



GESTATION STALLS

A Guide for Managing Sows

A GUIDE FOR MANAGING SOWS WITH GESTATION STALLS

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INTRODUCTION

Every animal caretaker has an ethical responsibility to provide proper care for pigs at each stage of their lives. Providing proper care and managing sows during gestation can be challenging, but is important for the well-being of the sow and her future litter. Poor management of sows in gestation can lead to injuries, reduced sow well-being, cause lower conception and farrowing rates, and contribute to smaller litter sizes. Understanding sow behavior, facility design, and how the two interact can help caretakers provide better care for the sows and a safer workplace for themselves.

In this system, each sow is housed individually in a stall where she receives water and feed as provided by caretakers. Gestation stalls are often selected to house sows because they prevent fighting, make it easier to detect estrus/mating and to observe and treat any health issues. Stalls also allow control of individual feed intake. Her feed allowance and her social and thermal environment are exactly as provided by her caretakers because she is confined to her individual stall.

This guide addresses current best practices for managing sows with gestation stalls as learned through research and on-farm experience. The guide consists of three sections: 1) summary of management techniques and husbandry skills needed for successful sow management, 2) a checklist for daily barn inspections, and 3) troubleshooting scenarios designed to facilitate discussion and to encourage the sharing of ideas among caretakers in the barn.

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EQUIPMENT MAINTENANCE

Equipment maintenance should be performed on a regular basis to ensure that equipment functions properly. When performing maintenance, the following areas should be checked:

1. Feeding

- Individual feeders or feed troughs are in good repair
 - » Feeders do not have holes that will leak feed or sharp edges that will injure sows.
 - » Cuts or abrasions on the sows' heads are a sign of sharp edges or protrusions.
 - » If injuries are present, check all surfaces of the feeder (inside and outside) to find sharp edges or protrusions and make repairs or move the sow to another stall.
- Feed drops function properly and deliver the desired quantity of feed.
 - » Check feed drops daily.
 - » Collect feed from randomly-selected drops and weight monthly or when major changes in feed formulation occur to verify the correct quantity of feed is being delivered.
- Adjust feed drops regularly to match sow's nutritional needs.
- If feed drops are controlled by a timer, drops should occur when desired.
 - » Monitor the duration of time that feed is dispensed to ensure settings are correct and the timer and dispensing system are working properly.
- The feed augers, motors and feed bins function properly.
 - » The presence of expected feed in dispensing boxes suggests augers, motors, and feed bins are operating properly.
 - » Monthly inspection for excessive wear will help avoid untimely breakdowns and emergency repairs.

2. Watering

- Water flow rate for nipple waterers is sufficient for sows.
 - » Water flow rate should be at least one pint per 30 seconds (about 4 cups/min).
 - » Waterers need to be checked daily and cleaned if necessary.
- All sows are getting water if a common trough waterer is used.
 - » Feed dams sometimes prevent water from reaching all sows along the common trough. Check for feed dams daily and clear any blockage.
 - » If troughs have intermittent water supplied, make sure sows at the end of the trough receive adequate water (volume and duration) for the given season.

EQUIPMENT MAINTENANCE



Feed Drops



Removing Feed Dam



Nipple Waterer



Trough Feeder and Waterer

EQUIPMENT MAINTENANCE

3. Penning/Gating

- Stalls are in good repair with no broken bars or sharp edges that could injure sows.
 - » Cuts or abrasions on the sows' bodies are a sign of sharp edges or protrusions.
 - » If injuries are present, check all equipment exposed to sows to find sharp edges or protrusions and make repairs or move the sow to another stall.
- Gate latches on stall front and back are in good working order
 - » Latches need to be secure and easy to operate without creating pinch points that may injure caretakers.
- Stall legs and feet are properly anchored to floor.

4. Flooring

- Slats are in good repair with no broken edges or holes to injure sows' feet or legs.
 - » Inspect floors daily for broken slats or other breaches in the flooring material.
- Assure floors are smooth to prevent abrasions to sows' shoulders.
 - » If abrasions appear, inspect the floor for rough surfaces and make repairs or move the sow to another stall.

5. Cooling systems

- Drip nozzles used for cooling sows in stalls during weaning and breeding are located to drip water onto the front shoulder area of the sow.
- Dripper or sprayer nozzles work properly and are not plugged.
 - » Dry areas under some nozzles when nearby areas are wet suggest a nozzle is plugged.
- Controllers are set correctly and function properly.
 - » The controller should correctly activate the drippers or sprayers at the desired temperature and interval. A hand-held digital thermometer is helpful when checking the controller settings.
- Evaporative cooling pads correctly function to cool air entering the gestation building.
 - » Observe all areas of the cooling pads while operating to determine whether some areas of the pads are dry.
 - » Openings in the water supply pipe provide an adequate flow of water to saturate the entire cooling pad. If needed, unplug clogged openings.
 - » Allow cooling pad to dry for a minimum of 4 hours each night to reduce algae growth.
 - » Check water filter at least monthly and remove sediment buildup.
 - » Algae growth on cooling pads can be reduced by:
 - Adding a chemical for algae control.
 - Shading the pad from direct sunlight.
 - » Mineral buildup on pads can be reduced by:
 - Ensuring water is uniformly distributed along the length of the pad.
 - Increasing water flow rate over the pad to wash the pad.
 - » Periodically clean and flush the storage tank, pump, and water distribution system.

