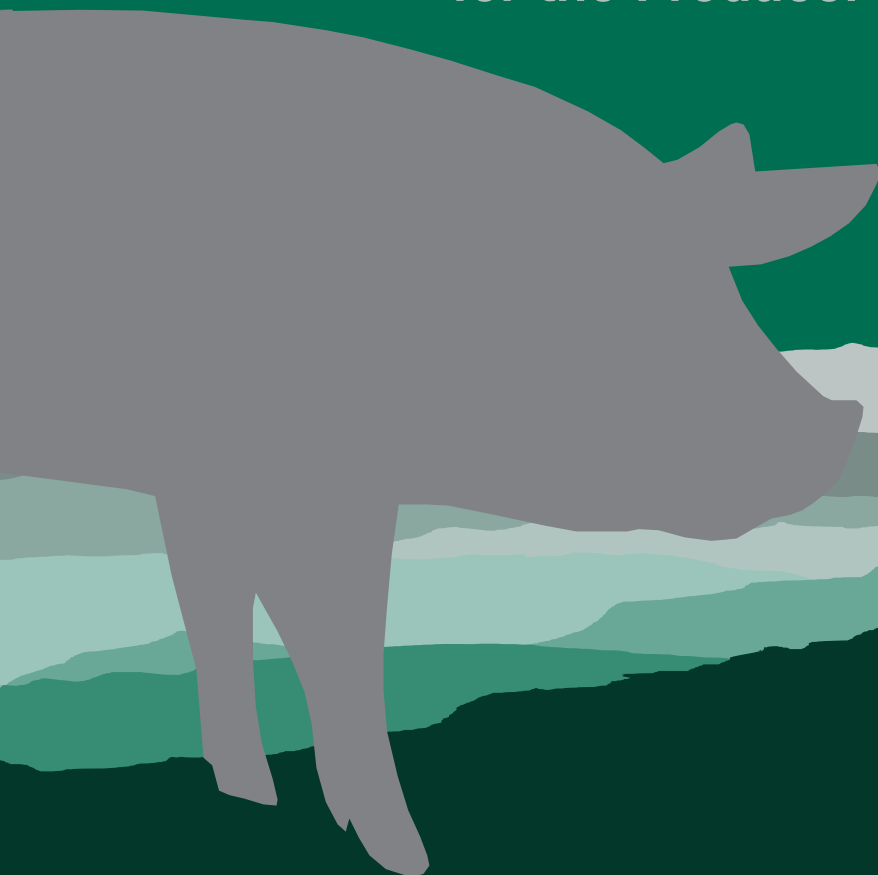


On-Farm Euthanasia of Swine Recommendations for the Producer



It is inevitable that on every swine farm, situations will arise that require pigs to be euthanized. Euthanasia may be in the best interest of the well-being of the pig. These situations include, but are not limited to, illness and injuries. Because it is usually not possible or practical for the veterinarian to be available for timely euthanasia of pigs on-farm, producers and caretakers often need to perform humane euthanasia of pigs.



Defining Euthanasia

The term “euthanasia” is derived from the Greek terms “eu” meaning good and “thanatos” meaning death. **Euthanasia is the humane process whereby the pig is rendered insensible, with minimal pain and distress, until death.** For the euthanasia process or method to be considered humane, it must be quick, effective and reliable.

Key elements for determining if a method is humane include:

- minimal pain and distress to the pig during administration,
- rapid loss of consciousness,
- death is achieved quickly and consistently.

This brochure provides practical recommendations for the on-farm euthanasia of swine. It also highlights euthanasia methods that have been shown to meet the definition for humane euthanasia based on the available scientific literature. However, this list may not be all-inclusive. Other options may be used as long as they meet the definition and key elements for euthanasia discussed above. All euthanasia techniques should be discussed with a veterinarian before implementing. It is necessary to note that recommendations for depopulation, or rapid destruction of large numbers of animals in response to emergencies, fall outside the scope of this brochure.

Timeliness of Euthanasia

When a pig becomes ill, injured, or otherwise disadvantaged, the initial decision for action may include treatment or euthanasia. In some cases, euthanasia may be the best option for the well-being of the pig. While not all individuals may be responsible for conducting euthanasia, everyone on the farm should take action to

ensure a timely response. It is important that the decision to euthanize is made in a timely manner to minimize the pig’s pain or distress.

Timely euthanasia is required for:

- Pigs that have no prospect for improvement or that are not responding to care and treatment after two days of intensive care unless otherwise recommended by a veterinarian. The caretaker’s past experiences with similar conditions should be used to make informed decisions about the likelihood of recovery.
- Severely injured or non-ambulatory pigs with the inability to recover. An animal is considered non-ambulatory if it cannot get up or if it can stand with support but is unable to bear weight on two of its legs.
- Any pig that is non-ambulatory with a body condition score of 1.
- Pigs with hernias that are perforated or with large hernias that touch the ground while standing and cause difficulty walking and are ulcerated.
- Any pig with an untreated prolapse that has become necrotic or any pig with a uterine prolapse.

This brochure is designed to aid producers in making appropriate decisions regarding euthanasia of swine. The Pork Checkoff and the American Association of Swine Veterinarians recommend that swine producers and caretakers read this brochure, discuss the options with their veterinarian and fill out the action plan at the end of this brochure. All swine caretakers should be aware of the action plan and receive hands-on training on the euthanasia methods selected for the pigs in their care. The action plan should be reviewed as part of new caretaker training and annually with a veterinarian and all caretakers.

