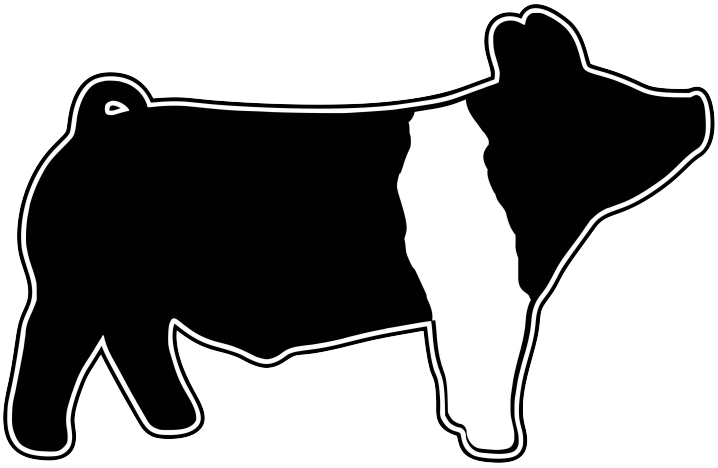
Osceola County 4-H

Open Hog

SKILL-A-THON REFERENCE BOOK
&
OPEN HOG SKILL-A-THON ACTIVITIES

2021-2022



UF | IFAS Extension
UNIVERSITY of FLORIDA

	BEEF CATTLE	SWINE	SHEEP
INTACT MALE	BULL	BOAR	RAM
MALE CASTRATED PRIOR TO DEVELOPMENT OF SECONDARY SEXUAL CHARACTERISTICS	STEER	BARROW	WETHER
MALE CASTRATED AFTER DEVELOPMENT OF SECONDARY SEXUAL CHARACTERISTICS	STAG	STAG	STAG
FEMALE THAT HAS PRODUCED PROGENY	COW	SOW	EWE
YOUNG FEMALE WITH NO PROGENY	HEIFER	GILT	EWE
VERY YOUNG PROGENY	CALF	PIG	LAMB

HOG SKILL-A-THON

Introduction

This manual is provided as a ***study guide*** for the skill-a-thon competition and should be used as an additional aid to ongoing educational programs. Sections are labeled **Junior, Intermediate, & Senior** to help exhibitors and educators identify which materials are required for their age level. The topic for this year's Skill-a-thon is **nutrition.**

Topics for the Knowledge and Skills Stations may include the following:

Juniors (age 8-10 as of September 1, 2021)

Body parts
Breeds
Structure
Swine Nutrition
Feed Classification & Feed Identification
Common Livestock Terms

Intermediates (age 11-13 as of September 1, 2021)

All of the above plus...
Parts of a Feed Label
Basic Livestock Terms

Seniors (age 14 and over as of September 1, 2021)

All of the above plus....

Nutritional Disorder

The contest will be held on January 26, 2022, from 2:00 p.m. until 6:00 p.m. in the KVLS Arena

KVLS Skill-a-thon Rules for 2021-2022

1. **All market exhibitors must take the Skill-a-thon in their project area for the animal that they are showing in order to participate in the market programs,** i.e. steer exhibitors must take the Steer Skill-a-thon. Any exhibitor who does not meet the required grade average on their report card or who does not have a report card must score 70% on the Skill-a-thon to participate in the Market Animal Program.

2. All exhibitors must take the Skill-a-thon for the first time on their own, then a reader can be requested the second time, if a passing grade is not achieved.

3. Awards will be given on the score of the first Skill-a-thon taken. Top awards are only given for passing scores (70% or above).

4. Only those exhibitors who do not make a 3.25 grade point requirement are required to take and make a passing score of 70% or above in order to participate in the market animal program.

5. Exhibitors must stay in the testing room once they have signed up to take the Skill-a-thon.

6. Exhibitors showing a second animal must stay in the testing room to take the second animal Skill-a-thon.

7. No parents or other adults not on the Committee are allowed in the Skill-a-thon room.

8. No exhibitors are allowed to have cell phones while in the Skill-a-thon room.

9. No time limit will be imposed on the exhibitors.

10. Skill-a-thon handbooks will be given at the start of the project.

KVLS Awards

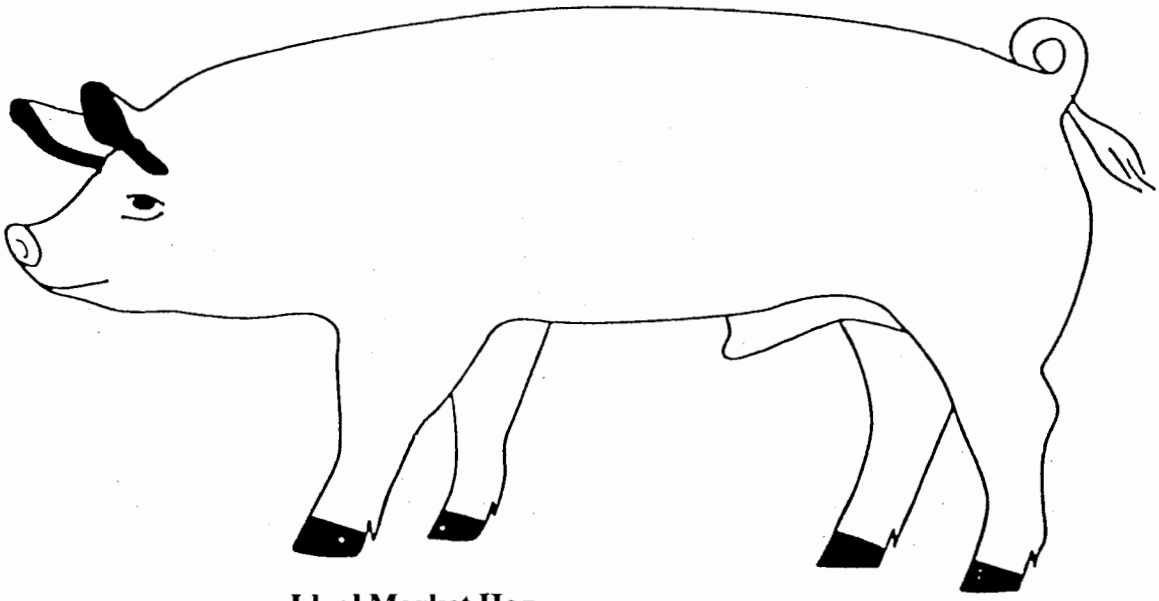
There will be a Junior (8-10), Intermediate (11-13), Senior (14 - graduate from High School) division for the contest. Within each division, 1st, 2nd and 3rd place will receive rosette ribbons and a monetary award.