EQUIPMENT MAINTENANCE



Stall Gate Latches



Stall Legs and Feet



Drip/sprayer Nozzle



Stall Partitions



Good Slatted Flooring



Evaporative Cooling Pad

CARETAKER SAFETY

A safety risk to caretakers is getting hands, arms or legs pinched between a sow and the bars of a stall. Be aware of this risk and consider how to approach stalled sows so that a sudden movement by the sow will not trap a part of your body and cause injury. For example, it may be safer to reach over stall gates or partitions instead of reaching through partitions.

Consider working in pairs to accomplish management tasks whenever possible. If one person is injured, the other can provide assistance or seek additional help. If working in pairs is not possible, let others know where you are working and carry an approved communication device such as a cell phone or two-way radio to call for help if needed.

Sows and heat-check boars can become aggressive. Have a readily accessible escape route should a boar or sow become aggressive. Avoid tight corners and always carry a sort board to provide some protection or use a boar cart.

Routine animal care tasks can pose possible safety hazards to the caretaker.

1. Daily observation and walking the barn

- Wear protective footwear with steel-toe protection and non-slip soles to avoid injury from being stepped on and slipping.
- Avoid the risk of hand pinching from head knocks when getting sows up.

2. Sow health care

- Be careful when vaccinating unrestrained sows because they may exhibit avoidance behavior.
- There is a risk of smashing or pinching the caretaker's hands and arms against the stall side when vaccinating the sow.
- There is a risk of smashing or pinching the caretaker's hands and arms against the stall side if identification tags need to be replaced.
- There is a risk of smashing or pinching the caretaker's hands and arms against the stall side if the sow must be restrained with a snout snare.
- Needle-sticks are a danger to caretakers when sows are mobile and unrestrained.

3. Heat checking and mating

- Be cautious of pinching hands, arms and legs between sow and stall side or the sow backing up against back gate.
- Use a sorting board or a boar cart when moving boars for heat checking. Some boars may aggressively attack a sorting board, so take extreme caution. If this occurs, the boar should be culled.
- Be particularly cautious working around boars that have tusks.

4. Pregnancy diagnosis

- Be aware of slip, trip and fall hazards when wearing ultrasound goggles.
- Caretakers new to using ultrasound equipment need to take special care in adjusting their vision so they can move around the barn without tripping or falling.
- Be cautious of pinching arms or hands between the sow and stall side.

5. Moving sows

- All movement of sows must be in accordance with the handling guidelines described in PQA+ and TQ. All caretakers need to be certified in these programs for efficient and safe movement of sows.
- Always use a sort board to move sows. Sort boards provide a physical and visual barrier that is very useful in moving sows.
- Be aware that sows showing extreme avoidance behavior have the potential to knock people down.
- Be cautious of caretaker legs getting pinched or injured as sows move down alleys, especially when multiple sows move side-by-side.
- Be cautious of pinching hands or arms when moving sows out of stalls.

CARETAKER SAFETY

6. Euthanasia and sow mortality

- If possible, sows should be moved from the pen to an open area for euthanasia.
- If the sow is non-ambulatory, work in pairs to move sows safely and humanely to the euthanasia area. Do not drag conscious sows. Use a device such as a sled, cart or dolly to minimize the risk of injury to the caretaker and to maximize comfort of the sow.
- Use a mechanical device (cart/winch/dolly) to move dead sows and to avoid back strain.

7. Feeding

- If the feed delivery system fails, the gilts and sows will need to be fed by hand.
- Repetitive motion injuries and back strain may occur if hand-feeding sows (unlikely on most farms).
- Be cautious of pinching hands or crushing body parts with a heavy feed cart when hand-feeding.



Needle-Stick Prevention



**Mechanical
Cart for
Carcass
Removal**



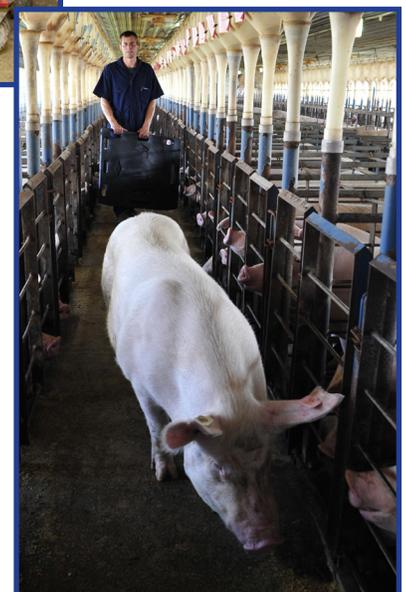
Feed Cart



Protective Footwear



Hand and Leg Pinch Points



Using a Sort Board

INDIVIDUAL SOW OBSERVATION

Daily observation of individual sows is an important part of animal care and allows for early detection of problems. The easiest way to identify problems is by noticing changes in sow condition and behavior. Observations should be part of the daily routine.

