

Ross County Skillathon



Study Guide

Revised 2017

Skillathon Stations:

JUNIOR

Station#1: Horse Body Parts

Station #2: Quality Assurance—Nutrition

Station # 3: Skills: Basic Animal Care

Station #4: Record Book Record Book complete.

Station #5 Interview Questions: Taken from anywhere in the packet

INTERMEDIATE

Station#1: Hoof/ Teeth

Station #2: Quality Assurance

Station # 3: Skills: Nutrition/ Digestive Tract

Station #4: Record Book Record Book complete.

Station #5 Interview Questions: Taken from anywhere in the packet

SENIOR

Station#1: Skeletal

Station #2: Quality Assurance– Nutrition/ Digestive tract

Station # 3: Skills: Situational Word Problem

Station #4: Record Book Record Book complete.

Station #5 Interview Questions: Taken from anywhere in the packet

Care for your horse

174 book-
pages 95-98

How to take your horse's temperature: Use a glass or electronic rectal thermometer and tie a string with a clip on the end to the thermometer's end loop. Lubricate the tip with a dab of K-Y or petroleum jelly and gently insert the thermometer into his anus the depth of about two inches. **Normal temperature range is between 99 and 101.5 degrees Fahrenheit.**

How to take your horse's pulse: Place your horse's left front foot forward; Place the head of the stethoscope against his chest wall, just beneath the left elbow, then push the scope as far forward under the elbow as possible. Listen for the "lub-dub" sound of his heartbeat. Count the number of beats in a 15-second period, and multiply that number by four to determine his beats-per-minute (bpm). **An average resting heart rate is between 30 and 40 bpm.**

How to listen for gut sounds:

Hold a stethoscope against your horse's lower flank for at least one minute. Move the stethoscope higher on his flank and listen again. Move to his other flank and repeat. Normally you'll hear two to four soft bubbles/gurgles per minute, and one loud grumbling sound every two to three minutes. If his gut sounds are louder and/or more frequent, he may be experiencing mild colic. If you hear nothing (and your stethoscope is working) he may be experiencing severe colic. Silence indicates no gut movement.

Do horses have stress? Stress is the body's response to anything it considers threatening. For a horse this could be anything, including tailoring and traveling, showing, poor nutrition, feeding at irregular times, changes in other routines, environmental toxins, interactions within their social environment, variations in climate, and illness. Some types of stress include various physical stresses that are based on the physical makeup of the animal and its ability to respond to changes in diet, injury, etc. Psychological stresses are based on a horse's personality and its perception of life. For example, some horses are more stressed than others by being in a stall for long periods of time

Should I vaccinate? The American Association of Equine Practitioners defines core vaccinations as those "that protect from diseases that are endemic to a region, those with potential public health significance, required by law, virulent/highly infectious, and/or those posing a risk of severe disease. Ohio Core vaccines are Tetanus, Rabies, West Nile, Eastern/Western Equine Encephalomyelitis. A Coggins test is a blood test to detect the Equine Infectious Anemia virus, or EIA. It is a viral disease that is HIGHLY contagious. Although often infected horses do not die, they will remain carriers, and must be isolated for the rest of their life. There is no cure.

General Care:

- ✦ Teeth should be checked and floated at least once a year by a qualified person.
- ✦ Horses urinate 3 or 4 times a day and is yellow to slightly brownish.
- ✦ Change in feed should occur over 7-10 day period with mixing old and new forage or concentrate. Free choice water and salt should be available at all times.

Eat like a Horse....

174 book- pages 97-61

Just like people, to stay healthy, horses need to eat a lot of different things. If they don't, then the horse can have problems. When a horse gets too much feed, they will become overweight, colic or other problems. A young horse that eats an unbalanced diet may grow slowly or not grow correctly. **Always store feed in a clean, dry well ventilated area. Never feed moldy or dusty feed.**

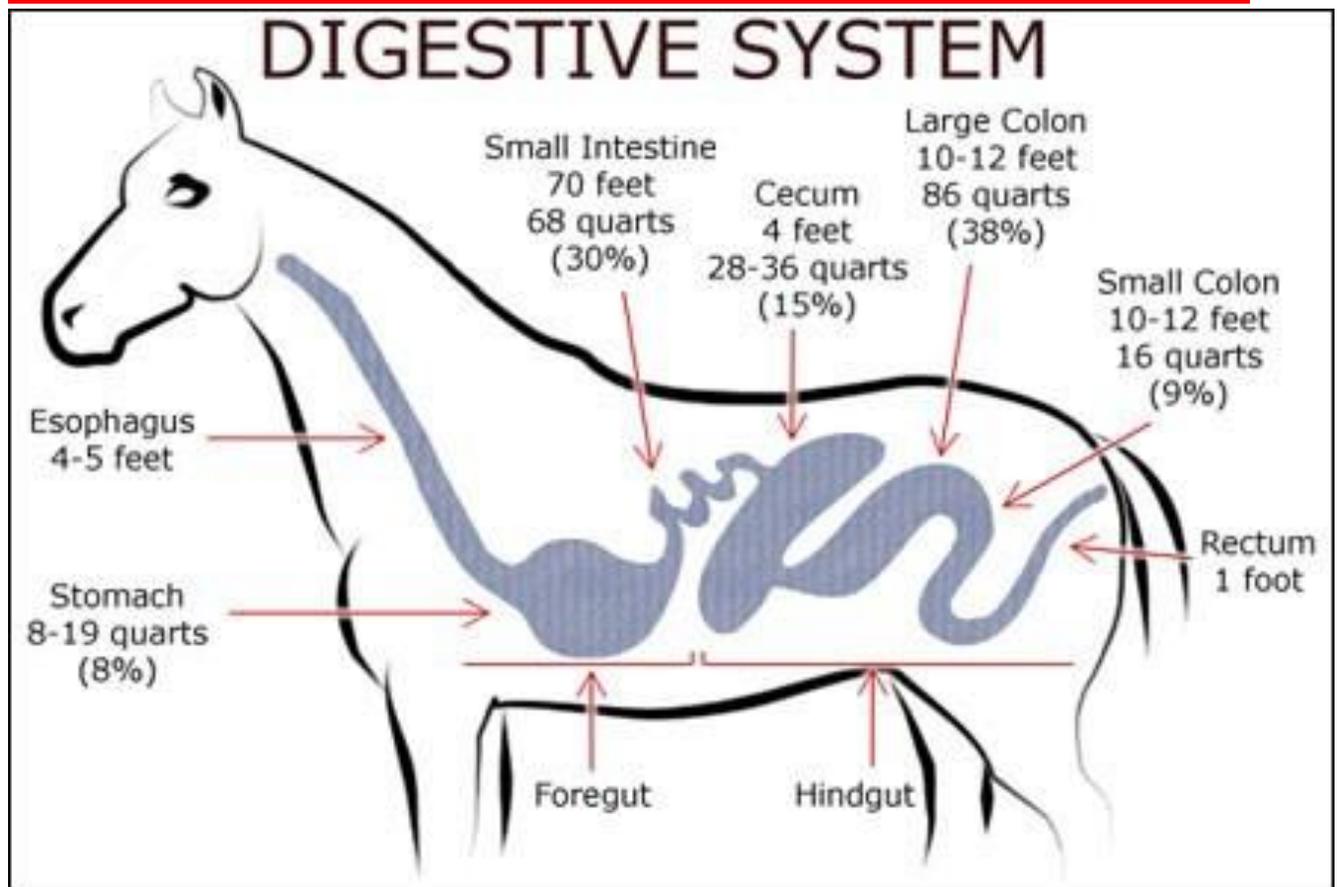
FORAGE: The amount of hay to purchase and feed should be based on weight of the bales and nutrient value. Forages should make up the bulk of the diet. Forages include fresh grass or hay (which is dried grass). The high fiber of this feed is important to the health of the stomach and intestines. Also, good quality forage is high in nutrients, including energy, protein, vitamins, and minerals. Most horses can live very healthy lives on good quality hay or grass alone. Good quality hay should smell like fresh grass, should not be dusty or moldy, and should be soft when squeezed in bare hands. **A full-grown horse (1,000 pounds) will eat 15-20 pounds of hay each day AND a rule of thumb is to keep the forage level at 50% or more of the diet .** 2 acres of pasture per horse if no supplemental grain is fed. A range of grazing time could be as long as 6-10 hours per day for a horse at maintenance. Young, growing horses may need 15 hours a day.

