

VERSION 9.0

TQA<sup>®</sup> HANDBOOK

# BUILDING A STRONGER INDUSTRY

A quality assurance program designed specifically for the  
transporters, producers and handlers of pigs.



Transport  
Quality Assurance<sup>®</sup>

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## **TRANSPORT QUALITY ASSURANCE® (TQA®): BUILDING A STRONGER INDUSTRY**

In the pork industry — and in all sectors of the food chain — earning and maintaining the trust of our customers, including retailers, food service operators, and the consuming public, has never been more critical. This reality, along with our commitment to upholding high ethical standards and best practices, led to the development of the Transport Quality Assurance® (TQA®) program. Originally launched in 2002, the TQA program has undergone eight revisions to date, ensuring it reflects the most current, science-based information on the humane handling and transport of pigs. More than 29,000 handlers and transporters across the industry have been trained through this program. TQA helps pig transporters, producers, and handlers understand and implement best practices, highlighting how their actions impact both pig well-being and pork quality.

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## WE CARE®: MAKING OUR INDUSTRY STRONGER

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Pork industry leaders launched the We Care® initiative to address public concerns about pork production. TQA is a critical component of the We Care initiative and is a clear demonstration of the industry's commitment to responsible farming and continuous improvement. At the heart of this commitment, is a statement of ethical principles that asks each and every member of the pork industry to make the following commitments:

- **FOOD SAFETY:** We affirm our obligation to produce safe food.
- **ANIMAL WELL-BEING:** We affirm our obligation to protect and promote animal well-being.
- **PUBLIC HEALTH:** We affirm our obligation to ensure our practices protect public health.
- **OUR PEOPLE:** We affirm our obligation to provide a work environment that is safe, where employees are treated fairly and with respect.
- **ENVIRONMENT:** We affirm our obligation to safeguard natural resources in all our practices.
- **COMMUNITY:** We affirm our obligation to contribute to a better quality of life in our communities.

Along with the Transport Quality Assurance program, the pork industry offers the Pork Quality Assurance® Plus (PQA®) program to support animal well-being and maintain a safe, high-quality supply of pork. The We Care initiative ties everything together to help the public view the pork industry as a self-regulated business that earns the trust of others. PQA Plus and TQA are also **ISO compliant**, meaning it meets the highest international standards for animal care.

## THE TQA PROGRAM

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TQA is a clear demonstration of how the pork industry promotes and implements responsible practices when handling and transporting pigs. This is not a result of regulation or mandate but rather an acknowledgment that adhering to good

production practices is a good business decision and is the right thing to do.

Individual handlers and transporters earn their certification through participation in an education program administered by a certified TQA Advisor through face-to-face or online trainings.

This handbook is a comprehensive resource detailing good production, management, and handling practices and guidelines of the Transport Quality Assurance program. This is an educational handbook for all parties involved in the production of pigs. The TQA certification training is geared toward the handler and transporter, so this handbook should be utilized to further explore the high-level topics covered in that training program.

Although everyone involved in the pork operation is responsible for being knowledgeable and implementing good production, management and handling practices, there are instances throughout the handbook where specific roles are defined. These roles include:

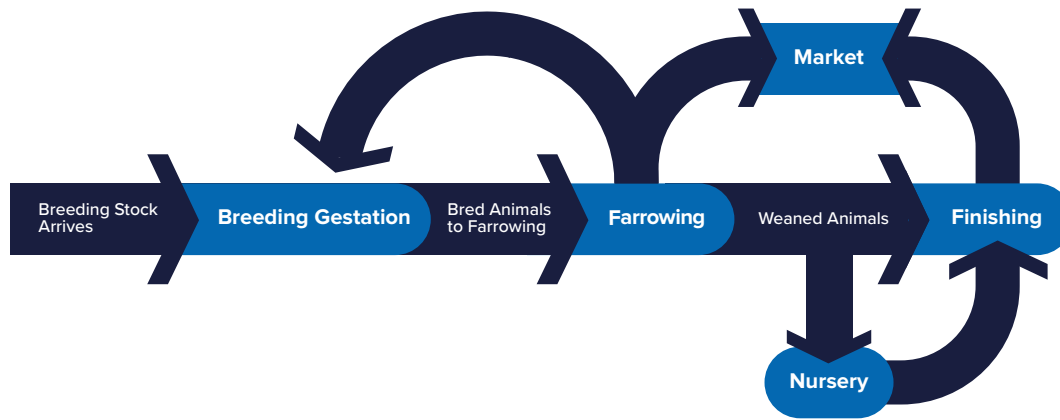
- **Pork producer and producer:** everyone involved in the pork operation on the farm, including the operation management and handlers.
- **Management:** individuals responsible for the day-to-day care and handling of pigs.
- **Handler:** individuals responsible for the day-to-day care and handling of the pigs.
- **Transporter:** individuals responsible for the movement and transportation of pigs.

## THE ROLE OF HANDLERS AND TRANSPORTERS

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Pig handlers and transporters play a key role in the pork production process. The pork production system involves not only moving animals from the farm to the market or harvest facilities, but also handling and moving an animal several times throughout the production cycle. Animals are often moved and handled for purposes of:

- Routine daily care
- Treatment of an illness or injury
- Reproduction
- Relocation to another production phase and location/site
- Marketing



In the figure above, each arrow in the illustration is a point where pig/handler interactions can occur through handling and transportation.

This figure illustrates all segments of the pork production system. No matter the segment, the actions of a handler or transporter can have a significant impact on pig well-being, health, biosecurity and pork quality

## HANDLING ANIMALS AND FOLLOWING BIOSECURITY PROTOCOLS

The conditions under which pigs are handled and transported can have a direct impact on their well-being. Research has shown that using good animal handling practices benefits the pig, the handler and the industry.

Benefits to the Pig	Benefits to the Handler	Benefits to the Industry/Public
Less stress	Easier pig movement	Meets USDA humane handling regulations
Promotes good health and well-being	Less frustration	TQA certified handlers show a commitment to pig well-being
Able to express their lean genetic potential	Fewer losses Reduced loading times Better meat quality Demonstrates that handlers and the industry are committed to protect and promote animal well-being	Shows that the industry strives to be ethical and stop animal abuse Prevents disease movement and introduction Prevents breakdowns that lead to industry-wide economic losses

## PORK QUALITY

Improper handling and transport of pigs largely contributes to profit losses. Most losses typically result from the events immediately before, during and after transport. Estimates show that bruises alone can cost the U.S. pork industry millions of dollars per year. Overall, pork quality defects total several hundred million dollars annually.

Evidence of improper handling and/or transport can be seen through:

- Carcass losses resulting from trimming off bruises
- Pale, soft, and exudative meat (PSE)
- Dark, firm, and dry meat (DFD)

### Color • Texture • Exudation



#### PSE

Pale pinkish gray, very Soft and Exudative - undesirable appearance and shrinks excessively



#### RFN

Reddish pink, Firm and Non-exudative - IDEAL - desirable color, firmness and water-holding capacity



#### DFD

Dark purplish red, very Firm and Dry - firm and sticky surface, high water-holding capacity

CHAPTER 1

# PIG BEHAVIOR<sup>1</sup>



## IN THIS CHAPTER

Understanding basic pig behavior and body language will help contribute to a safe and positive experience for the pigs and the handler. This chapter will take a close look at the following topics:

- **Basic Pig Behavior**
- **Herd Behavior and Group Patterns**
- **Best Practices**

## BASIC PIG BEHAVIOR

Handle pigs with knowledge of pig behavior. Understanding basic pig behavior and body language will help contribute to a safe and positive experience for both the pigs and the handlers. A significant portion of a pig's behavior can be attributed to natural instinct and is further impacted by the age, sex, genetics, health status, environment, and previous experiences of the pig. Calm pigs are easier to handle than excited, agitated pigs. Handling will be easier and pigs will be less likely to become agitated and bunch together if handlers use basic behavioral principles. An important part of effectively using pig behavior during handling procedures is learning how the pig perceives and responds to the handler in different situations and environments. There are three basic characteristics of the individual pig to consider:

- Flight zone
- Point of balance
- Senses – sight, hearing and smell

### FLIGHT ZONE

The flight zone is the area around an animal that it considers its individual space. Pigs try to maintain a safe distance between themselves and their handlers. That safe distance varies among pigs, from moment to moment for each pig and with even minor changes in handler behavior and body language. A pig's flight zone may decrease in size with frequent, positive human interaction.

The more threatening the handler, the greater the distance pigs want to keep from them. When a handler gets too close or too threatening, pigs get scared or defensive and their body language and behavior change. Handlers need to recognize cues that pigs are getting scared and release their pressure to let pigs calm down and stay responsive.

### POINT OF BALANCE

Pigs use point of balance to determine which way to move away from the handler. This occurs as long as the pig has space to move away and the handler allows it to move away. Typically, the point of balance is located at a pig's shoulder, but this may change depending on the environment. There are many conditions where the point of balance will not accurately predict how a pig will respond. There are situations where best results are achieved by working ahead of pigs and letting them circle past, for example, as they move out a gate.

A common error handlers may make is attempting to move the pig forward while standing in front of the pig and tapping it on the rear or pressuring it to move forward. Handlers should not move, block or interfere from a forward position when another handler is attempting to move pigs past them. Pigs may balk and refuse to move if they are driven towards visible people<sup>2</sup>.

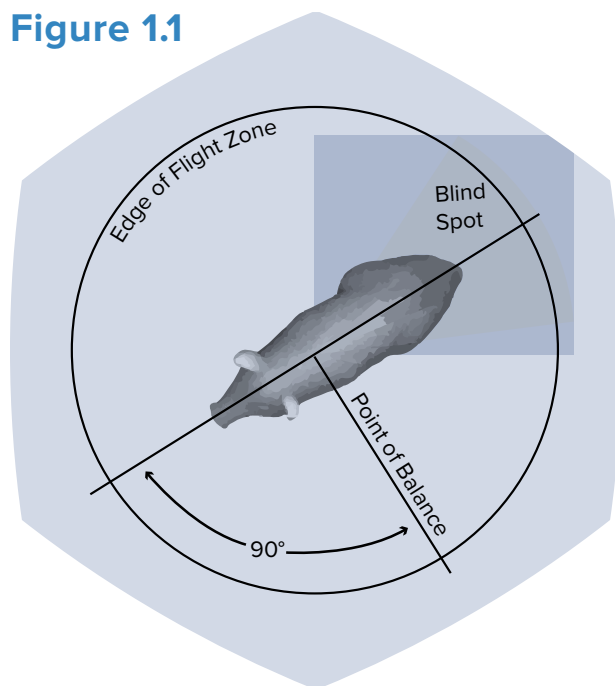
## SENSES

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A pig relies on their sense of hearing and smell to acclimate itself in its surroundings. To complement these two senses, a pig uses its sight.<sup>3</sup> A pig's field of vision is approximately 310 degrees, leaving the blind spot directly behind it.<sup>4</sup> The blind spot exists because a pig's eyes are on the sides of its head. Pigs want to see anything that is a potential threat or source of pressure. They try to keep handlers out of their blind spots. Pigs hold still and use their hearing to track people they can't see. Handlers have to notice what pigs are paying attention to in order to move them effectively. A pig's sense of touch also plays an important role during handling.

Figure 1.1 shows the flight zone, point of balance and blind spot of an individual pig. This diagram illustrates a very specific set of conditions that are not always commonly found in barns or transport trailers. When pigs are moving up a loading ramp, the point of balance will be at the shoulder, but the flight zone should still be observed so the pig is not crowded and can get release from handler pressure.

**Figure 1.1**



Handlers inside barns and trailers typically work in conditions very different from those specified in the diagram. These conditions may include:

- Handling groups instead of individual pigs.
- Absence of a chute to prevent pigs from turning around.
- Confined spaces, such as pens and alleyways, that require handlers to work inside pigs' flight zones and that limit pigs' ability to move away from them.
- Multiple people involved during the loading and unloading of pigs.

Changing any of these conditions changes how pigs respond to the handler. When working with groups of pigs, in confined spaces or with additional people present, the pig's ability to move away from the handler is restricted. Under these conditions, handlers can no longer depend on the point of balance and automatically assume that pigs will move away from this pressure to their flight zone. Instead, handlers must understand how pigs' behavior is influenced by:

- Fear levels
- Herd behavior
- Presence of additional people
- Handlers' use of pig handling tools
- Environmental influences

Each factor influences pig behavior independently and in combination with the others.

## BODY LANGUAGE

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Pigs show what they are paying attention to with their body language, heads, eyes and ears. Specifically, handlers should note where pigs are looking, how they are bending or twisting their bodies, how pigs turn or cock their heads and ears, and whether pigs are listening intently. Pigs track their handlers more closely as the handlers become more threatening, the pigs become more stressed, or as the space they are worked in becomes more confined. In confined spaces or when pigs are stressed, a handler's pressure

tends to hold pigs' attention rather than drive pigs away. Pig body language changes as they go from calm to highly excited. A good animal handler can read this body language and adjust their actions accordingly.

Releasing pressure refers to any action that reduces the level of threat we pose to pig behavior. It often involves giving pigs more time and space.

Some ways to release pressure are to:

- Pause and let pigs move away.
- Step back and refrain from making physical contact with pigs.
- Soften handler body language to reduce the threat and the distance pigs require.
- Let pigs circle past (the strongest pressure is in the direction the handler is facing).
- Discontinue making noise.
- Look away from the pig.
- Reduce group size. This is dependent on several factors such as pig size, aisle, door or chute width, and environmental influences.

Pigs communicate their level of fear with their heads, eyes, ears, vocalization and body movements.

**Table 1.2 Disposition of Pigs and Their Response**

Pig Disposition	Pig Response
<p><b>Calm</b> Calm pigs are able to be a safe distance from the handler and get release from pressure.</p>	<ul style="list-style-type: none"> <li>• Holds head and ears low, body relaxed</li> <li>• Moves at a walk or trot with exuberant outbursts if excited but not scared</li> <li>• Attention is not strongly focused on the handler</li> <li>• May make low-pitched vocalizations</li> </ul>
<p><b>Mild Fear or Defensiveness</b> Pigs show mild fear or defensiveness because the handler is getting too close or not giving enough release from pressure.</p>	<ul style="list-style-type: none"> <li>• Has raised heads and ears</li> <li>• Moves away but with increasing attention towards the handler</li> <li>• Has an expanded flight zone</li> <li>• Possible brief increase in speed</li> <li>• Will calm down if pressure is released</li> <li>• Will become more fearful or defensive if pressure is maintained or increased</li> </ul>
<p><b>Heightened Fear or Defensiveness</b> Pigs show heightened fear or defensiveness because the handler is too close or using too much pressure in a place where the animal is unable to get release.</p>	<ul style="list-style-type: none"> <li>• Full attention is on the handler</li> <li>• Stops, backs up, turns back or tries to get past handler because its efforts to move away aren't working</li> <li>• Shuts down and refuses to move: This is a defensive response different from being too tame or fatigued.</li> <li>• Strong tendency to circle or bunch up and difficult to sort, separate, or control</li> <li>• Will calm down after some time if pressure is released</li> <li>• Will escalate to extreme fear if pressure is maintained or increased</li> <li>• High-pitched vocalization</li> </ul>
<p><b>Extreme Fear or Defensiveness</b> Pigs show extreme fear or defensiveness when they are unable to get release from the handler.</p>	<ul style="list-style-type: none"> <li>• Panics</li> <li>• Willing to run under, over or through handlers and obstacles</li> <li>• Scrambles and shows out of control movement</li> <li>• Refuses to move</li> <li>• High-pitched vocalizations</li> <li>• Very strong circling or bunching up and difficult to sort, separate or control</li> <li>• Shows severe stress symptoms which may lead to death</li> </ul>

## HERD BEHAVIOR AND GROUP PATTERNS

Pigs try to stay with other pigs for protection. Anytime a group of pigs is observed, a herd behavior can be identified. The manner in which pigs display herd behavior is closely linked to their fear levels, what they are paying attention to and the available space. When moving pigs, handlers should encourage flowing herd behavior and minimize bunching herd behavior.

### FLOWING HERD BEHAVIOR

Flowing movement occurs when pigs move with the group when the group is moving. This flowing movement occurs when:

- Pigs are relaxed and not stressed (calm pig behavior).
- Pigs are drawn to the motion of others and naturally follow herd movement.
- Attention is focused on moving and staying with the group.
- Front animals lead, and their movement encourages others to follow.
- Rear animals influence the front to keep moving forward.
- Pigs are not bunched or touching, which reduces stress and promotes easier movement (loose spacing).
- Handlers move with the flow rather than forcing it.
- Obstacles and tight corners are cleared before handlers enter the pigs' space.
- Pigs feel safe enough to focus on the herd instead of the handler.

If lead pigs are given enough time and space to move through a transition (such as a doorway or chute), the rest of the herd will follow naturally.

Avoid disruptive handling, such as:

- Increasing noise, pressure, or crowding to force movement creates fear and confusion.

This can lead to balking, piling, and injury—the very issues handlers are trying to prevent.



## DISRUPTING FLOW

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Movement and distractions ahead or to the side of the pigs can catch their attention and stop flow. Excessive handler noise, pressure and crowding from behind will also stop movement.

### ENVIRONMENTAL DISTRACTIONS

Pigs are sensitive to unfamiliar sights, sounds, and textures. Flow may slow or stop when pigs encounter:

- Changes in floor surface (e.g., transition from concrete alley to wooden chute).
- Changes in footing or traction (e.g., wet, slippery, chutes or loose cleats).
- Temperature shifts (e.g., moving from a warm building to an outdoor chute or ramp on a cold day).
- Lighting differences (e.g., pigs move better from dark areas to lighter areas, not from light to dark).<sup>5</sup>
- Drafts or wind – pigs may refuse to walk into a draft that blows into their face.
- Shadows or beams of light through a crack or opening.
- People visible in their path or peripheral vision area.
- Loud or sudden noise or activity from unseen source and can only hear.
- Objects in the path, such as:
  - Feed cart.
  - Trash.
  - Equipment or other items (e.g. clothing) hanging on gates.
- Water puddles or drain grates.
- Shiny or reflective objects or surfaces.
- Color changes in equipment or gates.
- Floor height changes, a step up into a pen or chute.
- Moving or flapping objects.
- Doorways that change the width of the alley.
- Other animals (pigs, dogs, cats, etc.).<sup>2</sup>

Items on the above list tend to cause problems for some handlers but not for others. Handlers who do the following experience fewer difficulties:

- Read the pigs: Watch for signs of fear or hesitation.
- Stay calm: Avoid yelling or fast movements.
- Minimize distractions in the environment before moving pigs.
- Give pigs time and space to investigate and move at their pace.
- Allow pigs to settle if they show signs of fear.

Remember: Handlers who stay quiet, patient, and attentive experience fewer problems with flow. The pigs will tell you what's wrong — pay attention.

It is important only one person pressures pigs at any time. When someone is behind a group of pigs driving them forward, movement from someone in front of the pigs could encourage the pigs to stop and turn back. Pigs have to be moving to get to the trailer, and the best tool is to let that flow keep moving them into the trailer. Any noise or activity from the handler may:

- Draw attention and stop pigs that have already gone past.
- Block pigs that are approaching so they stop moving or stop driving the front pigs forward.
- Cause forceful handling from an annoyed handler, leading to more problems and longer load time.