1. General observation

- To avoid missing sows, develop a consistent plan to walk through the barn ensuring each sow and stall is observed.
- Observe all sows twice each day, at the same time each day for consistency.
 - » Check 1: Perform at morning feed. Walk through the barn and check whether all sows are up and eating. Note sows that are lying or off-feed.
 - » Check 2: Perform a second observation later in the afternoon (2 - 3pm) when sows are resting to check for uneaten feed. Pay attention to sows that are particularly restless or are squealing and making persistent noise, as this can indicate problems.
- During feeding times, ensure all sows are up and actively eating.
 - » Observe sows for lameness, injuries or sickness because these sows may not get up to eat.
 - » Mark those sows that need further attention.
- Observe how sows are standing. Check for presence of discharge or blood on the floor or on sows, and scan for obvious injuries.
- Record the number of animals with problems in each pen group. This will help build a database of the incidence of problems arising in the herd.
- For sows displaying altered behavior, visually examine the sow and check the stall floor and penning, water flow rate and the feed delivery pipe to ensure the feed delivery system is working.
- Initial a daily sow monitoring record sheet for each room to document sow observations are being performed.
- Assign sow observation tasks to a designated individual to ensure consistency of checks. All observers should receive training on the monitoring routine.

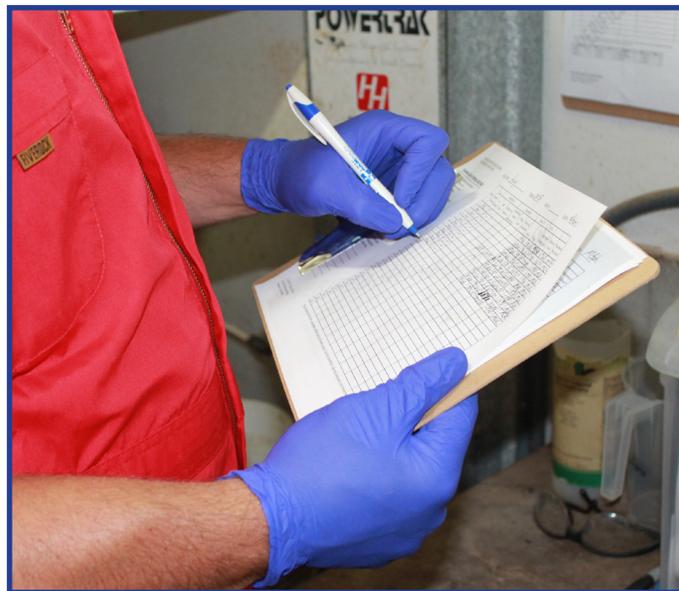
2. Monitoring for sows off-feed

- Check that all sows are standing up and feeding during the dispensing of feed.
- Mark any sows that are not up and eating.
- For systems using a shared water trough, remove uneaten feed and place it within the sow's stall at her head. This will prevent feed dams that block water flow along the trough.
- Return at the next walk-through to see whether marked sows ate. Thoroughly examine any sows that have still not eaten, and take action if necessary.

INDIVIDUAL SOW OBSERVATION



Observing Sows Standing and Eating



Keep a Daily Record

BODY CONDITION SCORING

Body condition is a critical factor affecting the reproductive success, health and longevity of sows. Both thin and fat sows contribute to reduced productivity and economic efficiency of the herd. Therefore, maintaining sows in an optimal weight range, with minimal fluctuations in body condition throughout the productive life of the sow, is an important management goal.

Body condition scoring is a simple management tool for accurately assessing the body condition of sows. Regular body condition scoring should be part of the routine management of the breeding herd, and can help determine whether the feeding management of sows is effective.

1. How to perform body condition scoring

- Both a visual and a physical assessment of the sow is required. The spine, ribs, hips, and pin bones should not be visible but they should be easy to feel. (Figure 1).
- Sows should be standing for the assessment. If lying down, urge the sow to stand.
 - » This task often can be conducted while sows are eating because they are already standing.
 - » Stand out of the stall and behind the sow.
- Begin with the physical assessment: using the fingertips or palms of both hands, reach over the sow to press firmly the hip bone, pin bones and top of spine (Figures 2, 3 & 4).
- Stand back from the sow and visually assess her condition based on the appearance of her hindquarters in accordance with the 1 to 5 scale (Figure 5).
- Based on the physical and visual assessment, assign individual sows a score of 1 to 5.
- Half scores, such as 2.5, may be used if this helps to increase accuracy.
- Record the condition on the sow's record card.

2. When to monitor body condition

- Score sows at breeding, at pregnancy checking and at least once during gestation, commonly at 80 days of gestation.
- Allow sufficient time between scoring and farrowing for adjustments in the feed ration to affect condition before farrowing.
- Condition scores should range between 2.5 and 3, with at least 80% of sows having a condition score of 3.
- Combine the scoring with other routine jobs (such as breeding and pregnancy checking) to improve work efficiency.

