

Swine Quiz Bowl Study Guide

SWINE 1 – Growing with Swine

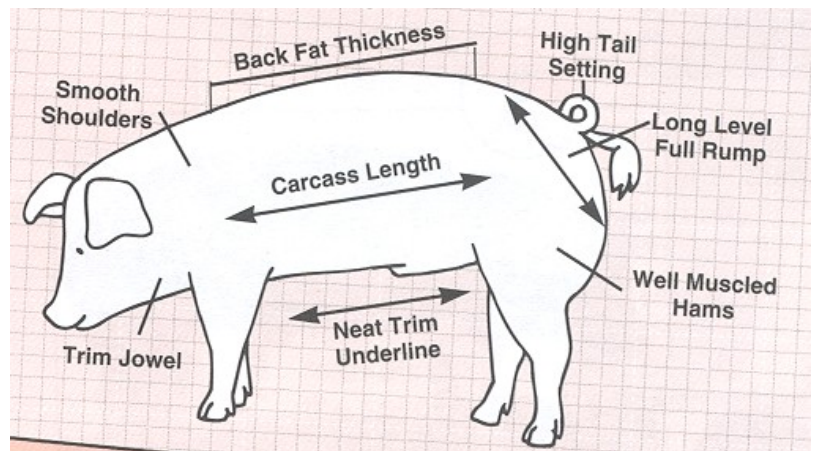
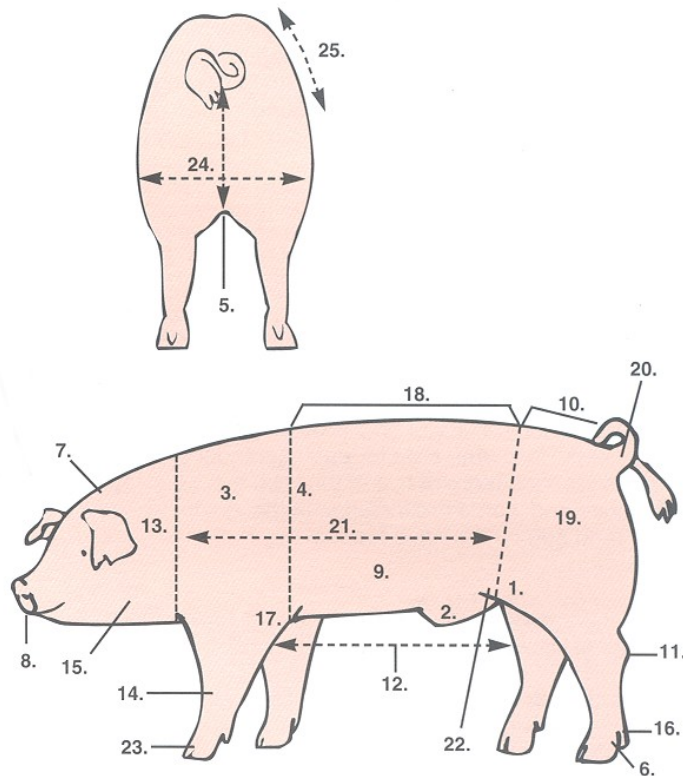
NAMING THE BREED – Page 6 & 7

1. Berkshire – These black bodied pigs have six white points, including their nose, tail and feet. They have erect short ears and dished snouts. Legend says this breed was discovered by Oliver Cromwell's Army at Reading (the county seat of the shire of Berks) in England over 300 years ago. They are known for providing hams and bacon of excellent flavor. They were first brought to America in 1823.
2. Chester White – Known as the durable mother breed, these pigs have white bodies with long, droopy ears. This breed originated in Chester County, Pennsylvania.
3. Duroc – These red pigs with drooping ears are the second in the United States and a major breed in many other countries. Their color can range from a very light golden, almost yellow to a very dark red that approaches mahogany. Characteristics such as the ability to produce large litters, longevity in the female line, lean gain efficiency, carcass yield and product quality as a terminal sire is due to the growth of the breed.
4. Hampshire These black hogs have white belts across the shoulders, covering the front legs around the body. They have erect ears and are a heavily muscled. They are the third most recorded swine breed in the United States. They are leaders in leanness and muscle, with good carcass quality, minimal amounts of backfat and large loin eyes. Hampshire females are known as great mothers and excellent pig raisers and have extra longevity in the sow herd.
5. Landrace – These white pigs with large drooping ears are the fourth most recorded breed in the United States as well as a major breed in many other countries. Their purebred females are known for their ability to produce large litters over for an extended time. Boars are aggressive and sire large litters that combine growth leanness and other desirable carcass traits.
6. Poland China – The black and white bodied pigs may have a white nose, tail and feet. They have medium-sized, droopy ears and originated in the Miami Valley of Ohio in Butler and Warren counties.
7. Spot – These white-bodied pigs have black spots and medium-sized, droopy ears. Part of their ancestry can be traced back to the original Poland China hogs of Warren County, Ohio. They are popular with farmers and commercial swine producers for their ability to transmit fast-gaining, feed-efficient, meat qualities to their offspring.
8. Yorkshire – This white breed with erect ears is the most recorded breed of swine in the United States and Canada. They are muscular with a high proportion of lean meat and low backfat, in addition to being very sound. They are productive, but more performance-oriented and durable than ever. The motto "The Mother Breed and a Whole Lot More" indicates improvement and change in the industry.

DID YOU KNOW that pigs are one of the few animals that won't overheat?

PIG PARTS

1. Stifle
2. Sheath
3. Shoulder
4. Heartgirth
5. Seam
6. Pastern
7. Poll
8. Snout
9. Belly
10. Rump
11. Hock
12. Underline
13. Neck
14. Knee
15. Jowl
16. Dewclaw
17. Elbow
18. Loin
19. Ham
20. Tailsetting
21. Side
22. Rear Flank
23. Toes
24. Width of Stifle
25. Turn Over Loin Edge



IDEAL PIG

- The ideal pig is deep at the heart and long sided.
- It walks and stands wide and is larger than the average pig of the same age.
- It is well-muscled, showing natural thickness over the top, and has a plump, thick ham.
- The ideal pig walks free and easy with good slope to its front pasterns.
- It is nearly level across the top and has a level rump with a high tail setting.

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- Pigs can be called; they don't have to be rounded up.
- Average market weight is 260 pounds – this would require about 875 pounds of feed.

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- Pigs can't sweat.
- Outdoor pigs wallow in mud to keep cool.
- Indoors sprinklers and fans keep them cool.
- Symptoms of overcrowding include:
 - Reduced gain,
 - Increased feed consumption,
 - Tail biting
 - Cannibalism
- Pens should be narrow (8 ft) and long (24 ft)
 - Minimum area 40 – 100 lbs. = 4 sq ft
 - Minimum area 100 – 150 lbs. = 6 sq ft
 - Minimum area 150 – 260 lbs. = 8 sq ft
- Pigs “toilet train” better in rectangular pens and usually dung in a wet area of the pen.

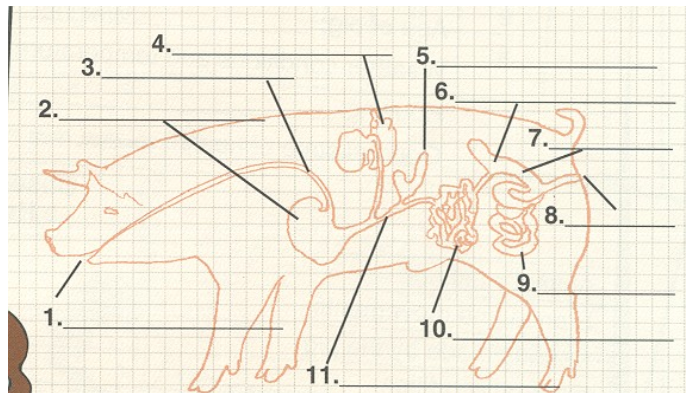
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PIG PARTS Word Bank

- | | |
|--------------|--------------------|
| a. colon | g. small intestine |
| b. pancreas | h. cecum |
| c. mouth | i. liver |
| d. duodenum | j. stomach |
| e. esophagus | k. large intestine |
| f. rectum | |

Answers:

- | | |
|-------|-------|
| 1. c. | 7. k. |
| 2. j. | 8. f. |
| 3. e. | 9. a. |
| 4. i. | 10.g. |
| 5. b. | 11.d. |
| 6. h. | |



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- Pig's normal body temperature is 101 degrees
- Pig's normal heart rate is 60 – 80 beats per minute
- Pig's normal respiration per minute is 30 – 40
- A young female pig is called a gilt.
- Swine offspring are called piglets.
- An adult female pig is called a sow.
- A group of pigs born to a sow is called a litter.
- An adult male pig is called a boar.