### Summary of Group Movement Patterns<sup>1</sup>

Group Pattern	Relationship to Handler's Bubble	Emotional State	Attention	Effect on Movement
FLOW Moving forward	Able to move to stay out of bubble	Calm	Move with herd. Safe to shift attention away from handler.	Easiest movement. Pigs moving pigs.
CIRCLE Moving past handler	Inside bubble with space to turn	Defensive/scared	Focus on handler. Get release from handler's pressure.	Opposite direction of pressure. Speed up at point of release.
BUNCH Stopped, resist moving	Inside bubble, crowded	Defensive/scared	Focus on handler. Stay with the bunch.	Resist moving. Safer to stay with bunch than to leave handler.

Pigs try to keep track of all people. Observers and people not actively involved with moving pigs can also draw pigs' attention and stop movement. The fewer people present, the simpler it is for pigs to keep moving and the easier it is for the people moving them.

## BUNCHING HERD BEHAVIOR

Bunching herd behavior occurs when pigs stay still and stay with the group when the group is stopped. Bunching:

- Is a defensive response.
- Not only stops movement, but discourages pigs from resuming movement which may be useful for ear tagging and vaccinating.
- Is encouraged by anything that stops, crowds, traps, scares or confuses pigs.
- Often occurs when pigs are facing away from the handler, closely packed and listening intently.

An early warning of bunching is seeing the heads and ears rising along with increased crowding within the group. Pigs will often stay in a bunch rather than leave the bunch to get away from the handler. Increasing pressure and aggressiveness toward pigs that are bunching encourages tighter bunching. One of the main priorities when moving pigs is to avoid this bunching behavior. Pigs require release of pressure to come out of a bunch or pressure ahead to turn them out of a bunch.

## HANDLER'S BUBBLE

The safe distance pigs try to maintain between themselves and a handler can be referred to as either a flight zone around the pig or as a bubble around the handler. The bubble:

- Takes up "real" space and contributes to crowding.
- Expands and contracts with the handler's pressure and pigs' fear levels.
- Acts as a "real" barrier that moves with the handler.

It is important to note, in confined spaces, pigs may be inside the handler's bubble at all times. Pigs tend to move along the arc of the bubble.



By watching where the bubble is taking pigs, handlers can adjust their positions so their bubble takes pigs where they want them to move. In crowded conditions, such as when starting movement out of rear compartments, smaller pigs will tend to pile away to get out of the bubble then turn back to circle. Larger animals such as market pigs and breeding stock are more likely to hold still within the bubble. With larger animals, start moving the animals that are facing the right direction and use their movement to pull others.

## CIRCLING

Pigs circle their handlers to get release from pressure. This is a defensive response. Circling is a valuable tool when used intentionally in conjunction with the handler's bubble to sort pigs, start movement, speed up movement, shift pigs' attention from the handler to herd flow, move pigs past barriers, and funnel movement to prevent stopping and bunching at gates.

## BEST PRACTICES FOR PIG HANDLING

Pigs are predictable and easiest to manage when they are calm. Stressful or confined spaces can make a pig defensive and increase their tendency to either circle or bunch. Aggressive handling intensifies these responses and makes pigs hard to move, separate, or control. Using fear or force may create short-term movement but often results in greater resistance, injury, and stress for both pigs and handlers. Utilize these best practices:

- Use the least amount of pressure necessary to start and maintain movement.
- Release pressure once pigs respond to keep pigs calm.
- Allow pigs to shift their attention away from the handler.
  - This enables them to focus on the herd and move naturally with the group.
- Leverage herd behavior.
  - Move lead pigs first; others will usually follow.
- Use the handler's bubble and position to prevent bunching herd behavior and encourage flow.



CHAPTER 2

# HANDLING



## IN THIS CHAPTER

Using proven pig handling and movement practices will help contribute to a safe and positive experience for the pigs and the handler. Human injuries happen more often when people are handling animals than during any other activity performed in pork production. Using proper handling practices and using proper handling equipment will help animal handling be a safe activity for all. This chapter will take a close look at the following topics:

- **Willful Acts of Abuse**
- **People-Pig Interactions**
- **Handling Tools and Equipment**
- **Safe Animal Handling Practices**
- **Best Practices**

## WILLFUL ACTS OF ABUSE

Willful acts of neglect or abuse are unacceptable. **Each state has laws that address animal cruelty, and, therefore, willful acts of abuse can be punishable by law.** Willful acts of abuse or neglect are defined as acts outside of normally accepted production practices that intentionally cause pain and suffering including, but not limited to:<sup>6</sup>

- Intentionally applying prods to sensitive parts of the animal such as the eyes, ears, nose, genitals, or rectum. Excessive prod use could qualify as a willful act of abuse. Electric prods must not be used on suckling piglets or on the day of weaning.
- Malicious hitting/beating of an animal. This includes forcefully striking an animal with closed fist, foot, handling equipment (e.g. sorting board, rattle paddle, etc.), or other hard/solid objects that can cause pain, bruising, or injury.
- Deliberate slamming of gates on animals.
- Driving pigs off high ledges, platforms, or steps while moving, loading, or unloading (animals are falling to the ground).
- Dragging of conscious animals by any part

of their body except in the rare case where a non-ambulatory animal must be moved from a life-threatening situation. Non-ambulatory pigs may be moved by using a drag mat.

- Purposefully dropping or throwing animals.
- Causing physical damage to the snout or tusks of a boar as a means to reduce aggression (this excludes nose ringing and tusk trimming).
- Failure to provide food, water, and care that results in significant harm or death to animals. This includes the intentional failure to provide food, water, or care that falls outside of normal husbandry practices and would reasonably be considered neglect.
- Malicious driving of ambulatory animals on top of one another either manually or with direct contact with motorized equipment (this excludes loading a non-ambulatory animal for transport).

### MORE INFO

It is important to check out the more complete list of violations on pages 70-71.

The National Pork Board strongly encourages anyone with knowledge of possible animal abuse or neglect to report these actions immediately to the proper responsible persons. If a willful act of abuse is observed, immediately intervene to stop the situation if reasonably and safely possible. Discuss the situation with the appropriate authority (owner, manager, receiving crew, etc.).

Companies have animal welfare policies that clearly define how these situations are to be handled and reported. Transporters and handlers should be familiar with these policies as well as auditing criteria which includes routine monitoring of transporter behavior. Committing willful acts of abuse or failure to report witnessing a willful act of abuse may be grounds for termination of employment, may prohibit handlers from returning to a facility or result in possible criminal penalties.

## PEOPLE-PIG INTERACTIONS

It is important to understand the potential effects that human interactions have on pigs and pig behavior.<sup>7</sup> Slowly walking pens on a daily basis will help pigs become used to positive interactions with people. This will train the pigs to quietly get up and calmly move away from the handler.<sup>9</sup> Pigs can recall previous experiences, and if they have had a bad handling experience in the past, they may be more difficult to handle the next time.<sup>10</sup> This previous experience may relate specifically to a human interaction, or it may relate to a piece of equipment such as a loading chute used for handling and transportation.

Handlers should act calmly and avoid sudden movement, loud noises and other actions that may frighten or excite pigs. This includes shouting or creating excessive noise with other handlers when working as a team to move pigs. Pigs should be moved at their normal walking pace. Aggressive handling should be avoided as it can lead to injured or stressed pigs.



Aggressive handling includes things such as:

- Excessive, or improper use, of electric prods
- Excessive loud noises and yelling
- Moving pigs too fast
- Moving too many pigs per group
- Overcrowding pigs in chutes, ramps, and alleys
- Rough physical contact

## HANDLING PIGS OF VARIOUS TYPES AND SIZES

Basic handling protocols apply to nearly all pigs, but requirements for certain sizes and types of pigs differ and specific techniques may need to be used. Animals should be handled appropriately for their age. Regardless of the size of pig being handled, workplace safety and animal well-being should be top of mind. To prevent injury, be aware of and anticipate animal movements and pay attention to animal location. Know when and where hands, knees and feet could be injured. Avoid placing arms and hands between the animal and equipment. Set up gates and alleys according to the farm protocols. Always have an escape route to quickly get out of the area and be aware of the location of co-workers so as not to direct the pigs toward them.

**Breeding stock** (sows, gilts and boars) are the largest, most powerful and most unpredictable pigs a handler will work with. Handlers should use extra caution when moving these animals. A sorting board should be used when moving a large animal. The handler should not use his or her body alone. If the animal appears aggressive or agitated, it may be safer for the handler

to move out of the way than to risk potential injury. These large animals can injure people or pigs with sudden movement of their heads or by pinning the handler against a gate causing crushing or pinching injuries.

Boars are especially dangerous because their tusks can cause injury. Handlers should use extra caution and never turn their back to a boar.

**Boars** are particularly unpredictable when exhibiting mating behaviors such as when they are being used for estrus detection. Boars are especially dangerous because their tusks can cause injury. Handlers should use extra caution and never turn their back to a boar.

**Sows** can be aggressive, as well, especially when they perceive their litter is being threatened (e.g., during piglet processing or weaning). It is important for these pigs to be familiar with positive human interactions.

The ability to move breeding females and boars in and out of pens or individual housing units can vary greatly. In crowded spaces, these larger animals are likely to hold still rather than surge out of a handler's bubble unless they are totally panicked. Handlers who have problems moving breeding stock tend to work too close and use continuous, urgent contact. To aid movement of breeding stock, handlers should give them space, move as groups when feasible, and minimize contact, noise, people and other activity.<sup>1</sup>

There are many techniques that can be used based on what is known about pig behavior. For example, when trying to move a single sow into a farrowing stall, she may resist because she sees her path is blocked by the stall end being closed. This may be overcome by leaving the stall door open and having someone close it when she enters the stall, but before she can move out the far end. The handler at the front of the stall should stand still and step away if the sow stops and looks at them as they are blocking her path. The handler behind the sow must respect her space and let her move.



**Handling piglets** can present a safety challenge to the handler. Piglets have sharp teeth and can bite the handler when they are picked up. The sow may also attempt to bite the handler when they reach into the stall to grab a piglet. Piglets can either be moved by herding or by picking them up and moving them by hand or with a cart.

Piglets are to be held under their rib cage or by grabbing the rear leg above the hock, and then gently setting the piglets into a cart, alleyway or pen. Before releasing a pig to the ground, the pig should have two points of contact before the handler lets go (i.e., two front legs). Piglets may squirm and wiggle when picked up so care should be used so that they are not dropped. Piglets should not be tossed or thrown. When being held for an extended period of time, piglets should be held under the rib cage next to the handler's body or by both rear legs using two hands.

Piglets should not be tossed or thrown.

**Nursery and finisher pigs** grow rapidly, and they quickly become too large to lift and/or hold. Never drag or pull a pig by the ears or other extremities. When moving nursery and finisher pigs, use the pigs' natural behavior and movement patterns as outlined in Chapter 1. That said, when an animal gets excited it may be safest for the handler to move out of the way to avoid potential injury and to let the pig calm down. Sometimes 20 to 30 minutes are required to allow pigs to calm down and become easier to move.

Nursery and finisher pigs are often moved out of full pens where restricted space encourages them to circle around the handler or stop and bunch. Getting behind and chasing pigs towards the gate encourages them to stop, crowd and bunch at the gate or circle away from the gate. By working at the side of the pen, handlers encourage pigs to circle towards the gate, funnel the flow and prevent pigs from stopping and bunching.



When emptying entire pens:

- If working alone, work along the side of the pen on the inside of the arc you want pigs to follow, and use your bubble to narrow the flow so pigs keep moving when they arrive at the gate. The most effective position will be closer to the gate than many people feel comfortable with.
- If there is more than one handler, both work along the side of the pen instead of behind the pigs. Only one handler should apply pressure at any time. Always pay attention to where your position and bubble are taking pigs and adjust as needed.
- Handlers should rely on a sorting board instead of their bodies to turn or stop large finishing pigs.
  - To stop and turn a pig, instead of trying to hold your ground, give it space and back up with your sorting board in front of you until the pig slows, stops and turns.
  - A bi-fold panel is a particularly useful device as it creates a corralling effect, reduces an escape route for the pig and increases safety for the handler.
- If an animal appears aggressive or agitated, it may be safer for the handler to move out of the way than to risk a potential injury.
- When working with larger pigs, it is important

for the handler to move in the pen with their legs slightly bent. If you stand in a pen with your legs locked you are at greater risk for leg sprains and strains if a pig runs into your knee. Instead, standing with knees slightly bent with a sorting board offers a buffer for your knees if a pig makes contact with your sorting board and legs.

When sorting individual pigs from a pen:

- Start with pigs closest to gate and get as many selected pigs as possible to circle past you out of the pen before going deeper.
- Once in the pen, it is important to give pigs release, so they can move away from you.
  - If you are working alone, pigs will stay calmer and easier to move and sort if you give them space and don't try to corral or contain them until you have to open the gate.
  - If you are working with a partner, it is important that only one person is active at any time. The handler at the gate can hold still while the other handler moves the pig forward, or the handler in the pen can hold still while the handler at the gate invites the chosen pig to circle out of the pen. If both handlers move at the same time they will encourage pigs to circle away from the gate.
- Once pigs are moving beyond the pen, minimize noise and contact, give them space and keep them calm to encourage flowing herd behavior and reduce the incidence of animals stopping or coming back at you.

## SUGGESTED GROUP SIZES

Pigs should be moved in groups large enough to be efficient for the production system but small enough to be safe for the pigs and the handler(s). Groups of finished pigs and breeding stock should be small enough so that the handler can maintain control of all of the pigs in the group, so handling interventions can be applied to the pigs not moving. The handler should always remember that using too much pressure or crowding the rear pigs can stop the movement of the front pigs. Attempting to load a truck on the farm with a large group size is a common cause of rough handling.

Suggested Group Sizes by Pig Type	
Pig Type/Size	Suggested Group Size
Weaned piglets	20
Nursery pigs	20
Finished/Market pigs	3-5
Sows/Gilts	1-5*
Boars	1-5*

\*Depending upon temperament and safety conditions, may require moving individually.

The suggested group sizes are based on best industry practice but facility design and conditions of the environment and/or animals may require adjustment to group size. There may be specially designed trailers or unloading facilities that allow for larger group size during the unloading process. Check with receiving personnel to determine the best group size for the situation and receiving facilities.

For example: When a farm moved 8 pigs in a group versus 4 pigs in a group to the truck, it took longer to load the truck when they moved groups of 8 pigs. Research shows that moving 4 versus 8 pigs reduces losses due to dead at arrival and non-ambulatory pigs by half.<sup>11</sup> Moving pigs in groups of 5 resulted in lower heart rates compared to large groups.<sup>12</sup> Group sizes must be appropriate for the smallest point in the path

of movement. There are certain circumstances where the best herd size is 5 and others where 3 is better. Try different sizes in particular spaces until you find the number that yields calm, consistent movement. Smaller herd groups stay at a steady pace which ultimately leads to a faster load time. Getting this number correct protects the pig and protects you.

## HANDLING TOOLS AND EQUIPMENT

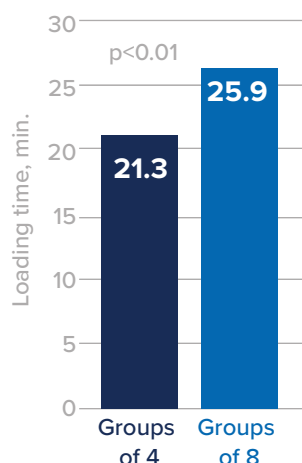
There are many different pieces of handling and sorting equipment on the market, or that can be easily made on the farm, that are intended to help you sort or move pigs in a safe, humane and efficient manner. Handling equipment is typically used to provide barriers or stimuli including:

- Physical barrier (e.g., sorting board or bi-fold)
- Visual barrier (e.g., matador’s cape)
- Auditory stimulus (e.g., rattle/shaker paddle)
- Visual stimulus (e.g., nylon flag)

Most of these tools are effective for a specific situation and should not be used for others. For example, a plastic rattle/shaker paddle may be effective for moving weaned piglets from the farrowing room to the nursery, but is not a tool to use when moving a boar to his pen after he completes a round of estrus detection.

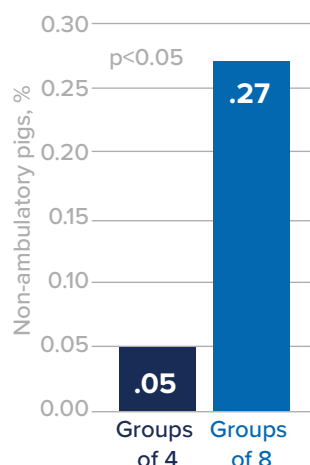
A common mistake is to ignore pigs’ flight zones when using handling tools. If you are close

**Figure 2.1** Effects of group size during loading on loading time.\*

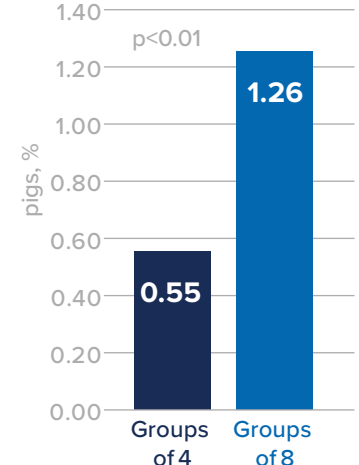


\*Time required to load a trailer deck (n=87 pigs)

**Figure 2.2** Effects of group size during loading on non-ambulatory pigs at the farm.



**Figure 2.3** Effects of group size during loading on DOAs and nonambulatory pigs at the plant.



enough to touch a pig with your hand or other tools, you are likely in its flight zone and close enough to risk stopping movement. Hand-held tools are only helpful when used in harmony with the pigs' natural behavior and response patterns outlined in Chapter 1. All tools require effective handler positioning and allow for pigs to get release from pressure.

Minimal and thoughtful use of tools generates the most positive results. If pigs are moving, leave them alone; don't touch them, just follow along and let them move.<sup>1</sup> Hand-held devices are only useful when they complement pigs' natural behavior.<sup>1</sup>

## ACCEPTABLE EQUIPMENT TO USE WHEN HANDLING PIGS

### SORTING BOARD/BI-FOLD PANEL

The most versatile tool is typically the sorting board or sorting panel and can be a single or bi-fold panel.

A sorting board can provide both a physical and a visual barrier. Using a panel broadside to crowd or force pigs forward gives no release and encourages pigs to stop or turn back. If an animal does turn back, don't try to hold back a pig with the board wedged against your legs/knees. Make sure to use the ground as an anchor or allow the pig to move past you and circle back.



### PLASTIC RATTLE/SHAKER PADDLE

The plastic rattle/shaker paddle can provide auditory, physical and visual stimuli. Shaker cans or bottles can also be used. Short intermittent spurts of sound can produce small bursts of speed but continuous sound inhibits movement. Rattle paddles can also be used to gently tap an animal but should not be raised higher than shoulder level. Contact draws pigs' attention. Pigs often brace against paddle contact rather than move away. Repeated contact and noise encourages pigs to bunch or stop movement. Paddles are most effective when used quietly as a visual aid. The large visible end doesn't have to move very much to dramatically increase pressure.



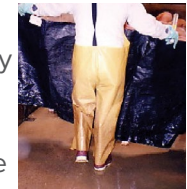
### NYLON FLAG

A nylon flag is an effective visual stimulus in many cases especially with larger pigs. Used correctly, it can draw a pig's attention as well as block its visual path.