Facts of Hay: *Legume* (alfalfa and clover) hay is higher in protein and energy than grass hay; therefore, you need to feed more (weight) grass hay than legumes. Grass hay will keep the horse busy eating longer, preventing boredom. Second and third cutting hays are higher in protein (18-24%) and energy than first cutting. However, horses only need 10-12% protein in their feed. A small rectangle bale of hay can range between 45 and 85 pounds per bale. *Grasses* (orchard, timothy, brome types) tend to be lower in protein and energy *Weeds* have limited nutritional value; weed seeds can be passed through the manure and infest your pasture, buy hay that does not contain many weeds. Some weeds are poisonous to horses. Hay for horses must be mold and dust free.

CONCENTRATE: Grain (textured, pelleted, or extruded) can be added to the diet if a horse needs more energy (for exercise or growth), protein (for muscle development), or vitamins and minerals (for healthy bones and body). Horses receiving good quality forage often do not need concentrates in their diet. Treats can be used as a reward for good behavior or just as a snack. Horse treats can be bought at the store, but apples and carrots also make good snacks for horses. Treats shouldn't make up the bulk of the diet. Horses should not get more than 1/2% of body weight in grain per day.

WATER: A horse must have ample clean, fresh water available at all times. **A horse will drink 10 to 12 gallons of water per day depending on temperature, humidity levels, ration content and workload.** In the winter months, stock tank heaters will help prevent ice build-up and make water accessible to animals. Water is the most important part of the diet, because a horse will get sick after just 2-3 days without water. Horses at work can lose 2-3 gallons of water in sweat/ hour.

SALT: Blocks provide horses with extra salt and are usually left out where the horse can eat a little when they want it. Most horses will not over eat salt.



Digestive Tract:

Mouth and Teeth— Digestion begins, The upper lip gathers grass, teeth breakdown the feed so the horse can swallow (**masticate**) and digest it.

The **salivary glands** produce saliva to moisten food and assist in movement through the tract. This is the beginning of Carbohydrate digestion.

Esophagus is the passageway from the mouth to the stomach. It has rings of muscle that relax and contract to move the food to the stomach— this is known as **peristalsis**.

Stomach is where digestion begins, Acid (hydrochloric acid) and enzymes start to break down the nutrients (carbohydrates, fats, proteins). Stomach makes up 9% of digestive system and because it is small, it is very delicate.

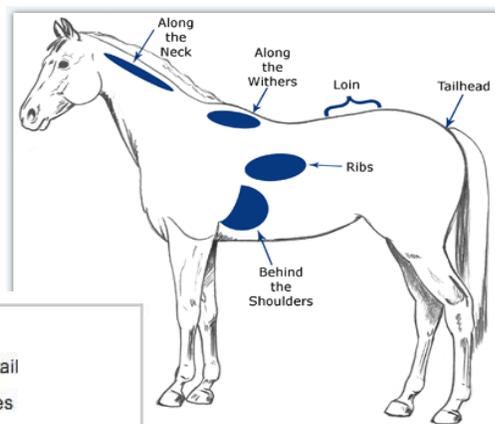
Small Intestine: Make sup 25% of digestive tract and almost all of nutrients absorption occurs. Various secretions are put into the tract to allow the nutrients to be broken up. Three sections are duodenum, jejunum, and ileum. The jejunum and ileum is where most nutrients are absorbed. The inner lining is made of villi increases surface area to increase nutrient absorption.

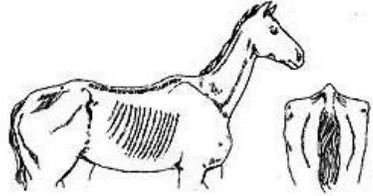
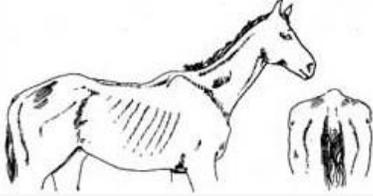
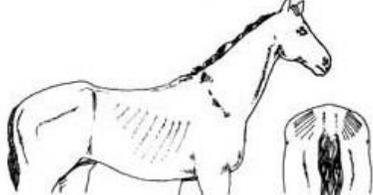
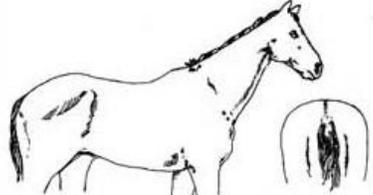
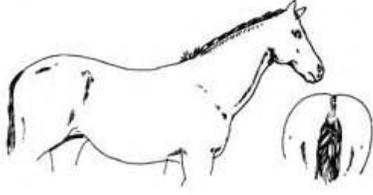
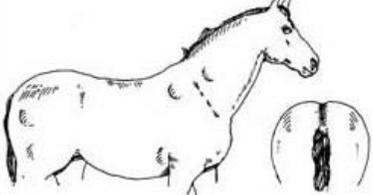
Cecum is 16% of digestive tract and is at the beginning of the large intestine. It is a small sack with only one opening. Feed goes in, gets mixed around and digested by microbes (microbes ferment and break down fiber that provides fatty acids and some amino acids) and then it goes back out to the rest of the large intestine. Food can get stuck and cause Colic.

