

Chapter 16 Selecting Breeding Stock Based on Records

The National Swine Improvement Federation (NSIF) provides guidelines for selecting seedstock through their publication "Guidelines for Uniform Swine Improvement Programs". These guidelines will help you understand in more detail the procedures involved in developing the different breeding values.

In short summary, the NSIF procedure utilizes performance information that has been collected on individuals, relatives, and progeny (offspring) as well as genetic ties among different herds to develop a predictive value of expected progeny differences (EPD's).

As you become more involved in your swine breeding project, EPD's will become a valuable tool in your selection process. The EPD is equal to one-half of the estimated breeding value (EBV). For example, a boar with an EBV of $-.20$ inch for backfat thickness would have an EPD for backfat of $-.10$ inches. The EPD predicts how well an individual's offspring are expected to perform compared to offspring from average parents. Another example, a boar with an EPD of $-.10$ inch for backfat thickness would be expected to sire pigs with $.10$ in. less backfat than offspring

from an average parent in that breed. So an EPD is a predictive tool in determining the genetic worth of the parent.

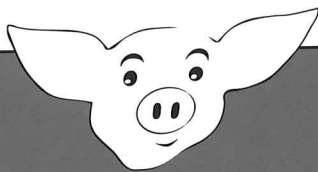
There are some basic concepts to remember when using EPD's for seedstock selection, judging contests or in a skillathon competition. You can make meaningful comparisons among animals based on EPD's because these values are expressed in actual units for each trait. For example, EPD's for backfat are expressed in inches while those for 21-day litter weight are listed in pounds. Negative EPD's are desirable for backfat, days to market, and feed/gain ratio. Positive EPD values are desired for number born alive, 21-day litter weight and average daily gain.

Example Scenario

Rank the gilts as they should be kept in a herd that profits mainly from seedstock sales to rotational crossbreeding programs.

Yorkshire and Duroc boars are used in rotation.

You also produce your own replacements. You and your customers raise all hogs in total confinement. Hogs are marketed on a carcass merit program based on percent (%) lean.



As you become more involved in your swine breeding project, EPD's will become a valuable tool in your selection process.

Genetic Evaluations*

No.	Days to 250 Lb. EPD	Back Fat EPD	21 Day Litter Weight EPD	No. Born Alive EPD
A	-1.8	+0.00	+3.8	+.03
B	-2.3	+0.03	+3.0	+.01
C	-1.1	-0.01	+1.7	+.02
D	-0.8	+0.01	+1.8	+.02

*EPD stands for "Expected Progeny Differences"

*Negative Fat EPDs mean less fat

*Negative Days to 250 lb. EPDs mean fewer days

Explanation of the gilt scenario placing.

One of the best methods available for evaluating a production scenario involves ranking each gilt by performance categories. This is not difficult if you keep in mind that in some cases we look for positive values and in some cases we look for negative values. For example backfat, days to 250, and feed

efficiency we want negative values. But when looking at number born alive, 21 day weight and loin-eye area we want positive values.

Try to follow the ranking process based on the example scenario provided below:

Gilt	Rank Days to 250		Rank Backfat EPD		Rank 21 Day Litter Wt EPD		Rank No. Born Alive EPD		Total	*Placing
A	2	+	2	+	1	+	1	=	6	1
B	1	+	4	+	2	+	4	=	11	3
C	3	+	1	+	4	+	2	=	10	2
D	4	+	3	+	3	+	2	=	12	4

*Rank by lowest score

Class would be placed

1	2	3	4
A	C	B	D

PEDIGREE INFORMATION:

CERTIFICATE OF REGISTRY

Registration: 58848009
Sex: Gilt
Ear Notch: 5-9
Date Born: 3/21/98
Special Exp:

CVV8 MARY F 5-9 ①
Animal: 58848009

Total Born: 17
Born Alive: 15
No. Weaned: 12
Adj. Wt: 180

Breeder: LC LANDRACE
Owner No.: 207383 Owned As Of: 3/21/98 ⑤
Owner: LC LANDRACE
LI & CHAD CHRISTIAN FAMILIES
5301 SKYCREST CIRCLE
AMES, IA 50010

4 FALKEN 592 0-0 ③
Sire: 419293 SPI: 107.3
Dam: 48729005 SPI: 106.6

CVV5 WILMA L 9-5 ④
Sire: 419293 SPI: 107.3
Dam: 48729005 SPI: 106.6

0 302-93 FMR 0-0 ⑥
Sire of Sire: 419299 SPI: 103.3
Dam of Sire: 419296 SPI: 103.3

0 215-93 MISS 0-0
Sire of Sire: 419296 SPI: 103.3
Dam of Sire: 42849002 SPI: 104.3

CVV4 LASER 9-2
Sire of Dam: 42849002 SPI: 104.3
Dam of Dam: 39882004 SPI: 100.4

CVV4 WILMA P 1-4
Sire of Dam: 39882004 SPI: 100.4
Dam of Dam: 39882004 SPI: 100.4

LANDRACE
National Swine Registry
P.O. BOX 2417 W LAFAYETTE, IN 47906
DATE REGISTERED (765)463-3594
5/4/98

Trails
Born Alive
21 Day Weight
Days to 250
Backfat
Lbs of Lean

PERFORMANCE RECORD
EPD Index EPD
0.23* 5.23* 106.9
-2.07 Maternal 116.2
-0.04 Terminal 125.2
1.56
* = Average of Parents

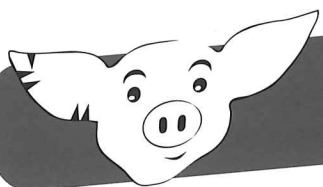
Buyer No.:
Sold To:
Owned As Of:
Bred To:

Daniel D. Anderson
CHIEF EXECUTIVE OFFICER

Reading A Pedigree:

1. Animal's official name and registration number. The name starts with herd prefix unique to each breeder and ends with the animal's ear notch.
2. Animal's pedigree including parents and grandparents and their Sow Productivity Index.
3. Individual information including registration number, sex, ear notch and birth date.
4. Litter performance information.
5. Breeder's and/or owner's name and address.
6. Individual EPD's and Indexes on the date the certificate was issued.

Pedigree Information Courtesy of the National Swine Registry



Chapter 17 Genetics

Genetics are very important to understand since they will help determine how that animal will perform under different types of management and environmental situations. Let's look at developing a base understanding of some genetic principles.

Genetics influence economically important traits such as litter size, litter weights, growth rate, feed efficiency, backfat thickness, pork quality and structural correctness. Project members need to know how genetics work in order to properly mate and improve their herds.

How does inheritance work? Let's start at the beginning!

A body cell in your pig contains 38 **chromosomes**. Chromosomes are thread like structures that contain **genes**, the basic unit of inheritance. Genes are responsible for affecting body development and function. For normal body development and function, genes must occur in pairs. Genes are part of the chromosomes that reside in the nucleus of body cells. The chromosomes in the cells of a pig's tail are exact copies of the chromosomes in the pig's heart. However, the genes on the chromosomes know their function in specific body tissues.

Chromosomes occur in distinct pairs. Pigs have 19 pairs for a total of 38 chromosomes. Humans have 23 pairs for a total of 46 chromosomes. Since chromosomes occur in pairs, genes also exist in pairs.

If there are more or less than two chromosomes in a pair, an abnormality will occur. An example of this is Down's Syndrome in humans. A person with Down's

Syndrome has three members in a particular set of chromosomes instead of the normal two.

During the process of reproductive cell division (meiosis), only one member of a chromosome pair is passed on to sperm (boar) and egg cells (sow). During fertilization, a sperm cell unites with the egg cell to form a zygote which develops into the pig fetus.

Because chromosomes contain genes, the offspring will receive half of its genes from each parent. However, each individual in the litter will receive a different sample of its parents' genes. So even though they are in the same litter, littermates will only have about 50% of the same genes.

The location of a gene on a chromosome is called the **locus**. At the same locus on **homologous** chromosomes are genes that affect the same trait. These corresponding genes are referred to as a gene pair. For a given pair, the genes can be identified as **like** (homozygous) or **different** (heterozygous). See the following example:

B = symbol for the gene causing black hair
b = symbol for the gene causing red hair

Animal	Genotype	Phenotype
1	BB	black
2	Bb	black
3	bb	red

Animal #1 is homozygous at this locus because it has the same genes whereas individual #2 is heterozygous. A particular gene combination is referred to as the genotype while the physical appearance (what is seen or measured) is called the phenotype.

Based on these phenotypes, **B** is referred to as the dominant gene, and **b** is the recessive. For these two genes, complete dominance exists since **B** covers the effect of **b**. However, different degrees of dominance, or a lack of dominance, can occur for other genes.

Hair color is an example of a qualitative trait because the phenotypes fit into distinct categories or classes. Qualitative traits are controlled by one or a few pairs of genes.

Genotypes for qualitative traits are often predicted based on mating tests. Laboratory analyses of blood samples have been used to predict genotypes of qualitative traits such as porcine stress syndrome (PSS). See Chapter 4 (Quality).

Quantitative traits generally do not fit into distinct classes for phenotypes. Examples of quantitative traits are backfat thickness, feed efficiency, days to market, 21-day litter weight, and number of pigs born alive. These traits are controlled by many pairs of genes. The expression of these traits (phenotype) is influenced by the animal's genes (genotype) and the environment. With uniform care, feeding, and housing, pigs within a group will express less variation in performance from environmental effects, which results in more accurate genetic evaluations.

An individual's genetic value for a trait is affected by an additive component and a non-additive component. The additive genetic component is due to the effects of the genes, independent of their interaction with other genes. Since individual genes are passed from parent to offspring, this component is inherited and can be improved through proper selection.

The trait's non-additive genetic value is due to the interaction of genes. Since gene

combinations are not passed from parent to offspring, a trait's non-additive value is not inherited, but can be improved through **crossbreeding** or **outcrossing**. This improvement in non-additive value is referred to as **heterosis** or **hybrid vigor**. The opposite of heterosis is inbreeding depression. Inbreeding depression is the drop in performance due to a decrease in non-additive value resulting from mating related animals.

The additive genetic component is commonly referred to as the **breeding value**. Animals that excel in this component produce offspring with high breeding values. This would be expected since an animal passes one-half of its breeding value on to the progeny. Because of this, one-half of the individual's breeding value is the **expected progeny difference (EPD)**. The EPD is the difference between the average performance of the individual's offspring and the average performance of all progeny in the population.

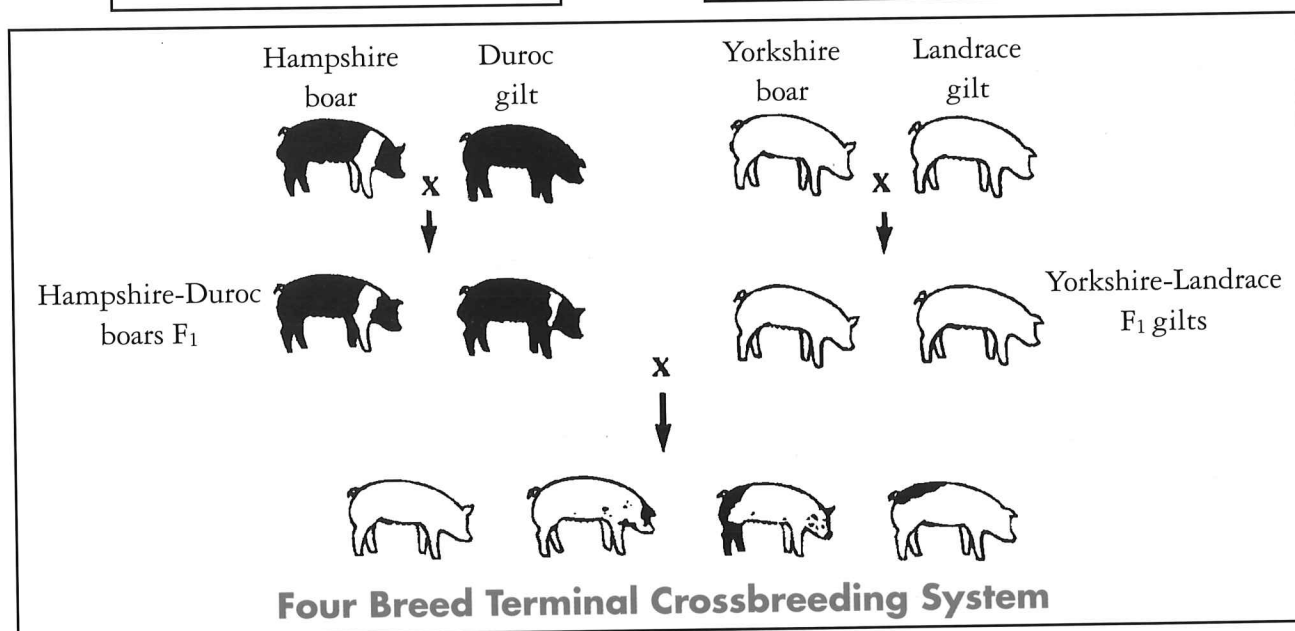
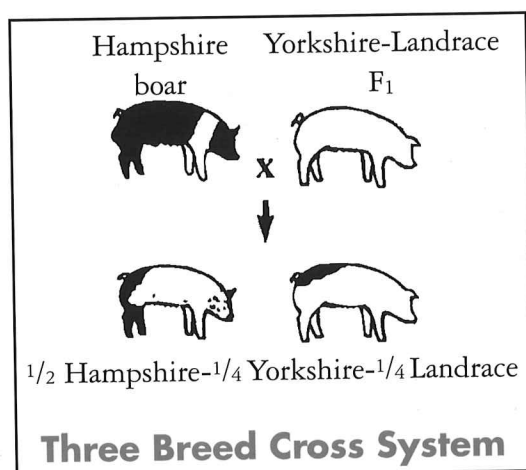
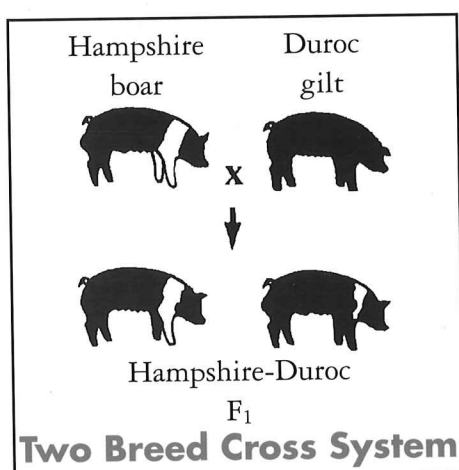
Heritability Estimates for Swine Traits

Trait	Heritability
Litter size born alive	.20
Litter birth weight	.30
21-day litter weight	.20
Average daily gain	.40
Days to 250 lb.	.40
Feed conversion	.30
Soundness	.40
Backfat thickness	.50
Loin eye area	.50
Carcass length	.55
Carcass quality	.15-.50

Percentage of the Maximum Heterosis Obtained from
Various Crossbreeding Systems

System	% Heterosis	
	Individual	Maternal
F ₁ (initial cross, A x B)	100	0
Backcross (A x A-B)	50	100
2-breed rotation	67	67
3-breed rotation	86	86
4-breed rotation	93	93
Terminal cross using F ₁ sows	100	100
Rotaterminal using a 2-breed rotation	100	67
Rotaterminal using a 3-breed rotation	100	86

Examples of Crossbreeding Systems



Abnormalities

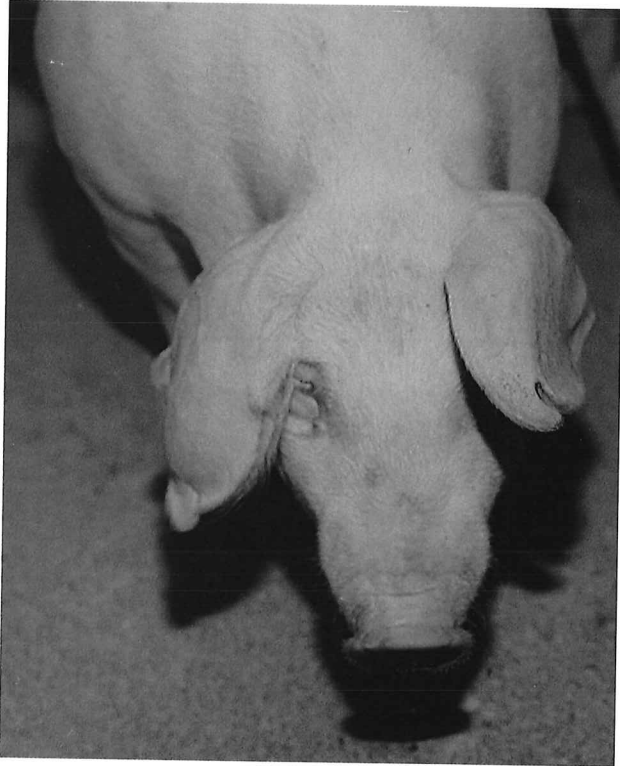


Figure 17.1

The hematoma on the pig's right ear was caused by environmental conditions

Anatomical abnormalities or defects occur in at least 1% of newborn pigs. These defects may be caused by genetic or environmental factors. Although the frequency of these defects is low, they can be frequent enough in an individual herd to cause substantial economic loss.

Traditionally, producers have assumed all such abnormalities were of genetic origin since the defects are often dramatic and congenital.

Congenital defects only imply that they are visible at birth and not that they have a genetic cause. We now recognize that environmental factors such as viral infections, dietary deficiencies, and ingestion of certain drugs, chemicals, and pesticides during pregnancy may alter normal prenatal development of the pig. In fact, some cases of an abnormality may result from genetic factors while other cases of the same abnormality may result solely from environmental factors.

