

## **Breeds of Swine**

- \*Eight major breeds of swine produced in the US.
- \*Dark breeds or terminal breeds are used for their production abilities such as meatiness, leanness, durability, growth rate, and feed efficiency.
- \*White breeds or maternal breeds are used for their reproductive abilities such as mothering ability, litter size, and milking ability.

## **Breeds of Swine**

### **Dark/Terminal Breeds**

Berkshire

Duroc

Hampshire

Poland China

Spot

### **White/Maternal Breeds**

Chester White

Landrace

Yorkshire



## Berkshire



## Duroc



## Hampshire



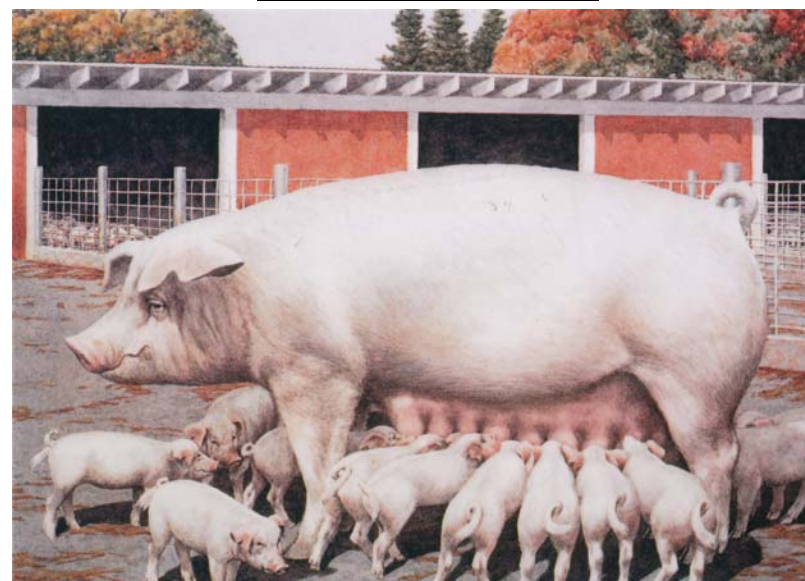
## Poland China



**Spot**

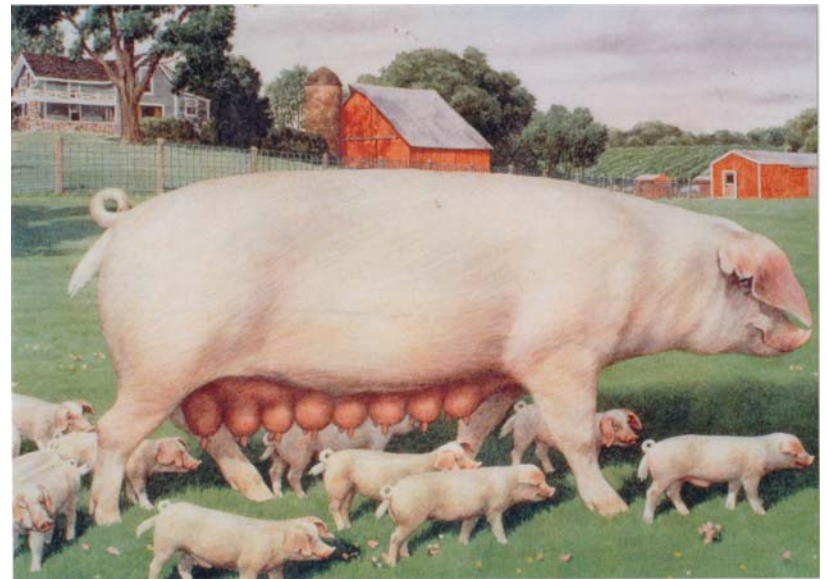


## Chester White





## Landrace



## Yorkshire



## **Sex Classes of Swine**

\***Gilt** - Any female pig that has not yet given birth.

\***Sow** - A female pig that has given birth.

\***Boar** - An intact male hog kept only for breeding purposes.

\***Barrow** - A castrated male hog used for meat.

## **Scientific Classification of Swine**

Phylum:	Chordata
Subphylum:	Vertebrata
Class:	Mammalia
Order:	Artiodactyla
Suborder:	Suina
Family:	Suidae
Genus:	<i>Sus</i>
Species:	<i>domesticus</i>

## Top Ten Swine Producing States

- |                   |             |
|-------------------|-------------|
| 1. Iowa           | 6. Nebraska |
| 2. North Carolina | 7. Missouri |
| 3. Minnesota      | 8. Oklahoma |
| 4. Illinois       | 9. Kansas   |
| 5. Indiana        | 10. Ohio    |



## Top Five Swine Producing Countries

1. China
2. European Union
3. United States
4. Brazil
5. Canada



### Pig Vital Signs

Normal Body Temperature

101-103°F

Normal Heart Rate

60-80 beats/minute

Normal Respiration Rate

30-40 breaths/minute

## Important Breeding Numbers

Litter Size: 7-15 pigs

Birth Weight: 2-3.5 lbs

Weaned at: 21 days

Sexual Maturity: 6-8 months

Ideal Number of Teats: 7 per side

Estrous Cycle: 21 days (range of 19-21)

Duration of Estrus (heat): 2-3 days

Gestation: 114 days (3 months, 3 weeks, 3 days)  
(range of 112-115)

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## Important Weights of Hogs

Birth Weight: 2-3.5 lbs

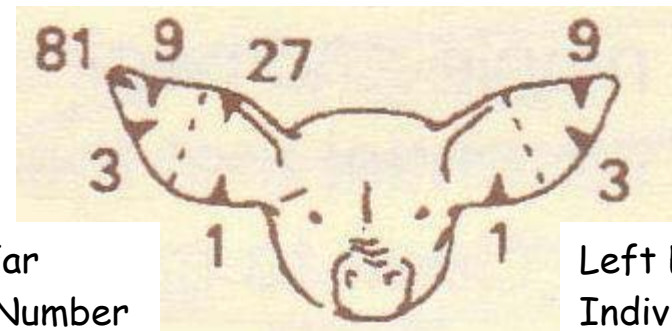
Wean Weight: 15 lbs at 21 days

Slaughter Weight: 250 lbs

Mature Weight: Male 500-800 lbs  
Female 400-700 lbs



## Ear Notching System



Right Ear  
Litter Number

Left Ear  
Individual Pig  
Number

\*No more than 2 notches per area except for 81, only one notch.

\*Ear notching is done within two days of birth  
and is the pig's permanent identification.

\*Start at litter number 1 every 6 months.