The Ideal Market Hog

SYMBOL III* is a Standard of Excellence for the pork industry, developed by the National Pork Board. The standards include production guidelines, carcass characteristics, carcass quality characteristics and a picture of the ideal market hog. The SYMBOL III picture of the ideal market hog illustrates what a market hog should look like. From this picture, we can see that the ideal market hog should have a long muscular body, with good physical structure.

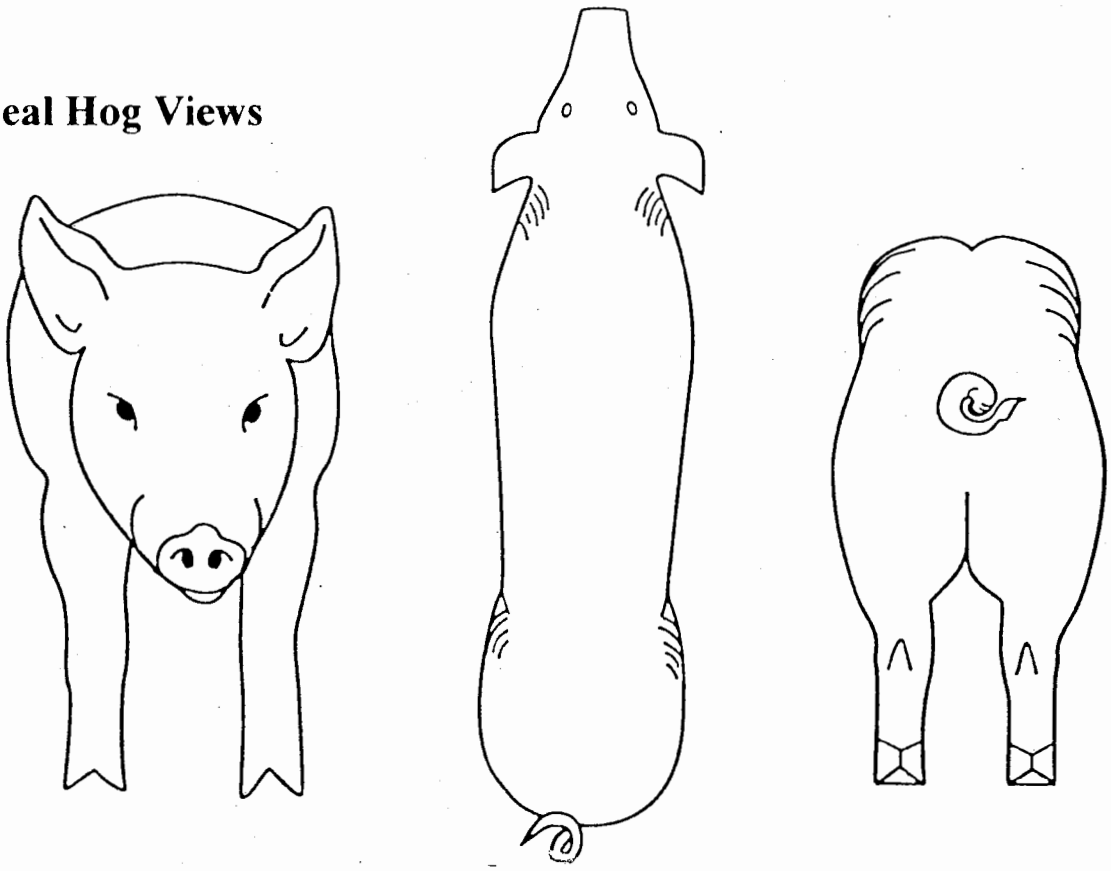
Ideally, this hog should be able to produce one pound of live weight with 2.4 pounds of feed and should produce a carcass with 6.5 square inches of loin eye area (7.1 for gilts) and a 10_{th} rib back fat of.7 inch (.6 for gilts).

The Ideal Market Hog



Ideal Market Hog
*240-260 pounds
*has a 10th rib backfat thickness of .7 or less
*is a minimum of 32 inches long
*has a loin eye area of 6.0 square inches or more

Ideal Hog Views



Evaluation of Market Hogs

A market hog should be moderate in height, long bodied, lean, heavy muscled, big volumed and structurally sound.

Market hogs should have the same general body conformation as breeding swine. In addition to volume and capacity, size and structural correctness traits such as muscling and fat which affect carcass merit are highly emphasized. The primary purpose of a market animal is for meat production. Frame size and structural soundness are examined but to a slightly lesser degree.

