

Pig Behavior, Handling & Fitness

(from the National Pork Board Transport Quality Assurance Handbook)



1. Pig Behavior¹

Understanding basic pig behavior and body language will help contribute to a safe and positive experience for the pigs and the handler.



Basic Pig Behavior

Good animal handling practices start with the handler having a good understanding of pig behavior. A significant portion of a pig's behavior can be attributed to natural instinct and is further impacted by the age, gender, health status, environment and previous experiences of the pig. Understanding a pig's basic behavior can help:

- Facilitate animal handling
- Reduce stress
- Reduce risks to a handler's personal safety
- Reduce losses due to skin injuries, bruises, fatigue and even death

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

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 between pigs, from moment to moment for each pig, and with even minor changes in handler behavior and body language. The more threatening we are the greater the distance pigs want to keep from us. 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.

The pig uses its **point of balance** to determine which way to move away from the handler 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. Also 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.

A pig relies on their **sense of hearing** and smell to situate itself in its surroundings and uses sight to complement information gathered by these two senses.² The blind spot exists because a pig's eyes are on the sides of its head and a pig's field of vision is approximately 310 degrees leaving a blind spot directly behind it.³ 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. We 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. The figure at right 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.

Handlers inside barns and trailers typically work in conditions that are very different from those specified in the diagram:

- Groups instead of individual pigs
- No 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
- Other people involved during loading and unloading of pigs

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

- herd behavior
- the presence of additional people
- handlers' use of pig handling tools
- environmental influences

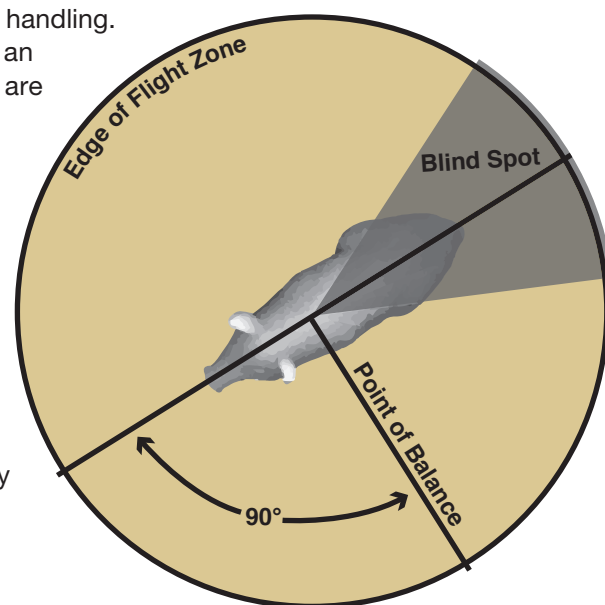
Each factor influences pig behavior independently and in combination with the others.

Pig Body Language

Pigs tell us 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 have their heads and ears turned or cocked, 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. However, when pigs become highly agitated, they may tightly bunch and refuse to move. Pig body language changes as they go from calm to highly excited. A good animal handler can read the pigs' body language and adjust their own 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 them
- Soften our body language to reduce both our threat and the distance pigs require
- Let pigs circle past us: our strongest pressure is in the direction we are facing
- Discontinue making noise
- Look away from them
- Reduce group size – this is dependent on several factors such as pig size, aisle, door or chute width, environmental influences



Pigs can communicate their level of fear with their heads, eyes, ears and body movements. Signs of increasing fear when we are moving pigs:

Pigs that are calm:

- Able to stay a safe distance from the handler and get release from handler's pressure
- Head and ears low, body relaxed
- Moving at a walk or trot, (or exuberant outbursts if excited but not scared)
- Attention mostly forward
- Any vocalizations are low pitched

Pigs showing mild fear or defensiveness:

- Handler is getting too close / not giving enough release from pressure
- Heads and ears rising
- Still moving away but with increasing attention towards the handler
- Flight zone is expanding
- Possible brief increase in speed
- If you release pressure the animal will calm down
- If you maintain or increase pressure, the animal may become fearful or defensive

Pigs showing heightened fear or defensiveness:

