

Pig Handling Techniques and Options to Maximize Productivity

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Sources of Information on Handling

- Trucker Quality Assurance (TOA) program
<http://www.pork.org/Producers/TOA/TOA.aspx>
- Pork Information Handbook (PIH) and Pork Information Gateway (PIG)
<http://www.porkgateway.org>
- Temple Grandin webpage
<http://www.grandin.com>



Importance of Good Animal Handling Techniques

- Ensure animal welfare
- Better utilization of time and resources
- Maximize animal productivity
 - Reproduction
 - Growth
- Improve worker well-being
- Avoid problems in meat quality

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Handling Pigs

- Handling is conducted for specific reasons
 - Movement between barns for different phases
 - Redistribution into larger or different pens
 - Weighing
 - Medicating animals
 - Transport to market

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Use Animal Behavior and Instincts to Move Hogs

- Understanding a hog's natural instincts will help you use proper handling and management techniques
 - Facilitate handling
 - Reduce stress
 - Enhance handler safety
 - Improve animal welfare

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Hogs Have a Strong Natural Urge to Escape

- Pigs have wide-angle vision
- Small visual gaps may cause a hog to try to escape
 - Pens, alleys, ramps, side gates, chutes
- Hogs often injure themselves when trying to escape!



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Hogs Have a Natural Tendency to Follow Each Other

- Wish to maintain visual and/or body contact with other pigs
- In double runway chutes, hogs move up ramps side by side
 - Double chutes: 34" to 36" wide
 - Single chutes: 16" – 18" wide
- Move pigs in small groups (3 – 5 at a time)
 - Direct the first hog in the right direction
 - Hogs will naturally follow one another



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Hogs Are Easily Frightened or Distracted

- Watch for and remove:
 - Dangling chains
 - Loose ramps and boards
 - Slippery floors
 - Extreme bright lights and darkness
 - Loud noises
 - Spilled feed
 - Air drafts



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Conditions that Frighten Hogs

- Shadows
- Water puddles
- Drain gates
- Shiny objects
- Flapping/moving objects
- Clothing hanging on fences
- Dogs or other animals
- Sunlight shining through a crack or hole
- Sudden changes in the color of equipment



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Excited Hogs are More Difficult to Move than Calm Hogs

- Improper use of electric prods can cause severe stress, heart attacks and death
 - Should be avoided or absolutely minimized
 - Never prod in sensitive areas
- If regular use of an electric prod is needed, you should reevaluate your handling procedures and facilities

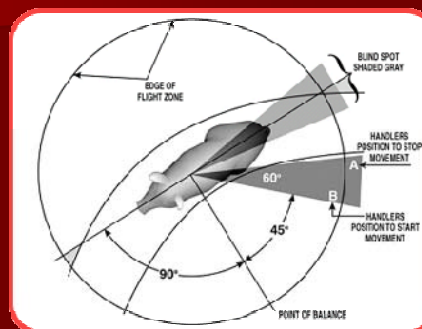
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The Flight Zone and Point of Balance

- Will help you move animals more easily
- Flight zone is the animal's personal space
 - Size is determined by the wildness or tameness of the animal
 - Completely tame animals have no flight zone
 - When you enter the flight zone, the animal will move away
 - Stand at the outside of this zone

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The Flight Zone and Point of Balance



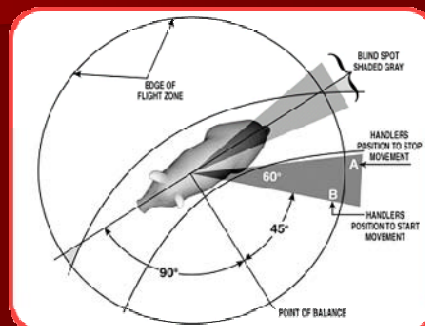
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The Flight Zone and Point of Balance

- Point of balance is at the animal's shoulder
 - Animal will move forward if handler stands behind point of balance
 - Animal will back up if handler stands in front of point of balance
 - Common mistake: attempting to move animals forward while standing in front of point of balance

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The Flight Zone and Point of Balance



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Aggressive Handling

- Can lead to injured, stressed, or fatigued hogs
- Speculation is that aggressive handling costs the U.S. Pork Industry millions of dollars annually (Ellis et al.)