Muscle

*The correct muscle structure is long and thick to fit the frame of a hog. An excess of round, tight, bunchy muscle may adversely affect farrowing ease, reproductive efficiency and is related to stress problems. Traits that are found in the ideal market hog include:

-long, thick muscular ham
-thick rump
-wide set to rear legs
-muscular top and loin

Fat

*Fat in market hogs is undesirable. Presently, a back fat thickness of .7 or less measured at the 10^{th} rib is acceptable. Desirable traits in regard to leanness include:

-freedom of fat in elbow pocket
-trimness in ham seam and crotch area
-trimness over the loin edge
-no excessive fullness in jowl

Excess fat is a common fault in market hogs. It reduces the cutability (retail value) of market hogs. The amount of back fat on a hog is a reliable measure of overall finish and should be used as a judging tool whenever available. 10^{th} rib back fat thickness on superior hogs should be less than .7 inches. It should also be noted that fat indicates inefficiency of gain. It takes 2.5 times the amount of feed to produce a 1 lb. of fat vs. a 1 lb. of lean.

Besides muscling and fat, the overall weight of the market hog is important. Large-scaled, heavy-muscled hogs can be carried to heavier weights. Use weight per day of age if available. Many packers want hogs in the 240-260 pound weights.

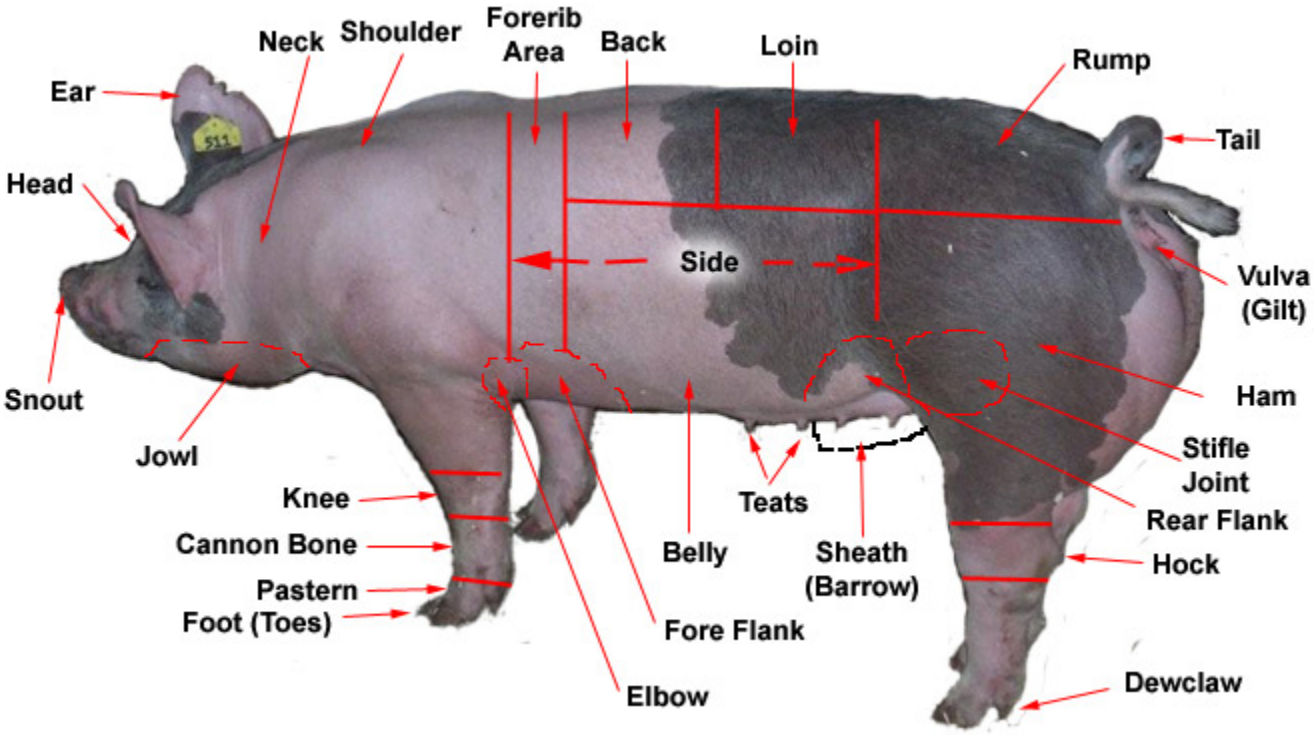
Carcass Merit

*Muscling and fat are two major factors in carcass merit. Meaty, heavy-muscled hogs are preferred to over-fat or light-muscled hogs. Thickness and firmness through the ham and over the back are indications of overall muscling.

(Rev. 9/07)

Parts of a Hog

It is important for livestock producers to share a common language. Using the correct names for various body parts is one way to be certain your message is understood. Study the pictures with the names of the body parts labeled so that you can communicate with other producers using correct terms.



Breeds

Yorkshire- Coming from England, these animals have long, large-framed, white bodies with erect ears. They are known as the "mother" breed because they produce large litters and are good mothers.

Hampshire- Developed in England, these animals have black bodies with a white belt around their shoulders and both front legs. They also have erect ears and heavy muscles.

Duroc- This American breed came from crosses between red hogs in New York and red hogs in New Jersey. These animals have light red to dark red bodies and droopy ears. They grow quickly and efficiently and are good mothers.

Berkshire- This breed came from England. These animals have black bodies with white feet, tails, and faces. They also have sound skeletons; dish snouts; and short, erect ears.

Chester White- This breed was developed in Pennsylvania. These animals have white bodies and medieum-sized, droopy ears. They are also good mothers.

Poland China- The members of this Ohio breed have black bodies with six white points. The white points are their four legs, tail, and nose. They also have droopy ears. These animals are lean with heavy muscle.

