

Authors:

David C. England, Oregon State University
Hobart W. Jones, Purdue University
Steven Pollmann, Decatur, Indiana

Reviewers

Ellen T. Blocker, Starkville, Mississippi
Jerry Hawton, University of Minnesota
John and Nancy Joyce, Anderson, Wyoming
Ronny Moser, University of Minnesota
Richard H. Simms, University of Tennessee

Care of the Sow During Farrowing and Lactation

Originally published as PIH-46.

Introduction

Proper care of the sow during gestation, farrowing, and lactation is a means to reach a goal—a large litter of healthy pigs at birth that will remain healthy and grow rapidly. Care during this time must also prepare the sow for a successful repeat performance at the earliest time within the system of weaning and rebreeding used. The sow must reach farrowing in the best nutritional and microbiological health for herself and for the expected litter. Properly balanced rations should be fed in recommended amounts so that newborn pigs are well developed and strong. A herd health program that assures minimal exposure of the sow to disease or disease carriers during gestation is essential for maximal litter survival during the first weeks of life and for effective growth to weaning and market. The sows should be managed in a gentle and confident manner and on a regular daily schedule.

Prefarrowing

Deworming Sows. If there is indication of worm infestation, sows should be dewormed about two weeks before moving to farrowing crates or pens. Treatment for external parasites at least twice (in approved repeat times for the product used) also should be accomplished within a few days before movement to the farrowing facility.

Preparing the Farrowing Unit. If possible, the total farrowing unit should be cleaned completely of organic matter, disinfected, and left unused for 5-7 days before a new group of sows is placed in the unit. When this is not practical, at least the individual pen, stall, or crate should be completely cleaned of organic matter and disinfected before a new sow is placed in the unit. Disinfectants are ineffective unless the cleaning job is complete. There are many good disinfectants available, including the quaternary ammonium compounds, iodoform compounds and others such as lye, to use when the cleaning job is done well. Some disinfectants such as those that contain coal tars or lye should be thoroughly rinsed off after several hours, especially from surfaces having direct contact with pigs.

Washing the Sow. Before the sow is placed in the farrowing pen, wash the teats and belly with mild soap and warm water. This will eliminate soil and fecal material that may contain numerous bacteria that are potential diarrhea-producing agents for the nursing pigs. This procedure will also eliminate ascaris (roundworm) eggs that would serve as a source of infection to the nursing pig.

Feeding the Sow. During prefarrow in the facility, sows can be fed as they have been during gestation, that is limit fed 4-6lb./day depending on weather and housing conditions. Better results are often reported by producers, however, from feeding a laxative ration prefarrowing to prevent constipation. Constipation can be prevented or corrected by changing to a bulky diet, by addition of 20lb./ton of epsom salts or 15lb./ton of potassium chloride, by use of linseed meal as part of the protein in the ration, or by use of other laxative ingredients. Oats or wheat bran may be used as 25% of the grain to create a bulky ration; in some areas, other fibrous feeds such as alfalfa meal or beet pulp may be preferred. Remove bulky ingredients from the sow ration soon after farrowing. Water should be freely available, but spillage that could cause wetness of the pen should be prevented.

Farrowing and Lactation

Environmental Requirements. Temperature in the sow area should be in the sow comfort range of 55-75°F; at the higher temperatures of this range sow appetite and performance may be depressed. On solid or slotted floors without bedding, baby pig areas should be kept at 90-95°F for the first few days, and then in the 70-80° F range until weaning at 3-6 weeks of age.

Provide adequate ventilation at all times. Cooling the sow may be beneficial during hot weather. Researchers at Kansas State University found good results when drip irrigation emitters were mounted so that water dripped onto the neck and shoulder area of sows in farrowing crates. Each nozzle provided 0.8 gallon per hour and was operated only when temperatures were above 85°F. Sows that were cooled had lower respiration rates, ate more feed per day, and lost less weight during lactation than sows not cooled. Sows in this study were on total slotted floors.

Knowing When a Sow Will Farrow. The sow must be at the right place at the right time for farrowing, according to the management system used. Recorded breeding dates, calculated farrowing dates, and close observation are essential for proper farrowing management. Signs during late pregnancy help to ensure that sows do not farrow at the wrong place and without proper attention.

If farrowing is to take place in a crate or pen, the sow should be in that place no later than the 110th day of gestation. This avoids loss of litters farrowed on the short end of a normal gestation period (111-115 days) and permits time for dams to become accustomed to the facility and routine of daily care before onset of birth. If breeding dates are not recorded, each sow should be carefully observed daily during obvious late pregnancy for enlarged abdomen area, swollen vulva, and filled teats as basis for estimating the farrowing date.