The Process of Euthanasia

Euthanasia of swine may be a one- or two-step process. A one-step process renders the pig permanently insensible and results in death. A two-step process temporarily renders the pig insensible, but requires a secondary step to achieve death. The second step is typically achieved by exsanguination or pithing (see page 14). It is important to understand the difference between the two processes.

Certain methods for euthanasia are more appropriate than others for pigs of certain sizes or weights. Table 1 lists various methods of euthanasia in pigs and the size of pigs for which they are most appropriate.

Table 1: Euthanasia methods appropriate to pigs of different sizes (weights)

Method	Approved for...
Carbon dioxide (CO ₂)	All ages but may not be practical for pigs over 70 lbs
Gunshot	Nursery pigs or older
Non-penetrating captive bolt	Pigs less than 70 lbs*
Penetrating captive bolt	Pigs greater than 12 lbs
Electrocution, head-to-heart	Pigs over 3 days of age
Electrocution, head only	Pigs over 3 days of age with a secondary step
Veterinarian administered anesthetic overdose	All ages but may not be practical
Manual blunt force trauma	Pigs up to 12 lbs

* Refer to page 9 to determine appropriate force and weight range combinations

Considerations for Performing Euthanasia

When euthanasia is the most appropriate option for a pig, consider the following to select the suitable method:

- **Human safety:** The method must not put producers or caretakers at unnecessary risk.
- **Pig welfare:** Any method should minimize pain or distress of the pig during administration.
- **Practicality/technical skill requirements:** The method should be easily learned and repeatable with the same expected outcome. The skill required noted in Table 2 assumes the caretaker has been adequately trained to use the method.
- **Caretaker compliance:** Producers and caretakers must be comfortable with, and willing to perform, the chosen method when needed. Lack of compliance compromises the well-being of the pig.
- **Aesthetics:** The method should limit the degree of unpleasantness for those administering the procedure. Public perception of the method and its application also may be a consideration.
- **Limitations:** Some methods are only suitable for certain sizes of pigs or under certain circumstances. The availability of equipment in good working order and carcass disposal options also can be limiting factors for choosing a method.
- **Biosecurity risk:** Some methods require supplies or equipment be brought into the facility that may pose a biosecurity risk.

Table 2 lists euthanasia methods and special considerations for each one.

Table 2: Considerations for Specific Euthanasia Methods for Swine

	Human Safety Risk	Skill Required	Aesthetics	Limitations
Carbon dioxide (CO ₂)	Moderate	Moderate to low, based on equipment design	Bloodless, some excitatory movement or vocalization possible in pigs	Currently only practical for small pigs; maintenance of equipment
Gunshot	High	Moderate to high	Discharge of blood from wound	Security of firearms; legal restrictions; maintenance of equipment
Non-penetrating captive bolt	Low	Low	Minimal to some blood discharge as a 1-step process	May be a 2-step process based on equipment design and size of pig; maintenance of equipment
Penetrating captive bolt	Moderate	Moderate	Discharge of blood from wound	May be a 2-step process depending on equipment design; maintenance of equipment
Electrocution (head-only and head-to-heart)	Low if proper lock out/tag out procedure followed	Moderate	Muscle contraction; minimal to no blood discharge	Adequate amperage and voltage needed; head only is a 2-step process; cleanliness of electrodes
Veterinarian administered anesthetic overdose	Low	High, veterinary administration only	No blood discharge, limited pig movements	Applicable agents available only to licensed veterinarian; carcass disposal
Manual blunt force trauma	Low	Moderate	Some blood discharge; objectionable for some	Only applicable to small pigs; ability of caretaker to apply sufficient force

1. Carbon dioxide (CO₂)

Carbon dioxide (CO₂) replaces oxygen in the body and causes rapid onset of anesthesia with subsequent death due to respiratory arrest. Although unconscious, pigs may experience involuntary vocalizations and movements when carbon dioxide is used correctly.

Euthanasia by carbon dioxide inhalation is relatively inexpensive but requires special equipment to work effectively:

- An enclosed, airtight container that is large enough for the size of pigs being euthanized is required. The floor of the container should be a non-slip surface.
- The container must be equipped with inlet and outlet valves. Because carbon dioxide is heavier than air, the container's outlet valve should be located at the top. This way, the container can be completely filled with carbon dioxide while the air displaced is allowed to escape.
- Compressed carbon dioxide gas in cylinders is the recommended source of carbon dioxide. **Other sources of carbon dioxide, such as dry ice, fire extinguishers, or chemical reactions, are unacceptable.** Gas cylinders should be secured for human safety.
- A regulator is required to control the release of gas from the cylinder. Unregulated release or excessive flow rates of carbon dioxide have the potential to freeze the pigs and result in excessive use of carbon dioxide.
- The use of a flow meter is recommended to monitor the gas exchange rate in the chamber. When unmonitored, an inadequate exchange rate can result in lack of death or can result in the pig suffocating before it becomes anesthetized or loses sensibility. When proper equipment is used and gas is used correctly, carbon dioxide results in loss of consciousness followed by respiratory arrest and death.

Euthanasia by carbon dioxide inhalation can be completed by pre-charging or gradual filling of the container. Pre-charging is done by filling the container with carbon dioxide before the pigs are placed in it. Additional carbon dioxide must be added to maintain effective concentrations within the container after the pigs have been placed in it. The container should be positioned in a way that reduces disturbance of the gas when the container is open or the pigs are placed into the container.