### MATADOR'S CAPE

A matador's cape can be effectively used as a visual barrier with nearly all pigs. Its main use is as a tool to block a pig's vision and provide the illusion of a dead-end. Because it is not rigid, handlers are less likely to crowd pigs with a cape than with a sorting board/panel.



### PLASTIC RIBBONS ON A STICK

Ribbons can be used as visual stimuli and when waved/flapped can help create distraction so that the pig moves in the opposite direction.



### ELECTRIC PROD

Handlers are encouraged to consider the use of an electric prod as a last resort handling tool. When other handling tools are used properly, they can be as or more effective than electrical prods.<sup>13</sup>



Use of electric prod elevates stress levels in pigs more than other forms of moving pigs. Before using an electric prod, the following should be tried:

- Calmly direct pigs using sort boards or bi-folds in groups of 3 to 5 pigs.
- Use the pig's field of vision and flight zone to encourage forward movement.
- Gently tap pigs with your hand or shaker paddle.
- Make an intermittent noise with your voice or with a rattle.

Never prod a pig in a sensitive area including eyes, ears, nose, genitals or rectum.

If electric prods are used:

- Tap pig with the wand without energizing the prod (realize any use of electric prods in most packing plants is not tolerated).
- Never use an electric prod in a pen when moving pigs toward an alleyway.<sup>14</sup> We have other tools that more effectively maneuver pigs in the pen such as a sort boards.
- Never prod a pig in a sensitive area including eyes, ears, nose, genitals or rectum.
- If necessary to use an electric prod, create forward movement by touching the back of the animal, behind the shoulders and in front of the tail.<sup>15</sup>

Do not exceed 1 second of electrical stimulation.

- Do not use an electric prod on a non-ambulatory pig that has been clearly identified as non-ambulatory.
- Do not exceed 1 second of electrical stimulation.
- Count to 5 before administering any additional taps or electrical stimulation.
- Allow the pig time to respond before additional prodding is applied.
- Do not use an electric prod on an animal more than twice.

Research shows that even minimal electric prod use changes blood lactic acid levels and also impacts meat quality which in turn can increase fatigued and non-ambulatory pigs.<sup>16,17</sup> Please refer to Chapter 5 for the physiological differences between pigs handled gently (moving pigs at a slow and calm pace) and aggressively (moving pigs rapidly with electric prods).

Electric prod use may be appropriate to encourage forward movement of pigs. In this circumstance, when energized, the lead pig being prodded typically moves forward and out. Realize the pigs behind the lead pig will either follow or may jump backwards due to the sudden movement of the pig just before him. If the pig moves back, this is where the handler must be careful that his choice to electrically prod a pig once doesn't turn into the primary persuasion tool for all pigs in the group. Allow time for the

Research shows that even minimal electric prod use changes blood lactic acid levels and also impacts meat quality, which in turn can increase fatigued and non-ambulatory pigs.

group to feel the relief of pressure by the lead pig moving forward. Allow the pigs time to see the lead pig move forward unharmed. Most importantly, figure out how to prevent bunching or piling of pigs at that location in the future. Is it lighting? Is there wind in the faces of the pigs? Is it a situation that moving fewer pigs is more effective? What can we do to prevent it so we don't have to use electrical stimulation at that point?

The use of electric prods differs by location and company. A farm site or packing plant may have rules limiting or prohibiting their use. Before loading pigs, drivers are encouraged to check with the loading and delivery facilities regarding policies and/or requirements with the use of electric prods. Drivers must always follow the facilities' guidelines.

## SAFE ANIMAL HANDLING

Human injuries happen more often when people are handling animals than during any other activity performed in pork production. Common handler injuries when moving pigs are contact injuries (from pigs or equipment), slipping and falling, head cuts, or bumps and bruises when on the trailer. Handler scrapes, bruising and falls are common injuries when moving sows or boars in the farrowing, gestation or gilt acclimation barns. Some of these can be prevented by being more aware of the environment. Power washer hook ups, cords from heat lamps, heaters and gating can all contribute to worker hand and limb injury. Handlers must remain aware of their environment to avoid injury.

Accidents are more likely to happen to new employees with 11 months or less of experience. The risk for injury increases again in workers aged 45 to 64.<sup>19</sup> New handlers need training to understand how to best protect themselves. Even handlers who have years of experience must continue to wear safety gear and work at an appropriate pace to prevent injury.

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

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To determine what PPE is required, the handler should conduct a hazard assessment. Walk through the tasks required during loading, transport and unloading. Then, considering the equipment to be used, make a list of potential injuries that could occur. Develop a list of PPE that should be used by the handler to help protect him or her from those injuries. Typically, the minimum amount of PPE a handler should consider when handling pigs includes:

- Hard hat or bump cap
  - Protects against head cuts, bumps, and bruises
  - Important inside transport trailers
  - Some packers require handlers to wear hard hats on their premises
- Footwear
  - Steel-toed boots or designated protective boots
  - Plastic boot covers over boots for biosecurity purposes
  - Good boot traction will help with the slippery trailer conditions
- Shin and knee pads
  - Injuries to knees and shins are common when handling pigs
  - Offers added protection beyond sort boards
- Ear plugs
  - Protects against hearing damage from prolonged loud noise (e.g., animal squealing)
  - Wearing hearing protection can help prevent irreversible hearing loss
- Face mask
  - Prevents inhalation of dust particles from bedding and animals
  - Wear a properly fitted respirator or dust mask to reduce inhalation



## SAFETY REMINDERS

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Handlers are exposed to potential hazards when loading, unloading and transporting pigs. The risk of these hazards can be minimized by taking the following precautions:

- Refrain from leaning on trailer doorways. Doors may not be latched properly and may open unexpectedly.
- Use appropriate tools and procedures for moving ill, injured, fatigued or dead animals. Details on how to do so can be found in Chapter 5.
- Use the pigs' flight zone and handler bubble to encourage forward movement rather than crawling over pigs. Information about pig movement and behavior can be found in Chapter 1.
- Do not jump over or walk on top of gate dividers in the dock area.
- Do not engage in horseplay on site.
- In hot weather, make sure to stay well hydrated.
- If assistance is needed with a pig or a situation of concern, ask for help.

In case of injury on the plant site, notify a dock monitor or livestock management of the situation. Packer personnel will assist the transporter in first aid and, in serious cases, engage emergency responders. All injuries, no matter the seriousness, need to be documented while on the plant site.



## BEST PRACTICES (DO)

- Prepare the barn before movement by removing visual gaps between pens and eliminating distractions that may disrupt pig flow.
- Walk pens daily.
- Move pigs in appropriate group sizes for the facility design.
- Move pigs at a normal walking pace.
- Watch pig behavior — observe the eyes, ears, and body position of the pigs and adjust your position accordingly.
- Use handling tools appropriately.
  - Handling tools should facilitate calm pig movement.
  - Minimize or eliminate the use of electric prods.
- Wear proper personal protective equipment (PPE) to prevent injury.



## PROHIBITED ACTIONS (DON'T)

- **Do NOT** use continuous noise when moving pigs.<sup>9</sup>
- **Do NOT** crowd the space of the rear pigs and draw the lead pig's attention away from the flow.
- **Do NOT** use rough physical contact when moving pigs (e.g., hitting, kicking, or other harsh methods are unacceptable).
  - Willful acts of abuse are NEVER acceptable.



CHAPTER 3

# FACILITIES & EQUIPMENT



## IN THIS CHAPTER

Facilities should be properly designed, constructed, and in good repair with functional equipment in place before loading or unloading pigs. This will help ensure a safe and efficient process. This chapter will take a close look at the following topics:

- **Facility Design**
- **Facility Maintenance and Repair**

## FACILITY DESIGN

### LIGHTING

Lighting should be routinely checked in all movement areas. Areas that switch from light to dark discourage movement. Likewise, areas that have strong shadows or light shining into the eyes of the pig also discourage movement. Recent chute design research has tested rope lighting that provides a soft continuous light source that minimizes shadowing.<sup>20</sup>

### ALLEYWAYS AND DOORWAYS

When building a new finishing barn, the width of the alleyway is an important design component for animal handling. Alleyways should be 3 ft. wide to accommodate moving 3 to 5 finishing pigs of current market weight. This will allow 2 pigs to walk side by side without jamming, thereby reducing stress and speeding up the movement of pigs. Doorways should be at least the same width as the alleyway and the door should open completely to eliminate pinch points. Avoid thresholds on the floor of the doorway to reduce balking.

### RAMPS AND CHUTES

The design of the loading ramp or chute has a significant effect on pig welfare. Goals of loading chute design should be to facilitate easy pig movement, reduce incidence of slips and falls,

and avoid injury and stress to the pig. The correct angle of incline on ramps is very important to promote successful pig movement.

As a general guideline, ramps should be 20 degrees or less. Research has shown that ramp angles over 20 degrees cause an increase in balking and backing up behaviors in pigs, an increase in physical interventions by the handler and an increase in loading and unloading times.<sup>21</sup> Lower angled ramps, such as 10-13 degrees, are much easier for pigs to use. Poor handling can nullify any benefit of good chute design.

Because most ramps are a fixed ramp incline length, and trailers are typically a fixed height, it may be useful to be able to calculate whether the angle of the ramp exceeds the suggested maximum ramp angle. To determine the current ramp incline angle, divide the ramp height by the ramp incline length. If the answer is greater than 0.34, the incline angle of your ramp is too steep for optimal pig loading.

**If Ramp Height ÷ Ramp Incline Length  
< 0.34202**

**The incline angle is less than 20°.**

Example: Ramp Height = 3.75 feet

Ramp Incline Length = 8 feet

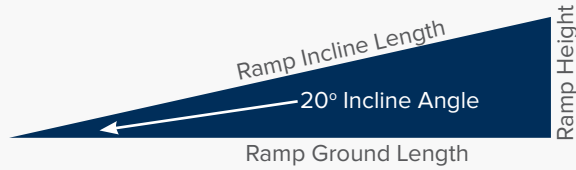
$3.75 \text{ feet} \div 8 \text{ feet} = 0.46875$

$0.46875 > 0.34202$  So, the incline angle  
IS NOT acceptable.

The following items are critical to proper ramp and chute design:

- Concrete ramps should have stair steps and

To determine the Ramp Incline Length to achieve a 20° Incline Angle at a set Ramp Height, use the following formula:



Formula to achieve a 20 degree Incline Angle:  
 $\text{Ramp Height} \div 0.34202 = \text{Ramp Incline Length}$

non-slip surfaces to provide traction and help avoid slipping. It is recommended that the stair steps should have a 2.5-inch rise and a 10-inch tread.

- Ramps for market and adult pigs should have cleats spaced 8 inches apart.
- Ramps for piglets and nursery pigs should have cleats spaced 3 inches apart.
- Ramps should have a flat dock at the top for pigs to step onto when they exit the truck and before they enter the ramp.
- A pig views a 90 degree turn as a dead end and may stop or try to turn around. Ramps should be straight with no 90 degree turns. If a straight ramp is unachievable, curves are preferred over sharp turns and angles to facilitate pig movement.
- Chute width should match or be slightly smaller than the trailer entry width, which is normally 36 inches. The width should be less than 36 inches but greater than 32 inches.

Recent studies show that these chute design parameters have a better chance of providing unidirectional flow and a consistent rate of movement. This design performed better at optimizing meat quality over traditional chute design. Consider these components when updating your chute or ramp.

No chute can make up for poor handling skills. Inexperienced and/or aggressive handling will nullify the benefit of any chute design.

Recommended Ramp Incline Lengths to Achieve a 20 Degree Angle

Ramp Height	Ramp Incline Length for 20 Degree Angle
1 ft	2.92 ft
2 ft	5.85 ft
3 ft	8.77 ft
4 ft	11.7 ft
5 ft	14.62 ft
6 ft	17.54 ft
7 ft	20.47 ft
8 ft	23.39 ft

Other design aspects that promote better pig movement are:<sup>20</sup>

- Covered chute (aluminum or other material).
- Cushioned bumper dock system to completely eliminate gaps from the barn to the chute.
- Flooring material of metal coated with epoxy to mimic the feel of concrete.
- Solid gating prior to a doorway or as transitioning onto a chute.
- All gates in proper working condition.
- Gap reduction between the chute and the facility.
- Chutes have adequate lighting to aid in the movement of pigs. An industrial rope lighting system inside the chute can provide a soft continuous light source that minimizes shadowing.

## FACILITY MAINTENANCE AND REPAIR

In addition to design, the maintenance and repair of facilities and equipment are key to loading and unloading pigs safely and efficiently.

### RAMPS

The following steps may be taken to keep up with the regular maintenance and repair of ramps.

- Remove or repair sharp, protruding or otherwise injurious items.



- Repair or replace broken or missing cleats.
- Regularly inspect and maintain moving parts such as cables, pulleys and hinges.
- Keep ramps and chutes free of trash, debris and other potential distractions.

order, especially in warm to hot temperatures. Plugs or panels must be available for use during colder temperatures to help regulate the internal temperature. Sudden or unexpected fluctuations in temperatures can be managed easier with weather panels than with plugs.

## TRANSPORT TRAILER

Trailers should be kept in good repair and should be kept clean. The trailer should have non-slip, solid flooring to prevent the animals from slipping and falling. All gating and doors should open and close freely and must be able to be secured shut without gaps where pigs could get their head or legs stuck or fall from the truck. Gates should have pins in place to assure gates remain shut during transport. Internal ramps should function properly and extend all the way to the floor. There should be no sharp or protruding objects in the trailer that may injure the pigs. Ensure drain plugs are securely in place prior to loading pigs onto the trailer. Trailer interiors should be equipped with sufficient lighting if loading or unloading trailers in the dark. Trailer ramps angles should be 20 degrees or less to help with pig movement in the trailer. If the trailer has a misting system on board, the equipment should be kept in good working

### MORE INFO

The transporter should consider completing a preparation/loading/unloading checklist for each load of pigs. This checklist may include actions to consider in preparation for loading, transit, arrival at the loading location, and unloading. A sample checklist is shown on page 67 in the appendix.

CHAPTER 4

# LOADING, UNLOADING & TRANSPORTATION



## IN THIS CHAPTER

Transportation may be a stressful event in the life of a pig and is thought to be the most influential pre-harvest factor affecting final pork quality. Transportation involves factors that could be perceived as stressful to a pig such as unfamiliar noises and vibrations, rounding corners, changes in speed and potential temperature extremes. Handlers and transporters should implement procedures that make transportation as safe and humane as possible. This chapter will focus on those procedures while covering the following topics:

- **Plan for Loading**
- **Loading and Unloading**

## PLAN FOR LOADING

Before loading a truck, it should be correctly prepared for its journey including determining loading density, proper setup for weather conditions and scheduling of transport. Be especially aware of and prepared for weather changes as you move from region to region.

### LOADING DENSITY

Overcrowding pigs on a trailer is an easy and preventable mistake. This costly error can put an animal's safety at risk and cause losses to the producer and the harvester. A perceived saving in transportation costs is far outweighed by the possibility of reduced pork quality, compromised animal well-being or even death. If overcrowding is suspected, reduce the number of head per compartment.

Overcrowding is never a viable option when transporting animals. Signs of overcrowding include piling and excessive squealing or panting. Gates should be able to close without having to force the pigs into the space. Once a gate is closed, pigs should have room to stand without climbing on top of each other. Listen for pigs that are squealing due to being stepped on or crowded. If overcrowding is suspected, reduce the number of head per compartment. Pigs in overcrowded conditions will quickly overheat and begin panting and open-mouth breathing. They

may also become injured, fatigued or even die. These standard transport space recommendation statements can be used to guide transporters as they determine the appropriate loading density for their trailers.

- Generally, space allowances should be such that pigs can lie down and stand up in their normal position.
- On short trips, pigs may prefer to stand. Pigs need space to lie down on longer trips.
- The trailer should have compartments with gates or dividers with working latches to limit the number of pigs in each given area.
- Weather conditions and animal size should be considered when determining the number of animals to load.

The transport space recommendation table shows the recommended space per pig under normal weather conditions (not hot or cold extremes). Transport losses are minimized at these recommendations, but optimal floor space is dependent upon temperature, trailer design, compartment size, etc.

Changes in loading density need to be made to accommodate the weight of the pig or weather conditions. The need for these changes may outweigh transport costs and number of pigs left in the barn on a given day for the benefit of the animal's well-being.

Transport Space Recommendations*	
Average Weight (lbs.)	Square Feet Per Head
12	0.65 <sup>23</sup>
50	1.53
100	2.32
150	2.95
250	4.26
275	4.57
300	4.79
350	5.48
400	6.39
450	7.00
500	7.69
550	8.39

\*When weather conditions become extreme, consult Cold- and Hot-Weather sections for adjustment.

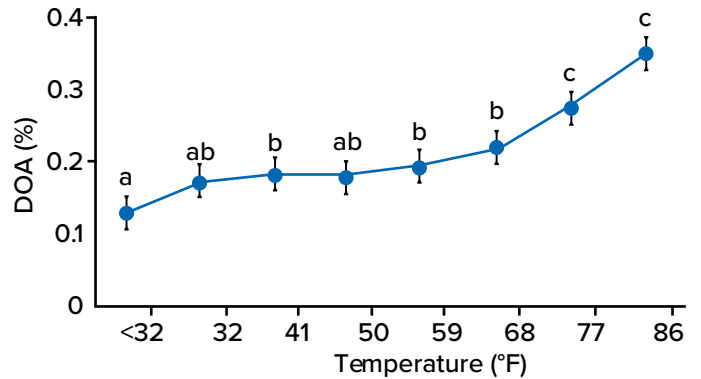
Research has shown that increasing loading density also increases transport losses.

## WEATHER CONSIDERATIONS

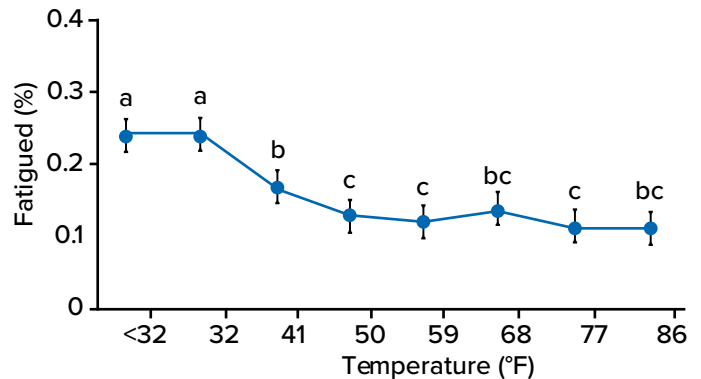
Improper preparation for various weather conditions, especially temperature extremes, costs the U.S. pork industry millions of dollars annually. Handlers and transporters are responsible for understanding the effects of weather on pigs undergoing transport and how to protect pigs during weather extremes. Transporters must board the truck (see examples on page 28) according to weather conditions at loading, but must continually check weather conditions along their transport route. Boarding adjustments should be made throughout the trip, so that upon arrival the truck is boarded correctly for the destination. Weather forecasts are available through local radio or television or by visiting a national website such as [weather.gov](http://weather.gov) or [weather.com](http://weather.com).

Pigs do not have a thick coat of hair, nor do they have the ability to sweat, making them sensitive to heat and cold stress. While temperature is not always the primary cause for pigs becoming dead on arrival (DOAs) or non-ambulatory, it can be a factor.