## Types of Identification

### Permanent

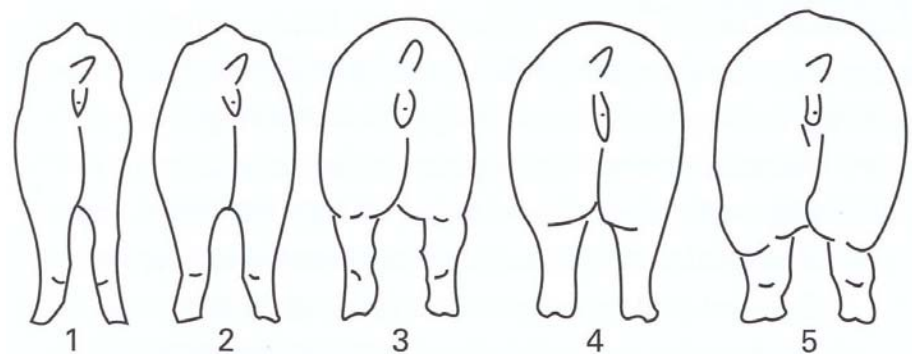
- \*Ear notches
- \*Tattoos

### Temporary

- \*Ear tags
- \*Paint brands
- \*Marking crayon

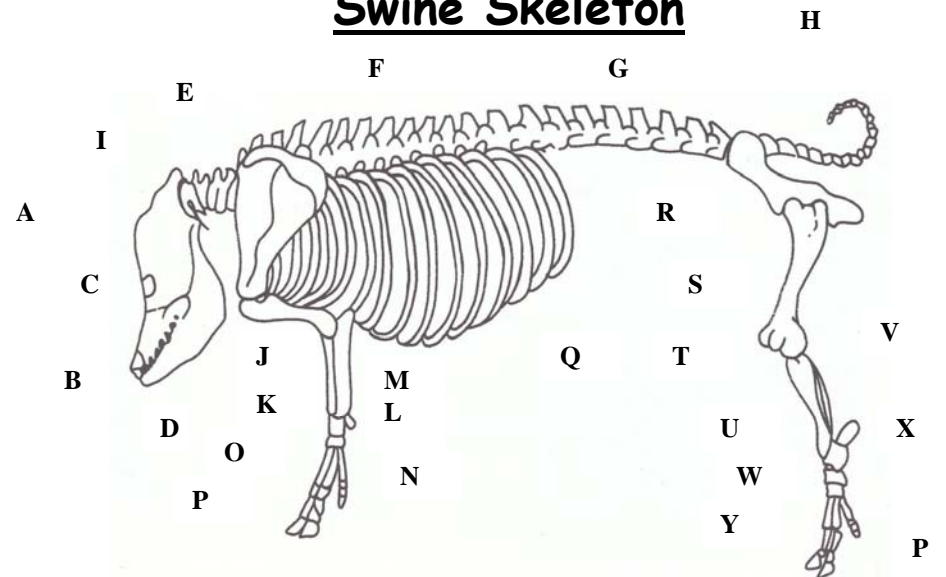


## **Body Condition Scoring**



\*Body Condition Scoring (BCS) is useful to assess the adequacy of the nutrition program. The ideal BCS is number 3. Increase feed if BCS is low and decrease feed if BCS is high.

## Swine Skeleton



## **Key to Swine Skeleton**

- |                           |                        |
|---------------------------|------------------------|
| A. skull                  | N. carpal bones        |
| B. rostral bone           | O. metacarpals         |
| C. orbit                  | P. phalanges           |
| D. mandible               | Q. ribs                |
| E. cervical vertebra (7)  | R. os coxae (hip bone) |
| F. thoracic vertebra (16) | S. femur               |
| G. lumbar vertebra (5)    | T. patella             |
| H. caudal vertebra        | U. tibia               |
| I. scapula                | V. fibula              |
| J. humerus                | W. tarsal bones        |
| K. radius                 | X. calcaneus           |
| L. ulna                   | Y. metatarsal bones    |
| M. olecranon              |                        |

## **Swine Joints**

### **Forelimb**

Shoulder Joint (between scapula and humerus)

Elbow Joint (between humerus and radius/ulna)

Carpal Joint (at carpal bones)

### **Hindlimb**

Hip Joint (between os coxae and femur)

Stifle Joint (between femur and tibia/fibula)

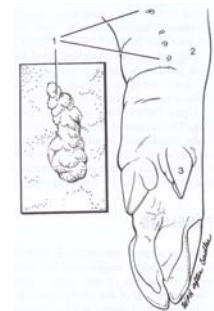
Hock Joint (at tarsal bones)

## Unique Anatomical Features

\*When drawing blood from the neck, only draw from the right side because on the left side the phrenic nerve is more vulnerable. (Right is Right!)

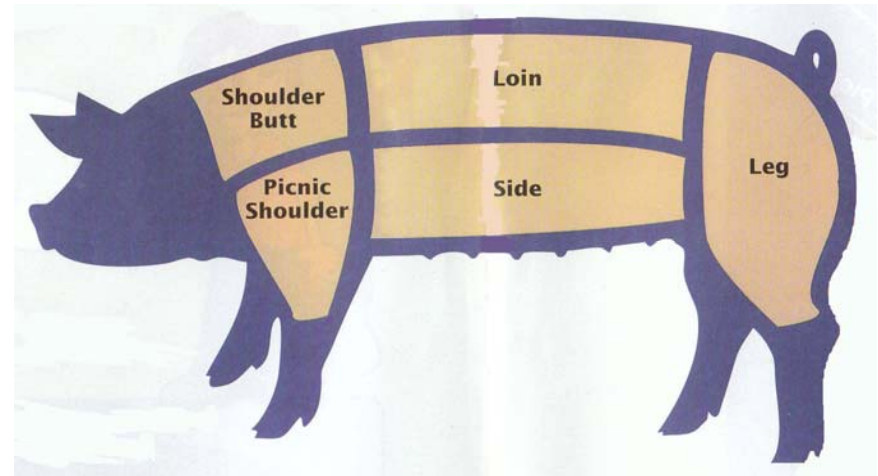
Rostral Bone - found in the tip of the nose; not present in any other domestic species

Carpal Glands - glands in the carpal joint that open to the surface and are thought to function as territorial markers





## Wholesale Cuts of Meat



\*Boston Butt and Boston Shoulder are also acceptable for Shoulder Butt.

