PURPOSE
To establish proper swine room husbandry and maintenance procedures in order to ensure the highest quality care for the swine housed in ACS managed facilities.

RECEIVING

A. The large animal receiving record will be completed upon arrival, noting visual health observations and any abnormalities.
B. Upon arrival, pigs 10 weeks and younger will receive 5g of Probios in their feed daily for 3 days.
C. Any other health concerns will be treated at the discretion of the veterinarian.
D. Any swine sourced from non-TTU herd animals will only be allowed to enter ACS facilities after a vet to producer or vet to vet conversation to discuss the source herd's history, vaccination and biosecurity procedures.
   a. Any swine that are received from out of state sources must be accompanied by a Certificate of Veterinary Inspection (CVI).

HOUSING AND CARE

A. Swine may be co-housed according to space requirements set forth in the “Guide” or “Ag Guide” or individually housed in approved caging/kennels. Social housing is the standard for swine (Policy 27).
   a. Swine may be singly housed if:
      i. There are veterinarian concerns regarding the well-being of the animals, such as incompatibility, for clinical reasons, attrition of cage mates, breeding-age animals.
      ii. Individual housing based on experimental needs is justified in the animal use protocol and approved by the IACUC.
      iii. The need for single housing should be reviewed on a regular basis by the IACUC and the veterinarian.
      iv. Additional steps will be taken to provide extra enrichment and other means of socialization according to the Social Housing Policy 27
B. All forms located in the room’s ACS notebook must be adequately filled out daily.
   a. Daily Observation Sheet
      i. Pigs are checked a minimum twice daily
   b. Task sheets
   c. Temperature/humidity logs
   d. Temperature range: age dependent
   e. Humidity range: 30-70%
f. Enrichment log

C. Type of housing is determined after evaluating the age/size/breed of the pig, type of study the pig will be used for (standard Ag or Biomedical), or number of pigs needed in the study.

D. There are multiple types of housing available for pigs:
   a. Farrowing crates.
      i. Sows housed in farrowing crates is a space exemption to the Guide not Ag Guide but is recommended to reduce piglet mortality from crushing.
   b. Raised kennels with slatted floors (4’ x 6’)
   c. Raised pig pens with either expanded plastic flooring (4’ x 8’) or rubber coated flooring (5’x5’)
   d. Solid floor pens covered with rubber mats and/or wood shavings

E. Lighting will be on a 12:12 light: dark cycle.

F. Preferred temperature ranges vary by the age of the pigs:
   a. Lactating sow and litter 59 – 79°F for the sow and zone heating at 90°F or more with heat lamps or heat mats
   b. Weaned pigs: 64-90°F. Temperatures at weaning will target 85°F and will gradually be lowered 2-3°F per week after the first week to 70°F
   c. Grow to Finish: 50 – 77°F.
   d. Breeding animals: 50-77°F
   e. Piglet ranges may fall outside of the Guide (61-81°F) parameters but we will target the more species-specific temperature ranges listed in the Ag Guide.

G. Ammonia levels should be less than 10 ppm and should not exceed 25ppm (Ag Guide) and pens should be cleaned as often as necessary to keep concentrations below levels irritating to mucous membranes (Guide).

H. Weights may be taken upon arrival and periodically to ensure pigs are housed in appropriately sized pens and for periodic health monitoring.

I. If piglets are born in the facility, then piglet management procedures may or may not be performed at the discretion of the veterinarian and research staff needs. It is recommended these procedures be performed 1-5 days of age but can be done later for pig health and welfare in consultation with the veterinarian.
   a. Tail docking either 1 inch from the base of the tail or just the tip of the tail depending on breed.
   b. Castration of male pigs. Analgesics/anesthetics may be used.
   c. Teeth clipping
   d. Ear notching or ear tagging
   e. 1 mL iron injections I.M.
   f. 1 mL penicillin I.M.
   g. Piglets may also be vaccinated within the first week of life or at weaning per vendor source protocols.
FEEDING
A. Sows may be fed once or twice a day in measured meals based on stage of gestation or lactation. The amount of feed may gradually increase throughout the lactation period to accommodate increased milk production.
B. Nursing piglets may be creep-fed the week before weaning to help reduce weaning stress.
C. Weaned pigs may be fed ad libitum or meal-fed once or twice a day in pans, troughs, or metal bulk feeders.
   a. This may be dependent on housing type and research needs.
D. All pigs will be fed a diet that meets or exceeds daily nutrient requirements set by the NRC regardless of delivery.
E. Pigs normally receive water through an automated drinking system with nipple waterer but can also be offered bowls or portable watering units.
   a. The waterer is tested daily for water flow.
   b. If the automatic watering valve is not working a water bowl is provided.
   c. Replace the nipple to see if it can be easily fixed.
   d. If replacing the nipple doesn’t work, report to the facility manager immediately.

PEN/KENNEL DAILY CLEANING
A. Rooms are checked daily for any operational deficiencies. Any deficiencies are to be reported immediately to the facility manager.
B. Feeders are cleared of any clumps and fecal matter daily. Feeders are cleaned at least once a week.
   a. If feed remains untouched, the veterinarian is to be notified immediately.
C. As much feces and uneaten food should be removed from the primary enclosure or floor prior to hosing with water.
D. For raised pens:
   a. The primary enclosures and floors should be hosed down using care not to get the pigs wet to remove any feces, urine or other debris from the pen. If needed pigs can be removed from the pen.
   b. The primary enclosures and floors should then be rinsed thoroughly.
   c. Squeegee or mop the floor dry.
   d. After the cages have been sprayed, spay all drains to ensure removal of all gross debris.
   e. Care must be taken to ensure toys, clips, chains, or other solid items do not get into the room drain.
E. For solid floor pens:
   a. Remove urine and fecal contaminated wood shaving at least once daily or more often as needed.
   b. Add fresh wood shavings to the pen as needed.
   c. Check the walls and other surfaces of the pen for overall cleanliness, and spot clean as necessary.
F. Check enrichment toys for overall cleanliness. Clean or replace as needed.
G. Report slow running or clogged drains to the facility manager.