PORK BY-PRODUCTS

Meat isn't the only pork product that benefits you. Everyday you are touched by many pork by-products—things of value that are made from the parts of the animal trimmed away when making meat cuts.

By products are made from the bones, skin, hair, fat, hooves, organs and other parts of the pig that aren't eaten. In this activity you will practice recognizing pork by-products that are located throughout your home.

cosmetics	shoes	cellophane
buttons	dried bones	<i>floor waxes</i>
putty	<i>buttons</i>	water-proofing agents
glue	bone china	<i>cement</i>
gloves	bone meal	fiber softeners
fertilizer	mineral source in feed	crayons
chalk	<i>fertilizer</i>	<i>chalk</i>
upholstery	porcelain enamel	<i>records</i>
records	<i>glass</i>	<i>matches</i>
heart valves	water filters	<i>putty</i>
lass	gall stones	paper sizing
antifreeze	ornament	
matches	hair	
cement	<i>brush</i>	
brush	<i>insulation</i>	
floor waxes	<i>upholstery</i>	
insulation	meat scraps	
pet food	commercial feeds	
rubber	<i>pet food</i>	
bone meal	fatty acids and glycerin	
blood	insecticides	
sticking agent	weed killers	
leather treating agents	lubricants	
plywood adhesive	oil polishes	
protein source in feed	<i>rubber</i>	
fabric printing and dyeing	<i>cosmetics</i>	
brains	<i>antifreeze</i>	
cholesterol	nitroglycerin	
bones and skin	plastics	
<i>glue</i>	palsticizers	
pigskin garments	printing rollers	
<i>gloves</i>		

Pig Talk 1 GLOSSARY

This is the first of three Pig Talk glossaries for you to use to increase your swine vocabulary. See how many of these words your family knows.

A

Absorption - Process in which nutrients and other materials are taken through the wall of the digestive tract and into the blood.

Auction - A way to sell swine and other things. Bids are received and the animal or item for sale is sold to the person with the highest bid.

B

Barrow - Castrated male pig.
Boar - Intact male pig.

Breed (noun) - A group of swine that look alike, share certain characteristics and pass those characteristics to their young. Common breeds include Yorkshire, Hampshire, Duroc and Landrace.

Breed (verb) - Mating a boar and gilt or sow to produce piglets.

By-product - Product produced from the parts of the pig left over after the meat is used. For example, leather is made from pig skin.

C

Carcass - Body of a hog after it has been "harvested."

Concentrate - Dietary component high in energy or protein and low in fiber content highly digestible.

Crossbred - Offspring produced from the mating of two or more breeds.

D

Diet, feed, ration - Foods pigs eat to get nutrients.

Diet Types -

Pre-Starter diet - diet provided to pigs from about 3-10 days of age; creep feed. **Creep diet** - diet provided to nursing pigs from about 3 days of age until weaning; pre-starter diet.

Starter diet - diet provided to weaned pigs until they weigh about 40 pounds.

Grower diet - diet provided to pigs between 40 and 125 pounds body weight.

Finisher diet - diet provided to pigs from a body weight of about 125 pounds until they are marketed.

Gestation diet - ration provided to pregnant females.

Lactation diet - ration provided for sow that is nursing piglets.

Digestion - Process in which complex nutrients such as starch, fats and proteins are chemically broken down in the digestive system into simple nutrients, such as glucose, fatty acids and amino acids that can be absorbed and used by the body.

Digestive system - Part of the pig's body that changes the feed it eats into energy the body can use to grow. The major parts of the digestive system are:

Mouth - Takes in and chews feed;

Esophagus - Carries feed from the mouth to the stomach; **Stomach** - Mixes and begins chemical change (breakdown) of feed;

Small Intestine - Completes chemical breakdown of feed and begins absorption (transport into the blood) of nutrients; **Cecum** - Forms the beginning of the large intestine, also called the blind gut; and

Large Intestine - Completes absorption of nutrients. Stores waste before it's passed from the system as manure.

Disease - Sickness or illness that prevents the body from functioning normally.

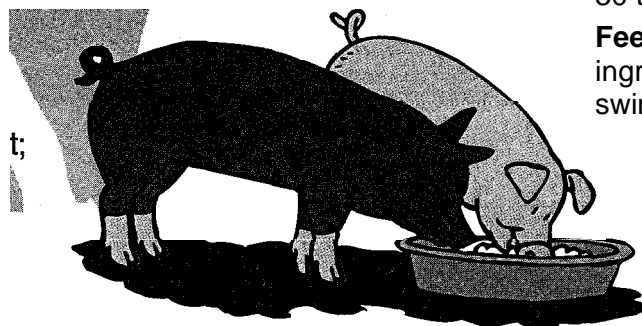
F

Farrowing - Birth process in swine.

Feces - Solid waste eliminated from the digestive tract; manure.

Feeder pigs - Weaned young pigs weighing approximately 30 to 60 pounds.

Feedstuff - Grain and other ingredients used in making swine rations.



G

Gilt - Young female that has not yet produced her first litter of pigs.

H

Hogs - Another word for swine. Some use the word "pigs" for younger animals and "hogs" for older animals. A "piglet" is a very young animal, often from birth until weaning.

Hurdle - Small, hand-held panel used to guide hogs as they are being moved. About 2'x 3' in size.

L

Litter - Group of piglets born to a sow at one time. Ideally, there will be 10-12 live piglets born in a litter.

M

Market hogs - Swine approximately 5-1/2 to about 6 months of age and weighing 230-270 pounds. They're "harvested" to generate pork products.

N

Nutrients - Building blocks of nutrition that must be eaten each day by pigs for good health and growth. There are six major classes of nutrients: proteins, carbohydrates, lipids, vitamins, minerals and water.

P

Pork - Meat from hogs

Pork cuts - Cuts of meat from a whole hog carcass.

Wholesale cuts are the ham, loin, belly and shoulder (Boston Butt, picnic).

Retail cuts are taken from the wholesale cuts and are the pork chops, bacon, roasts, etc. that are sold at grocery stores.

S

Scours - Soft, watery feces (diarrhea) in swine, commonly occurring as part of a disease.

Showmanship - Exhibition class at a fair or swine show. Exhibitors show their hogs in a clean, attractive condition and demonstrate the ability to properly show the animal to a judge.

Sire - Male parent (boar of a specific pig).

Sow - Female hog that has produced one or more litters of pigs.

Structural soundness - Evaluation term referring to the absence of functional defects in the bone structure of swine, especially feet and legs.

Swine producer - Someone who earns his or her income from raising hogs. Sometimes referred to as a pork producer.

T

Trait - Feature or characteristic of an animal, such as lean body or calm personality.

W

Weaning - Removing pigs from the sow and switching them from sow's milk to a dry feed.

SWINE 2 – Becoming Swine Smart

Page 5 & 6

Four important management practices are necessary during the first few days of a baby piglet's life in order to keep it healthy and identify it:

- Giving iron shots,
- Clipping needle teeth,
- Shortening tails, and
- Identifying each pig.

ANEMIA AND IRON SHOTS

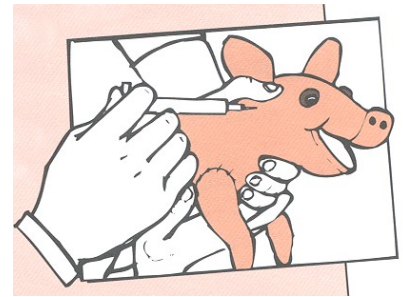
Pigs sometimes need shots to keep them well—just as people do. For example, many nursing pigs get iron-deficiency anemia about seven to ten days after birth. They may get anemic for four different reasons:

- Fast-growing pigs increase their blood volume rapidly and need additional iron for hemoglobin to carry oxygen.
- The pigs only store a low amount of iron in their bodies.
- The mother's milk is low in iron
- The baby pig may have no contact with iron in the soil

Since iron is an important part of body's red blood cells, it is important to supply them with iron to keep them healthy.