## **Retail Cuts of Meat**

From the Loin: chops, roasts, tenderloins, ribs, &  
Canadian-style bacon

From the Leg: ham

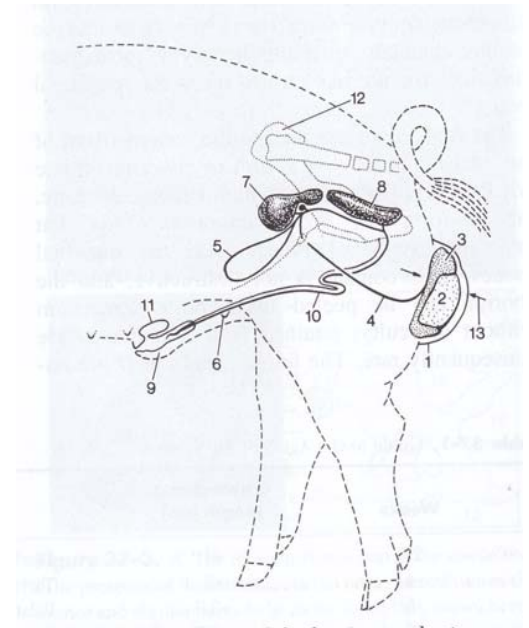
From the Side: spareribs, bacon

From the Picnic: picnic, arm picnic roast, smoked hocks

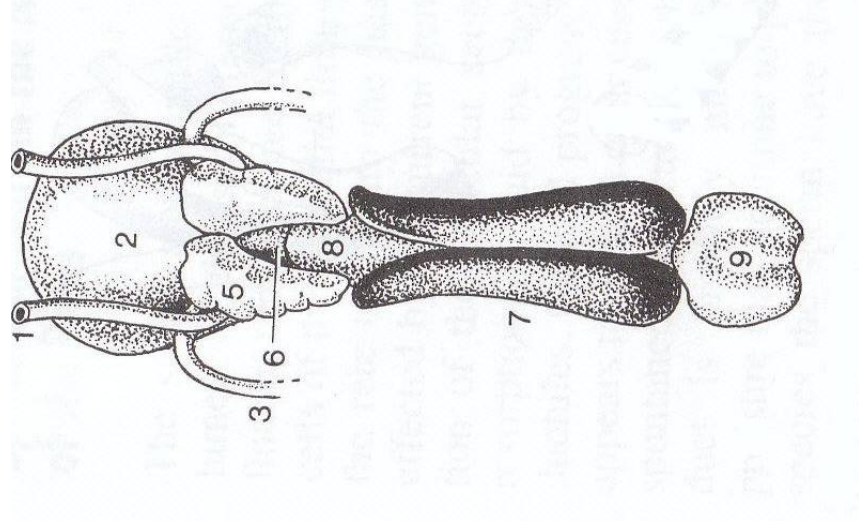
From the Boston Butt: roast, ground pork, sausage,  
blade steak

## Male Reproductive Anatomy

- \*A boar's penis is corkscrew in shape.
- \*Hormones produced by the testicles taint swine meat. Therefore, male hogs are castrated (removal of testicles) at 48 hours to 10 days of age.



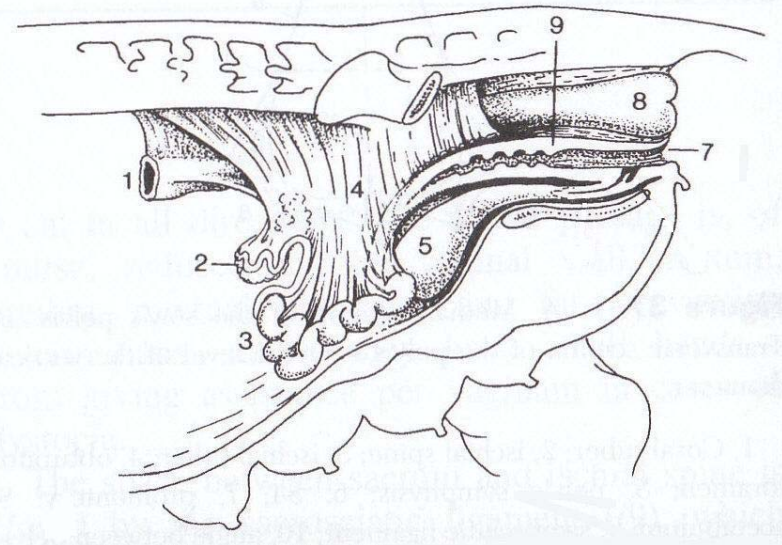
## Parts of the Male Urogenital System



### **Parts of the Male Urogenital System**

1. Ureter - drains urine from the kidneys to the bladder
2. Bladder - holds urine until excretion
3. Ductus deferens - carries sperm from testicles to ejaculatory duct in the penis
4. Ampullary gland - makes a white, thin, liquid secretion
5. Vesicular gland - produces seminal fluid which serves as a transport for sperm
6. Prostate gland - secretion promotes movement of the sperm and creates a vaginal plug
7. Bulbourethral gland - secretion clears the urethra of urine and lubricates the urethra and the vagina
8. Urethra - drains urine from the bladder for excretion
9. Bulb of penis

## Female Reproductive Anatomy



## **Female Reproductive Anatomy**

\*oviduct - tube that eggs from ovary travel through to the uterine horns

\*infundibulum - dilated sac that holds the ovary

\*vagina - canal that leads from uterus to the external vulva

1. descending colon

2. ovary - produce eggs and female sex hormones

3. uterine horns - remarkable for their length in swine and hold the pig fetuses

4. broad ligament - suspends the ovaries and uterus from the abdominal wall

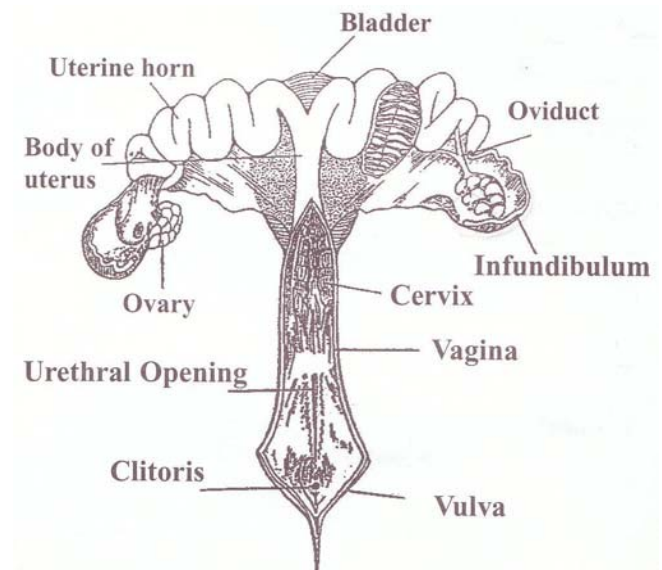
5. bladder

7. vulva

8. rectum

9. cervix - constricted connection between the uterus and the vagina

## Female Reproductive Anatomy





## **Defining the Swine Estrous Cycle**

Ovulation - the discharge of a mature ovum (or egg)  
from the ovary

Estrus - a regularly recurrent state of sexual excitability  
during which the female of most mammals will  
accept the male and is capable of conceiving

Polyestrous - having more than one period of estrus in a year

Anestrous - not exhibiting estrus

Lactational anestrous - period when a sow does not come into  
estrus because she is nursing her pigs

Lactation - the secretion and yielding of milk by the mammary  
gland from parturition to weaning

Weaning - process in which piglets are removed from their  
mothers and begin to eat on their own (at 21 days)

## **Swine Estrous Cycle**

- \*Swine are polyestrous.
- \*The estrous cycle length averages 21 days.
- \*Estrus onset is marked by the pre-ovulatory surge of lutenizing hormone and other physical signs.
- \*Ovulation occurs during the last third of the estrous cycle.  
Sows and gilts ovulate 33-36 hours after estrus is detected.
- \*Gilts come into first estrus around 6 months of age.
- \*Estrus occurs for 2-3 days, averaging 48 hours in gilts and 60 hours in mature sows.
- \*Sows have a period of lactational anestrous occurring until after weaning. Return to estrus occurs after the recovery period or 4-7 days post weaning.

## **Estrus Detection**

- \*Estrus detection is critical to the success of a swine operation because of the increased use of artificial insemination (AI).
- \*Having a boar present can help managers detect estrus.

