



**Title:** Swine Unit

**SOP Number:** 029

**Purpose:** The Swine Unit located at New Deal Teaching and Research Facility, consists of approximately 60 to 80 sows producing approximately 1,600 pigs per year. There are currently one full time staff and a variable number of student workers. The objective of the unit is to produce high quality commercial swine using industry relevant production practices and support the teaching and research goals of TTU in a safe, clean and humane environment.

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## **BREEDING HERD HUSBANDRY**

### **A. Breeding Herd Overview**

- a. The New Deal Swine Unit utilizes 'all in, all out' batch breeding and farrowing practices.
- b. Sow groups can have between 8 to 16 head depending on the size of the total sow herd.
- c. The farm utilizes artificial insemination, but boars are maintained for heat detection and estrus stimulation.

### **B. Gestating Housing**

- a. Gestating or open sows/gilts are housed individually in gestation stalls or pens with up to 5 sows per pen.
- b. Each gestation stall must have dimensions of at least 2.1 m (7 ft) × 56 cm (22 in). When housed in pens, each sow must have at least 1.49 m<sup>2</sup> floor space. (Ag Guide).
  - i. Sows housed in stalls should be able to lie down fully on its side without the head having to rest on a raised feeder and the rear quarters in contact with the back of the stall at the same time (PQA).
- c. The temperature at sow level (approximately 1' above ground) should be between 50 to 77°F (Ag Guide). An optimal set point for gestating sows is 65 to 68°F with Humidity less than 65% (PQA).

### **C. Nutrition and Feeding**

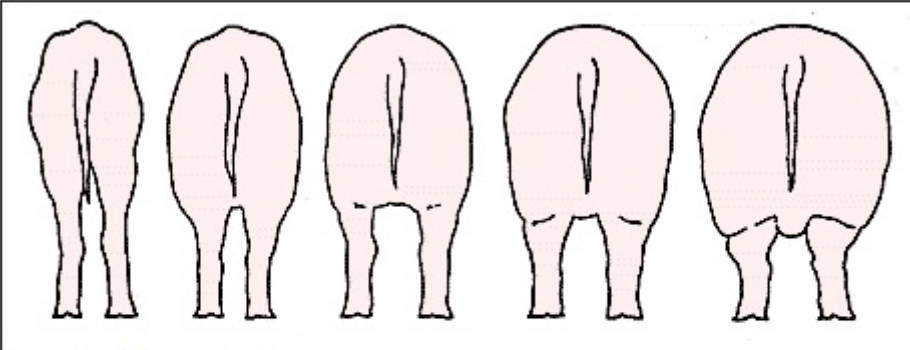
- a. Sows will be fed diets that meet or exceed the most recent NRC Swine nutrient requirements. Daily rations are to be offered in the morning.
- b. Sows will have ad libitum access to water with a recommended flow rate of 4 cups/min (PQA).
- c. Sows and gestating gilts are fed to maintain or achieve an ideal body condition score (BCS 3). There are 4 recommended phases for feeding sows:
  - i. Full feed through the wean to service interval
  - ii. Restricted feed based on BCS during gestation
  - iii. Increase feeding in late gestation for gilts if their BCS is ideal or thin.
  - iv. Full feed during lactation and maximize feed intake
- d. Feeding levels should be adjusted according to individual BCS during gestation. Amount of feed is determined based on diet composition and in consultation with a swine nutritionist (PQA).
- e. Feed storage bins are to be emptied and cleaned biannually to prevent mold build up.

### **D. Body Condition Score**

- a. Body condition score (BCS) can be assessed by the chart below, or be measured using a Caliper. It should be measured pre-breeding, and when moved to farrowing, and as needed to determine feeding level (PQA and PIC).
- b. There are 3 main and 2 sub measurements detected by the caliper: Thin (plus or minus), Ideal (plus or minus), or Fat (plus or minus). To use a caliper properly:

- i. Use your hand to palpate the sow's last rib. At the sow's last rib, use one hand to place the middle of the caliper on the sow's backbone. Do not press the tips of the caliper into the sow. Make sure the caliper is correctly aligned. Read and record the caliper measurement.
- c. A sow or gilt with a BCS of Thin or less (i.e., 1 or 2) should receive immediate attention to improve their BCS, and appetite should be closely monitored (PQA).
- d. Any animal that is non-ambulatory with a BCS of 1 or 2 should be euthanized, immediately (PQA).

### Condition score of swine



Score	Condition	Body Shape
1	Emaciated	Hips, backbone prominent to eye
2	Thin	Hips, backbone easily felt without applying palm pressure
3	Ideal	Hips, backbone felt only with firm palm pressure
4	Fat	Hips, backbone cannot be felt
5	Overfat	Hips, backbone heavily covered

(Patience and Thacker, 1989.)

## E. Gilt Management

- a. Selected replacement gilts should be less than 20 weeks of age when brought into quarantine and sourced from a reputable seedstock or genetic supplier.
- b. All replacement breeding gilts are quarantined for 30 days upon arrival. Quarantine procedures are outlined in SOP 014.
- c. A 'vet to vet' consult should occur prior to acquiring new breeding stock.
- d. During quarantine gilts are dewormed with either injectable or feed top dress dewormer and vaccinated for Parvo, Erysipelas, and Lepto according to the TTU vaccination and Deworming Schedule.
- e. Gilts that are unsound, have joint issues, appear unthrifty, falling behind in weight, and/or have less than 14 potentially functional teats should be culled prior to entering the herd (PIC and PQA).
- f. After quarantine, gilts can be housed together in the finisher until they reach appropriate maturity for boar exposure: 24 to 25 weeks of age and at least 290 pounds.
- g. At 24 to 25 weeks of age, gilts should be exposed to a boar every morning for 7 consecutive days for 15 minutes in a predefined boar exposure area. This is done prior to breeding to aid in inducing standing heat.
- h. Gilts selected for breeding should be between 300 to 350 pounds, at least 29 weeks of age (203 days), have had one detected heat, and have at least 14 potentially functional teats. Gilts should be on full feed until after they are bred (PIC and PQA).