Umbilical Hernia—A weakened supportive muscle in the navel area results in the intestines protruding through the belly wall. Also known as a belly bust. This condition is primarily caused by infection in the navel area. Research studies have shown no genetic influence on the incidence rate of umbilical hernias.

Important Genetic Abnormalities

Porcine Stress Syndrome (PSS)—(refer to Chapter 4)

Rendement Napole Gene—(refer to Chapter 4)

Scrotal Hernia—Results from a weakness of the muscles that surround the inguinal canal, permitting the intestines to drop into the scrotum.



Figure 17.2
Umbilical hernia

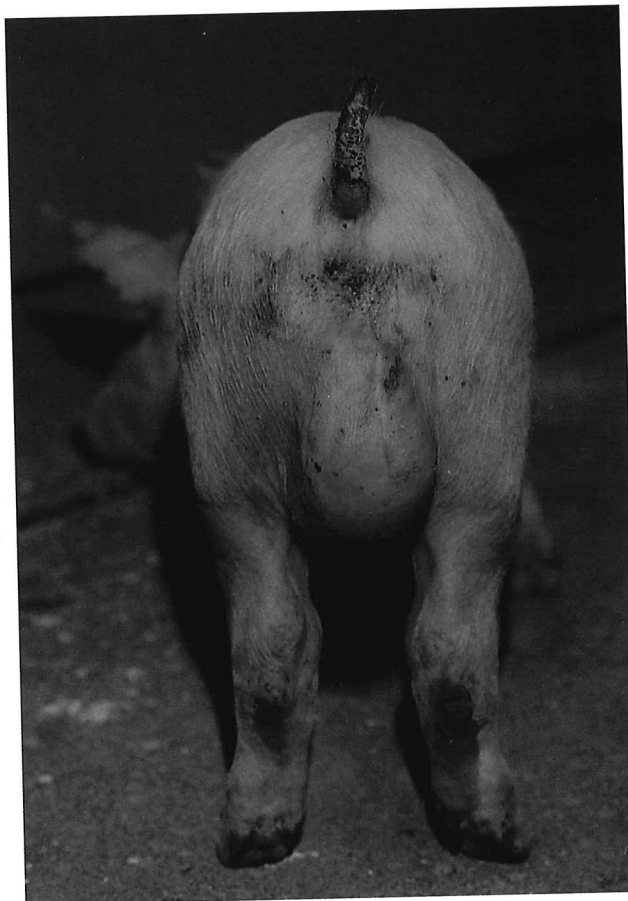


Figure 17.3
Scrotal hernia

Atresia Ani—This condition is characterized by a pig being born without a rectal opening. Boar pigs die within a few weeks unless an opening is made surgically to permit him to defecate. Females with no anal opening can commonly defecate through the vulva and grow normally.

Cryptorchidism—Are male pigs with one or more testicles retained up in the body cavity.

Hermaphrodites—Are pigs that carry both male and female sex organs. Example: vulva and testicles are both present.

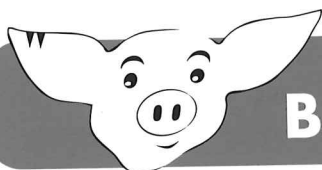
Other genetic abnormalities include: rectal prolapse, swirls (hair whorls), screw tail, blood warts, brain hernias, cleft palate, gastric ulcers, hemophilia (bleeders), humpback, hydrocephalus, leukemia, spraddle (splay) legs, tremors, polydactyly (extra toes), syndactyly (mule foot). Refer to Pork Industry Handbook, PIH-97 for more information.



Figure 17.4
Spraddle (splay) legs—genetic defect



Figure 17.5
Masking tape is used to aid the piglet in movement and to strengthen the legs



Chapter 18 Breeding Management

Heat Detection in Gilts and Sows

Detection of heat (estrus) is a very important component of your breeding program. The keys to successful detection of heat are to be observant and understand the behavioral signs that occur prior to standing heat. These signs should be used as a guide with regards to how much time should be spent trying to stimulate gilts or sows.

What are the signs of heat?

The best indication that gilts or sows are sexually receptive occurs when they are in standing heat. The female will appear rigid or “locked up” in anticipation of being mounted by a boar for breeding. Often the ears of sows and gilts will become erect during the standing reflex. This is commonly called the “ear popping” response. Checking for heat by

Signs to Identify Heat (Estrus)

Heat detection is not difficult if you know what to look for.

- | | |
|------------------------|---------------------------------|
| A. Increased activity. | D. Sticky discharge from vulva. |
| B. More vocal. | E. Ear carriage is more erect. |
| C. Swelling of vulva. | F. Stands for back pressure. |

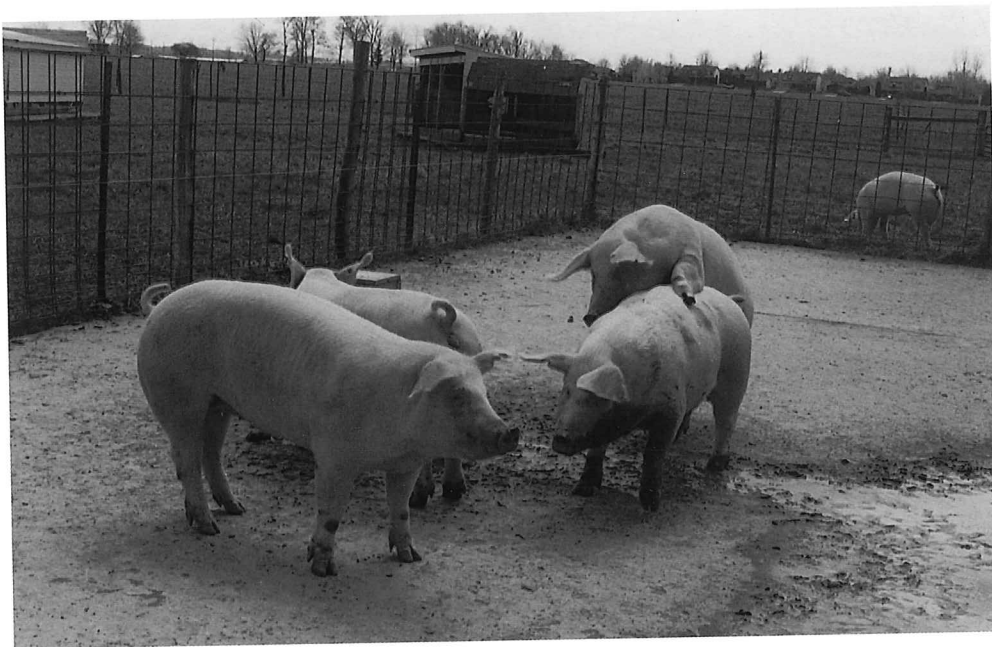


Figure 18.1
Increased activity

applying back pressure is the most common managerial tool the swine herdsman uses for heat detection. When back pressure is applied, females that are truly in heat will actually push back when pressure is applied. This is a natural response as she is preparing herself to be mounted by the boar for breeding. If the female moves away she is probably not in heat.

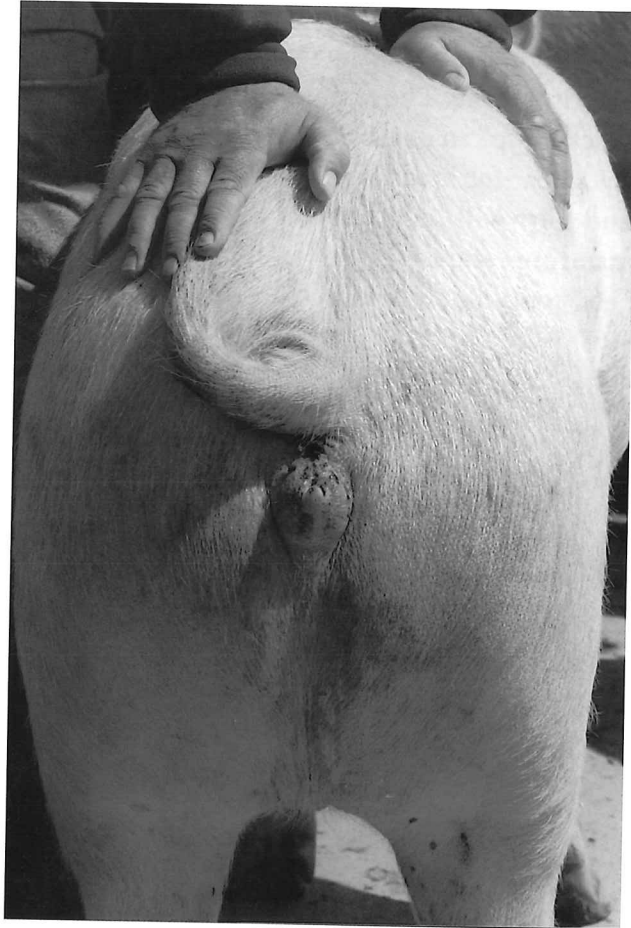


Figure 18.2
Swelling of vulva

Exposure to the boar is also an excellent method for detecting heat. Providing fence line contact to the boar at 12 hour intervals will help stimulate the standing reflex. When standing heat is fully detected then the female can be mated naturally by the boar or through artificial insemination.

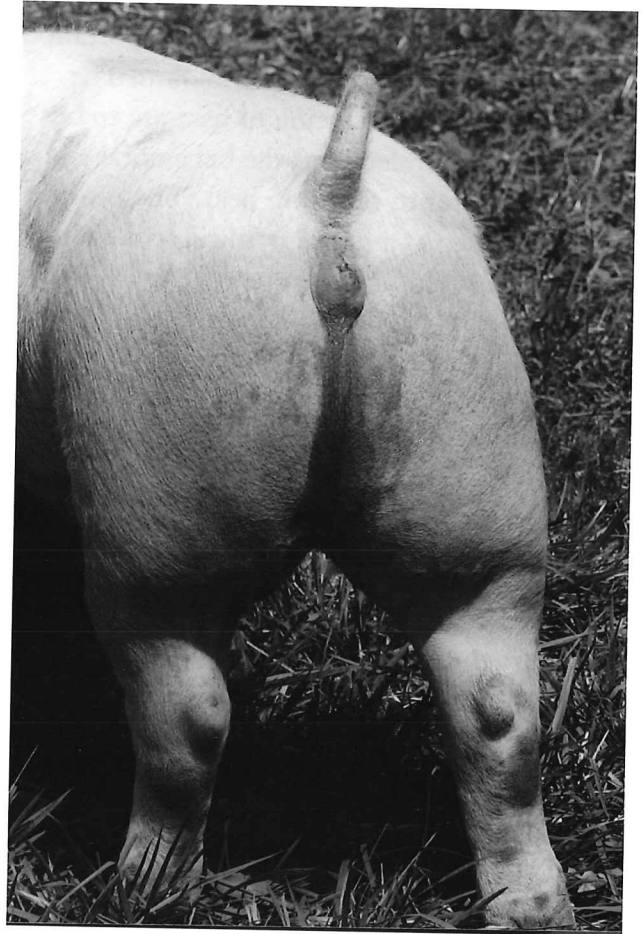


Figure 18.3
Sticky discharge from vulva

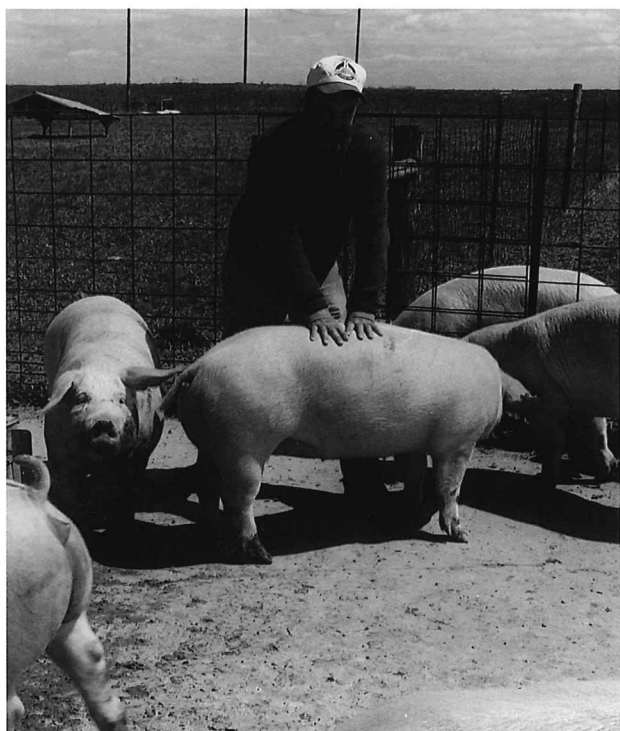
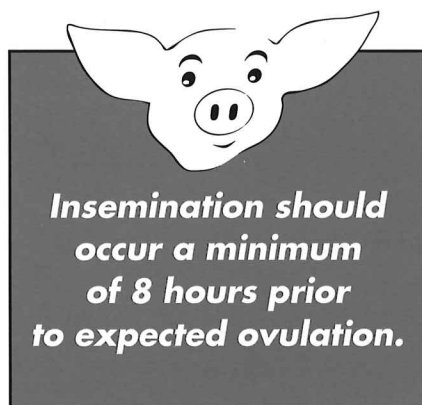


Figure 18.4
Stands for back pressure

Duration of Heat (estrus)

The number of breedings that can be given over a specific period of time is influenced by the duration of estrus. Estrus averages from 50 to 60 hours; but can range from 8 to 153 hours. Duration of estrus in gilts is about 10 hours shorter than in sows.



Ovulation

Ovulation refers to when the sow or gilt starts to release eggs. The intervals between the start of heat and ovulation averages 35 to 45 hours. The duration of ovulation ranges from 1 to 7 hours.

How long will the eggs live prior to being fertilized by sperm? The life span of eggs is uncertain, however, most studies show it is very short (two to eight hours). Therefore, insemination should occur a minimum of 8 hours prior to expected ovulation.

How long will sperm live?

Most studies indicate that the life span of sperm cells in the oviduct (see Chapter 15, Figure 15.7—sow reproductive tract) tract is between 24 and 72 hours. Because of the limited life span of the sperm cells, multiple matings during estrus serve to replenish the supply of viable sperm cells in the oviduct. Because of the short life of the eggs, viable sperm need to be present in the oviduct prior to ovulation.

For more information on breeding sows and gilts refer to Pork Industry Handbook 64 and 137.

Artificial Insemination (AI)

AI can be an important tool for the genetic improvement of your swine breeding project. Its success depends on the selection and use of the very best sires that are available. It is important to remember that use of AI does not guarantee, but rather provides opportunities for improved breeding management. AI is a management tool, not unlike a farrowing crate or a finishing diet. Potential benefits associated with artificial insemination will only be realized if used correctly.

What are some of the advantages of AI?

1. **Superior Sires:** Maximum genetic input can be made from using boars with proven performance and superior records. Identify the traits that need improvement in your herd and select AI sires that will improve those traits.

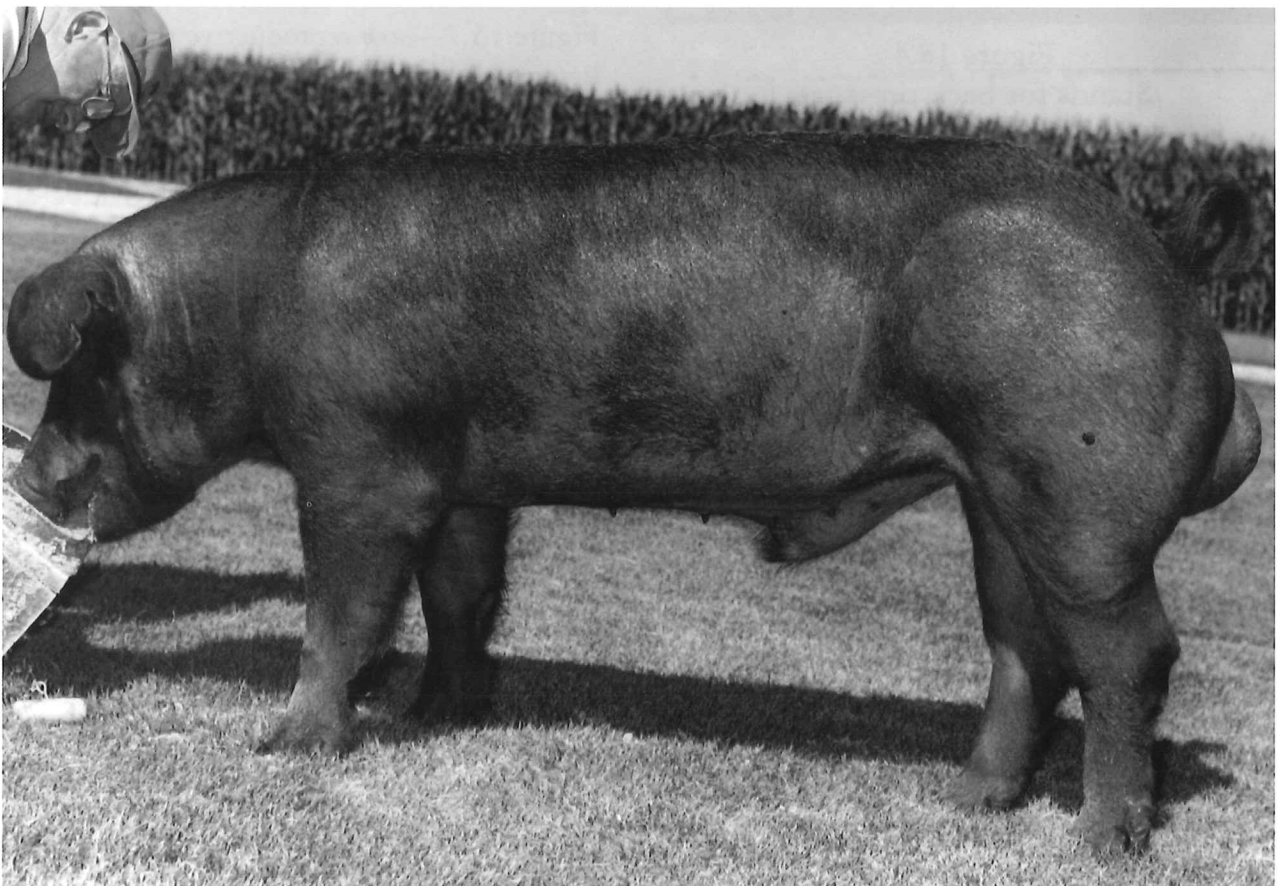


Figure 18.5
Mature herd boar used for artificial insemination

2. **Minimize Disease Risk:** By using fresh or frozen semen, the risk of disease may be greatly reduced and the ability to introduce new bloodlines can be achieved while still maintaining a closed herd. In confinement hog production, prevention of disease and eventual eradication are the prime goals of the producer.