### **Signs of Estrus:**

- \*swollen vulva
- \*respond to pressure on their back by standing solidly ("standing heat")
- \*stiffen their ears ("popping")

### **Important Farrowing Definitions**

Parturition - the process of giving birth to offspring

Farrowing - the name of parturition for swine

Parity - the number of times a sow has given birth

Meconium - small, greenish-brown pellets emitted by the sow right before the first piglet is born

Afterbirth - the placenta and fetal membranes that are expelled after delivery

Colostrum - milk secreted for a few days after parturition and characterized by high protein and antibody content

Dystocia - slow or difficult labor or delivery

Mummified Fetus - fetus that died before birth and is brown in coloring

Stillborn Fetus - fetus that dies shortly before or during parturition

## **Signs of Farrowing**

Most Reliable Signs of Farrowing:

- \*Change in respiration rate
- \*Milk can be squirted from teats
- \*Expulsion of blood stained fluids

Other Signs of Farrowing:

- \*Nesting
- \*Udder becomes firm and full of milk
- \*Abdominal contractions 2-3 hours before birth
- \*Tail twitching and pulled back out of the way of the vulva

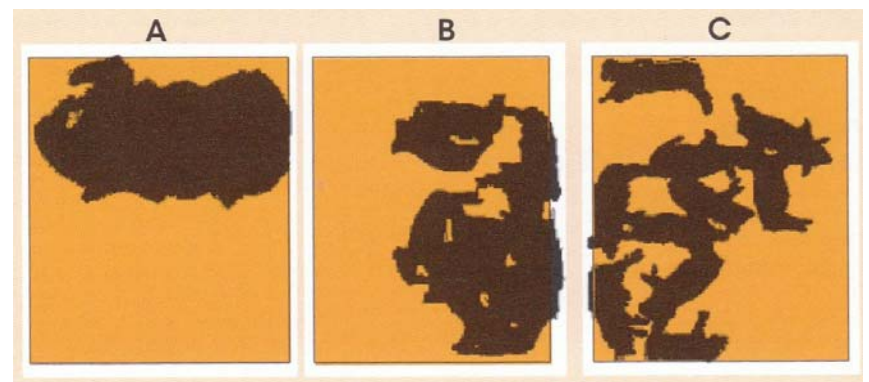
## **Farrowing**

- \*Many producers induce farrowing with prostaglandin injections no more than 2-3 days prior to the due date.
- \*Farrowing averages 1.5 to 4.5 hours long.
- \*The average time between piglet births is 16 minutes.
- \*Proper birthing positions for the pig are head first or feet first. Improper positioning can lead to dystocia.
- \*A piglet completely dries in approximately 45 minutes.
- \*A time period of 45 minutes between piglets can signal a problem and assistance for the sow may be needed.
- \*Depending on the situation, oxytocin may be given to stimulate contractions of the uterus. Oxytocin is often given following the pulling of piglets.

## **Farrowing Barn**

- \*The presence of a farrowing manager can be worth one pig per litter. These managers can untangle pigs from afterbirth, revive pigs, stop bleeding navels, and help promote timely nursing.
- \*Sows require a temperature of 60-65°F.
- \*Piglets require a temperature of 85-95°F for the first few days and then a temperature of 70-80°F.
- \*Piglets should remain dry while in the farrowing barn.

## Piglet Temperatures



- A - piglets clumped together because they are too cold
- B - piglets spaced correctly because temperature is right
- C - piglets spaced too far apart because they are too hot



## **Litter Processing**

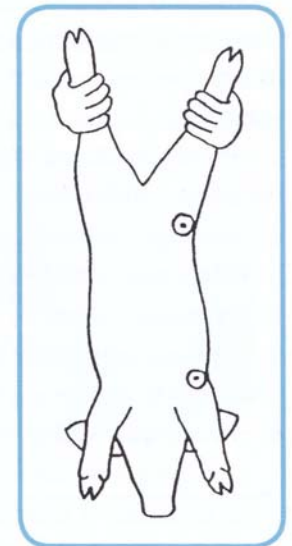
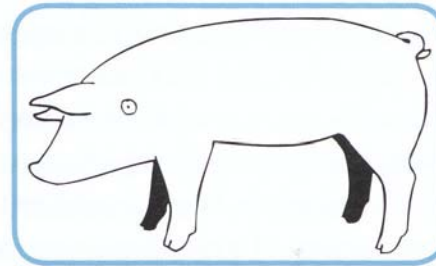
- \*Process litters within 48 hours of birth.
- \*Record birth weight of pigs.
- \*Record number of nipples per side.
- \*Inject with iron.
- \*Inject with an antibiotic. (optional)
- \*Permanently identify the pig with ear-notching or tattoos.
- \*Trim umbilical cord and apply iodine solution.
- \*Clip needle teeth. (optional)

## **Methods of Injection**

1. Intramuscular (IM) - In the muscle
  - On the neck just behind and below the ear, but in front of the shoulder.
2. Subcutaneous (SQ) - Under the skin
  - The loose flap of skin in the flank or behind the elbow in small pigs. The same location as IM for larger pigs.
3. Intraperitoneal (IP) - In the abdominal cavity
  - Only used upon veterinary instruction.
4. Intravenous (IV) - In the vein
  - Only used upon veterinary instruction.
5. Intranasal (IN) - In the nasal passages

## Subcutaneous Injection

## Intramuscular Injection



### **Proper Injection Techniques**

- \*Only inject in PQA approved areas to prevent blemishing of the meat or serious injury to the pig.
- \*Follow all veterinary and label instructions.
- \*Have a good working relationship with a veterinarian.
- \*Follow proper PQA needle usage.
- \*Never straighten a bent needle. Always carefully remove and replace it.
- \*Keep records of all needles that break off in pigs during injection.
- \*Follow proper disposal techniques for needles and other sharps.

## PQA Needle Usage

### Needle Usage

The following are recommended needle sizes and lengths:

<b>Intramuscular Injection</b>	<b>Gauge</b>	<b>Length</b>
Baby Pigs	18 or 20	5/8" or 1 1/2"
Nursery	16 or 18	3/4" or 5/8"
Finisher	16	1"
Breeding Stock	14, 15 or 16	1" or 1 1/2"
<b>Subcutaneous Injection</b>	<b>Gauge</b>	<b>Length</b>
Nursery	16 or 18	1/2"
Finisher	16	3/4"
Breeding Stock	14 or 16	1"

## **Swine Nutrition**

- Feed cost is the largest expense in swine production.
- Nutrients are chemical elements or compounds that are required in the diet to permit normal functioning of the life processes. Nutrients are divided into 6 different classifications: water, carbohydrates, proteins (amino acids), minerals, vitamins, and lipids (fats).
- Muscle protein is composed of 20 different amino acids. Ten of these are essential amino acids and must be supplied in the diet, and the remaining 10 are nonessential amino acids and are synthesized by the pig. Therefore, pigs have an amino acid requirement rather than a protein requirement.

### **Swine Nutrition (continued)**

- **Water** serves two functions for all animals. It serves as the major component of the body's metabolism and is required for body temperature control. All the biochemical reactions that take place in an animal require water.
- **Corn** is an excellent source of energy (carbohydrates). Corn has a high percentage of sugars and starches. Carbohydrates make up the largest part of feed for swine.
- **Soybean meal** is an excellent protein source. Soybean meal is the most widely used high quality protein meal for balancing hog rations.

## **Swine Nutrition (continued 2)**

- **Minerals** are only needed in small amounts in swine diets but are very important for growth and reproduction. Calcium and phosphorus are required for structural components of the pig.
- **Vitamins** are required in minute quantities for normal body functions. Many vitamins are used as part of enzyme systems, hormone regulation, and other essential functions. Vitamins are classified as either fat soluble or water soluble.
- **Fats** are compounds that are insoluble in water. They serve as carriers of the fat soluble vitamins. Fat is characterized by its high energy value.