Gradual filling of the container is done by placing the pigs into the container and filling the container with carbon dioxide at an effective flow rate. For effective euthanasia, pigs require a constant exposure of 80-90 percent carbon dioxide concentration, for at least 5 minutes. The time needed to achieve effective concentration is a function of the flow rate and container volume. Consult with your veterinarian or other trained professional to discuss these variables.

When proper equipment is used and gas is used correctly, carbon dioxide results in loss of consciousness followed by respiratory arrest and death. Euthanasia of swine by carbon dioxide inhalation is safe for farm personnel who have been trained, have access to the proper equipment, use the gas properly, and carry it out in a well-ventilated area. Use caution when removing euthanized pigs so as not to breathe any carbon dioxide remaining in the container. Carbon dioxide is non-flammable and non-explosive.

Gas Mixtures: Other gasses or gas combinations are being explored as additional options for euthanasia. Research is ongoing to determine optimal combinations and flow rates of these mixed gasses.

2. Gunshot

A gunshot to the head is an effective method of euthanasia of swine if done correctly. The impact caused by the penetrating bullet causes concussion and damage to vital areas of the brain of the pig. When choosing the type of gun and ammunition, consider the following:

- The age and size of pig to be euthanized,
- Presence and safety of onlookers, person delivering the shot and other pigs,
- Accessibility to the head of the pig (as shown in Figure 1),
- Damage to surrounding equipment and facilities,
- Risk of bullet pass through and ricochet,
- Legal restrictions and/or farm policies on having a gun on site.

There are several options in guns and ammunition that can be used to effectively euthanize a pig. Remember, the type of gun and load need to be large enough so the method is effective with the first shot. Ammunition also must have adequate energy to concuss and penetrate the skull with the first shot.

One option is a shotgun, suitable for short range shooting. When used properly, this weapon can be safer than others due to its reduced potential for ricochet. A 12-, 16-, or 20-gauge shotgun can be used for grow/finish pigs and mature sows and boars. A 28- or 410-gauge shotgun is recommended only for nursery pigs. Shotgun ammunition is available in the form of shot and slugs. Slug ammunition is recommended because of its ability for consistent and effective penetration of the skull.

Another option is a rim-fire rifle. This type of gun is suitable at a close range. The gun and ammunition combination must have the muzzle energy to enable the bullet to pass through the thickness of the skull, especially for large adult pigs. A minimum muzzle energy of 300 foot pounds (ft lbs) is recommended for grow/finish pigs and mature sows and boars because of the thickness of their skulls.

When using a 0.22 caliber gun with appropriate ammunition on mature sows and boars, a shot delivered behind the ear is recommended because the skull is less dense at this location. Bulleted ammunition should be round-nosed and solid to ensure penetration of the skull. The common type of ammunition known as a “wadcutter” is designed for target shooting and is not suitable for euthanasia. Fragmenting bullets also are commercially available but are only recommended for use in nursery and grow/finish pigs.

When using a firearm, the muzzle should be held 2 to 10 inches from the pig’s skull. The ideal target for gunshot is half an inch above eye level, on the mid-line of the forehead and aiming toward the tail of the pig. An alternative target for gunshot is behind the ear. When shooting this way, the bullet should enter the skull from behind the ear aiming toward the opposite eye. This method can present a risk to onlookers or other pigs as this shot has the potential to pass through the pig’s head. Figure 1 shows both target locations. Shooting in the heart or the neck is not suitable for humane euthanasia.

When euthanizing a pig by gunshot, extra care must be taken to ensure human safety. The size of the gun and ammunition should be matched to

the size of the pig to ensure the effectiveness of the technique with one shot and for human safety. The user of the weapon should be trained in firearm safety and understand the potential for ricochet. Ideally, the pig should be outdoors, on soil where the danger of a bullet ricocheting is reduced. Pigs

that are non-ambulatory should be euthanized where they lie or be humanely transported to a safe location. Restraint may be necessary and onlookers or assistants should always stand behind the person delivering the shot.