- Handler is too close / using too much pressure and animal is unable to get release
- Full attention is on the handler
- Pig's efforts to move away aren't working so it switches to alternative tactics: stop, back up, turn back, try to get past the handler or...
- Shut down and refuse to move – a defensive response different from being too tame or fatigued
- If you release pressure the animal will calm down but may require some time to do so
- If you maintain or increase pressure, it may escalate to extreme fear
- Bunching up and difficult to sort or separate

Pigs showing extreme fear or defensiveness:

- Panic
- Willing to run under, over, or through handlers and obstacles
- Scrambling, out of control movement
- High pitched vocalization
- Possibly leading to severe stress symptoms including death
- Bunching up and difficult to sort or separate



Herd Behavior and Group Patterns:

Pigs try to stay with other pigs for protection. Anytime we work with groups of pigs we get some form of herd behavior. The manner in which pigs display herd behavior is closely linked to their fear levels, what they are paying attention to, and available space.

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

- There is a calm pig response
- Pigs are drawn to the movement of other pigs
- Pigs' attention is on moving and staying with the herd
- Movement of front animals draws other pigs to join and follow
- Movement of animals coming behind drives front animals to continue moving forward
- Animals are loosely spaced
- The handler is moving with and not forcing the flow. Pigs are being given time and space to clear obstructions, corners, etc. and move out of their space before the handler moves into it



Disrupting flow: 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. Pigs may slow or stop flow when they encounter something new or unfamiliar such as changes in:

- Floor surface (e.g. transition from concrete alley to wooden chute)
- Footing/traction (e.g. wet, slippery chute or loose cleats)
- Temperature (e.g. moving from a warm building to an outdoor chute/ramp on a cold day)
- Lighting – pigs move best from dark areas to lighter areas, not from light to dark⁴

Other things that may be unfamiliar or distracting and cause pig flow to slow or stop include:

- People in their path or peripheral vision area
- Drafts or wind – pigs may refuse to walk into a draft that blows into their face
- Shadows
- A beam of light shining through a crack or opening
- Equipment, trash or other objects in their path or hanging on gating (e.g. feed cart in alley)
- Loud or sudden noises and activity where they can hear but not see the source
- Water puddles or drain grates
- Shiny/reflective objects or surfaces
- Change in color of equipment/gates
- Change in height of flooring, a step up into a pen or chute, etc.
- Moving or flapping objects
- Doorways that may change the width of the alley
- Other animals (e.g. pigs, dogs, cats)

Items on this list tend to cause problems for some handlers but not for others. Handlers who read their pigs, keep them calm, and give them time and space to flow tend to experience fewer difficulties. Take the time to minimize distractions in the environment before moving pigs and pay attention to what pigs are telling you. Signs of increasing fear indicate the handler needs to release pressure so pigs can settle down and continue flowing.

Most handlers have experienced frustration while unloading because someone outside the trailer is receiving, counting, auditing, tattooing, moving pigs, or doing other things, and blocking pigs from moving off the trailer. When pigs are being loaded onto a trailer, the transporter is the receiver. People bringing pigs to the trailer get annoyed when they see a face looking back or hands and tools in sight, moving around, reaching in, making noise, and stopping their pigs. The most helpful thing a transporter can do to speed up loading is to stay still, stay quiet, and stay out of sight until the last pig in the group gets past.

It is important that only one person pressure pigs at any time. When someone is behind a group of pigs driving them towards you, anything you do could encourage the pigs to stop and turn back. Pigs have to be moving to get to the trailer and our best tool is to let that flow keep moving them into the trailer. Any noise or activity from the handler risks:

- Drawing attention and stopping pigs that have already gone past
- Blocking pigs that are approaching so they stop moving or stop driving the front pigs forward
- More forceful handling from an annoyed loader and that in turn leading to more problems and longer load time

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

- Is a defensive response
- Kills movement which may be useful for ear tagging and vaccinating
- Is encouraged by anything that stops, crowds, traps or confuses pigs
- Often occurs when pigs are facing away from the handler, closely packed, and listening intently

An early warning is heads and ears rising and 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 towards pigs that are bunching encourages tighter bunching. One of our main priorities when moving pigs is to avoid having pigs bunch.