The following charts show the impact of temperature on the incidence of transport losses.<sup>24</sup> This means that DOAs are most likely to occur June through September and non-ambulatory pigs are most likely to occur September through February.



Percentages of pigs dead on arrival (DOA), and down on trailer or before weighing (fatigued) during their transport to the processing plant at different temperatures. Mean values with different letters are significantly different at P<0.05



The National Weather Service has developed a chart to indicate the amount of time before frostbite will occur at a given wind chill level. This chart demonstrates how quickly frostbite can occur under severe winter weather conditions and should be taken into account when using boards or plugs on a trailer. However, wind speeds are always significantly less inside the trailer meaning the windchill is not the same inside the trailer as out. Often it is warmer because of the heat production from the pigs. Temperatures inside the trailer can be managed even more with proper boarding.

## Truck Boarding Examples



25% boarding coverage evenly distributed and at pig level.



50% boarding coverage evenly distributed and at pig level.



75% boarding coverage evenly distributed and at pig level.



90% boarding coverage evenly distributed and at pig level, with bottom covered.

		National Weather Service Windchill Chart												
		Temperature, °F.												
Wind Speed, MPH		30	25	20	15	10	5	0	-5	-10	-15	-20	-25	
	5													
	10													
	15			Safe										
	20													
	25													
	30							30 min.						
	35													
	40									10 min.				
	45													
50											5 min.			
55														
60														

## COLD WEATHER

Freezing temperatures and wind chills are very dangerous to the safety of pigs. Cold temperatures are amplified by wind speed.

In cold temperatures, overcrowded pigs that cannot seek the protection of bedding from wind and low temperatures are potentially subject to frostbite. Frostbite can also occur from being pressed against the side of the trailer. Pigs that arrive at the packing plant with frostbite are disapproved by USDA inspectors and plant personnel. Frostbite can result in lower value for the pig due to trim loss or even condemnation by the USDA inspector.

Newly weaned piglets and nursery pigs are especially susceptible to cold temperature extremes.

The following measures are precautions to be taken to help ensure the well-being and safety of pigs being transported in cold weather:

- Make sure the trailer is completely dry after washing.
- Use proper bedding and boarding based on the weather conditions.
- Use panels to protect pigs at pig level from crosswinds.

- Block or plug a portion of the ventilation holes/slots at pig level.
- Keep pigs dry.
- Load fewer pigs per load so they can move away from sides of the trailer.
- If stops are necessary during extreme cold weather, monitor trailer conditions and adjust trailer boarding to ventilate the trailer to prevent condensation build-up.
- Provide extra bedding according to the Recommended Truck Setup Procedures chart.
- Clean and dry bedding before pigs are loaded.

## HOT WEATHER

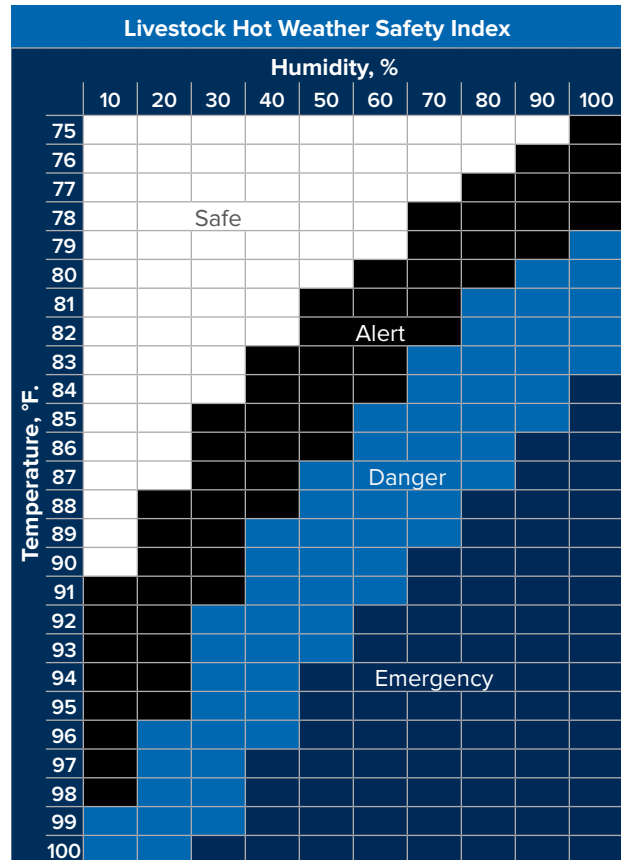
Hot weather and high humidity can be deadly to pigs due to their lack of functional sweat glands.

The livestock weather safety index (above right) provides a guide to help reduce heat stress of livestock. Handlers should review this chart while preparing for their load.

Hazards to pigs increase when both temperature and humidity increase. When conditions are in the 'alert zone,' transporters need to be careful to keep livestock cool. When conditions get into the 'danger' and 'emergency zone,' try to shift loading schedules to avoid the hottest part of the day.

The following measures are special precautions to be taken during the danger and emergency scenarios above:

- Open nose vents.
- Unplug ventilation holes/slots.
- Adjust loading density of pigs in the truck by loading fewer pigs per load. For example, provide 300-pound pigs with 5.0 ft.<sup>2</sup>
- Schedule transportation early in the morning or at night.
- Be prepared to adjust to rapid temperature fluctuations such as the first warm day(s) of spring.
- Do not bed pigs with straw.
- Load and unload promptly to avoid heat buildup.



Utilizing evaporative cooling during transport can be an effective cooling method for high temperatures. This method involves wetting the pig and allowing time for the water to evaporate. During evaporation, body heat is removed from the animal. The following are guidelines for this cooling process during hot weather conditions:

- If the temperature is over 80°F (27°C), wet pigs for 5-10 minutes during or after loading.<sup>25,26</sup> Be careful of over wetting to prevent excess humidity build-up or runoff.
- Use a large droplet spray, not a fine mist.
- Do not apply large amounts of cold water to an overheated pig (open mouth, panting, with blotchy skin). Doing so may shock or kill it.
- Refrain from parking right next to another trailer at the plant. Trailers will have better air flow if trucks do not park side by side.
- Make pigs damp and then allow them to dry. Monitor the wetting process to prevent excess humidity build-up.
- Do not wet pigs again until evaporation has

occurred. Continual wetting with no time for evaporation can increase heat stress by creating a sauna effect.

## BEDDING

Bedding can serve multiple purposes:

- In cold temperatures, the bedding material prevents the pig from coming into direct contact with the metal.
- Bedding also helps with moisture control and footing for pigs and the handler.

The volume of bedding needed will be dependent on the distance of transport. The use of no bedding is an acceptable practice in certain areas of the U.S. depending on duration of the trip, cleanliness of the truck, time of year as well as trailer flooring design. All adjustments to bedding levels, or no bedding, must not create issues with the comfort and welfare of the pigs.

The Recommended Truck Setup Procedures chart illustrates recommended truck setup procedures for finished pigs during temperature extremes. These are based on two research projects conducted in the midwest but may not be appropriate for every geographical location.<sup>25,26</sup> These projects were done using two-deck trailers. Trailers with more than two decks may require additional bedding.

Professional judgment of the driver and transport staff and knowledge of the local conditions may allow for using different bedding levels than recommended here. Transporters are responsible for understanding bedding requirements at the plants to which they are delivering. Use of excessive bedding during warm or hot weather may cause increased pig losses. Improper bedding or boarding may result in disciplinary actions by the receiving facility.

Professional judgment of the driver and transport staff and knowledge of the local conditions may allow for using different bedding levels than recommended here.

Recommended Truck Setup Procedures Based on Air Temperatures (Market Pigs)		
Estimated Air Temp.	Bedding* (minimum recommended bags/trailer)	Side-Slats
≤ 10°F	Heavy (6 bags)	90-95% closed
11-20°F	Heavy (4-6 bags)	75-90% closed
21-30°F	Heavy (4-6 bags)	50-75% closed
31-40°F	Medium (3-4 bags)	50-75% closed
41-50°F	Medium (3-4 bags)	25-50% closed
51-60°F	Medium (3-4 bags)	0-25% closed
61-90°F	Medium (3-4 bags)	0% closed
> 90°F	Light (1-2 bags)	0% closed

\*Bedding refers to a 50-pound bale of wood shavings.

## STOPPING DURING EXTREME CONDITIONS

It is imperative that pigs be transported in a humane, safe and timely manner. Stopping with a loaded trailer, especially during extreme temperature conditions, should be avoided to help prevent unnecessary increases in stress and death loss. Trailers utilize passive ventilation and only have air flow when the trailer is perpendicular to prevailing winds or when the trailer is moving.

- Trucks should continue in motion during extreme weather conditions (unless it is impossible for safety or other reasons).
- If pigs cannot be unloaded upon arrival in hot weather continue driving, if possible, to generate air flow for the pigs until they can be unloaded.
- Utilize water sprinklers and fan banks at the packing plant to circulate air through waiting trailers.
- Do not park near other animal transporters due to the potential for reduced air flow and the increased risk of disease transfer.
- If stopped during hot weather, slat and hole covers must be removed to allow for additional air flow and for water sprinklers in the trailer to be activated.

When there is no air flow, the body temperature of the pigs will cause the internal trailer to increase rapidly as shown in the graph on page 31.<sup>27</sup>

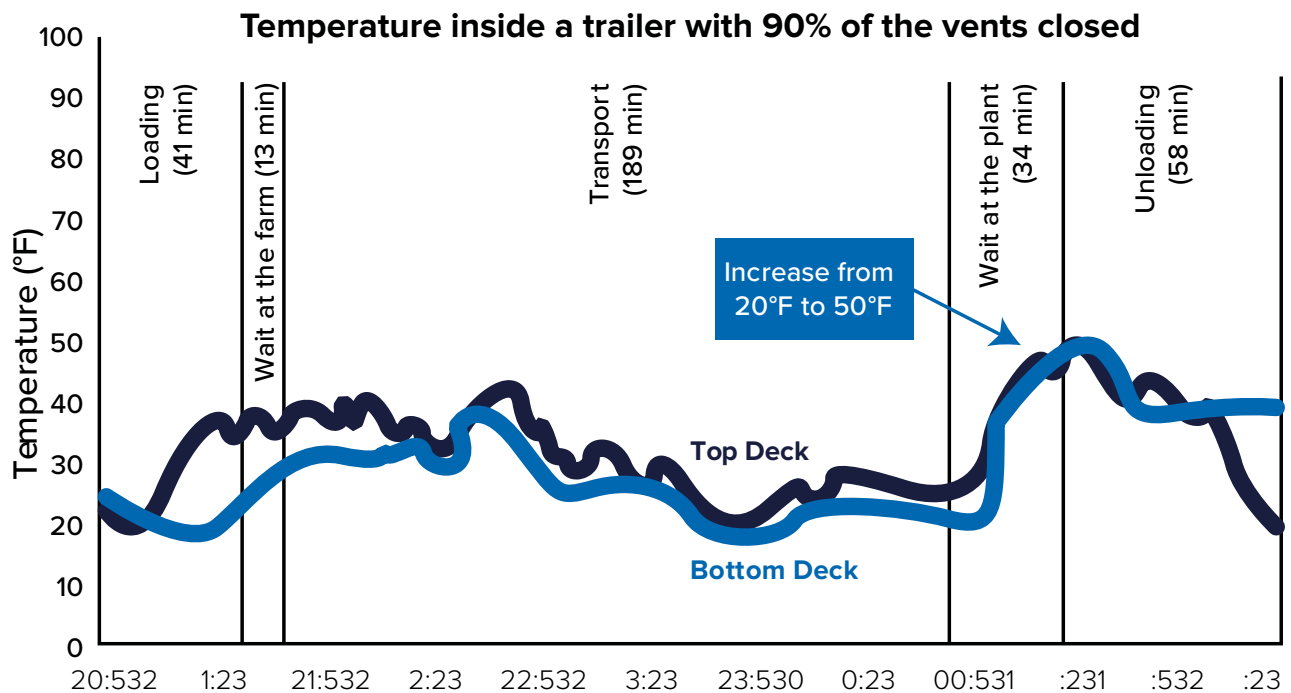
It is the transporter’s responsibility to protect pigs during all weather conditions.

- If weather conditions change during a journey, adjust trailer ventilation. This may be true for long journeys across geographical regions or for spring and fall days that have wide temperature variations.
- Be prepared for journeys spanning multiple regions by doing weather condition planning.
- Add or remove side boards or plugs accordingly to prevent pigs becoming too hot or cold.

## SCHEDULING OF TRANSPORT

Communication between the transporter and the loading and unloading locations is essential. The goal of everyone involved in scheduling transportation is to minimize the amount of time pigs must be on a trailer. It is important for everyone to be aware of the timelines and follow them as closely as possible. The scheduled arrival time needs to be considered when scheduling the loading time. If a delay occurs, this change in the timeline needs to be communicated to all involved in the transport process, including the people at the origination and destination.

Not following scheduled delivery times can cause backups at the plants, which result in increased waiting times for other drivers and pigs. Plants have limitations on how long trailers can wait in line before unloading.



All plants have policies that assist in minimizing time from trailer arrival to pig unloading as seen in these examples:

- Plants work to schedule pigs so that trucks have minimal wait time prior to unloading in the winter as waiting pigs may get too cold and suffer frostbite.
- In the summer, waiting pigs may get too hot. If hot pigs cannot be misted or unloaded immediately, trailers may need to keep moving to circulate air.
- If pigs are backed up during hot weather or during other critical situations, plant communication policy may include radio requests to keep transporters moving until requested by plant to arrive, parking location requests to optimize animal comfort, requests to postpone loading of animals on farm, or, in extreme back up, requests to unload at an alternative location such as an auction market or another plant.

## LOADING AND UNLOADING

Proper preparation is critical when loading and unloading. It is important to have a clear plan and all handlers involved should understand the plan. It is best practice to load and unload as a team with each individual handler having predetermined roles and responsibilities. See the

following examples:

- Have a clearly defined team lead with the necessary authority to make decisions during the loading process, including whether or not to load or unload a specific animal.
- When loading finished market pigs, a pair of handlers may work to sort or cut the correct number of pigs from a pen into the alley, a third handler may move them down the alleyway to the doorway of the building, and a fourth handler may move them up the chute onto the truck.
- Understanding roles and following through with the team plan makes moving animals easier and helps reduce confusion and the potential for animal and/or worker stress during the handling process.

Most handlers have experienced frustration while loading and unloading because someone outside the trailer is doing things that block pigs from moving on or off the trailer. This includes being in the pig's line of sight, having hands and tools in sight, moving around, reaching in and making noise. The most helpful thing a transporter can do to speed up loading and unloading is to stay still, stay quiet, and stay out of sight until the last pig in the group gets past.

The loading and unloading plan should follow biosecurity protocols. Introducing a disease to the farm can be a multimillion-dollar expense.



Follow the farm's biosecurity protocol exactly. More information on biosecurity can be found in Chapter 6.

## LOADING AND UNLOADING PIGS OF VARIOUS SIZES

Most basic loading and unloading protocols are similar and apply to nearly all pigs, but requirements for certain sizes and types of pigs differ and specific techniques may need to be used.

When loading and unloading pigs, regardless of size:

- Use the pigs' flight zone to get pigs to go where desired.
- Use proper handling tools as directed in Chapter 2.
- Move pigs in correct group sizes as outlined in Chapter 2.
- Utilize the pigs' flowing herd behavior, as detailed in Chapter 1 to move pigs where desired.
- Do not load any ill, injured or fatigued pigs onto a truck. Refer to Chapter 5 for more information on ill, injured or fatigued pigs.
- Watch for signs of fatigue, including open-mouthed breathing, inability to move and splotchy skin as described in Chapter 5.
- Avoid aggressive behavior when loading and unloading pigs. Details about aggressive behavior and willful acts of abuse can be found in Chapter 2.
- Unload in a manner that is safe for the handler and the pigs.
- Take turns slowly to avoid piling of animals.
- Give yourself plenty of time to brake. Braking suddenly may cause animal injury.
- Align the trailer with the ramp so there are no gaps where pigs can get their legs trapped between the trailer and the ramp. Pig legs can be broken if they get a leg stuck and the pigs behind them keep coming.

Move finished pigs off the trailer in small groups of 3 to 5 pigs at a steady, calm pace.





## Consider these guidelines when loading and unloading specific sizes of pigs:

### Finished Pigs

- Always load the bottom deck first and unload it last. This is especially important when making multiple stops to fill a trailer. Top heavy loads are at higher risk of turnover.
- Unless otherwise directed by receiving personnel, move pigs off the trailer in small groups of 3 to 5 pigs at a steady, calm pace. This is especially important if the packer is tattooing as pigs exit the trailer.
- Follow processes and procedures of the packing plant.
- Sign in and be prepared to show your TQA® Certification card.
- Be prepared to sign a Humane Treatment of Animals form prior to unloading every group of pigs.
- Tell the plant if you have more than one lot of pigs that requires more than one tattoo.
- Ensure all animal handling activities on plant property are in compliance with federal regulations and FSIS inspection. Animal handling activities on plant property are also routinely audited by customers and other third-parties. This includes:
  - Amount of time trailers spend waiting to unload.
  - Condition of the trailer transporting the pigs.
  - Animal handling practices and tools of transporters and plant personnel.
  - Attitude and behavior (e.g., yelling, swearing or banging equipment or gates) of transporters and plant personnel.
- Never interfere with other drivers' unloading or animal handling activities. Ensure human safety and humane handling of pigs. If you are in a difficult situation and need help, ask the plant personnel for assistance.
- Immediately stop what you are doing if asked to do so by plant personnel. The request may be made for any reason including an issue

inside the plant or the handling method being used. Stop immediately and wait for more information before proceeding to unload.

- Direct concerns about animal handling to the livestock manager at the plant followed by the producer for which you are hauling.

When unloading, be aware that plants may choose to tattoo the pigs as they exit the trailer. If this is the case, they should create a blind to hide the handler performing the tattooing. This will prevent the pigs from freezing, bunching, or turning back into the truck. Blinds set further away from the truck will prevent disruptions in pig movement but allow observation of the transporter and the unloading process.

The person performing the tattooing should make sure the animal's shoulder has passed by them before they tattoo the animal to prevent disruption of pig movement. They should also never peer around the blind into the truck as it will disrupt pig movement.