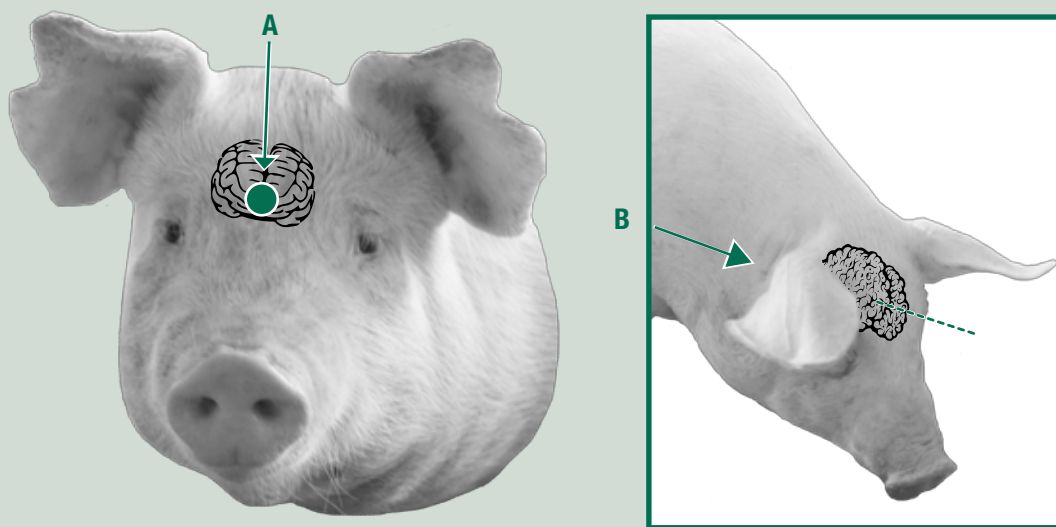


Figure 1. Gunshot

When using the gunshot method to euthanize pigs, the ideal target is half of an inch above eye level, on the mid-line of the forehead and aiming toward the tail of the pig as indicated by A. An alternative target is behind the ear as indicated by B. The bullet should enter the skull from behind the ear aiming toward the opposite eye.

3. Captive bolt

There are two types of captive bolt guns available: those with a non-penetrating bolt, and those with a penetrating bolt. For both types, the pig to be euthanized must be appropriately restrained to ensure the captive bolt can be properly and safely administered.

Immediately following an effective shot from a non-penetrating or penetrating captive bolt, the pig will exhibit tonic (muscle contraction) and clonic (muscle relaxation) movements. In tonic activity, the body becomes extremely tense followed by gradual relaxation. This stage is typically followed by clonic motion, or involuntary kicking or paddling movements, for a minute or two. **Pigs that do not initially demonstrate tonic activity and immediately show paddling or kicking after collapse, have been ineffectively stunned and the procedure should be administered again immediately.** As with all methods it is important to confirm that the pig has been euthanized effectively by checking its vital signs (see section on *Confirming Insensibility and Death* on page 15).

Figure 2. Non-Penetrating Captive Bolt

The non-penetrating captive bolt gun should be placed firmly against the front of the head in the area shown.



Non-penetrating bolt: The non-penetrating captive bolt gun typically has a mushroom shaped or flat-head bolt that, when applied to the forehead of the pig, causes concussion and severe trauma of the brain without breaking the skin. The advantage to this method is that there is little to no blood loss because the skin is left intact. Non-penetrating captive bolt achieving a force of 120 lb/sq. inch have been shown to be effective as a single-step method for piglets weighing under 20 lbs. Non-penetrating captive bolts that achieve higher force have been shown to be effective as a single-step method for piglets weighing up to 70 lbs. The captive bolt gun should be placed firmly against the front of the head as shown in Figure 2. If the pig demonstrates any degree of sensibility, proper placement and force should be reevaluated immediately and the technique should be repeated. As the pig ages, the thickness of its skull increases and insufficient force of the captive bolt will only stun and not euthanize the animal due to insufficient impact on the brain. In this instance, an alternative method should be used. Regular cleaning and maintenance of the gun is important to ensure its good working order.

Penetrating bolt: The penetrating captive bolt gun has a sharp-rimmed, concave bolt that extends and penetrates the skull to cause concussive and physical damage to the skull and brain upon impact. Correct positioning of the captive bolt gun is critical for success. The placement should be directed at the mid-line of the forehead, a half inch above eye level (even with the eyebrows). The penetrating captive bolt should be placed very firmly against the skull, aimed at the brain and directed toward the tail as shown in Figure 3. The variation in skull shape among breeds emphasizes the need for proper placement.

Penetrating captive bolts can either stun or kill the pig depending on the design of the gun, the charge used, and the size of the pig. Only captive bolt guns designed for on-farm euthanasia should be used.

Other products may only stun the pig and may require a secondary step, such as exsanguination or pithing, to achieve death, especially if administered to mature sows and boars with thick skulls. **It is important to select the bolt length and cartridge combination appropriate to the age and size of pig that is being euthanized to ensure that the bolt is long enough to penetrate the pig's skull.** If the pig demonstrates any degree of sensibility, the proper

placement should be reevaluated and the technique should be repeated immediately to render the animal insensible and then a secondary step must be used.

It is extremely important for the bolt gun to be cleaned and maintained regularly. Over time, carbon build-up can slow the velocity of the bolt or cause the gun to malfunction. Therefore, proper and routine maintenance is critical to the function and longevity of the equipment. Use caution when handling a loaded captive bolt gun to avoid accidental firing and human injury.

