance to rise should not be transported for commercial purposes</li> </ul>	
<ul style="list-style-type: none"> <li>Dairy Cattle                             <ul style="list-style-type: none"> <li>Score 3 transported for veterinary treatment only</li> <li>Score 2 transported, given extra bedding, segregated</li> </ul> </li> <li>Beef Cattle, Sheep, Goats                             <ul style="list-style-type: none"> <li>Score 2, 3 transported for veterinary treatment only</li> <li>Score 1 loaded last, segregated, extra bedding, unloaded first</li> </ul> </li> <li>Swine                             <ul style="list-style-type: none"> <li>Score 3, 4 transported for veterinary treatment only</li> <li>Score 1, 2 segregated, extra bedding for transport</li> </ul> </li> </ul>	

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Age Considerations: Bovine	
<ul style="list-style-type: none"> <li>Transport newborn calves when navel dry, ambulatory</li> <li>Transport in well-bedded, appropriately ventilated, draft-free trailer</li> <li>Ensure calves remain dry, not too hot/cold</li> <li>Unload animals promptly and provide water</li> <li>Wean calves before transport                             <ul style="list-style-type: none"> <li>Have fewer health issues</li> </ul> </li> </ul>	

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- If transported before navel dry, ensure calf completely dry and navel been dipped, sprayed with drying agent, antiseptic to decrease pathogen entry
- Provide adequate space in trailer to allow sternal recumbency for each calf
- Cold temps less than 60°F (16°C): provide straw bedding, plug trailer air holes
- Hot temps: haul in early morning or at night when possible
- Maximize airflow—keep trucks moving with minimal stops
- Weaned calves acclimated to solid diet (hay, pasture, grain)

*Photo source: Mark Kirkpatrick, Kuna, Idaho*

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Age Considerations	
<ul style="list-style-type: none"> <li>Small ruminants                             <ul style="list-style-type: none"> <li>Dry navel</li> <li>Walk unassisted</li> </ul> </li> <li>Swine                             <ul style="list-style-type: none"> <li>Age-appropriate transportation equipment</li> <li>Ensure pig comfort, suitable temperature, adequate hydration status</li> </ul> </li> </ul>	

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- Newly weaned piglets (12–28 days of age) commonly moved to nursery or finishing facility
- Transport of young kid goats in dog crates on airplanes common

*Photo source: Pam Zaabel, Iowa State University*

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**Production Stage Considerations**

- Lactating ruminants
  - Dry off cull animals before transport
  - Milk within 1 hour prior to shipment
- Thick-coated animals
  - Do not overcrowd trailer
  - Ensure appropriate air flow throughout trailer
  - Travel during coolest periods of day




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*Photo source: Danelle Bickett-Weddle, Iowa State University (top); Kevan Law (bottom)*

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**Pregnancy and Parturition Considerations**

- Signs of late stages of pregnancy
  - **Bovine:** Full udder, relaxation or "springing" of vulva
  - **Small Ruminants:** Full udder, bloody vaginal discharge
  - **Swine:** Full udder, swollen vulva
- Transport pregnant animals alone in compartment of well-bedded trailer
- Do not transport until  $\geq 48$  hours after parturition



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- Transporting animals showing late stage signs of pregnancy can cause abortion, premature labor
- Pregnant animal experiencing dystocia may require transportation to veterinary facility for assistance or caesarian delivery in safer, cleaner environment than farm
- FSIS requirements outlined in 9 CFR §309.10

*Photo source: Megan Smith, Iowa State University*

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**Vision Considerations**

- Clinical blindness test
  - Menace test
    - Begin movement towards eye with pointed finger to reduce air currents
  - Pupillary light reflex
    - Shine penlight into eye
- Observe animal's behavior
- FSIS condemns animals with central blindness and other CNS signs


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- Standard menace test: bringing one's hand close to eye of patient with a quick motion; if animal able to see, it should blink and move head away from hand
  - Blind animal often responds to air movement created by hand motion, not physically seeing the hand
- Pupillary light reflex: watch both eyes for pupillary constriction
  - In most animals, eye being evaluated shows greater pupillary constriction as compared to contralateral eye
  - Positive pupillary light reflex not a reliable indicator of vision, retinal function

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### Visual Impairment

- Blind animals expected to become disoriented during loading, transport
- Livestock blind in both eyes at risk for injury without additional precautions
- Closely monitor animals blind in one eye
  - Transport with quiet, familiar animal of same size, species
- Animal condemned if ocular squamous cell carcinoma (cancer eye) extends beyond orbit