Proper Procedures

1. Read the instructions on the bottle for the iron product you are using. Learn how to get the correct amount of iron into the syringe and how to remove air from the syringe and needle.
2. Hold the pig carefully and disinfect the injection site.
3. Inject the proper amount of iron into the neck muscle.



Note: Iron may be given to the pig orally (by mouth).

CLIPPING NEEDLE TEETH

A pig is born with eight sharp needle teeth. These needle teeth are used many times when competing for a nursing spot. They make small cuts around litter mates' noses and faces and on the sow's udder. Sometimes the sow may even lay on her stomach and refuse to nurse the litter. For these reasons, needle teeth are often clipped.

Proper Procedures

1. Disinfect the teeth nippers.
2. Hold the pig's head with one hand. Place a finger of the same hand in the back corner of the pig's mouth (behind the needle teeth) so the mouth is open far enough to expose the needle teeth.
3. Move the nippers into the mouth from the front and as perpendicular as possible to the teeth.
4. Clip the teeth slowly and carefully. You need only to blunt the teeth, not take out the tooth.

SHORTENING TAILS

Pigs sometimes bit the tails of other pigs. This leads to infections and sometimes even death. The most common way to prevent tail biting is to shorten the pig's tail at a very young age.

Proper Procedures

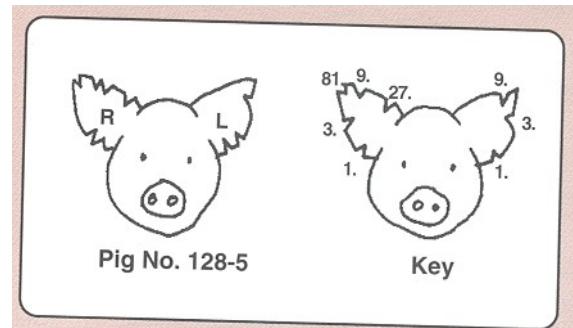
1. Disinfect the clippers.
2. Hold pig carefully by its rear legs.
3. Clip no closer than ½ inch from the body.

IDENTIFYING YOUR PIG

The use of marks is one of the most popular ways of permanent pig identification. This is best done soon after birth so accurate records can be kept about the pig's parentage, birth weights, medications, etc. You can use one to two methods for this identification: Ear notching or tattooing.

Proper Procedures for Ear Notching

1. Disinfect nippers for newborn pigs.
2. Hold the pig's head with one hand.
3. Use the nippers to place small marks on the edge of the ears to correspond with the pig and litter numbers you desire.
 - a. Litter Mark – The pig's right ear ("R") is used for litter mark 128. All pigs from the same litter must have the same markings in this ear.
 - b. Individual Pig Marks – The pig's left ear is used to show an individual pig number in the litter, such as #5. Each pig in the litter will have a different set of notches in this ear. The exact location of the notches determines the pig number as shown.



Proper Procedures for Tattooing

1. Place ink on the tongs of the tattoo hammer and load the hammer with numbers or letter.
2. Strike the animal, causing the prongs to penetrate the hide to leave a permanent identification.
3. Leave excess ink to wear off. Trying to clean excess ink may result in lightening the tattoo.

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TIMING THE REPRODUCTIVE CYCLE

To become an effective manager of a swine herd, you need to be very familiar with the overall swine production cycle. It's also important to know what the herd needs from its manager in each part of the cycle.

Your Challenge is to put the appropriate letters of the production periods on the lines beside the management practices. You might have more than one answer on some items. Then give a presentation to your group or family on the steps of the production cycle.

Production Periods

- A. Prior to breeding period
- B. Breeding period
- C. Gestation period
- D. Preparation for farrowing period
- E. Farrowing period
- F. Lactation period
- G. Weaning-nursery period
- H. Growing period
- I. Finishing period

- I 1. Weigh some pigs to see if they have reached optimum market weight.
- I 2. Feed free choice of 13 – 15% protein high-energy ration.
- E 3. Process litters by dipping navels, marking ears, clipping needle teeth, shortening tails and giving iron shots.
- A 4. Select the best replacement gilts, considering soundness, underlines and performance records.
- D 5. Clean facility with high pressure, hot water washer and disinfect.
- B 6. Observe estrus (heat). Record the date.
- C 7. This period is normally about 114 days,
- A 8. Pen boars close to gilts to stimulate cycling.
- C 9. Feed four pounds per head daily. If body condition is *thin*, however, feed five to six pounds daily the last two to three weeks.
- C 10. Spray for mange 40 days before the end of this period.
- EI 11. Even up litter size with transfers done by three days of age.
- A 12. Check to be certain gilts are seven to eight months old.
- D 13. Sows and gilts should be washed thoroughly and placed in a farrowing pen or stall 112 days after breeding.
- G 14. Provide a high quality, 21 percent protein starter ration, fresh water and a dry, warm environment.
- G 15. Remove pigs from sow at about two to four weeks of age and return sows to breeding pen.
- A 16. Follow good health practices: vaccinate for erysipelas and leptospirosis; test for brucellosis if not a brucellosis-free herd; spray for mange; deworm.
- E 17. Observe for “nesting” signs, initiation of milk flow and vaginal drainage.
- G 18. Vaccinate for erysipelas at six to eight weeks of age and deworm.
- H 19. Sort into groups of 20 – 30 head. Provide at least four to five square feet of floor space and approximately one feeder whole per four to five pigs.

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Feed is the biggest cost when raising pigs. Many different feed ingredients can be feed to pigs. The question is not if they will eat it, but how efficiently they will grow. They must consume the proper amount of energy, protein, minerals, vitamins, and water each day.

SWINE RATIONS

A 150-pound pig will eat approximately six pounds of feed if fed free choice. If the requirement for protein is 0.9 pounds per day, will a pig eating your ration meet its daily requirements?

Typical Ration

The kind of feed used for energy and protein will vary with what is available at the best price. Here is a typical ration for finishing market hogs to 240 pounds in the part of the country where corn and soybeans are grown.

	%
Corn	83.1
Soybean meal	14.5
Ground Limestone	0.8
Dicalcium Phosphate	1.1
Salt	0.35
Vitamin/trace mineral mix	<u>0.15</u>
	100%

Analysis of Ration

Protein	13.40%
Calcium	0.60
Phosphorus	0.50

PIG TALK 2

Test Your Nutrition Knowledge

WORDS

Macro minerals, salt, building blocks, water, lysine, energy, vitamins, protein, minerals, lactose

Complete these sentences. Check the words above if you need help.

1. Amino acids are called the **building blocks** of protein.
2. Carbohydrates and fats are the principle providers of dietary **energy**.
3. An animal can live much longer without feed that it can without **water**.
4. Soybean meal is the most common **protein** feedstuff.
5. **Vitamins** are nutrients needed in small amounts to help the body use other nutrients.
6. **Macro-minerals** help build strong bones.
7. The first limiting amino acid in a swine diet is **lysine**.
8. Calcium and phosphorus are **minerals** .
9. The carbohydrate in sow's milk is **lactose**.
10. Too much of **salt** is bad for human health, but the pig requires it in its diet to grow well.

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Pigs are susceptible to several diseases. Erysipelas, parvovirus, rhinitis and viral pig pneumonia are four of the most important of these diseases. Baby pigs, from birth to weaning, are prime targets for various forms of scours. Breeding stock are most seriously affected by reproductive diseases that may cause infertility, abortion, or small, weak litters. Your challenge is

to have a plan to prevent these diseases or know how to treat them if your pigs get any of them. In this activity, you will make a health care plan for your hogs.

Hogs require vaccination to prevent certain diseases. Write in the letters of the vaccinations, parasite spray and/or for the pigs or gilts. Check and discuss you choices with your helper.