Handler's bubble: We can look at the safe distance pigs try to maintain between themselves and a handler 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

Pigs tend to move along the arc of the bubble. By watching where the bubble is taking pigs, handlers can adjust their position 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, you want to start animals that are facing the right direction and use their movement to pull others.



Handlers' position and bubble delivering pigs to the ramp.



Handlers' position and bubble delivering pigs away from the ramp.

Photos courtesy of DNL Farms LTD.

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.

Summary of Group Movement Patterns:

Group Pattern	Emotional State	Effect on Movement	Pressure/Release	Attention and Responding to
FLOW	Calm	Easiest movement	Being given release	Herd movement
BUNCH	Fearful or Defensive	Kills movement	Blocked from getting release	Handler
CIRCLE	Fearful or Defensive	Opposite direction of pressure accelerates	Taking release by circling out of handler's pressure	Handler

Taking stock: Many people equate “flight” with scared animals running away, but by keeping pigs calm they will move away in a calm controlled manner. The confined space of trailers and unfamiliar activities can make pigs defensive during loading and increase their tendency to either circle or bunch. Making pigs more anxious intensifies these responses and makes them harder to move. Instead of using fear to make pigs move:

- Use the least amount of pressure necessary to start movement then give release to:
 - let pigs stay calm
 - allow pigs to shift their attention away from you so they can move away from you or join the movement of other pigs.
- Use herd movement to pull pigs whenever you can
- Use your position and bubble to prevent bunching herd behavior and encourage flow

Turning back, balking, refusing to move, and trying to get past the handler are not displays of pigs’ defiance, excessive tameness, or ignorance. These are fear responses triggered by handlers who are not giving the pigs the time and space they need to respond safely. Many pig handling problems attributed to environmental factors are actually caused by handlers working too aggressively.

Summary

Using proven pig handling and movement practices will help contribute to a safe and positive experience for the pigs and the handler:

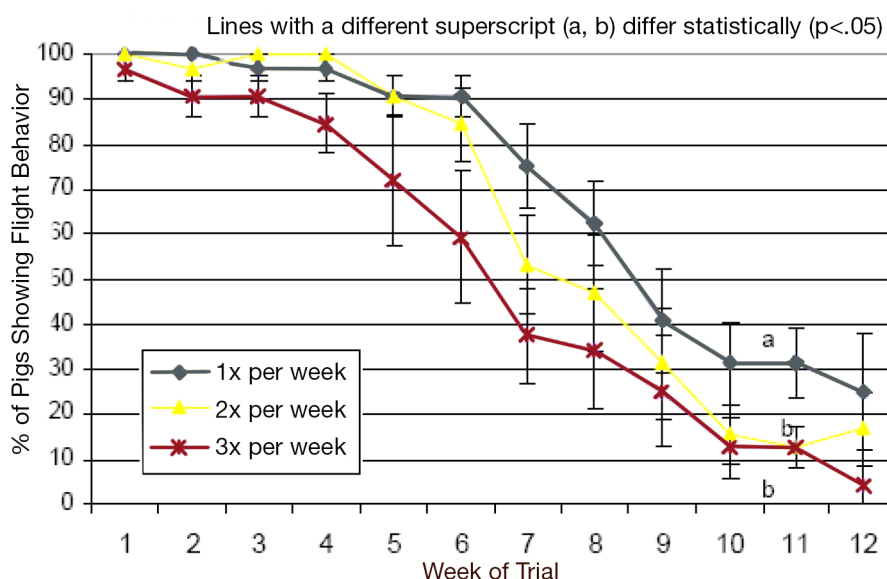
- Understand basic pig behavior to facilitate animal handling, reduce stress, reduce risks to a handler’s personal safety, and reduce pork loss due to skin injuries, bruises, fatigue, and even pig death
- Take time to minimize distractions in the environment before moving pigs



2. Handling¹

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. Common handler injuries when moving pigs are contact injuries, slipping and falling, head cuts, or bumps and bruises when on the trailer. Using proper handling practices and using proper handling equipment will help animal handling be a safe activity for all.