Colon is large and small colon which reabsorbs most of the water in the digestive tract. Also where the waste is secreted in preparation to pass the body. Colon makes up 45% of the horse digestive tract. Also where a horse can Colic.

Rectum and Anus is last part of digestive system.

Body Condition



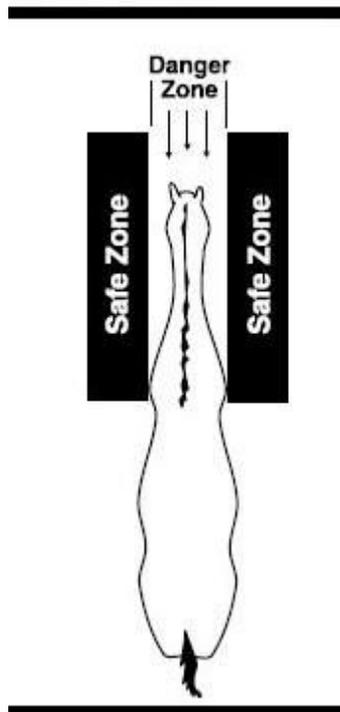
<p>0 Very poor</p>		<ul style="list-style-type: none"> • Very sunken rump • Deep cavity under tail • Skin tight over bones • Very prominent backbone and pelvis • Marked ewe neck
<p>1 Poor</p>		<ul style="list-style-type: none"> • Sunken rump • Cavity under tail • Ribs easily visible • Prominent backbone and croup • Ewe neck - narrow and slack
<p>2 Moderate</p>		<ul style="list-style-type: none"> • Flat rump either side of backbone • Ribs just visible • Narrow but firm neck • Backbone well covered
<p>3 Good</p>		<ul style="list-style-type: none"> • Rounded rump • Ribs just covered but easily felt • No crest, firm neck
<p>4 Fat</p>		<ul style="list-style-type: none"> • Rump well rounded • Gutter along back • Ribs and pelvis hard to feel • Slight crest
<p>5 Very fat</p>		<ul style="list-style-type: none"> • Very bulging rump • Deep gutter along back • Ribs buried • Marked crest • Fold and lumps of fat

The major external anatomy areas to evaluate body condition by manual palpation and visual inspection include:

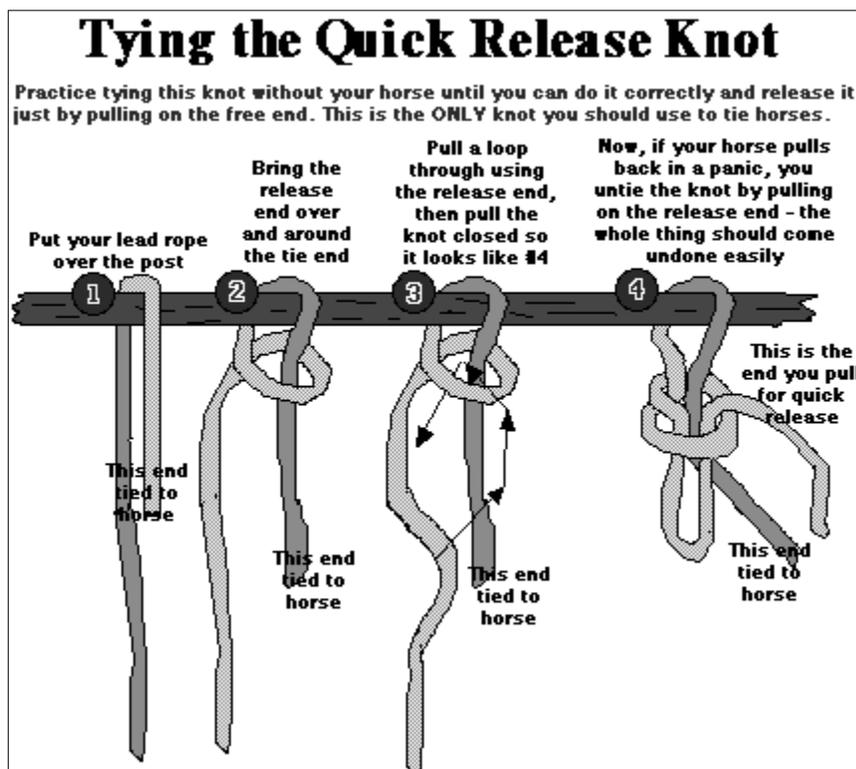
1. Along the top side of the neck
2. Withers
3. Back or top-line
4. Rib area
5. Base of the tail-head
6. Point of buttock
7. Point of the hip
8. Area behind the shoulder and above the elbow
9. Area between the thighs (twist)

Horse Safety

174 book- pages 17-23



- Never sit on the ground or groom from your knees and always be in a position to move away quickly. When moving behind the horse, walk as closely to it as possible, keeping a hand on it at all times. If it kicks, you will be hurt less because the kick has not had time to gain full momentum.
- Do not climb over or under the lead line of a tied horse. The horse may pull back and cause you to trip over the line, and you will have no quick escape should the horse lunge forward. Some clothing may frighten a horse, such as flapping jackets or plastic raincoats. Allow the horse to adjust if it is afraid or remove the coat. Strange objects such as umbrellas also may have the same effect. Respect handlers and riders by approaching with caution.
- When mounting, make sure the reins have direct contact with the horse's mouth because you do not want a horse to walk off.
- When you lead a horse, walk on the left side of his body near the throatlatch. Be sure to keep an arm's distance away from the horse, so you don't get stepped on. When turning, always turn the horse AWAY from you. Never wrap the lead around your hand.



NOTE: know the rules in 4-H rulebook!!!

