Small animal health and diseases

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General health care

First aid

- Once you have more than a few goats, it becomes evident that it is physically and financially impossible to take them to your veterinarian for every minor injury.
- It is important to have a first aid kit and to be able to evaluate injury or illness.
- “Can I treat this, or should I have the goat examined by a veterinarian? Is it an emergency, or can it wait until office hours?”

First aid

- Some First Aid Equipment
  - Antibacterial scrub
  - Antibiotic eye ointment
  - Antibiotic ointment
  - Antibiotic powder
  - Aspirin

First aid

- Some First Aid Equipment
  - Bandage materials
  - Epinephrine
  - Milk of Magnesia®
  - Penicillin
  - Sterile Eye Wash
  - Tetanus antitoxin

Cuts and Abrasions

- A common injury of this type is trimming hooves too short and cutting into the quick. The bleeding often stops by itself without treatment. Occasionally, the foot needs to be bandaged with a pressure wrap of gauze

Cuts and Abrasions

- Most cuts do not get infected, but you may give a preventative penicillin injection if the cut is deep. Make sure the goat is current on tetanus vaccine. Expect the goat to limp for a day or two

Cuts and Abrasions

- Cuts occur even in the safest pasture. If a cut is completely through the skin and the edges are separated, sutures are needed. These wounds can be bandaged until you can get the goat to your veterinarian

Cuts and Abrasions

- Apply some antibiotic ointment, a telfa pad, and wrap with gauze
- If the injury oozes blood, apply pressure to stop the bleeding. An injury that spurts blood needs immediate veterinary attention, as an artery may have been severed

Cuts and Abrasions

- Unless a wound is bleeding heavily, you can wait until regular office hours for veterinary attention. Make sure the wound is kept clean and the tetanus booster is up to date. A penicillin injection should be given if the cut penetrates through the skin

Eye Injuries

- Any eye abnormality should receive prompt attention. Minor injuries can progress quickly into serious eye damage. Weed awns, hay and straw commonly become lodged under an eyelid

Eye Injuries

- If not promptly removed, corneal lacerations and possible eye loss can occur. Early signs of a foreign body in the eye are squinting and excessive tears followed by closure of the eye and pus accumulation
- Flush the eye with sterile eye wash, then pull out the lid to locate the foreign body

Eye Injuries

- Antibiotic ointment should be used in the eye for several days after removing the foreign body
- The cornea is extremely sensitive, and any injury causes a great deal of pain, squinting and tears. A veterinarian should examine the eye if a corneal lesion is suspected
- Never use eye ointment containing cortisone if there is a possibility of corneal injury

Lameness

- A sudden limp is usually due to an injury. Examine the limb for pain, swelling and punctures. If you suspect a puncture, treat with penicillin and re-evaluate the injury in 12 hours

Lameness

- If you suspect a strain of pulled muscle, give aspirin at the rate of 5 gr/ 60 lb, rest the goat and re-evaluate in 24 hours. You can usually wait 1 or 2 days to see if the limp improves after examination and treatment
- Once again, make sure the tetanus booster is up-to-date if a puncture is suspected

Lameness

- Complete inability to use a leg is more serious. When this occurs suddenly with a good deal of pain, a fracture should be suspected
- Keep the goat as quiet as possible until a veterinarian can examine it
- Some type of leg support may be necessary if the goat needs to be transported to a clinic

Diarrhea

- Diarrhea can range from a dog-like stool to watery and explosive. Most breeders will have occasion to deal with diarrhea from a number of causes

Diarrhea

- Goats probably have pellets, instead of cow pats, due to muscular contractions as ingesta moves through the large intestine
- Through regurgitation and cud chewing, goats have a very fine particle size of ingesta, and this may also be a factor

Diarrhea

- Moisture is absorbed through the intestinal walls as ingesta travels through it
- Normal goat pellets are between 0.5 to 1.5 cm in diameter

Diarrhea

- A healthy digestive tract is very important. Fecal consistency is an easily observable indication of digestive tract health and some problems elsewhere