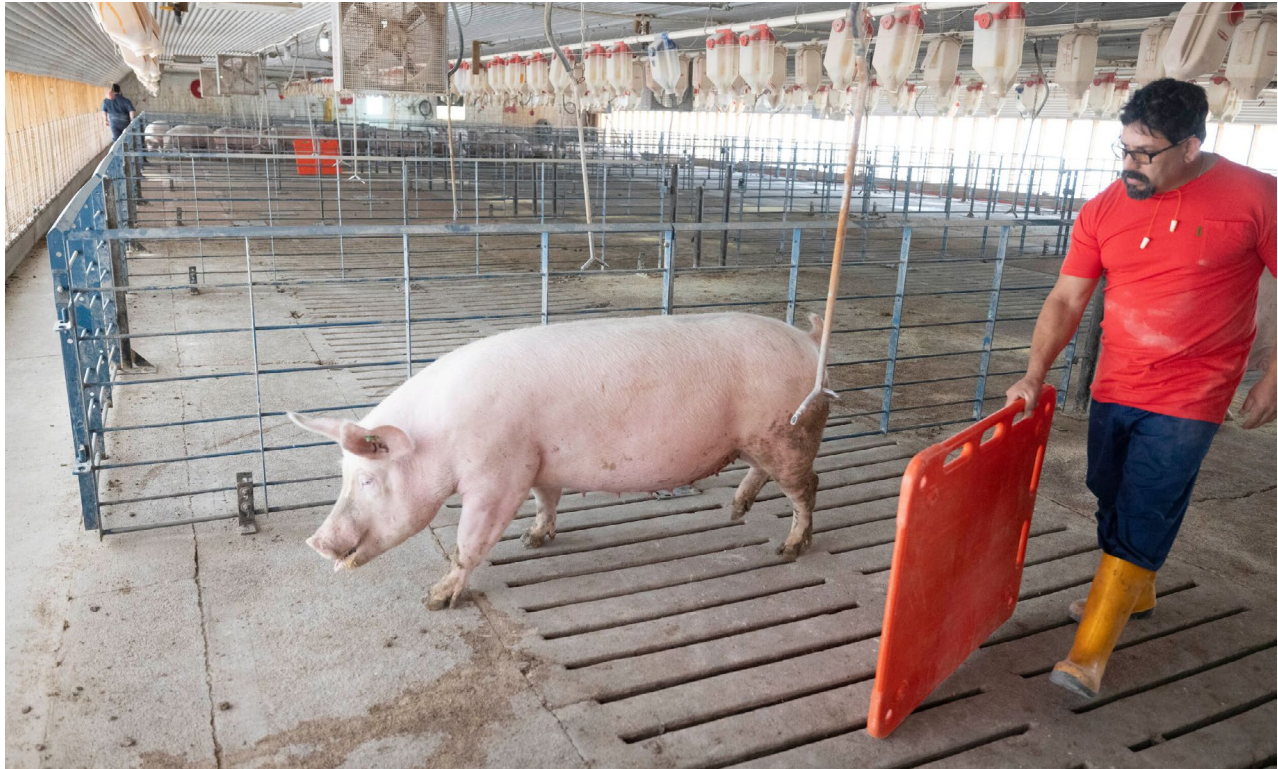
#### **Weaned Piglets and Nursery Pigs**

- Give piglets and pigs extra time and move carefully to avoid animal injury when moving up or down the ramp or chute.
- Avoid excessive noises such as yelling or banging on the truck or wall as an attempt to rush and crowd pigs into or out of the truck and into the chute during movement.

#### **Breeding Stock**

- Pay close attention to pig body language and be prepared to get out of the way should aggression between pigs occur.





- When breeding stock is unloaded into an unfamiliar facility, allow animals extra time to explore and become comfortable. Do not rush the pigs.
- Be prepared to load boars individually and/or pen them separately once on the truck. This will help prevent injury from fighting and prevent mounting of females or males during transportation.
- Do not load breeding stock in the same compartment as finishing pigs. Boars may attempt to mount or fight other pigs.

CHAPTER 5

# FITNESS OF THE PIG



## IN THIS CHAPTER

The process of loading and unloading can be stressful events in the life of a pig. In order to make the process safe for all pigs, the handler must evaluate the pigs' fitness to travel and be equipped to deal with any issues that might arise during transport. The chapter will help handlers be prepared to do so, covering the following topics:

- **Fitness to Transport**
- **Managing Ill, Injured, or Fatigued Pigs**
- **Moving Ill, Injured, or Fatigued Pigs**
- **Managing Pigs That Arrive Dead at the Plant (DOAs)**

## FITNESS TO TRANSPORT

Transport can be stressful for even the healthiest of pigs. As described in Chapter 2, inappropriate handling techniques and aggressive handling causing excessive stress and muscle exertion during loading and/or unloading can exacerbate the stressfulness of this situation, potentially causing serious health problems and even death.<sup>28</sup> For these reasons, the fitness of the pig is an important consideration both handlers and transporters need to make before starting the process of loading and unloading.

During evaluation, handlers and transporters should be observing pig behavior and actions. The following list provides some examples of animals that are unfit to be transported, including, but not limited to:<sup>29</sup>

- Those that are sick, injured, weak, disabled, or fatigued.
- Those that are unable to stand unaided and bear weight on each leg.
- Those that are blind in both eyes.
- Those that cannot be moved without causing them additional suffering.
- Newborns with an unhealed navel.
- Pregnant animals that would be in the final 10% of the gestational period at the planned time of unloading (They may be transported if special conditions are provided and additional attention is given during transport.).

- Females traveling without young who have given birth within the past 48 hours.
- Those whose body condition would result in poor welfare because of the expected climatic conditions.

Several of the more common causes of transport losses are heat stress, increased heart rate and heart failure, porcine stress syndrome (PSS), and fatigued pigs.

## FATIGUE

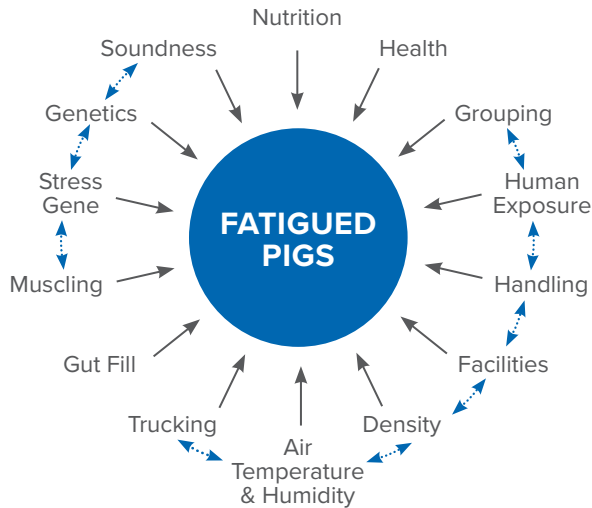
Fatigued pigs are defined as pigs that have temporarily lost the ability or the desire to walk but have a reasonable expectation to recover full locomotion with rest. Fatigued pigs typically have a condition that is commonly referred to as metabolic acidosis which can result in meat of low quality and of significantly less value to the industry.

This diagram illustrates many of the contributing

It is the position of the National Pork Board that any pig that is ill, unable to walk or significantly injured should not be transported to market channels. Where the likelihood of recovery is low, even with treatment, the pig should be humanely euthanized. The driver has the responsibility to report to their supervisor any ill, injured or fatigued pig loaded onto a truck.

factors that can lead to injured, stressed or fatigued pigs. Each of these factors can be controlled or manipulated by one or more persons involved in the handling and movement of the pigs.

### Factors that can lead to fatigued pigs



## STRESS

When a pig experiences stress during handling or transport, it will display open-mouth breathing and/or skin discoloration. If the stressors are not removed or more stressors are introduced, pigs will develop the following behaviors:

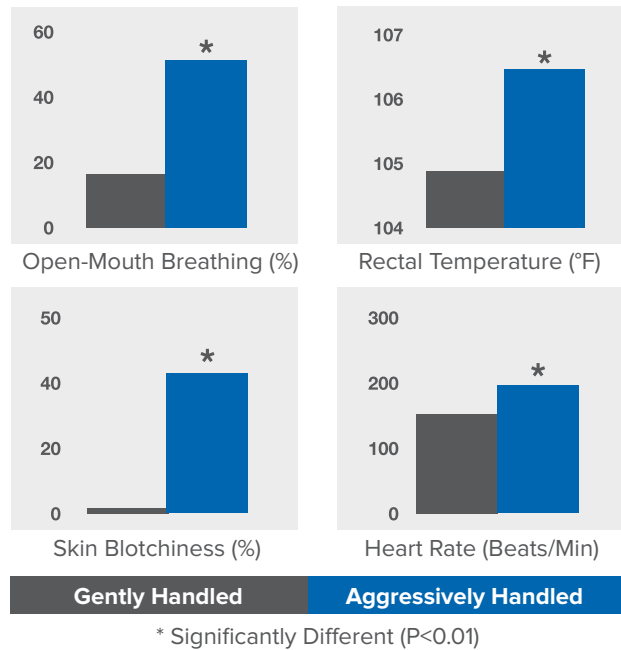
- Abnormal vocalization (squealing)
- Stiffness
- Muscle tremors
- Reluctance to move

If all stressors are not removed at this point, the following could result:

- Collapse
- Becoming non-ambulatory
- Death<sup>30</sup>

Additionally, a pig's heart rate and rectal temperature increase when excessively stressed or muscles are overexerted.

### Physiological differences between pigs handled gently and aggressively<sup>10</sup>



The graphs above depict physiological differences between pigs handled gently and aggressively. Gentle handling consisted of moving pigs at a slow and calm pace, whereas aggressive handling involved moving pigs rapidly with electric prods.<sup>10</sup>

## HEAT STRESS

Heat stress occurs when the pig's body temperature rises to a level it cannot control through its normal panting mechanism. A pig in distress will be making deep, gasping sounds. To avoid the result of death, a pig in distress should be attended to immediately in the following manner:

- Do not make the pig move.
- Allow it to rest.
- Gently sprinkle the pig with cool water.
- Do not pour large amounts of cold water on the pig as the shock may kill it.

## **PORCINE STRESS SYNDROME (PSS)**

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PSS is an inherited disorder. Animals with this genetic defect are extremely sensitive to stress. When a PSS pig is stressed, its body temperature rises, its skin develops red blotches, it collapses, and its muscles become rigid. Immediate treatment is required using the same techniques as for a heat-stressed pig. Due to selective breeding, this gene is rarely present in the pigs found in today's commercial herds.

## **TOTAL TRANSPORT LOSSES**

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Transport losses at U.S. packing plants include:

- Dead on arrival (DOA): a pig that died during transportation
- Dead in yard (DIY) or dead in pen (DIP): a pig that died after unloading at the plant
- Non-ambulatory pig: a pig unable to move or keep up with the rest of the group at the plant

It has been estimated that 0.7% of those transported to market either die (0.25%) or become non-ambulatory (0.44%).<sup>31</sup> However, it is important to note that these values vary by year and season. For example, the national average for the percentage of dead pigs at U.S. packing plants over a five year period was 0.19%, but these values increased during the summer months.<sup>32,33,34,35,36,37,38,39</sup>

## **MANAGING ILL, INJURED OR FATIGUED PIGS**

Prevention, preparation and prompt action are keys to the proper handling of pigs. Good production practices along with proper handling reduce the incidence of ill, injured, and fatigued pigs.

## **PREVENTION AND PREPARATION**

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Pigs that are ill, injured, or fatigued must be handled in a humane manner. Proper handling and movement of these animals should be included in the general handling and movement policy of production, transportation, and harvest operations.

Producers should seek to prevent illness and injuries by feeding nutritionally sound diets, maintaining effective health programs, providing good facilities, handling pigs properly, and selecting genetically and structurally sound breeding stock. If there is an ill, injured, or fatigued pig, placing them in a resting area can help the pig recover by minimizing competition for feed and water. This also provides a good opportunity for monitoring.

Pigs that appear healthy but have a history of health or respiratory problems may be more susceptible to handling and transport stress and should be handled with extra care.

## **LOADING**

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The position of the National Pork Board is that any animal that is ill, unable to walk or significantly injured should not be transported to market channels. Where the likelihood of recovery is low, even with treatment, the animal should be humanely euthanized.

The transporter has the responsibility to report to their supervisor if any ill, injured, or fatigued pigs are loaded onto a truck.

## **TRANSPORTATION**

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Safety and well-being should be the primary concern when transporting pigs. Transport can be a stressful time for pigs and even healthy animals can lose up to five percent of their body weight during a 4-hour transport.<sup>40</sup>

Pigs that become ill, injured or fatigued during transport should be segregated upon arrival and be given care for their special needs. These animals should be handled in a manner that is consistent with the recommendations found in the Animal Handling Guidelines published by the Meat Institute (formerly the North American Meat Institute).<sup>41</sup>

## UNLOADING

The receiver should be notified of any ill, injured or fatigued animals on the transport vehicle before it is unloaded. Transporters should ask the receiving location personnel for assistance to move or euthanize any ill, injured or fatigued animals that may be on the truck.

## MOVING ILL, INJURED, OR FATIGUED PIGS

There are strict guidelines in place for how ill, injured, and fatigued pigs should be humanely handled when moving them for treatment, rest, or recovery. Handling methods for moving ill, injured, or fatigued pigs should include equipment appropriate for the size, age, and condition of the animal. When pigs become too large to be carried in a safe manner, proper tools for moving these animals should be used. Efforts should be taken to not exacerbate and/or cause an injury to the animal. From worker safety and animal handling perspectives, it is recommended that a minimum of two individuals handle ill, injured, or fatigued pigs.

At no time is it acceptable to throw cold water on an animal that has collapsed from over exertion. If used, water should be applied as a sprinkle. It is also not acceptable to drop a live pig to the ground from a transport door or other elevated surfaces. Live pigs should also not be drug by their ears, legs or tail; and the handler's foot should not be used in any way to move the pig.

Should an ill, injured, or fatigued pig become non-ambulatory, it is strictly prohibited to move pigs on top of non-ambulatory pigs. Non-ambulatory or dead pigs must be protected or moved out of the way first. It is also strictly prohibited for handlers to drag live animals or force them to move. This is based on federal regulation.

## HANDLING TOOLS<sup>42</sup> AND EQUIPMENT

At the plant, it is appropriate to ask for help if you are using one of the below tools, and if safe use requires a second handler.



### Stretcher

A stretcher requires two people to gently roll the animal onto it. Handlers should hold/push at the flank and under the forelegs.

To prevent dislocation and bruising, the animal's legs should not be held (Photo courtesy of Ella Akin<sup>42</sup>).



### Sled

Tip the sled onto its side and roll the pig into the sled. A second handler may need to help hold the sled while the pig is rolled into it. The animal is more likely

to allow itself to be pulled in the sled if it is lying on its side rather than its stomach. If a pig is rolled onto its stomach it may stand up and jump out of the sled (Photo courtesy of Ella Akin<sup>42</sup>).



### Hand Cart

A cart can be modified with an enlarged platform and back board. The platform is slid under the pig or the pig is rolled onto the platform. The cart can

then be tilted back to move the pig. A second handler should be present to assist in loading and steadying the pig on the platform (Photo courtesy of Ella Akin<sup>42</sup>).



### Mechanized Equipment

If a skid-steer loader is used, the pig should be rolled into the bucket using the same techniques previously described.

It is recommended that two handlers be used, one to operate the machine and one to roll the pig into the bucket. Loaders should be equipped with a special lid attachment on the bucket to prevent the pig from jumping or falling out. As in all other methods, the pigs must be off-loaded by gently rolling or lifting them out



of the bucket. Loading pigs into the bucket using a wall, partition, or fence is not acceptable.

## MANAGING PIGS THAT ARRIVE DEAD AT THE PLANT (DOAS)

If pigs arrive dead at the plant, the transporter is responsible for identifying the pig and reporting it to plant personnel. Some packing plants will require that their personnel verify that the animal is insensible and that they help with alignment and removal of the animal.

How the DOA is removed may depend on the requirements of the plant. Some may require the use of a hoist system while others will require handlers themselves to move the pig out of the pig traffic right away. Some packing plants forbid the removal of DOAs from side doors and require removal from the tail of the trailer.

When moving DOAs, follow these protocols:

- Once pigs are unloaded, move the DOA to the designated area at the plant. If the truck must be moved to reach this area, close the back door.
- Remove the DOA from the lowest point on the trailer if possible.
  - Know that the risk of handler falls is possible when moving DOAs from the top deck.
- If a DOA must be removed from the top deck, pull the DOA to the door ledge and then push the pig the rest of the way out instead of hoisting the DOA out with the snare or shackle.
  - Debilitating injuries have occurred when DOAs are hoisted ranging from finger loss to severe falls as the handler works to loosen the snare from the hoisted pig as it is swung out.
- Move DOAs out of the way of pig traffic using a leg shackle with a T-bar handle, pig snare, or sled.
  - Take great care to ensure the snare or shackle is securely placed behind the rear hock of the DOA. Severe injury can occur if the snare or leg shackle slips off when pulling the DOA.
  - Use short pulls rather than great heaves when using a snare or shackle to move DOAs. If the snare or shackle slips, the handler may lose their balance and risk injury.
- Refrain from moving DOAs using hooks dug into the flesh of the animal.
- Consider using two or more people to move a DOA if it cannot be safely done alone.

CHAPTER 6

# BIOSECURITY



## IN THIS CHAPTER

Everyone involved in pork production, from producers and their employees to veterinarians and transporters, is responsible for making good decisions and taking actions that reduce the risk of disease introduction and spread. This chapter will take a closer look at the following:

- **The Big Picture**
- **The Transport Biosecurity Plan**
- **Biosecurity When Loading and Unloading**

## THE BIG PICTURE

Contamination of trailers, equipment and clothing/footwear with organic materials, including feces, and other bodily secretions, is a common part of pork transportation. These organic materials contain bacteria and viruses that have the ability to cause disease.

Good biosecurity begins with the understanding that everyone, regardless of their role in pork production, has a personal responsibility to do their part to maintain herd health. All movement of pigs, people, vehicles and equipment on and off a farm provides the opportunity for a disease to infect a herd. Those who become complacent represent one of the greatest risks to disease transfer. The more often a risky behavior is done, poor consequence will likely occur. The following diseases of swine can cause significant economic losses to pork producers.

- Porcine Reproductive and Respiratory Syndrome (PRRS)
- Swine Enteric Coronaviruses Diseases
  - Porcine Epidemic Diarrhea Virus (PEDV)
  - Porcine Deltacoronavirus (PDoCV)
  - Transmissible Gastroenteritis Virus (TGE)
- *Salmonella*
- *Escherichia coli*
- Dysentery (*Brachyspira*)
- Ileitis (*Lawsonia*)
- Foreign Animal Diseases (NOT currently in the U.S.)
  - Foot and Mouth Disease Virus (FMDV)
  - Classical Swine Fever (CSF)
  - African Swine Fever (ASF)

## THE TRANSPORT BIOSECURITY PLAN

Diseases like to hitch a ride, so handlers need to separate themselves from cross contamination.

The pathogens that cause disease in pigs (bacteria, viruses and parasites) can survive on almost all types of materials. Activities, such as walking into a packing plant or a buying station, increase the risk for disease spread because boots and trailers can become contaminated with pathogens. Assume every site touched is a risk, and handlers do not want to be the source of pathogen transfer wherever loads are picked up or dropped off.

Certain activities, such as attending county/state fairs or traveling overseas, pose an increased risk. Know your company and customers' downtime biosecurity requirements.

The objective of transportation biosecurity is to minimize the risk of disease transfer caused by truck and trailer, driver and associated equipment. This is specifically accomplished through a combination of biosecurity protocols including cleaning, disinfection, and drying of trailers and equipment. Assume any site contacted could transmit disease through you, and/or your tractor and trailer. These are some general guidelines:

- Ask about any required downtime prior to going to load pigs. All downtime requirements should be observed as required by loading and unloading locations.



- Ask where the Line of Separation is at the site to establish where you can contact the facilities. The Line of Separation is defined as the line between the area that is to be used by the transporter and the area to be used by daily farm personnel. The Line of Separation may change depending on if you are loading or unloading at a site.
- Cover up with protective gear (boots, coveralls, gloves) to minimize the risk of contamination. Manage any cross-over of the line with protective gear.
- Dispose of or properly contain any contaminated gear.
- Clean and disinfect any re-usable gear for the next site.
- Protect yourself and assume responsibility for the health status of your tractor and trailer.
- Prior to departing from a site, buying station or packing plant, all pests, debris, and trash should be removed from the cab as bug control is an important step to prevent pathogen transmission.