## F. Boar Management

- a. Because we use artificial insemination, boars are not always needed on site. Up to 4 boars may be present to aid breeding/heat detection or for teaching purposes.
- b. Boars are limit-fed to their BCS to limit body size and to maintain libido.
- c. Boars are vaccinated semi-annually with a combination vaccine containing Erysipelas, Lepto, and Parvo and annually with PCV 2 and Mycoplasma hyo.
- d. Boars are dewormed with either injectable or top dress dewormer semi-annually.

## **G. Breeding**

- a. Sows are bred using artificial insemination. Semen is sourced from a commercial genetic company with a known disease status.
- b. Heat is detected using a boar or boar better pheromone. Sows should cycle 5 to 8 days post weaning. Once estrous cycles have begun, they normally occur every 18 to 21 days.
- c. When feasible, breeding is scheduled so farrowing can occur during the work week.
- d. If needed, open sow groups can be synchronized by feeding altrenogest (Matrix) for 14 days and estrus should occur 4 to 9 days after the feeding period. Boar exposure in combination with PG600 can be used to sync gilts as needed.
- e. Each sow/gilt should be bred with 2 to 3 doses of semen during standing estrus across 2 to 3 days using artificial insemination techniques. No more than one breeding per day (PIC).
- f. If feasible, provide boar exposure for 1 hour right after insemination.

## **H. Gestation Management**

- a. Post breeding estrus behaviors should be tracked to determine if a sow conceived. A sonogram machine or doppler may also be used.
- b. Stress should be mitigated during the gestation period. Avoid penning open or cull sows with gestating sows and gilts.
- c. Sows are to be vaccinated for:
  - i. Clostridium Perfringens Type C and E.coli at 5 and 2 weeks prior to farrow date.
  - ii. PCV 2 and Mycoplasma on an annual basis
  - iii. Dewormed with an injectable or top dress 2 weeks prior to farrow date.

## **I. Farrowing Management**

- a. Sows are transported to the farrowing room 3-7 days before their expected farrowing date. Sows are to be weighed prior to entering farrowing room.
- b. The farrowing room is to be power washed and disinfected at least 4 days prior to moving sows (PIC and PQA). The facility should be dry and prewarmed before loading.
- c. The temperature at sow level (approximately 1' above ground) should be between 50 to 79°F (Ag Guide). A temperature of 76 to 78°F at sow level is recommended for deep pit rooms prior to and at farrowing (PQA). The door to the farrowing rooms should remain shut while not in use to maintain temperature.
- d. A supplemental heat lamp is provided in each farrowing crate to create a creeping area that is 90 to 95°F (PQA; Ag Guide). All heat lamps should be inspected and ensured to be in working condition prior to loading sows (PIC and PQA).
- e. Two days after entry to the farrowing unit, crates are cleaned to remove any internal parasites which may have been expelled. Manure is to be cleaned daily behind sows from this point on until d 3 post farrowing.
- f. Two days prior to farrowing date sows are to be offered full feed of a lactation diet. Feeders are to be cleaned daily to remove old/wet feed.
- g. Sows are checked at least twice daily and made to stand and drink water as soon after farrowing as possible. Sows are routinely checked for mastitis and are treated if clinical signs appear (see treatment protocols in addendum). The feed provided is to be measured and recorded.
- h. If staff are present during active farrowing, sows should be checked every 30 minutes (PQA).
- i. Sows exhibiting signs of dystocia (see treatment protocols in addendum) are given 1-2 ml of oxytocin every hour for four hours (maximum 4 doses). Oxytocin should not be given to sows who have had no piglets (PQA).
- j. If a sow shows signs of milking complications, she is given Oxytocin, B-12, and Excede (1 ml/44 lbs IM once).
- k. If a sow reaches day 116 to 117 of gestation and has not exhibited any farrowing behaviors, an injection of dinoprost tromethamine can be used to induce farrowing (PIC and PQA). Farrowing should occur within 30 hours.