3. What body condition scores mean

- Large variations in body condition among sows indicates insufficient management of individual feed intake.
- Sows with a condition score of 1 should be a rare occurrence (<1%). These sows should receive supplementary feed to improve body condition. If rapid improvement does not occur euthanasia may be appropriate.
- High proportion of low body condition (1 or 2) indicates insufficient feed intake or improperly formulated feed.
 - » Check and adjust feed intake.
 - » Make sure feed is formulated for the intake being achieved on farm.
- High proportion of high body condition (4 and 5) suggest overfeeding.
 - » Obese sows going into farrowing have prolonged farrowing, high stillborn rate and low milk production.
 - » Check and adjust the gestation feeding program.

BODY CONDITION SCORING

4. Points to remember

- When possible, perform body condition scoring with a second caretaker to develop consistency of scoring.
- Have a third party, such as the herd veterinarian, periodically check consistency of scoring.
- Periodically review the percentage of sows falling into each score category to help identify problems related to feed allowance.
- Both underfeeding and overfeeding are undesirable. Feed is the greatest production expense. Overfeeding sows is economically inefficient and also can lead to reduced sow productivity.
- Monitor regularly throughout gestation to ensure all sows are receiving sufficient feed.

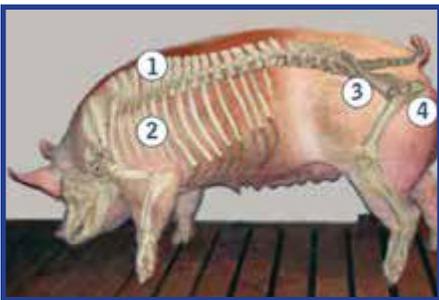


Figure 1. Sow Bone Structure.
1–spine, 2–ribs, 3–hip bone
4–pin bone



Figure 2. Feeling for fat cover over the hip bones of the sow



Figure 3. Feeling the top of the spine



Figure 4. Feeling for fat cover over the pin bones of the sow
(Photo: Don Levis)

Figure 55. Body Condition Scoring

Image					
Score	1	2	3	4	5
Condition	Emaciated	Thin	Ideal	Fat	Obese
Detection of Ribs, Back Bone, "H" Bones and Pin Bones	Obvious	Easily detected with pressure	Barely felt with firm pressure	None	None

Taken from "Assessing Sow Body Condition" by R.D.Coffey, G.R. Parker, and K.M. Laurent (ASC-158; 1999)

IDENTIFYING LAMENESS

Lameness is a concern because it usually involves a painful condition. Lameness can be difficult to detect in stall-housed sows. Nevertheless, it is important to assess and treat sows for lameness and minimize the negative effects on productivity and longevity.

1. Observation and scoring for lameness

- During daily observations, check sows to identify any signs of lameness. Signs include reluctance to use one leg, bearing weight unevenly, arched spine when standing, and reluctance to stand.
- Observing at feeding time is particularly useful, as the sows should be standing.
- Sows also should be viewed for lameness during routine movement of sows, such as between farrowing and gestation accommodation. Additional signs of lameness are shortened stride, swaggering of hindquarters while walking, and obvious head nods when walking.
- If a sow is identified as lame she can be moved from the stall for scoring according to the following procedures:
 - » Ideally, two people should be present. One using a board to move the sow and one observer to score sow movement.
 - » The test should be done in an area with good flooring. Slatted floors may be used, but clean, solid floors are best.
 - » Sows may be stiff from lying, so ensure that the sow has walked several feet before beginning your assessment.
 - » Walk the sow for a distance of 10-20 feet and observe her movement.
 - » Evaluate the severity of lameness using a scale of 0 to 4 (Table 1).

2. Treating lame sows

- When a lame sow is identified (score of 1 or greater), examine the affected limb(s) to determine the cause and appropriate treatment.
- Common causes include cuts to the leg, abscesses, swollen joints, or hoof lesions. If no lesion is present, internal joint problems may be responsible.
- The treatment of affected sows will depend on the cause and severity of lameness and the farm's Standard Operating Procedure (SOP).
 - » Sows scoring 2 or 3 may benefit from the addition of a rubber mat to the stall or removal to a treatment pen to promote recovery.
 - » Sows scoring 3 or 4 should not be transported.
- Depending on the sow's condition and treatment options, severely lame or non-ambulatory sows may need to be euthanized following protocols developed in consultation with the herd veterinarian.