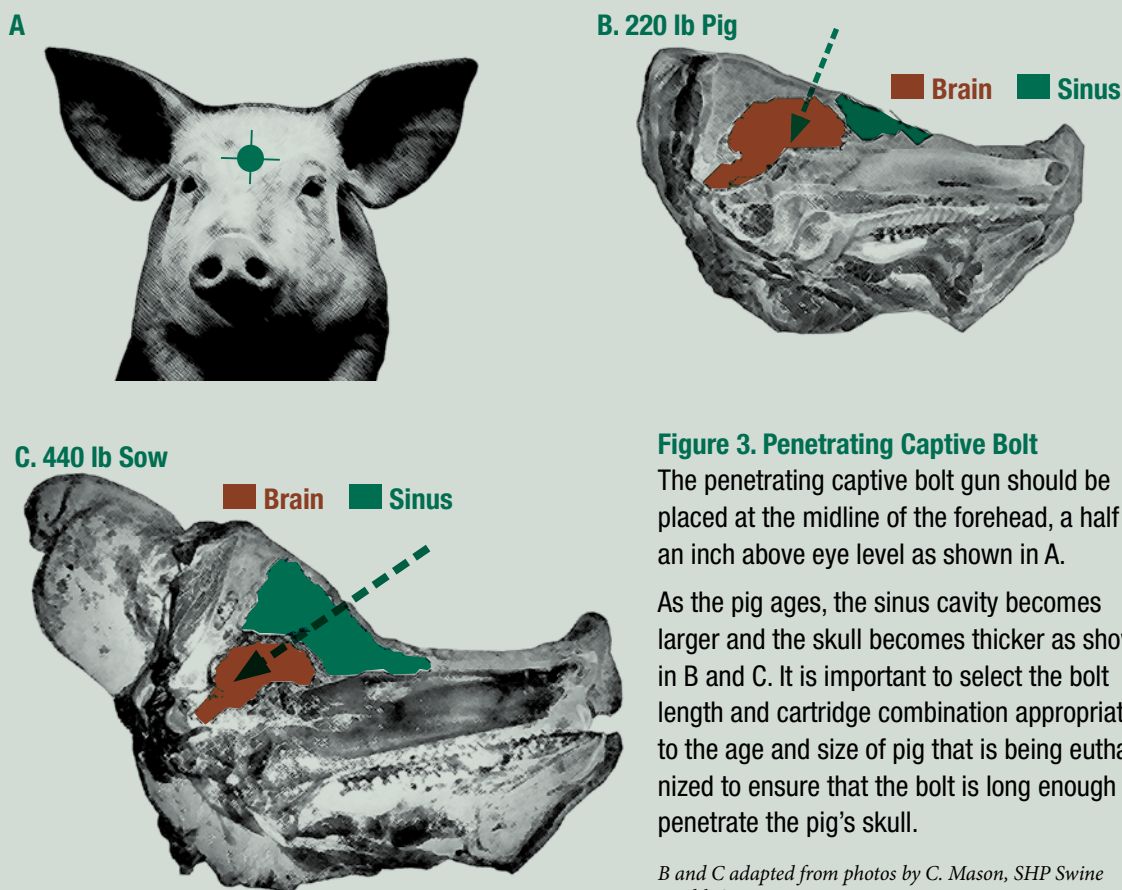


Figure 3. Penetrating Captive Bolt

The penetrating captive bolt gun should be placed at the midline of the forehead, a half of an inch above eye level as shown in A.

As the pig ages, the sinus cavity becomes larger and the skull becomes thicker as shown in B and C. It is important to select the bolt length and cartridge combination appropriate to the age and size of pig that is being euthanized to ensure that the bolt is long enough to penetrate the pig's skull.

B and C adapted from photos by C. Mason, SHP Swine Health Services

4. Electrocution

Electrocution induces death by insensibility of the brain followed by cardiac fibrillation and cerebral anoxia (no oxygen to the brain). When properly applied, electrical stunning induces instantaneous unconsciousness. Pigs effectively stunned with electricity exhibit tonic and clonic movements. In tonic activity, the body becomes extremely tense followed by gradual relaxation. This stage is typically followed by clonic motion, or involuntary kicking or paddling movements, for a minute or two. The tonic activity should occur within a second of delivery of the electric current. If the method is administered effectively, electrocution will render the brain insensible and initiate cardiac fibrillation and death.

The flow of electricity (the current) should be at least 0.5 amps for pigs up to 6 weeks of age and at least 1.3 amps for pigs 6 weeks of age and older.¹ The force behind the flow of the electric current is referred to as the voltage and is recommended to be at least 110 volts for piglets over 3 days of age and up to 6 weeks of age, and 240 volts for pigs 6 weeks of age and older. Using electricity in small piglets less than 3 days of age is not recommended because the design of the electrodes may complicate the application across the piglet's small head and body. The resistance around the skin can be less than that across the body, causing the current to flow on the skin surface rather than through the body.

The current's amperage can be increased by increasing the voltage or decreasing the resistance. Resistance can be affected by the length and gauge of wire delivering the current to the pig, electrode contact with the skin, cleanliness of the electrodes, wetness of the skin, presence of hair, thickness of skin and fat layers, and the thickness of the skull. The frequency of the current delivered

should be approximately 60 hertz (U.S. standard) of alternating current (AC). Using an ammeter to measure amperage can be helpful to ensure adequate current flow is being delivered to the pig.

The biggest disadvantage of this method of euthanasia is the hazard to human safety if proper lock out/tag out procedures are not in place. For both pig well-being and human safety reasons these apparatus should contain an isolation transformer that improves electrical safety and provides sufficient amperage to instantly induce unconsciousness.

There are two methods that can be used for euthanasia by electrocution: head-only and head-to-heart. These are described in detail on the following page. Regardless of the method chosen, the current must first move through the brain to cause insensibility (if an invisible line were drawn between the electrodes it must cross the brain). Methods where the current is directed only to the heart are not acceptable.

Head-only electrocution: Head only application of electrical current only stuns the pig by passing current through the brain and does not cause cardiac fibrillation. This method must be followed by a secondary step, such as head to heart electrocution, across the chest electrocution, or exsanguination within 15 seconds of initial stunning of the animal.

The two electrodes should be placed on the head of the pig so that they span the brain. There are three acceptable positions as shown in Figure 4:

- between the eyes and base of the ears on either side of the head,
- below the base of the ears on either side of the head, or
- diagonally, below one ear to above the opposite eye.