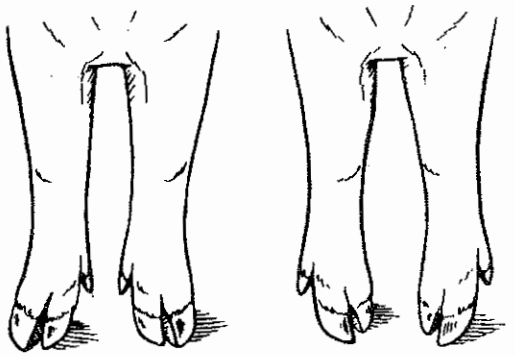
Spotted- Developed in Indiana, these animals are medium-sized. They have black and white spotted bodies and droopy ears. Also, they gain weight easily and are aggressive breeders.

Landrace- Coming from Denmark, these animals have very long, white bodies and very large floppy ears. They are good mothers.

STRUCTURAL DIFFERENCES DESCRIPTIONS

Buck-kneed	When the calf is "over at the knees" or buck-kneed, full extension of the knee cannot occur when observed from the side. This is usually seen in cattle that are also too straight in their shoulder.
Calf-kneed	This is the other extreme, where the calf stands "back at the knees" when viewed from the side.
Weak Pastern	Having an angle greater than 45 degrees in the pastern/hoof alignment, putting too much pressure on the joint.
Postlegged	The hock has too little angle or set. The calf is too straight through the joint, resulting in very stiff, constricting movement because of the lack of flexibility. More cattle become unsound because of being postlegged than sickle hocked.
Sickle-hocked	When viewing the rear legs from the side, the hock has too much angle or set, causing the steer to stand too far underneath itself. Often these calves also will droop excessively from hooks to pins.
Bowlegged	When viewed from the front or rear, the knees set too far out.
Knock-kneed	When viewed from the front, the knees are close together.
Toed-out (splayfooted)	The feet toe out away from each other. This problem is often seen in extremely light-muscled, narrow-chested cattle, where the legs are naturally set too close together.
Toed-in (pigeon-toed)	Toes turn in towards each other.
Cow-hocked	When viewing the rear legs from the rear, the hocks are turned in or placed too close together.

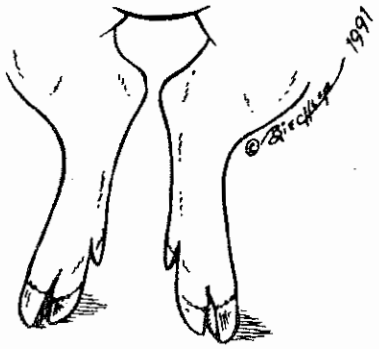
Front view



Splayfooted
(toes pointed out)

Pigeon-toed
(toes pointed in)

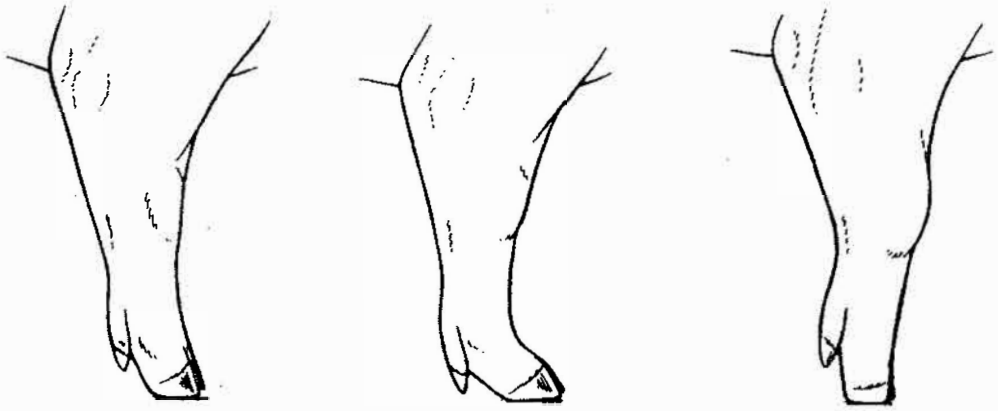
Rear view



Cow-hocked

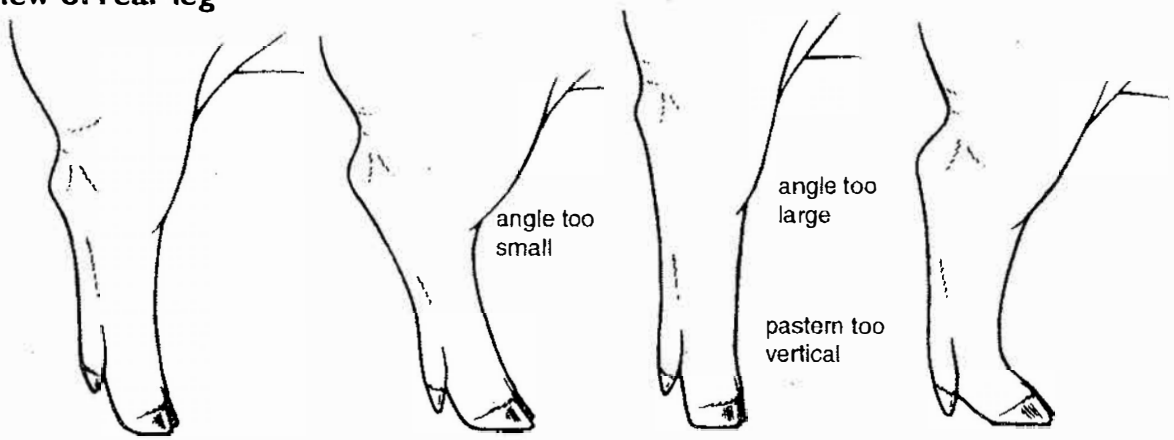
Foot and Leg Structural Deficiencies

Side view of front leg



Normal | Weak pastern | Buck-kneed

Side view of rear leg



Normal | Sickle-hocked | Post-legged | Weak pastern

Swine Nutrition

What an animal eats, how it is digested, absorbed, utilized and what is excreted is the essence of *nutrition*. Good nutrition is basic to good health and production. Proper feeding management requires knowledge of the nutrients in the feedstuffs available to the producer and the nutrient needs of their animals. It also includes an understanding of animal behavior and a management strategy that allows the animals to consume all that is required without causing digestive upset. Though general rules of thumb are helpful, each situation may require adjustments in order to optimize growth and production.