3. **Reduction of Boar Battery:** By using AI, the number of herd boars may be reduced. When pen breeding, a mature boar can only breed ten to twelve sows over a four week period and still maintain a high conception rate. With AI, boar power can be extended significantly with the use of extenders and therefore, the need for boars reduced. This then allows for more capital for superior boar purchases.

4. **Convenience:** Semen is available when you need it and requires less labor input than hand mating, with less risk to both humans and your expensive herd sire. Also, bloodlines may be maintained for years by herd sires that have long since passed away. Physical barriers can be overcome, allowing gilts to be mated to large boars that otherwise might be impossible.

Since you are now aware of the advantages of AI we are ready to discuss the procedure:

1. **Heat Detection:** This is the most important step in making an AI program work. Without careful observation of heat, optimum time of insemination cannot be determined.

Your sows and gilts should be observed twice a day, preferably twelve hours apart. Look for heat signs: vulva swelling, riding other gilts or sows, fence running, clear discharge from the vulva. Also the presence of a boar either in the pen or an adjacent area can be helpful.

When the sow/gilt will stand for back pressure she is considered in standing heat.

Record the identification (ear notch or tag number) of gilts or sows on the calender when heat is observed. This will help you know when to order semen for breeding during the next heat cycle.

Most fresh extended semen that is properly stored will last up to five days from collection. So if your sow/gilt is due to come in heat on the 20th of the month schedule delivery of semen for the 19th.

2. **Time of insemination:** Sows and gilts should be bred 12–24 hours after they show standing heat (gilts to be bred earlier than sows). A second insemination should follow 12 to 24 hours after the first insemination with gilts again on an earlier schedule.

3. **Procedure:** Take great care to be as clean as possible! To maintain cleanliness use disposable equipment if possible. Clean off the vulva (with a dry towel) before inserting the catheter. Insert the breeding rod into the vagina at an upward angle and push forward firmly while maintaining the upward angle. If the vagina is a little dry, squirt a small amount of the semen through the rod and continue—this acts as a lubricant. A non-spermicidal, commercial lubricant may be used if you prefer.

When the rod will go no further, you have reached the cervix. If you are using a spirette, turn it counter-clockwise and forward until it locks.

Attach the bottle to the rod, turn the bottle upside down and press gently until the bottle is empty. **Note: Take your time!** If the semen will not go in, reposition the rod slightly and try again.

Allow time for the sow to realize she is being bred. A small amount of backflow is not unusual. If it appears to be excessive, stop and reposition the rod. When the bottle is empty, remove the spirette by turning clockwise and gently pulling backward.

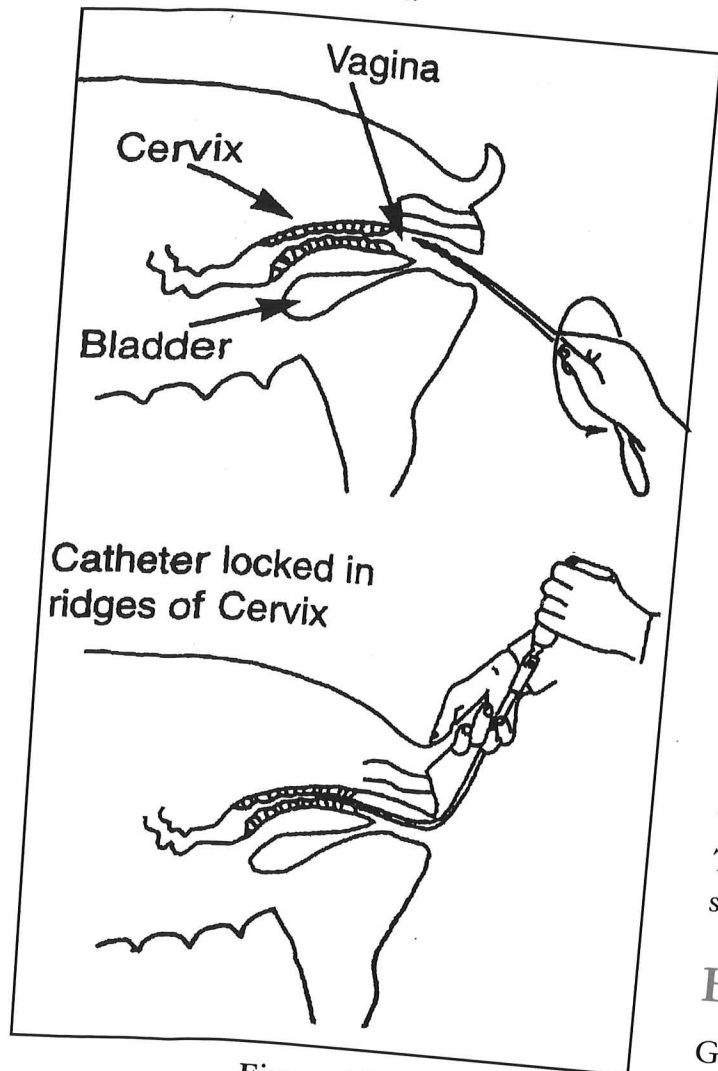


Figure 18.6
Artificial insemination procedure

Care of Liquid Semen

- DO NOT REFRIGERATE!
- STORE THE SEMEN BETWEEN 60° AND 65° F.
- COOL TO ROOM TEMPERATURE.
- Gently rotate the bottles at least twice a day, more often if possible, to keep the semen mixed.

Estrous "Heat" Synchronization

Artificial insemination can be made more efficient by heat synchronization. If the time when heat is expected to occur can be identified more closely, effort at heat detection can be concentrated over a shorter period of time. Not only does this result in significant labor savings but it allows for more efficient scheduling of matings and semen orders.

There are a variety of useful heat synchronization techniques.

Breeding Sows

Group weaning is probably the most common method of heat synchronization for sows. Most sows exhibit "standing heat" 4–6 days post-weaning—provided that none are weaned less than two weeks after farrowing. However, a few sows delay showing heat for 7 days or more, which may present a problem when ordering semen. Sows injected on the day of weaning with PG600 (Intervet Inc.) will usually show heat in 4–6 days. This is an accepted method of tightening the interval

from weaning to heat—particularly in the late summer months or in total confinement systems. It may be well worth the modest cost of PG600 to insure that your sows will be in heat when your semen arrives.

Breeding Gilts

Method 1: Prepubertal gilts (gilts who have not yet come into heat) will respond to treatment and show heat 4–6 days after injection of PG600. Gilts that are already cycling will not respond to this treatment. In practical situations, many will give PG600 to 6–7 month old non-cycling gilts to induce the first heat. Semen can then be ordered to correspond with breeding at subsequent heat periods.

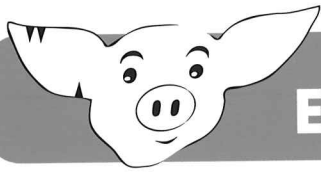
Method 2: Breeding and aborting has been reported by some as another successful method of heat synchronization. The female is bred and then after the 15th day of gestation, a

prostaglandin (such as Lutalyse) is given to abort the pregnancy. Heat should occur approximately 4–6 days following abortion. This treatment regime must be prescribed by a veterinarian.

Tip: Daily exposure to a boar should be used in conjunction with any synchronization method if at all possible. This enhances the actions of many of these treatments by creating a stronger and quicker response.

Remember—before using any drug or hormone treatment for heat synchronization, consult your veterinarian.

We are fortunate in the U.S. to have several AI centers available for semen purchases. These centers can provide you with valuable training (classes) and advice on what boars to purchase. Also, the seedstock industry is an excellent source of semen for purebred, commercial and club pig production.



Chapter 19 Environment for Sows

The environment provided for your swine enterprise will play a major role in the success of your project. Farrowing units vary from portable pasture houses to an environmentally controlled central building. When selecting the farrowing unit consider the time period you will be involved with the project, available capital, labor required, existing

buildings and your management ability. Generally the more intense farrowing schedules require more capital and management ability, but less labor per pig.

The following space requirements are benchmarks which may be used in meeting your projects needs.

Space Requirement

Closed Housing (confinement)

Breeding swine	Weight lb	Solid floor ft ² /hd.	Totally or partly slotted floor ft ² /hd.	Animals per pen	Stall size	Suggested minimum pen size for one animal
Breeding						
Gilts	250–300	40	24	up to 6		10' x 12'
Sows	300–500	48	30	up to 6		10' x 15'
Boars	300–500	60	40	1	24" x 84"	10' x 15' (high fences 60")
Gestating						
Gilts	250–300	20	14	6–12	22" x 72"	
Sows	300–500	24	16	6–12	24" x 84"	

Shed With Outside Lot

	Weight lb	ft ² /hd Inside	ft ² /hd Outside
Gestating sow	325	8	14
Boar	400	40	40
Sow in breeding	325	16	28

Farrowing Space

Sow/litter	5 x 10 ft. Farrowing pen with guard rails and creep area
Sow/litter	5 x 7 ft. pen with farrowing crate with defined sow and creep area

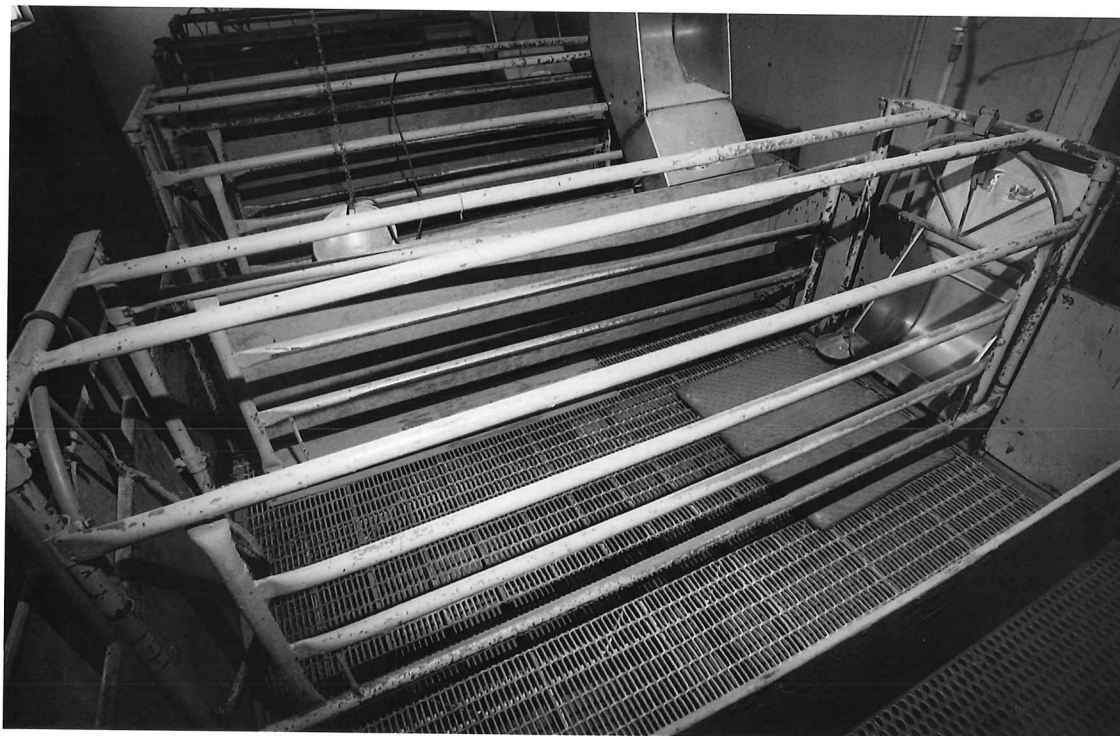


Figure 19.1
Farrowing crate

Pigs	Weight lb	Area ft ² /hd.
Prenursery	12–30	2–2½
Pig-nursery	30–75	3–4

Feeder Space:

Sows:	1'/self-feed sow, 2'/group-fed sow
Pig (12-50 lb):	3 pigs/feeder space
Pig (50-75 lb):	4 pigs/feeder space
Pig (75-220 lb):	4–5 pigs/feeder space

Water Requirements:

Animal Type	Gal/hd/day
Sow and litter	8
Nursery pig	1
Growing pig	3
Finishing pig	4
Gestating sow	6
Boar	8

Pasture Space:

Depends on rainfall and soil fertility

10 gestating sows/acre

7 sows with litters/acre

50 to 100 growing-finishing pigs/acre

Source: Midwest Plan Service & Swine Housing and Equipment Handbook

Crates, Stalls or Pens?

The main differences between farrowing crates and pens are the amount of exercise for the sow and the degree of protection of the pigs from crushing. With crates, pigs are protected from crushing by the sow. Heated creeps further protect pigs by attracting them away from the sow when not nursing. Crates require less bedding and labor than do pens. It is more difficult to catch pigs in a crate but the operator is protected from the sow when handling pigs.



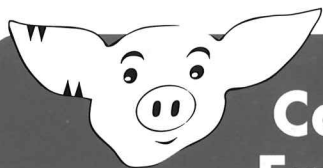
Figure 19.2
Homemade farrowing crate

Farrowing pens allow more sow movement but require more cleaning, labor and floor space. A sow in an open pen must be restrained for any physical treatment. Pens may be preferred for late weaning to give the larger pigs more space. You can convert farrowing pens with feeders and waterers to small nursery pens by removing the guard rails.

Crates are usually 5' wide by 7' long (some are 6 feet or 6½ feet long with the feeder mounted on the outside of the stall). The width includes an 18" pig area on both sides of a 24" sow crate. Most commercial stalls are adjustable for large or small sows. Some special farrowing stalls are only 4½ feet or even 4 feet wide. The narrower stalls work better for gilts, smaller sows, and for pigs weaned by 3 weeks.



Figure 19.3
Farrowing crate with litter



Chapter 20

Care of the Sow During Farrowing and Lactation

Your goal with a swine breeding project should be to obtain a large litter of healthy pigs at birth that will remain healthy and grow rapidly. Care during lactation must also prepare the sow for a successful weaning and rebreeding. The sow must reach farrowing in the best health for herself and her expected litter. Following a proper nutritional program as outlined in Chapter 8 will help insure your sow or gilt approaches farrowing in the best nutritional condition. Also by following a herd health program Chapter 9) assures minimal exposure of the sow to disease or disease carriers during gestation. This is essential for maximum litter survival. Sows should be managed in a gentle manner on a regular daily schedule.

Prefarrowing Tips

1. Deworm and vaccinate sows following your veterinarian's recommendations.
2. Clean and disinfect completely the farrowing area and leave unused for 3–5 days. This can be accomplished by scraping, using high pressure cleaners, and/or a stiff scrub brush. Do a complete job. Disinfectants are ineffective unless all the surfaces have been thoroughly cleaned.

3. **Wash the sow or gilt.** Before the female is put into her farrowing pen, wash the sow including her teats and belly with a mild soap and warm water. This procedure should remove potential harmful bacteria and also eliminate ascarid (roundworms) eggs that would serve as a source of infection to nursing pigs.



Figure 20.1
Washing sow prior to farrowing

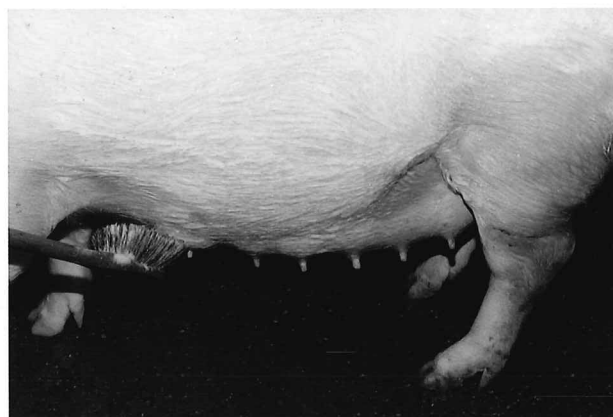


Figure 20.2
Washing sow's udder prior to farrowing

Farrowing and Lactation

4. **Feeding prior to farrowing.** Prior to farrowing feed sows or gilts 4–6 lb. feed/day depending on weather and housing conditions. Many producers prefer to bulk up their prefarrowing ration with 25% oats to avoid constipation problems. Remove bulky ingredients from her diet soon after farrowing. Also water is very important and should be freely available.
5. **Know when your sow or gilt will farrow.** You can avoid a great deal of stress on both your project female and yourself by knowing when your sow will farrow. The normal gestation length is 114 days. (refer to litter card in Chapter 21)

Avoid penning her in too early since it is important that your sow or gilt has proper exercise prior to farrowing. The female should become accustomed to her surroundings before she delivers pigs. Two to three days should allow her time to adjust and relax to her new surroundings.