¹ Numbers taken from OIE guidelines

These positions allow the current to pass through the brain and effectively stun the pig. The electrodes must be kept in constant contact with the pig to prevent interruption of the current flow that can lead to an ineffective stun. The current should be applied to the head for a minimum of 3 seconds.

Head-to-heart electrocution: Head-to-heart electrocution stuns and kills the pig by passing

current simultaneously through the brain and the heart. **The front electrode must be placed on the head, level with or in front of the brain. The rear electrode must be placed on the body behind the heart on opposite sides so that the current travels diagonally through the body** as shown in Figure 5. When applying the front electrode to the ear, the base of the ear is the recommended location. The current should be applied for a minimum of 15 seconds.

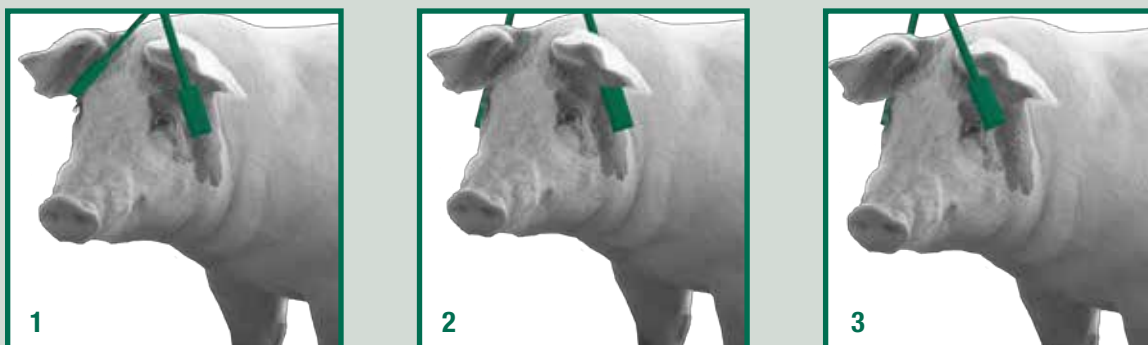
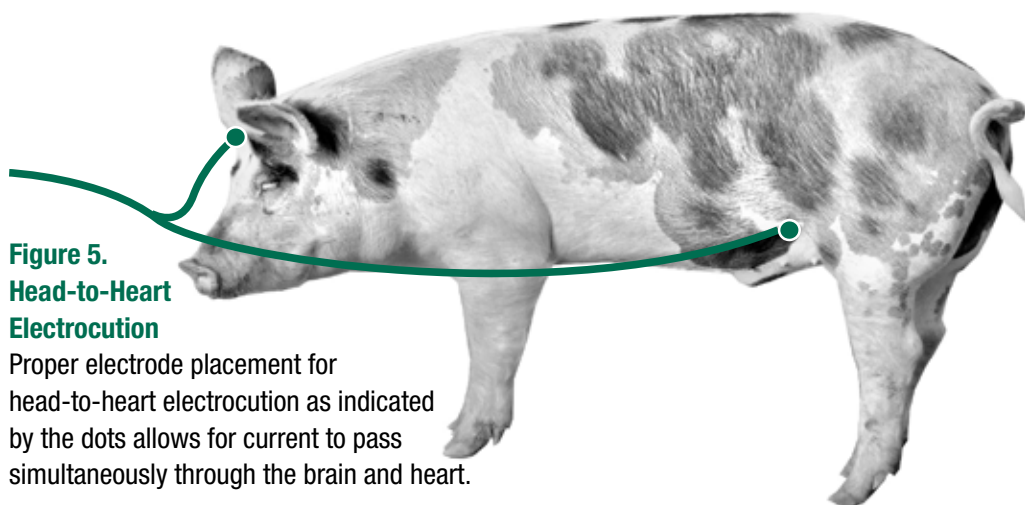


Figure 4. Head-only Electrocution

Proper electrode placement for (1) between the eyes and the base of the ears on either side of the head, (2) below the base of the ears on either side of the head, and (3) diagonally below one ear to above the opposite eye. Regardless of position, this method must be followed by a secondary step.



**Figure 5.
Head-to-Heart
Electrocution**

Proper electrode placement for head-to-heart electrocution as indicated by the dots allows for current to pass simultaneously through the brain and heart.

4. Veterinarian administered anesthetic overdose

Euthanasia solutions (i.e. barbiturates) are used to depress the central nervous system, causing deep anesthesia progressing to respiratory and cardiac arrest. This method of euthanasia does require intravenous injection into the pig. Federal drug regulations require these controlled substance drugs to be bought, stored, and used under supervision

of an individual, such as a licensed veterinarian, who is registered with the U.S. Drug Enforcement Administration (DEA). If this method of euthanasia is used, special considerations must be taken when disposing of the carcass in order to prevent incidental exposure of scavenging animals to chemical residues in the carcass.

5. Manual blunt force trauma

Euthanasia by blunt trauma is effective only for piglets under 12 lbs because their skull bones are thin enough for the force to cause depression of the central nervous system and brain damage. Blunt trauma is a quick, firm blow to the top of the head over the brain as shown in Figure 6. It is essential that the blow be administered accurately and with resolve to ensure euthanasia and not just stunning. Loss of consciousness is rapid when the method is performed properly. The pig usually will show tonic and clonic movements. In tonic activity, the body becomes extremely tense followed by gradual relaxation. This stage is typically followed by clonic motion, or involuntary kicking or paddling movements, for a minute or two.