Presence of milk usually indicates that farrowing will occur within 24 hours. The milk may be grayish in its earliest stage but becomes white as time of farrowing approaches. Sows may become restless or nervous, may try to escape the crate, chew on anything available, urinate frequently, and attempt to build a nest or bed. If milk is present, the sow should be prepared and moved immediately to the farrowing facility. If farrowing facility space is available, move questionable sows to the facility early rather than waiting "one more day." Farrowing can be induced by an injectable product, prostaglandin, (available on prescription of a veterinarian only) to induce farrowing to facilitate scheduling, building use, and other production management practices; however, if it is used, definite breeding dates must be known.

The Birth Process. Attending sows at farrowing decreases the number of "stillborn" pigs that die during birth or within the first few hours afterwards; pigs can be freed from membranes, weak pigs revived, and care can be given that reduces other deaths in the first few days after farrowing.

Duration of labor ranges from 30 minutes to more than 5 hours. Pigs may be born either-head first or rear feet first; either is normal. Fetal membranes or afterbirth may be expelled several times during delivery,



Figure 1. "Clean" means what it says. The floors, partition walls, ceilings and equipment should have all organic matter, including dust, removed. This can be accomplished by scraping, use of high pressure cleaners, steam cleaners, and/or a stiff scrub brush. Do a complete job.

but afterbirth generally occurs in a larger amount near the end of farrowing. Occasionally, if a pig is enclosed in the afterbirth material remove it immediately or the pig will quickly suffocate. "Stillborn" pigs are those that have died during farrowing; dead pigs may have been dead for only a few days or for an extended time; "mummies" are pigs that have been dead long enough for much reabsorption of the soft tissues, but not of the skeleton, to have taken place.

The average interval between birth of pigs is approximately 15 minutes but can vary from simultaneous to several hours in individual cases. Use of oxytocin to speed up rate of delivery is helpful if correctly done and if farrowing is proceeding slowly but otherwise normally. A rule of thumb, not universally recommended but widely followed, is to administer oxytocin when the first interval of 30 minutes after birth of the previous pigs has occurred without birth of another pig or without expelling membranes that indicate farrowing is completed. Oxytocin should not be used until birth of one or more pigs has occurred. Oxytocin should not be used if symptoms, such as straining without delivery, indicate that a pig is blocking the birth canal.

Prolonged labor, especially that which is associated with difficult birth, and litters produced by large, older sows, are often accompanied by increased numbers of stillbirths and added death losses in the first few days after farrowing. Sows that have been overfed during gestation are more subject to prolonged labor, and some individuals seem to be genetically prone to this problem. Proper feeding can prevent overweight, or thin sows and selection and culling may eliminate animals that are prone to difficult births.

Assisting Difficult Births. At times, manual assistance is necessary to accomplish delivery but should not be used until obviously needed. Continued strong labor for an extended period without birth of pigs indicates need for such assistance. Keep some organisms from gaining entrance to the reproductive tract by careful washing of the external genitalia with a mild soap solution, using a clean container for fresh clean water. A well-lubricated, clean gloved hand and arm should be inserted into the reproductive tract as far as needed to encounter a pig "in place" for birth; the pig should be grasped and gently but firmly pulled to assist delivery.

Difficult births often enhance the occurrence of symptoms of MMA—mastitis or inflammation of the udder metritis or inflammation of the uterus, andagalactia or lack of mil. To decrease the likelihood of creating complications as a result of manual assistance, an antibacterial solution, such as nitrofurazone is recommended. It will also serve as a lubricant. Infusion of 50-100 cc of such solution into the reproductive tract following conclusion of farrowing often helps decrease or prevent infection. Intramuscular injection with an antibiotic can also be helpful.

Nervous and Hysterical Sows. Some sows may become temporarily "hysterical" and vicious; these are likely to trample or lie on several of their pigs or kill them by biting; some producers cull these sows on temperament. Such sows must be attended to prevent loss of newborn pigs; loss can be prevented or minimized by removing pigs to a warm place until farrowing is completed. The hysteria generally subsides in a few hours. Test the sow by placing only one pig with her and watching her reaction.

Nutrition of Newborn Pigs. It is highly important that each pig receive colostrum to provide immediate and temporary protection against common bacterial infections. Pigs are born into a hostile bacterial environment. Antibodies in the sow's milk are the best protection against these bacteria. Proper nutrition of the sow, including a laxative ration prior to and following farrowing; maintaining proper environmental temperature; and freedom from contagious disease organisms all help to ensure normal milk production.