The environment in the farrowing facilities is extremely important. Provide good ventilation, prevent drafts, keep floors dry and maintain a temperature of 65°F for the sow. Baby pigs cannot regulate their body temperatures and need a much warmer environment. Provide supplemental heat with heat lamps or other zone supplemental heat to keep the sleeping area temperature for the baby pigs at 90 to 95°F during the first week. If baby pigs become chilled, diarrhea may result. Temperatures in the sleeping area can be reduced by 5°F each week after the first week.

The presence of milk indicates that farrowing will occur within 24 hours. Be present at farrowing (especially with first-litter gilts) so that you can reduce the number of stillborn pigs and revive weak pigs. By being present at farrowing, you can be aware of a sow or gilt



Figure 20.3
Farrowing process: presentation of piglet



Figure 20.4
Piglet expelled in placental membrane

needing assistance and obtain help from a veterinarian if needed.

Usually delivery of piglets ranges from 30 minutes to five hours. Pigs may be born either head first or rear feet first. The average

interval between birth of pigs is about 20 minutes, but this can vary. It is important that once a pig is born, any mucus or membranes around the nose or mouth are removed to clear the nasal passages.



Figure 20.5
Piglet at first breath

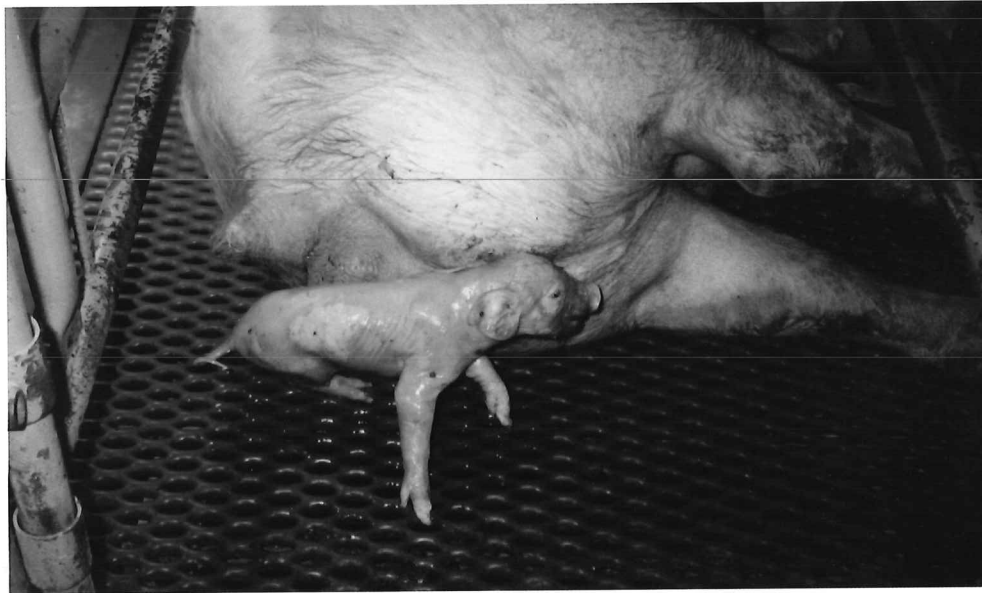


Figure 20.6
Piglet moves toward sow's udder for colostrum

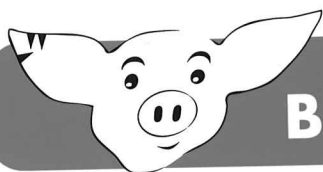
During the birth process, some sows may become nervous and mean. As a result, these sows may try to kill their pigs by biting or stepping on them. If this situation occurs, remove the pigs from the sow until she has finished farrowing. Put pigs in a warm area until after the sow has farrowed. Then, test the sow by putting one of the pigs near her to determine how she reacts. If she accepts one pig, put all of her pigs in with her, and help them get started nursing. If pigs are not accepted contact your veterinarian.

Each pig should receive colostrum after birth to provide immediate protection against common bacterial infections. If a baby pig cannot nurse because of weakness, a mean sow, large litter, etc., it can be transferred to another sow or be fed colostrum by bottle or syringe orally. In such cases, cleanliness of feeding equipment is essential to control the growth of bacteria. Housing for all baby pigs, whether specially fed or nursed by a sow, must be kept as sanitary as possible.

Please refer to Chapter 8 on proper feeding of the sow during lactation.

Standardize Litters

If your project involves several sows, you have a management tool at your disposal that will help you raise more pigs per sow. Litter standardization allows the placement of pigs from an extra large litter (12+) to a sow whose litter is not as large (9 or less). This gives the pigs a better chance of survival by reducing overcrowding. Also this better utilizes the milk production provided by the foster mother. Standardization should be completed within 24 to 48 hours after birth. Milk substitutes are available through your local feed dealer



Chapter 21 Baby Pig Management

Your sow has provided you with a large litter of pigs. Now how are you going to care for them? Success in raising large litters of pigs requires a lot of hard work and determination. This can pay big dividends if you can save more pigs per litter.

Processing Pigs

Your new litter of pigs should be processed within 24 hours after birth. Processing may include the following steps: weighing, navel cord care, clipping needle teeth, tail docking, iron injections and ear notching.

The supplies and equipment needed for these practices are a disinfectant, an antiseptic (tincture of iodine), side cutters for clipping navel cord, needle teeth and tail (side cutters are sometimes used for castration too), an injectable iron solution, syringe and assorted needles, cord for tying off navel, an ear notching tool and a castration knife. A shallow container with a disinfectant solution should also be available for your processing instruments between pigs. Disinfect tools between each pig.

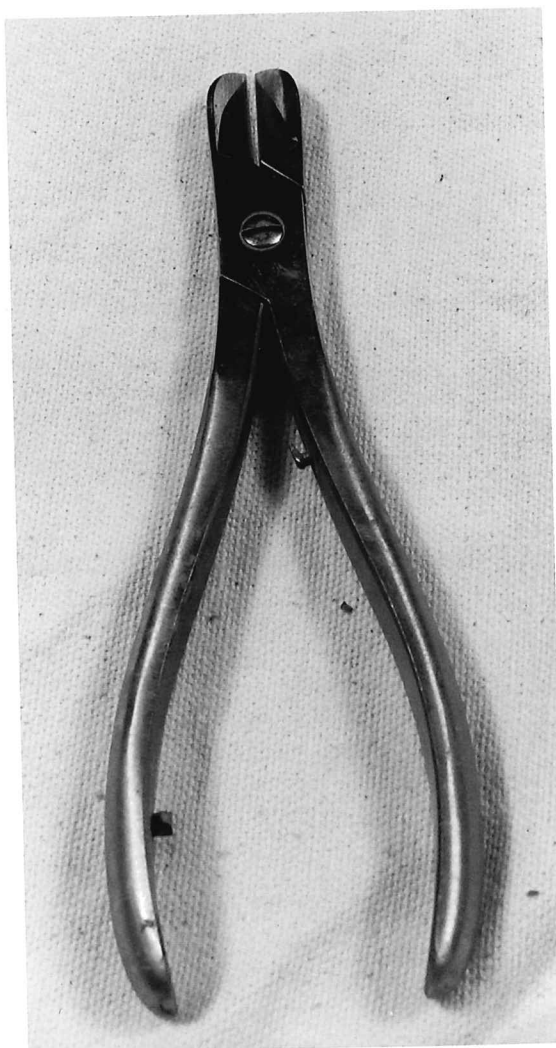


Figure 21.1
Side cutters



Figure 21.2
Another example of side cutters used
for clipping needle teeth

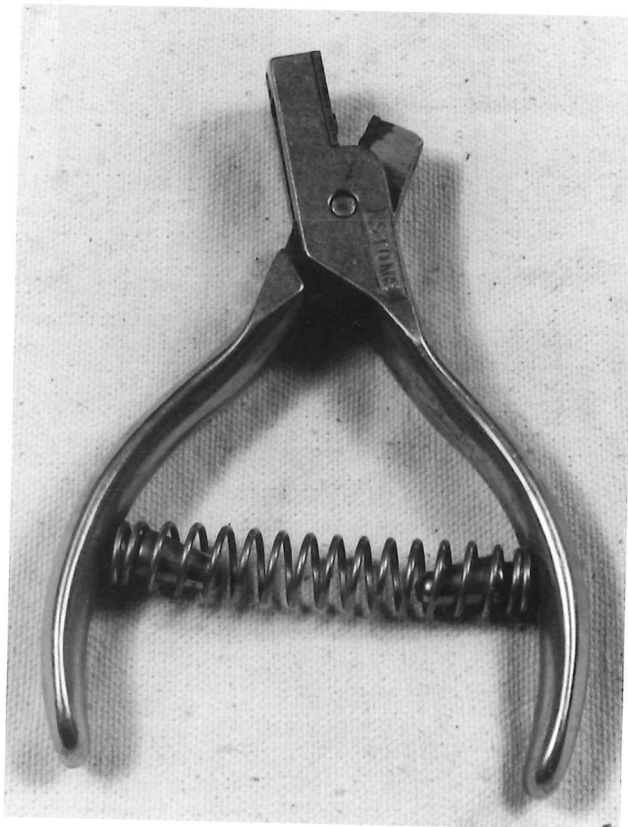


Figure 21.3
Ear notching tool



Figure 21.4
Ear hole punch

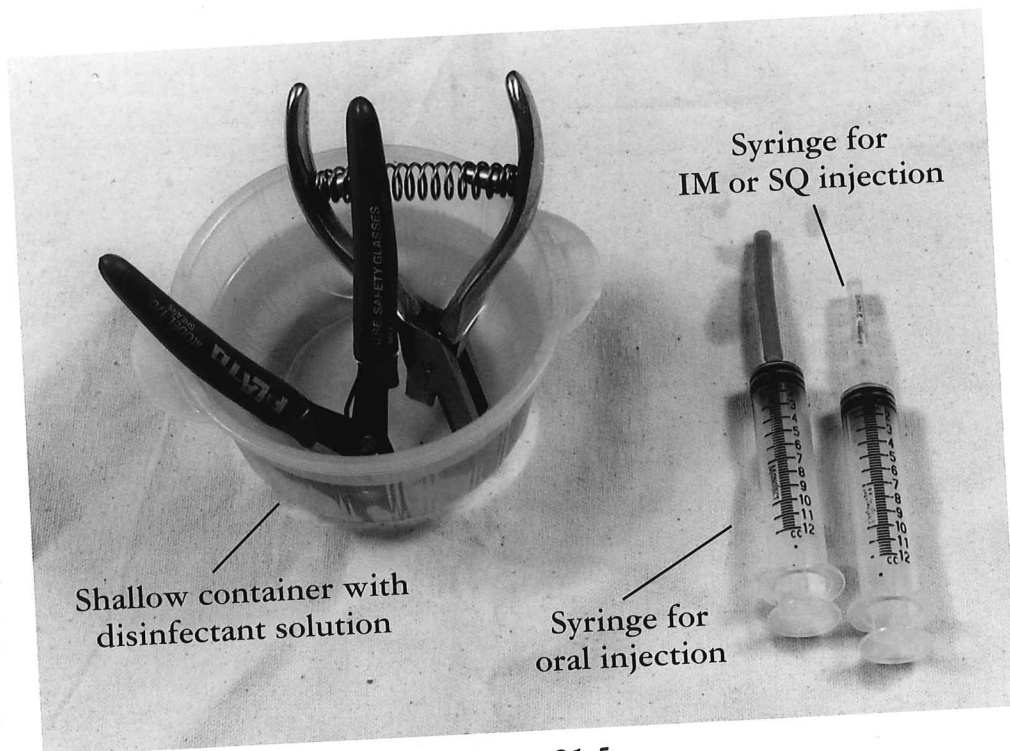


Figure 21.5
Equipment needed for baby pig processing

The piglets should be gathered together in a box or cart and taken to an area away from the sow for processing. Squealing pigs may upset the new mother and any other sows in your farrowing room. Be careful when removing pigs from the farrowing pen, the sow's natural instinct is to protect her litter.

Now let's look at the processing methods discussed earlier.

- A. Records—Production records will be one of your best tools for identifying the strengths and weaknesses of your operation. Items that should be recorded when processing baby pigs are birth date, pedigree information, sire, dam breed or crossbred, sex, ear notch, weight, underline count. (See litter card)

Example: Farrowing Record

DATE FARROWED ____/____/____		<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;"> Sow Crate </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 2px; width: 60px; margin: 0 auto;">number</div> <div style="border: 1px solid black; padding: 2px; width: 60px; margin: 0 auto;">number</div> </div> </div>											
<input type="checkbox"/> Litter No. <input type="checkbox"/> Pigs Born <input type="checkbox"/> Pigs Born Alive		Litter <table border="1" style="display: inline-table; text-align: center; width: 100px;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td> </tr> </table>		1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10				
Average weight/live pig born <input type="text"/>		Sow Condition Score at Farrowing <table border="1" style="display: inline-table; text-align: center; width: 60px;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td> </tr> </table>		1	2	3	4	5					
1	2	3	4	5									
<input type="checkbox"/> Pigs Born Dead		Sow Condition Score at Weaning <table border="1" style="display: inline-table; text-align: center; width: 60px;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td> </tr> </table>		1	2	3	4	5					
1	2	3	4	5									
Normal Looking <input type="checkbox"/> Very Small <input type="checkbox"/> Deformed <input type="checkbox"/> Mummified <input type="checkbox"/>		Sow Index <input type="text"/>											
<input type="checkbox"/> Pigs Transferred to Sow No. <input type="text"/>		Rebred <input type="checkbox"/> Cull <input type="checkbox"/>											
<input type="checkbox"/> Pigs Transferred from Sow No. <input type="text"/>		Reason for Culling _____											
<input type="checkbox"/> Total Pigs Nursed		PROCESSING											
PIGS DIED WHILE ON SOW		Naval Cord/clipped and treated <input type="checkbox"/>											
<input type="checkbox"/> Crushed		Teeth Clipped <input type="checkbox"/>											
<input type="checkbox"/> Starved		Tails Docked <input type="checkbox"/>											
<input type="checkbox"/> Scours		Iron Shots <input type="checkbox"/>											
<input type="checkbox"/> Processing		Castrated <input type="checkbox"/>											
<input type="checkbox"/> Defect _____		Vaccinations <input type="checkbox"/>											
<input type="checkbox"/> Drug Reaction _____ (list drug)		<input type="text"/> <input type="checkbox"/>											
<input type="checkbox"/> Total Pigs Weaned		<input type="text"/> <input type="checkbox"/>											
<input type="checkbox"/> Litter Weaning Weight		<input type="text"/> <input type="checkbox"/>											
<input type="checkbox"/> Average Weaning Weight		<input type="text"/> <input type="checkbox"/>											
<input type="checkbox"/> Age at Weaning		<input type="text"/> <input type="checkbox"/>											
		Creep Feed <input type="checkbox"/>											

B. Weighing—Weigh each pig and record the sex and weight. A total litter weight is a good tool for making selection decisions.

C. Restraining the pig for processing.—One of the very successful and efficient methods of holding and restraining the pig is as follows (this method assumes you are right-handed): Place your left thumb into the crease behind the pig's right ear about midway from top to

bottom. Maneuver your left index finger across the front of the pig's face and into the corner of the left side of its mouth, behind the needle teeth. Your left thumb will end up either behind the pig's ears or in front of them depending upon the length of your fingers. Beware not to choke the pig by pressing the remainder of your fingers into its throat. Use the fingers under the jaw to support some of the pig's weight. Dangle the pig in front

of you and it will struggle less than if you pull it against you. You can also sit and support its weight on your knees, if necessary.

With the pig in this position, it usually does not struggle or squeal, and you can cut the teeth, cut the tail, inject into the muscle of the neck, and dip the tail and navel, in very rapid succession without changing the hold on the pig.



Figure 21.7

Restraining the pig for processing or Eye teeth clipping

D. Navel Cord Care—During pregnancy the fetus obtains nutrients and voids urine through the umbilical (navel) cord. When this cord is broken as the pig leaves the birth canal, the passageway within the cord provides a potential passageway for bacteria into the body of

the newborn, and sometimes infection results. To help in preventing infection, the navel can be treated with a tincture of iodine (USP-2% solution).

Sometimes newborn pigs bleed excessively immediately after the umbilical cord breaks, especially if it breaks shorter than 4 to 5 inches. The loss of blood will cause the pig to get a poor start and possibly die. If bleeding does occur from the navel, tie it immediately with string using a square knot. The cause of the excess bleeding could be due to a failure in the blood clotting mechanism.

With disinfected side cutters, cut off the navel cord. If the navel cord has been tied, you can leave about 1 inch. Leave 3 to 4 inches if the navel has not been tied; check for bleeding if the navel cord is fresh. Apply iodine antiseptic by swabbing, spraying or dipping. The dip method requires placing the navel inside the antiseptic bottle and shaking gently. Any of these methods is satisfactory, but be sure to get good coverage of the navel cord. Use disinfected sidecutters and a fresh iodine solution, since iodine solutions break down in the presence of organic matter. A contaminated iodine solution might actually cause an infection. If the cord is dry and shriveled, it may not be necessary to treat. Just cut it off, leaving about an inch of cord.