Nutrients are substances in the diet that support normal body functions. Some nutrients can be manufactured in the animal's body and are classified as *dietary non-essential*. *Dietary essential* nutrients must be provided in the ration. **Nutrients can be classified into six groups: *water, carbohydrates, fats (lipids), proteins, vitamins and minerals.***

Water is the most essential nutrient and is involved in all body functions. It is the most abundant and therefore the cheapest nutrient. Animals receive water from drinking as well as from feeds that contain water. An animal that is not receiving enough water will not eat well. Factors which affect an animal's water consumption are the animal's size, feed intake environmental temperature, humidity, and water quality.

Proteins function as the basic structural unit of the animal body and in metabolism. Protein is the main component of the organs and soft structures of the animal body with the exception of water. The dietary requirement for protein is highest in young, growing animals. All proteins are composed of simple units called amino acids. The particular amino acids in a protein determine the quality of that protein. Protein is one of the most expensive portions of the diet.

Carbohydrates are organic compounds formed in plants by the process of photosynthesis. They make up about 75% of the dry weight of plants and grain. Carbohydrates serve as a source of energy in the body. A surplus of carbohydrates is transformed into fat and stored.

Fats function much like carbohydrates in that they serve as a source of energy. Fats produce 2 ¼ more energy than carbohydrates when digested; therefore a smaller amount is required to serve the same function. Some fats are essential for proper metabolism in the animal.

Vitamins are essential for the development of normal tissue and necessary for metabolic activity. They are effective in the animal body in small amounts. When not consumed in an adequate amount a specific deficiency disease can result, or toxicity may result if eaten in extremely high amounts. Vitamins are classified as being either fat soluble (A, D, E, K) or water soluble (B complex & C). Fat soluble vitamins must be consumed in the diet.

Minerals are inorganic, solid, crystalline chemical elements. They are classified as being either macro (Ca, P, Na, Cl, K, Mg & S) meaning required in high concentrations or micro (Cr, Co, Cu, F, Fe, I, Mn, Mo, Ni, Se, Si, & Zn) meaning required in trace amounts. Calcium makes up nearly 50% of the total body mineral, phosphorus composes 25%, and other minerals make up the remaining 25%. Minerals function in protein synthesis, oxygen transport, and in skeletal formation and maintenance.

Feed Classification and Identification

Though we generally group feeds into roughages (high fiber, >18% crude fiber, less digestible) and concentrates (low fiber, <18% crude fiber, more readily digestible). **There are 8 international feed classes that are based on content and use.**

1. **Dry forages and roughages** -cut and cured products with >18% CF like hay,, straw, corn cobs, shells and hulls, paper, wood by-products and stover.

Hay

2. **Pasture, range plants and forages fed fresh** - all forages not cut or cut and fed fresh.

Grass Pasture

3. **Silages and haylages** - plant material preserved through the ensilin process, forages like corn, alfalfa and grass.

Baleage

Silage

4. **Energy feeds** – products with <20% CP, <18% CF and > 70% TDN, like cereal grains (corn, oats, barley, wheat), mill byproducts, beet and citrus pulp, molasses, animal, marine and vegetable fats, nuts, roots and tubers. Energy content of a feedstuff is expressed as percent total digestible nutrients (TDN) because it is strongly correlated with digestible energy.

.


Whole Corn


Cracked Corn


Wheat


Grain Sorghum (Milo)


Barley


Oats


Rye


Wheat Middlings


Distiller s Grain

5. **Protein supplements** – products with >20% CP or more; protein from non-ruminant animal origin, oilseed meals like soybean or cotton, legume seeds, milling by-products of grains, brewery and distillery by-products, yeast, non-protein nitrogen.


Soybean Meal


Fish Meal


Dried Wheat

6. **Mineral supplements**


Dicalcium Phosphate


White Salt


Trace Mineral Salt


Ground Limestone (Calcium Carbonate)

7. **Vitamin supplements**

8. **Non-nutritive additives** – supplements such as antimicrobials, antifungals, antibiotics, antioxidants, probiotics, buffers, coloring material, flavors, hormones and medicines.

COMMON LIVESTOCK TERMS

BOAR	Intact male of hog
SOW	Female that has produced progeny in hog
PROGENY	Offspring, young
PIG	Very young progeny
GILT	A young female of hog usually less than 12 months of age which has not farrowed a litter
BARROW	Male castrated prior to development of secondary sexual characteristics in hog
CARCASS	The dressed body of a slaughtered meat animal, offal having been removed.
FINISH	Refers to the amount of external fat covering on an animal.
MARBLING	Refers to flecks of fat distributed within the muscle.
MILKING ABILITY	Refers to the amount of milk an animal can produce
FARROWING	Giving birth
PASTERN	Sloping part of the leg just above the hoof.
HAM	The thigh
PARASITES	Organisms living on other organisms - doing harm
CROSSBREEDING	Is the mating of two animals from different breeds.
HYBRID	The offspring produced from crossbreeding.