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Aggressive Handling

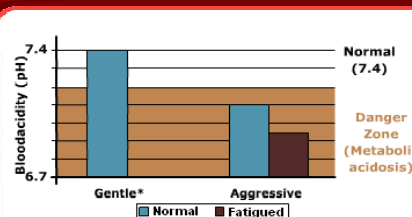
- Overuse of electric prods
- Loud noise and yelling
- Moving hogs too fast
- Moving hogs in large groups
- Overcrowding on the truck

Stress During Loading and Unloading

- Aggressive handling during this stressful event can further exacerbate stress-related problems
- May lead to "metabolic acidosis"
 - Strenuous exercise or stress can increase glycogen utilization in muscle tissue, increasing subsequent production of lactic acid
 - Lactic acid accumulation can lower muscle tissue pH, resulting in PSE pork.

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Stress During Loading and Unloading



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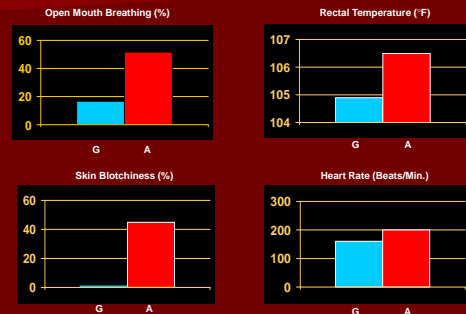
Stress During Loading and Unloading

- Signs of excessive stress and/or muscle exertion:
 - Open mouth breathing
 - Vocalization
 - Blotchy skin
 - Stiffness
 - Muscle tremors
 - Increased heart rate
 - Increased rectal temperature



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Stress During Loading and Unloading



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Handling Tips

- Patience, patience, patience
 - Use a gentle demeanor
 - Calm, deliberate movements
 - Low noise
 - Positive physical interactions
 - At least weekly, prefer daily
 - Think like a pig

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Effect of Handling on Pig Growth Performance

Traits	Handling treatments		
	Pleasant	Minimal	Negative
Hensworth (1981)			
Time to interact, s	119	--	157
Growth rate, lb/d	1.56	--	1.47
Gonyou (1986)			
Time to interact, s	73	81	147
Growth rate, lb/d	1.97	1.94	1.84

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Effect of Stockperson Behavior on Pig Performance

Trait	Control Farms	Trained farms
Positive attitude score	89.2	102.9
Negative handling, %	55.8	38.6
Pigs born/sow/yr	22.2	23.8

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Use Lighting to Your Advantage

- Pigs are very sensitive to sharp contrasts of light and dark
 - Lighting should be bright, but evenly diffused
 - Pigs reared in enclosed buildings may balk at full daylight
 - Use lamps to illuminate areas into which you want the pigs to move
 - Lamps must not shine directly into eyes of approaching animals

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Be Aware of Changes in Flooring or Walls

- Changes in flooring type or texture or wall color can cause pigs to refuse to move
 - When transferring from metal/plastic floors to concrete, allow 30 minutes to become accustomed to new flooring
 - Ensure non-slip floor surface



Reduce Excitability in Pigs

- Reduce excitability in pigs by:
 - Providing toys
 - Providing extra contact with people
 - Prefer daily contact
 - Playing a radio in the building
 - Effectiveness dependent on type of housing, genetics, husbandry, procedures, and other factors

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Use Appropriate Sorting and Handling Equipment

- Lightweight sorting boards or panels



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Use Appropriate Sorting and Handling Equipment

- Nylon flags
- Witch's/Matador's Cape



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Use Appropriate Sorting and Handling Equipment

- Shaker paddles



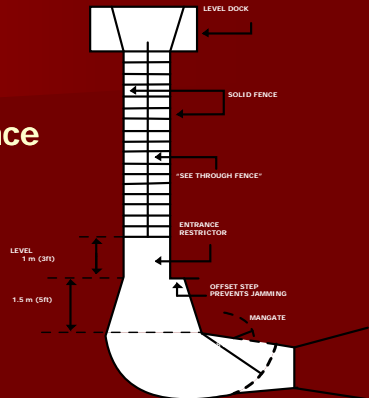
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Alleyway Design and Maintenance

- Pigs will load onto trucks better if alley extends outside the building for at least 15 ft
- Alleys that are 34" to 36" wide are more conducive to easy hog movement than 24" alleys
- Pigs will move more easily if last 16 ft of alley by door is covered or solid

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Chute Design and Maintenance