IDENTIFYING LAMENESS

Table 1. Lameness score scale

Lameness Score	Description
0	Sow moves freely and uses all 4 limbs and feet evenly
1	Sow shows weight-shifting activities away from affected limb when standing but shows little or no lameness or limping when walking
2	Sow obviously shifts weight away from affected limb when standing and shows limping or adaptive behavior when walking (head bob, arched back, hindquarter swagger, quickened step on affected limb, or shortened stride)
3	Sow is reluctant to stand and/or walk, obvious limp and adaptive behaviors when walking (head bob, arched back, hindquarter swagger, quickened step on affected limb, or shortened stride)
4	Sow is non-weight bearing on the affected limb when standing or walking

Scale adapted from: Karriker et al., 2013. J. Anim. Sci. 91: 130-136 and Nalon et al., 2014. Animal 8(4): 650-659

MONITORING ANIMAL HEALTH

Monitoring animal health is a key part of daily observations. Early identification of ill or injured sows is important for effective treatment and for maintaining good health in the herd.

1. Identifying sick animals

- Animal behavior is typically the most cost effective and time efficient approach to identifying a sick animal.
- Observation of changes from their normal behavior is the key to finding a sick animal.
- Daily observation of all animals is required to understand what is normal and to be able to identify changes when they occur.
- Typically, the best time to look for health problems is shortly after the feed has been dispensed.
- Mark suspect or affected animals to make repeated observations easier.
- Most commonly observed behavior changes include:
 - » Failure to eat part or all of their daily ration;
 - » Failure to rise or an abnormal posture when standing;
 - » Pilo-erection – fuzzy pig look associated with fever;
 - » Abnormal gait when walking.

2. Diagnosing the problem

- Further diagnosis of a sow's problem is critical to ensure that she receives the most appropriate care and treatment.
- Lameness can be diagnosed by abnormal gait, failure to bear weight on a limb, or inability to rise (see Identifying Lameness section for more details).
- Other conditions in sows tend to be much more sporadic in occurrence.
- It is sometimes useful to take the sow's rectal temperature to see if the animal has a fever (normal temperature is 102.0 F) and to help identify animals with an infection.
- Sneezing, coughing, or reddening about the eyes is often associated with disease of the respiratory tract.
- Abnormal posture, head tilt or evidence of constant head banging is indicative of neurologic disease.
- A pale animal often suggests there has been internal blood loss following a gastric ulcer or ileitis.
- Mucous discharge found on the slats behind the sow or coming from the animal's vulva often indicates a reproductive tract infection.
- Dry, hardened or pellet-like feces suggests the animal is not drinking enough water.
- Loose or poorly formed feces may be indicative of a sudden dietary change or the development of gastro-intestinal disease.
- Blood on the sow's hind legs or afterbirth or fetuses at the rear of a sow reflect a recent abortion/pregnancy loss.
- Veterinary consultation may be required for accurate diagnosis of some problems.

3. Treatment

- Treatment is an important step toward fixing the animal's specific ailment and helping to ensure that she stays in the herd.
- Develop treatment plans for specific ailments in conjunction with the herd veterinarian.
- Record all treatments on a treatment sheet.
- Clearly identify individual animals receiving treatment.
- Mark withdrawal dates for all drugs administered to a sick sow on the treatment sheet to ensure she is not sent to slaughter prematurely.
- An animal may need to be moved to a treatment pen depending upon the severity of the ailment or the required treatment.
- Administering treatments:
 - » Treatments usually involve injections, or in rarer cases, oral administration.
 - » Sows may need to be restrained for treatment and the administration of routine health care.
 - » Follow all basic good production practices as outlined in PQA Plus when administering injections. Take additional care to ensure caretaker safety.

MONITORING ANIMAL HEALTH

- » Treat animals for the full treatment course as specified by the farm SOP to maximize her chance of recovery. Animals not responding to treatment will need to be euthanized.

4. Routine health maintenance practices

Most farms also carry out other basic health maintenance activities during gestation that include:

- Pre-farrowing immunization to improve colostrum quality at farrowing.
- Non-invasive manipulations such as body condition scoring (see **Body Condition Scoring** section for more details).
- Pregnancy diagnosis (see **Pregnancy Detection** section for more details).



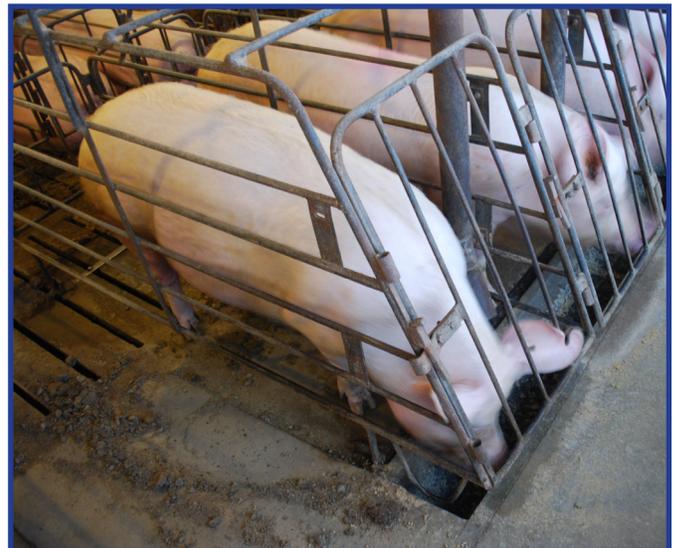
Injections



Consult with a Veterinarian



Treatment Pen



Treating Sows in Stalls



Maintain Treatment Records

HEAT DETECTION AND ARTIFICIAL INSEMINATION

Detection of heat, or estrus, is important for determining the correct time to mate gilts or weaned sows and to reduce non-productive days in sows that return to estrus post-mating.