Diarrhea

- Adults: Pasty, watery or dog-like feces are abnormal and may indicate: parasitism, Johne's disease, overeating, displaced abomasum, enterotoxemia, or a diet that contains too much concentrate and not enough roughage

Diarrhea

- Blood in the stool is uncommon but can occur in enterotoxemia and coccidiosis
- Whole grain is not usually seen in the feces unless the goat is on a very high concentrate level
- Feces containing mucus indicate constipation or a prolonged time in the large intestine due to disease condition elsewhere in the body

Diarrhea

- Older goats usually get diarrhea from overeating a high carbohydrate source, like grain. They have rumen acidosis and a bacterial imbalance in the gut
- Give 2 to 3 ounces of Milk of Magnesia, take away all grain and feed palatable hay
- the goat is off feed and running a temperature, penicillin can be given. Such cases should turn around in 12 hours

Diarrhea

- Kids: Coccidia is an uncommon cause of diarrhea in kids less than one week old; umbilical and bacterial gut infections are more usual
- Bacteria can enter the umbilicus at birth to multiply and cause problems in the liver. Long-term, aggressive antibiotic therapy is necessary to correct the problem

Diarrhea

- Escherichia coli is the usual culprit in intestinal bacterial infections in kids. This organism enters the body by mouth. Antibiotics are needed. Overeating also causes kids to scour
- Diarrhea in kids over two weeks old is usually due to either coccidia or overeating

Diarrhea

- The young kid is treated as a simple-stomached animal, as its rumen is not highly developed
- Oral sulfa can be used for coccidiosis and bacterial bowel infections
- This is a good product to start with, especially if the cause of the diarrhea is unknown

Diarrhea

- While microscopic examination of the feces is important to diagnose and monitor intestinal parasitism, daily gross examination of feces can be a valuable aid in determining the general health of the goat.

Pneumonia In Goats

- “Pneumonia” is the term given to describe inflammation or infection of the lungs. Bronchitis, tracheitis and laryngitis describe infections of the upper portion of the respiratory tract.

Pneumonia In Goats

- Some of these predisposing factors include:
  - Environmental insults, such as poor ventilation, dirty conditions, and overcrowding in barns and sheds. Inadequate air circulation, especially when combined with high humidity and a manure pack, is a deadly insult to lung tissue.

Pneumonia In Goats

- Some of these predisposing factors include:
  - Lungworms can produce a good deal of damage to lung tissue on their own, but their presence debilitates tissue, making it easy for secondary infection to set in. Lungworms can produce a good deal of damage to lung tissue on their own, but their presence debilitates tissue, making it easy for secondary infection to set in.

Pneumonia In Goats

- Some of these predisposing factors include:
  - Stress of any kind- shipping, goat shows, etc., - will lower an animal's resistance, making it more susceptible to infection. In goats, respiratory infection seems to be a common sequella to stress.

Pneumonia In Goats

- Some of these predisposing factors include:
  - Aspiration of drench material, (especially mineral oil), or vomitus, sets up a nasty infection known as aspiration pneumonia. With careful drenching technique and adding a flavored substance to mineral oil, this should not occur.

Pneumonia In Goats

- The actual infection agent that causes pneumonia may be a virus, Mycoplasma, Chlamydia, bacteria or fungus, or a combination. The most common are bacteria such as Pasteurella, and Corynebacterium.

Pneumonia In Goats

- Clinical signs
  - Signs of pneumonia in goats include labored breathing (sides heaving), rapid, shallow breathing, a “rattle” heard in the chest, standing with forelegs apart and neck stretched out, intolerance to exercise, nasal discharge, and eventual weight loss and often death.