Feed Label Information

A commercial law requires each bag or bulk load to be accompanied by a label showing several key items:

- Net weight
- Product name and brand name
- Drug additives
- Guaranteed analysis of the feed – crude protein, crude fat and crude fiber must be guaranteed on all feeds except straight mineral or vitamin supplements, molasses or drug compounds.
- Minimum percentage of crude protein, percentage of equivalent protein from non-protein nitrogen, if any. The amount of crude or total protein in a feed is guaranteed. Crude protein is determined by multiplying the nitrogen content of a feed by the factor 6.25.
- When non-protein nitrogen (NPN) is applied to feedstuffs, a statement "for ruminants only" must appear underneath the name of the feed. Additionally, it must also have a guarantee for crude protein which has been supplied from non-protein nitrogen.
- Minimum crude fat content – Fat has an energy value approximately 2.25 times the value of carbohydrate feedstuffs.
- Maximum crude fiber content – Crude fiber is a measure of the indigestible or non-useful portion of a feed. Feeds having low fiber values tend to be higher in digestible energy or total digestible nutrients than those feeds having high fiber values.
- Minerals – feeds containing 6.5 percent or more minerals must show a guarantee of: calcium – minimum and maximum; phosphorous- minimum; salt – minimum and maximum
- Vitamins, only if guaranteed
- Common and usual name of each ingredient or the collective term for each grouping of feed ingredients
- Directions for use and cautionary statements
- Name and principle mailing address of the manufacturer

50 lbs net weight

Brand Name Show Feed
(for ruminants only)

Medicated
Feed for 28 days as an aid in the maintenance of weight gains in the presence of respiratory diseases, such as shipping fever.

Caution: Use only as directed.
Discontinue use 14 days prior to slaughter.

Active Drug Ingredients:
Chlortetracycline 7.6 grams/ton

Guaranteed Analysis
CRUDE PROTEIN, not less than 12%
This includes not more than 1.00% equivalent crude protein from non-protein nitrogen.
CRUDE FAT, not less than 2.0%
CRUDE FIBER, not less than 19%

Ingredients: Grain products, roughage products, plant protein products, processed grain by-products, forage products, molasses products, calcium carbonate, salt, vitamin E supplement, vitamin A supplement, ferrous sulfate, potassium iodide, manganese oxide copper chloride, cobalt glucoheptonate, vitamin D3 supplement, sodium selenite.

RUMINANT MEAT AND BONE MEAL FREE

FEEDING DIRECTIONS: Feed at the rate of 12 pounds per head per day.

MANUFACTURED BY:
The Best Feed Company
P. O. Box 00000
Small Town, USA

BASIC LIVESTOCK TERMS

1. Condition, Finish or Covering – All are used to denote fat. The terms finish and covering are used to describe fat on market animals, while condition is used when describing breeding stock.

2. Growthiness – The characteristics of having size and weight at a certain age.

3. Balance or Symmetry – A proper proportion and blending of parts of the animal. Balance or symmetry is evaluated from a side view.

4. Ruggedness, Stoutness – The quality of being heavy or large boned. This is usually determined by the size of the cannon bone (from the knee to the ankle).

5. Quality – A general term that combines smoothness and refinement. Refinement of hair coat, freedom of wrinkles in hogs and freedom of roughness, patchiness in cattle indicates quality.

6. Scale – The size of the animal as determined by skeletal structure, independent of weight. The height, length and width of the animal.

7. Style – The general eye-appeal or attractiveness of the animal. Includes balance, structural correctness and quality.

8. Broodiness – Female breeding stock term that means she has a favorable combination of characteristics to be a good mother. Depth, capacity, prominence of teats and/or mammary system, stoutness and correctness of vulva.

9. Breed Character – Characteristics that separate breeding stock of one breed from other breeds, primarily by differences of the head: shape, length, dish of face, width of muzzle, shape of poll and ears, color markings and wool covering in sheep.

10. Trimness Freedom from fat or finish.

11. Meatiness/Muscling – Having a high proportion of muscle in the areas of the high-priced cuts. This is shown primarily by the relative width, length and fullness of the quarter, leg or ham, and by the thickness and fullness through the rib, rack or loin.

12. Type – A combination of characteristics that make an animal useful for a specific purpose. Determined by the general shape and form of an animal. Desirable types are constantly changing.

13. Tight Framed - The ability of the animal to hold itself together. Indicated by a strong top (back), tightness of shoulder and squareness of feet and leg placements.

14. Structural Soundness – The desirability or correctness of the skeletal structure, with major emphasis on straightness of top and proper feet and leg structure.

15. Femininity – Characteristics that distinguish the female from the male. Indicated by refinement of the head, neck and shoulders.

16. Masculinity – Characteristics that distinguish the male from the female. Indicated by boldness or massiveness of head and chest, thickness of the neck and development of the forequarters.

Common Nutritional Disorders

Disorder	Chief Cause
E. coli enterotoxemia	gut edema, occurs after weaning, sudden death
Ketosis	Sudden need for extra energy
Milk fever	Sudden need for Ca (lactation)
Parakeratosis	Zn deficiency
Night blindness	Vitamin A deficiency
Goiter	Iodine deficiency
Rickets	Ca, P, or vitamin D deficiency (young animals)
Anemia	Fe, Cu, vitamin B12, or folic acid deficiency
Gossypol toxicity	Toxic level of gossypol from cottonseeds
Hypoglycemia	Low blood sugar level
Photosensitization	Some feeds or forages or accumulation of metabolites
Salt poisoning	Excess salt

Activities

It is recommended that you complete the six activities provided in this skill-a-thon book to help prepare you for the skill-a-thon. The activities are very similar to what you should expect during the skill-a-thon and can be used for practice.