1. General information about heat detection

- Be aware of sow behavior at all times as estrus may be identified when performing other tasks. Greatest success is achieved when sows are comfortable around people.
- Perform heat detection at a set time daily.
- Perform heat detection on recently weaned sows and on all sows 18 to 24 days post-mating to detect return to estrus. Many farms check for late returns (i.e. after 42 days) by walking the pens and observing sows' physical appearance and behavior.
- Sows show estrus more reliably if detection of estrus is performed in the morning with mature boars.
- Wait at least one hour after feeding so sows can be focused on the boar rather than feed.
- Sows display estrus in response to pheromones from the boar's saliva. It is important to consider actions to enhance the likelihood of her being stimulated by his smell.
- Ensure boar exposure is a novel event at the time of detection of estrus; muscle fatigue occurs when sows stand in estrus for prolonged periods (refractoriness).
- Use mature heat-check boars that are at least 10 months of age. The best boars for heat checking actively chant, chomp and produce saliva.
- Best results occur if sows have not seen, heard or smelled a boar for 1-2 hours before detection of estrus.
- Walk the boar 'into the wind' to avoid refractoriness. This is especially relevant in tunnel-ventilated barns.
- Do not smoke during estrus detection.
- Record observations and mark sows to assure each is checked daily.
- Some farms mate sows at detection of estrus. If this is practiced, carry semen and catheters during estrus detection for the anticipated number of sows to be mated.
- Use sorting boards, tethers, carts or robots when handling or moving boars to assure safety. Boars are capable of injuring people so remain vigilant in attention to the boar at all times and always use proper safety tools. Often, boars can be trained to signals.
- Assure each sow has fence-line nose-to-nose contact with the boar. The time for a sow to exhibit a standing response is highly variable so duration of boar exposure should be two minutes.
- Have at least one person located behind the sow during heat detection. While the boar is in front of the sow, this person will determine if the sow is receptive to boar stimuli by applying pressure to the sow's back, massaging flanks, and checking the vulva for color and discharge.
- If heat checking rows of sows facing each other, consider refractoriness. Either have people heat-checking behind each row simultaneously or check the second row 1 to 2 hours after the first.
- When applying back pressure and flank massage be aware of stall bars to avoid crushing hands (see **Caretaker Safety** section for more details).

HEAT DETECTION AND ARTIFICIAL INSEMINATION



Boar with Tether and Robot



Fence-Line Nose-To-Nose Contact



Performing Heat Detection in Stalls

PREGNANCY DETECTION

Confirming pregnancy status is important for planning farrowing accommodations and eliminating or re-mating open sows to reduce non-productive days. Open sows normally show estrus 21 days post-mating if they did not conceive. Sows presumed pregnant are often confirmed pregnant via real-time ultrasound pregnancy diagnosis, typically 24 to 30 days post mating.

- Identify sows that are 24 to 30 days post mating.
- Have a plan for how to manage sows that are found not pregnant.
- Carry adequate supply of gel and assure the ultrasound battery is fully charged.
- Real-time ultrasound machines have fragile elements. The crystals in the probe are the most sensitive to damage. Some caretakers strap the probe to their wrist during use to prevent dropping it on the floor.
- Pregnancy diagnosis involves placing your hand between the sow and the side of the stall. Avoid injuries by talking to the sow and placing a hand on her rump so she knows you are there.
- Step into stalls or lean over the back gate. Apply gel to the probe. Carefully place the probe on her flank, pointing forward toward the uterus and avoiding the urinary bladder. To confirm pregnancy, look for black circles corresponding to the fluid around developing fetuses.
- Record pregnancy status and mark sows accordingly.
- To avoid injury and the need to step into each stall, it is possible to create a guide for the probe. Tape the probe to a bent piece of PVC pipe so the probe can be pointed toward the uterus from outside the stall.



Ultrasounding for Pregnancy Detection

HANDLING FALL-OUT SOWS

Sows identified as open either at the time of routine pregnancy diagnosis or sows that later abort are referred to as fall-outs. Some farms also use the term for sows that are unable to compete in a group or become lame, sick, injured or thin. Each farm will need to decide whether the sow is to be re-mated or culled, but in either case it is likely the sow will be moved to a new location in the barn.

- Mark whether the sow will be culled or re-mated at heat detection, pregnancy detection, or when abortions are observed.
- Identify space where the sow will be moved and use a sorting board to move her.
- Re-fill the stall with a sow or close the feed dispenser to prevent feed wastage.