Showmanship

174 book- pages 44-49

The presentation of your horse to a judge is known as showmanship, and it follows a pattern. A pattern is a written description of a group of maneuvers that the judge wishes to see and how he scores you on your skill in performing this pattern. A single maneuver is known as walk, or trot, or back, or pivot. A typical pattern for showmanship is to lead, walk, trot, back, set up or pivot the horse, in any combination. Confirmation is NOT judged during a Showmanship Class. The presentation and performance counts for more than half of the points.

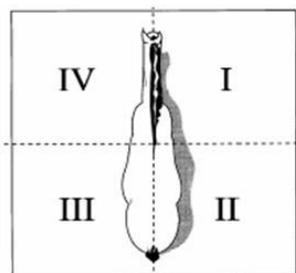
Presentation has two parts:

1. The appearance of the exhibitor and condition\grooming of the horse. The exhibitor should be dressed in clean, fitted clothes, with polished boots and a brushed hat. The exhibitor's hair should be neat away from the face. The horse is required to be clean and brushed, with a combed mane and tail. Hair that has been clipped or trimmed should have a neat, tidy appearance. The halter and lead should fit well, and be clean and in good repair.
2. The pattern should be displayed with confidence and poise when showing. The horse needs to be responsive to the exhibitor's cues when performing the pattern.

In the Show Ring:

- Be on time when the class is called.
- Remember, even though the ring officials may be checking entries, the judge will be watching as they come in, so stay awake.
- Line up evenly with the others and stand up your horse.
- Stand your horse quickly, then watch the judge. Allow room between your horse and those on either side. When the class is lined up or leading head to tail, do not crowd the horse in front. The horse should set up quickly, stand squarely and move forward or backward freely. Pose the horse to breed standards.

Four Quarters



Exhibitor is always one quadrant away from the judge:

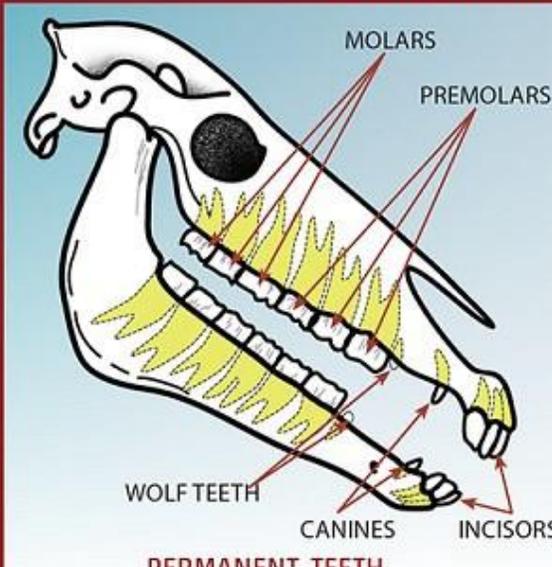
- When Judge is in I, the handler should be in IV
- When Judge moves to II, handler crosses to I
- When Judge moves to III, the handler crosses to IV;
- When judge moves to IV, the handler should be in I

- The exhibitor should stand angled toward the horse in a position between the horse's muzzle and eye, holding the lead with enough slack to allow movement under the chin as the handler changes position when the judge moves.
- The lead should be held flatly between the thumb and forefinger of the right hand, near the muzzle, but not touching the horse. The excess lead is held in the left hand in a manner comfortable for the exhibitor.
- Arms should be relaxed and the elbows slightly bent. Different positions are often required allowing for the height of the exhibitor.
- A minimum number of steps should be taken when changing sides. You can limit your steps and make a smoother change by stepping off with the inside foot, placing it on the other side of the horse, turning on the foot as you place your other foot along side. The hand should follow the foot, moving quietly under the chin of the horse.



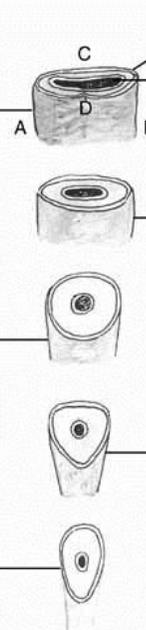
Teeth

When Do Horses' Teeth Erupt?



DECIDUOUS TEETH	APPEAR
1st incisor (centrals)	birth or first week
2nd incisor (intermediate)	4 to 6 weeks
3rd incisor (corners)	6 to 9 months
1st, 2nd, 3rd premolars	birth or first 2 weeks for all premolars

PERMANENT TEETH	APPEAR
1st incisor (centrals)	2 1/2 years
2nd incisor (intermediate)	3 1/2 years
3rd incisor (corners)	4 1/2 years
Canine (bridle)	4 to 5 years
1st premolar (wolf tooth)	5 to 6 months
2nd premolar	2 1/2 years
3rd premolar	3 years
4th premolar	4 years
1st molar	9 to 12 months
2nd molar	2 years
3rd molar	3 1/2 to 4 years



Shortly after the tooth emerges (erupts), the top (occlusal) surface of the tooth is wider from A-B than it is from C-D. It also has a deep cup (infundibulum).

A 9-12 year old horse will have a "round" incisor. The term "round" refers to the fact that the tooth measures the same from A-B as it does from C-D. The tooth is beginning to take on a triangular shape.

From 14-17 years, the tooth continues to take on a triangular shape.

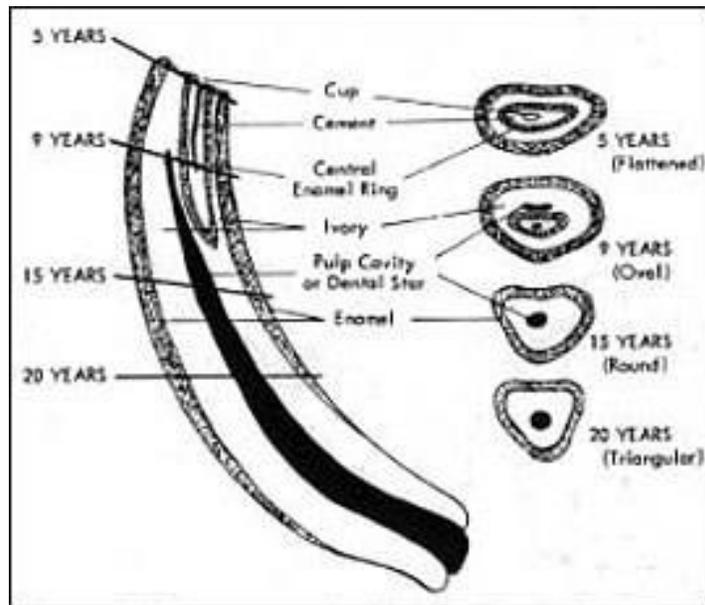
Horses over 20 years of age will have incisors that are twice as long from C-D than from A-B.