BABY PIGS		
Time/Age	Vaccination /Parasite Control	Management / Breeding
1 – 2 days	a	j, k, l
7 days	b, d	
2 weeks	a	i
4 weeks	b, d, e	g
Weaning + 10 days	f	
Weaning + 20 days	f	
Weaning + 30 days	c, f	
4 months		h
Choices		
1. Vaccination/ Parasite Control	2. Management/Breeding	
a. iron injection (1 st and 2 nd weeks)	g. wean	
b. rhinitis vaccinations (1 st and 2 nd weeks)	h. withdraw all feed medication	
c. deworm	i. castrate	
d. Pasturella vaccination (1 st and 2 nd weeks)	j. clip needle teeth	
e. erysipelas	k. dock tails	
f. spray for lice and mange (1 st , 2 nd and 3 rd weeks)	l. notch ears	

GILTS		
Time/Age	Vaccination /Parasite Control	Management / Breeding
6 months	d, e, f	k, l
7 months	f, g, h	
8 months		m
9 months		
10 months		j

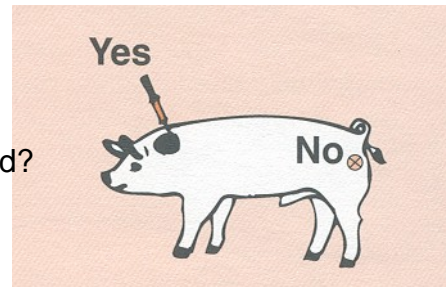
6 weeks before farrowing	a	
4 weeks before farrowing	b, c, e, i	
2 weeks before farrowing	a, b, c, d, e, i	
1 week before farrowing		n, o, q
4 weeks after farrow	e, g, h	p
Choices		

1. Vaccination/Parasite Control	2. Management/Breeding
a. Clostridium (1 st and 2 nd weeks)	j. pregnancy check (35-60 days after breeding)
b. rhinitis (1 st and 2 nd week)	k. select gilts
c. E. coli bacterium (1 st and 2 nd week)	l. reduce feed intake to six pounds/day until bred
d. deworm	m. breed on 2 nd or 3 rd heat periods
e. erysipelas	n. include bulk in ration
f. spray for lice and mange (1 st and 4 th weeks)	o. wash sow thoroughly before she enters the farrowing house.
g. Leptospirosis	p. wean pigs
h. Erysipelas	q. record litter and sow information
i. TGE	

PROPER INJECTION OF ANIMAL DRUGS

- Properly restrain the animals before giving an injection.
- Give injections according to label instruction. Subcutaneous (SQ) means under the skin; intramuscular (IM) means in the muscles; intravenous (IV) means into the blood.
- When the label directions permit give the injections under the skin so 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.
- Do not transfer needles back and forth from animals to bottle, because you may carry bacteria from the animal's skin back into the bottle.

1. Describe what is meant by this graphic.



Why should injections into the rump and ham be avoided?

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PACKING THE SHOW BOX

It's fun planning for the fair. You will enjoy gathering the supplies and equipment needed to successfully exhibit your pig(s). You will also practice visualizing each step along the way.

Supplies and Equipment

- Show schedule
- Health papers
- Bedding
- Feed pan
- Water hose
- Brush
- Feed
- Clippers
- Mild soap
- Spray bottle
- Rags
- Hand-held hurdle (2 ½ to 3 feet)
- Show sheen
- Baby powder (for white hogs)
- PVC waterer (6-8 inches in diameter and 4 feet tall)
- Hog bat or 3 feet of 2 inch PVC pipe

SWINE DISEASE

1. PRRS (Porcine Reproductive and Respiratory Syndrome)
2. E. coli (baby pig scours)
3. Baby pig anemia (iron deficiency)
4. Parvovirus
5. Lactation failure
6. Pseudorabies (Aujeszky's disease)
7. Internal parasite
8. Swine dysentery
9. TGE (Transmissible Gastroenteritis)
10. Atrophic rhinitis
11. Brucellosis
12. Leptospirosis
13. External parasites

- 4 A. Poor conception rate, reabsorbed litter, mummies and small litters
- 12 B. Sows abort mid-pregnancy or have weak litters and nursing pigs die suddenly
- 13 C. Itching, rough skin, decreased feed intake
- 9 D. 1-8 day-old pigs, watery diarrhea, high death rate, vomiting
- 2 E. Watery; yellowish diarrhea, wet tail
- 3 F. No energy, sleepy, rough hair coat, wrinkled skin, hard breathing, poor growth.
- 11 G. Infertility, abortions 15 days after breeding.
- 7 H. Worms in feces, decreased food, intake, slow growth.
- 5 I. Infection of the mammary gland, udder hard and hot to touch, off feed.
- 10 J. Sneezing, tearing, of eyes, snorting, coughing, twisting of nose (crooked)
- 8 K. Diarrhea containing blood and mucus, off feed, death in pigs less than three weeks.
- 1 L. Reproductive disease causing abortions, mummies and weak pigs
- 6 M. Reduced gain, poor growth and reproductive failures in the breeding herd.

PORK INDUSTRY TARGETS FOR THE 21ST CENTURY

- 195 lb. carcass
- Desirable muscle quality
- Minimum loin muscle of 6.5 sq. in. with appropriate
 - Color
 - Water holding capacity
 - Ultimate pH
- Intramuscular fat level greater than or equal to 2.9 percent
- High health production system

- Produced by a producer who has completed NPPC's Environmental Assurance Program and who is certified at Level III of the Pork Quality Assurance (PQA) program
- Free of the stress gene
- Result of a terminal crossbreeding program
- From a maternal line capable of weaning 25 pigs per year
- Marketed at 156 days of age
- Performance on a corn/soy equivalent diet from 60 to 260 pounds of weight
 - Live weight feed efficiency of 2.4
 - Fat-free lean grain efficiency of 6.4
 - Fat-free lean grain of .78 lbs. per day
 - Standard Reference back fat of .8
 - Fat-free Lean Index of 49.8

Facts

COOKING PORK

The most important tip for cooking pork is not to overdo it. A long time ago, people believed pork had to be served well done for it to be safe, often making the pork taste tough and leathery. Because of today's improved production methods, most pork cuts should be served at medium doneness for a more juicy, flavorful taste. That's about 160 degrees F on a meat thermometer.

Trichinosis is virtually non-existent in the U.S. because of controlled production conditions, but the organism is destroyed well below the 160 degrees F. cooking temperature even if it was present.

So what should pork look like when it's done? Boneless pieces may still have a faint blush of pink in the center. Cuts with the bone will appear slightly pinker near the bone, but are ready to serve when cooked to 160 degrees. The pork should be juicy, and the juices should run clear.

COOKING METHODS

Wet or Dry

The two basic methods for cooking pork are using either dry heat or moist heat. Dry meat methods include roasting, broiling, pan-broiling and sautéing. Moist heat methods include braising and stewing.

Braising

This method is used for pork chops and cuts such as pork cubes and blade or arm steaks.

1. Season meat if desired.
2. In a large, heavy skillet with lid, brown meat on all sides in a small amount of oil; remove excess drippings from pan.
3. Add a small amount of liquid, cover pan tightly.
4. Simmer over low heat on the stove or in a low to moderate (275-300 degrees F. oven).

Grilling/Broiling

Broiling is used for chops cut at least 1-inch thick, steaks and ground pork patties.

1. Place the pork on a pre-heated broiler pan or grill rack so it is 3-5 inches from the heat source.
2. Grill/broil until the pork is brown on one side; turn and grill/broil the other side until brown.
3. Season as desired; serve immediately.

Pan-broiling

This is used for small pork cuts, 1-inch thick or less. It's convenient for cooking a few chops or steaks and is also good for slices of Canadian-style bacon and ground pork patties.

1. Pre-heat heavy skillet over medium-high heat.
2. Place meat in hot skillet (if pork is extremely lean, brush pan with a little oil to prevent sticking.) Do not cover.
3. Cook over medium-high heat, turning occasionally, until evenly browned on both sides. Remove any fat and drippings as they accumulate.
4. Season as desired and serve immediately.

Roasting

This dry heat method is excellent for cooking large pork cuts.

1. Preheat oven to 325 to 350 degrees F.
2. Trim much of the exterior fat from the roast; if roast has no fat cover, rub the surface with 1-2 teaspoons of oil. Season roast with herbs and other seasonings if desired.
3. Place roast on a rack in a shallow roasting pan.
4. Do not cover; place in oven and roast to internal temperature of 155 to 160 degrees F. for medium doneness. Remove roast from oven. Allow it to "rest" for 10-15 minutes before slicing. This resting allows the juices to redistribute.

Stewing

This is a good method for cooking cuts such as cubes, smoked shoulder roll, pork hocks and neck bones as well as less tender cuts like shoulder.

1. Coat meat with lightly seasoned flour if desired.
2. In a large, heavy pan with lid, brown meat on all sides in a small amount of oil; remove excess drippings from pan.
3. Cover meat with desired liquid(s).
4. Cover pan and simmer over low heat on stove or in a low to moderate (275--300 degrees F.) oven for 1-3 hours until tender.
5. If adding vegetables, add toward end of cooking time, during the last 20-45 minutes.