Remember that the incorporation, enforcement and level of biosecurity procedures may differ by farm site and management. The lack of biosecurity protocols does not mean biosecurity should be ignored. Handlers are responsible for the biosecurity of the truck, tractor and all associated equipment. A clean truck, trailer, and transporter go a long way toward reducing risk of disease spread and should be considered the best option in the absence of a defined farm plan.

Removal of all pig manure and used shavings is a critical first step in the process. Disinfectants are only effective on trailers and equipment that are free of all organic material. Drying is also a very important step to kill bacteria and viruses and helps maximize the benefit of disinfectants. Organisms like PEDV and TGE can survive in frozen water and still be able to infect a susceptible animal. Therefore, it is very important to remove standing pools of water in a trailer.

## DISEASE TRANSMISSION EXAMPLE

My family owns a trucking company. One morning, a driver was assigned to collect market pigs from two farms: one Porcine Reproductive and Respiratory Syndrome (PRRS)-negative site scheduled for a first-cut load-out and one PRRS-positive site scheduled for a final load-out. Our protocol was clear: load the PRRS-negative farm first and the PRRS-positive farm second to prevent contamination.

Because the PRRS-positive farm was closer, he decided to stop there first to save time and fuel. He then drove straight to the PRRS-negative site to finish loading the trailer. By reversing the farm sequence and ignoring the biosecurity protocol, the trailer potentially carried PRRS virus from the infected site into a previously negative herd.

Over the next several days, a veterinarian started monitoring and testing at the PRRS-negative farm due to the high risk of transmission. PRRS virus is known to survive in organic material and on surfaces, including livestock trailers. Cross-contamination is likely, especially without proper cleaning and disinfection between farms. We knew what was at stake if infection took hold and all remaining animals on the farm were now exposed or infected—reduced growth performance, increased mortality, additional veterinary costs and testing, and even the possibility of quarantine or losing PRRS-negative

status. The uncertainty and the fact that it was preventable were a wake-up call.

We immediately reviewed and retrained every transporter and handler on biosecurity, with extra emphasis on “clean-to-dirty” movement processes, and reevaluated protocols for trailer cleaning and disinfection between farms if deviations occur. We added a departure checklist that includes each site’s PRRS status and the next destination, and we put routing tools in place that lock the correct sequence and flag unauthorized changes. Our vet team and the staff at the PRRS-negative farm monitored pigs closely and had containment steps ready. We also made it clear that non-compliance can lead to re-certification or other disciplinary action, and we now audit routes and biosecurity regularly.

Convenience can’t outrank disease prevention. We learned our lesson: follow the plan, document it, and cross-check that everyone on the team understands and follows biosecurity protocols on every trip.

## BIOSECURITY WHEN LOADING AND UNLOADING

As part of the overall biosecurity plan, considerations must be made when loading and unloading pigs to reduce the risk of disease spread. Pay close attention to the following guidelines when executing the biosecurity plan.

### PREPARATION AND PLANNING

Since pathogens can survive in dirty trailers and equipment for an extended period of time, proper cleaning, disinfection, and drying are very critical for the prevention of pathogen spread.

### CLEANING

Proper cleaning prior to disinfection is a critical step for preventing the introduction of disease on the farm. All equipment, including the trailer, should be free of visible manure, shavings or dirt prior to disinfection. Different cleaning products and wash soaps are available to help break up the fats and other organic materials. Review these to make sure that they are chemically compatible with each other. The truck and trailer must be thoroughly cleaned, washed, disinfected and completely dried after being used and before being loaded again. Follow your customer's protocol for washing, disinfection, and dry times to help prevent disease entry.

## DISINFECTING

Disinfectants should be used on trucks and trailers after they have been cleaned because organic materials will reduce the effectiveness of most disinfectants. The following is a list of guidelines for using disinfectants:

- Disinfectants must also be chemically compatible with any cleaning product or wash soap that is being used. Different chemicals can either reduce the effectiveness of the disinfectant or produce a harmful chemical reaction when combined.
- It is also essential to follow label directions when using disinfectants to ensure the disinfectant is used at the proper concentration and temperature, and that the appropriate contact times are being observed.
- Failure to select and use disinfectants properly will decrease their effectiveness in disease prevention and can pose a risk to human health.

## DRYING AND DOWNTIME

Drying helps support the inactivation of disease agents. Heat delivered to a trailer at the appropriate temperature and over the right period of time can be effective against many swine diseases. Trucks and trailers should be cleaned, disinfected, and allowed to dry completely before being loaded with a new group of pigs





## EXAMPLE TRAILER CLEANING PROTOCOL

Note: Use of hot water for cleaning and sanitation of trailers can be important to optimize the removal of organic materials and to assist in pathogen reduction.

### Before Entering the Wash Bay

1. Identify the traffic flow for entry and exit of clean and dirty vehicles.
2. Ensure the bay is clean before the truck enters.
3. Scrape and sweep all manure, bedding, and debris from the cargo area and dispose of according to the wash bay protocols.

### In the Wash Bay

1. Remove vehicle trash from truck cab.
2. Allow vehicle to thaw, if necessary, before washing.
3. Turn on exhaust fan.
4. Put on rubber boots and coveralls.
5. Empty shavings bags, dirty rubber boots, coveralls, and gloves and place them in the designated locations (e.g., recycle bin, garbage, or laundry).
6. Position brooms, shovels, sort board, and paddles for washing.
7. When using winter panels, pull all panels off of the vehicle.

### Washing

1. If the tractor remains with the trailer, clean the tractor cab first and then close the doors while washing the trailer and other equipment. Whenever possible, clean the cab using compressed air on seats and water on the floor and pedals.
2. Disinfect the pedals and floor of the cab.
3. Clean other surfaces of the cab (steering wheel, shift lever, door handles, dashboard, etc.) using a clean cloth that is wet with disinfectant solution or disinfectant wipes.
4. Apply a pyrethrin insecticide inside the cab to kill any insects and close the tractor cab doors.
5. Thoroughly rinse the interior cargo area free of manure and shavings (rinse both decks even if both were not used).
6. Apply soap according to label directions to all interior surfaces of pig space working from the floor up.
7. Apply soap to the exterior of the trailer and the truck, including the trailer boxes. Do not let the detergent dry on any surface.
8. Working from the top going down, high-pressure wash the exterior of the trailer and truck first, then the trailer interior, including ramps, gates, crowd boards, brooms, shovels, dirty and clean boxes, and both sides of any winter panels.
9. Apply disinfectant, (see Appendix A), to all exterior surfaces and then apply to interior surfaces of the cargo area including ramps, gates, crowd boards, brooms, shovels, dirty and clean boxes and both sides of any winter panels. Allow the appropriate contact time per instructions on the disinfectant bottle (usually 10-20 minutes).
10. Before entering the cab to move the unit, remove the rubber boots and coveralls you are wearing and place in designated location or dirty box. Don't carry or place anything back into the truck.

### After Washing

1. Park the trailer on a slope to drain off excess standing water.
2. Use heat assisted drying where possible. If heat assisted drying is not available, the use of circulating fans can assist in the drying process.
3. Rinse and disinfect the hoses and floor of the wash bay area.
4. Return the hoses to the appropriate locations.
5. Turn fan off.
6. Change out of coveralls and place in dirty laundry.

## LOADING

Follow these basic load-out guidelines when loading pigs onto a trailer.

- Do not cross the established line of separation without protective gear that can be removed.
  - If unclear about the Line of Separation, ask! The transporter and handler should all understand where this transition point is prior to loading the first animal.
- Assume the Line of Separation is at the back door of the trailer unless told otherwise. It may also be at the barn door, the chute entry or a gate.
- When animals are being loaded for transport, handlers from the loading site move the animals up to the Line of Separation but do not enter the trailer.
  - The transporter handles the loaded animals only after they cross the Line of Separation and are on the trailer.
  - Transporters themselves never cross the Line of Separation.
  - The handlers never cross the Line of Separation. If handlers break protocol and cross the Line of Separation, they may only cross back to the other side of the Line of Separation after going through the usual biosecurity protocols to clean and disinfect.
- Handlers should clean and disinfect the load-out area according to the farm or site's Standard Operating Procedure (SOP) immediately after the transport vehicle has been loaded and departs the site.
  - Handlers may then only cross back to the farm/site side of the Line of Separation after going through basic biosecurity protocols.

Drivers should have different boots and coveralls to wear at the plant. Do not wear the same clothing worn at the plant into the truck cab or back to the farm.

## UNLOADING

Follow these additional guidelines to prevent the spread of diseases at packing plants and buying stations:

- Learn and understand the plant's specific restrictions for biosecurity before unloading animals.
- In order to avoid contamination of the cab of the tractor, use a garbage bag or tote lid as a barrier between the clean protective wear and the ground.
- Limit foot traffic on the dock/in the yards and use disposable boots or other methods to maintain biosecurity.
- Limit foot traffic on plant property outside of yards and use disposable boots or other methods to maintain biosecurity.
- The transporter handles the unloaded animals only while they are on the trailer before they cross the Line of Separation.
- Do not enter another transporter's trailer.
- Use your own equipment (i.e., snares, paddles, sort boards). Equipment can carry pathogens, so if you borrow equipment you may be more likely to transmit pathogens.
- Have clean equipment such as hats, gloves, shin-guards, etc. for each load in order to prevent spread of diseases back to a farm, even if the farm is completely depopulating.
- When finished unloading, remove dirty coveralls and boots and place in a separate garbage bag for disposal.
- Disinfect shoes and floor mats inside the truck prior to proceeding to the next farm to load pigs.



## EXAMPLE OF LOADING OR UNLOADING BIOSECURITY PROTOCOL:

### TRUCK CAB PREPARATION

1. Have available in the cab; clean coveralls, boots, an extra garbage bag, and other needed items (gloves, hat, shin-guards, etc.) individually organized per load (One clean set for every load) in a plastic tote or in a clean garbage bag. These may be disposable items for single use.
2. Put on disposable coveralls/boots prior to exiting the cab when delivering to a packing plant or buying station, (the facility and its biosecurity protocol will determine when you remove these disposable items).
3. When getting out of the cab, gather one set of clean equipment to be used for that load. Bring the appropriate paperwork for the final animal count and delivery to the customer.

### PREPARATION AT TRAILER ENTRANCE

4. Walk to the back of the trailer or by the side door and place a clean garbage bag or tote lid on the ground directly by the trailer entrance as a barrier between clean footwear and the ground. Place the clean set of clothing, boots and other items such as hat, gloves, etc. on the bag to prevent them from contacting the ground.
5. While standing beside the bag or tote lid, take off personal shoes and step on the clean bag or tote lid without touching the ground.
6. Put on coveralls, not allowing coveralls to touch the ground and then put on clean boots from the set you have pulled out. Gather up other items to take with you such as hat, gloves etc.
7. Step directly from the clean plastic bag or tote lid to the trailer side-door or back door without touching the ground. This establishes the back of the trailer as the Line of Separation.

### DURING ANIMAL HANDLING ON TRAILER

8. Animal flow must be one way only. Once an animal leaves the trailer it should never re-enter unless designated otherwise by herd management. During a multi-drop delivery, if an animal re-enters the trailer, the remaining animals are compromised. Contact the herd management if this happens for further direction.

Biosecurity requirements will vary. Know the customers' and packing plants' expectations of a driver before exiting the tractor cab.

9. Unload animals, observing the Line of Separation. Finalize the appropriate paperwork and give to the customer before exiting the trailer.
10. The driver should never cross the Line of Separation and enter the customer facilities.
11. The customer should never cross the Line of Separation and enter the trailer of the delivery vehicle (or the loading ramp if the ramp is provided with the trailer).

### FOLLOWING UNLOADING AND CLEAN-UP

12. Once finished with animal movements, exit out of the trailer. Step back on to the clean garbage bag or tote lid and place the used coveralls, boots and gloves into the extra garbage bag that is available. Dispose of any additional used items in the garbage bag. Place the garbage bag or tote box into the "dirty" supply box or leave it in the trailer for unloading. Used boots, gloves, and coveralls are NEVER to be worn in the cab of the truck. Do not leave any debris on the ground at any time.
13. Inside the cab, clean hands with a towelette or hand sanitizer. Place the towelette in a garbage bag.
14. Proceed to next drop point or the wash bay.



## RESOURCES

Resources pertaining to biosecurity and livestock production can be found online at [porkcheckoff.org](https://www.porkcheckoff.org) and at the National Biosecurity Resource Center at [biosecuritycentral.org](https://biosecuritycentral.org), where transporters can find guidance on boot disinfection; actively search for disinfectants by manufacturer, disinfectant class or disease; and locate truck washes by state. Additional information on biosecurity and disinfectants can be found online at Iowa State Center for Food Security and Public Health at [cfsph.iastate.edu/infection-control/disinfection](https://cfsph.iastate.edu/infection-control/disinfection) and online at the University of Minnesota Swine Disease Eradication Center at [vetmed.umn.edu/departments/centers-and-programs/swine-program/research/swine-disease-eradication-center](https://vetmed.umn.edu/departments/centers-and-programs/swine-program/research/swine-disease-eradication-center).

## ADDITIONAL RESOURCES:

Swine Health/Biosecurity Resources and Fact Sheets: <https://www.porkcheckoff.org/pork-production-management/biosecurity/>

Biosecurity Guide for Pork Producers within the PEDV Resource: <https://library.pork.org/media/?mediald=41A7CFB3-8856-4DE7-82216ADAF811B745>

Biosecurity for Today's Swine Operation: <https://extension.missouri.edu/publications/g2340>

Secure Food Supply Plans: [cfsph.iastate.edu/Secure-Food-Supply/index.php](https://cfsph.iastate.edu/Secure-Food-Supply/index.php)

Foreign Animal Disease Preparedness and Response: [cfsph.iastate.edu/Emergency-Response/fad-prep.php](https://cfsph.iastate.edu/Emergency-Response/fad-prep.php)

PEDV Viral Stability and Disinfectant Use as Compared to TGEV and PRRSV; University of Minnesota, Swine Disease Eradication Center: <https://www.albertapork.com/wp-content/uploads/2017/06/19.-PEDv-Minnesota.pdf>

Biosecurity of Pigs and Farm Security, University of Nebraska Lincoln, Extension EC289: [ianrpubs.unl.edu/sendlt/ec289.pdf](https://ianrpubs.unl.edu/sendlt/ec289.pdf)



CHAPTER 7

# EMERGENCY RESPONSE PLAN



## IN THIS CHAPTER

Even though the goal of each transporter is to get the animals to their destination safely and in a timely manner, risk factors do exist with each load transported. Transporters not only must make themselves aware of these risk factors, but they also must have a plan in place to deal with them if they should occur. This chapter will take a closer look at how to respond to emergencies by examining the following topics:

- **Transporter's Responsibilities in an Emergency**
- **Emergency Plans for Delays**
- **Emergency Plans for Accidents**
- **Encountering Activists**

## TRANSPORTER'S RESPONSIBILITIES IN AN EMERGENCY

Even in the event of an emergency, transporters have a responsibility toward the animals, the company and the U.S. pork industry. The transporter needs to:

- Be aware of and prepared to handle emergencies.
- Ensure the transporter's personal safety and an awareness of public safety.
- Respond to the situation professionally.
- Uphold the well-being and humane treatment of the animals.
- Protect company property (e.g., the animals, equipment).
- Project a positive perception of the company and the industry.
- Practice safe handling of animals.

## EMERGENCY PLANS FOR DELAYS

Ideally, pigs will arrive at their destination in a timely manner with minimal added stress. Unfortunately, during the movement of pigs,

many situations can arise that can cause a load to be delayed. These delays can include weather, traffic issues, motor vehicle accidents, road construction, mechanical breakdowns, or plant shutdowns. Remember, the goal of everyone involved in the scheduling process (producer, transporter, director of procurement, and dispatcher) is to minimize the time that pigs must remain on a trailer.

## PREVENTION

Some delays can be avoided if the transporter is prepared ahead of time.

- Investigate the travel route before departure to determine if road construction is in progress.
- Check the weather conditions on the route. Avoid driving during bad weather if possible.
- Perform routine maintenance and inspect the tractor-trailer before each trip keeping all proper records.
- If there are any mechanical or structural issues, repair them before beginning the trip.
- If the vehicle has just returned from repair, ensure all repairs were performed adequately.
- Avoid rush-hour traffic when possible.
- Listen to local radio stations and CB radios for traffic and road conditions along the route.

## PREPAREDNESS

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All transporters need to be prepared for what they will do in each situation previously listed. Preparedness may not only help avoid a delay but may also shorten the length of an unavoidable one.

- Understand and apply company policy on what to do in case of a delay.
- Become familiar with alternate routes in case of traffic delays or road construction.
- Have the contact numbers for the destination (e.g., plant, farm).
- Have tools/parts available on the truck to repair minor mechanical problems.
- Identify locations and contact numbers for auctions and fairgrounds located along the transport route where pigs could be unloaded during an emergency.



## IN THE EVENT OF A DELAY

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The well-being and safety of the animals must be considered at all times. It is the transporter's responsibility to do his or her best to keep the animals comfortable and safe:

- Constantly monitor the comfort and condition of the pigs.
- Follow protocol to protect animals from extreme weather conditions.
  - In cold weather, when possible, park the trailer in an area that provides protection from the wind. Add extra weather boards

if necessary and available, to keep wind or freezing rain off pigs.

- In high temperature conditions, when possible, park the trailer in an area that provides shade and allows for a breeze to pass through the sides of the trailer. If water is available, wet the pigs to keep them cool. If water is unavailable and weather conditions require wetting of the pigs, the transporter may be able to contact the local fire department to have them come and wet the pigs with water from a fire truck.
- Contact the origination and the destination contacts to inform them of the nature of the delay and allow them to determine the best plan of action for themselves and for the well-being of the animals.
- In the case of a mechanical breakdown of the tractor, determine the nature of the breakdown and estimate how long the repairs will take. If the repairs cannot take place at the site of the breakdown or if they will take an extended period of time, arrange for another tractor to be sent to take the trailer.
- Numerous factors need to be taken into consideration when determining how long pigs can safely be left on a stationary trailer:
  - Weather
  - Fitness of the animals
  - Age of animals
  - Availability of resources for livestock health (e.g., food, water, shade)
  - Location of the delay (e.g., rural area versus freeway)
  - Time of day
  - Safety of animals at current location (e.g., freeway, truck stop, etc.)
- If the problem is with the trailer, or if the unit is a straight truck, and it cannot be repaired on the road, the pigs must be transferred to another unit to complete the journey.
  - There are several considerations when transferring animals to another trailer:
    - Assess the safety of the location. If it is a heavy-traffic area or on a narrow

road, have the unit towed to a safe area for transfer if possible.