Note: Things such as cups, enamel spots, Galvayne's groove, and dental stars are unreliable predictors of a horse's age.

Telling Age of Horse:

People have been determining the age of horses by the teeth for years. It is more accurate with younger horses, and, as the horses ages, it becomes more difficult. Horses who are stabled may appear younger than range horses because of the wear on teeth. If you want to determine the age of the horse, you use the 12 front teeth, incisors. Canine teeth or "tusks" may appear midway between the incisors and molars at 4 or 5 years of age in the case of geldings or stallions, but seldom appear in mares. Adult horses have 24 molar teeth. There are four major ways to estimate age of horses by appearance of their teeth:

- * Occurrence of permanent teeth
- * Disappearance of cups
- * Angle of incidence
- * Shape of the surface of the teeth



This drawing shows why wear brings about a change in angle of incidence, shape of the table surfaces, and disappearance of cups with appearance of dental stars. As wear progresses, surface enamel is worn away, which leaves two enamel rings, one around the margin of the table surface and the other around the cup. As wear continues, the cup almost disappears and the dental star or pulp cavity makes its appearance (at about 8 to 10 years). The tip of the dental star first appears as a wide, thin yellow line in front of the internal enamel surrounding the cup. In old age, dental stars appear dark, round and centered in the tooth. Changes in shape from oval to angular are shown in the cross-sectional views as wear progresses toward the root.

Abnormal teeth conditions

"**Parrot mouth**" is a result of the upper and lower incisors not meeting because the lower jaw is too short. This condition is rather common and may seriously interfere with grazing.

"**Monkey mouth**" is the opposite of parrot mouth and is seldom seen in horses.

"**Cribbing**" is a habit common to stabled horses which damages incisors by chipping or breaking them.

Definition

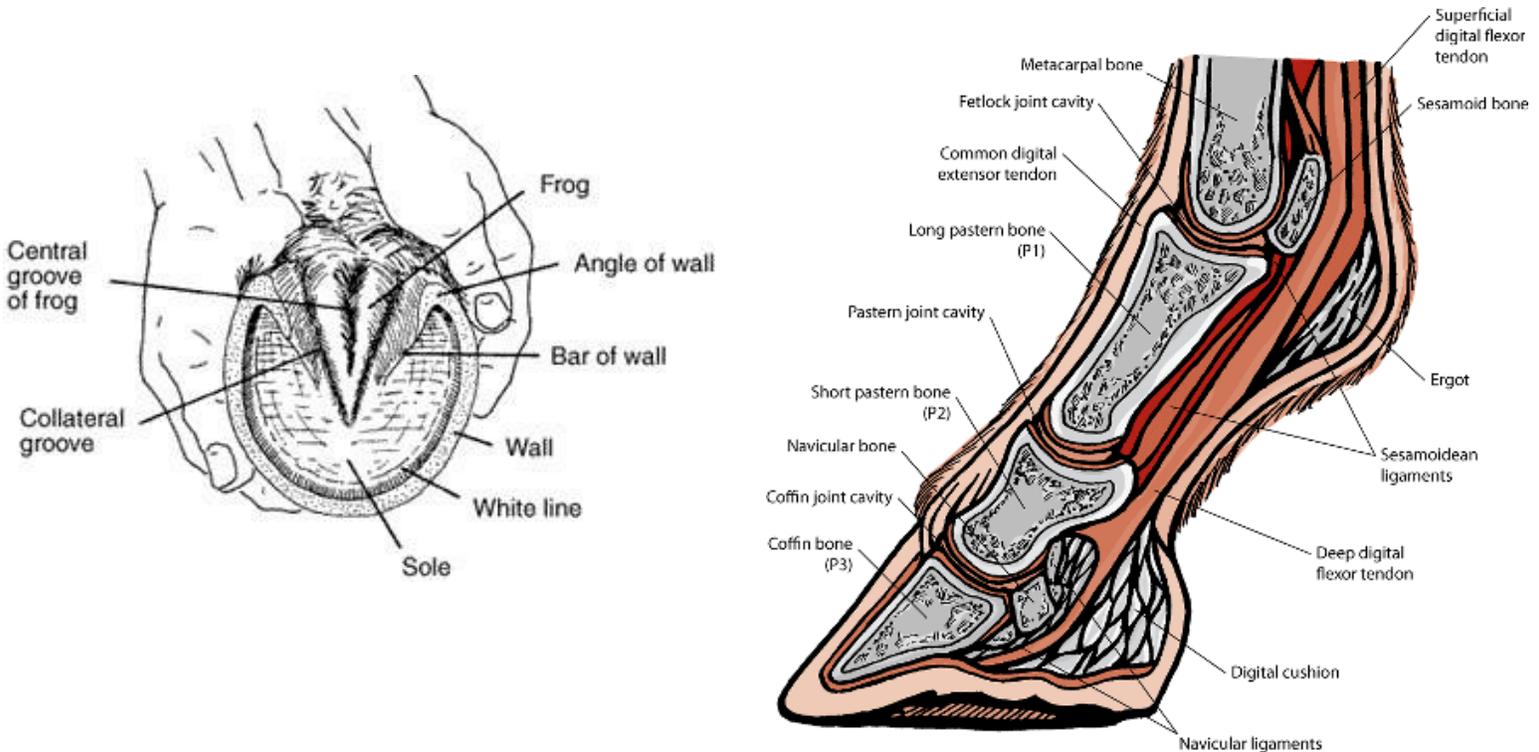
"**Galvayne's Groove.**" A groove said to appear at the gum margin of the upper corner incisor at about 10 years of age extends halfway down the tooth at 15 years and reaches the table margin at 20 years. It then is said to recede and disappear at 30 years.

"**Bishoping**" is tampering with cups to make the horse appear younger than it is.

"**Floating**" is filing high spots in molars to facilitate chewing. Molars should be checked regularly by veterinarians as the horse approaches mid-life and should be kept floated as needed thereafter.