Pneumonia In Goats

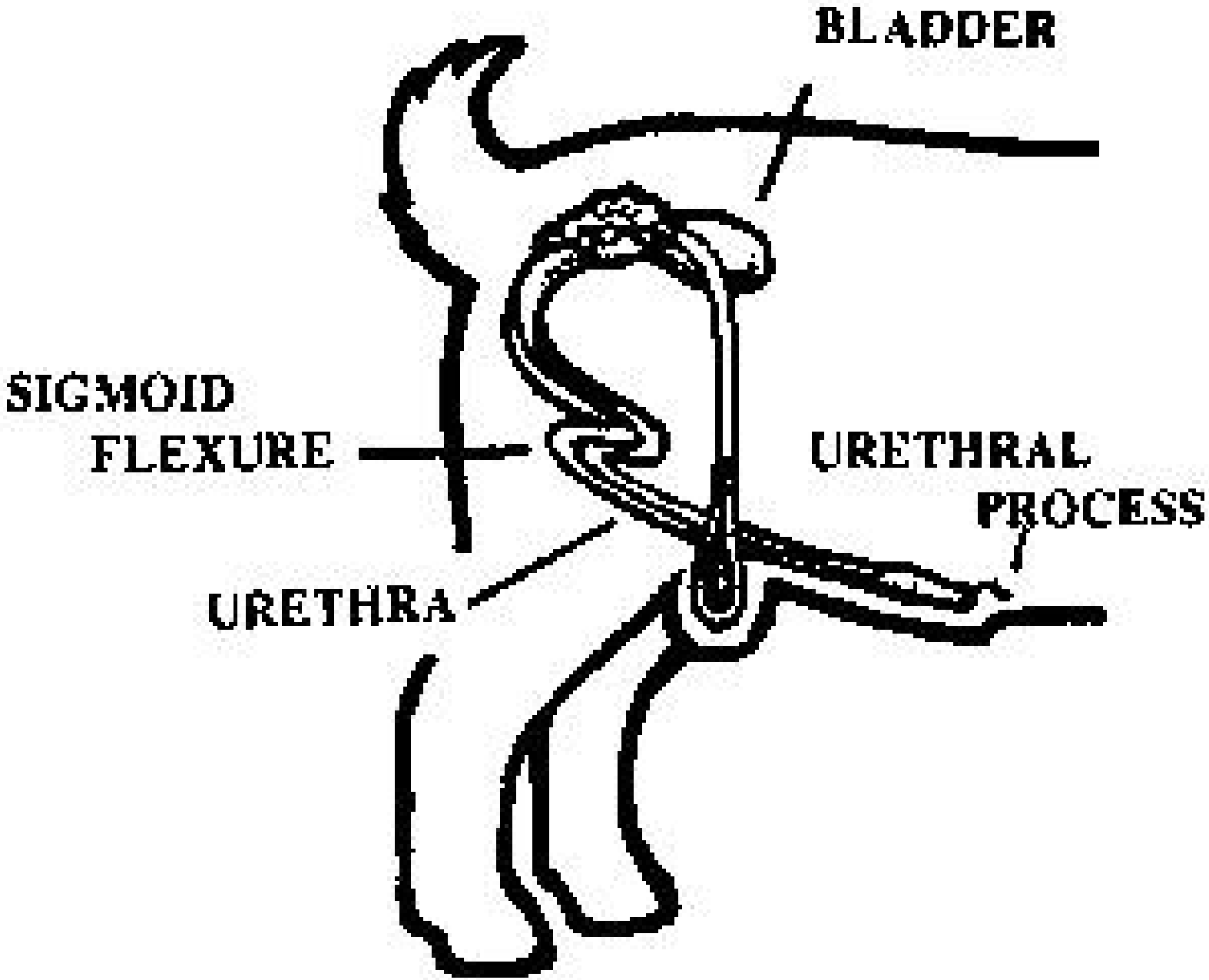
- Clinical signs
  - There is usually a fever initially, but the temperature may be normal throughout most of the disease, which may last for months. A chronic cough may accompany pneumonia, but a cough may also mean a bronchial or laryngeal infection. These signs, however, are not always that obvious to the untrained eye.

Pneumonia In Goats

- Prevention and control of pneumonia and other respiratory diseases involves removing the predisposing factors, isolating sick animals, parasite control, and vaccination where this is appropriate.

Urinary Calculi

- Urolithiasis or calculosis, the metabolic disease of male sheep and goats, is the blockage of the urethra by struvite crystals, preventing the normal passage of urine from the bladder.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Urinary Calculi

- The disease, caused by what appears to be a complex of dietary and environmental factors, begins with the formation of ammonium phosphate ions which form a nidus to which other ions and eventually cells and mucus from the bladder adhere, forming a calculus of up to 3 mm in diameter.