Stir Frying/Sautéing

These two methods are very similar and are good for thin pork cuts or pork that has been ground or cut into cubes or thin strips.

1. Heat a small amount of oil in a large heavy skillet on medium-high heat.
2. Place pork in skillet; do not cover.
3. Cook uncovered, turning occasionally. For stir-frying, cook over high heat turning constantly.
4. Season as desired and serve immediately.

Resources

PORK PRODUCTION OVERVIEW

Pork production combines many inputs into a complex process of converting feedgrains, high-protein feed ingredients, vitamins, minerals and water into live hogs and eventually pork and pork products. This ultimate goal is attained by three basic production systems:

Farrow-to-finish farms that involve all stages of production from breeding through finishing to market weights of about 225 pounds.

Farrowing-nursery farms which sell 40-60 pound feeder pigs to grow finish farms.

Farrow-to-wean farms which sell 10-15 pound weaned pigs to nursery-grow-finish farms.

SWINE FEEDING

Feed is the major production input to the pork production process. In fact, feed usually accounts for over 65 percent of all production expenses. The average whole-herd feed conversion ratio (pounds of feed required per pound of live weight produced) for the U.S. pork industry is about 3.6 to 3.8 and is improving (getting lower) steadily. This figure includes the feed fed to the boars and sows. For comparison, consider the beef cattle take 7-10 pounds of feed to produce a pound of live weight and broiler chickens require about 2 pounds of feed per pound of live weight produced. The best U.S. herds have whole-herd feed conversion ratios under 3.0.

A variety of feed ingredients are used in proper proportions to produce "balanced" diets for pigs at each stage of their lives. Corn, barley, milo (grain sorghum), oats and sometimes wheat are used to provide dietary energy in the form of carbohydrates and fat. Oilseed meals (mainly soybean meal) are the major source of protein, the building blocks of muscle and other organs. Vitamins and minerals such as calcium and phosphorous are also included in balanced diets. Young pigs usually are fed a diet containing 20-22 percent crude protein. Diets are changed when pigs reach pre-determined weights in order to balance the amounts of nutrients which the pigs consumer with what they actually need. This balancing improves growth and performance and reduces the amount of nutrients excreted. Crude protein levels usually drop by increments of 2 percent until pigs are consuming a 13-15 percent

crude protein diet at finishing. Concentrations of other nutrients are changed in a similar fashion.

SWINE GENETICS AND BREEDING

Today's pigs are bred and fed to be leaner than the pig of yesteryear. Compared to the pig of 1950's, today's model has slimmed down considerably with 50 percent less fat. Around World War II hogs averaged 2.86 inches of backfat compared with less than 0.9 inches no.

Consumers, and consequently packers, prefer lean port. Producers are raising leaner, heavier-muscled pigs to satisfy these demands. This leaner pork is the result of new technology in hog production and superior genetics. Pork producers utilize purebred seedstock of nine major swine breeds Yorkshire (or Large White), Duroc, Hampshire, Landrace, Berkshire, Spotted, Chester White, Poland China and Pietrain or synthetic lines derived from these breeds by breeding companies such as PIC, Farmers Hybrid, DEKALB Swine Breeder, Newsham Hybrids, Danbred USA, Cotswold USA, Genetipork and Babcock Swine.

Virtually all market pigs are produced by crossing purebred breeds or synthetic lines to take advantage of **heterosis** or **hybrid vigor**. Heterosis is a biological phenomenon in which the offspring of a mating of two separate breeds or lines performs better than the average of their parents. Crossbred offspring such as Symbol II grow faster, produce more pigs per litter, have lower mortality rates and convert feed to meat more efficiently.

SWINE BREEDING SYSTEMS

Gilt lines used in modern **terminal breeding systems** involve mainly the white breeds (Yorkshire, Landrace and Chester White) which are generally superior in reproductive traits such as litter size, milk production and docile temperament. Most terminal sire lines use the colored breeds which are generally more durable (i.e. can withstand stressful conditions better) and are leaner and heavier muscled.

Identifying superior boars has become easier with the use of **Expected Progeny Differences** (EPD's) for each trait on each boar. An EPD is the expected amount by which a given boar's offspring will differ from the average of all

animals in the population for a certain trait. So, the larger the EPD, the more superior the boar for the trait.

SWINE PRODUCTION SYSTEMS

Whether pigs are raised in pastures or in totally enclosed barns, systems approaches are beginning to dominate pork production. Repeatable methods and specialization characterize the modern pork producer regardless of the type of facilities he or she uses. The choice of facility type is mainly a balancing of capital investment, labor requirement and management expertise. Animal and worker welfare are primary concerns to producer, regardless of the type of facilities chosen. The key to good swine care rests more on the producer's ability to properly manage housing than it does on the specific type of housing provided.

Controlled-environment buildings require much higher investment but lower labor per unit of output. These facilities make handling hogs easier, provide for more direct observation of animals, allow greater control of the production process, protect both animals and workers from the heat, cold, rain and snow and usually result in faster growth to market weight and better feed efficiency. Controlled-environment facilities take little land and thus leave more available for grain production.

Pasture or **outdoor systems** involve more acres of land and more labor per unit of output. They require generally lower capital investment, especially when marginal land can be used, but usually give lower productivity in terms of output per unit of land or labor or feed.

Regardless of the type of facilities used, the objective is the same: To provide the proper environment to maximize the welfare and productivity of both animal and worker.

SWINE FACILITIES AND AI

The design of breeding facilities depends largely upon the type of mating system used.

Pen mating (where one or more boars are placed with a group of sows) is frequently used in pasture systems. This approach requires little labor but provides little information about when or even if a sow is actually bred.

Hand mating predominates in controlled-environment facilities and can be used in outdoor facilities. This method involves placing one boar with one sow and observing to make sure that a mating occurs. This takes more labor but results in

very accurate information upon which to base future management decisions.

Artificial insemination (AI) is becoming more and more common on farms of all sizes. AI allows improved genetic material to be introduced faster and minimizes the risk of disease transmission. AI's greatest value is in controlled-environment facilities where breeding efficiency is a major factor affecting profitability. AI involves no boar on site and requires the highest level of management expertise and labor of all the alternative mating systems.

FARROWING AND FACILITIES

Farrowing facilities range from pasture systems with small, individual sow huts to enclosed farrowing houses which are part of either partial or total controlled-environment operations. Farrowing houses contain individual farrowing pens or stalls designed to provide a comfortable place for the sow to farrow and to protect both newborn pigs and workers. These facilities minimize newborn pigs being crushed by sows (which sometimes accidentally lay on them) and prevent injury to the pigs or workers if the sow's protective instincts cause aggressive behavior. Farrowing buildings are thoroughly cleaned before sows enter and farrowing pastures are rotated in order to control disease.

Farrowings average 9-10 pigs per litter (with a practical range of 6 to 13). The number of pigs weaned averaged about 8.5 pigs per litter in 1995.

Baby pigs are carefully observed to keep mortality to a minimum and insure rapid early growth and development. The highest death losses of the entire pork production process occur within three or four days of birth and these losses are costly. It may cost a producer \$380-\$400 a year to keep a sow. If she raises 16 pigs during that year, the cost per pig is \$23-\$25. However, if she raises 20 pigs per, the cost per pig falls to \$19-\$20.

With this in mind, a producer follows many steps to insure the survival of each pig. Newborn piglets need special attention because they are born with little energy and have little ability to regulate their own body temperature and can easily be injured by the sow. After birth, several procedures may be performed on piglets to improve their survival chances and/or to prevent future problems. These procedures include disinfecting navels to prevent infections, clipping needle teeth to prevent injuries to other pigs or the sow, giving supplemental iron to improve the

blood's oxygen carrying capacity, docking tails to prevent future injury and castrating boars to prevent off-flavored meat.

SWINE GROWING FACILITIES

Pigs are generally weaned at 3-4 weeks of age when they weigh 10-15 pounds.

At this time, they are moved to either a nursery, a grower, or, in a new development in pork production technology, directly to a finishing building modified to meet the needs of young pigs. Most housing for newly-weaned pigs has totally slotted floors which allow the pigs' wastes to fall through into a holding pit or gutter. This keeps the floors drier and cleaner, and makes it easier to provide the correct environment to keep pigs comfortable and productive. The slotted floors are made of easily cleaned, easily maintained and comfortable materials.