## **J. Litter and Piglet Management**

- a. Prior to farrowing, disposable biodegradable mats may be placed in the creeping area and sprinkled with drying powder to promote a warm environment for piglets. Mats should be removed within 10 days.
- b. If present during farrowing, dry newly born piglets with drying powder and encourage to nurse. Drying powder can be used as needed up to 7 days post farrowing.
- c. If staff observes parturition, each piglet's naval cord may be sprayed with iodine to prevent bacteria from entering and causing disease.
- d. Piglets may be transferred to another sow for up to two days post farrowing to equalize litter size if needed. Farm specific cross-fostering SOP should be followed.
- e. Litters are processed at 1-14 days of age (3 days preferably). Processing includes:
  - i. Piglets are weighed
  - ii. Piglets are given Penicillin G and Iron by injection.
  - iii. Needle teeth are trimmed as needed (not required).
    1. Selective teeth trimming may be performed when piglets damage each other or the sow. The top 1/3 of needle teeth are trimmed with side cutting pliers. When piglets or sows' teats are injured, that litter may have their teeth clipped.
  - iv. Males are castrated less than 14 days of age (generally < 5 days of age)
    1. Hold the piglet by both hind legs with its head down.
    2. Using the thumb, push up on both testicles.
    3. Make an incision through the skin of the scrotum over each testicle in the direction of the tail.
    4. Be sure the incisions are made low on the scrotal sac to allow for fluid drainage.
    5. It does not matter if you cut through the white membrane of each testicle or not.
    6. Pop the testicles through each incision and pull on them slightly.
    7. Pull each testicle out while pressing your thumb against the piglet's pelvis.
    8. Thumb pressure on the pelvis is important to ensure that the testicular cords break off at the point of your thumb rather than deep inside the body, which may promote development of a hernia.
    9. If necessary the testicle may be cut free of the cord using a scraping motion.
    10. Cut away any cord or connective tissue protruding from the incision and spray the wound with antiseptic.
  - v. All piglet ears are notched, using the Universal Ear Notch System to permanently identify them.
    1. The right ear is notched with the litter number.
    2. The left ear is notched with individual pig number.
  - vi. All piglet tails are docked to help prevent tail biting. The tails are cut 0.5 to 1.0 inch from the base; the tail is then sprayed with iodine.
- f. Any piglet that weighs less than 2 pounds should be euthanized for their welfare as piglets that small have less than a 10% chance of making it to weaning.

## **K. Weaning Management**

- a. Piglets are to be weaned at 18 to 30 days of age. The industry standard is a 21–22-day average (PQA).
- b. At weaning, all piglets are to be:
  - i. Weighed
  - ii. Vaccinated with combination vaccine containing Bordetella, Pasturella, Erysipelas and Circovirus and boosted 21 days later, according to TTU Vaccination and Deworming protocol.
  - iii. Ear tagged, (optional if it will affect a teaching or research protocol).
- c. At weaning, all sows are to be:
  - i. Weighed & BCS
  - ii. Vaccinated for Lepto, Parvo, and Erysipelas.
  - iii. Declaws evaluated and trimmed if needed.
- d. Newly weaned piglets are moved to a clean, disinfected, and prewarmed nursery.
- e. The farrowing house is emptied and cleaned/disinfected.

## **TERMINAL PIG HUSBANDRY**

### **A. Nursery Management**

1. Weaning is the most stressful period in the life of a terminal market hog. The nursery period should be managed closely and carefully to maximize herd health and pig survivability.
2. The nursery rooms are to be thoroughly power-washed and disinfected prior to weaning (PQA). It is critical that organic matter is removed from penning, hallways, feeders, etc. Cleaning should happen as soon as possible after removing pigs to allow for maximal downtime between pig groups.
3. Prior to placing pigs in the nursery, the nursery room should be warmed to 85°F at least 2 days prior. The temperature at pig level should be between 69 to 90°F (Ag Guide). The room temperature should stay at 85°F for the first 3 days, and then the temperature can be gradually decreased by 0.5°F each day until 70 to 75°F is attained (PQA and PIC).
4. Nursery pigs are to have ad libitum access to feed and water. Feeders should be prefilled prior to placing pigs into the nursery.
5. At weaning, pigs under 9 lbs are considered fallback pigs. Fallback pigs need extra care and are typically more susceptible to disease. These pigs should be penned together and closely monitored. Gruel or mat feeding can be used to stimulate appetite.
6. The alleys are to be washed and cleaned as needed. It is recommended that pens are scraped, and the alleys are swept, on a weekly basis.
7. At 3 weeks post weaning, pigs should receive their booster of Bordetella, Pasturella, Erysipelas and Circovirus.

### **B. Grow-Finish Management**

1. Pigs are transported from the nursery, weighing around 50 lb and 6-10 weeks old, enter the growing-finishing building.
2. These pigs remain in the building until they reach market weight (280 to 320 lb of live body weight).
3. The grow-finish unit is a continuous flow unit. Pigs of like size should be housed together. Cleaning/disinfection, power-washing and disinfection are to occur prior to moving in new pigs.
4. Grow-finish pigs are to have ad libitum access to feed and water.
5. Pigs are fed in phases of nutritionally adequate diets till target weight is achieved.
6. At mid-finishing (60 days into finishing) or 30 days prior to slaughter, Safeguard (fenbendazole) will be added to the feed.
7. Pigs of appropriate weight are shipped to market, may be sold to private buyers or TTU researchers during any phase of production.

## **GENERAL HERD HUSBANDRY AND MANAGEMENT**

### **A. Observations and Records**

1. All pigs are observed daily for illness or injury.
2. Daily observations should include: Animals' eating and drinking habits, signs of sickness or injury; walking through the individual barns to observe (not recorded except for facility failures) the environment at the pig and barn level to make sure temperatures and air quality are correct for the phase of production; maintenance issues with fans, flooring, penning, feeders, waterers, etc.; and record any mortalities that occur on the farm.
  - a.
3. Daily observations for each group of pigs are to be recorded. Any treatments or pigs of concern are to be recorded.
4. The daily herd count is to be maintained when pigs are moved, sold, euthanized, or mortality occurs.
5. Sow cards are to be maintained during farrowing with detailed records.
6. Calls to Veterinarians and their treatment recommendations are to be recorded.
7. Animal Care Services staff (technician or Veterinarians) observes all stages of pigs monthly.

### **B. Animal Health Assessment and Treatments**

See addendum below

1. The swine herd manager makes the decision to treat sick, diseased, injured, etc. pigs or to call the veterinarians for further diagnosis or treatment regimen. Staff are to make decisions under the

guidance of the herd manager and ACS veterinarians. A flow chart for treatment decisions is provided.