A limitation of this method is that some caretakers may not be able to apply sufficient force to euthanize larger piglets effectively. This method may be aesthetically objectionable to people administering or observing the method. Recognizing the limitations of the method and concerns with the appearance of manual blunt force trauma applied to piglets as a method of euthanasia, the National Pork Board and the American Association of Swine Veterinarians support exploration of alternative primary methods of neonatal euthanasia.

Figure 6. Manual Blunt Force Trauma

Manual blunt force trauma is a quick, firm blow to the top of the head over the brain. It is essential that the blow be administered accurately and with resolve to ensure euthanasia and not just stunning.



Secondary step

In some cases, a secondary step is needed to ensure the pig is euthanized. Some methods described in this brochure will only stun the pig and a secondary step must be performed for effective euthanasia. These secondary steps are only for use after the pig has been stunned and is unconscious and must not be used as a primary method of euthanasia. A secondary step or a backup method of euthanasia should be used immediately if the pig shows any of the vital signs used to confirm death (see section on *Confirming Insensibility and Death* on page 15).

Exsanguination: Exsanguination, also known as bleeding out, is the severance of the major blood vessels in the neck or chest that results in a rapid fall in blood pressure, leading to a lack of blood to the brain and death. Carotid arteries and the brachial plexus are acceptable locations for exsanguination. Consult with your veterinarian for proper technique. To ensure rapid death, the cut must completely sever the vessels (indicated by strong and rapid blood flow), and be large enough so blood

flow is not impeded. The length of the knife blade should be at least 5 inches for a grow/finish pig but may vary depending on the pig size. Exsanguination should begin within 15 seconds after stunning to ensure rapid euthanasia. Some euthanasia methods will result in involuntary movement of the pig after it is applied. Be very cautious of pig movements when performing exsanguination.

Pithing: Pithing is the physical destruction of the brain and upper regions of the spinal cord by a rod or cane as shown in Figure 7. A wire or polypropylene rod is inserted through the hole in the skull made by gunshot or penetrating captive bolt. The rod is pushed into the brain and slid back and forth and rotated to cause maximum damage to the brain and upper spinal cord. Initially, the pig may show muscle contraction and twitching, but muscles will relax and movement will be inhibited shortly thereafter. Disposable and non-disposable pithing rods are commercially available. Rods can be hand-made by securing #9 wire around a handle. Pithing rods should not be left in the carcass.

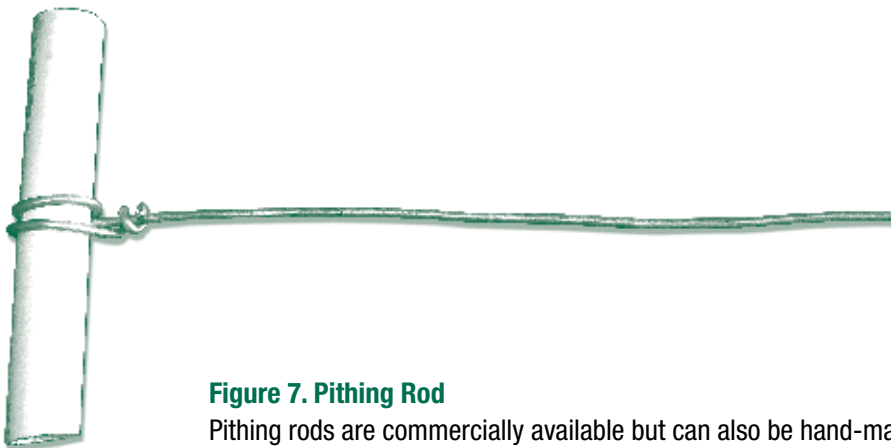


Figure 7. Pithing Rod

Pithing rods are commercially available but can also be hand-made.

Confirming insensibility and death

Regardless of the method used, it is important to be able to recognize ineffective stunning if it occurs. It also is important to confirm the death of the pig.