E. Clipping Needle Teeth—The newborn pig has eight needle teeth, sometimes referred to as wolf teeth which should be clipped within 24 hours after birth. They are located on the sides of the upper and lower jaws. Clipping these teeth is necessary because pigs may bite each other and the sow's udder, leaving small cuts to become infected. The irritation

may be so severe that the sow might refuse to nurse the pigs.

Place the sanitized sidecutters over both lower needle teeth on one side with the flat side to the gum line. Make sure the sidecutters are parallel to the gum, and cut off one-half of the two lower teeth at once. Turn the sidecutters and cut the two upper teeth. Do the same to the other side. Be careful not to cut the pig's gum or tongue. Cutting teeth too short may cause an abscess on the jaw that is sometimes called "bull nose."

- F. **Tail Docking (cut)**—Recommended floor space in modern pork production systems provides for adequate pig comfort. However, space is more restricted than in outside lots, and pigs will sometimes try to bite or chew on their penmates. The undocked tail is a very convenient target, and sometimes results in tail biting or cannibalism. This leads to injury and possibly infection. To prevent tail biting, tails are docked on newborn pigs. Tail docking usually is required at feeder pig markets. Tail docking should be done within 24 hours after birth because it is least stressful on the pig for these reasons; the pig is small and easy to hold; at this age littermates are less likely to investigate and nip or bite a newly docked tail; the pig and farrowing area are still clean; and the pig is well protected with antibodies from the colostrum milk of the sow. Use sterilized sidecutters to dock the tail about 1 inch from the place where the tail joins the body of the pig. Leave no more than one-half to three-quarters of the tail. Apply antiseptic to the wound. The tail should be completely healed within 7 to 10 days. Do not use a very sharp instrument, such as a scalpel, because excess bleeding will occur.

Docking the tail too short could interfere with the muscle activity around the anus later in the pig's life and could be an aggravating factor in rectal prolapse. If too much tail is left, tail biting might still occur. Occasionally, a tail will bleed excessively. If this occurs, tie it off using the same method as for navel cords.

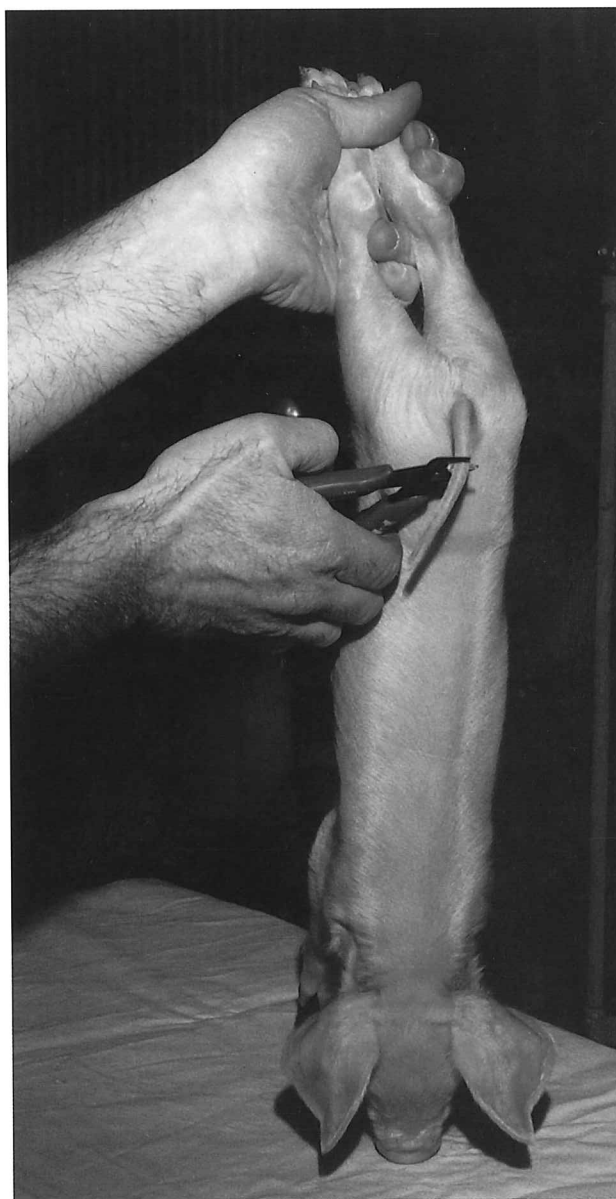


Figure 21.8
Dock the tail about 1 inch from
where the tail joins the body

G. Iron Injection—Iron injection is necessary to prevent anemia. Iron-deficiency anemia develops rapidly in nursing pigs because of, the low iron of sow's colostrum and milk, the lack of contact with iron in the soil, and the rapid growth rate of the nursing pig. With no access to soil, iron deficiency anemia may result within 7 to 10 days after birth. Oral iron often prevents anemia but might fail for pigs with diarrhea or those not consuming creep feed.

Iron should be administered to the pig within 3 to 4 days after birth. The iron injection is often administered at the same time the other practices are performed to save labor. If pigs are to be weaned by 3 weeks of age, a single injection of 100 mg. of iron will suffice. If pigs are to be weaned later than 3 weeks of age, then 150 to 200 mg. of iron should be injected. A single injection is usually adequate. If sows are heavy milkers with rapidly growing pigs that do not consume creep feed, a second iron injection may be necessary before weaning.

Iron should not be injected into the ham. The injection should be given in the neck because of possible nerve damage, and the potential for a residual iron stain in the carcass of market hogs if it is given in the ham. Inject the iron into the neck muscle just off the midline. Be careful not to inject into the spinal area. Keep a finger on the site momentarily to help prevent or reduce leakage.

Recommended site for subcutaneous injections is the loose flank skin in front of the hind legs (See Chapter 24).

(Refer to injection site Chapter on Diseases)



Figure 21.9
Iron injection

H. Ear Notching—Ear notching is the most common method for permanent pig identification. The notches or holes grow as the pig grows. Ear notching should be done soon after birth for immediate identification. Each pig must have a unique ear notch in many seedstock herds because it is a requirement for pedigree and performance records. It is not necessary that each pig have an individual number in operations where all hogs except replacement gilts are marketed for slaughter. Each litter, or all pigs in a farrowing group, or only gilts to be considered for replacements, might be ear-notched at birth with the same pattern. Market hogs might be notched with the week they were born, starting with week one on January 1 and restarting on July 1. This makes it possible to calculate days to market weight.

(See Chapter 10 for ear notching chart)



Figure 21.10
Example of how to hold
baby pig for ear notching

- I. **Castration**—Castration, the surgical removal of the two testicles, is a routine management practice for male pigs destined for harvest (slaughter). The testicles produce sperm and the male hormone, testosterone. Pork from boars, or uncastrated male pigs at slaughter weight, may have an odor during cooking that is very offensive to many people. This is called a “boar odor” or a “tainted” odor.
Various techniques are used for castration. The position of the animal during surgery and the method and degree of restraint are dictated by the age

and size of the animal. The best time to castrate a pig is between 3 and 21 days of age. Young pigs are easier to hold or restrain. They bleed less from surgery and may have antibody protection from the sow's colostrum. Pigs can be successfully castrated on day one.



Figure 21.11
Using side cutters to castrate

Once the pig is restrained, clean the scrotum and surrounding area with a cotton swab soaked in a mild disinfectant. A disinfected, sharp, castration knife, scalpel, or razor-blade type instrument can be used to make the incision. (Sometimes side cutters are used on pigs less than a week old.) Examine the testicles before making the incision to determine if there are two of similar size. If there is a scrotal enlargement, it could indicate a scrotal hernia or rupture. Do not castrate this pig. Wait for a veterinarian or person trained to repair hernias.

If one or both testicles are not found, the pig may be a cryptorchid, meaning that the testicle(s) failed to descend through the inguinal canal from the abdomen during development. When this condition is noticed, ear notch the pig and make a record of it. Often, the testicle(s) will descend to a normal position as the pig grows. The pig should be castrated later, after the testicle presents itself. **If both testicles do not descend it is unacceptable for a market show exhibition or marketing through a standard market outlet.**

With one hand tighten the skin over the scrotum to help expose the testicle and the site for the incision. With the castration instrument, make two incisions about as long as the testicles near the center of each. Cut deeply enough to go through the outside body skin. Squeeze, or pop, the testicles through the incision. If it is difficult to get the testicle through the incision, enlarge the incision slightly at the end closest to the tail.

Pull out the testicle toward the tail at a right angle to the length of the body and cut the cord close to the incision. Do not pull straight up on the testicle. Repeat the procedure for the second testicle. It is best not to apply antiseptic because it causes the pig to sit and rub dirt and debris from the floor or bedding into the incisions, causing more harm than the antiseptic does good.

Later, observe castrated animals for excess bleeding or the presence of tissue or intestines (hernia). Cut off any cord that may be protruding from the incision as this may serve as a wick for infection but make sure it is not intestine. If intestines protrude contact someone trained in repairing hernias.

Prewaning and Weaning Management

As the baby pig grows older, he becomes tougher and better able to cope with his environment. By the time most nursing pigs reach 3–4 weeks of age, they have started on feed and are growing rapidly. These early gains are efficient gains, so the project member should try to minimize stress that reduces performance.

One way to maximize performance is to get the pigs started on feed as soon as possible. Generally, the sow's milk production has peaked at 3–4 weeks and begins to decrease. The pig is beginning to grow rapidly at this age and must obtain supplemental feed if he is to grow at his genetic potential. Pigs should be offered feed at 1–2 weeks; place a small amount of starter feed on the floor or in a shallow pan. Starter rations can be formulated on the farm; however, project members may wish to purchase a commercial pig starter. Consult with your state Extension specialist or nutritionist if you wish to formulate pig starter rations.

Internal parasites are a problem on most swine farms, and the damage caused by these unwanted organisms may begin in the very young pig. According to U.S.D.A. estimates, the annual loss to internal parasites may average \$3 per pig marketed. The most common internal parasites of swine are roundworms, nodular worms, whip worms, strongyloides, and lung worms. A good control program begins with deworming the sow before farrowing and washing her, especially the udder, before bringing her into the farrowing house. If parasites continue to be a problem, you may need to treat young pigs before 7–8 weeks of age. Use a

compound effective in removing the parasites common to your herd.

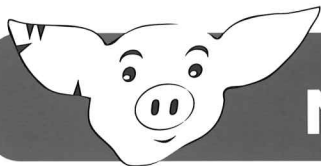
The last major management factor covered here is weaning. Age of the pig at weaning varies from herd to herd, according to facilities available, intensity of operation, and managerial skills of the producer. Generally, pigs can be weaned at any time; however, the younger the pig the more management is required to do it successfully. For the average pork producer, the following tips may be helpful in reducing the stress of weaning.

- Wean only pigs weighing over 12 lb.
- For 3 week old pigs, provide an environmental temperature of 80-85°F. Avoid drastic temperature changes, and prevent drafts, even on older pigs.
- Group pigs according to size and sex.
- Limit numbers in a pen to 30 or less, if possible.
- Limit feed intake for 48 hours if post-weaning scours are a problem.
- Provide 1 feeder hole for 3-5 pigs and 1 waterer for each 10-15 pigs.
- Medicate drinking water if scours develop.

Summary

The following management practices are suggested.

- Be present at farrowing.
- Keep baby pigs warm and dry.
- Treat navel with tincture of iodine.
- Clip needle teeth.
- Dose small pigs with supplemental milk.
- Eart notch pigs for identification.
- Equalize litters.
- Prevent anemia.
- If you observe diarrhea, contact your veterinarian.
- Dock tails.
- Castrate boar pigs by 3 weeks of age.
- Feed good starter ration.
- Deworm pigs.
- Minimize stress of weaning.



Chapter 22 Nursery Environment

Weaning is one of the most stressful experiences that a pig will experience in its life. The pig will go from a high milk/fat diet to one that is based more on grain and oil seeds. Temperature is quite often lowered when it actually needs to be raised. And litters are usually mixed together so a new pecking order must be reestablished.

How can I reduce the stress on my pigs?

Reduce these stresses as much as possible with the facilities and management you have available.

Temperature

Warm air rises and cool air falls. Remember this concept for keeping your pigs comfortable. When you walk into your pigs pen the temperature you feel around you is warmer than that found in the pigs comfort zone. How can you monitor the pig temperature zone effectively? Buy a 40 inch long section of 4" PVC pipe and drill several $\frac{1}{4}$ " holes all around the pipe to allow air to pass through. Attach the pipe to a wall or corner in the sleeping area of your pigs pen. Purchase a low cost thermometer and attach a cord to the top end. Lower the thermometer down to the pigs' environmental zone and track the temperature.

Here are a few guidelines to keep in mind for non-bedded and bedded pens.

For three week old pigs, provide 85°F temperature at pig level for the first few days after weaning. Lower the temperature 3°F per week to a minimum of about 70°F for 8 week old pigs. Provide warm floors with infrared heaters, heating pads, or floor heat. With only space heaters, you may have to set the thermostat higher than the desired room temperature to maintain warm floors.

Room temperature can be dropped to 60°F if bedding is used. However, placement of a hover 36" to 40" over the bedding area will provide a warmer comfort zone for your pigs.

Space

In a pig-nursery, provide 3 to 4 ft²/pig for totally or partially slotted pens. Bedded pens require 6 to 8 ft²/pig. Size each pen for 16 to 20 pigs. Keep litters together as much as possible, but sort to maintain size uniformity. If your building space allows for separate sex feeding, now is a good time to sort your pigs by sex. By feeding gilts together and barrows together you may improve the feed efficiency of your project. See Chapter 8.

Nursery Facilities

Fenceline or round feeders may be used in nursery pens. Fenceline feeders more efficiently utilize space available. Provide adequate feeder space as outlined below.

Pig weight, lb.	Feeder space
12–50	3 pigs/space
50–75	4 pigs/space

Section the openings of feeders so pigs cannot crawl into them. Leave at least 6" between feeder and pen partitions to prevent dunging in feeder holes.

Provide one waterer for each 10 nursery pigs.

Maintain a minimum of 2 waterers per pen. If using nipple waterers set nipple height at 10" for 12 pound pigs and raise as the pigs grow.

Pen partitions should be constructed 32" high to avoid pen jumping.

Building and equipment costs can be kept to a minimum by utilizing remodeled, existing structures, temporary or portable housing and open fields or lots in season.

Construct pens and stalls rectangular in shape rather than square to provide some definition between feeding, sleeping and dunging areas. An example would be 5 ft. X 10 ft. nursery pen.



Chapter 23

Dealing with the General Public and the Media

Because there are many misconceptions on how animals are cared for and handled, you need to be prepared to work with the general public. Listed below are some tips you may need to follow when addressed by citizens concerned about animal welfare.

How to Deal with Questions at the Fair From Interested, Concerned Citizens:

- Take them seriously
- Answer their questions honestly and sincerely
- Avoid industry jargon and buzzwords
- Be a good listener

From Activists or Protestors:

- Ignore them
- Do not confront or debate them
- If they persist, report them to your superiors
- Keep your cool, do not get upset

From the Media:

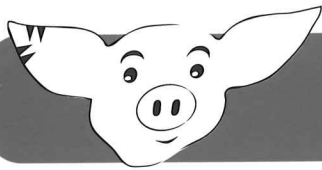
- Contact a superior to determine if you should do the interview
- Confirm your facts
- Plan your talking points
- Be brief, concise
- Avoid industry jargon and buzzwords
- If you don't know the answer, say so

Basic Messages to Communicate to Everyone:

- I believe in the humane and responsible care of all animals
- Meat and dairy products are part of an overall healthy diet as recommended by leading health authorities
- Americans enjoy the safest food supply in the world

10 Tips to Help in Dealing with the Media:

1. Confirm your facts before you talk to the media
2. Plan your talking points. Make them early and often.
3. Anticipate opposing points of view.
4. Be brief in your response.
5. Be honest. Always tell the truth.
6. Speak in a language everyone understands. Avoid jargon and buzzwords.
7. Smile. Smile. Smile.
8. If an untrue statement is made, refute it immediately and politely.
9. Beware of hypothetical, either/or and ranked questions.
10. Nothing is "off the record."



Chapter 24 Caring for Animals

The majority of information presented in this *Caring for Animals* chapter was originally published and distributed by Ohio State University Extension in the *Caring for Animals—Discussion Guide*. The *Discussion Guide* was for use in conjunction with the *Caring for Animals—Video*. Copyright© 1996 by The Ohio State University

Goals and Objectives

- Increase the awareness of the issues of animal well-being, quality assurance, and show animal ethics.
- Encourage you, the 4-H or FFA member, to reflect on your values concerning these issues.

Privileges, Responsibilities, and Rewards

Everyone associated with livestock, either on the farm or in the show ring, is responsible for the well-being of their animals. As a 4-H and/or FFA member, you need to learn to care properly for your projects and develop acceptable livestock husbandry skills.

Your duty as a 4-H and/or FFA member is to properly care for your animals. As a 4-H or FFA animal owner, you need to understand the privileges, responsibilities, and rewards that you can expect from the 4-H or FFA program.