Urinary Calculi

- These calculi pass without problem through the large, short female urethra, but rub and irritate the lining of the long, thin male urethra, causing irritation, swelling and eventual obstruction and occlusion of urine outflow.

Urinary Calculi

- Males from a few weeks of age to mature rams and bucks are all susceptible to this noncontiguous disease, but the highest risk population is the wether 3-6 months old on a high concentrate diet who has been castrated at an early age.

Urinary Calculi

- Factors which appear to predispose to the formation of urinary calculi:
  - A high percentage of concentrates (grain) in the diet.
  - A high phosphorus to calcium ratio.
  - Castration at an early age (1-4 weeks), slowing growth and development, resulting in a juvenile penis and urethra (narrower lumen and persistent adhesions of the penis to the prepuce)

Urinary Calculi

- Factors which appear to predispose to the formation of urinary calculi:
  - Water deprivation.
  - Inclement wether:
  - Cold water (decreased palatability and intake).
  - Reflex contraction of the penis and urethra in cold weather.

Urinary Calculi

- What are the Symptoms?
  Clinical signs vary. They usually start with restlessness and anxiety. Affected animals may experience abdominal pain, urine dribbling, distention and rupture of the urethra. They will usually experience a loss of appetite.

Urinary Calculi

- What are the Symptoms?
  They may have a humped-up appearance and edema under their belly. They may kick at their belly and strain to urinate. Dribbled urine may be bloody. As pain and discomfort increases, affected animals will isolate themselves. In goats, there may be increased vocalization and tail twitching.

Urinary Calculi

- What are the Symptoms?
  If left untreated, affected animals will die when the bladder bursts and urine fills the peritoneal cavity and is absorbed into the bloodstream. Sometimes, it may be necessary to humanely destroy an affected animal to avoid further suffering.

Urinary Calculi

- How to You Treat It?
  Treatment of urinary calculi depends upon the location of the obstruction and could be as simple as snipping off the urethral process to allow calculi at the end of the penis to dislodge. Tranquilizers and antispasmodics may help to naturally dislodge some calculi. In more advanced cases, surgical intervention may be necessary to save valuable animals or pets. Veterinary advice should be sought in this case.

Urinary Calculi

- How Do You Prevent It?
  Like most disease conditions, it is better to prevent urinary calculi than to treat it. It can be prevented by feeding rations which contain a calcium-to-phosphorus ratio of at least 2:1. The ratio of Ca:P should never be allowed to go below 1:1. High calcium diets are effective at reducing the absorption of phosphorus from the GI tract. Neither magnesium or phosphorus should be added to concentrate diets.

Urinary Calculi

- How Do You Prevent It?

  Diets should also contain adequate amounts of vitamin A. Supplements should not be haphazardly added to otherwise balanced rations. Horse feed should not be fed to small ruminants because horse diets are not balanced for ruminants and can lead to stone formation

Urinary Calculi

- How Do You Prevent It?
  Extra calcium is well tolerated by sheep, so where rations are unbalanced, they can be counterbalanced by adding ground limestone (not dicalcium phosphate!). Legume hays (alfalfa, clover, lespedeza, etc.) are good sources of calcium. In addition, roughage will increase salivation and rumination which will increase the amount of phosphate excreted in the urine

Urinary Calculi

- How Do You Prevent It?
  Cereal grains (corn, barley, etc.), on the other hand, have an abnormally low calcium-to-phosphorus ratio: 1:4 to 1:6. Therefore, rations containing cereal grains need to be balanced with other feeds or mineral sources to form a complete ration that has the proper ratio of calcium and phosphorus.

Urinary Calculi

- How Do You Prevent It?
  When formulating your own feed rations, you need to include minerals in the ration or a source of calcium (such as legume hay). Free choice minerals may not be adequate to prevent urinary calculi in male goats and sheep, since you do not know if they are consuming sufficient quantities of the mineral.