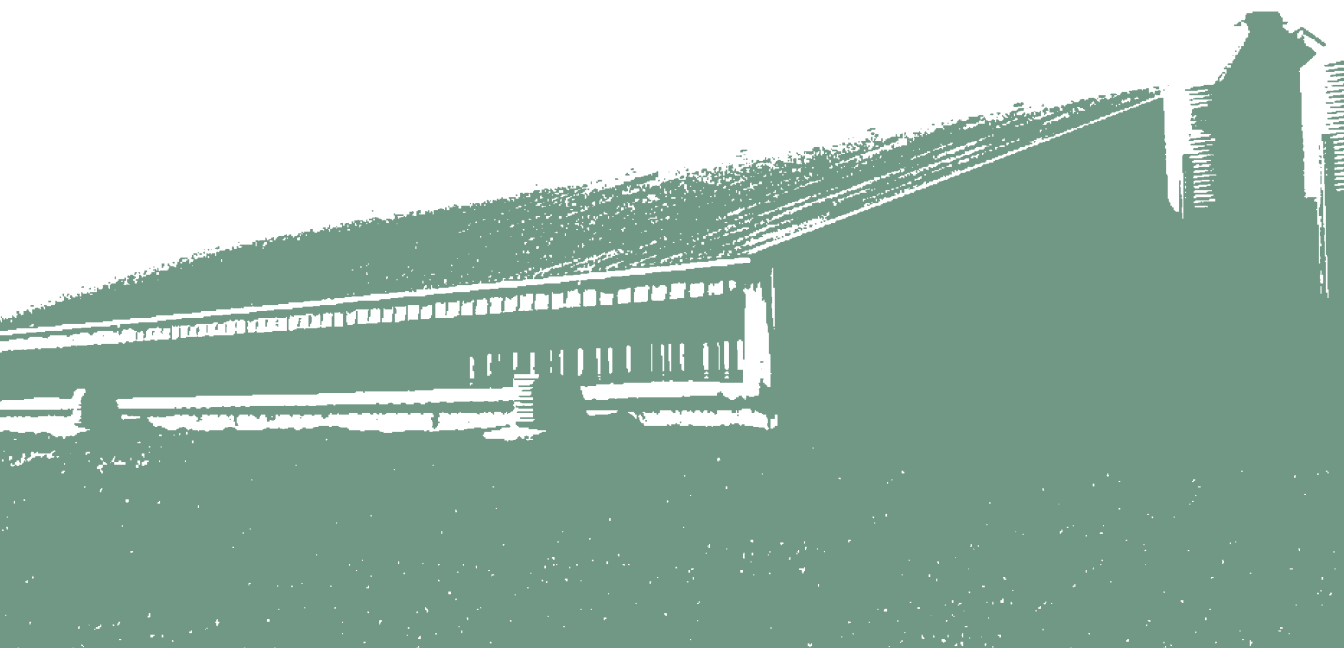
Confirming insensibility: Insensibility should be checked within 30 seconds after the method is performed and should be monitored and maintained until death. Ineffective stunning and euthanasia can be recognized by the presence of one or more of the following signs:

- Rhythmic breathing,
- Constricted pupils,
- Attempts to raise the head (righting reflex),
- Vocalization,
- Palpebral reflex (run finger along the eyelash and if the pig blinks or moves its eye, the pig is sensible),
- Response to a painful stimulus (such as a nose prick with a needle).

Confirming death: The pig should be confirmed dead before it is moved for disposal. Multiple vital signs listed below should be checked within 3 minutes after the euthanasia method has been performed:

- No breathing,
- No heartbeat,
- No movement or muscle tone,
- No response to painful stimulus (such as a nose pinch or prick with a needle),
- No vocalization,
- No corneal reflex (the eye blinks when an object touches the cornea).

If the pig shows any of these vital signs, a secondary step or a backup euthanasia method should be used immediately.



Conclusion

It is everyone's responsibility to identify those pigs that need to be euthanized. Caretakers should ensure that euthanasia is completed in a timely manner. Euthanizing a pig can be unpleasant for the caretaker, but in certain cases euthanasia may be in the best interest of the pig's well-being.

It is imperative that proper training is given to all swine caretakers responsible for performing euthanasia. Additionally, regardless of the method of euthanasia selected, caretakers should work with their veterinarian to be trained to check for signs of insensibility of the pig, to confirm the death of the

pig, and to perform secondary (or backup) methods of euthanasia on pigs of different sizes effectively and humanely.

Details of each technique are included to allow producers to design an appropriate plan for euthanasia of pigs in different stages of production. All of the methods discussed in this brochure are considered humane for the pig when properly performed as described. The methods selected and the disposal of euthanized pigs must conform to state law or local regulations.

Work with a veterinarian to outline a plan stating which method of euthanasia will be used during each phase of production. Use the blank form provided. Post the plan in a centralized area as a guideline for humane euthanasia of pigs on your farm. Remember to review the plan with new caretakers and annually with the herd veterinarian and all caretakers as a reminder.

Example Euthanasia Action Plan for a Swine Herd

Euthanasia Action Plan

Farm Name: X4Z Farm

Date: Month/Day/Year

Drafted by: Joe Smith, Producer and Dr. John Doe, veterinarian

Caretakers responsible for euthanasia: Sally Smith, Dave Jones & Joe Smith

Phase of production/Size of pig	Primary euthanasia method	Backup euthanasia method/device
Suckling pigs	Non-penetrating captive bolt	Carbon dioxide (CO ₂)
Nursery pigs, up to 70 pounds	Penetrating captive bolt	Gunshot
Grower-Finisher pigs, up to market weight	Penetrating captive bolt	Gunshot
Mature pigs, sows and boars	Penetrating captive bolt	Gunshot

Caretakers responsible for euthanasia and that have been trained in methods of euthanasia, confirming insensibility and confirmation of death.

Caretaker name	Training Date	Training topic (e.g. method, confirming insensibility and death)	Trainer Name
Sally Smith	June 5, 2016	CO ₂ , confirming death	Dr. John Doe
Dave Jones	Sept. 6, 2016	penetrating captive bolt	Dr. John Doe
Dave Jones	Sept. 9, 2016	confirming insensibility and death	Dr. John Doe
Joe Smith	Oct. 14, 2016	penetrating captive bolt, confirming insensibility and death	Dr. John Doe

Euthanasia Action Plan



**American Association
of Swine Veterinarians**
830 26th Street
Perry, Iowa 50220
(515) 465-5255 | aasv.org



National Pork Board
1776 NW 114th Street
Des Moines, IA 50325
(515) 223-2600 | pork.org



©2008, 2011, 2016 National Pork Board, Des Moines, IA USA
This message funded by America's Pork Producers and the Pork Checkoff.

04970-11/16