Hoof

174 book- pages 104-110

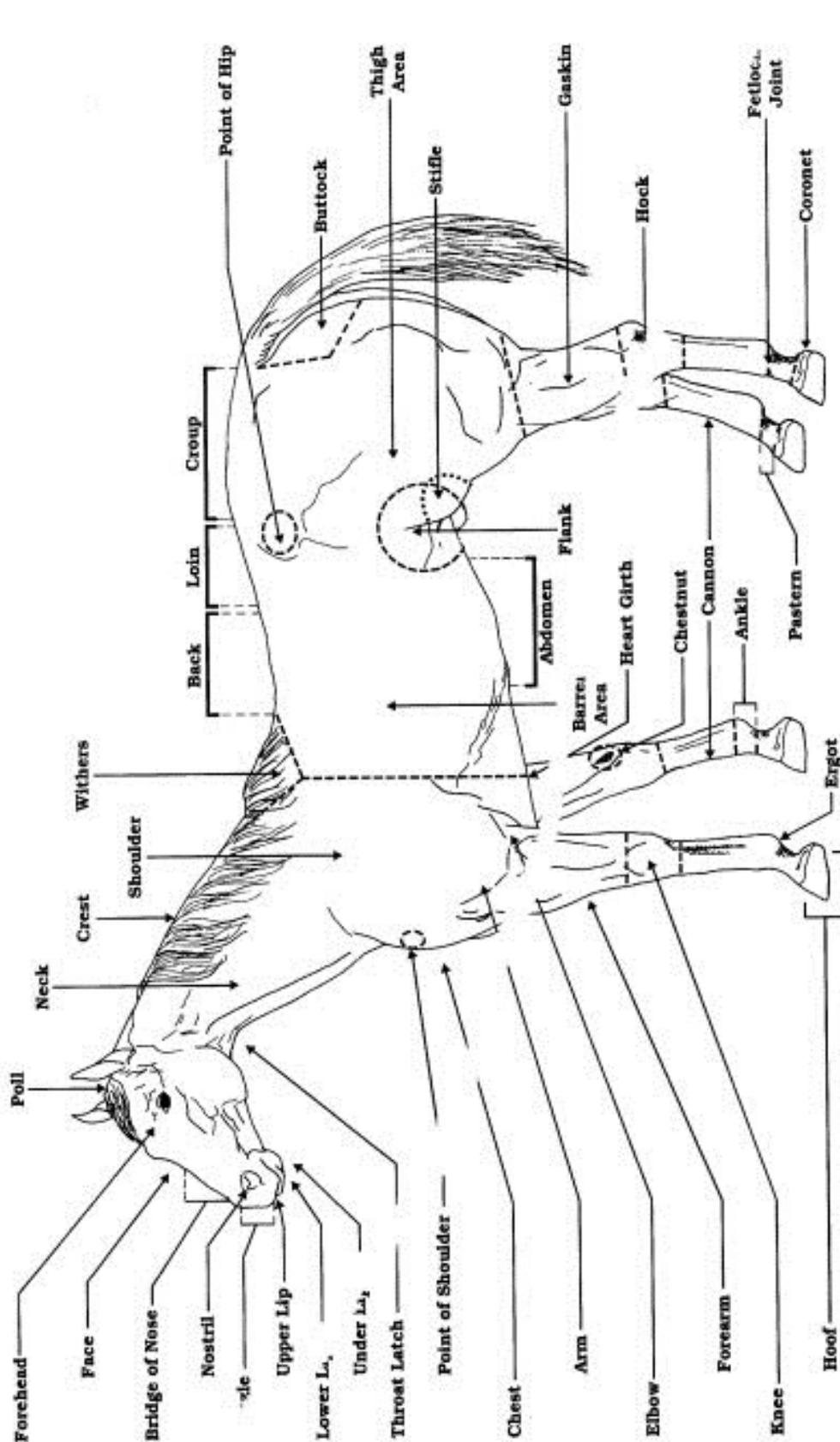


Hoof wall (which has no blood vessels or nerves) is composed of a horny material that is always growing and must be worn off or trimmed off. The front feet, the wall is thickest at the toe; the hind feet the hoof wall is of a more uniform thickness. **The wall, bars and frog** are the weight-bearing structures of the foot. Normally the sole does not contact the ground. The frog makes contact with the ground first. When the foot is placed on the ground, blood is forced from the foot to the leg by the increase in pressure. When the foot is lifted, the compression is relieved and blood flows into the veins again which acts like a pump. Exercise increases the blood circulation in the foot and favors good hoof growth. Lack of exercise, dryness of the horny wall, and poor nutrition inhibit hoof growth.

Normally, the hoof wall grows at the rate of about **three-eighths inch per month**. New layers of hoof wall are produced continuously from just below an area the coronet. Hooves should be trimmed every six to eight weeks. The hoof wall is covered with material that prevents evaporation of moisture. When this material is deficient, the hoof wall becomes dry and excessive flaking and cracking may occur. **Founder** is the rotation of the coffin bone within the hoof capsule which can occur if the inflammation of laminitis is not corrected quickly enough. Clean out the hooves every time before and after you ride. Examine them regularly for problems.

The triangular shaped frog is separated from the bars by two small grooves in the sole known as the **Sulci**. Underneath the hoof wall are the structures that hold the hoof together known as **laminae**. **Laminae** are tissue that act like interlocking fingers to hold the hoof together and give it some degree of flexibility. Two types of Laminae: a. **Sensitive laminae** supply the blood and nerves that allow the hoof to function properly b. **Insensitive laminae** are rigid type of tissue that works to transfer the weight of the horse to the hoof wall to decrease the burden on the sole. **Sole of the hoof** is concave and joins the hoof wall at the junction which is the **white line**. **White line** marks the boundary between the sensitive and insensitive structures of the hoof.