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- Blind in both eyes: transport to slaughter if physical accommodations made to ensure they do not pose a danger to themselves, handlers
- Blind in one eye: if it appears animal is losing sight in other eye, recommended that animal be transported to slaughter as soon as possible
- Ocular squamous cell carcinoma (cancer eye) common form of cancer in cattle
  - Pink fleshy growth from eyeball, eyelid, or third eyelid
  - Commonly seen in cattle older than 5 years of age, especially cattle with unpigmented skin around eyes
  - If growth extends beyond orbit of eye, animal should be humanely euthanized on farm
  - If cancer contained in orbit, animal sent to slaughter as soon as possible
  - FSIS outlines disposition requirements for epithelioma in 9 CFR §309.6
 

“Any animal found on ante-mortem inspection to be affected with epithelioma of the eye and the orbital region in which the eye has been destroyed or obscured by neoplastic tissue and which shows extensive infection, suppuration, and necrosis, usually accompanied with foul odor, or any animal affected with epithelioma of the eye or of the orbital region which, regardless of extent, is accompanied with cachexia shall be identified as U.S. Condemned and disposed of in accordance with Sec. 309.13.”

*Photo source: William Sweckler, Jr., VA-MD, Regional College of Veterinary Medicine*


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### Physical Conditions That May Prevent Transport

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### Musculoskeletal System—Hernias

- Bovine
  - Transport to slaughter when market weight
  - Humanely euthanize if hernia impedes ability to walk
- Swine
  - Treat in younger pigs
  - Segregate from other pigs
  - Send to slaughter when market weight
  - Humanely euthanize if hernia impedes ability to walk, touches ground, or is perforated, ulcerated, or necrotic



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- Hernias caused by protrusion of an organ out of abdominal cavity and through opening in body wall
  - Can be serious problem if protruding organ becomes strangulated
  - May also cause difficulty walking, splitting of skin due to pressure buildup

*Photo source: Alex Ramirez, Iowa State University*

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**Reproductive System—Females**

- Uterine prolapse and eversion
  - Correct with appropriate pain management
  - Transport for veterinary treatment or humanely euthanize
- Vaginal prolapse
  - Ruminants
    - Treat if possible, transport to veterinary facility
    - Transport directly to processing facility
  - Swine
    - Treat, separate, or transport to slaughter
    - If untreatable, humanely euthanize



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- Protrusion of uterus outside of body presents a life-threatening emergency for female animals
- Protrusion of vagina outside of body cavity puts vagina at high risk for infection
  - Separate to prevent cannibalization
  - Delaying treatment can result in severe infection

*Photo source: Iturreria Martin, The Drost Project*

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**Reproductive System—Males**

- Penis injury
  - Bovine broken penis
    - Transport in separate compartment to processing or veterinary facility
  - Small ruminants urethral blockage
    - Treat, euthanize, or transport to processing in separate compartment
- Castration
  - Bovine
    - Allow wound to completely heal before transport
  - Swine
    - Allow 3-4 weeks for inflammation to subside and incision to heal




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- For cattle castrated at a veterinary facility and traveling a short distance to their home facility, before being loaded onto a clean trailer, all evidence of hemorrhaging from the scrotum should cease
- Barrows should not be marketed immediately following castration

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**Cardiovascular System**

- Congestive heart failure
  - Clinical signs
    - Engorged jugular veins
    - Thoracic, abdominal edema
    - Unwillingness to move
  - Humanely euthanize
- Traumatic reticuloperitonitis (Hardware Disease)
  - Clinical signs
    - Rumenoreticular atony, fall in milk production, abdominal pain
  - Treat or humanely euthanize



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- Cows may ingest sharp objects that can puncture the reticulum
  - Perforation allows ingesta and bacteria to leak into the peritoneal cavity
  - Peritonitis, adhesions in the abdomen.

*Photo source: Megan Smith, Iowa State University*

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**Respiratory System—Pneumonia**

- Transport may exacerbate
  - Pneumonia is painful condition and decreases oxygen delivery
  - Transport for treatment only
- Transport following recovery in separate trailer compartment
  - Reduce stocking density
- Adhere to medication withdrawal time




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- Livestock with pneumonia immunocompromised, transportation of any type will exacerbate condition
- Reduce stocking density to improve air flow, decrease pushing from other animals
- Withdrawal time: A withdrawal period is the time required to pass before an animal or its products can enter the food supply after the last treatment with a drug. These times have been published for many common pharmaceuticals and biologicals in food animal production.