2. Pigs that are sick are treated according to recommendations from the VCPR, and withdraw dates are to be strictly followed.
3. Medications should be provided according to label and/or the VCPR. Off label use should only occur under the guidance of the veterinarian and instructions must be recorded (PQA).
4. All treatments are recorded in the treatment records and observed on veterinarian rounds.
5. Pigs may be treated within their home pen or moved to a separate treatment pen at the discretion of the herd manager or veterinarians.
6. Everyone with access to the animal facility is responsible for informing the Animal Care Services Veterinarian staff when an animal becomes ill. **Seriously ill or injured animals should be reported IMMEDIATELY to the veterinarian.** When an investigator, technician, or animal care personnel requires veterinary assistance, they should:
  - a. Complete the "Animal Treatment Record" in the records. Indicate the date, room number, pen number, and/or animal ID, the problem observed, and ensure that the name (or initials) of the person making the report is recorded.
  - b. Contact the University Veterinarian or the Swine Unit Manager at:

**Edward Carrasco**  
Swine Unit Manager  
806-746-5170 Office  
806-543-6785 Cell

**Dr. Tiffanie Brooks**  
Attending Veterinarian  
806-834-8588 Office  
806-239-2120 Cell

**Dr. Paul Stonum**  
Clinical Veterinarian  
806-834-7373 Office  
660-562-4425 Cell

**C. Veterinarian-client-patient relationship**

1. The farm staff agrees to receive advice and implement herd health program recommended by the University Veterinarians and Clinical Veterinarian
2. The veterinarians may additionally seek the advice of a swine veterinary specialist
3. A routinely updated list of Animal Health Products approved by the Veterinary Staff will be kept onsite, in the unit manager's office.
4. A signed VCPR agreement is to be onsite and updated yearly (PQA).
5. A routinely updated vaccination and deworming protocol is to be onsite.

**D. Emergency Contact**

1. The emergency/disaster plan located in the unit manager's office should be consulted for specific details. It is recommended that it is reviewed every three years by the IACUC (PQA).
2. During instances of natural weather elements that may cause power outages, disruption in water supply etc. contact:

**Edward Carrasco**  
Swine Unit Manager  
806-543-6785 Cell

**Jeff Manahan**  
Farm Resident  
806-746-5097 Cell

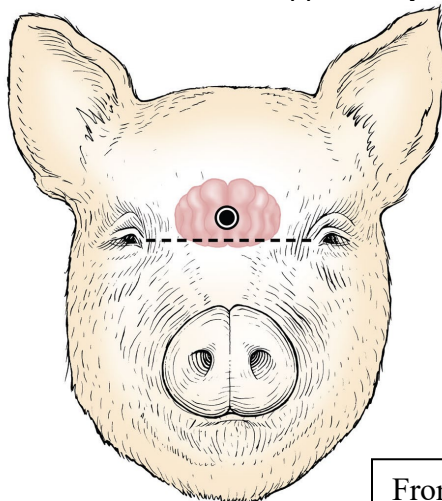
**E. Animal Handling, Restraint and Disaster Plan Training:**

1. All staff are to be trained on proper animal handling and restraining according to PQA guidelines (PQA) and the Ag Guide, and procedures in the Disaster Plan.
2. Snaring is used to restrain animals for treatment and bleeding when the animal is too large to hold or restrain by other means.
3. Snaring is reserved for situations where caretaker safety is of concern.
4. Panel and sort boards are used for moving pigs.
5. A record of all employee training will be maintained

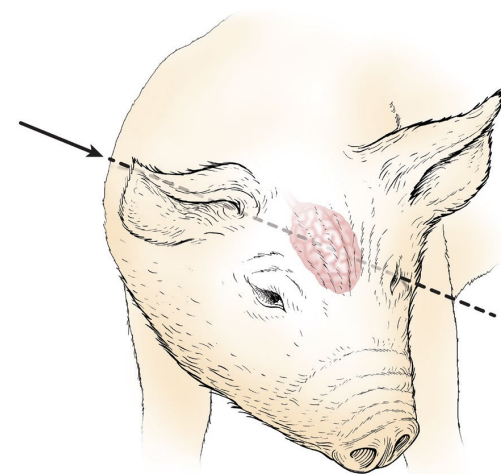
**F. Euthanasia**

1. There are 4 main methods of euthanasia used on farm: penetrative captive bolt, lethal gunshot, carbon dioxide gas (CO<sub>2</sub>), and blunt force trauma
2. Captive bolt may be used on pigs greater than 12 pounds
  - a. Only people who have been properly trained and have demonstrated competency with a captive bolt gun should handle, load or operate a captive-bolt gun. All training is to be documented