- Consider whether another semi-trailer can maneuver close enough to do an end-to-end load or if a portable loading ramp will be needed, requiring the pigs to be off-loaded into an open area and then reloaded.
  - If the pigs must be off-loaded and reloaded, ensure proper containment is available to hold the pigs between trailers.
  - Before any action takes place, call the local police or fire department for assistance with traffic.
- In the instance of plant shutdowns, keep in contact with the plant dispatcher. The processor will most likely communicate to producers and transporters that they need to postpone deliveries and prevent long waits at the plant when possible. In most instances, the plant may provide guidance as well as equipment to keep loaded pigs as comfortable as possible. The length of the plant shutdown will help determine the appropriate course of action.
    - For questionable shutdown time spans, create an emergency plan.
    - Locate the nearest location for unloading along the truck route.
    - Locate the nearest resource for food and water.
      - In the case of road construction, the transporter should investigate if there are any alternate routes. If there is concern about the well-being of the pigs, the transporter should contact the local authorities and explain the animal situation in an attempt to gain permission to move through or receive assistance to turn around.
      - If the delay is caused by bad weather or poor road conditions, the truck should be pulled over in a safe area, preferably where the animals will be protected from as much of the weather as possible. Park the truck as far away from other traffic as possible to reduce the risk of other vehicles hitting the unit.

## EMERGENCY PLANS FOR ACCIDENTS

Unfortunately, motor vehicle accidents involving livestock do happen. These incidents are extremely dangerous and stressful for the transporters, first responders and animals. By being prepared for an accident before it happens and understanding how to effectively respond to an incident involving livestock, the well-being and safety of all involved will improve dramatically. Economic losses can also be greatly reduced when everyone involved is prepared for an accident and they are able to respond in an efficient and effective manner.

## PREVENTION

Due to weather conditions, plant scheduling, transporter shortages and relocation distances, it is often necessary for livestock to be moved during the late evening and early morning hours. Road accident numbers have shown that though there are fewer transporters on the road between midnight and 6am, transporters are more likely to have accidents during this time period. Additionally, a study in Australia showed that fatigue is more of a problem on country roads than in towns or cities.<sup>43</sup> Other accident causes include transporter distractions, speed, poor driving habits and inadequate vehicle maintenance.

### Commercial Livestock Transportation Accident Statistics<sup>44</sup>

- 59% of accidents occurred between midnight and 9am.
- 27% of the accidents documented were swine. Of these:
  - 80% involved finished/market pigs.
  - 84% of the trailers rolled on the right-hand side.
  - 80% were single-vehicle accidents.
  - 85% were caused by transporter error.

## FATIGUE

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Fatigue management is the responsibility of both the transporter and management. Fatigue is defined by the loss of alertness, slower reflexes, drowsiness, falling asleep, poor memory, and irritability. It is caused by body-clock conflict, poor sleep patterns, long work hours, and poor-health factors.

### The following tips can help to prevent fatigue:

- Ensure sufficient sleep is obtained each day. Seven and 1/2 hours is commonly recognized as the normal amount of required sleep. A short night's sleep should be made up for the next night by sleeping a little longer. Transporters should work with management to provide a schedule that allows for the proper amount of sleep. The only cure for fatigue is sleep.
- Ensure a good sleep environment at home. Keep rooms cool, turn off the phone, wear earplugs and block out daylight with dark shades or a sleep mask.
- Stick to regular sleep and wake periods — even on days off.
- Eat a balanced diet and have regular meal times. Drink plenty of water and exercise. Regular medical check-ups are important.
- Pull over and contact the dispatcher and/or the plant to inform them of the situation if too drowsy to drive.
- If feeling drowsy, take frequent breaks to stop and stretch for five minutes. This is also a good time to do a quick check of the animals on board.



- Do not take over-the-counter stimulants to ease drowsiness.
- Keep the truck cab comfortable but not too warm. Heat may make a person feel tired. Allow fresh air into the cab and turn on the radio or play music.
- Learn to recognize the signs of fatigue:
  - Cannot keep head up
  - Eyes won't stay open or go out of focus
  - Drift over the center line or the shoulder line
  - Thoughts wander
  - Miss a road sign, exit or a gear
  - Don't remember passing certain landmarks or towns
  - See things that are not there
  - Reflexes begin to slow

## SPEED AND CARELESS DRIVING

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Posted speed limits should be observed and speeds adjusted for current road, weather and traffic conditions. Do not tailgate, play road games with other transporters, pass illegally or attempt to beat traffic lights or railroad crossings. Be aware of the hazards of driving on farm roads as they are often narrow, with soft shoulders that may collapse under the weight a heavy truck. Do not allow the truck or trailer to get too close to the edge of the ditch while driving down the road or turning in or out of driveways.

Take extra caution on highway entrance and exit ramps as erratic driving and cornering at high speeds can cause the animals to shift and the trailer to tip.

## TRANSPORTER DISTRACTIONS

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Distractions must be avoided at all times. This includes, but is not limited to, eating, drinking, talking on the phone, reading, texting, and reaching for items on the floor or across the seat. Abiding by a one-touch policy to send or receive phone calls can help to reduce distraction. It is recommended that drivers utilize Bluetooth

technology which is a hands-free media device that allows the use of cell phones while keeping your hands on the wheel and your eyes on the road.

## TEXTING WHILE DRIVING

Text messaging requires visual, manual and cognitive attentions from the driver and leads to increased distraction behind the wheel of a moving vehicle.<sup>45</sup> It is illegal to text message while operating a commercial truck. This also includes voice to text.<sup>46</sup>

According to a recent study, drivers are 23 times more likely to be involved in a crash when texting while driving than those who were not texting while driving. Sending or receiving a text takes a driver’s eyes from the road for an average of 4.6 seconds the equivalent — at 55 mph — of driving the length of an entire football field blind.<sup>45</sup>

## PREPAREDNESS

In order to be properly prepared for an accident, each transport vehicle should contain:

- Emergency contact sheet with 24-hour phone numbers for dispatch, destination point, and insurance companies
- Emergency warning devices (e.g., flares, emergency triangles)
- Camera
- Accident information sheet
- Company accident policy sheet/standard operating procedures sheet, if one exists
- Fire extinguisher
- Spill kit

Risk increases of cell phone tasks by heavy vehicles/trucks <sup>45</sup>	
Cell Phone Task	Risk of Crash or Near-event Crash
Dialing Cell Phone	5.9 times as high as non-distracted driving
Talking/Listening	1.0 times as high as non-distracted driving
Use/Reach for electronic device	6.7 times as high as non-distracted driving
Text messaging	23.2 times as high as non-distracted driving

## IN THE EVENT OF AN ACCIDENT

If uninjured and able to do so, the transporter should:

1. Call 911 if the accident occurs on a public roadway or if emergency assistance is required for an on-farm accident. Advise operator of:
  - The location of the accident.
  - The fact that you have animals on-board.
  - The status of any loose animals.
  - Any known hazards.
2. Set out emergency warning devices within 10 minutes of accident.
3. Call the designated company contact. If the company has a dispatch checklist for accidents, proceed through list. If not, inform the dispatcher of the location of the accident, if there are any injuries, condition of animals, position of trailer, number of vehicles involved and if first responders are on scene yet.
4. Call other designated contacts according to company protocol. These could include but are not limited to the insurance companies for the cargo and the vehicle, and the destination, and provide them with the same information.
5. If the tractor and/or trailer are damaged and unable to move, proceed to point 6 in this list. If damage is minor, the trailer is upright and there are no injuries, take photos and record names and addresses of other people involved and witnesses.
6. Herd any loose pigs from the road and

If approached by the media for an interview, refer them to the first responder in charge of the accident. The transporter must remember that at this point, he or she is the most visible representative of the company and pork industry and that the transporter should conduct himself or herself as such.

gather them in an area as far away from traffic as possible.

7. Locate accident reporting kit and camera. Take photos of accident as soon as possible. Photographs should include photos of road conditions, vehicle damage, trailer position, the overall accident scene, skid marks, curves, intersections and where the vehicle left the road (if it did).
8. Provide as much protection and comfort for the animals as possible.
9. When first responders arrive, the transporter should advise them of accident details including any human injuries, the status of any loose animals, any known hazards and the company's emergency response

plan. If available, the transporter should let the authorities know if a company rescue trailer and animal handling personnel are on the way and their estimated time of arrival. Transporters must respect the chain of command at all times.

10. If approached by the media for an interview, refer them to the first responder in charge of the accident.

**In case of a motor vehicle accident on the plant site,** notify a dock monitor, livestock management or security personnel of the situation. Packer will assist the transporters with calling the proper authorities if necessary to evaluate any damage. All accidents, no matter the seriousness, need to be documented while on the plant site.

## ENCOUNTERING ACTIVISTS

Some individuals or groups who are opposed to using animals for milk, meat, poultry and eggs are focusing efforts on the transportation



of livestock and poultry. This is potentially dangerous for drivers, animals, protesters, and company reputation. Below are recommendations for drivers if they encounter activists while transporting livestock.

- **Notify others:** If you see protesters at any point along your route or outside of the plant, immediately contact the company hot line or management point of contact (POC).
- **Avoid confrontation:** If you encounter angry, hostile protesters, stay calm and do not confront or retaliate against the protesters. Please immediately call the company POC. Company security staff or the local police should be the ones to diffuse any hostile situations. If you believe you are in imminent danger or at risk of injury or property damage, you should call 911 immediately.
- **Be careful:** Safety is a primary concern. Slow down and stop the vehicle if protesters are in your path.
- **Stay calm:** Keep in mind that your reaction is most likely being recorded, if not broadcasted live by these individuals or groups. Keep your cool and avoid interaction if at all possible.
- **Be cautious:** Individuals have been known to use false pretenses to try to gain access to plants and/or trucks. They may lie about who they are in order to get into your truck, even claiming they are law enforcement, government or company officials. Do not allow any unauthorized person to open, reach into or otherwise enter your truck, and demand credentials from anyone claiming to be in a position of authority. At truck stops or during rest stops, scan the area before you get out of your truck. If you see signs of suspicious activity, leave immediately. Also, be aware of individuals calmly approaching you who may be doing so to attempt to convince you not to take the animals to the processing plant. Don't engage in conversation as it may escalate. Depart as soon as possible.

## KEY REMINDERS

- Your safety comes first.
- Don't engage — avoid confrontation and interaction.
- Document incidents and report to your company.
- Your actions reflect on your company and industry reputation.

### PIG MOVEMENTS DURING A FOREIGN ANIMAL DISEASE (FAD) OUTBREAK

Once a FAD outbreak of swine is confirmed in the U.S., Federal and state animal health officials may enact stop movements for pigs moving to markets, harvest or for production purposes. When, where and how these stop movements apply and the criteria for the resumption of movements is at the discretion of animal health officials. It is likely when movements are resumed there will be additional enforced truck and transporter biosecurity requirements communicated to the industry.



## CHAPTER 8

# LAWS, REGULATIONS & AUDITS



## IN THIS CHAPTER

Transporters must understand and follow laws and regulations governed by federal, state and local authorities including the Department of Transportation (DOT), the United States Department of Agriculture (USDA), the Food Safety and Inspection Service (FSIS), and state animal cruelty laws. In addition, packers and dealers may have their own policies that must be followed. Transporters that violate policies or laws may have their transporting privileges suspended or terminated. This chapter will review:

- **Humane Methods of Slaughter Act**
- **Humane Handling And Slaughter of Livestock**
- **Transportation of Animals: 28-hour Law**
- **Audits**

## HUMANE METHODS OF SLAUGHTER ACT

The following list contains a few pertinent sections of the Humane Methods of Slaughter Act as described by the regulations in 9 CFR 313.<sup>47</sup>

### SEC. 313.1 LIVESTOCK PENS, DRIVEWAYS AND RAMPS.

Livestock pens, driveways and ramps shall be maintained in good repair. They shall be free from sharp or protruding objects which may, in the opinion of the inspector, cause injury or pain to the animals. Loose boards, splintered or broken planking, and unnecessary openings where the head, feet, or legs of an animal may be injured shall be repaired.

- a) Floors of livestock pens, ramps, and driveways shall be constructed and maintained so as to provide good footing for livestock. Slip-resistant or waffled-floor surfaces, cleated ramps and the use of sand, as appropriate, during winter months are examples of acceptable construction and maintenance.
- b) U.S. Suspects (as defined in §301 2) and dying, diseased, and disabled livestock (as defined in §301 2) shall be provided with a

covered pen sufficient, in the opinion of the inspector, to protect them from the adverse climatic conditions of the locale while awaiting disposition by the inspector.

- c) Livestock pens and driveways shall be so arranged that sharp corners and direction reversal of driven animals are minimized.

#### WHAT DOES THIS MEAN FOR YOU?

Your truck and trailer must be free of sharp objects or anything that could harm the pig (or you) during unloading. If the trailer is in disrepair and causing the pigs harm, the plant has the right to reject your trailer from returning to the plant until the issue is fixed.

### SEC. 313.2 HANDLING OF LIVESTOCK.

Once a vehicle carrying pigs enters an official slaughter establishment's premises, the vehicle is considered to be a part of that establishment's premises.<sup>48</sup> You will be observed as you handle animals at the harvest plant. The plant is responsible for the pigs and your actions, and is held accountable for what happens on site. This means the harvest plant can give you direction

and instruction when you are at the plant. You must respond when you are asked to do something by plant personnel. The animals within that vehicle are to be handled in accordance with section 313.2 of the Humane Methods of Slaughter Act.<sup>48</sup>

- a) Driving of livestock from the unloading ramps to the holding pens and from the holding pens to the stunning area shall be done with a minimum of excitement and discomfort to the animals. Livestock shall not be forced to move faster than a normal walking speed.
- b) Electric prods, canvas slappers, or other implements employed to drive animals shall be used as little as possible in order to minimize excitement and injury. Any use of such implements which, in the opinion of the inspector, is excessive, is prohibited. Electric prods attached to AC house current shall be reduced by a transformer to the lowest effective voltage not to exceed 50 volts AC.
- c) Pipes, sharp or pointed objects, and other items which, in the opinion of the inspector, would cause injury or unnecessary pain to the animal shall not be used to drive livestock.
- d) Disabled livestock and other animals unable to move.
  1. Disabled animals and other animals unable to move shall be separated from normal ambulatory animals and placed in the covered pen provided for in Sec. 313.1(c).
  2. The dragging of disabled animals and other animals unable to move, while conscious, is prohibited. Stunned animals may, however, be dragged.
  3. Disabled animals and other animals unable to move may be moved, while conscious, on equipment suitable for such purposes; e.g., stone boat.

#### WHAT DOES THIS MEAN FOR YOU?

There are rules and laws for how animals can be handled in a federally inspected packing plant. USDA inspectors are required to evaluate animal handling practices in the plant to make sure they are in accordance with the written regulation. This includes allowing pigs to walk at a normal calm walking pace, minimizing or eliminating electric prod use and utilizing other handling tools properly. The rules and laws also dictate how non-ambulatory animals should be moved and cared for.

### SEC. 313.50 TAGGING OF EQUIPMENT, ALLEYWAYS, PENS, OR COMPARTMENTS TO PREVENT INHUMANE SLAUGHTER OR HANDLING IN CONNECTION WITH SLAUGHTER.

When an inspector observes an incident of inhumane slaughter or handling in connection with slaughter, he/she shall inform the establishment operator of the incident and request that the operator take the necessary steps to prevent a recurrence. If the establishment operator fails to take such action or fails to promptly provide the inspector with satisfactory assurances that such action will be taken, the inspector shall follow the procedures specified in paragraph (a) or (b) of this section, as appropriate.

- a) If the cause of inhumane treatment is the result of facility deficiencies, disrepair, or equipment breakdown, the inspector shall attach a "U.S. Rejected" tag thereto. No equipment, alleyway, pen or compartment so tagged shall be used until made acceptable to the inspector. The tag shall not be removed by anyone other than an inspector. All livestock slaughtered prior to such tagging may be dressed, processed, or prepared under inspection.
- b) If the cause of inhumane treatment is the result of establishment employee actions in the handling or moving of livestock, the inspector shall attach a "U.S. Rejected" tag to the

alleyways leading to the stunning area. After the tagging of the alleyway, no more livestock shall be moved to the stunning area until the inspector receives satisfactory assurances from the establishment operator that there will not be a recurrence. The tag shall not be removed by anyone other than an inspector. All livestock slaughtered prior to the tagging may be dressed, processed, or prepared under inspection.

## **FSIS DIRECTIVE 6900.2 HUMANE HANDLING AND SLAUGHTER OF LIVESTOCK**

This directive informs the harvest plant inspectors of the requirements, verification activities, and enforcement actions for ensuring that the handling and slaughter of livestock, including disabled livestock. In addition, it provides instructions to harvest plant inspectors for conducting handling activities assessments randomly throughout their shift. Because the plant inspector uses this directive to assess humane handling and you, as a transporter, are considered part of the plant while on their property, this applies to you as well.

Below is the definition presented in the directive regarding the egregious inhumane treatment:

Egregious inhumane treatment: any act or condition that results in severe harm to animals, for example:

1. Making cuts on or skinning conscious animals;
2. Excessive beating or prodding of ambulatory or nonambulatory disabled animals or dragging of conscious animals;
3. Driving animals off semi-trailers over a drop off without providing adequate unloading facilities (animals are falling to the ground);
4. Running equipment over conscious animals;
5. Stunning of animals and then allowing them to regain consciousness;
6. Failing to immediately (or promptly) render

an animal unconscious after a failed initial stunning attempt (e.g., no planned corrective actions);

7. Multiple ineffective stun attempts (2 or more) that are due to one or more of the following establishment failures to properly handle or stun the animal:
  - a. Failure to immediately (or promptly) apply the corrective actions that demonstrates a blatant disregard for animal discomfort and excitement;
  - b. Failure to adequately restrain an animal;
  - c. Failure to use adequate stunning methods (e.g., inadequate air pressure, inadequate caliber, insufficient electric current) for the animal being stunned (e.g., species of animal, size of animal, etc.);
  - d. Poorly trained/untrained operator or inexperienced operator; or
  - e. Prolonged discomfort and excitement of the animal due to the inability to render it insensible/unconscious after the application of the immediate (or prompt) corrective actions.
8. Dismembering conscious animals, for example, cutting off ears or removing feet;
9. Leaving disabled livestock exposed to adverse climate conditions while awaiting disposition, or
10. Otherwise causing unnecessary pain and suffering to animals, including situations on trucks.

### **WHAT DOES THIS MEAN FOR YOU?**

The plant inspector uses this directive to assess humane handling and you, as a transporter, are considered part of the plant while on their property.

## TRANSPORTATION OF ANIMALS: 28-HOUR LAW

The following list contains a few pertinent sections of the Transportation of Animals statute from the U.S. Code that deals with the maximum time animals may be held in a transport vehicle without being unloaded for food, water and rest 49 USC Sec 80502.<sup>49</sup>

### SEC. 80502

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#### c) Confinement

1. Except as provided in this section, a rail carrier, express carrier, or common carrier (except by air or water), a receiver, trustee, or lessee of one of those carriers, or an owner or master of a vessel transporting animals from a place in a State, the District of Columbia, or a territory or possession of the United States through or to a place in another State, the District of Columbia, or a territory or possession, may not confine animals in a vehicle or vessel for more than 28 consecutive hours without unloading the animals for feeding, water, and rest.
2. Time spent in loading and unloading animals is not included as part of a period of confinement under this subsection.