Baby pigs may be unable to nurse because of a hostile sow, a large litter of pigs, small or otherwise weak pigs, death of the sow, or failure of the sow to have milk. Other ways baby pigs can get antibodies are by being bottle-fed colostrum; they can foster-nurse another newly farrowed sow; or they can nurse a sow whose litter is well beyond the 3-day-old stage frequently considered as the upper limit for transferring pigs. Colostrum can be hand-milked from sows, frozen and used later to provide initial artificial feedings; although not as effective, cow's colostrum can also be frozen and used for newborn orphan pigs; prolonged needs may be met by rotating pigs to other dams whose litters are removed for an hour or two, or by a permanent transfer to a foster dam. Gentle sows with litters as old as 3 weeks can be used as foster mothers for newborn pigs; it is good insurance to feed some colostrum before transfer to such a sow. Sow milk replacers are nutritionally adequate for newborn pigs, but they lack antibodies; they do contain antibiotics, which help to control growth of unfavorable bacteria. Good pig performance and livability has

been obtained with excellent commercial products available. Effective use of sow milk replacers requires stringent cleanliness of feeding equipment and housing area for baby pigs to control bacterial growth. Diarrhea is a common hazard for newborn pigs reared artificially in makeshift conditions. Wetness, chilling, and engorgement promote diarrhea.

Feeding the Sow During Lactation. Sows need not be fed for 12-24 hours after farrowing, but water should be continuously available. Two or three lb. of a laxative feed may be fed at the first post-farrow feeding; amount of feed should be gradually increased until the maximal feed level is reached as soon as possible after farrowing. Full feeding from the day of farrowing can be successfully used. Sows that are thin at farrow may benefit from generous feeding in the early post-farrow.

Sows nursing large litters need essentially full feeding during lactation. This may depend somewhat on the energy content of the ration and the length of the lactation period if sows are mated at first post-weaning estrus. In sows that finish lactation with excessive weight losses and in an energy-depleted condition, estrus tends to be delayed well beyond the usual 3-7 days post-weaning. Supplementing the sow's diet with fat during late gestation and lactation may improve sow and pig performance (See PIH-07-07-02).

Experiments are underway to re-evaluate what constitutes the most economical lactation feeding programs. Sows in normal condition at farrowing can lose weight during lactation without impairment of pig growth or loss of breeding efficiency. Sows nursing fewer than 8 pigs may be fed a basic maintenance amount (6lb./day) with an added allotment, such as 0.5lb. for each pig being nursed. It is not necessary to reduce feed intake before weaning. Regardless of level of feed intake, milk secretion in an udder will cease when pressure reaches a certain threshold level.

Sows should be encouraged to stand up in the farrowing area 2-3 times daily. This stimulates feed and water consumption, encourages normal elimination of excreta and gives the manager an opportunity for good observation. Some sows may need exercise outside the farrowing area.

Feeding the Pig During Lactation.

Sows' milk does not contain enough iron for baby pigs. Iron must be given to pigs within their first 3 or 4 days to prevent anemia. Pigs can be supplied with iron by giving them clean sod (not from a hog lot), iron injections (iron dextran in the ham or heavy neck muscle), or iron compounds mixed with other minerals which pigs can eat. When pigs are about 1 week old, start feeding them a prestarter (about 20% protein) or starter feed in a shallow pan.

The prestarter is usually more acceptable and pigs will start to eat earlier. It is used only to get pigs to start to eat. A little prestarter or starter feed mixed with some clean sod will often start pigs eating earlier.

After pigs start to eat, switch to a starter feed (about 18% protein) and feed this until the pigs weigh 25-30lb. At this time, the ration can be switched to a lower cost (16%) pig grower feed. Clean, fresh water should be available to pigs even before they start to eat dry feeds. Clean, fresh water should be available to pigs even before they start to eat dry feeds.

Controlling Health Problems. Sows should be observed carefully during the first few days after farrowing. Lack of appetite, listlessness, and failure to respond positively to nursing activity of the pigs indicate need for corrective treatment. Prevention of these conditions will decrease incidence and severity of the MMA syndrome.

If MMA is prevalent, a prevention and treatment program should be developed through veterinary consultation and by management programs. The same is true for diseases such as atrophic rhinitis, transmissible gastroenteritis (TGE), parvovirus (SMEDI) and mycoplasma pneumonia. Checking for normal bowel activity and use of a rectal thermometer to detect fever can pinpoint early need for treatment.

Disease Prevention

Although there have been recent advances in the diagnosis and preventive procedures for the control of some diseases, the sow and her newborn litter remain vulnerable to a substantial number of pathogenic agents. Most successful producers plan their management programs to circumvent disease transmission as much as possible during this critical time. Maximum isolation of the pregnant sow and gilt from all

rodents, cats, dogs, humans, and new herd additions is a productive practice. Likewise, careful cleaning and sanitizing of facilities as described is important. Thorough cleansing of the sow as she enters the farrowing facility seemingly has been a factor in controlling some contagious disease organisms. Managing the sow and litter to ensure maximal colostrum intake has distinct advantage for the newborn litter.