- b. Do not point a captive-bolt gun at yourself, any other person or a non-target animal. Never place the action portion of the gun against hands, fingers or any other part of the body.
  - c. Two people are required to properly conduct captive-bolt gun euthanasia – one to restrain the pig and one to fire the bolt gun.
  - d. Snare and restrain the animal.
  - e. Load the captive bolt gun with a firing cap. Note: The charge should be adequate for the size of the animal being euthanized.
  - f. After loading, cock the gun and aim. The placement should be directed at the center of the forehead slightly above a line drawn between the eyes. The bolt should be directed toward the spinal canal (see frontal figure below).
  - g. Place the penetrating captive bolt very firmly against the skull, aimed at the brain and directed toward the tail.
  - h. Stand with feet set and braced for the recoil that the bolt gun may produce.
  - i. Discharge bolt gun. (If the bolt gun misfires or does not discharge for some other reason, point the bolt gun in a safe direction and refer to the operator's manual for troubleshooting information.)
  - j. Move out of the animal's way. The animal will drop to the ground and may convulse for a short period of time.
  - k. Depending upon the size of the pig, the penetrating captive bolt may only stun the animal. Exsanguination can be used as a secondary means of euthanasia after stunning.
  - l. All pigs greater than 200 pounds are to be exsanguinated.
  - m. The animal should be confirmed dead before it is moved.
  - n. The captive-bolt gun should be cleaned after every use. Record when equipment cleaning and maintenance occurs (PQA).
3. Gunshot is an effective method of euthanasia when properly performed and can be used on pigs greater than 12 pounds.
- a. Human safety is the primary concern with the use of gunshot for euthanasia.
  - b. Proper training on firearm safety and use is imperative and gunshot should only be performed by personnel who have had appropriate training.
  - c. Only the Swine Unit Manager may dispatch pigs by lethal gunshot.
  - d. There are two possible sites (but one preferred) for conducting euthanasia in swine by gunshot or captive bolt: Frontal, and from behind the ear toward the opposite eye.
  - e. Frontal site: The placement should be directed at the center of the forehead slightly above a line drawn between the eyes. The bullet should be directed toward the spinal canal  
Behind the ear site: the approach is only used with gunshot application, and the projectile should be toward the opposite eye.



Frontal site



Behind-the-ear site

- f. Specific sites may vary slightly according to breed.
  - g. When the alternate site behind the ear is chosen, a .22 caliber firearm loaded with a solid-point bullet may be used.
4. Carbon Dioxide Gas can be used in an enclosed chamber on pigs less than 10 weeks of age or less than 70 lb (AVMA; PQA)



- a. Place pigs in an appropriate size chamber and fill with CO<sub>2</sub> gas according to posted SOP.
  - b. Pigs will be left in the chamber for a minimum of 5 minutes or longer as needed for effective euthanasia. Death will be visually confirmed by lack of breathing, movement or eye blink reflex.
  - c. Chambers should be routinely cleaned
5. Blunt force trauma is an acceptable form of euthanasia in suckling piglets weighing less than 12 lb.
  - a. It should only be used when other means of euthanasia are unavailable.

#### **G. Transportation**

1. Pigs moving between farrowing and nursery will be transported in deep well cart for the short distance that they are transported.
2. Pigs moving between buildings will be placed on the hydraulic trailer.
3. The only time a pig will enter a gooseneck trailer will be when it is leaving the farm. Be aware of the weight limits of the trailers.
4. A maximum number of pigs (based on TQA space requirements) are placed on a gooseneck trailer at a time. Driver must be PQA and TQA certified (PQA).
5. Loading and unloading procedures may also consist of moving pigs from trailer to trailer or by herding them out (by using herding boards) from the sides of the trailer.
6. Normal/Routine repairs of the vehicles and trailers are done by the swine herd manager or staff when possible, or the personnel who last used the trailers or vehicles.
7. Whenever one of the trailers is taken off site and/or has hauled non-herd pigs or other livestock, the trailer will be cleaned according to SOP089 Swine Trailer Bio-Security Procedures, before it is brought back onsite by the personnel using the trailer.

#### **H. Enrichment**

1. Forms of physical enrichment (i.e. chains, balls, spinners, etc.) can be provided, to reduce stereotypic behaviors and reduce stress.
2. Except for sows in gestation or farrowing stalls, social enrichment via group housing is provided.

#### **I. Quarantine**

1. All pigs from an outside source must be quarantined prior to entering the TTU herd.
2. Pigs will be housed in a location approved by the veterinary staff prior to acquisition.
3. Quarantine must last a minimum of 30 days
4. Specific personnel must be designated to observe and feed/water quarantine pigs and must not enter TTU swine facilities or the feed mill
5. If separate personnel cannot be designated as the case with the swine staff, then:
  - a. special attire and equipment must be designated for the quarantine area
  - b. quarantine pigs should be taken care of at the end of the day to avoid re-entering the herd.
6. Quarantine areas are to be cleaned and feed disposed of quarantine period.

#### **J. Biosecurity**

1. Biosecurity is of the utmost importance to maintaining the herd health. Please see IACUC Policy 01.

## **Animal Health Assessment and Treatments Addendum**

### **Abscesses**

#### **Clinical Symptoms:**

- Swollen, fluid filled area anywhere on the body
- Inflammation of the surrounding tissues
- Purulence (pus)

#### **Treatment:**

- Evaluate the contents of the lesion by cleaning the area, then aspirating with a sterile 16 gauge needle
- If the fluid is clear pink or is blood, leave it alone. If the condition gets worse and the animal is distressed, consult the veterinarian.
- If the fluid is pus and the abscess is larger than golf-ball sized or is causing clinical problems or distress to the animal, evaluate if it could be lanced.



- Not all abscesses should be lanced. When abscesses are located over joints, lancing an abscess may be contraindicated. If it does not have a defined pus pocket, lancing may not be beneficial. If you are not sure, ask the farm manager or veterinarian.
- If determined to be appropriate, proceed to lance the area with a sterile scalpel blade and drain the pus
- Flush the lanced site thoroughly with a disinfectant solution such as betadine or chlorhexidine
- Systemic antibiotics will be determined by a veterinarian.
  - Give Excede 1 ml/44 lbs IM once OR Excenel RTU EZ 1 ml/35 lbs IM once daily for 3 days
- After lancing, if the condition worsens or does not improve within 3 days, call the veterinarian

## **Baby Pigs: Scours, Skin Issues, Swollen Joints, Unthriftiness**

### **Scours**

Begin with Tx 1. Proceed to next treatment if no response after four days.