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**Digestive System**

- Displaced abomasum (DA)
  - Treat or transport directly to slaughter in separate compartment
- Prolapsed rectum
  - Treat or send to slaughter before prolapse becomes infected, lacerated
- Rectal stricture
  - Transport to slaughter or humanely euthanize



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- Dairy cows extremely susceptible to DAs, especially following parturition
- Prolapsed rectum outside of body is highly susceptible to infection
  - Transport swine in separate compartments to prevent cannibalism
- Rectal strictures caused by numerous conditions
  - Bovine: Caused by neoplasia, trauma, fat necrosis
  - Swine: Caused by inflammation, scarring, ulcerative proctitis
  - Result in scarring, subsequent narrowing of rectum, triggering fecal material to back up in intestines

*Photo sources: Jennifer Schleining (top), Jessica Kennicker (bottom), Iowa State University*

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### Integumentary System

- Wounds
  - May transport to slaughter if loading does not cause excess pain, not actively bleeding
  - Humanely euthanize if undue pain
  - Swine
    - Separate and treat, send to slaughter
    - Tail-bites: Segregate, treat immediately or send to slaughter, humanely euthanize
- Actinomyces (Lumpy jaw)
  - Transport promptly to slaughter



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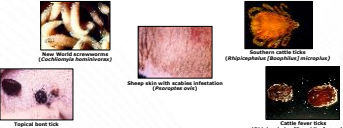
- Wound: division of skin and underlying tissue, due to external force, results in blood loss and provides environment for infection
- All cuts, wounds should be monitored and treated
- Swine suffering from small-to-medium sized wounds should be removed from group-housed pens, treated, finished in individual hospital pen, transport to slaughter in separate trailer compartment
  - Large, severely painful wounds: separate, treat, send to slaughter as soon as possible
    - Humanely euthanize if in too much pain
  - Tail-bitten: Segregate and treat to minimize spinal cord infection, abscesses
    - Euthanize if suffer tail-bites resulting in large tail wounds, severe pain, and/or hind-leg ataxia
- Lumpy Jaw: bacterial invasion of wounds in upper or lower jaw of ruminants results in accumulation of granular pus in hard lump
  - Lump can rupture, disrupt normal chewing
  - 9 CFR §311.9—information on disposition of animals with these lesions

*Photo source: Beth Carlson, North Dakota*

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### External Parasites

- Do not transport livestock infested with lice, mites, ticks
  - Could lead to spread of parasitic vectors, disease
- Notify AD and SAHO if infested with:



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*Photo sources: Foreign Animal Diseases “The Grey Book” United States Animal Health Association (screwworms), Plum Island Animal Disease Center (Topical bont tick), Dr. Harrington, Purdue University, Noahs Arkive (scabies), Armed Forces Institute of Pathology (Cattle fever ticks), J. Ostojic, Iowa State University, College of Veterinary Medicine (Southern cattle tick)*

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### Nervous System

- Evaluate livestock with abnormal behaviors
- Do not transport if animal, handlers harmed
- Treat or euthanize
  - Head pressing
  - Ataxia
  - Constant circling
  - Fixed staring gaze
  - Hypersalivation
  - Hyperexcitability (priapism)
  - Facial tremors
  - Limb paralysis
  - Low head carriage
  - Head tossing
  - Teeth grinding
  - Hypermetria
  - Self-mutilation

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- Diseases of nervous system (rabies, transmissible spongiform encephalopathies) serious, potentially dangerous to animal caretakers, veterinarians
- If abnormal behaviors persist, treatment unsuccessful, humanely euthanize animal
- Test all neurologic cases for rabies
- Some diseases require notification of AD and SAHO
- Familiarize yourself with reportable diseases in your State and OIE-listed diseases

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### Infectious Diseases

- Suspect cases should not be transported
- Report to AD and SAHO:
  - Any animal with diagnosed, suspected infectious disease for which APHIS has control or eradication program outlined in 9 CFR § 161.4(f)
  - Any animal with diagnosed, suspected foreign animal disease outlined in 9 CFR § 71.3(b)
- 9 CFR Chapter I
  - Tuberculosis, brucellosis, pseudorabies, scrapie
  - Foot and mouth disease, rinderpest, contagious pleuropneumonia

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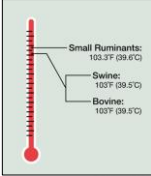
- 9 CFR Chapter I lists livestock control and eradication programs applicable to species addressed in this module; foreign animal diseases that threaten health of U.S. livestock are listed
- 9 CFR §71.3, “Interstate movement of diseased animals and poultry generally prohibited,” lists diseases by species and other situations precluding transport



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### Fever

- Clinical sign for infectious disease, heat stroke
- Delay travel, evaluate for treatment
- FSIS condemns livestock exhibiting pyrexia
  - 9 CFR § 309.3(c)
- Transport for veterinary treatment
  - Separate animal in well-bedded, appropriately ventilated trailer



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- If fever resolves, no outward signs of infectious disease, animal deemed fit for travel to sales venue, processing facility
- Transport delayed, animals reassessed before loading if measured temperatures at or above:
  - Bovine: 103°F (39.5°C);
  - Small Ruminants: 103.3°F (39.6°C); and
  - Swine: 103°F (39.5°C)

*Graphic illustration: Andrew Kingsbury, Iowa State University*

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## Transportation Assessment

The assessment of an animal’s fitness for travel includes more than just the visual and physical examination of the animal. Accredited veterinarians should also be familiar with methods to improve livestock transport involving the trailer, loading, and driving.