Privileges

- to know as much about your project as possible
- to receive information to raise the project

- to be given a variety of experiences relating to project work
- to be given sound guidance and direction
- to ask questions and share concerns
- to be recognized

Responsibilities

- to treat all livestock projects in your possession humanely
- to be sincere and believe in the value of a job well done
- to be loyal to the values and ideals of the 4-H or FFA program
- to accept the guidance and decisions of the program coordinators
- to be willing to learn and participate in training programs and meetings
- to continue learning throughout your years of 4-H or FFA membership
- to follow good practices insuring a safe, wholesome product of the highest quality

Rewards

- to enjoy satisfaction from a job well done
- to receive both public and personal recognition
- to learn new skills, receive special training, and experience personal growth
- to make new friends and have fun
- to feel good about producing a wholesome, consumable product
- to know you are special and you can make a difference

Animal Well-being

As a 4-H or FFA member, you need to be aware of the things you can do with your own animal to promote animal well-being. The image of the agricultural industry and the 4-H and FFA programs are affected by the decisions you make and actions you take in the care of your animal. You need to set goals and develop a plan that will positively impact your animal's well-being, either on the farm, in your backyard, or at the county fair.

You can complete some tasks before you even obtain your animal. First, think about the size your animal will be as it grows to maturity. Are your facilities large enough for the animal to exercise in? Are there hazards where you are going to keep your animal such as protruding nails, broken boards, or wire? Can the animal reach any potentially dangerous objects? (For example, an electrical box or a poisonous plant.) Think about the type of bedding you will be using and the quantity it will take to keep your animal dry and warm or cool. You should have an ample supply of clean water available to your animals at all times. A designated feeding area should be kept free of manure, urine, and bedding.

Once your animal arrives and is in your care, providing it with a balanced ration is an important first step. Many processed feeds, supplements, and pre-mixes are available. Be sure your animal is receiving the nutrition it needs in relation to its age, growth cycle, and purpose. Your animal also needs special consideration if it is in gestation, in lactation, or at stud.

Animal Health

When questions or concerns arise, involve your veterinarian. Develop a veterinarian-client-patient relationship (VCPR). This relationship requires that the veterinarian has seen and has knowledge of the animal (patient) and has discussed a health plan or any treatments with the owner (client). Your veterinarian can be very helpful in developing a health care program for your animal. Your plan should include an appropriate schedule for vaccinating, castrating, dehorning, tail docking, internal/external parasite control, etc. You should check with your veterinarian before administering treatments, especially if there is any question about the diagnosis and the medication you are planning to use. If injections are necessary, give them in the proper location using good technique. Injection sites in the neck are recommended to avoid possible damage to high-priced meat cuts in the loin and rump. Use subcutaneous (SQ) injections (under the skin) whenever allowed by the label directions.

A withdrawal time may be indicated on the label of certain medications. This is the period of time that must pass between the last treatment and the time the animal may be slaughtered. For example, if a medication with a 14-day withdrawal period was last given on August 1st, the withdrawal would be completed on August 15th and that would be the earliest the animal could be processed for human consumption. It is important that you follow withdrawal time directions as given by the label or as prescribed by your veterinarian.

In addition to the withdrawal time, the label of a drug lists the animal species for which the drug is approved, the dosage to be administered, how it is to be given, and for what diseases/conditions it can be used as a treatment. Any use, other than that printed on the label, can only be directed or prescribed by your veterinarian. For example, a neighbor's animal is sick and a veterinarian has treated it using twice the dose listed on the label of an OTC (over-the-counter) product. Your animal becomes ill and is showing the same symptoms as your neighbor's. You may not use the neighbor's double dose for your animal without a veterinarian examining and prescribing the specific treatment. Any deviation from the label directions when using a drug is referred to as extra-label drug use. Unless directed by a veterinarian who has established a VCPR, **extra-label drug use is illegal.**

Each animal in your care should be permanently identified. Individual animal identification enables good record keeping from which you can measure your progress. If your animal becomes lost, stolen, or needs medical attention when you are not available, the only way to know the animal's identity and health history is by permanent identification. This is most commonly done by tattooing or ear tagging. Your Junior Fair program may identify all 4-H and FFA animals through county-wide tagging or tattooing. If not, you are responsible for identifying all of your animals.

Training animals and acquainting yourself with them needs to begin at an early age or as soon as you acquire your animal. If at all possible, you should spend time with your

animal daily. As you walk, stand, and set-up your animal, you both develop trust and become accustomed to each others' movements. You also become aware of what sounds or sights bother your animal and in which direction it tends to jump or shy away. Handling your animal daily also helps you to recognize abnormal behavior in your animal that could signal illness, stress, or pain. The longer you avoid working with your animal, the more difficult training and preparation for show becomes. The two P's—practice and patience—usually pay off.

From the day you acquire your animal until the day it leaves your care, you should maintain feed and treatment records. This is important for the day to day care of your animal and for whomever might later purchase your animal. This is also the best way to keep track of the kinds and amounts of expenses you have incurred with your project.

Finally, if you plan to exhibit your animal for show or sale, continue the same quality care program throughout the exhibition as you did at home. This starts by loading and hauling your animal safely and with concern for its well-being. The exhibition facilities should be prepared and checked ahead of time, just as you prepared your facilities at home when you first acquired your animal. Continually watch your animal for signs of stress, pain, or illness. Exercise your animal daily. Clean, feed, and water your animal regularly.

Above all, enjoy your animal project experience. You should feel good about the knowledge you gain and the quality care program you develop and implement with your animal project.

Quality Assurance Factors

Topics Important to Livestock Quality Assurance and the Producer

Nutrition

Essential nutrients, feed and forage analysis, ration balancing

Environmental Design

Space requirements, ventilation, freedom from hazards and injury, feeding systems, handling and loading, feeding facilities, manure handling, image

Genetics

Consumer preferences, producer needs, suitability to livestock production systems

Veterinary Health

Disease prevention, proper drug usage, drug residues and withdrawal times, injection technique, records

Quality Assurance and the Livestock Industry

With your livestock project comes new responsibilities. You are now a member of the livestock industry. The livestock industry, just like any industry, provides a product to the consumer. Even producers of breeding stock are providing seedstock for future food and fiber production.

Think back to some time when you bought a toy or other product and were disappointed in it. Would you buy it again? Consumers will choose to buy or not buy a product from their perception of the value of that product. What would happen to a business if no one purchased its products?

Many businesses have quality assurance departments to make sure that their products are of the highest quality. Businesses pay

attention to quality assurance because that helps to build consumer satisfaction. When quality is high, consumers will buy again. Livestock products must be safe, wholesome, and produced in a manner that meets consumer approval.

Who is in charge of quality assurance in the livestock industry? When you feed a steer and sell it to the market, who is responsible for assuring that the beef eaten by the consumer is a high-quality product? The retailer? The packer? You? The breeder? **Everyone involved in the livestock industry is obligated to do their part to provide a safe, wholesome product to the consumer.**

Quality assurance in the livestock industry begins with providing the right genetics and continues with the proper husbandry of the live animal, a good packing house, and good retailing. Every action you take as a livestock producer will reflect on the quality of the livestock industry as a whole.

Quality assurance in raising livestock involves providing for the animal's needs to produce a healthy animal and a wholesome product. Basic animal needs include water, food, shelter, and care. Proper attention to animal husbandry helps assure a high-quality, marketable product.

Good animal husbandry requires an understanding of many different sciences, including nutrition, environmental design, genetics, veterinary health, production, and economics. These topics all contribute to a quality livestock product. To learn more, consult your project book, a 4-H advisor, an Extension agent, FFA instructor, a veterinarian, or a livestock production expert.

Evaluating quality assurance of your project is something like looking into a mirror. Reflect on your project for a moment. Do you like what you see? More important, will the consumer like it?

Care That You Are Giving Your Animals

Check the ways in which you are already caring for your animal. If you want to improve how you care for your animal, check that column too.

Improving Animal Care

Care	I am already doing	I want to improve
Prepare facilities before I get my animal.	<input type="checkbox"/>	<input type="checkbox"/>
Always provide access to fresh clean feed and water.	<input type="checkbox"/>	<input type="checkbox"/>
Provide adequate amounts of a balanced ration.	<input type="checkbox"/>	<input type="checkbox"/>
Provide adequate housing and bedding.	<input type="checkbox"/>	<input type="checkbox"/>
Control internal and external parasites.	<input type="checkbox"/>	<input type="checkbox"/>
If animals are to be castrated and/or dock do this when animals are young.	<input type="checkbox"/>	<input type="checkbox"/>
Train animals to be handled at a young age.	<input type="checkbox"/>	<input type="checkbox"/>
Have a planned health program to prevent disease.	<input type="checkbox"/>	<input type="checkbox"/>
Observe animals daily and immediately treat those who need care.	<input type="checkbox"/>	<input type="checkbox"/>
Identify animals. (tag, tattoo, ear notch, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
Keep feed and treatment records.	<input type="checkbox"/>	<input type="checkbox"/>
Be aware of animal comfort at all stages of production.	<input type="checkbox"/>	<input type="checkbox"/>
Observe and follow drug residue avoidance rules.	<input type="checkbox"/>	<input type="checkbox"/>
Observe and follow label directions including withdrawal times on medications, feeds, and vaccines.	<input type="checkbox"/>	<input type="checkbox"/>
Use proper techniques for vaccination and treatment.	<input type="checkbox"/>	<input type="checkbox"/>
Sort and load animals safely and with concern for them.	<input type="checkbox"/>	<input type="checkbox"/>

(adapted from Iowa State University Extension V1-1042DJH Oct. 1991)

After deciding in which areas you want to improve, list your specific goals for the year.

Goals _____


Questions

Did you accomplish your goals? _____


What worked well? _____

What would you change? _____


Treatment Record Factors




Veterinarian-Client-Patient Relationship (VCPR) is established when a veterinarian, who knows about an animal's health by having seen it or other animals in the same herd, takes charge of the medical decisions about the animal's treatment. The veterinarian has to be available for follow-up, in case the animal does not respond as expected, and the caretaker of the animal has to agree to follow the veterinarian's instructions regarding the treatment program.




Withdrawal Time is the time needed to allow the residue to diminish to a safe level. It is the period which must elapse after the last treatment and before harvest (slaughter) of meat animals, the use of milk for human consumption from dairy animals, or use of eggs from chickens for human consumption.



Extra-label drug use is using a medication in a way other than that stated on the label by the manufacturer. For instance, using a medication as a treatment for a disease not listed on the label for that type of animal is extra-label use. **Extra-label use**, if not directed by a veterinarian with an established VCPR, is illegal.



Veterinary drugs are available in two categories, **over the counter (OTC)** and **prescription (Rx)**. To be an OTC product, the medication must meet certain criteria for safety to both the animal and the person handling the product. If simple directions can adequately be written on the label by the manufacturer, a product can be classed as an OTC. The OTC medications may be sold through retail outlets such as farm supply stores in the same manner as aspirin is sold at a grocery store.



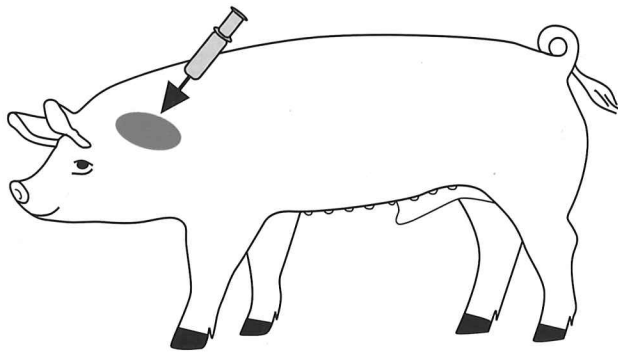
When human and animal safety, proper diagnosis, and special directions are concerns, medications are classed as prescription (Rx) products. A prescription product can be identified because the exact following statement will appear on the container: **Caution: Federal law restricts this drug to use by or on the order of a licensed veterinarian.** Just as veterinarians are not allowed to authorize extra-label drug use without a valid VCPR, neither are they permitted to prescribe Rx medications for animals where a valid VCPR has not been established. Rx medications are available only from or on the order of a veterinarian much as prescription drugs for people are only available from physicians and from a pharmacist by prescription.

Suggestions for Proper Injection of Animal Drugs

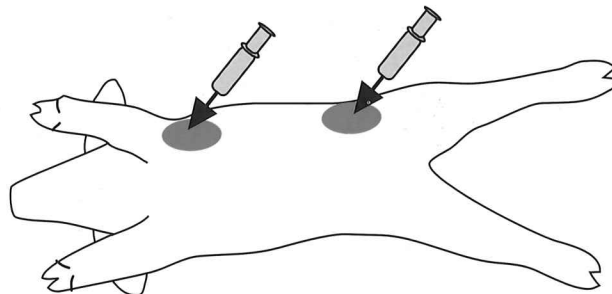
- Properly restrain the animal before giving an injection.
- Give injections according to label instructions. Routes for Administering drugs include: Subcutaneous (SQ) means under the skin; intramuscular (IM) means in the muscle; intravenous (IV) means into the blood; orally (PO and/or O) represents per os and means given orally in the mouth or in water; and (MF) indicates medicated feeds.
- When the label directions permit, give injections under the skin so that the muscle tissue is not injured.
- Use sterilized needles and syringes. Keep the bottle cap clean.
- Give injections at clean, dry sites on the animal, avoiding the areas where the muscles (meat cuts) are of high value.
- Do not transfer needles back and forth from animal to bottle because you may carry bacteria from the animal's skin back into the bottle.

Remember

Give all **IM injections** in the neck muscle using a spot on the neck just behind and below the ear. When giving **SQ injections** in the neck use the same site as for IM but deposit the medicine under the skin rather than deep in the muscle.



SQ injection sites for small (young) pigs. Use the loose flaps of skin in the flank and elbow of small pigs.



INJECTION REFERENCE CHART

SUBCUTANEOUS (SQ):

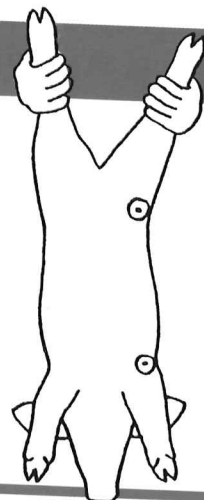
Deposits the Drug Under the Skin:

Inject only into clean, dry areas.

Use the loose flaps of skin in the flank and elbow of small pigs.

Use the loose skin behind the ear of sows.

Slide needle under the skin away from the site of skin puncture before depositing the compound.



INTRAMUSCULAR (IM):

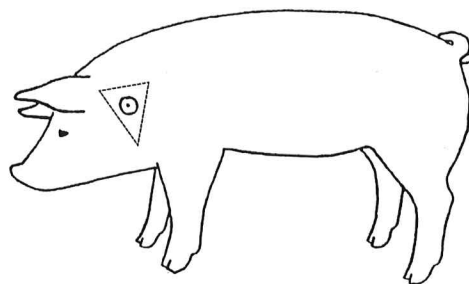
Deposits the Drug Into the Muscle:

Use a spot on the neck just behind and below the ear.

The neck area should be used for IM injections.
(See area outlined in figure to the right.)

Damage to the ham or loin can result in condemnation of the meat cut.

Use proper needle size to ensure medication is deposited in the muscle.



INTRAPERITONEAL (IP):

Should be used only upon veterinary instruction and guidance as serious injury to abdominal organs can occur.

Correct Injection Techniques:

Ensure proper restraint of the animal prior to injection.

Ensure proper syringe adjustment.

Ensure proper needle placement onto the syringe.

Prevent swelling and/or abscessation at the injection site by:

1. Using sterile needles.
2. Injecting only into clean and dry areas.
3. Preventing contamination - don't use the same needle to inject pigs and remove product from multidose vials.

Consult with your veterinarian about potential adverse drug and vaccine reactions.

To enroll in the
PORK QUALITY ASSURANCESM Program
or for more information, contact:

NATIONAL PORK PRODUCERS COUNCIL
P.O. BOX 10383 • Des Moines, Iowa 50306 • (515) 223-2600

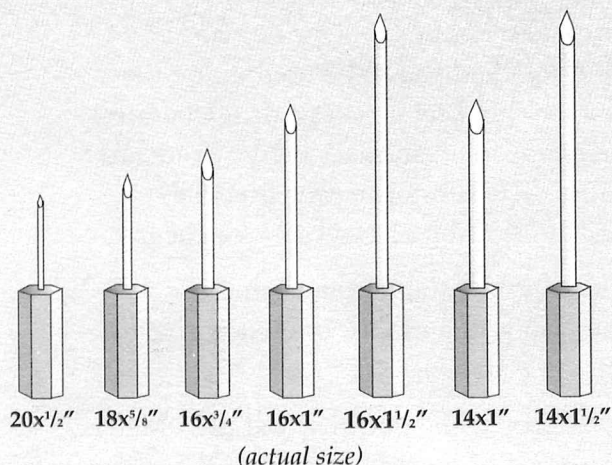
CONSULT PRODUCT LABEL FOR APPROVED ROUTES OF ADMINISTRATION.

Pork Quality AssuranceSM materials from the National Pork Producers Council



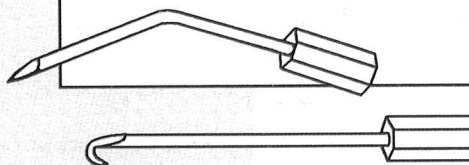
INJECTION REFERENCE CHART

Use Proper Needle Sizes:



Avoid Bent or Broken Needles:

- Ensure proper restraint of the animal prior to injection.
- Replace bent needles as they are prone to breaking.
- Replace needles every 20 pigs.