Adjusting Feeder Box



Removing Sow from Stall

MANAGING VENTILATION

Ventilation will have an immediate and long-term impact on sow well-being and performance. This is especially true for sows housed in gestation stalls where they are unable to seek a more comfortable portion of the pen or barn in the case of inadequate ventilation controls or management. If signs of ventilation issues are identified, it is important to take corrective actions to solve the problems.

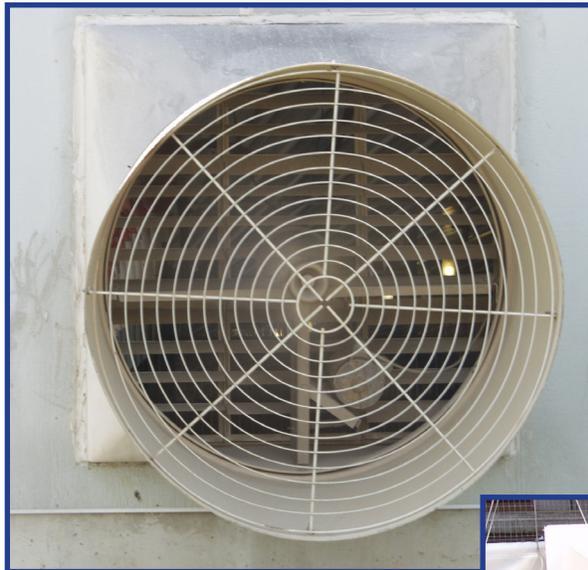
1. Daily observations and actions

- Observe animals daily for signs of discomfort due to improper ventilation, heating or cooling.
 - » Signs include animals that are shivering, panting, nosing water out of the trough for cooling or playing with nipple waterers.
- Observe facility daily and look for signs of improper ventilation, heating or cooling. Look for:
 - » Excessively cold drafts that can be felt while walking through pens and buildings.
 - » During winter months, ice/frost on north walls due to air leaks.
 - » Wet barn floors due to a lack of air movement.
 - » Animals defecating in the wrong area of pen due to improper air distribution.
 - » Wet or damp gating or water dripping off the ceiling due to high humidity in barn, insufficient air flow and improper air temperature.
 - » High ammonia concentration (25 ppm or greater) due to low ventilation rate, mucky floors, pit fans that are not working, or a manure pit that is too full.
 - » Rooms that are too hot or too cold.
 - » Evaporative cooling pads that are dry or have dry spots when they should be wet.
 - » An air leak allowing air to by-pass evaporative pad.
 - » Curtains that have large holes due to a lack of rodent control.
- Observe daily for signs that ventilation, heating or cooling components are not working correctly. Look for the following problems:
 - » Fans are not running when set to be working.
 - » Fan shutters are stuck closed when the fan is running or open when the fan is not running.
 - » Floors or walls are wet.
 - » Humidity in the air is higher than expected.
 - » Soffit air inlets are plugged.
 - » Air inlets in the ceiling or wall are improperly set and causing bad distribution of air.
 - » Air inlets are open within five feet of a running fan.
 - » Dead air spots are detected within the room.
 - » Air outlets on a non-mechanical ventilated building are improperly set preventing exit of a proper quantity of air.
 - » Inadequate water flow or a plugged water source is causing the evaporative pads to be completely dry or dry in spots.
 - » Heaters are operating when a first-stage ventilation fan is running due to improper setting (need 1.5° F offset).
 - » Air temperature within the building is wrong due to thermostats being dirty, set wrong, or the sensor placed in the wrong location. In addition to observing behavior of pigs, get a thermometer reading daily to check for appropriate temperature.
 - » In mechanically ventilated buildings, check manometer for appropriate static pressure.
 - » Spray cooling nozzles are plugged.
 - » Intermittent spray cooling system is not operating at the desired temperatures.

MANAGING VENTILATION



Thermostats



Barn Fan



Pit Fan

MANAGING VENTILATION

2. Routine maintenance tasks

- Weekly
 - » Check that alarm systems are working correctly.
 - » During the summer months, check all components of the evaporative pad cooling system for functionality.
 - » Check rodent bait stations.
- Quarterly
 - » Clean fan blades, shutters, grill, motors and controls of fans in animal areas.
 - » Make sure all fans are working and shutters open and close freely.
 - » Clean manure pit fan blades, shutters, motors, fan housing and controls.
 - » Make sure all manure pit fans are working and shutters open and close freely.
 - » Replace excessively worn fan belts on belt-driven fans.
 - » Grease fan bearings as needed.
 - » Clean attic/soffit air inlets that are partially plugged with debris.
 - » Check that indoor air inlets are working.
 - » Check that curtain controllers are working.
 - » Check that the emergency drop system for curtains is working.
 - » Check that curtains do not have holes due to rodents.
 - » Check that curtains do not have air leaks due to the top of the curtain sagging or air leaks at curtain pockets.
 - » Check the curtain cable for broken strands.
 - » Check for other types of unplanned entry of air (i.e. leaks around doors and windows).
 - » With respect to season of year, check that the heating and cooling system is working properly.
 - » Check the entire building and ventilation system for air leaks when using air filters for disease control.
 - » Check that the emergency generator is working correctly.
 - » The person in-charge of the ventilation system should be informed when adjustment to ventilation settings are needed.
- Yearly
 - » Clean and repaint chipped areas on fan blades, fan housing and shutters to prevent further corrosion.