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Ramp Design and Maintenance

■ Slopes on ramps

– 25 degrees or less on adjustable ramps

Adjustable (25°)

– 20 degrees or less on nonadjustable ramps

Nonadjustable (20°)

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Ramp Design and Maintenance

- Concrete ramps should have steps & non-slip surfaces
- Adjustable ramps for market hogs should have cleats spaced eight inches apart.
 - Closer together for smaller pigs
- Keep ramps in good repair
 - Maintain moving parts such as pulleys and cables
 - Replace broken or missing cleats



Premium Standard Farms Example

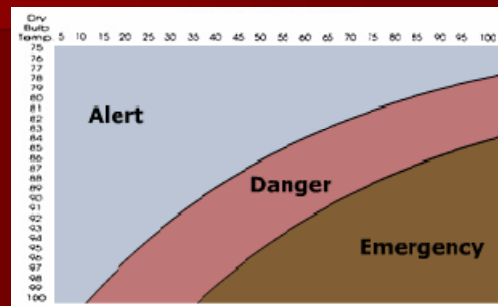
- Loading angle = 6/17°
- Dual Pig Movement Alley
 - Separate human return walkway
- Extendable pivoting end sections
- Seals tightly with barn entryway
- Steps use epoxy with grit
- Industrial rope lighting
- Concrete epoxy sidewalls
 - Rhino linings to deflect light

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Poor Chute Design



Transportation Guidelines



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Recommended Transport Space Requirement			
Average Weight (lbs.)	Number of Hogs Per Running Foot of Truck Floor Normal Weather		Square Feet Per Head
	Truck or Trailer Width (Inches)		
	96	102	Normal Weather
50	5.23	5.56	1.53
100	3.44	3.66	2.32
150	2.71	2.88	2.95
200	2.30	2.44	3.48
250	1.88	1.99	4.26
300	1.67	1.77	4.79
350	1.45	1.55	5.48
400	1.25	1.33	6.39

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Transportation Guidelines

- For longer trips (> 3 hrs), increase space requirements by 15% to 20%
 - Market wt pigs will remain standing when trip is under 3 hours
- During hot weather, when the Livestock Weather Safety Index is in the Danger or Emergency Zone, load 15 to 20% fewer pigs

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Transportation Guidelines

- In summer
 - Use wet shavings or sand for bedding, never straw
 - Above 80°F, sprinkle pigs with water immediately after loading
 - Do not let truck stand stationary for extended periods of time
 - Wet pigs again if necessary
 - Consider delivering or transporting pigs in the early morning or overnight when temperature and humidity levels reach danger levels



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Transportation Guidelines

- In winter
 - Prevent frostbite by using deep bedding of straw or shavings
 - Straw recommended when temp < 10°F
 - On aluminum sided trailers, block at least half of the ventilation holes or install solid panels
 - Close nose vents



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Feed Withdrawal

- Pigs with full stomachs are more likely to die during transport
 - Fasting may reduce incidence of PSE pork
 - Reduces potential contamination problems at the packing plant
- Pigs should be fasted 6 – 10 hours before loading when slaughtered on the same day
 - A total fast of less than 12 hours prior to stunning will usually not cause carcass shrink
 - Fasting more than 18 hours can result in a significant reduction in carcass weight

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Mixing and Fighting in Pigs

- When pigs are mixed, they go through a period where social hierarchy is established
 - One or more pigs dominate
 - Others become subordinate
 - Requires that some, but not all, pigs fight
- When pigs fight, they don't eat
 - Non-fighting pigs also negatively affected
 - Results in reduced growth

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Mixing and Fighting in Pigs

- Negative effects of fighting are greater in older and heavier pigs

Weight at mixing	Weight gain depression	Added days to market	Other problems ¹
8-40	None measurable	0	Wounds
40-80	7 days	0	Wounds
80-150	28 days	0	Wounds and Injury
Over 150	28 days	7 or more	Wounds and Injury

Table 1. Relative pig performance setback because of mixing pigs and fighting. ¹Source: McGlone, 1987

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Procedures to Reduce Fighting in Mixed Pigs

- Minimize other stressors
- Avoid overcrowding
- Ensure adequate ventilation
- Do not mix when disease is obvious
- Mix all pigs at same time in a strange new pen
- Avoid mixing pigs when temperature > 90°F
- Provide areas for pigs to escape during fighting

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