Urinary Calculi

- How Do You Prevent It?
  Minerals should be force-fed. When feeding textured feeds or mixed rations (e.g. whole grain + pellets), you need to make sure the animals are not picking at certain feed ingredients. This can also lead to an imbalance of Ca and P being consumed.

Urinary Calculi

- How Do You Prevent It?

  Adequate water intake is also necessary to prevent urinary calculi. Inadequate water intake causes the urine to be more concentrated, which makes the formation of stones more likely. Water should be proper temperature and clean.

Urinary Calculi

- How Do You Prevent It?

  Force feeding salt (up to 4% of the ration) will help to increase water intake. However, salt should not be added to the water source, since lambs and kids will find it unpalatable and drink less water.

Urinary Calculi

- How Do You Prevent It?

  The use of ammonium chloride at a level of 0.5 percent of the total diet will help to acidify the urine and prevent the formation of calculi. Most commercial lamb and meat goat diets contain ammonium chloride, as well as the proper ratio of Ca:P.

Urinary Calculi

- Prevention of this deadly metabolic disease involves:
  - Castration after the animal is a month old.
  - Feeding a 2:1 calcium/phosphorus ratio rather than offering minerals free choice.

Urinary Calculi

- Prevention of this deadly metabolic disease involves:
  - Adding sodium chloride to the diet so that it constitutes 4% of the dry matter in the diet. This will aid by discouraging the formation of crystals through its ionic action, and by increasing the animal's water intake.
  - Offering the animal plenty of warm, fresh water.

Recognizing and Treating Pregnancy Toxemia

- Pregnancy Toxemia is a very serious metabolic disorder that typically occurs in the last month of gestation, or in the first month after kidding (called ketosis after kidding). The seriousness of the illness is determined by how early the problem is detected. When the doe becomes recumbent, the prognosis is poor.

Pregnancy toxemia

Recognizing and Treating Pregnancy Toxemia

- Toxemia is caused by an accumulation of poisons (ketones) which is a result of incomplete metabolism of fat. Metabolism of fat produces glucose. When the nutritional demand of the fetuses (or demand for milk production) for glucose cannot be met by the doe, large amounts of ketones are produced, and get into the blood stream, milk and urine. As the toxins accumulate, the doe becomes weaker, and if untreated, may die.

Recognizing and Treating Pregnancy Toxemia

- Several conditions can cause pregnancy toxemia. Over-conditioned animals have fat in their abdominal region. As the fetuses grow and take up space, there is not enough room in the gut for the doe to eat enough to meet the energy demands of the fetuses. Under-conditioned animals cannot meet their own energy needs, without the added burden of developing fetuses.

Recognizing and Treating Pregnancy Toxemia

- Multiple fetuses can distort the energy balance. Mature does that are carrying 3 or 4 kids, or young does carrying 2 kids, often run into trouble. If a doe has another illness, such as pneumonia, mastitus, or lameness, she can develop secondary ketosis that can become the primary concern.

Recognizing and Treating Pregnancy Toxemia

- Adequate exercise is of the utmost importance. Does that are too confined are prone to pregnancy toxemia. Exercise also develops good muscle tone, keeps the uterus flexible, and makes for easier kidding.

Recognizing and Treating Pregnancy Toxemia

- Early stage symptoms are lack of appetite - nibbling on their grain or hay, rather than eating with gusto. The does lay around more than is typical. As the toxemia develops, the doe may segregate herself from the herd.

Recognizing and Treating Pregnancy Toxemia

- She may stop eating all together, and only get on her feet when coaxed. She may start to retain fluids in her lower limbs. Late stage symptoms are dullness in the eyes, a staggering or shakey walk, the rumen ceases to function, and they become recumbent.

Recognizing and Treating Pregnancy Toxemia

- Adequate treatment requires meeting the glucose needs of the doe and her fetuses, thereby stopping the production of ketones. The aggressiveness of the treatment is determined by the stage of ketosis. Early stage toxemia can be treated with oral glucose additives.