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### Conducting a Trailer Assessment

- Cleanliness
  - Reduce spread of disease
  - Decrease odor of previous livestock
  - Prevent slippery conditions
- Flooring
  - In good condition
  - Made of sturdy material
  - Have proper traction
  - Be free of manure



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- Odor of previous livestock tends to make newly loaded animals uneasy
- Wooden floors tend to rot, wear through
- Acid in manure can oxidize and fatigue aluminum
  - Animals become severely injured if leg or more falls through during transit
- Trailers lacking proper traction increase chance of livestock slipping, falling, becoming non-ambulatory
- Trailers should have either metal grating or rubber mats
  - Monitor metal grating to ensure not broken, which can puncture animals’ feet

*Photo sources: Renee Dewell, Iowa State University (both)*

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### Conducting a Trailer Assessment

- Sidewalls, Separators, Roof
  - No protruding parts
  - No loose, sharp metal
  - Gates and doors swing freely, latch securely
  - Gaps in walls, gates, doors small enough to prevent head, foot getting lodged during transit




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*Photo source: Renee Dewell, Iowa State University*

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### Conducting a Trailer Assessment

- Weather protection
  - Wind protection during cold weather
    - Secure side panels
  - Greater air flow during hot weather
    - Uncover all air spaces
  - Pigs: Cover trailer to protect from sunburns
  - Open-topped trailers fitted with covering for inclement weather



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- Some trailers have option of air flow system, helps circulate air throughout trailer


*Photo source: Carla Huston, Mississippi State University*



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### Loading Assessment

- Ramp
  - Proper traction, low angle of incline
  - Narrow to prevent turning around
- Compartments
  - No intermixed species
  - Same species grouped with similar weight, health
  - Do not crowd
  - Mature intact males loaded separately
- Prevent overheating, aggression, injuries



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*Photo source: Pam Zaabel, Iowa State University*

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### Driving Recommendations

- Before departing
  - Check weather conditions
  - Plan routes to avoid delays
  - Check paperwork with driver
- During travel
  - Drive with few abrupt starts, stops
    - Important within first 2 hours
    - Pigs sensitive to motion
  - Livestock checked at 2 hours, then every 4 hours
  - Brief rest periods for driver



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- Delays increase time livestock spend without food, water
- Livestock acclimatize to new movements, vibrations of truck, trailer within first 2 hours of travel
- Animals spend driver’s rest periods with little to no air flow, no food, no water
- Animals should not be exposed to conditions causing heat, cold stress

*Photo source: Renee Dewell, Iowa State University*

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### Discomfort Signs

<ul style="list-style-type: none"> <li>• Signs of heat stress, overcrowding                             <ul style="list-style-type: none"> <li>- Animals will not settle, scramble for footing, continuously noisy</li> <li>- Livestock lie down, refuse to get up</li> <li>- Animals pant, breathe open-mouthed</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Signs of cold stress                             <ul style="list-style-type: none"> <li>- Animals eat available bedding</li> <li>- Fluids frozen to nose, face</li> <li>- Cattle shiver</li> <li>- Pigs display skin discoloration, reluctance to move</li> </ul> </li> </ul>
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### Feed and Rest Requirements During Transport


- “Twenty-eight Hour Law”
  - Unload every 28 hours for food, water, rest
  - Does not apply if animals transported with food, water, space, opportunity to rest
  - 49 CFR § 80502
- Exceptions:
  - Sheep: additional 8 hours if 28-hour period ends at night
  - Cannot be unloaded due to unforeseen, unavoidable causes
  - Owner submits written request, extend to 36 hours
  - Rest period: minimum of 5 consecutive hours

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### Summary

- Discuss role of AV in evaluating fitness of animal to travel
- Describe how to perform inspection or examination of animal to determine if fit to travel
- Explain steps to make transportation more comfortable and safer for livestock
- Animals with (or in) any condition may be transported for veterinary treatment
  - Except if infected with FAD



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*Photo source: Renee Dewell, Iowa State University*

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