Walking Pens Reduces Flight Behavior of Market Pigs as the Handler Enters the Pen⁷



People: Pig Interactions

It is important to understand the potential effects that human interactions have on pigs and pig behavior. A person's intentions are not always understood by the pig and this may create fear and/or a negative reaction to a handler.⁵ Additionally, pigs that have had regular, positive interactions with people will typically be less fearful and easier to handle.⁶ 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.⁷ 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. This previous experience may relate specifically to a human interaction or it may relate to a piece of equipment such as a loading chute.

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. Research indicates that more than 20 percent of aggressively-handled market pigs can become injured, stressed or fatigued compared to 0 percent of those handled properly.⁸

Aggressive handling includes things such as:

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

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 neglect and abuse are defined as acts outside of normally accepted production practices that intentionally cause pain and suffering. This includes but is not limited to malicious hitting or beating an animal or using an electric prod in sensitive areas such as eyes, ears, nose, genitals or rectum. Dragging non-ambulatory animals and deliberately slamming gates on animals are also considered willful acts of abuse.

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 or being prohibited from returning to a facility.

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.

Handling BREEDING STOCK

Breeding stock (sows, gilts and boars) are the largest and most powerful pigs a handler will work with and 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.

Additionally, breeding stock are the most unpredictable animals, especially boars. 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 so 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. such as during piglet processing or weaning). In addition to their reproductive behaviors, pigs of breeding age require extra caution just because of their sheer body mass. Therefore, 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 and/or individual housing units can vary greatly between handlers. 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. There are many techniques that can be used based on what is known about pig behavior. For example, when trying to move a 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.

These large animals also can cause injury, to people or pigs, through sudden movement of their heads or by pinning the handler between the pig and a fixed object such as a gate or feeder. Often this type of injury is a result of the handler's arm or leg being in the wrong place at the wrong time. An example may be a crushing or pinching injury to a hand or foot when a pig closes a gate with its body.





Handling PIGLETS

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 he or she reaches 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 should be picked up by holding under the rib cage or by grabbing a 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. both 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.

Handling NURSERY AND FINISHER PIGS

Nursery and finisher pigs grow rapidly and quickly become too large to lift and/or hold. When moving nursery and finisher pigs, our primary tool needs to be the effective use of pigs' natural behavior and movement patterns as outlined in Chapter 1. By working with these patterns we make it easier for pigs to leave their pens and keep moving. We reduce the incidence of aggressive or agitated pigs and the safety risk they pose to handlers and themselves. That said, when an animal does get 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 is required to allow pigs to calm down and become easier to move.

We often move nursery and finisher pigs out of full pens where restricted space encourages them to circle around the handler or stop and bunch, and through narrower gates that don't allow all animals to exit at once. 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 from a different position we can encourage pigs to circle towards the gate and prevent pigs from stopping and bunching.

When sorting and moving these pigs, it is often the best practice to work in pairs and have one person work the pen gate while the other sorts the pigs with a sorting board. This is especially true when finished pigs are being sorted for load-out as the first pigs may be reluctant to leave their pen mates. When emptying entire pens, 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 and only one person applies pressure at any time. Always pay attention to where your position and bubble are taking pigs and adjust as needed.



When sorting individual pigs from a pen, start from the 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. 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 alone. 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. Both handlers moving at the same time will drive the chosen pig away from the gate. Once pigs are moving beyond the pen, give them space and keep them calm to encourage flowing herd behavior and reduce the incidence of animals stopping or coming back at you.

Handlers should rely on a sorting board instead of their bodies to turn or stop large finishing pigs. 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 sort board and legs.

Suggested Group Sizes

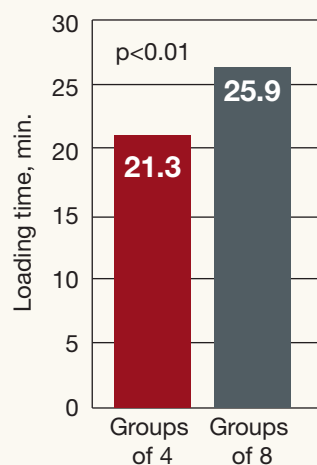
Pigs should be moved in groups large enough to be efficient for the production system, but small enough to be safe for the pigs and the handler(s). Groups of finished pigs and breeding stock should be small enough so that the handler can maintain control of all of the pigs in the group so handling interventions can be applied to the pigs not moving. The handler should always remember that using too much pressure or by crowding the rear pigs can stop the movement of the front pigs. **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.**

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.*

When a farm moved 8 pigs in a group vs. 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 vs. 8 pigs reduces losses due to dead at arrival and nonambulatory pigs by half.⁹ Moving pigs in groups of 5 had lower heart rates compared to large groups.¹⁰ 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 and ultimately leads to a faster load time. Getting this number correct protects the pig and protects you.