Recognizing and Treating Pregnancy Toxemia

- She may stop eating all together, and only get on her feet when coaxed. She may start to retain fluids in her lower limbs. Late stage symptoms are dullness in the eyes, a staggering or shakey walk, the rumen ceases to function, and they become recumbent.

Recognizing and Treating Pregnancy Toxemia

- A doe who is moderately to seriously ill will need propylene glycol. An initial dose of 2-4 oz is often adequate, depending on the severity. Propylene Glycol is hard on the fauna and flora of the gut, so use with care. The digestive tract is already in trouble.

Recognizing and Treating Pregnancy Toxemia

- When giving glycol, it is a judgment call. Sometimes it needs administered twice a day at 4 oz per dose, other times 2 oz once a day is adequate. If the doe responds to treatment, but is still not herself, retreat, but only as long as it absolutely necessary.

Recognizing and Treating Pregnancy Toxemia

- Symptoms of toxemia rarely leave the doe completely until the doe kids. If she is within 10 days of parturition, you can induce labor. This is also hard on the doe, so you would want to be sure that she is strong enough to go through the labor process.

Recognizing and Treating Pregnancy Toxemia

- If the doe is not in the 10 day safety zone, and since giving birth tends to relieve the toxemia, sometimes you must choose whether to save the doe or her kids.

Recognizing and Treating Pregnancy Toxemia

- A doe who has had a severe case of pregnancy toxemia often has lactational ketosis. This is somewhat easier to treat, as you no longer have fetuses to consider. The doe's milk production will decrease, thus reducing her body's demand for glucose.

Recognizing and Treating Pregnancy Toxemia

- Both can cause abortion, dystocia, and retained placenta in a pregnant doe. Steroids should not be used on does with complicating conditions such as mastitis or pneumonia, as steroids suppress the immune system.

Recognizing and Treating Pregnancy Toxemia

- Watch your does carefully in their last month of gestation. Know her habits and what is normal for her behavior. My herd queen is prone to pregnancy toxemia. I can tell that she is getting ready for a bout when she allows another goat to eat near her.

Recognizing and Treating Pregnancy Toxemia

- Give her some brown sugar, and she is her hateful self again. Sometimes simple behavior changes can indicate the onset of pregnancy toxemia/ketosis. Be alert and avoid the more serious cases.

Wethers are at greatest risk for urinary calculi

Pregnancy toxemia can be prevented by increasing the amount of energy in the diet during the last month of pregnancy

Ammonium Chloride as a Feed Additive (Preventative)

Ammonium Chloride	To mix, add pounds/ton of feed	For topdress, add grams/lb feed
0.50%	10 pounds per ton	2.27 gr
1.00%	20 pounds per ton	4.54 gr
1.50%	30 pounds per ton	6.81 gr