MANAGING VENTILATION



Weekly Check: Rodent Bait Stations



Weekly Check: Evaporative Cooling Pad



Quarterly Check: Air Inlets



Quarterly Check: Curtains

DAILY GUIDE FOR WALKING BARN: GESTATION STALLS

This guide is intended to provide a list of items to evaluate during daily barn inspections. It is not intended to be a decision tree for diagnosing problems.

General Approach: The daily walk-through of sow barns will be most effective if you develop a pattern of observation that becomes routine. The pattern of observation for each sow or pen will be similar, but the starting point for the walk through the barn should vary from day to day. This allows you to see sows and facilities from a different angle and at a different time each day. The primary focus of the daily walk-through must be the condition, health, and behavior of the sows. This will help you to diagnose problems with other components of the housing system. Every animal must be inspected every day to accomplish complete and effective animal care.

1. Sow Condition/Behavior (These also apply to gilts and boars in the barn.)

- Is the sow standing up and active around feeding time with an alert, bright appearance?
- Is there feed left in any of the feed troughs?
- Are the sows in good body condition?
- Are the sows behaving normally considering the time of day?
- Are there any skin lesions or injuries that appear to be new compared to the previous day?
- Are there sows showing signs of lameness?
- Are there any unusual discharges from the sow's vulva?
- Are there sows in heat?
- Are sows squealing and acting restless?

2. Equipment

- Are all waterers or drinkers clean and have an adequate water flow rate?
- If watering in a common trough, are all sows getting adequate water? Are feed dams present to interrupt flow of water?
- Are all the feeder boxes filling properly and dispensing the daily ration of feed?
- Is all the tubing from the feed box to the feed trough intact and not plugged?
- Are there any damaged sections of flooring causing problems with animal well-being or caretaker safety?
- Are there damaged stall partitions or gates that could injure sows?
- Are there worn or damaged feeders that could injure sows or waste feed?
- Do cooling spray nozzles function properly and turn on/off at the proper temperatures? Are sows drying between periods of spray cooling?

DAILY GUIDE FOR WALKING BARN: GESTATION STALLS

3. Environmental management in rooms

- Is the air temperature in the room appropriate for the season?
- Are there any odd sounds from fans, augers, heaters, etc.?
- Are floors wet and drafty where sows lay?
- Does the air in the room smell fresh, or is it stuffy with high ammonia and dust levels?
- Are fans for minimum ventilation operating?
- Are shutters closed on non-operating fans?
- Are appropriate fans operating considering the time of day and season of the year?
- Is the heater running? Should it be running?
- Are air inlets functioning properly?
- Did the sidewall curtain(s) open when expected?
- Is the evaporative pad cooling system operating properly considering the time of day and season of the year?

4. Manure handling system

- How much capacity is left in under-floor pits?
- Are pits too full for pit ventilation to work properly?
- Do pull-plug pits need to be emptied?
- Are under-floor scrapers working properly?

TROUBLESHOOTING SCENARIOS: GESTATION STALLS

Here are several real-life scenarios designed to foster thought and to facilitate discussion of issues facing caretakers of sows housed in gestation stalls.

<p>Scenario 1:</p> <p>During your daily observations, you notice a sow has a new cut on her nose.</p>	<ul style="list-style-type: none">• Why is this problem occurring?• How would you correct this problem?
<p>Scenario 2:</p> <p>During your daily observations, you see a sow with bleeding toes and a torn dew claw.</p>	<ul style="list-style-type: none">• Why is this problem occurring?• How would you correct this problem?
<p>Scenario 3:</p> <p>You observe that five sows in a row appear to be losing body condition. They had a body condition score of 3 when they were confirmed pregnant three weeks ago. Now, they look more like a body condition score of 2.</p>	<ul style="list-style-type: none">• Identify reasons these sows are losing body condition.• How would you correct this problem?

TROUBLESHOOTING SCENARIOS: GESTATION STALLS

<p>Scenario 4: During the morning feed drop, you walk down the row of stalls. You observe a sow laying down and not eating.</p>	<ul style="list-style-type: none">• Identify possible reasons why the sow is not eating?• How do you assess the sow to determine why she is not eating?• What would you do to make sure she eats in the future?
<p>Scenario 5: The outdoor temperature is 90 degrees Fahrenheit and there are dry spots on the evaporative cooling pad.</p>	<ul style="list-style-type: none">• Why does the evaporative pad have dry spots?• How would you correct this problem?• What would you do to prevent the problem from reoccurring?

The logo for the Pork Checkoff, featuring the word "pork" in a bold, black, sans-serif font with a stylized orange lightning bolt above the letter 'k', and the word "checkoff" in a smaller, black, sans-serif font below it. The entire logo is set against a white background within a hexagonal frame.

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