Growing and Finishing

Growing and finishing were once thought of as distinct phrases in the pork production process. The difference in terminology dates back to the time when fat was more valuable and "finishing pigs" meant feeding them to a sufficient degree of fatness. In fact, separate pens and even separate buildings were used for growing pigs (up to 120 pounds) and finishing pigs (120 pounds to market weight).

Today, pigs are seldom moved to 120 pounds and the "grow-finish" phase is actually comprised of two to nine phases in which unique diets are fed which closely match the pigs' nutritional requirements. In addition, barrows and gilts are frequently fed separately during the grow-finish phase because their nutritional requirements are significantly different. "Split-sex" feeding results in leaner, meatier animals from fewer pounds of feed.

SWINE MARKETING

When pigs reach approximately 250 pounds, producers sell them on either a live-weight basis at terminal markets or auctions, or on a live-weight or carcass-weight basis direct to packers. In addition, some producers use livestock

exchanges or producer-owned marketing networks for price negotiation and transportation. Over seventy percent of the pigs produced in the U.S. are now sold on "carcass merit" pricing systems in which a portion of the price is determined by certain characteristics of the animal. Current systems pay premiums for pigs with low amounts of fat and high amounts of muscle. Advanced measurement systems which soon will allow premiums to be paid for carcass with better flavored, juicier and more tender meat are being researched by producers and processors.

The marketing chain for pigs is made up of a wide variety of businesses that include packers, processors, purveyors, retailers and foodservice operators. All play an important role in adding value to pigs by producing pork products that meet the needs and desires of consumers worldwide.

PIG PRICES

No matter what marketing system is used, price is generally determined by supply and demand. There are no government subsidies to support low prices. If supplies are low and/or demand is high, prices will be high. If supplies are high and/or demand is low, prices will be low.

Pig prices vary cyclically and seasonally. Cyclical variation is caused by the time lags inherent to biological production. When prices are high, more sows are bred and more pigs are produced. But these pigs will not reach market for about a year after they are conceived. When they do, supplies increase and prices fall thus causing a price cycle.

Producers can manage the prices they receive by **hedging** hogs with **futures** or **options contracts** or by **forward contracting** hogs with a packer. Futures and options are traded on the Chicago Mercantile Exchange (Lean Hogs and Pork Bellies contracts) and the Mid-American Exchange (Live Hogs contract through 1997 and Lean Hogs contract beginning in February 1998).

Pig Talk 2

A

Abortion - Premature expulsion of the fetus from the uterus.

Afterbirth - Collective term for membranes, placenta and other tissues that protected and nourished the pigs while in the uterus and which are expelled immediately after the pig is born.

Anemia - A deficiency of hemoglobin, iron or red blood cells.

Animal abuse - Any act or neglect that causes or permits unnecessary pain, suffering or death of an animal.

Antibiotic - A medication, such as streptomycin or penicillin, used to destroy or inhibit the growth of microorganisms.

Antiseptic - Substances or procedures that prevent the growth and reproduction of microorganisms.

Average daily gain - Amount of weight gained per day per pig during a defined period of time.

B

Bacteria - Large group of widely distributed, one-celled microorganisms. They may appear singly or in colonies as spherical, rod-shaped or spiral, tread-like cells.

Breeding herd - Term that includes all replacement boars, service boars, replacement gilts and sows present on a farm.

C

Cannibalism - Behavior pattern in which one pig bites or chews some part of another.

Castrate - Removal of the testes from the male animal.

Confinement - Holding swine in a restricted area.

Consumer - Person who buys and uses a product.

Culling - Process of eliminating unwanted or poor-quality animals from the breeding herd.

D

Disease - Condition, usually caused by an infectious organism, that prevents the body from functioning normally, thus reducing growth, reproduction and other production.

Dressing percent - Carcass weight of a meat animal divided by its live weight.

E

Egg - Reproductive cell of the female; ovum.

Embryo - Developing animal in the *very* early stages following the joining of the egg and the sperm.

Environmentally controlled housing - Confinement of swine during their entire life.

Excretion - Elimination of animal waste products from the body.

F

Farrowing crate - Stall in which the sow is confined during farrowing and lactation periods to prevent her from turning around.

Farrowing interval - Number of days between two consecutive farrowings for an individual sow.

Feed conversion - Amount of feed consumed per pig to produce one pound of body weight gain.

Feeding procedures -

Ad libitum - Pigs have free access to feed at all times; most common for feeding and growing pigs and lactating sows.

Limit or restricted - Daily feed intake is intentionally limited to below voluntary intake levels; most common for feeding sows and gilts during gestation.

Hand feeding - Feed is manually delivered to pigs at each meal; common in limited feeding situations such as gestation feeding of sows.

Self-feeding - Pigs are allowed to get feed themselves from a device (self-feeder) that holds sufficient feed for several meals. *Floor feeding* - Feed is placed on the floor for pigs to consume; common in limit and interval feeding situations.

Fertility - Ability to produce sperm, ova or offspring.

Fertilization - Process in which sperm and ovum fuse to form a zygote.

Fever - Increase in body temperature that occurs with some diseases and infection; normal body temperature in swine is 101-102 degrees F

G

Gestation stall - Individual stall in which a pregnant sow is held during gestation.

H

Heat period - Estrus; period during which female is sexually receptive.

Hormone - General name for secretions of the endocrine gland.

Host - Animal upon which another animal lives as a parasite.

Pig Talk 2

I

Immunity - Resistance to disease, usually created through vaccination.

Inbreeding - Type of mating system where the animals produced are more closely related than the average of the population.

Infection - Abnormal condition, such as illness or abscess (infected wound), caused by disease-producing microorganisms that impair health and performance.

L

Line breeding - Type of mating system used to concentrate the genes of a particular ancestor into pedigrees of the offspring.

Litter weight - Total birth weight of the live pigs in a litter.

M

Mammary system - Udder, teats, glands and tissues associated with milk production in the sow.

Mastitis - Infection and inflammation of the udder and mammary glands that impairs normal milk production; reduced milk causes poor performance in pigs nursing the sow.

Mummified pigs - Pigs born discolored and shriveled or decomposed; they died sometime during gestation.

N

Natural immunity - Natural or inborn resistance of host to disease; generally considered to be transferred genetically.

Necropsy - Examination that involves dissecting a dead animal to learn the cause of its death.

Nursery - Area where pigs are moved following weaning and kept until approximately 40-50 pounds.

P

Partial confinement - Confinement of swine during a portion of their lifetime.

Pathogen - Agent, (such as bacteria, protozoa, nematode, etc.) that may produce disease or illness.

Pedigree - Listing of the names of an animal's ancestors.

Placenta - Structure attaching the navel (umbilical cord) of an unborn pig to the lining of the sow's uterus to provide nutrients and other material necessary to allow the pig to grow.

Postnatal - Following birth.

Premix - Blend of a small amount of a dietary ingredient with a suitable carrier: for example, a small amount of feed additive in commeal.

Progeny - Offspring of an animal.

Progeny testing - Evaluating genotype of an individual by studying the performance of its offspring.

Q

Quarantine - Separation of sick animals from healthy animals; new animals are also quarantined until it is sure they are healthy and can be mixed with other animals in the herd. For some diseases, an entire herd is quarantined to prevent movement of sick animals to other herds.

R

Replacement gilt - Gilt of superior quality selected to become part of the breeding herd.

S

Slatted floor - Floor having any kind of opening through which urine or manure may fall.

Stillborn pigs - Fully-developed pigs found dead behind the sow, or in the afterbirth, after farrowing.

Supplement - A feed or feed additive given to animals to provide nutrients such as protein, minerals or vitamins that were deficient in the basic ration.

T

Tail biting - Specific form of cannibalism in pigs.

Total pigs born - All pigs born in a litter, including those born live, stillborn or mummified.

Type - Refers to structure or conformation of an animal, or the type of product it produces; examples are meat-type hog and wool-type sheep.

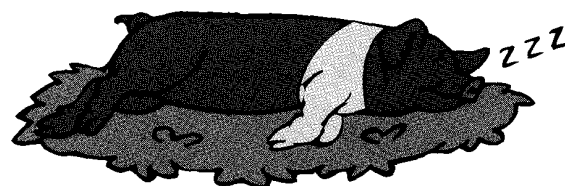
U

Uterus - Part of the reproductive tract in female mammals where the fetus develops during pregnancy.