H. Daily cage/pen cleaning procedures may be conducted more than once daily to reduce odors and maintain appropriate level of cleanliness, should once daily cleaning be insufficient in maintaining a healthy environment for the pigs.

CAGE/KENNEL SANITATION

A. Total cage sanitation should be done a minimum of every two weeks (Guide).

B. In some scenarios, cages may only be sanitized at the beginning and end of the study.
   a. The study falls under the Ag Guide
   b. Short term studies that removing pigs from pens may be detrimental.
   c. Sows in farrowing crates due to increase stress from moving her. Removal from the pen is not only stressful for the sow but may affect milk supply and therefore, could affect the welfare of nursing piglets. Sows are only in farrowing crates 4 – 5 weeks.

C. Animals are completely removed from the cage/kennel.

D. The kennels are scrubbed and rinsed with hot water to remove any gross debris.

E. The kennels and feed/water bowls are sanitized with a disinfectant (i.e. Peroxigard or 10% bleach solution) and allowed to soak per manufacturer recommendations.

F. The cages are rinsed thoroughly with hot water and allowed to dry.

ANIMAL ROOM SANITATION

A. Animals are completely removed from the room.

B. Weekly- All surfaces (including door frames, lights, sinks and vents) are wiped down with disinfectant mixed according to manufacturer’s recommendations.

C. Weekly- Flush the floor drains with a 10% bleach solution to help minimize odor.

J. Every two weeks (Guide) or as needed- Floors, walls, and ceiling should be sanitized with a disinfectant (i.e. Peroxigard or 10% bleach solution) and allowed to soak per manufacturer recommendations. The room is then thoroughly rinsed with hot water and allowed to dry.
   a. In solid floor pens, wood shavings should be removed before disinfecting.

K. All rooms, kennels, feed bowls/feeders, and water nozzles are sanitized every two weeks.

D. Check feed expiration date and clean feed barrel monthly. Discard any expired feed and replace with fresh feed.

PPE

A. Personnel should wear a lab coat, scrubs, or coveralls when working with pigs or cleaning the rooms.

B. Gloves should be worn when handling pigs.

C. When pigs are from a non-TTU Swine Center source, then the bottoms of shoes must be sprayed with a disinfectant (i.e. Peroxiguard) before entering the pig room. Any debris should be removed from the shoes prior to disinfecting. If any fecal matter or
debris is collected on the shoes while in the room, be sure to remove the debris before exiting.

D. Anyone having contact with, or entering the AFS animal facility while pigs are present should not travel to the TTU New Deal Swine Unit. If circumstances should make that unavoidable, then IACUC Policy 01: Biosecurity at the New Deal Swine Unit and SOP029 Swine Unit should be strictly followed.

ENRICHMENT

A. Social enrichment:
   a. Human interaction occurs during daily husbandry.
   b. Co-housing animals provides socialization between cage mates.

B. Physical enrichment:
   a. Balls, hanging chains or water hoses, or various toys are provided to the pigs to help satisfy their need to root and chew and reduce boredom.
   b. Destructible items (i.e. feed bag) and other rooting materials (i.e. shredded paper, peat moss, soil) may be provided.

C. Sensory enrichment:
   a. Auditory enrichment may be provided throughout the day. Music may be instrumental or vocal as voices do help acclimate pigs to humans.

D. Food enrichment:
   a. Food treats can be offered as part of human socialization, or to encourage rooting and foraging behaviors.
   b. Food treats may also be used (with or without clicker training) for training to handling or research techniques.

ENRICHMENT IMPLEMENTATION

A. An enrichment schedule will be implemented (Policy 29) based on the study and the enrichment devices available. Depending on the type of enrichment, it may be provided constantly, given daily or a few times a week, or rotated at weekly to keep objects novel.

B. Enrichment will be provided to the swine by the technicians during cleaning and checks and by approved personnel working on the project.

C. The enrichment will be cleaned during daily husbandry and replaced as needed.

D. Technicians/students will log any enrichment provided to the swine in the enrichment log located in the room's notebook.

E. Exceptions to the enrichment portion of this SOP require adequate justification in the protocol as to why environmental enrichment would interfere with the study and then must be approved by the IACUC.

ANIMAL HEALTH MONITORING

A. Animals are observed twice daily by animal care staff for any evidence of illness or change in behavior.
a. Everyone with access to the animal facility is responsible for immediately informing the facility manager or university veterinarian when an animal becomes ill or a change in behavior is observed.

B. In the event of suspected illness:
   a. Record your observations in the clinical treatment record- include the date, the problem observed, and your initials.
   b. Immediately contact the Attending or Clinical Veterinarian or the ACS facility manager:

      ACS Attending Veterinarian
      806-834-8588 Office

      ACS Clinical Veterinarian
      806-834-7373 Office

      ACS Facilities Manager
      806-834-2872 Office

   c. Record any treatment regimens along with the outcome of the treatment in the appropriate health records.