- Tx 1: Spectogard 1 ml/10 lbs orally twice daily for 3-5 days
- Tx 2: SMZ-TMP 1 ml/10 lbs orally once daily for 3-5 days

### **Skin issues: lacerations, greasy pigs**

- Mild/superficial: treat with topical antiseptic such as Barrier II, once to twice a day until resolved
- Deep/large wounds, punctures, or moderate to deep infected wounds: same as above, plus Excenel RTU EZ 1 ml/22 lbs IM (minimum 0.25 ml/dose) once daily for 3 days

### **Swollen joints**

- Check for co-infections: umbilical infections, respiratory disease
- Begin with Tx 1. Proceed to next treatment if no response after four days.
  - Tx 1: Excenel RTU EZ 1 ml/22 lbs IM (minimum 0.25 ml/dose) once daily for 3 days
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### **Unthrifty pigs**

- Differential diagnosis
  - MMA in sow
  - Scours
  - Respiratory disease
- Treatment
  - Cross foster or supplement on advice of farm manager
  - Euthanize very lethargic/down piglets unlikely to recover
  - Treat any underlying conditions

## **Bacterial multisystemic disease: Streptococcus suis/Erysipelas**

### **Clinical symptoms**

- Fever
- Meningitis
  - Early: ears back, squinting eyes; depression; incoordination; dog-sitting
  - Later: unable to rise, paddling, convulsions
- Lameness, possibly with swollen joints
- Endocarditis: difficulty breathing, blue mucus membranes, wasting
- Sudden death
- Dermatitis (Erysipelas)
  - Reddened or cyanotic skin, especially about the ears, snout, jowls, throat and ventral abdomen. May be discrete, raised, and red to purple areas of skin with a rhomboid or diamond shape

### **Treatment**

Use one of the following based on needed withdrawal and ability to give multiple days of injections

- Excede 1 ml/44 lbs IM once
- Excenel RTU EZ 1 ml/35 lbs IM once daily for 3 days

## **Dermatitis – greasy pig and other skin problems**

**Clinical Symptoms:** reddening of skin, pustules, scabs, crusts

**Causes:** viral or bacterial infections; external parasites (flies, lice); trauma/bites

### **Treatment:**

- Address underlying causes such as external parasites, unsanitary conditions, environment
- Treat superficial wounds with a topical antiseptic, such as iodine . Itchy/irritated/painful wounds can be treated with Barrier wound care spray (iodine with lidocaine for pain relief)
- Treat widespread or deep infections with Excede (1 ml/44 lbs IM once) OR Excenel RTU EZ (1 ml/35 lbs IM once daily for 3 days). Treatment may be repeated once if not resolving in 4 days. Call veterinarian if worsening or fails to respond.

### **Environmental checks for greasy pig:**

- Examine the pigs to see where abrasions are taking place. For example, these may be arising from new concrete surfaces or rough metal floors.
- If concrete surfaces are poor, brush these over after cleaning with hydrated lime that contains a phenol disinfectant.
- Check the procedures for removing tails and teeth (if removing teeth). Jagged edges of teeth can damage the gums leading to infection around the cheeks particularly when piglets fight for teat access and during mixing after weaning.

- The skin of the udder is one reservoir of infection. This should be sprayed daily 3 days before and after farrowing with an iodine-based skin antiseptic (cow teat dip is ideal).
- Disinfect floors well between farrowing groups.

### **Dystocia, Retained Pig in Labor**

#### **Clinical Symptoms:**

- Excessive straining during labor
- More than 30 minutes elapses since the last piglet was born
- Sow is abnormally restless
- Sow is abnormally exhausted

#### **Treatment:**

- Monitor the sow closely
- Put on a well-lubricated sleeve and examine the entire vaginal canal of the sow for piglets caught in the birth canal, assist with delivery of remaining piglets if possible
- If there is no obstruction - administer 1 ½ ml of oxytocin IM
  - NEVER GIVE UNTIL THERE IS AT LEAST ONE PIG BORN
  - DO NOT ADMINISTER OXYTOCIN IF THERE IS AN OBSTRUCTION
- If no progress after 1 hour, call the veterinarian
  - Dependent on circumstances, you may repeat oxytocin once an hour up to four hours
- In case of severe dystocia, on advice of the veterinarian, you may:
  - Administer antibiotic: Excede (1 ml/44 lbs IM once) OR Excenel RTU EZ (1 ml/35 lbs IM once daily for 3 days)
  - Administer dexamethasone at 1 ml/100 lbs IM once
  - Administer Lutalyse 2 ml IM once
- If no improvement is seen in 12 hours, call the veterinarian

### **Ear Infections**

This is caused by a variety of bacteria, but mainly streptococci, that gain access to the middle part of the ear, the part responsible for balance. Infection probably arises from the tonsils at the back of the throat and travels down the eustachian tube to the middle part of the ear. The condition is sporadic but common and in some farms up to 5% of weaner pigs may be affected. It must be recognized early and if treatment is prompt, there is usually a good response. If treatment is delayed, there is the risk that infection will spread from the middle ear into the inner ear and directly to the brain, setting up a meningitis or encephalitis (inflammation of the brain). Actinobacillus pleuropneumonia has also been identified in outbreaks of the disease and bacteriological examinations should always be carried out if abnormal numbers of pigs are involved.