V

Vaccination - Medicine or antigen given with a syringe and a needle.

Vaccine - Medication that contains live, modified or dead organisms or their products; it's injected into animals to protect them from disease caused by that particular organism.



SWINE 3 – Entering the Arena

Page 5

FEEDING EFFICIENCY

1. Nursing Pig	1.0:1
2. Weaning Pig	1.5:1
3. Growing Pig	3.5:1
4. Finishing Pig	2.0:1
5. Sow	7.0:1

Each 0.1 change in feed efficiency is worth about \$1.50 per pig. (ex.: 3.0 to 2.9)

Feed Efficiency = Total Feed / Total Gain

Cost per pound of gain = Total Cost of Feed/Total Gain

Page 7

EPDS - EXPECTED PROGENY DIFFERENCE

Expected Progeny Difference is one half the estimated breeding value (EBV) of an animal. The EPD for an individual is the sum of the EPD of both parents.

Page 8 & 9

BREEDING SYSTEMS

- White breeds of swine are known as “material” breeds because they are noted for good litter size, milking ability, and reproductive traits. Colored breeds (Duroc, Hampshires, Spots, Polands, and Burkschires) are known as “sire” breeds. They are strong in growth rate and carcass traits.
- Heterosis, or hybrid vigor, is the degree to which crossbred hogs deviate from the performance of average hogs of the parental breeds.
- Crossbreeding can improve overall herd performance by as much as 20 percent.
- The offspring from cross two purebreds are called “F1 crosses” or first generation crosses.
- Rotational System involves two or more breeds, can maintain 86% heterosis in offspring and in sows and is easy to manage. Offspring from each generation are used for market production as well as replacement gilts.
 - *Rota-terminal System* involves selecting the top females and using them in a rotational cross that produces replacement gilts. The replacement gilts are then mated to terminal boars for market production. This system allows for 86% heterosis in sows and 100% heterosis in market hogs.
 - *Terminal System*, a crossbred gilt is mated to a terminal purebred boar and all animals are sent to market. Both the sows and market animals can maintain 100% heterosis. This system allows for the highest quality final product.

PERFORMANCE TERMS FOR SWINE

Expected Progeny Difference (EPD) – Best estimated of a sire or dam's genetic worth, given information available. It is the actual difference in performance a producer can expect from a future progeny of a sire or dam relative to the future progeny of an average parent. Positive EPDs are more desirable for number born alive and 21-day litter weight. Negative EPDs are more desirable for days to 250 pounds and backfat.

Number Boar Alive EPD (NBA) – Predicts the number born alive for each individual's progeny relative to an average pig. A sow with an EPD of +0.5 would be expected to produce daughters that would farrow with 0.5 more pigs than gilts from a sow whose EPD for NBA is 0.

21-Day Litter Weight EPD (LWT) – Predicts the 21-day litter weight for an animal's progeny. A sow with an EPD of +3.4 would be expected to generate daughters which would produce litters 3.4 pounds heavier at 21 days than gilts from a sow whose EPD for LWT is 0.

Sow Productivity Index (SPI) – Index for reproductive traits that combines number born alive and 21-day litter weight. Ancestral data and a sow's lifetime data are included in SPI.

Days to 250 pound EPD (DAYS) – Predicts performance of an animal's offspring. A boar with an EPD of -3.0 would be expected to produce progeny that would reach 250 pounds 3 days faster than progeny from a boar whose EPD for DAYS is 0.

Backfat EPD (BF) – Predicts offspring's backfat. A boar with an EPD of -0.04 would be expected to sire pigs 0.04 inches leaner than the progeny from a boar whose EPD for BP is 0.

Maternal Line Index (MLI) – Places greater emphasis on reproductive traits. Selection on this index is appropriate when the majority of pigs are sold either as replacement gilts or to a gilt producing herd.

Terminal Sire Index (TSI) – Combines growth and backfat only and is appropriate to use to select boars for use as terminal sires in a crossbreeding program.

Swine Testing and Genetic Evaluation System (STAGES) – Genetic evaluation system provided to members of Duroc, Hampshire, Landrace and Yorkshire breed association of the National Swine Registry. STAGES utilizes performance records for growth, backfat, litter size and litter weight to predict the genetic value of each pig and its parents.

WHAT HAPPENS IN THE PRODUCTION CYCLE

See page 19 – in Entering the Arena literature

Pig Talk 3

A

Acute illness - An illness characterized by a sudden onset and short duration.

All in, all out system - Management system in which a facility is filled and emptied of hogs all at once.

Animal rights - Belief that all sentient beings (those that have the ability to suffer) are born with inherent rights that are the same as human rights.

Animal welfare - Responsible stewardship of animals involving human care, prevention of cruelty and minimization of animal suffering.

B

Brucellosis - Bacterial disease of domestic animals caused by a bacillus that results in abortions; also called "Bang's disease".

C

Carrier - Animal or person who carries disease organisms without showing symptoms of the disease.

Cellular immunity - Acquired immunity in which immune cells, rather than antibodies, predominate; protection is stimulated by contact or close proximity with an antigen and is not the same as an antibody.

Colostrum - Rich milk produced by the sow during the first few hours after farrowing. Colostrum has disease-fighting antibodies and extra nutrition for the newborn pigs.

Conception - Union of ovum and sperm into a zygote and its implantation into the wall of the womb to begin pregnancy.

Contagious - Characteristic of a disease that permits it to be readily transmitted from one animal to another.

Corpus luteum - Structure that forms on the ovary following

ovulation and secretes progesterone.

Cryptorchid - Male animal with one or both testis remaining in the body cavity because it/they did not descend into the scrotum during embryonic development. Cyst - Pouch or sac filled with fluid or semisolid material.

D

Date of service - First mating date (or for group breeding, the first potential mating date) within a service period; for group breeding programs, it is the first day the boar was placed with the group.

Digestibility - Percentage of a nutrient digested and absorbed from the intestines before being excreted. Dystocia - Abnormal or difficult labor and/or birth.

E

Ejaculation - Discharge of semen from the reproductive tract of the male. Endocrine - Glands without ducts that release their secretions, called hormones, directly into the blood. Enzyme - Protein formed in plant or animal cells that acts as an organic carrier in starting or speeding up specific chemical reactions.

Estrogen - Hormone or group of hormones produced by the developing ovarian follicle; stimulates female sex drive and controls development of female sex characteristics.

Estrous cycle - Reproductive cycle in non-primates; measured from the beginning of one estrus (or heat period) to the beginning of the next.

Estrus - Period during the estrous cycle when a female is sexually receptive to the male and her ovum (egg) is ready to be fertilized. Experimentation - Use of animals for physiological or pathological investigations.

F

Fetus - An unborn pig growing in the uterus, also called the womb, before birth.

G

Gene - Smallest unit of inheritance found as part of a chromosome.

Genetics - Science that studies heredity, variation in organisms and the function and transmission of genes. Genital - Refers to reproductive organs.

Genotype - Genetic make-up of an animal.

Gestation - Period in which the sow is pregnant; this period lasts 114 days in swine.

Goiter - Enlargement of the thyroid gland usually brought on by an iodine deficiency.

Gonad - Organ in male or female animals that produces sperm or ovum.

H

Heritability - Ability of an animal's physical characteristics (growth rate, backfat, hairs, etc.) to transmit to its offspring.

Heterosis - Amount of superiority observed or measured in crossbred animals compared to the average of their purebred parents; hybrid vigor.

I

Import quotas - Maximum legal imports permitted for various pork products.

Infertile - Not able to reproduce offspring.

Insemination - Depositing semen into the female reproductive tract. Inter-herd effects - Environmental effects that are different from herd to herd.

Intra-herd effects - Environmental effects that affect all animals in a herd in much the same manner in the same time period.

Pig Talk 3

L

Lactation - In sows, the process of producing milk. Lactation period begins when the sow gives birth and ends when the pigs are weaned, usually at 3-5 weeks of age.

Least cost diet - Diet formulated to meet a pig's nutritional requirements using ingredients purchased at the lowest cost.

Loin eye area - Cross-sectional area of loin muscle cut between the 10th and 11th ribs.