Parts of a Horse

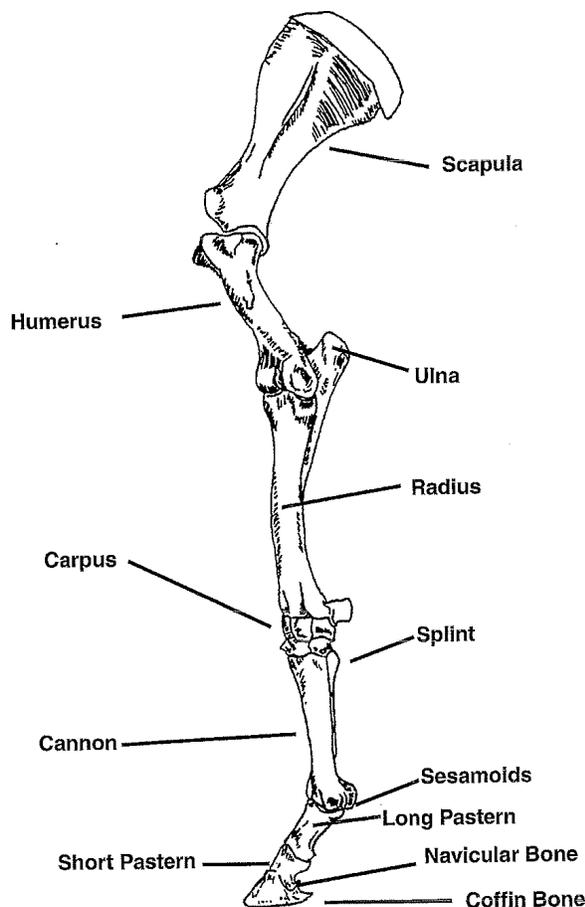


Equine Anatomy

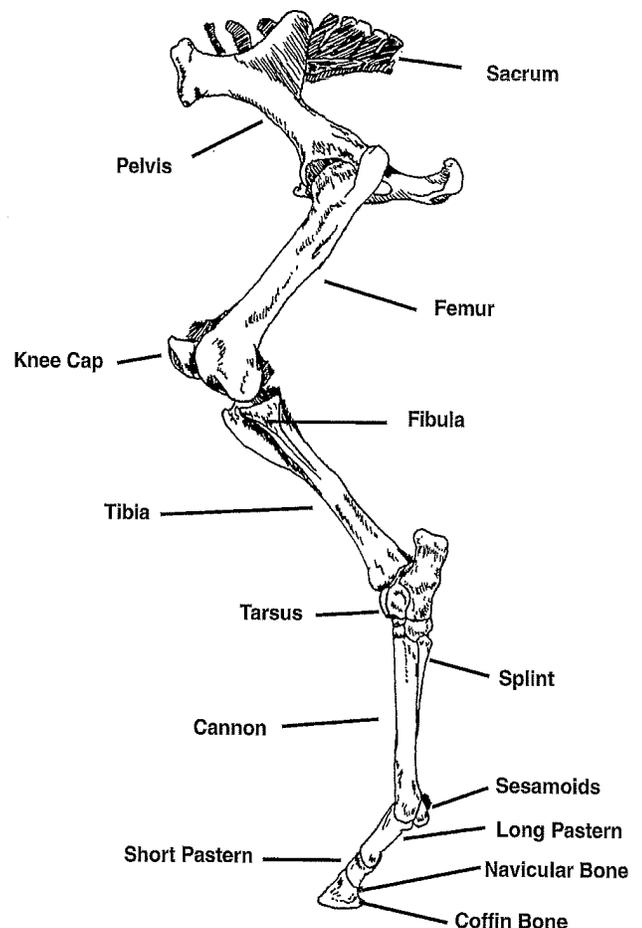
The **musculo-skeletal system** is made up muscles (musculo-), bones (skeletal) and the tissues that connect and assist them in functioning. Two types of connecting tissues: **Tendons** which connect the muscle to the bone and are responsible for the movement of the bone; **Ligament** which connect one bone to another bone and help make the joint.

- ✦ **Joints** are places within the skeleton where two or more bones join. Joints absorb the shock when the horse is moving. The most important joint motion for the horse are flexion and extension. When a joint extends or opens it is termed **extension** . When a joint closes or bends, it is a **flexion**.
- ✦ Bones only move because muscles move. **Muscle** is the most predominate tissue in the body of a horse. There are three types of muscle: **Cardiac** (heart) **Smooth** (gastrointestinal track) or **Skeletal** or striated muscle. (moves head, legs, or chews food).
- ✦ Skeleton provides support, protection and give the horse its shape. Two types in skeletal system: **Axial Skeleton** has the skull, spine, ribs; **Appendicular** Skeleton are the legs/limbs. Bones that make the skeleton come in different sizes and four categories: irregular, flat, short and long bones.

Equine Forelimb



Equine Rearlimb



Parasites

174 book- pages 130-141

TYPES OF INTERNAL PARASITES

There are more than 150 species of internal parasites that can infect horses. The most common and troublesome are the following:

Large Strongyles- as larvae, penetrate the lining of the bowel and migrate along the blood vessels that supply the intestines. Infection can cause unthriftiness, weight loss, poor growth in young horses, anemia (low numbers of red blood cells) and colic. Fortunately, large strongyles can be effectively controlled by most available dewormers for horses.

Small Strongyles- larvae burrow into the lining of the intestine and remain dormant, or "encysted" (enclosed in a cyst-like structure), for several months before completing their life cycle. During this time, the larvae are resistant to most dewormers. Larvae can cause severe damage to the lining of the intestine, especially when large numbers of larvae emerge from the encysted stage all at once. Adult small strongyle females eggs comprise over 95 percent of those found in fecal egg counts of horses. Colic and diarrhea are common in heavily infected horses.

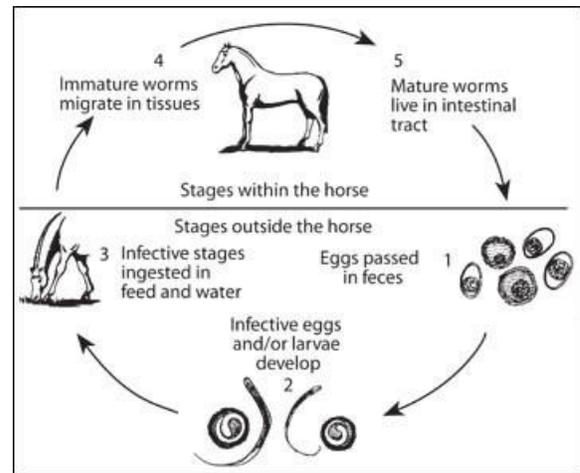
Roundworms or ascarids, are most often a problem in young horses (especially foals, weanlings and yearlings). Adult roundworms are several inches long and almost the width of a pencil; in large numbers they can cause blockage (or impaction) of the intestine. Roundworm infection in young horses can cause coughing, poor body condition and growth, rough coat, pot belly and colic. Colic is most likely in older foals (over 3 months of age) that are heavily parasitized with roundworms when dewormed for the first time.

Tapeworms can cause colic, ranging from mild cramping to severe colic that requires surgical treatment. The tapeworm life cycle involves a tiny pasture mite as an intermediate host, and horses are at a risk of developing tapeworm infection when they eat this mite in the grass, hay or grain. Praziquantel has been demonstrated to be highly effective against tapeworms.