Intramuscular Injection

	Gauge	Length
Baby Pigs	18 or 20	5/8" or 1/2"
Nursery	16 or 18	3/4" or 5/8"
Finisher	16	1"
Breeding Stock*	14 or 16	1" or 1 1/2"

* depends on backfat depth and method of restraint

Subcutaneous Injection

	Length
Nursery	1/2"
Finisher	3/4"
Sows	1"



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NATIONAL PORK PRODUCERS COUNCIL

P.O. BOX 10383 • Des Moines, Iowa 50306
(515) 223-2600

IN COOPERATION WITH THE NATIONAL PORK BOARD

KEEP ACCURATE RECORDS!



#04005 - 4/96

Identify Treated Animals • Maintain Treatment Records • Observe Withdrawal Times

Pork Quality AssuranceSM materials from the National Pork Producers Council

Guide to Reading Drug Label on Outside of Container

Active Ingredients: Chemical name(s) of what is in the drug.

Withholding/Withdrawal Times: Withdrawal time is the period that must elapse after the last treatment and before processing (harvest/slaughter) of the animal for its meat or harvesting animal products (milk, eggs) for human consumption. It is the time it takes for the drug/chemical to be used up by the animal's body after it has been administered (or the time it takes a drug/chemical to wear off). A residue is a substance that remains in an animal's body tissues after the animal has been exposed to that substance. The substance can enter the animal's body as a feed or water additive, as an injection or external treatment.*

Cautions and Warnings: Tells things to be cautious about when using the product. Examples: a) Do not give to certain kinds of animals, b) do not give too much, c) pay attention to withholding times (see above).

Storage: Tells how the medication should be kept while not in actual use. Many medications may lose their potency when exposed to moisture, direct light, warm and/or freezing temperatures. Most also lose effectiveness with time. The label will indicate how the product should be stored to retain maximum strength.

Quantity of Contents: Tells how much is in the container. Usually in metric units [liquid measure: 1 fluid ounce = 29.6 milliliters (ml), 1 cubic centimeter (cc) = 1 milliliter (ml); dry measure: 1 pint = 551 milliliters (ml)].

Lot Number: (may also be referred to as serial number) A manufacturer's reference number indicating the day or batch in which this product was made. These numbers are needed if the product is recalled.



Date of Expiration: Discard (do not use) drugs when this date is reached.

* Remember, you are responsible for everything your animal consumes even if it is an accident.

Medication Label

Before administering any drug to an animal, you must have a knowledge of the information found on the drug label and

insert. Make sure you are able to identify the parts of the medication label and medication insert.

Name of Drug _____		Active Ingredients _____	
OMNIBIOTIC		(hydrocillin)	
Directions for use: See package insert			
Cautions and Warnings	Warning: Milk that has been taken from animals during treatment and for 48 hours after the last treatment must not be used for food. The use of this drug must be discontinued for 30 days before treated animals are slaughtered for food. Exceeding the highest recommended dosage level may result in antibiotic residues in meat or milk beyond the withdrawal time.		Withholding Times _____
	Store between 2° and 8° C (36° and 46° F) Keep dry and away from light		Storage _____
Quantity of Contents _____		Net Contents: 100 ml	
		Distributed by	
		USA Animal Health, Inc.	
Lot Number _____		Lot # 0009900-Q123	
		Expiration Date 05/17/XX	
			
Name of Distributor _____		Date of Expiration _____	



LEARNING LABORATORY KIT

Quality Assurance and Animal Care: Youth Education Program

This material is based upon work supported by Extension Service, United States Department of Agriculture, under special project number 93-EFSQ-4096
Product distribution through the Ohio Agricultural Curriculum Materials Service

Medication Insert

Name of Drug _____

OMNIBIOTIC

(hydrocillin in Aqueous Suspension) _____

Active Ingredient(s) _____

For use in Beef Cattle, Lactating and Non-Lactating Dairy
Cattle, Swine and Sheep _____

Species and
Animal Class _____

Read Entire Brochure Carefully Before Using This Product

Active Ingredient(s): Omnibiotic is an effective antimicrobial preparation containing hydrocillin hydrochloride. Each ml of this suspension contains 200,000 units of hydrocillin hydrochloride in an aqueous base.

Approved
Uses _____

Indications: Cattle - bronchitis, foot rot, leptospirosis, mastitis, metritis, pneumonia, wound infections. Swine - erysipelas, pneumonia. Sheep - foot rot, pneumonia, mastitis, and other infections in these species caused by or associated with hydrocillin-susceptible organisms.

Recommended Daily Dosage

The usual dose is 2 ml per 100 lb of body weight given once daily. Maximum dose is 15 ml/day.

Quantity
of Contents _____

Body Weight	Dosage
100 lb	2 ml
300 lb	6 ml
500 lb	10 ml
750 lb or more	15 ml

Continue treatment for 1 to 2 days after symptoms disappear.

Cautions
and Warnings _____

Caution: 1) Omnibiotic should be injected deep within the fleshy muscle of the neck. Do not inject this material in the hip or rump, subcutaneously, into a blood vessel, or near a major nerve because it may cause tissue damage. 2) If improvement does not occur within 48 hours, the diagnosis should be reconsidered and appropriate treatment initiated. 3) Treated animals should be closely observed for at least 30 minutes. Should a reaction occur, discontinue treatment and immediately administer epinephrine and antihistamines. 4) Omnibiotic must be stored between 2° and 8° C (36° to 46° F). Warm to room temperature and shake well before using. Keep refrigerated when not in use.

Route of
Administration _____

Storage
Requirements _____

Sizes
Available _____

Warning: Milk that has been taken from animals during treatment and for 48 hours (4 milkings) after the last treatment must not be used for food. The use of this drug must be discontinued for 30 days before treated animals are slaughtered for food.

Withdrawal/
Withholding
Times _____

How Supplied: Omnibiotic is available in vials of 100 ml.



LEARNING LABORATORY KIT

This material is based upon work supported by Extension Service, United States Department of Agriculture, under special project number 93-EFSQ-4096 Product distribution through the Ohio Agricultural Curriculum Materials Service

Guide to Reading Medication (package) Insert Label

(Sometimes found on outer label)

- **Species and Animal Class:** The species and animal class in which the drug is to be used. Example: Cattle (lactating/non-lactating), sheep, or swine
- **Approved Uses (Indications):** The situation for which the drug is to be used. Indicates the particular type of animal, condition, illness, etc.
- **Dosage:** How much to give and how often/how many times given.
- **Route of Administration:** How is the product given to the animal? Basically, there are three routes of administering medications:
 1. **Oral Route**—Administering drugs through the mouth. Tablets, pills, capsules, and liquid medications are easily administered orally. A drenching tube, balling gun, or oral dosage syringe is usually used to place the liquid or pill at the base of the tongue at the back of the mouth. Make sure the medication goes down the throat and the animal swallows it. Take care the animal is not choked by the medication going down the trachea (windpipe). You can also administer medication in the animal's feed or water.
 2. **Topical Route**—Applying the medication to the skin or to the mucous membranes of the eyes, ears, nasal passages. Such medications are available as ointments, aqueous solutions, powders, and aerosols (sprays). Do not allow these products to come in contact with the animal's eyes, nose, reproductive tract, or mouth unless it is specifically formulated for that use.
 3. **Injectable Route**—Administering the drug directly into an animal's body with a syringe and needle. Injections are the most common method of administering medications to individual animals. The label will specify which of the following injection methods to use.

Subcutaneous (SQ) injections are accomplished by inserting the needle just under the skin and not into the muscle. This is important because SQ injectables are designed for a slower rate of absorption or are highly irritating to muscle tissue.

Intramuscular (IM) injections are the most commonly used. This is accomplished by inserting the needle straight into the skin and deep into the muscle.

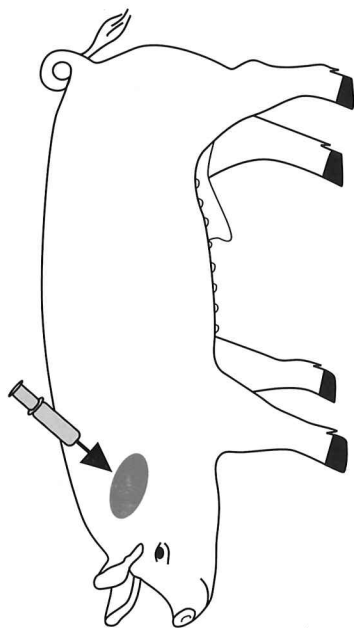
Intravenous (IV) injections are sometimes used. Some medications are labeled for "intravenous injection only" because they are strong irritants to muscle tissue and can cause damage. The IV route of administration provides a rapid means of getting the medication into the system of a sick animal as well as eliminating the chance of tissue damage. IV injections are given directly into the bloodstream.

Parts of a Feed Tag

Brand Name	Adventure Mills	Product Name
	PIG GROWER	
	MEDICATED	Medicated
Purpose of Feed	FOR PIGS FROM 30 POUNDS TO 75 POUNDS	
Purpose of Medication	ADMINISTER TO SWINE IN A COMPLETE FEED FOR REDUCTION OF THE INCIDENCE OF CERVICAL ABSCESES; TREATMENT OF BACTERIAL SWINE ENTERITIS (SALMONELLOSIS OR NECROTIC ENTERITIS CAUSED BY SALMONELLA CHOLERAESUIS AND VIBRIONIC DYSENTERY). MAINTENANCE OF WEIGHT GAINS IN THE PRESENCE OF ATROPHIC RHINITIS.	
	ACTIVE DRUG INGREDIENT	Active Drug Ingredient(s) and Amount(s)
	CHLOROTETRACYCLINE 100 G/TON	
	SULFATHIAZOLE 100 G/TON	
	PENICILLIN 50 G/TON	
Minimum Crude Protein Content	GUARANTEED ANALYSIS	
	CRUDE PROTEIN MIN 18.00%	
Minimum Crude Fat	LYSINE MIN. 1.10%	
Maximum Crude Fiber	CRUDE FAT MIN. 6.50%	
	CRUDE FIBER MAX. 4.00%	Guaranteed Analysis
	CALCIUM MIN. 0.60%	
	CALCIUM MAX. 1.10%	
Minerals	PHOSPHORUS MIN. 0.55%	
Vitamins (optional)	SALT MIN. 0.40%	
	SALT MAX. 0.90%	
	SELENIUM MIN. 0.30 PPM	
	ZINC MIN. 140.00 PPM	
	INGREDIENTS	Ingredient Statement
	Grain Products, Plant Protein Products, Processed Grain By-Products, Animal Fat, Animal Protein Products, Calcium Phosphate, Lignin Sulfonate, Ground Limestone, Salt, L-Lysine Monohydrochloride, Methionine Supplement, Zinc Oxide, Zinc Sulfate, Ferrous Sulphate, Manganous Oxide, Copper Sulfate, Calcium Iodate, Sodium Selenite, Vitamin A Acetate, Vitamin D-3 Supplement, Vitamin E Supplement, Menadione Dimethylpyrimidinol Bisulphite, Riboflavin Supplement, Niacin, Calcium Pantothenate, Vitamin B-12 Supplement, Thiamine Mononitrate, Folic Acid, Choline Chloride, Pyridoxine Hydrochloride, Biotin, Ethoxyquin (As A Preservative)	
Feeding Instructions	FEEDING DIRECTIONS	
	FEED as the only ration to pigs weighing from 30 pounds to 75 pounds bodyweight.	
	CAUTION: In order to obtain the desired performance results, the animals should be self fed.	Precautionary Statement
	WARNING: Withdraw 7 days prior to slaughter; contains high levels of copper; do not feed to sheep.	
Name and Address of Distributor	MANUFACTURED BY: Adventure Mills Livestock Feeds Cowntwn, OH 43210	
	NET WEIGHT 50 POUNDS (22.7 KILOGRAMS) OR AS SHOWN ON SHIPPING DOCUMENT	Net Weight Statement

Suggestions for Proper Injection of Animal Drugs

- Properly restrain the animal before giving an injection.
- Give injections according to label instructions. Subcutaneous (SQ) means under the skin; intramuscular (IM) means in the muscle; intravenous (IV) means into the blood; orally (PO and/or O) means in the mouth or in water; and (MF) indicates medicated feeds.
- >>> SQ, IM, IV, O, PO, & MF are examples of routes of administration <<<
- When the label directions permit, give injections under the skin so that the muscle tissue is not injured.
- Use sterilized needles and syringes. Keep the bottle cap clean.
- Give injections at clean, dry sites on the animal, avoiding the areas where the muscles (meat cuts) are of high value.
- Do not transfer needles back and forth from animal to bottle because you may carry bacteria from the animal's skin back into the bottle.



Treatment Record
for Vaccines, Drugs/Medications, and Medicated Feeds

Treatment (date and time)	Animal Identification (name, species, sex, ID number, description)	Condition being treated	Estimated weight	Treatment given (medication dispensed, amount and route of administration --- also include product lot/serial number if available)	Person who gave treatment (print name)	Instructed (meat/milk/egg) Withdrawal (days/hours)	Results (recovered, sold, or died)	Withdrawal Completed (date and time)	If this is an extra label or Rx drug, list the licensed veterinarian's name, address, and phone number who prescribed or directed the treatment
Apr 09, 'XX @ 3:00 p.m.	Oreo • Hog Gilt #37-6 Hampshire	Swollen hocks	200 lbs.	Omnimycin 2.5cc IM	Dr. Born	14 days meat	N/A	Apr 23 3:00 p.m.	L. Q. Born, DVM 2278 5th Rt. 73 Wilson, OH 47770 ph.# 419.777.1234
Apr 10, 'XX @ 3:00 p.m.	Oreo • Hog Gilt #37-6 Hampshire	Swollen hocks (retreat)	200 lbs.	Omnimycin 2.5cc IM	Todd Steele	14 days meat	Improved	Apr 24 3:00 p.m.	L. Q. Born, DVM
Apr 11, 'XX @ 3:00 p.m.	Oreo • Hog Gilt #37-6 Hampshire	Swollen hocks (retreat)	200 lbs.	Omnimycin 2.5cc IM	Todd Steele	14 days meat	Better	Apr 25 3:00 p.m.	L. Q. Born, DVM

Quality Assurance Medication Label/Treatment Record Activity

Today is July 12, 20XX, and your name is Jenny Jones. Two days ago the market hog, "Spot" (a 200 lb. blue-butt barrow with the ear notch 36-7), you have been raising since April started having breathing difficulty. Yesterday, Spot failed to eat and would not move around unless forced to do so. At your request, Dr. Bruce E. Losis, the local veterinarian, has examined your hog and diagnosed his problem as **pneumonia**. He administered medications at that time and recorded the treatment on your chart (not shown). He also left you with more medicine for you to give today. You have just finished giving the follow-up medication as the veterinarian had directed.

July 20XX						
S	M	T	W	R	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Bottle Label

Bruce E Losis, D.V.M.
100 Quality Ave.
Hometown, OH 43200
614.555.5050

Owner: Jenny Jones

Date: July 11, 20XX

Animal ID: Hog #36-7

Indications: Pneumonia

Directions: give 5 ml (cc) subcutaneously on July 12

Precaution: Use care in injections to avoid infections

Warning: >>>Use of this drug must be discontinued for 7 days
before slaughter or market for food<<<

Product/Active Ingredient(s): Biomycin

Expiration Date: August 01, 20XX

Complete the following activity and questions based on the above information.

1. Complete the treatment record for the medication you gave your hog in this scenario.
2. What is the date and time the withdrawal period will be completed?

Answers for Medication Label/Treatment Record Activity

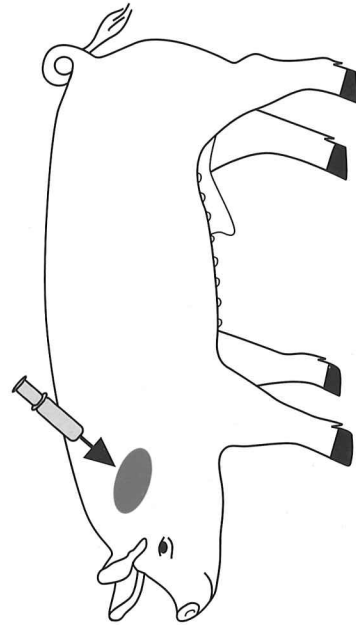
1. Complete the treatment record for the medication you gave your hog in this scenario.

Treatment Record								If this is an extra label or Rx drug, list the licensed veterinarian's name, address, and phone number who prescribed or directed the treatment	
Treatment (date and time)	Animal Identification (name, species, sex, ID number, description)	Condition being treated	Estimated weight	Treatment given (medication dispensed, amount and route of administration --- also include product lot/serial number if available)	Person who gave treatment (print name)	Instructed (meat/milk/egg) Withdrawal (days/hours)	Results (recovered, sold, or died)		Withdrawal Completed (date and time)
July 12, XX @ 2:00 p.m.	Spot • Market Hog #36-7 • Barrow Blue-Butt	Pneumonia	200 lbs.	Biomycin 5 ml (cc) SQ	Jenny Jones	7 days meat	X	07-19-XX 2:00 p.m.	Bruce E. Loels, DVM 100 Quality Ave. Hometown, OH 43200 ph.# 614-555-5050

X = Information not supplied in the situation, therefore you could not complete this box.

2. What is the date and time the withdrawal period will be completed?

July 19, 20XX at 2:00 p.m.