Nutrition management of goats

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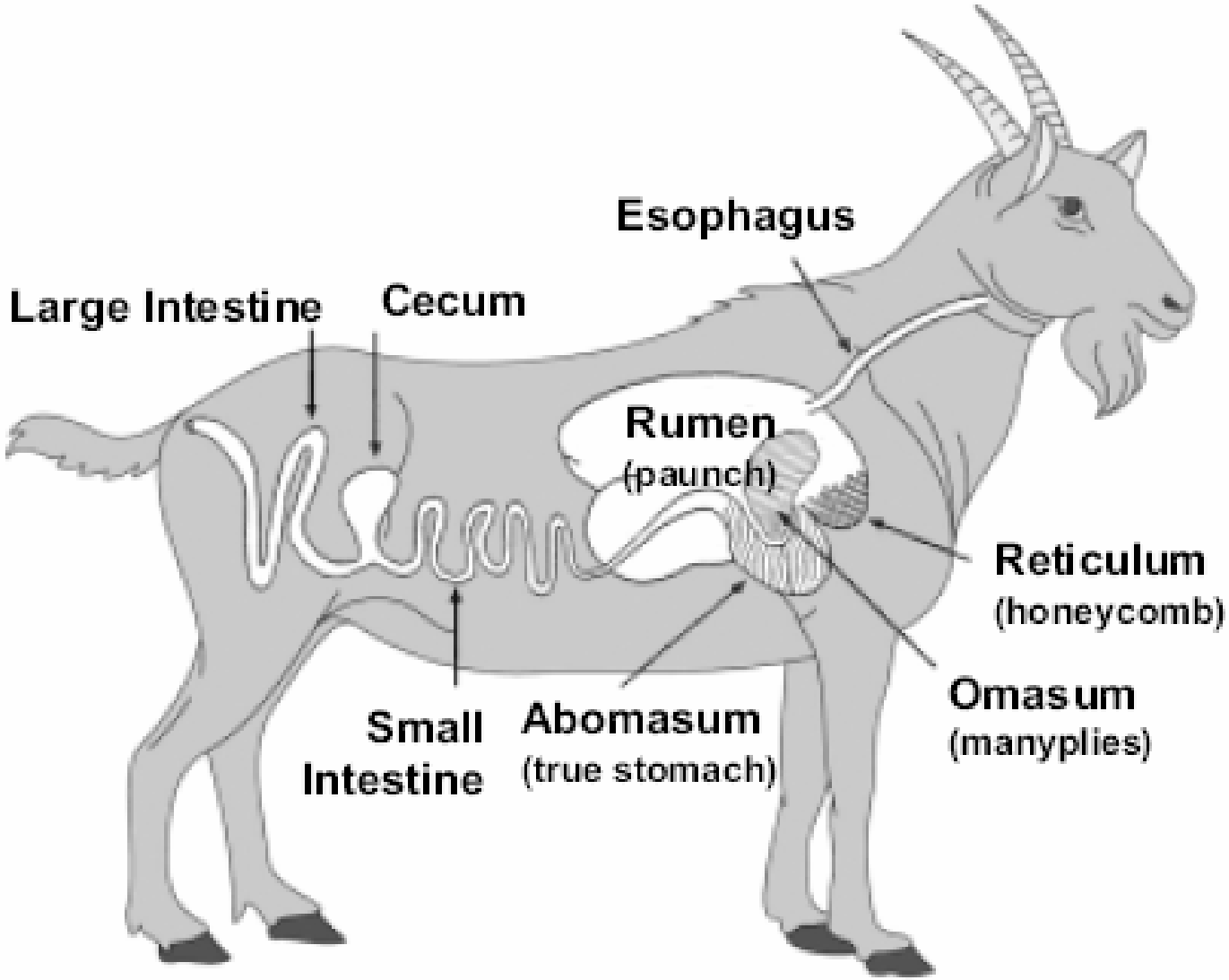

The digestive tract of goats.

Nutrition management of goats

- Energy : age, body, size, growth, level of activity, pregnancy, lactation, and environment affect the energy requirements of goats.
- Carbohydrates and fats supply most of the energy requirements of the animal body.
- Much of the goat's energy comes from the breakdown of cellulose in roughages and the breakdown of starch and fat in concentrates.

Nutrition management of goats

- Energy deficiency in goats results in reduced growth or weight loss, reduced reproductive performance, reduced milk or fiber production, and reduced resistance to infectious diseases and internal parasites.

Nutrition management of goats

- Protein : protein consists of AAs that are the basic units of all body cells. Goats requires protein for growth, reproduction, milk production, disease resistance, and general maintenance.
- Mature goats rely on rumen microorganisms to synthesize essential AAs

Nutrition management of goats

- Protein deficiencies in the diet of goats result in depleted stores in muscles, retarded fetal development, low birth weights, reduced growth, and depressed milk production

Nutrition management of goats

- Vitamins : vitamins are organic compounds required in small amounts by the goat's body
- All the B vitamins and vitamin K are synthesized by microorganisms in the rumen, and vitamin C is synthesized in body tissues
- Mature goats require only dietary sources of the fat soluble vitamins A, D, and E.

Nutrition management of goats

- During the grazing season, goats can obtain sufficient fat-soluble vitamins from green pastures and plenty of sunlight.
- Goats can also store adequate supply of these vitamins to maintain production for 3 to 4 months.