## **Why Artificial Insemination?**

- \*AI allows for the use of superior genetics without bringing in outside hogs and introducing diseases into the herd.
- \*Using AI can reduce the number of boars needed at a farm.
- \*AI facilitates the mating of animals of different sizes.
- \*AI allows for more females to be bred to one boar with semen extension.

## **Semen Collection**

- Total sperm per collection can range from 40 billion to 100 billion.
- Check sperm motility and morphology.
- Each dose should be 5 billion to 6 billion sperm.
- To extend the semen, match the extender temperature to the semen temperature.
- If you wish to store the semen, it should be slowly cooled to 65 degrees F and stored at that temperature. Semen should be gently mixed twice daily. Remains viable for 3-7 days.

## **Common Diseases of Swine**

Colibacillosis - pale, yellow, watery feces in nursing pigs  
caused by *E. coli*

Atrophic rhinitis - stunting of growth, sneezing, turning  
of the nose, watery eyes

Mycoplasmal Pneumonia - dry, persistent cough,  
stunting of growth, rough hair

Leptospirosis - abortion of immature pigs, stillbirths

Parvovirus - mummified fetuses

Brucellosis - fever, abortions (zoonotic)

Erysipelas - sudden death, sickness, fever, sore joints,  
loss of appetite, diamond-shaped lesions

## **Common Diseases of Swine**

Porcine Stress Syndrome - rapid resp., reluctance to move, blotchy skin, tremors, paralysis

Pseudorabies - nursery pigs dying, diarrhea, vomiting, depression, fever, coughing, abortions

Strep suis - sudden death, scours, muscle convulsions, pneumonia, arthritis (zoonotic)

Roundworms - coughing, rough hair coat, worms in feces

Whipworms - diarrhea

Lice - can cause loss of productivity, increases susceptibility to other diseases

Circovirus - anorexia, rapid weight loss, unthrifty pigs, skin discoloration, respiratory signs, diarrhea

## **Proper Handling and Movement of Swine**

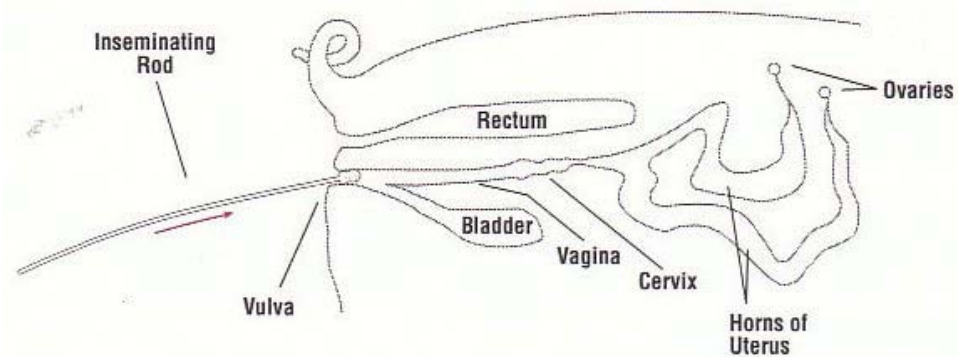
- \*Moving pigs is a stressful experience for the pigs.
- \*Pigs that have more human contact are less stressed during movement.
- \*Eliminate visual distractions from the path of the pigs.
- \*Sorting boards or panels are the most effective tool for moving pigs. They help direct the path of the pig and protect the handler.
- \*Electric prods should be avoided when handling swine.



## The Art of AI

1

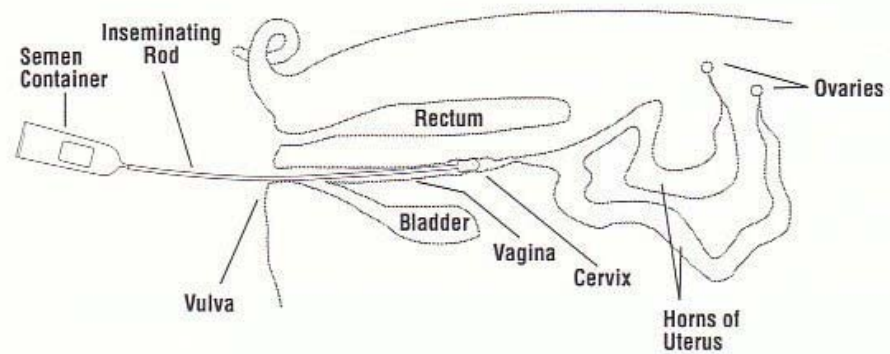
**INSERT SLOWLY, PUSHING UPWARD AND INWARD UNTIL ROD ENTERS THE CERVIX**



## The Art of AI

2

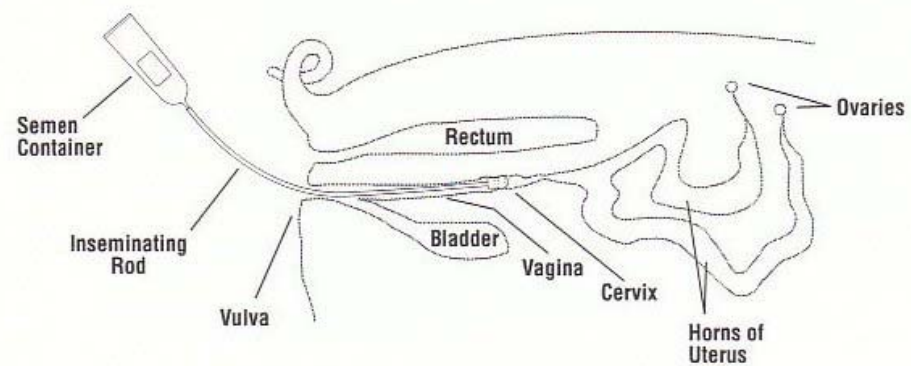
**REMOVE TIP FROM SEMEN TUBE  
AND ATTACH TO ROD**



## The Art of AI

3

**INSEMINATE**

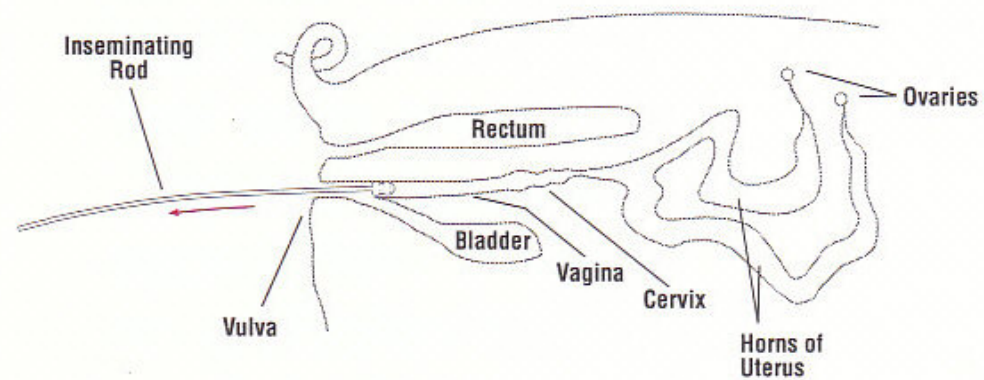




## The Art of AI

4

**REMOVE ROD BY  
TUGGING GENTLY**



### **Key for Feed Samples**

A. Whole Corn	K. Dry Fat
B. Soy Bean Meal	L. Whey
C. Ground Corn	M. Fishmeal
D. Monocalcium Phosphate	N. Zinc Oxide
E. Limestone	O. Flavor
F. Sodium Bentonite	P. AP 301G - Red Blood Cells
G. Salt	Q. Mixed Feed
H. Lysine	R. Lactose
I. Vitamins	S. AP 920 - Blood Plasma
J. Trace Minerals	