Figure 1: Effects of group size during loading on loading time.*



*Refers to the amount of time required to load a trailer deck (n=87 pigs)

Figure 2: Effects of group size during loading on non-ambulatory pigs at the farm.

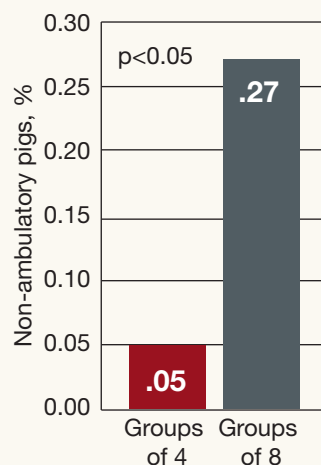
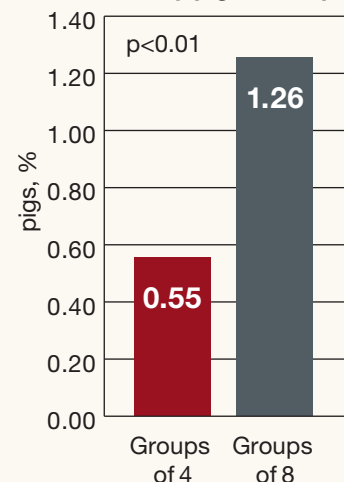


Figure 3: Effects of group size during loading on DOAs and nonambulatory pigs at the plant.



Handling Tools/Equipment

There are many different pieces of handling and sorting equipment on the market, or that can be easily made on the farm, to help you sort or move pigs in a safe, humane and efficient manner.



Handling equipment is effective by providing 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 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.

Electric Prods

Electrical prod use by handlers should be a last resort to move pigs. A farm may choose to load pigs without use of electrical prods.¹¹ Before using an electrical 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

If electrical prods are used:

- Tap pig with the wand without using shock (realize any use of electric prods in most packing plants are not tolerated)
- Never use an electric prod in a pen when moving pigs towards an alleyway.¹² This is unnecessary for we have many other tools that more effectively maneuver pigs in the pen such as sort boards.
- Never shock a pig in a sensitive area including eyes, ears, nose, genitals or rectum
- If it is necessary to use a prod, it should be applied to the back of the pig behind the shoulder.¹³ If you shock the pig in front of the point of balance, the pig will move backwards.
- Duration of the shock should not exceed 1 sec
- Count to 5 before administering any additional taps or shocks
- The pig should be allowed time to respond before another shock is given. If you have already delivered 2 shocks to an individual pig, STOP.

Use of electric prod elevates stress levels in pigs more than other forms of moving pigs. Research shows that even minimal electric prod use changes blood lactic acid levels and also impacts meat quality. This is why many packers do not allow use of electrical prods to unload pigs. Research also shows that aggressive handling with electrical shock can increase fatigued and non-ambulatory pigs.^{8,14}

Impact of Aggressive Handling on Incidence of Pigs Becoming Non-Ambulatory.¹⁵

	Gentle	Aggressive – No Electric Prod	Aggressive With Electric Prod
% of pigs showing signs of stress	2%	15%	34%

Electric prod use **may** be appropriate to stimulate movement of a group of pigs that have piled or bunched in a doorway or turn where the lead pig will not move. In this circumstance, when shock is applied, the lead pig being tapped with the shock typically jumps 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 jumps back, this is where the handler must be careful that his choice to shock once doesn't turn into a series of shocks to all pigs in the group. Allow time for the group to feel the relief of pressure by the lead pig leaving. 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 a cool breeze there? 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 shock at that point?



Acceptable Equipment to Use When Handling Pigs

Sorting Board/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 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.