#### **Clinical signs:**

- May hold head to one side (head tilt)
- Head shaking

- Fever
- Loss of balance, coordination

**Treatment:**

- Isolate affected animals.
- Begin with Tx 1. If no response after four days, proceed to the next treatment.
  - Tx 1: Excede or Excenel RTU EZ
    - Excede 1 ml/44 lbs IM once
    - Excenel RTU EZ 1 ml/35 lbs IM once daily for 3 days

**When to Call the Veterinarian:**

If the animal shows no signs of improvement after the treatment described above, or if symptoms get worse, contact the farm manager or veterinarian. If the animal is too weak to stand, not eating or drinking, ataxic or down, contact the farm manager or veterinarian immediately. Animals should be closely monitored until symptoms are resolved. Animals should remain isolated until released by farm manager or veterinarian.

**Lameness**

Alteration in gait or stance. Potential underlying causes include structural defects, infections (septic joint), or injuries.

**Clinical symptoms:**

- Altered stance, leaning, hunched back
- Altered gait, putting less to no weight on one or more limbs; shortened strides
- May have swollen joints or limbs
- Toe/hof cracks, bruising, abscesses

**Treatment of recoverable lameness:**

- Consider analgesia, particularly in moderate to severe cases and in larger animals
  - Banamine-S, 1 ml/50 lbs IM once. May be repeated, maximum treatment length 3 days
  - In certain instances, if a short withdrawal time is required, may substitute dexamethasone, 1 ml/100 lbs IM one day only
- Septic joints: Begin with Tx 1. Proceed to next treatment if no response after four days.
  - Baby and nursery pigs
    - Tx 1: Excenel RTU EZ 1 ml/22 lbs IM once daily for 3 days or Excede 1 ml/44 lbs IM once  
(Minimum 0.25 ml/dose)
    -
  - Weaner through adult
    - Tx 1: Excede 1 ml/44 lbs IM onceTx2: Lincomycin 300 1 ml/60 lbs IM once daily for 3 days
- Toe/hof lesions: overgrowths, cracks, dewclaw injuries, sole bruising/abscesses
  - Trim feet to remove overgrown areas. If bleeding occurs, apply iodine or Vetericyn

- Treat superficial infections with a topical antiseptic, such as iodine or Vetericyn
- Treat deep infections with Excede 1 ml/44 lbs IM once OR Excenel RTU EZ 1 ml/35 lbs IM once daily for 3 days

**Euthanasia criteria:** severe lameness or non-ambulatory (cannot get up; or can get up and stand with support, but unable to bear weight on two legs) and unlikely to recover; non-ambulatory and BCS 1; worsens or fails to regain ambulation in 48 hours

**Cull/market at next available opportunity:** genetic structural impairments in breeding animals; mild/moderate or chronic lameness which decreases performance and unlikely to recover

## **Gastrointestinal Disease**

### **Clinical Symptoms:**

- Diarrhea
- Lethargy
- Vomiting
- Dehydration

### **Treatment:**

Begin with Tx 1. Proceed to next treatment if no response after four days.

Neonatal/nursing pigs

- Tx 1: Spectogard 1 ml/10 lbs orally twice daily for 3-5 days
- Tx 2: SMZ-TMP 1 ml/10 lbs orally once daily for 3-5 days

Nursery

- Tx 2: Excede 1 ml/44 lbs IM once

Growing and finishing pigs:

- Tx 1: Tylan 200 1 ml/50 lbs IM once daily for three days
- Tx 2: LA-200 1 ml/11 lbs IM once

Monitor the animal for behavior, feed intake where possible, and severity of clinical symptoms  
If the condition is not better within 3 days or if the condition worsens, call the veterinarian

If >10% of group is affected, call veterinarian for advice on diagnosis and mass treatment, which may include injectable, water, and/or feed medications.

## **Gastric Ulcers**

**Clinical Symptoms:** vomiting (with or without blood), reduced feed intake, dark “coffee ground” feces

### **Treatment:**

- Evaluate and treat for coexisting conditions
- Omeprazole 20 mg/100 lbs (round up) by mouth once daily for five days
- Sucralfate 1 g/50 lbs by mouth up to four times a day for three days

## **Inguinal Hernias**

**Clinical Symptoms:**

- Swelling in the scrotum
- Palpation of the intestines in the scrotum
- Increased size of the inguinal ring
- Castration at too young of age before inguinal ring has closed
- Improper castration technique

**Treatment:**

- If seen before castration, do not castrate. Consult with farm manager; may euthanize or sell as intact
- If seen after castration, euthanize immediately

**Metritis, Mastitis, Agalactia (MMA)**

These issues can be seen after farrowing. Metritis is inflammation/infection of the uterus, and may be complicated by retained, deceased piglets and/or placenta. Mastitis is inflammation/infection of the mammary glands. Agalactia is lack of milk production. They are listed together as they often overlap and one or more occur together as a syndrome.

**Clinical Symptoms (may have some or all):**

- Off feed
- Fever (T >103.5)
- Thin, hungry piglets
- Mastitis: swollen, red udder
- Metritis: foul odor, cloudy or purulent vaginal discharge

**Treatment:**

- Excede (1 ml/44 lbs IM once) OR Excenel RTU EZ (1 ml/35 lbs IM once daily for 3 days)
- Dexamethasone at 1 ml/100 lbs IM once
- If metritis is suspected, give Lutalyse 2 ml IM once
- If agalactia is occurring: for milk letdown, administer oxytocin 1-2 ml IM every 12 hours until resolved, up to 3 days
- May give Vitamin B12 at 1 ml/100 lbs IM up to 3 days for appetite stimulation
- If no improvement is seen in 3 days, call the veterinarian

**Off Feed Sow in the Farrowing Room – Decision Tree**

Off feed

First, ensure:

1. Feeder is clean
2. Waterer is clean and working, with appropriate flow
3. Sow has stood to eat

Then, examine the sow.