Lungworms cause chronic coughing in horses, ponies, and mules. Donkeys are the natural host of this parasite, so typically they don't show any obvious signs of infection.

Pinworms lay their eggs on the skin around the horse's anus. The irritation they cause makes the horse repeatedly rub its tail.

Bots don't usually cause major health problems, although they can damage the lining of the stomach where they attach. Since ivermectin has become such an easy deworming medication to obtain, bots are rarely found in properly dewormed horses.



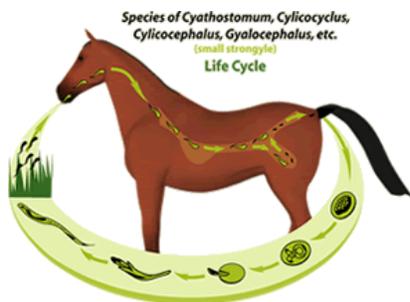
Parasites cont.

SIGNS: Horses can have dangerous numbers of internal parasites while still look healthy. But in some individuals, especially young horses, parasites can have:

- Dull, rough haircoat
- Lethargy (decreased energy) or depression
- Decreased stamina
- Unthriftiness or loss of condition
- Slowed growth in young horses
- Pot belly (especially in young horses)
- Colic
- Diarrhea



Bot Fly



- Keep the number of horses per acre to a minimum to prevent overgrazing and reduce pasture contamination with parasite eggs and larvae
- Pick up and dispose of manure regularly (at least twice a week, even in dirt or sand yards)
- Do not spread manure on fields to be grazed by horses; instead, compost it in a pile away from the pasture
- Mow and harrow pastures periodically to break up manure piles and expose parasite larvae to the elements (larvae can survive freezing, but they cannot tolerate extreme heat and drying for very long)
- Consider rotating pastures by allowing sheep or cattle to graze them, thereby interrupting the life cycles of equine parasites
- Keep foals and weanlings separate from yearlings and older horses to minimize the foals' exposure to ascarids and other parasites
- Use a feeder for hay and grain rather than feeding on the ground
- Remove bot eggs regularly from the horse's haircoat (flea combs work well in some instances)

Consult your veterinarian for an effective deworming program for your horse(s).

Parasite	Location	Ages affected	Injury and symptoms
Strongyles	Larvae: arteries, liver and gut wall Adults: large intestine	All ages, but young especially susceptible	Retarded growth, loss of weight, poor appetite, rough hair coat, general weakness, anemia, recurrent colic, death
Ascarids	Larvae: liver and lungs Adults: small intestine	Young under 2 years old	Retarded growth, pot bellied, rough hair coat, colic, pneumonia, death (ruptured intestine)
Bots	Eggs: on hair Larvae: tongue Bots: stomach.	All ages	Excitement (by flies), colic, retarded growth, poor condition, death (stomach rupture)
Tape-worms	Adults: junction of small intestine with large intestine	Six months or older	Digestive disturbances

One of the most useful tools in a parasite control program is the fecal egg count—microscopic examination of fresh manure for parasite eggs. This simple test allows the veterinarian to determine which parasites are present and whether the infection is light, moderate, or heavy.

Think about it...

As horse owners, it is going to be important to know how to do certain things for your horses:

- ✦ **It is important to know how much hay to feed and purchase....**

Forage/Hay: How much do you need for a year?

Calculating the number of 50 lb. bales to purchase in a season. 365 days/year x 20 lbs. per horse required/day = 7300 lbs. needed ! 50 lbs. /bale = 146 bales needed/year .

- ✦ **Know the ideal body score and name 4 areas on the horse's body to determine its score.**
- ✦ **What are the signs of a sick horse? What should you do or not do?**
- ✦ **Do you know the rules and score percentages for showmanship?**
- ✦ **Why is it important to have properly stored food and how to avoid feed contamination?**
- ✦ **Why would you check your horse after feeding it?**
- ✦ **Do you know your horses normal heart rate, temperature and respiration?**
- ✦ **Do you know how to read a feed label?**

Describes the purpose of the feed

Guaranteed Analysis section provides information on concentrations of nutrients in feed like protein and vitamins.

Ingredients list indicates all ingredients in the feed the ingredient listed first is in the greatest amount and last is least amount.

PURINA® OMOLENE #200® PERFORMANCE (F)

A PREMIUM QUALITY TEXTURIZED FEED FOR
PERFORMANCE, BREEDING AND GROWING HORSES

CAUTION: USE ONLY AS DIRECTED

GUARANTEED ANALYSIS

Crude Protein (Min)	14.0000%
Lysine (Min)	0.7000%
Crude Fat (Min)	6.0000%
Crude Fiber (Max)	7.5000%
Calcium (Ca) (Min)	0.9000%
Calcium (Ca) (Max)	1.2000%
Phosphorus (P) (Min)	0.5000%
Copper (Cu) (Min)	55.0000PPM
Selenium (Se) (Min)	0.6000PPM
Zinc (Zn) (Min)	220.0000PPM
Vitamin A (Min)	3000.00IU/LB
Vitamin E (Min)	130.00IU/LB

INGREDIENTS

Whole Oats, Cracked Corn, Wheat Middlings, Dehulled Soybean Meal, Coarse Barley, Cane Molasses, Calcium Carbonate, Stabilized Rice Bran, Soybean Oil, Vegetable Oil, Ground Corn, Flaxseed, Salt, Citric Acid, Magnesium Oxide, Choline Chloride, L-lysine, Vitamin E Supplement, Monocalcium Phosphate, Dicalcium Phosphate, Propionic Acid (A Preservative), Iron Oxide, Vitamin D3 Supplement, Riboflavin Supplement, Vitamin B-12 Supplement, Calcium Pantothenate, Zinc Oxide, Copper Sulfate, Niacin Supplement, Vitamin A Supplement, Calcium Iodide, Cobalt Carbonate, Ferrous Carbonate, Manganese Oxide, Di-methionine, Natural Mixed Tocopherols (A Preservative), Citric Acid (A Preservative), Ascorbic Acid, Rosemary Extract, Lecithin, Sodium Selenite.

RUMINANT MEAT AND BONE MEAL FREE
07NS-F-352H

See Reverse Side For Directions
For Use and Precautionary



8 04273 02055 6
PURINA MILLS, LLC
PO Box 66812
St. Louis, MO 63166-8812
Feed Questions? Please Call 1-800-227-8641

TEXT 50# 1/8
NET WT. 50 LBS. (22.67 KG.)

352H PURINA® OMOLENE #200® PERFORMANCE (F) 0032984