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

An electric prod should be the tool of last resort. It should only be used when absolutely necessary and only following strict guidelines as previously described. Handlers should not constantly carry electric prods. It should be put away after it is used to move a pig.



Safe Animal Handling Practices

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, slipping and falling, head cuts, or bumps and bruises when on the trailer. Handler scrapes, bruising and falls are some 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, gating can all contribute to worker hand and limb injury. Handlers must remain aware of their environment to avoid injury to self.

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 64.¹⁶ New handlers need training to understand how to best protect themselves. Even handlers who have years of experience must work to continue to wear safety gear and work at an appropriate pace to prevent injury.

Personal Protective Equipment (PPE)

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 is a pair of safety-toed boots and a sorting board. Handlers operating inside a truck/trailer should also consider wearing knee pads and/or shin guards and a bump helmet or hard hat to protect themselves from possible injury due to contact with the trailer's surfaces. For handlers entering the trailer, head injury is the most common injury reported. Wear your hard hat to avoid head cuts, bumps, and bruises.

All handlers should also consider using these PPE items, depending upon the hazard assessment and company protocols:

- Dust mask
- Eye protection
- Hearing protection
- Gloves
- Sort boards
- Shin guards
- Knee pads
- Hard hats





DOs and DON'Ts of Moving Pigs

1. DO prepare the barn for movement by removing visual gaps between pens and distracting elements.
2. DO walk pens daily.
3. DO move pigs in group sizes appropriate for the facilities.
4. DO move pigs at a normal walking pace.
5. DO pay attention to the eyes, ears, and body position of the pigs and adjust your position accordingly.
6. DO use animal handling tools to facilitate calm pig movement. Minimize or eliminate the use of electric prods.
7. DO wear proper personal protective equipment to prevent injury.
8. DO NOT use continuous noise when moving pigs.
9. DO NOT crowd the space of the rear pigs and draw the lead pig's attention away from the flow.
10. DO NOT use rough physical contact when moving pigs. Willful acts of abuse are unacceptable.

Summary

How you choose to communicate with the pigs you move effects their behavior and meat quality:

- Walk pens on a daily basis
- When moving pigs, act calmly and avoid sudden movement, loud noises, and other actions that may frighten or excite pigs
- Move pigs at their normal walking pace

As handlers:

- Understand basic handling protocols for certain sizes and types of pigs
- Move the correct group size for the type of pigs being handled
- Understand handling equipment and when to use these tools so they are effective
- Minimize or eliminate electric prod use when loading pigs
- Understand personal protective equipment for loading, transport, and unloading

5. Fitness of the Pig

Fitness to Transport

It is the position of the National Pork Board that any pig unable to walk, is ill 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. Any pig that becomes fatigued should be moved to a resting area in an appropriate manner. A fatigued pig is defined as having temporarily lost the ability to walk but has a reasonable expectation to recover full locomotion with rest. A resting area helps enable recovery by minimizing competition for feed and water and provides the opportunity for monitoring.

All pigs that are scheduled for transport should be evaluated by a handler for fitness to travel. If a pig is found to be unfit, it should not be loaded. Instead it should be segregated for treatment or humane euthanasia.

The following list provides some examples of animals that are unfit to be transported, including, but not limited to:²⁵

- 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 which would be in the final 10 percent 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



Fitness Concerns

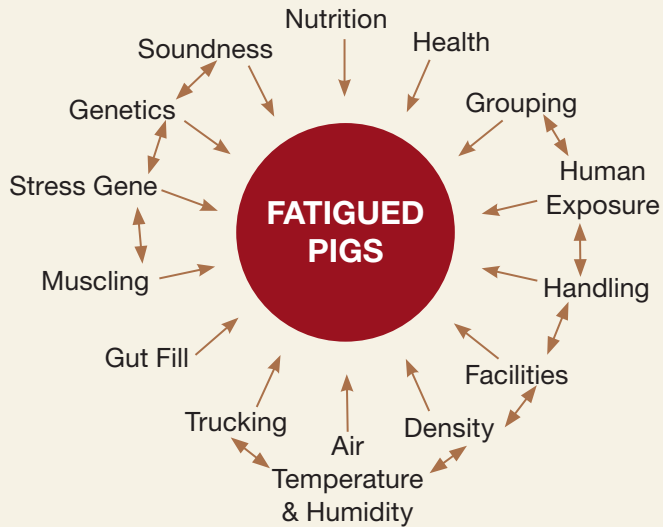
Loading and unloading processes can be stressful events in the life of a pig. As described in Chapter 2, inappropriate handling techniques (aggressive handling), causing excessive stress and muscle exertion during loading and/or unloading, can exacerbate the stressfulness of this situation and potentially cause serious health problems and even death.²⁶ 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 an acid-base imbalance due to excessive muscle exertion which makes the blood more acidic in nature. This condition is commonly referred to as metabolic acidosis and can cause pork quality defects resulting in meat that is of low quality and of significantly less value to the industry than normal pork.