## Water Requirements

Table 9.1 Water Requirements by phase		
Production Phase	Water Requirement (gallons/pig/day)	Flow Rate (sec/pint)
Nursery	0.7	70
Growing	2 to 3	50
Finishing	3 to 5	50
Gestating sows	3 to 6	35
Lactating sows	2.5 to 7	35
Boars	5	35

## **Housing Requirements**

- \*Pig should be able to easily lie down on its side (full lateral recumbency) without having to lie on another pig and be able to easily stand back up.
- \*Pig should be able to lie down without having to rest their head on a raised feeder.
- \*A pig housed in a stall must be able to lie down fully on its side without the head having to rest on a raised feeder and the rear quarters coming in contact with the back of the stall at the same time.

## Spacing Requirements

Space Requirements for Pigs						
	Pig Wt. lbs.	Enclosed Building (sq. ft.)	Pigs/ Feeder Space	Pigs/ Water Space	Shed w/Lot (sq. ft.) Inside +	
Outside						
Nursery	30-75	3-4	3	10	3-4 +	6-8
Growing	75-150	6	4	15	5 +	12
Finishing	150-240	8	4-5	15	6 +	15

Note: Pen shape is important because pigs “toilet train” better in rectangular pens than in square pens. Each pen should have a minimum of two waterers.

## Reading Antibiotic Labels

<p><b>INDICATIONS</b> For the treatment and control of gastrointestinal roundworms, lungworms, lice, and mange mites. See package insert for complete indications, precautions, warnings, residue information, and use directions.</p> <p><b>RECOMMENDED DOSE</b> Cattle: 1 mL per 110 lb body weight Swine: 1 mL per 75 lb body weight</p> <p>IVOMEC is a registered trademark of Merial.</p> <p>Lot No &amp; Exp Date ▼ NBC0060 01-2008</p> <p>8913005</p>	<p>Product <b>41380</b></p> <p><b>ivomec</b><sup>®</sup> (ivermectin)</p> <p><b>Injection</b> for Cattle and Swine</p> <p><b>1% Sterile Solution</b></p> <p>Consult your veterinarian for assistance in the diagnosis, treatment, and control of parasitism.</p> <p><b>50 mL</b></p>	<p><b>WARNING</b> Not for use in humans. Keep this and all drugs out of the reach of children.</p> <p><b>RESIDUE INFORMATION:</b> Do not treat cattle within 35 days of slaughter. Because a withdrawal time in milk has not been established, do not use in female dairy cattle of breeding age. Do not treat swine within 18 days of slaughter.</p> <p><b>PRECAUTIONS:</b> For subcutaneous injection in cattle and swine only. Protect product from light.</p> <p>U.S. Pat 4,199,569 &amp; 4,853,372 Merial Limited, Iselin, NJ, U.S.A.</p>
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## **Reading Antibiotic Labels**

- A. Trade name - commercial name given by the manufacturer
- B. Active ingredients - chemical names of what makes up the product
- C. Indication - refers to the use of the drug to treat certain diseases, signs, or symptoms
- D. Withdrawal time - the amount of time that must pass after the medication is administered before slaughter
- E. Cautions and warnings
- F. Quantity of contents
- G. Manufacturer
- H. Expiration date - date the medication should be discarded
- I. Lot number - reference number that the manufacturer uses to determine the batch in which the product was made
- J. Dosage

# Pig Grower

## Medicated for pigs between 30 and 75 pounds

Administer to swine in complete feed for reduction of the incidence of cervical abscesses; treatment of BACTERIAL SWINE ENTERITIS (SALMONELLA or NECROTIC ENTERITIS caused by Samonella choteraesuis or VIBRONIC DYSENTERY), maintenance of weight gains in the presence of ATROPHIC RHINITIS.

### Active Drug Ingredients

Chloretracycline .....	100G/Ton
Sulfathiazole .....	0.011%(100G/Ton)
Penicilin .....	50G/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 0.40%
Salt.....	min 0.40%
Salt.....	max 0.90%
Selenium.....	min 0.30 PPM
Zinc.....	min 0.30 PPM

## Reading a Feed Label

**A**

### Ingredients

Grain Products, Plant protien Products, Processed Grain By-Products, Animal Fat, Animal Protien Products, Calcium Phosphate, Lignin, Sulfonate, Ground Limestone, Salt, L-Lysine Monohydrochloride, Methinone Suppliment, Zinc Oxide, Zinc Sulfate, Ferrous Sulfate, Manganous Oxide, Copper Sulfate, Calcium Iodate, Sodium Selenite, Vitamin A Acetate, Vitamin D-3 Suppliment, Menadione Dimethylpyrimidinal Bisulphate, Riboflaven Suppliment, Niacin, Calcium Pantothenate, Vitamin B-12 Suppliment, Thiamine Mononitrate, Folic Acid, Choline Chloride, Pyridoxine Hydrochloride, Biotin, Ethoxyquin (as a preservative)