**Adventure Mills
PIG GROWER
MEDICATED**

FOR PIGS FROM 30 POUNDS TO 75 POUNDS

ADMINISTER TO SWINE IN A COMPLETE FEED FOR REDUCTION OF THE INCIDENCE OF CERVICAL ABSCESES; TREATMENT OF BACTERIAL SWINE ENTERITIS (SALMONELLOSIS OR NECROTIC ENTERITIS CAUSED BY SALMONELLA CHOLERAESUIS AND VIBRIONIC DYSENTERY). MAINTENANCE OF WEIGHT GAINS IN THE PRESENCE OF ATROPHIC RHINITIS.

ACTIVE DRUG INGREDIENT

CHLOROTETRACYCLINE 100 G/TON
SULFATHIAZOLE 100 G/TON
PENICILLIN 50 G/TON

GUARANTEED ANALYSIS

CRUDE PROTEIN MIN. 18.00%
LYSINE MIN. 1.10%
CRUDE FAT MIN. 6.50%
CRUDE FIBER MAX. 4.00%
CALCIUM MIN. 0.60%
CALCIUM MAX. 1.10%
PHOSPHORUS MIN. 0.55%
SALT MIN. 0.40%
SALT MAX. 0.90%
SELENIUM MIN. 0.30 PPM
ZINC MIN. 140.00 PPM

INGREDIENTS

Grain Products, Plant Protein Products, Processed Grain By-Products, Animal Fat, Animal Protein Products, Calcium Phosphate, Lignin Sulfonate, Ground Limestone, Salt, L-Lysine Monohydrochloride, Methionine Supplement, Zinc Oxide, Zinc Sulfate, Ferrous Sulphate, Manganous Oxide, Copper Sulfate, Calcium Iodate, Sodium Selenite, Vitamin A Acetate, Vitamin D-3 Supplement, Vitamin E Supplement, Menadione Dimethylpyrimidinol Bisulphite, Riboflavin Supplement, Niacin, Calcium Pantothenate, Vitamin B-12 Supplement, Thiamine Mononitrate, Folic Acid, Choline Chloride, Pyridoxine Hydrochloride, Biotin, Ethoxyquin (As A Preservative)

FEEDING DIRECTIONS

FEED as the only ration to pigs weighing from 30 pounds to 75 pounds bodyweight.

CAUTION: In order to obtain the desired performance results, the animals should be self fed.

WARNING: Withdraw 7 days prior to slaughter; contains high levels of copper; do not feed to sheep.

MANUFACTURED BY:
Adventure Mills Livestock Feeds
Cowntwn, OH 43210

NET WEIGHT 50 POUNDS (22.7 KILOGRAMS)
OR AS SHOWN ON SHIPPING DOCUMENT

How to Read a Feed Tag

Pig Grower Feed Tag Questions

1. What is the main ingredient in this feed supplement?
2. How many active drug ingredient(s) are in this feed?
3. What is the minimum crude protein level of this diet?
4. For how many days prior to slaughter should this feed be removed?
5. What is the minimum crude fat level of this diet?
6. Is ground limestone included in the ingredients of this diet?
7. At what stage of growth should this ration be fed?

Pig Grower Answers:

1. grain products
2. 3
3. 18%
4. 7
5. 6.5%
6. yes
7. pigs weighing between 30 and 75 pounds

Questions

1. What are special quality assurance issues that relate to your project?

2. Why is it important that your animal be permanently identified?

3. What is the difference between a prescription and over-the-counter medication?

4. What is extra-label drug usage? When is it allowed? Who can prescribe or order extra-label drug usage?

5. What is a medication withdrawal time? Why is it important?

6. Explain what is meant by a Veterinarian-Client-Patient Relationship (VCPR).

7. What information should be recorded when an animal is given medication?

8. How do you think the consumer would view the way your project is housed? Fed? Handled?

Show Ring Ethics

One of the most visible components of 4-H and FFA is livestock shows. Much of the public's contact with 4-H and FFA is at the county fair where show ring events draw large crowds. What the audience sees reflects on the total Junior Fair program and the entire livestock industry. How are you contributing to that image?

The desire to win at any cost has tarnished the record of 4-H and FFA members personally and livestock shows in general. Why have YOU chosen to show an animal? What motivates some to act dishonestly in the show ring?

Competition, if you keep it in perspective, can be a positive tool to help develop important skills in your life. Many 4-H and FFA alumni who showed animals during their youth attribute successes in their careers to the diverse skills gained as a 4-H or FFA member. You use decision-making skills and critical thinking techniques to select your animal and choose a feeding program. Answering the judges' questions in a confident manner helps you gain poise, which is beneficial in many other situations. The ability to be a good sport is a characteristic we all need. Certainly self-esteem is affected in the show ring when people watch and applaud your performance! Is your only goal to win—or do you want to get more out of it than that? Your ability to think while paying attention to the judge,

your animal, and other exhibitors is an important skill. Keeping a level head and staying composed will be good practice for other challenges in your life. Many long lasting friendships are developed from showing animals.

Proper training of your animal for the show ring should only include techniques that offer no risk of injury or pain to the animal. *If a TV camera was present when you were working with your animal, would you do anything differently than you normally do?*

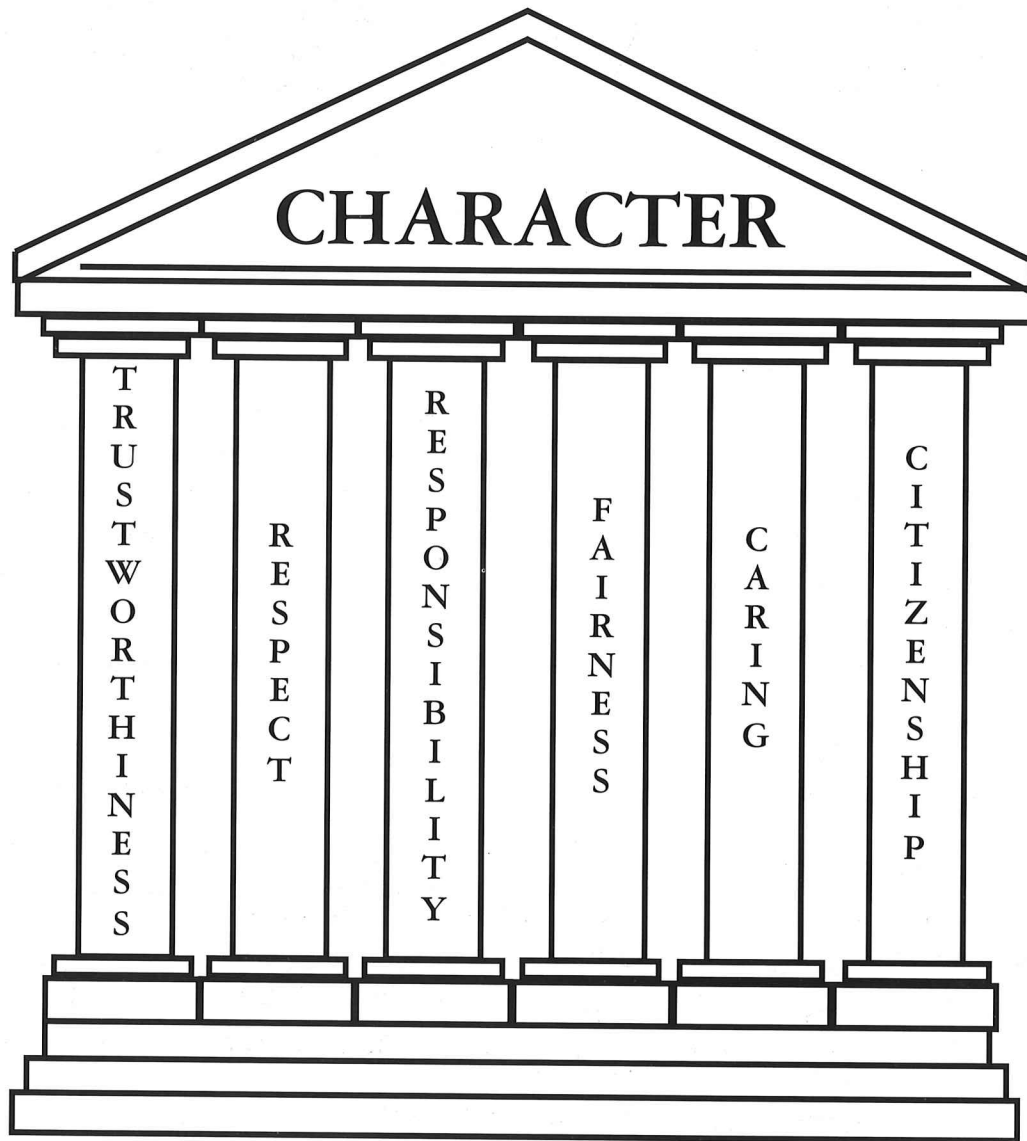
Putting in many long hours of practice with your animal is the only way to achieve that polished, confident look, with the animal giving complete response to your commands.



The effects of unethical practices on animals can be harmful or even fatal. If your animal goes to slaughter and residues are found in the tissue, the animal will be rejected. How does this reflect on you and the animal industry?

Even if you do win, your moment in the spotlight with a champion is short lived. Think about what will stay with you after the thrill of winning has worn off. What image of the meat industry did consumers perceive while watching you present your animal?

Using unethical techniques to train, feed, or show your animal is wrong. If you see it happening, don't turn your back. Tell a committee member or show official.



Pillars of Character

Adapted from materials developed
by the Josephson's Institute of Ethics

-
- **Trustworthiness**—being honest, standing for what is right.
 - **Respect**—judge people on their merits or good things they do.
 - **Responsibility**—do your best, be a good example.
 - **Fairness**—use the same rules or standards for everyone.
 - **Caring**—treat others as you want them to treat you.
 - **Citizenship**—being committed to the welfare of your community, state, country, or world.

Questions

1. List the six pillars of character. Then choose one pillar and describe how you will practice that pillar. _____

2. List some proper techniques that you can use to prepare your animal for the show ring. _____

3. a. What have you seen or heard about that you think was an unethical practice in relationship to showing an animal? _____

b. Why do you feel that it might have been wrong? _____

5. List the benefits you have gained from your past show ring experiences. _____

6. Describe what you feel is appropriate behavior when you win. What behavior is appropriate when you don't place where you had hoped? _____

7. Can you be a "winner" showing an animal without getting a purple or blue ribbon? What are your reasons? _____

8. What are some ways to recognize exhibitors for skills gained other than winning in the show ring? _____

Ohio Farm Animal Care Commission —a vital part of the Ohio Livestock Coalition

P.O.Box 479, Two Nationwide Plaza, Columbus, OH 43216-0479

614/249-2435

FAX 614/249-2200



Policy Statement

The Ohio Farm Animal Care Commission (OFACC) was organized in 1990 to provide leadership on matters related to farm animal care. In 1997 the organization changed its name to the Ohio Livestock Coalition (OLC) to provide leadership and lend support to the recommendations made by the Ohio Livestock Industry Task Force which released its report in late 1996. The Ohio Farm Animal Care Commission was then designated as a vital part of the Ohio Livestock Coalition.

The commission has dedicated itself to the promotion of sound animal husbandry practices in the care and efficient production of animals used for food and fiber. The use of proper animal husbandry practices minimizes stress, improves animal efficiency and profitability for the farmer, and insures a safe, healthy, and wholesome product to the consumer at a reasonable price.

The Ohio Farm Animal Care Commission believes animals play a vital part of human existence and therefore, deserve our protection and compassion. Humans have had a inseparable relationship with animals and nature, as people have served as their sole caretakers for centuries. Yet, humanity is answerable to another set of laws and concepts that is uniquely a product of human society. Animals cannot be made subject to the laws that we as human beings are governed by and therefore, do not have the rights of humans.

The Ohio Farm Animal Care Commission firmly believes that all animals use other animals for their existence. Thus, the responsible use of animals by humans is natural and appropriate.

The Ohio Farm Animal Care Commission believes that farmers take pride in their responsibility to provide proper care for their animals and endorse the following "Code of Practices."

Code of Practices

The following describes general responsibilities of the farmer and all persons in his or her authority in the proper care and handling of animals raised for food and fiber.

- To provide food, water, and care necessary to protect the health and welfare of my animals.
- To provide a safe and healthy environment for my animals that is clean, well ventilated, and provides ample space.
- To provide a well-planned disease prevention program to protect the health of my herd or flock. This includes a strong veterinarian-client relationship.
- To use humane and sanitary methods when it becomes necessary to dispose of my animals.
- To make timely inspections of all animals to evaluate the health and insure that all basic requirements are being met.
- To insure proper handling techniques are used to eliminate any undue stress or injury when manual manipulation is necessary.
- To provide transportation for my animals that avoids undue stress or injury caused by overcrowding, excessive time in transit, or improper handling when loading or unloading.
- The willful mistreatment of my animals or the mistreatment of any animal will not be tolerated. In cases of mistreatment, I will notify the proper authorities.
- To make management decisions based on scientific fact and to consider the welfare of my animals.
- We encourage livestock producers to complete species-specific quality assurance programs.

Source: *Ohio Farm Animal Care Commission*



Chapter 25 Careers in Animal Science

Careers in animal science are available worldwide and many specialized, trained people are required in this technical field.

Your involvement in the 4-H animal science projects show you have an interest in the field. When the time comes for you to decide upon a career, consider the opportunities in animal science.

With the large number of potential careers, it may be difficult to select the right one. It may be necessary to seek advice from other sources. First, talk with your parents. High school guidance counselors are also a good source of information. Teachers also can be helpful and don't forget to talk to your county Extension agent. He or she can help you contact people in the occupation you are considering so you can learn more.

If you enjoy working with farm animals and with other people with similar interests, then a career in animal science may be for you. Animal science careers can be grouped into four major areas. These are: production-management, agribusiness, Extension Service and government agencies, and research and teaching.

Production-Management

This is for the individual who enjoys working with animals. A career as a farmer, farm manager or a herdsman would allow you to be directly involved in the production of animals for human consumption. A maximum amount of time would be spent outdoors. If you are more interested in the

health and care of animals, then a career in the veterinary profession would be a logical choice. Animal science training is a prerequisite to a career in veterinary medicine. Training in animal science helps county extension agents advise farmers on all aspects of animal production.

Agribusiness

For the person who enjoys being around livestock, but is not interested in production, the agribusiness industry offers many opportunities. Many people are needed to supply the goods and services needed in producing livestock. Some possible careers in agribusiness include:

- Livestock buyers, commission agents and managers of livestock auction yards.
- Management personnel and associated salespersons of feed, medical and livestock supply firms.
- Consultants to livestock producers.
- Supervisors, quality control specialists and management personnel of businesses processing animal products.
- Reporters and writers for newspapers, magazines, radio and television.
- Agricultural credit managers for banks, farm credit services and other lending agencies.

Extension and Government Agencies

The Extension and government agencies provide opportunities for the individual who wants to assist and service producers and consumers. If you get satisfaction from helping other people, this area of animal science may be for you. Possible careers include:

- Extension agents to help farmers and producers of livestock and livestock products.
- USDA personnel, such as meat inspectors and graders in packing plants, livestock market analysts and newscasters.

Careers in the Swine Industry

Processing Plant Manager
USDA Meat Inspector & Grader
Quality Assurance Manager
Meat Cutter
Meat Technologist
Quality Control Inspector
Breed Association Representative
Magazine Editor or Writer
Advertiser
Bank Loan Officer
Economist
Marketing—Buying or Selling
Professional Lobbyist
Computer Support Person
Livestock Transporter

Pork Producer
Nursery Manager
Herd Manager
Operation Owner

Feed Salesperson
Feed Manufacturer
Feed Consultant

Restaurant Manager
Consumer Specialist
Company Representative

Physiologist
Geneticist
Nutritionist
Researcher
Professor
Extension Agent
Breed Specialist
Embryo Transfer Technician
AI Technician
Veterinarian
Pharmaceutical Salesperson
Disease Prevention Specialist

Equipment Designer
Building Designer
Equipment Sales
Builder
Building Materials & System Specialist
Waste Disposal Specialist

Research and Teaching

Research and teaching offers opportunities for those with inquiring minds who want to help other people. Possible careers include:

- Research opportunities available in colleges, government agencies and private industry.
- Teachers at the high school or college level.

Preparing for a Career

Proper training and preparation are just as important when entering the livestock industry as it is in other areas. Graduation from high school is normally considered a basic requirement. To be prepared for higher education, certain high school courses should be taken. Besides four years of English, a strong background in science and mathematics is desirable. Science courses may include general science, biology and chemistry. Mathematics courses should include algebra and geometry.

All 4-H members are encouraged to study in their field of interest after high school graduation. With a college degree you can make quicker advancements in your chosen profession. The degree also will make it much easier to change occupations if you choose.

Your Career Decision

Your experiences in 4-H should have helped you explore many animal science career opportunities. Advice on career selection is available from many sources. However, your final decision should be based on your personal interests. A particularly challenging opportunity or a lucrative job offer may not be best suited to you.

Earning capacity should be a consideration, but not the only one. Remember, in many occupations, the highest salaries go to those with the most education.

Continuing your education and delaying your entry into the job market may be advisable if you want a top position.

Select a career with a promising future. Careers in animal science should remain desirable since increased animal production is necessary to feed the growing population of the world.

With study and evaluation, you should be able to select the animal science career that is right for you. Assistance in choosing a career is helpful; but, remember the career is for you. You must be happy. You must make the final decision.

Explore the Opportunities

If you are interested in studying animal sciences or working in the animal agriculture industry, contact your Extension agent for information about your land-grant university. The animal sciences departments at

land-grant universities offer interesting classes, creative activities and programs, internship experiences, honors programs, and career development opportunities to be explored.