Red, inflamed,  
swollen  
underline?

Treat for  
mastitis  
(Page 12)

Red, bloodshot  
eyes?

Trouble  
farrowing?  
(Ex. A lot of  
stillborns,  
long time in  
labor,  
excessive  
straining,  
exhaustion)

Yes

Treat for  
retained  
pig/dystocia  
(Page 7)

No

Consider  
other  
treatment  
options

Foul odor/cloudy  
vaginal discharge?

Treat for  
metritis/retained  
pigs (Page 12)

Check rectal  
temp

> 103.5 F

Excede (1 ml/44  
lbs IM once) OR  
Excenel RTU EZ  
(1 ml/35 lbs IM  
once daily for 3  
days)

Equal or less  
than 103.5 F

Signs of pain?  
(teeth  
grinding,  
agitation)

Yes: give  
Banamine-S  
1 ml/50 lb  
IM

Recheck  
temp in 24  
hours

No: Give  
Vitamin B12  
1 ml/100 lb  
IM

Recheck  
temp in 24  
hours

Lameness?

See Page 9



## Rectal Prolapse

### Clinical Symptoms:

- Protrusion of rectal tissue, pink mucous of intestines protruding from the rectum

**Treatment:**

- Isolate the animal
- Administer a banded tube repair
- Monitor the animal closely
- If appearing infected, may apply topical antiseptic such as iodine once to twice a day
- If marked improvement does not occur within 5-7 days, consult the veterinarian
- **Euthanasia criteria:** distress; prolapses that are untreated and become necrotic

## Respiratory Diseases

### Clinical Symptoms:

- Coughing
- Off feed
- Fever
- Depression
- Labored breathing

**Treatment:**

Begin with Tx 1. If no response after 4 days, proceed to next treatment.

Neonatal/nursing pigs

- Tx 1: Excenel RTU EZ 1 ml/22 lbs IM once daily for 3 days

## Nursery

- Tx 1: Excede Swine 1 ml/44 lbs IM once

## Growing and finishing pigs

- Tx1: Excede Swine 1 ml/44 lbs IM once

## Adult pigs

- Tx 1 Excede Swine 1 ml/44 lbs IM once

Consult veterinarian if no improvement is seen following treatment, if the condition worsens, or if there is evidence of an increase in incidence.

## Tail Biting

## Treatment

- Observe for overcrowding in pen and check that water and feed sources are working appropriately
- Isolate the pig immediately
- Apply a barrier topical such as Barrier II, SwineAid, AluShield or Granulex

- For infected wounds, administer Excede (1 ml/44 lbs once) OR Excenel RTU EZ (1 ml/35 lbs IM once daily for 3 days)
- If the condition does not improve in 5 days, consult the farm manager or veterinarian
- **Euthanasia criteria:** severe cases such as infection moving into spinal cord, showing signs of systemic disease (fever, skin lesions, lethargy, joint swelling), or neurologic signs (seizures, paralysis)

## **Umbilical Hernias**

### **Clinical Symptoms:**

- Swollen protrusion at the ventral midline
- Able to feel intestines and a hole in the body wall

### **Treatment:**

- Examine the animal for abrasions and ulceration of the ventral skin
- Record the date observed, location and approximate size of the hernia
- There is no satisfactory, economical treatment for umbilical hernias in swine, therefore, monitor the animal for thriftiness, depression and general health
- Market the animal at first appropriate opportunity
- If the condition worsens or if the hernia continues to enlarge, notify the veterinarian
- **Euthanasia criteria:** Evidence of pain or distress; perforations; necrotic ulcerations; hernia larger than a softball; or touches the ground

## **Shoulder Sores/Pressure Sores**

### **Prevention**

- Ensure adequate body condition (3/5) before entering farrowing crate (see BCS chart)
- Optimize environment sanitization and avoid excessive moisture
- Ensure sows get up to eat and relieve pressure on their sides at least three times a day
- Proactively monitor and treat for lameness/musculoskeletal problems

**Notify veterinarian if** more than 20% of farrowing sows affected; any score 3 or 4; or any other questions or concerns about an individual or group

### Scoring and Treatment

Score	Description	Treatment
1	Sores in only the top layer of skin – redness, abrasion, irritation	Apply Corona ointment or zinc oxide cream daily until normal
2	Sores in top layer of skin, with crust formation and scar tissues	Above tx, plus apply shoulder padding
3	Sores in deeper layer of skin with crust formation and severe scar tissue	Above tx, plus move out of crate (wean or cross foster piglets); place in pen with rubber mats Give Excede (1 ml/44 lbs IM once) OR Excenel RTU EZ (1 ml/35 lbs IM <u>once daily for 3 days</u> ) If no response after 7 days, or minimal improvement after 14 days, <b>euthanize</b>
4	Deep sores into muscles; sometimes	<b>Euthanasia</b>

	with visible shoulder bone	
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## **Shoulder Sores/Pressure Sores – Example Images**

Score 1. Top layer of skin affected, redness and irritation, no crusts.



Score 2. Crusting in top layer



Score 3. Affects all skin layers

Source of image with watermark: pig333.com Atlas of Pathology



Score 4. Deep sores reaching into muscle layer