4-H Members Only: After you have completed an activity you should record it in your record book using the table on the 4-H Project Book/ Activities page. You do not need to attach the activity page you have completed in the record book.

Helpful Study Resources:

https://animalscience.tennessee.edu/youth-resources//

https://osu.az1.qualtrics.com/jfe/form/SV_cTR1YeOMFV0MTml

OPEN HOG PARTS

ACTIVITY #1

Ear

Snout

Tail

Rump

Belly

Ham

Side

Elbow

Knee

Loin

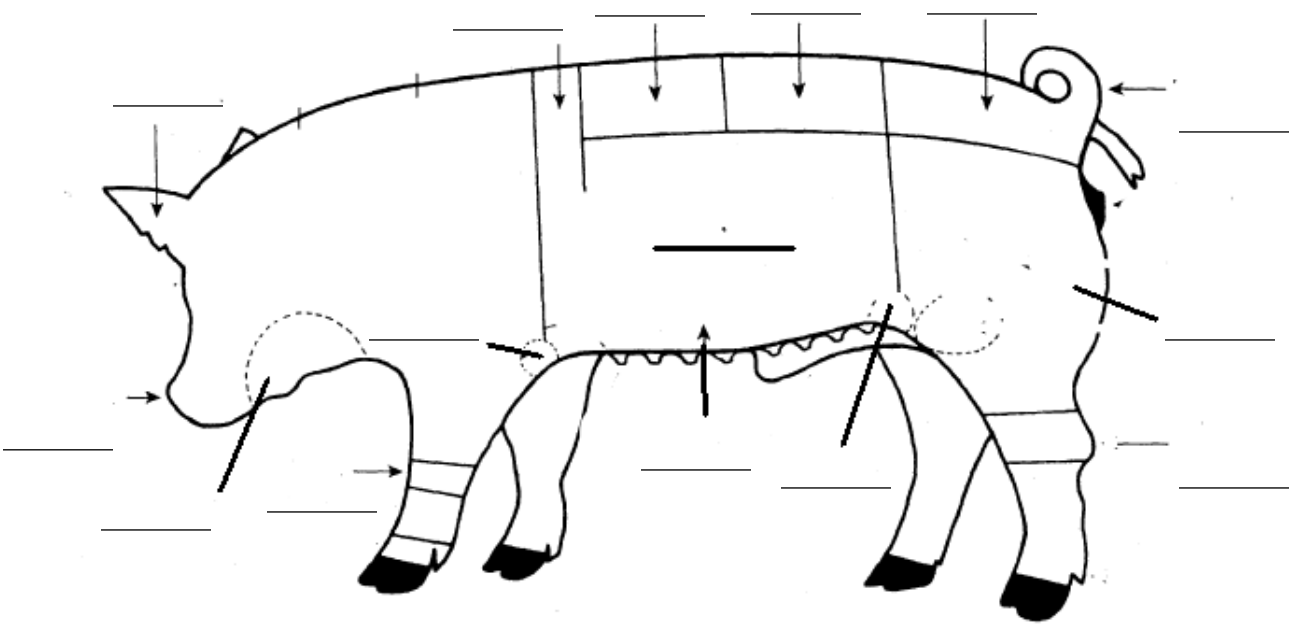
Back

Hock

Forerib Area

Rear Flank

Jowl



OPEN HOG BREED IDENTIFICATION
ACTIVITY #2

1. This breed originated in the United States from crosses between red hogs in New York and red hogs in New Jersey. They are light red to dark red in color with droopy ears. They grow quickly and are good mothers.

2. This breed comes from Denmark. They have very long, white bodies with large floppy ears. They are good mothers.

3. This medium-sized breed was developed in Indiana. They have black and white spotted bodies and droopy ears. They are aggressive breeders that gains weight easily.

4. This breed originated in England. They have long, large-framed white bodies with erect ears. They are known as the "mother" breed because they produce large litters and are good mothers.

5. This lean, heavily muscled breed comes from Ohio. They have black bodies with six white points; their legs, tail and nose. They also have droopy ears.

6. This breed was developed in Pennsylvania. They have white bodies and medium-sized droopy ears. They are also good mothers.

7. This breed was developed in England. They have black bodies with a white belt around the shoulders and both front legs, with erect ears and heavy muscles.

8. This breed comes from England. These animals have black bodies with white feet, tails and faces, dish snouts and short, erect ears. They also have sound skeletons.

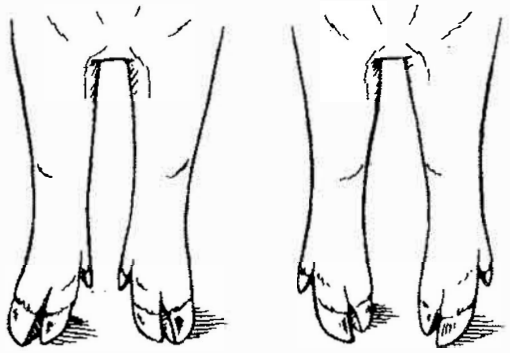
Match

_____ Berkshire
_____ Chester White
_____ Duroc
_____ Hampshire
_____ Landrace
_____ Poland China
_____ Spotted
_____ Yorkshire