Factors that can lead to fatigued pigs



This diagram illustrates many of the contributing factors that can lead to injured, stressed or fatigued pigs. Take note of the factors that can be controlled by the producer, handler or transporter. Each of these factors can be controlled or manipulated by one or more persons involved in the handling and movement of the pigs.

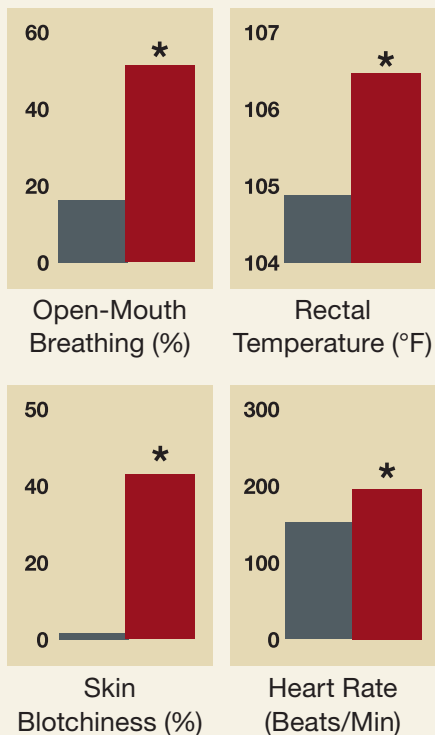
When a pig experiences stress during handling or transport, it will display open-mouth breathing, skin discoloration or both. If the stress is not removed or if additional stressors are introduced, the pig will become reluctant to move, make abnormal vocalizations, develop muscle tremors, or some combination of these signs. At this stage, the pig may become overwhelmed by the accumulation of stress, in which case the pig will collapse and become nonambulatory, and, in extreme cases, death may ensue.²⁷ Therefore, transporters and handlers must be able to identify the following signs of stress and take the appropriate action(s) when needed.

- Open-mouth breathing (panting)
- Vocalization (squealing)
- Blotchy skin
- Stiffness
- Muscle tremors
- Reluctance to move

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

The graphs at left depict physiological differences between pigs handled gently and aggressively. Gentle handling consisted of moving pigs at a slow and calm pace with a plastic cane, whereas aggressive handling involved moving pigs rapidly with electric prods⁸.

Physiological differences between pigs handled gently and aggressively



Gently Handled

Aggressively Handled

* Significantly Different ($P < 0.01$)

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. This pig should be attended to immediately or it will die. Do not make this pig move, allow it to rest. Gently sprinkle the animal with cool water. Do not pour large amounts of cold water on the pig as the shock may kill it.

Porcine Stress Syndrome (PSS)

Porcine Stress Syndrome is an inherited disorder that can occur in pigs that carry the halothane gene. Animals with this genetic defect are extremely sensitive to stress and must be handled with extra care. 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.

Managing Ill, Injured or Fatigued Pigs

Prevention, preparation and prompt action are keys to the proper handling of pigs. What causes a pig to become a fatigued pig is not well understood although it is known that good production practices, along with proper handling, reduce the incidence of fatigued pigs.

Prevention and Preparation

- Pigs that are ill, injured or fatigued must be handled in a humane manner
- Proper handling and movement of ill, injured or fatigued 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
- A resting area can help ill, injured or fatigued pigs recover by minimizing competition for feed and water and provides the 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.

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