#### d) Unloading, Feeding, Watering and Rest

Animals being transported shall be unloaded in a humane way into pens equipped for feeding, water, and rest for at least 5 consecutive hours. The owner or person having custody of the animals shall feed and water the animals. When the animals are not fed and watered by the owner or person having custody, the rail carrier, express carrier, or common carrier (except by air or water), the receiver, trustee, or lessee of one of those carriers, or the owner or master of a vessel transporting the animals:

1. Shall feed and water the animals at the reasonable expense of the owner or person having custody, except that the owner or shipper may provide food;
2. Has a lien on the animals for providing

food, care, and custody that may be collected at the destination in the same way that a transportation charge is collected; and

3. Is not liable for detaining the animals for a reasonable period to comply with subsection of this section.

#### e) Nonapplication

This section does not apply when animals are transported in a vehicle or vessel in which the animals have food, water, space, and an opportunity for rest.

#### f) Civil Penalty

A rail carrier, express carrier, or common carrier (except by air or water), a receiver, trustee, or lessee of one of those carriers, or an owner or master of a vessel that knowingly and willfully violates this section is liable to the United States Government for a civil penalty of at least \$100 but not more than \$500 for each violation. On learning of a violation, the Attorney General shall bring a civil action to collect the penalty in the district court of the United States for the judicial district in which the violation occurred or the defendant resides or does business.

FSIS inspectors have been instructed to identify livestock that appear exhausted or dehydrated upon arrival. They may ask the transporter or plant to provide documentation of transport duration and compliance with the 28-Hour Law.

Log books should be kept current. You should have enough remaining hours of service to reach the destination and to off load the pigs.

## AUDITS

Various industry audits have been developed to help ensure good animal well-being during handling, transport, and harvest. Pigs must be handled by well-trained people. Given that people can manage what they measure, several auditing systems have been put in place to assess (numerically) if there are people problems, animal problems, or a facility problem.

The Common Swine Industry Audit (CSIA) was developed to be a complete on-farm audit that includes animal handling and may include loading for transport. Animal handling will be demonstrated or reviewed with caretakers on-farm during and audit, and loading or unloading for transport must be evaluated if this event occurs during the time of the audit. It is strongly encouraged to schedule an audit during loading or unloading events. The CSIA requires all transporters to be TQA® certified. See Appendix page 71 for Common Swine Industry Audit criteria. The Meat Institute has developed audit criteria for animal handling and slaughter at the harvest plant. Auditors will evaluate trailers arriving and unloading at the plant as well as animal handling and slaughter in the plant. See Appendix page 73 for the Meat Plant Audit criteria.

## STATE REQUIREMENTS

In addition to the federal laws and industry standards outlined in this handbook, transporters and handlers should be aware that individual states may have their own animal handling and transportation requirements. It is the responsibility of all individuals involved in the handling and transport of pigs to be familiar with and comply with applicable state regulations.





# APPENDIX

# TRANSPORT CHECKLIST

✓ PREPARATION	✓ LOADING	✓ UNLOADING
<ul style="list-style-type: none"> <li><input type="checkbox"/> Fuel, oil and other fluids at appropriate levels</li> <li><input type="checkbox"/> Truck and trailer lights operational</li> <li><input type="checkbox"/> Tractor (inside and out) and trailer clean and disinfected</li> <li><input type="checkbox"/> Vehicle paperwork current including insurance and registration cards</li> <li><input type="checkbox"/> Load paperwork in order including pick-up and drop-off addresses, directions, and telephone contact information</li> <li><input type="checkbox"/> Weather-appropriate bedding available in trailer</li> <li><input type="checkbox"/> Water/cooling systems working in trailer (if appropriate)</li> <li><input type="checkbox"/> Vent holes, nose vents, slots covered/uncovered appropriate for weather</li> <li><input type="checkbox"/> Trailer in proper repair so as not to cause injury to animals or handlers</li> <li><input type="checkbox"/> Clothing available for transporter and appropriate for biosecurity conditions</li> <li><input type="checkbox"/> Phone numbers to contact in case of emergency or delay</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Instructions for entering site/ location are known including biosecurity protocols</li> <li><input type="checkbox"/> Bill of lading</li> <li><input type="checkbox"/> Health papers (if necessary)</li> <li><input type="checkbox"/> Truck, cab, trailer clean and disinfected</li> <li><input type="checkbox"/> Weather conditions accounted for</li> <li><input type="checkbox"/> Sort board/other handling tools ready and used properly</li> <li><input type="checkbox"/> Clean boots and clothing available</li> <li><input type="checkbox"/> Disinfectant available</li> <li><input type="checkbox"/> Container for dirty clothing and boots</li> <li><input type="checkbox"/> Loading conditions are safe for handlers and pigs</li> <li><input type="checkbox"/> Pigs are not crowded during loading or when in the trailer</li> <li><input type="checkbox"/> Pigs are not allowed back into facility once they enter the chute or truck</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Instructions for entering site/ location are known including biosecurity protocols</li> <li><input type="checkbox"/> Sort board/other handling tools ready and used properly</li> <li><input type="checkbox"/> Clean boots and clothing available</li> <li><input type="checkbox"/> Disinfectant available</li> <li><input type="checkbox"/> Unloading conditions are safe for handlers and pigs</li> <li><input type="checkbox"/> Pigs are not crowded when unloaded</li> <li><input type="checkbox"/> Pigs are not allowed back on the truck once they enter the chute</li> <li><input type="checkbox"/> Paperwork signed and copies delivered</li> <li><input type="checkbox"/> Container for dirty clothing and boots</li> </ul>

# FINISHING PIG LOAD-OUT ASSESSMENT

The following assessment has been developed for use during finishing pig load-out. It can be used as a tool to help identify areas of improvement in animal handling skills, equipment and facilities, and transport preparation. This assessment begins in the barn just prior to load-out and ends at the farm gate. When completed, any assessment results marked in the shaded boxes should be reviewed and addressed with the drivers and animal handlers.

Preparation	YES	NO
1. Valid TQA® certification for driver.		
2. Driver has the following records in their cab: emergency action plan, contact information for origination/dispatch, contact information for destination/dispatch, bill of lading, offload/rest plan if to be transported longer than 28 hours.		
3. Load crew is prepared and ready to load at scheduled time.		
4. Driver is prepared to load at scheduled time of pickup.		
5. Driver knows the scheduled delivery time.		
6. Does the driver leave within 15 minutes after loading?		
7. Load crew knows the plan for how to handle pigs that become non-ambulatory in the loading process.		
8. It is predetermined how many pigs (determined by trailer dimensions, pig weight and weather conditions) will be loaded onto the trailer.		
9. Driver is aware of biosecurity protocol of the site.		
Facilities/Equipment	YES	NO
10. Facilities (including alleyway, flooring, chute, and ramp) are in good state of repair so as not to cause injury to the pigs. Comment on areas:		
11. Trailer (including sides, flooring, ramps, and gates) is in good state of repair so as not to cause injury to the pigs. Comment on areas:		
12. Does the driver have the trailer boarded according to TQA® recommendations and plant policy?		
13. Does the driver know the plant requirements for boarding and bedding?		
14. Water is available for misting on the trailer, if necessary, due to weather conditions.		

Handling/Loading	YES	NO
15. Pigs are moved at a normal walking pace.		
16. Does every handler loading pigs have a panel?		
17. Are electric prods the only handling tool being used? Is the electric prod being used incorrectly? Are electric prods used in the pens?		
18. Are handling tools/equipment used correctly?		
19. Pigs are handled gently (no overuse, or improper use of electric prods; no loud noises and yelling; no moving pigs too fast; no moving too many pigs per group; no overcrowding pigs in chutes, ramps and alleyways; and no rough physical contact).		
20. Are any pigs that are ill, unable to walk, or significantly injured transported to market channels?		
21. Are there areas (i.e., lighting, shadows, contrast, temperature, transitions, wind, etc.) that cause pigs to balk during the loadout process? Comment on areas:		
22. Do more than 1% of the pigs handled fall during loading? Falling is defined as when a pig loses an upright position suddenly in which part of the body other than the limbs touches the ground.		
In-Transit	YES	NO
23. Driver has the ability to adjust trailer ventilation during the journey if necessary (boards are adjustable/removable, plugs are not),		
Willful Acts of Abuse	YES	NO
<p>24. Were any willful acts of abuse observed? Willful abuse is defined as acts outside of normally accepted production practices that intentionally cause pain and suffering including, but not limited to:</p> <ul style="list-style-type: none"> <li>– Prodding in sensitive areas (i.e., eyes, ears, genitals, rectum, nose).</li> <li>– Dropping or driving live animals from a suspended height.</li> <li>– Deliberate slamming of gates, doors, etc. on animals.</li> <li>– Purposeful driving of livestock on top of non-ambulatory or dead animals.</li> <li>– Malicious hitting/beating an animal.</li> </ul>		

## POTENTIAL VIOLATIONS

The list below includes examples of possible situations where there could be a violation of regulations/laws and possible plant policies concerning transport. **This list is not meant to be exhaustive.**

- Excessive physical contact with approved handling equipment on ambulatory or non-ambulatory pigs.
  - This includes aggressive hitting such as bringing driving aid over handler shoulder height, excessive number of contacts per pig and continually using both hands to hold driving aid to cause more physical force.
- Using approved handling equipment in a way that deviates from manufacturer's intentions. Examples include:
  - Violating the electric prod use policy. See Chapter 2 on proper prod use.
  - Modifying approved handling equipment in a manner that may cause undue injury to pigs, with the intent to use such equipment.
  - Using equipment to poke/prod sensitive areas (i.e., eyes, ears, nose, rectum, and genitals).
  - Using equipment to hit pigs in the face.
  - Throwing equipment in the path of people and/or pigs.
  - Overloading dock pens.
- Improper handling of ambulatory and non-ambulatory pigs. Examples include:
  - Hitting, kicking, pushing pigs.
  - Pulling pigs by any bodily appendage: ears, tail, head, legs, etc.
  - Intentionally driving pigs too many at a time/too fast, causing excessive piling/vocalization of pigs.
  - Intentionally driving ambulatory pigs over non-ambulatory and dead pigs.
  - Spraying pigs in the face with water.
- Running equipment over sensible or insensible pigs for any reason.
  - Examples of equipment that may be involved in this type of situation are trucks, trailers, tires and union loaders.
- Physically wounding any sensible pigs.
  - Examples of conditions that may cause wounds are obvious sharp edges in trailer, modified driving aids, and marring/wounding pigs with malicious intent.
- Driving pigs off semi-trailers over a drop off without providing adequate unloading equipment.
  - This includes pigs falling to the ground, dropping pigs from nose to the belly, trailer not aligned with dock properly and causing pigs to catch legs/trip/be injured.
- Leaving ambulatory and non-ambulatory pigs in adverse weather conditions while waiting to unload. Examples of actions that can eliminate this type of situation:
  - Water and fans to cool in hot weather.
  - Following facility Emergency Hot Weather Action Plan in hot weather.
  - Bedding and boarding in cold weather.
- Flagrant and intentional violation of bedding or boarding requirements.
  - This includes, but is not limited to, inclement weather (extreme heat/cold, humidity, high winds, heavy rain) resulting in increased DOA and non-ambulatory incidences and undue stress and discomfort to the pigs.
- Flagrant and intentional violation of Emergency Action Plan.
- Intentional misrepresentation of identity with TQA® status or driver's license.
- Delivering while under suspension or termination.
  - If a transporter is under suspension or termination, he/she will not be allowed to deliver pigs to or physically enter a packer facility for a predetermined time frame.
  - If a suspended/terminated transporter delivers pigs to a packer or enters packer property, the pigs will be off-loaded by plant personnel at the facility and the

transporter will be reminded of his/ her suspension status and asked to leave packer property immediately.

- Trailer in poor repair, faulty mechanical condition, or damaged equipment. Examples of conditions resulting in violations:
  - Worn tread plate/holes in flooring.
  - Sharp edges on side wall structure, ramps, rails, gates, etc.
  - Faulty gate and door locks.
  - No/improper interior trailer lighting when applicable.
  - Faulty/unstable ramps.
- Overcrowding trailers.
  - Exceeding stocking density regulations in normal weather.
  - Exceeding stocking density regulations in inclement weather (hot or cold), resulting in extreme vocalization, piling, heat stress, frostbite, N/As and DOAs.
- Intentional disregard for delivery schedules.
- Failure to comply with the following packer requirements:
  - Age Restriction Policy — no children
  - Cell Phone Usage/Recording Device Policy
  - Emergency Operating Plan
  - Motor Vehicle Operation — following posted speed limits
- Rude/abrupt behavior or language that does result in fear or the intent to cause bodily harm/injury.
  - This is subject to the interpretation of the packer.
- Any other condition, just cause or action that intentionally causes unnecessary pain and suffering to pigs, including situations on the truck, interactions with packer employees, or any guest on packer property, and/or security personnel.

## TRANSPORT/LOAD-OUT

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- Assessing the pigs' fitness for transport including ability to walk and injuries.
- The use of electric prods used as the primary tool for animal movement.
  - If electric prods are used, are they being applied correctly?
- Trailer loaded at proper density.
- Slips and falls of pigs during loading or unloading.
- Percentage of pigs being moved that receive an electric shock.
- Condition of the trailer.
- Trailer alignment with the loading/unloading area.
- Trailer preparation for weather conditions and phase of production during transport.

## WILLFUL ACTS OF ABUSE

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- Intentionally applying prods to sensitive parts of the animal such as the eyes, ears, nose, genitals, or rectum. Excessive prod use could qualify as a willful act of abuse. Electric prods must not be used on suckling piglets or on the day of weaning.
- Malicious hitting/beatings of an animal. This includes forcefully striking an animal with closed fist, foot, handling equipment (e.g. sorting board, rattle paddle, etc.), or other hard/solid objects that can cause pain, bruising or injury.
- Deliberate slamming of gates on animals.
- Driving pigs off high ledges, platforms or steps while moving, loading, or unloading (animals are falling to the ground).
- Dragging of conscious animals by any part of their body except in the rare case where a non-ambulatory animal must be moved from a life-threatening situation. Non-ambulatory pigs may be moved by using a drag mat.
- Purposefully dropping or throwing animals.
- Causing physical damage to the snout or tusks of a boar as a means to reduce aggression (this excludes nose ringing and tusk trimming).
- Failure to provide food, water, and care that



## THE COMMON SWINE INDUSTRY AUDIT (CSIA)

The transport and animal handling criteria that will be evaluated on-farm include:<sup>6</sup>

results in significant harm or death to animals. This includes the intentional failure to provide food, water or care that falls outside of normal husbandry practices and would reasonably be considered neglect.

- Malicious driving of ambulatory animals on top of one another either manually or with direct contact with motorized equipment (this excludes loading a non-ambulatory animal for transport).

# THE NORTH AMERICAN MEAT INSTITUTE

## MEAT PLANT AUDIT (VERSION 2021)

The transport and animal handling criteria that will be evaluated at the plant include:<sup>41</sup>

### PLANT TRANSPORTATION POLICY AND PREPAREDNESS FOR RECEIVING ANIMALS

- Plant has written animal welfare policy for transporters.
- Plant provides extreme temperature management tools (water, fans, etc.).
- Arrival management process minimizes waiting time at the plant.
- Emergency plans are in place for animals in transit.
- Written policy for immobile and fatigued animals and tools are available for handling.
- Acceptable handling tools are available and utilized as needed.
- Acceptable euthanasia tools are available.
- Maintenance records for euthanasia equipment, proper storage and employee training for euthanasia are kept.
- Gates in unloading area swing freely, latch securely, and have no sharp protrusions.
- Plant has non-slip flooring.
- Unloading area and ramps are in good repair (e.g., no broken cleats, holes or gaps).
- Plant has adequate lighting.
- Staff is available for receiving animals.
- Staff is properly trained.

### SET UP AND LOADING OF TRAILER

- Compartments are gated.
- Trailer is loaded at proper density.
- Incompatible animals segregated when required (e.g., boars and sows).
- Trailer is properly aligned with the unloading area to prevent extremities from being caught in gaps.

### TIMELINESS OF ARRIVAL OF THE TRUCK AND TRAILERS AND ANIMAL UNLOADING

- Note the time between trailer arrival and start of unloading.

### FALLS

- Count the number of animals that fall in the unloading area (all four limbs are on the unloading ramp or dock).

### ELECTRIC PROD USE

- Measure the number of times an electric prod was used in the unloading area (all four limbs are on the unloading ramp or dock) and the percent of pigs that were shocked.

### CONDITION OF ANIMAL

- Tally of non-ambulatory animals.
- Tally of severely injured animals.
- Tally of severely injured animals (above) that were severely emaciated.
- Tally of heat-stressed animals.
- Tally of severely lame animals.
- Tally of frostbitten animals.
- Tally of animals farrowing on the trailer.
- Total percent of all of the above.

### WILLFUL ACTS OF ABUSE

Any willful act of abuse/egregious acts is grounds for automatic audit failure. Willful acts of abuse include but are not limited to:

- Dragging a conscious, non-ambulatory animal.
- Intentionally applying prods to sensitive parts of the animal such as eyes, ears, nose, anus, or testicles.
- Deliberately slamming of gates on livestock.
- Malicious driving of ambulatory livestock on top of one another either manually or with direct contact with motorized equipment. (This excludes loading a non-ambulatory animal for transport.)
- Purposefully driving livestock off high ledges, platforms, or off a truck without a ramp. (Driving market weight or adult animals off a low stock trailer is acceptable.)
- Hitting or beating an animal.
- Animals frozen to the floor or sides of the trailer.

## GLOSSARY

**Ambulatory:** a pig that is able to stand unaided and can bear weight on each leg.

**Biosecurity:** practices that reduce the risk of disease introduction and spread.

**Dead on Arrival (DOA):** pigs that die before or upon arrival at the plant.

**Ethical principles:** U.S. pork producers' commitment to produce safe food, protect and promote animal well-being, safeguard natural resources in all of their practices, ensure their practices protect public health, provide a work environment that is safe and consistent with the other ethical principles, and contribute to a better quality of life in their communities.

**Euthanasia:** humane process whereby the pig is rendered insensible with minimal pain and distress until death.

**Handler:** anyone who is in physical contact with a pig and interacts with it in a manner that causes the pig to move — including transporters when they are physically moving pigs on foot instead of driving a vehicle.

**Fatigued:** a pig having temporarily lost the ability to walk but has a reasonable expectation to recover full locomotion with rest.

**Flight zone:** an imaginary circle around an animal that it considers its individual space.

**Food Safety and Inspection Service (FSIS):** a branch of the U.S. Department of Agriculture that is responsible for inspecting all pigs and sanitation levels at packing plants.

**Non-ambulatory:** a pig that is unable to stand unaided and bear weight on each leg.

**Point of balance:** located at a pig's shoulder; if a handler enters a pig's flight zone, the pig will move forward if the handler approaches from behind the point of balance; backwards if the handler approaches from in front of the point of balance.

**Transport losses:** refers to those pigs that die (DOA) or become non-ambulatory during handling or transport.

**Transporter:** individual animal handler who controls a piece of equipment that transports pigs including truck drivers, tractor drivers using a hog cart, etc.

**We Care® Initiative:** joint effort of the Pork Checkoff, through the National Pork Board and the National Pork Producers Council, that helps demonstrate that producers are accountable to established ethical principles and animal well-being practices.

**Willful acts of neglect or abuse:** acts outside of normally accepted production practices that intentionally cause pain and suffering; including, but not limited to, malicious hitting or beating an animal or using an electric prod in sensitive areas such as eyes, nose, anus, testicles, etc.

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