OPEN HOG STRUCTURAL DEFICIENCIES FRONT & REAR VIEW ACTIVITY #3

Fill in the blank with the correct FRONT LEG Alignment

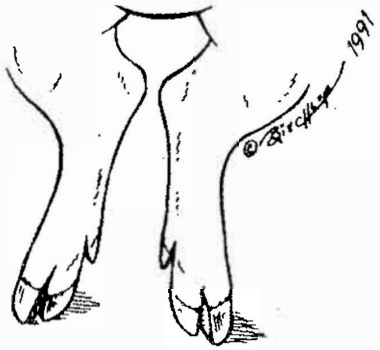
SPLAYFOOTED ***PIGEON-TOED***



_____ _____

Fill in the blank with the correct REAR LEG Alignment

COW-HOCKED



_____

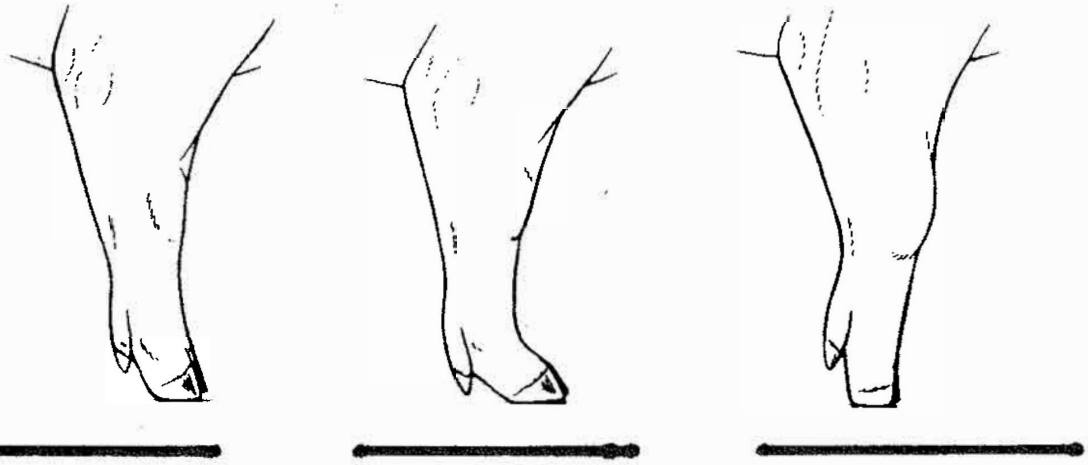
OPEN HOG STRUCTURAL DIFFERENCES SIDE VIEWS

ACTIVITY #3

Fill in the blank with the correct Front Leg Set

WEAK PASTERN *NORMAL* *BUCK-KNEED*

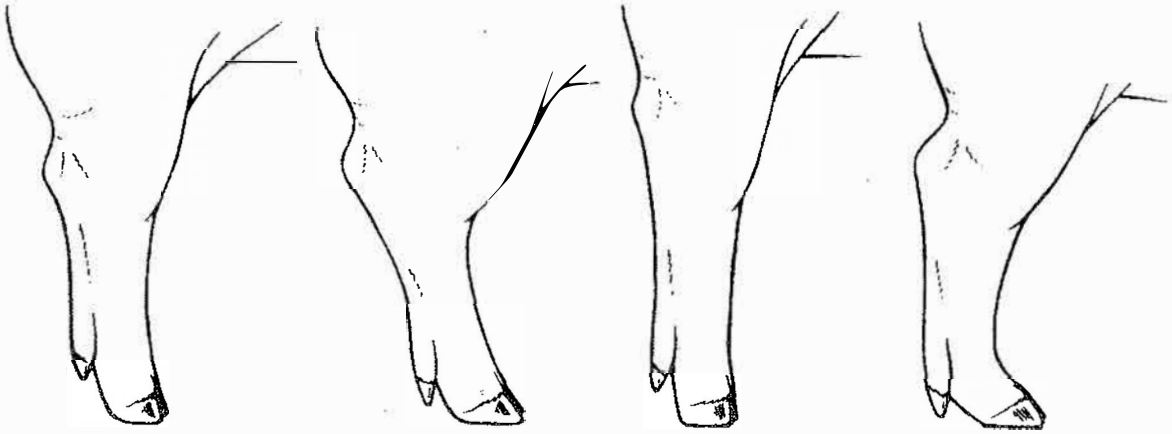
Side view of front leg



Fill in the blank with the correct Hind Leg Set

WEAK PASTERN *NORMAL* *SICKLE-HOCKED* *POST-LEGGED*

Side view of rear leg



OPEN HOG NUTRIENTS

ACTIVITY # 4

Please match the nutrient to the definition

A. Fats	**C. Vitamins**
B. Protein	**D. Water**

1. _____ This is the most essential nutrient. It is needed for digestion, tempTherature control, waste removal, and many other purposes. Without this nutrient an animal will not eat well. It is the most abundant and cheapest nutrient

2. _____ The dietary requirement is highest in young, growing animals and is one of the most expensive portion of the animal's diet. Composed of amino acids.

3. _____ Essential for the development of normal tissue and necessary for metabolic activity. This nutrient is classified as fat soluble (A, D, E, K) or water soluble (B complex and C).

4. _____ This nutrient serves as a source of energy. Produces more energy than carbohydrates when digested; therefore a small amount is required to serve same function as carbohydrates.

OPEN HOG
FEED CLASSIFICATION & IDENTIFICATION
ACTIVITY # 5

Please write the feed class and feed identification for each picture below.

Example:
Feed Classification:____Energy Feed_____

Feed Identification:____Cracked Corn _____

Feed Classification:_____

Feed Identification:_____

Feed Classification:_____

Feed Identification:_____

Feed Classification:_____

Feed Identification:_____

Feed Classification:_____

Feed Identification:_____

Feed Classification_____

Feed Identification:_____

OPEN HOG FEED LABEL

ACTIVITY #6

PLACE NUMBER BY THE PROPER LABEL DESCRIPTION

_____ Feeding Directions

_____ Ingredients

_____ Net Weight

_____ Manufactured by

_____ Guaranteed Analysis

_____ Drug Additives

_____ Product Name and Brand Name

_____ Crude Fiber

_____ Crude Protein