If swine are being reared in areas of heavy swine concentrations, vaccines and bacterins should be used to the fullest advantage. This is particularly true during seasons of the year when stress is unavoidable and when the viability of pathogens is high. Examples of diseases for which immunization seems wise are transmissible gastroenteritis or TGE, erysipelas, leptospirosis (5 strains), in some localities perhaps pseudorabies, and colibacillosis or *E. Coli*. Vaccines are now available for use in the prevention of atrophic rhinitis. The large number of enteric disorders that pose a threat to the newborn are perhaps best prevented by eliminating stressors such as cold and drafty pig areas, high humidity and unsanitary surroundings within the house. Some herds are now receiving autogenous types of bacterins in situations where enteric problems are extreme. The old axiom that an ounce of prevention is worth a pound of cure seems particularly applicable to this stage of the life cycle.

Schedule of Events

1. First week after weaning—breed sows.
2. Three weeks before farrowing—treat for internal and external parasites.
3. One week before farrowing—repeat treatment for internal and external parasites.
4. At 110 days after breeding, thoroughly wash sow and move to farrowing facility; begin feeding laxative ration.
5. From 111 days to farrowing—observe for signs of approaching farrowing. Attend at farrowing, or make judgment that attendance is not warranted.
6. Provide special care for weak or small pigs, and for large litters. Observe sow and litter for signs of problems.
7. Bring sow to maximal feed level as soon as possible after farrowing.
8. Cull sows at weaning on basis of productivity, temperament, and other economic factors.

Summary

1. Institute and maintain a disease-prevention, health maintenance program for the herd at all times to protect sows and litters from diseases at and following farrowing.
2. Treat sows twice for internal and external parasites within the shortest recommended time (for products used) before moving to farrowing facility.
3. Record breeding dates, calculate farrowing dates, and observe sows closely during late gestation to assure that sows are moved to the farrowing facility by the 110th day of gestation. Record sow productivity data to use later in selection and culling.
4. Feed a ration with laxative effect from 110 days. If bulky ingredients are used remove these from the ration soon after farrowing.
5. Farrowing will usually occur within 24 hours after milk is present. As farrowing approaches, sows may be restless and excitable; some may be vicious.
6. Normal farrowing may be completed in less than 1 hour, or may exceed 5 hours. Injection of oxytocin can shorten total farrowing time but should not be used until at least one pig has been born and if there are indications that the birth canal may be obstructed.
7. Attending sows at farrowing can prevent death of pigs caused by trauma, biting, suffocation in membranes, and weakness.
8. Manual assistance in delivery of pigs should be undertaken only when signs indicate inability of the sow to deliver unassisted, use arm-length glove, lubrication, and inject an antibacterial solution if manual assistance is necessary for delivery.
9. All newborn pigs should receive colostrum. Extra care for weak or small pigs and for large litters can result in more pigs weaned.
10. In the first few days after farrowing, observe sows and pigs carefully for evidence of disease condition or inadequate milk production or intake.
11. After farrowing, attain maximal feed level as soon as possible.
12. Production level, temperament, and other economics of using sows vs. gilts should determine when sows are replaced which generally should not exceed the sixth litter.

Reference to products in this publication is not intended to be an endorsement to the exclusion of others which may be similar. Persons using such products assume responsibility for their use in accordance with current directions of the manufacturer. The information represented herein is believed to be accurate but is in no way guaranteed. The authors, reviewers, and publishers assume no liability in connection with any use for the products discussed and make no warranty, expressed or implied, in that respect, nor can it be assumed that all safety measures are indicated herein or that additional measures may be required. The user therefore, must assume full responsibility, both as to persons and as to property, for the use of these materials including any which might be covered by patent.

This material may be available in alternative formats.

Information developed for the Pork Information Gateway, a project of the U.S. Pork Center of Excellence supported fully by USDA/Agricultural Research Service, USDA/Cooperative State Research, Education, and Extension Service, Pork Checkoff, NPPC, state pork associations from Iowa, Kentucky, Missouri, Mississippi, Tennessee, Pennsylvania, and Utah, and the Extension Services from several cooperating Land-Grant Institutions including Iowa State University, North Carolina State University, University of Minnesota, University of Illinois, University of Missouri, University of Nebraska, Purdue University, The Ohio State University, South Dakota State University, Kansas State University, Michigan State University, University of Wisconsin, Texas A & M University, Virginia Tech University, University of Tennessee, North Dakota State University, University of Georgia, University of Arkansas, and Colorado State University.