### Feeding Directions

**F** Feed as the only ration to pigs weighing from 30 to 75 pounds body-weight.

**Caution:** In order to obtain the desired performance results, the animal should be self-fed.

**C** **Warning:** Withdrawal 7 days prior to slaughter; contains high levels of cooper, do not feed to sheep.

Manufactured By:  
Skill-a-thon Feed Mills

**Net Weight 50 pounds (2.7 Kilograms)**  
or as shown on shipping document



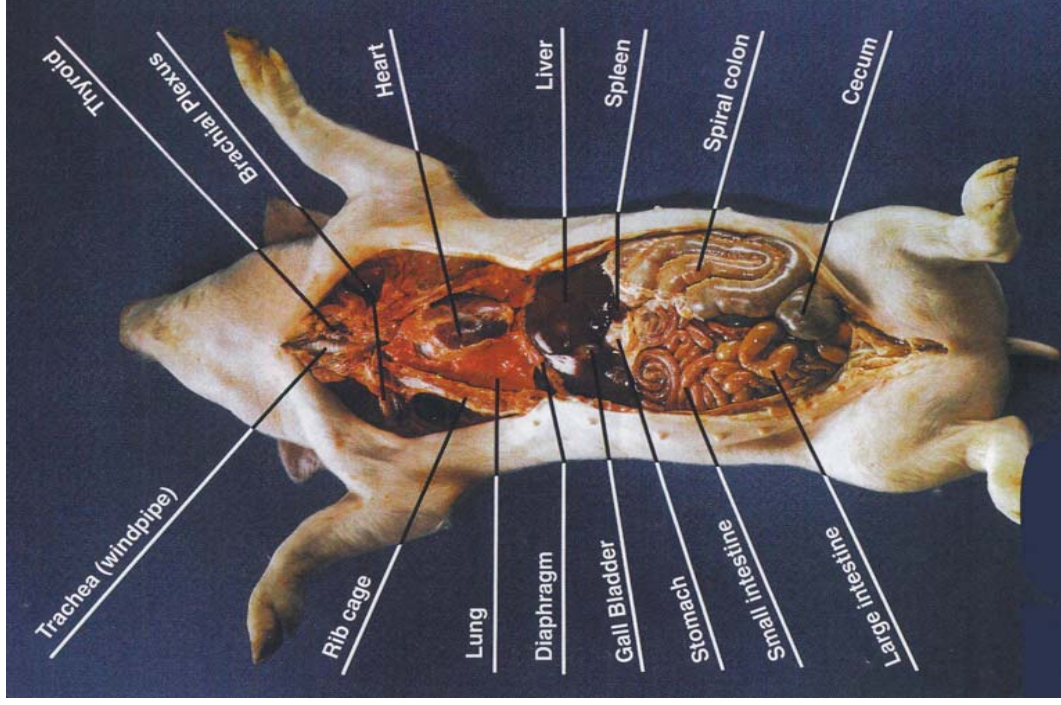
## **Reading a Feed Label**

- A. The main ingredient in the feed will be the first item listed under ingredients. (grain)
- B. Note how many active drugs are in the feed. (3)
- C. Additionally note the withdrawal time. (7 days)
- D. Note the crude protein level. (18%)
- E. Note the minimum crude fat level. (6.5%)
- F. Note the weight range of pigs this feed should be fed to. (pigs between 30 and 75 pounds)

## American History of Swine

- \*Pigs were domesticated around 8000 B.C.
- \*Because Hernando DeSoto brought 13 hogs to North America, he is called "The Father of the American Pork Industry".
- \*Wall Street is named for the solid wall that was built to control roaming herds of pigs on Manhattan Island.
- \*In the War of 1812, a New York pork packer named Uncle Sam Wilson shipped several hundred barrels of pork to U.S. troops. Each barrel was stamped "U.S." and it quickly became bantered about that the "U.S." stood for "Uncle Sam". Thus, "Uncle Sam" represents the U.S. Government.
- \*"No man should be allowed to be president who does not understand hogs." -- President Harry Truman





## **Swine Gastrointestinal System**

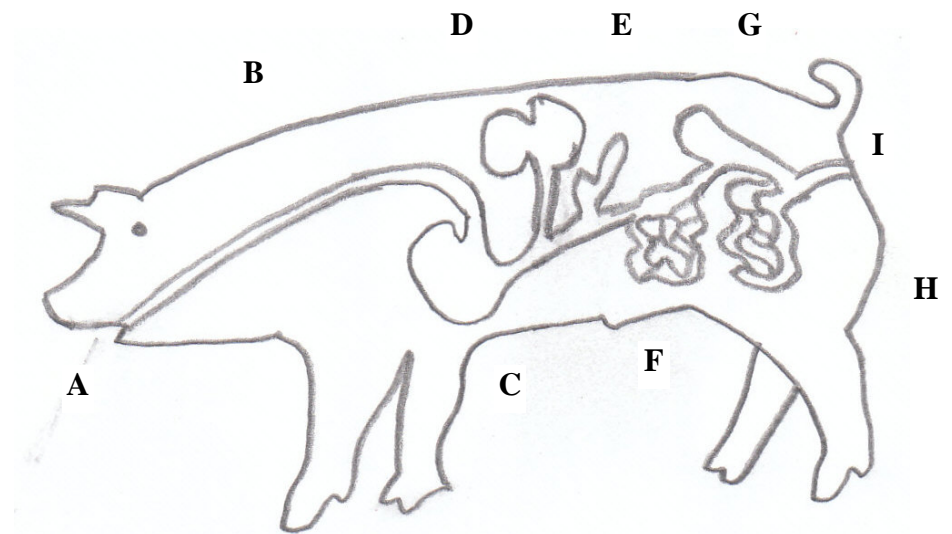
\*Swine are non-ruminant monogastrics.

- A. Mouth - The teeth break food into small particles and an enzyme begins carbohydrate digestion.
- B. Esophagus - Muscle contractions move the food from the mouth to the stomach.
- C. Stomach - Digestion of fats, protein, and carbohydrates by acids and enzymes. Nutrients are absorbed through the stomach wall into the blood.
- D. Liver - Secretes bile for digestion and breaks down compounds in the blood.

## **Swine Gastrointestinal System**

- E. Pancreas - Secretes digestive enzymes into the small intestine.
- F. Small Intestine - Very long tube composed of the duodenum, jejunum, and ileum. Most nutrients are absorbed here.
- G. Cecum - Known as the blind gut and has very little function in the pig.
- H. Large Intestine - Also known as the colon. Its main functions are to absorb water and add mucus to the remaining food.
- I. Rectum - Leads to the anus through which the undigested portion of the feed is eliminated.

## Swine Gastrointestinal System



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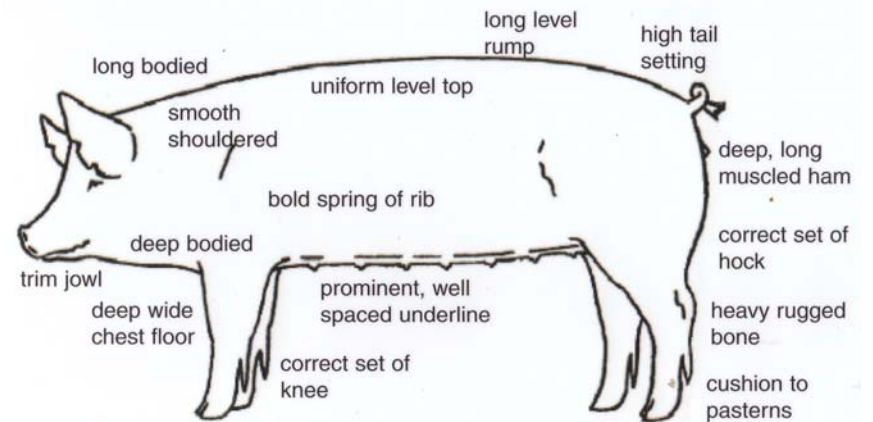
**Edited by Dr. Tim Page, Dr. Bruce Olcott,  
and Mrs. Rebecca Lirette**

**Compiled by Kathleen Elstrott**



## Traits to Examine for Gilt Selection

There are many criteria that can be used to evaluate a replacement gilt candidate. The diagram below shows the traits that are desirable in a replacement gilt.





## **Judging Market and Breeding Hogs**

\*When evaluating hogs in a judging contest always refer to the data and/or scenario to help rank the hogs.

\*Important Traits:

- Muscle
- Growth/Performance
- Structural Correctness
- Balance
- Finish/Condition

## **Balance**

- \*Good length of body
- \*Level Top-line
- \*Uniform Underline
- \*Long, loose muscle pattern
- \*Flexible structure contributes to levelness of design

## **Finish/Condition**

- \*Finish/Condition refers to the amount of body fat seen visually before slaughter.
- \*Avoid extremes for both breeding and market.