M

Mating - Depositing sperm from the boar into the uterus of the female in order to produce a litter of pigs. *Natural mating* - Boar and sow or gilt are brought together for breeding. *Artificial insemination* - Semen is collected from a boar and stored for later use. When the sow is in heat, a plastic tube is used to deposit the semen into the sow's uterus. The boar is not present at the time of mating.

Metabolism - Utilization of nutrients inside body cells; usually involves many chemical changes.

O

Ovary - Primary sex organ of the female that produces ova and female sex hormones.

Ovulation - Process of releasing eggs or ova from the ovarian follicle in the female.

Ovum - Female sex cell; egg.

Oxytocin - Hormone of the posterior pituitary gland that causes the release of milk from the mammary gland and aids in parturition.

P

Palatability - Degree to which a feed is liked or accepted by an animal. Parturition - Giving birth, farrowing. Phenotype - Appearance of an animal or one of its traits; the way an animal looks or behaves as

determined in part by the genotype.

Physiology - Study of the body and its organs, systems, tissues and cells.

Population - Group of animals considered genetically as a unit for purposes such as estimating gene frequencies, determining selection effects and systems of mating, and measuring genetic progress.

Post-weaning death losses - Pigs that die between weaning and market; may be further subdivided into nursery, growing/finishing, etc., using the appropriate method to calculate the percent death loss.

Pregnancy - Time during which the embryo (fetus) is developing inside the uterus of the female; gestation.

Pre-weaning death loss - Pigs that are born live but die before weaning. **Protein supplement** - Animal feed containing approximately 20 percent or more of protein.

Puberty - Age at which the gilt or boar becomes sexually active and capable of reproducing.

R

Recessive - Refers to a gene whose expression can be modified or covered up by another gene.

Retained placenta - Fetal membranes not expelled following parturition.

S

Secondary sex characteristics - Distinct body traits that characterize maleness or femaleness, such as beards on men and breasts on women. Semen - Fluid substance produced by the male reproductive system containing spermatozoa suspended in secretions of accessory sex gland fluids.

Service period - Time period during which one or more matings or breedings can take place.

Sex cells - Reproductive cells, ova in females and spermatozoa in males.

Sex chromosomes - Pair of chromosomes in animals that determines the sex of the offspring depending on which one is distributed; females have two of the same sex chromosomes (XX), while males have two different sex chromosomes (XY). Social order - Tendency of animals to behave in a social dominance order.

Sperm - Male sex cell; spermatozoa.

Stress - Abnormal or adverse conditions and factors to which an animal can adapt, resulting in physiological tension and possible disease; factors may be physical, chemical or psychological.

Syndicate - A group of breeders who have a common (usually financial) interest in an animal; frequently formed for purposes of getting the animal's offspring tested.

T

Tenth rib backfat - Backfat taken over the loin muscle at the tenth rib. Testis - Primary sex organ of the boar that produces sperm and male sex hormones.

Testosterone - A hormone produced by cells in the testis that stimulates male sex drive, masculine characteristics and development of the male reproductive tract as well as sperm cells.

Toxemia - Illness caused by poison secreted in plants or animals.

U

Ultrasonic - Technique for estimating certain aspects of body composition and for pregnancy detection.

Umbilical cord - Membranes connecting the naval of the fetus to the sow's uterus before birth. It carries nourishment to the fetus and transports waste away from the fetus.

Z

Zygote - Diploid cell formed from the union of the sperm cell with an ovum.

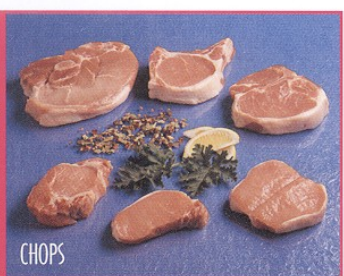
PURCHASING PORK

A Consumer Guide To Identifying Retail Pork Cuts.

Left: tenderloin
Right: Canadian-style bacon

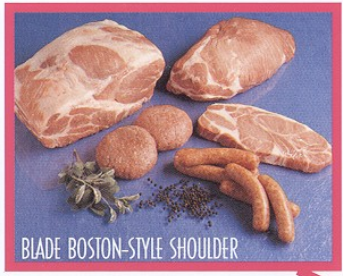


TENDERLOIN & CANADIAN-STYLE BACON



CHOPS

CHOPS
Upper row (l-r): sirloin chop, rib chop, loin chop.
Lower row (l-r): boneless rib end chop, boneless center loin chop, butterfly chop.



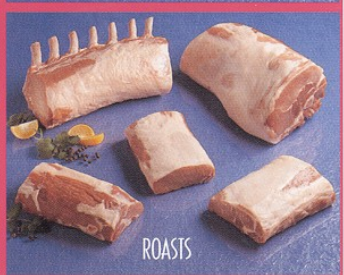
BLADE BOSTON-STYLE SHOULDER

BLADE BOSTON-STYLE SHOULDER
Upper row (l-r): bone-in blade roast, boneless blade roast.
Lower row (l-r): ground pork, sausage, blade steak.



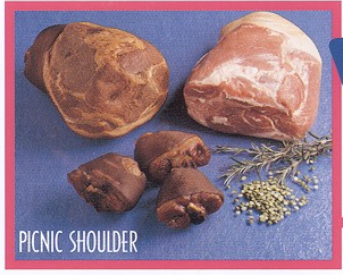
RIBS

RIBS Left: country-style ribs.
Right: back ribs.



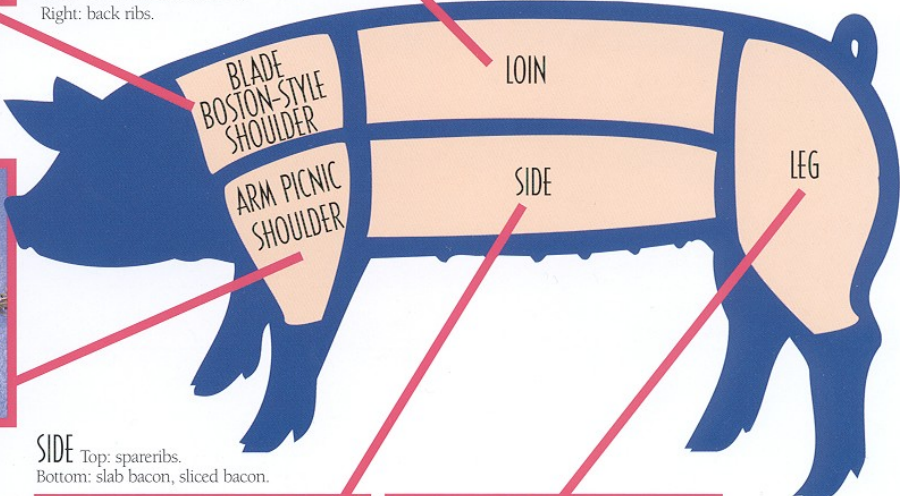
ROASTS

ROASTS
Upper row (l-r): center rib roast (Rack of Pork), bone-in sirloin roast.
Middle: boneless center loin roast.
Lower row (l-r): boneless rib end roast, boneless sirloin roast.



PICNIC SHOULDER

PICNIC SHOULDER
Upper row (l-r): smoked picnic, arm picnic roast.
Lower row: smoked hocks.



SIDE Top: spareribs.
Bottom: slab bacon, sliced bacon.



SIDE



LEG

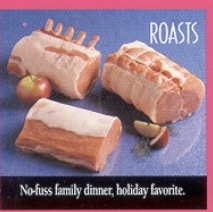
LEG
Upper row (l-r): bone-in fresh ham, smoked ham. Lower row (l-r): leg cutlets, fresh boneless ham roast.



©1997 NATIONAL PORK BOARD

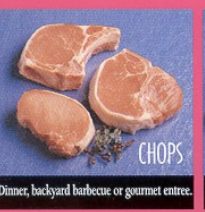
THE MANY SHAPES OF PORK CUT LOOSE!

When shopping for pork, consider cutting traditional roasts into a variety of different shapes.



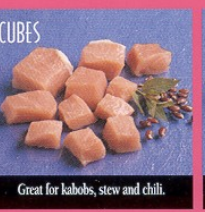
ROASTS

No-fuss family dinner, holiday favorite.



CHOPS

Dinner, backyard barbecue or gourmet entree.



CUBES

Great for kabobs, stew and chili.



STRIPS

Super stir fry, fajitas and salads.



CUTLETS

Delicious breakfast chops and sandwiches.