## **Structural Correctness**

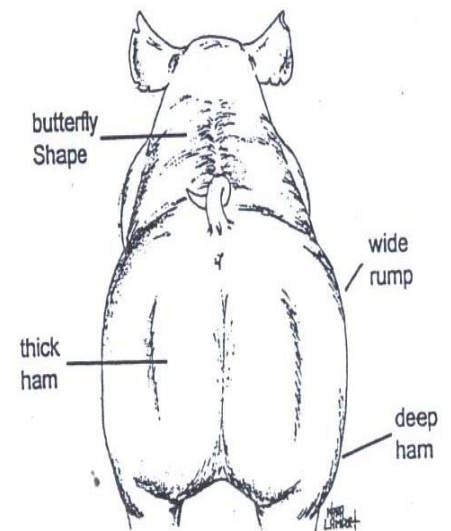
- \*A hog's skeletal width lays the foundation for the natural muscle that they possess.
- \*Hogs should be built from the ground up
  - Wide Chest
  - Big Blade
  - Bold, Deep Rib
  - Travel wide from both ends
- \*Also, see judging legs and feet.

## **Growth/Performance**

- \*Important for profit and reproduction
- \*In a judging class, if you are not given the date of birth, assume that all pigs are born on the same day.
- \*Consider frame size
- \*Consider weight per day of age
- \*"Don't frame animals out", but be cautious of the smallest framed in the class
- \*Utilize growth data in breeding classes
- \*Fewer days to 250 pounds the better

**Illustration of a  
Heavy Muscled  
Hog that is also  
Extremely Lean**

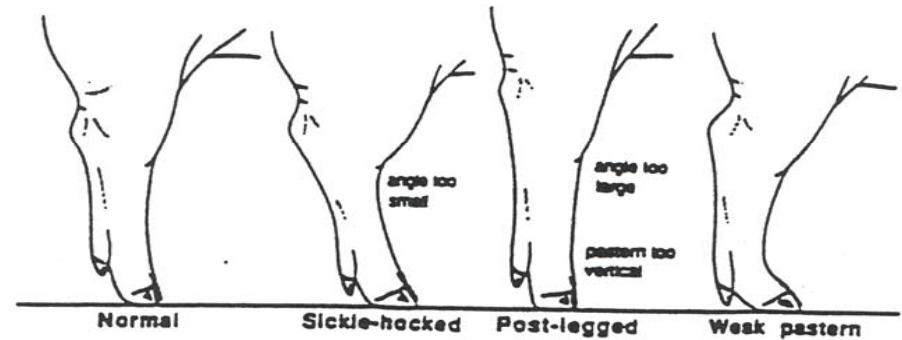
\*The more fat/finish a hog has reduces the amount of muscle expression that can be evaluated from this view.



## Judging Rear Legs and Feet

### Some Common Foot and Leg Structural Deficiencies in Swine

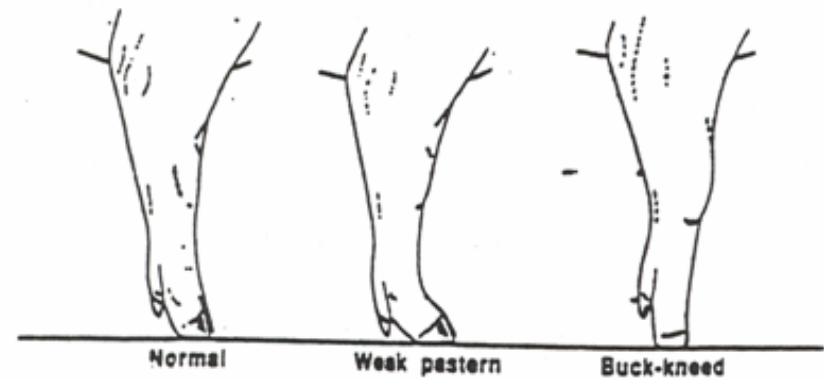
Side view of rear leg



\*The angle illustrated as weak pastern is acceptable. A weak pastern is more functional than a straight pastern.

## Judging Front Legs and Feet

Side view of front leg



\*The angle illustrated as weak pastern is acceptable. A weak pastern is more functional than a straight pastern.

## **Gilt Reproductive Soundness**

- \*Reproductive soundness is the most important trait to evaluate for when judging a breeding class.
- \*Always inquire in a judging contest if you are required to judge underlines and vulvas for soundness.
- \*Ideal Underlines
  - 7 or more functional nipples on each side
  - nipples should be well spaced and developed
  - blind or pin nipple should not be present
  - inverted nipples should not be present
- \*Vulva Development
  - not too small, tipped up, or infantile
  - use caution when judging injured vulvas

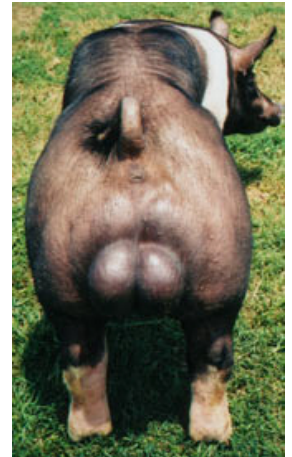


## Boar Reproductive Soundness

### \*Testicular Development

- uniformity
- no cryptorchids  
(one testicle did  
not descend)

\*Also consider number of teats,  
especially in boars that are being  
used to sire replacement females.



## **Important Sow Data**

\*Number born alive

- first litter 8-10 pigs
- sows 10-14 pigs

\*21 day weight

- 10 or more pigs weighing 15 lbs or more at 21 days
- this is a reflection of the sow's milk production

\*Items to consider, no correlation between 1<sup>st</sup> and 2<sup>nd</sup> - 3<sup>rd</sup> parity

### **Important Growth Data**

**\*Days to 250 pounds**

- Boars 140-170 days
- Gilts 150-190 days

**\*Backfat Thickness**

- Boars .3 to .6 inches
- Gilts .5 to .8 inches
- Barrows are .3 inches fatter than boars
- Gilts are .1 inch fatter than boars

**\*Loin eye area**

- Boars 6.00 sq. inches or larger
- Gilts 5.00 sq. inches or larger

**\*Estimate an inch by putting your pointer finger and middle finger together. The width of your two fingers together is approximately one inch.**

## **Expected Progeny Difference (EPD)**

- \*The predicted performance of future offspring of an animal for a particular trait.
- \*It is calculated from measurements of the animal's own performance and the performance of its relatives for that particular trait or for one or more correlated traits.
- \*Whether positive or negative values are more desired depends on the trait. For example, negative EPDs are desired for days to 250 and backfat, while positive EPDS are desired for number born alive and litter weight.

## **Selection Indexes**

- \*Selection indexes are formulas that combine the EPDs from several traits into a single value for each animal. It is based on an average of 100.
- \*Sow Productive Index (SPI)
  - SPI should be used for selecting breeding stock. It is the combination of EPDs for maternal abilities including number born alive, number weaned, and 21-day litter weight.
- \*Terminal Sire Index (TSI)
  - TSI should be used for selecting animals to be used in a terminal cross. It is the combination of EPDs for backfat, days to 250, pounds of lean, and feed to gain.
- \*Maternal Line Index (MLI)
  - MLI should be used for selecting breeding stock. It is the combination of EPDs for terminal and maternal traits but places twice as much emphasis on maternal traits.