Nutrition management of goats

- Vitamin A deficiency – abnormal bone development, low resistance to infections, night blindness, birth of abnormal kids
- Vitamin D deficiency – bone abnormalities
- Vitamin E prevents nutritional muscular dystrophy.
- Selenium is also effective in preventing nutritional muscular dystrophy in young kids

Nutrition management of goats

- Minerals – major macrominerals are common salt (NaCl), Ca, P, Mg, K, and S
- Trace minerals – Co, Cu, Mo, F, I, Fe, Mn, Se, Zn
- In the goat feeding, most minerals are usually added to mixed feeds. It is also recommended that the C : P ratio be kept in approximately 2 : 1

Nutrition management of goats

- Water – the least expensive nutrient and the largest component of live plant and animal tissue
- Environmental factors, age, growth, pregnancy, lactation, and level of activity affect the water requirements of goats
- Adequate supply of fresh, clean water is critical to goats during their entire life cycle.

Nutrition management of goats

- Feedstuffs – goats prefer to eat browse (brushy plants) and can efficiently digest coarse, fibrous feeds.
- Goats will consume and effectively utilize a wide variety of woody and weedy plant species found on ranges

Nutrition management of goats

- Meat goats are raised primarily on unimproved pastures and rangelands
- Meat goats do not need extra feed if they are grazing on land areas with a variety of brush, weeds and grass.
- If pasture or range conditions become adverse and supplemental hay is of poor quality, provide supplemental concentrates for maximum performance.

Nutrition management of goats

- Cereal grains such as corn, oats, barley, and wheat, are the common energy ingredients of concentrate mixtures of goats.
- Oil meals – cottonseed meal and soybean meal are probably the most widely used sources of protein of goats.
- Commercial supplements containing other nutrients may be preferable

Nutrition management of goats

- Kids – newborn kids should be allowed to nurse their dams to obtain colostrum (first milk)
- Colostrum contains antibodies that protect young kids against diseases
- Early forage consumption will lead to early rumen development

Nutrition management of goats

- To encourage young kids to consume solid feed at about 2 to 3 wk of age, fine hay can be offered
- If pasture or range conditions are poor, however, kids should have access to good quality hay plus about 0.75 pounds of a grain mixture daily

Nutrition management of goats

- Replacements – after 4 to 6 months of age, replacement does and bucks can de well on good pasture or good quality hay alone
- A daily allotment of 0.5 pounds of a concentrate mixture should lead to ample growth
- If the pasture or hay is of poor quality, however, replacement animals may require 1 to 1.5 pounds of concentrate per day.

Nutrition management of goats

- Does – feeding does during a dry period is important for development of the unborn kids and for obtaining proper body condition of the does for adequate nutrition of the newborn kids
- The unborn kid develops 70% of its birth weight during the dry period (last 6 wk of pregnancy)

Nutrition management of goats

- If pasture and hay are poor quality, provide supplemental feeds such as goat range cubes at the rate of 0.5 to 0.75 pound per head per day
- A doe should be in good flesh but not fat at time of kidding

Nutrition management of goats

- Lactating does on good quality range or pasture may require daily supplementation of 0.5 to 0.75 pounds of grain mixture or range cubes that contain approximately 20% protein
- If the quality of range feed is poor, a higher protein supplement may be needed at the rate of 0.25 pound per head per day

Nutrition management of goats

- Bucks – young bucks should be fed in the same manner as replacement does, but they will require more feed because of their size
- Supplemental grain or concentrates should be fed according to the condition of the pasture and the bucks

Nutrition management of goats

- During the breeding season, however, grain or supplement should be provided at the rate of 0.3 to 0.5 pound per head per day
- If the buck becomes too fat or inactive, grain can be withdrawn

Feed	TDN, %*
Alfalfa	58
Sorghum sudangrass	56
Bermudagrass	46
Whole shelled corn	90
Oats	77
Whole cottonseed	96
Cottonseed meal	76
Soybean meal	84
Cane molasses	72
*100% dry matter basis.	

Table 1 Suggested Feeding Rates for MEAT Goats		
Stage	**% Protein**	**Amount Daily (per head)***
Pre-weaning/Creep feed	18%	0.25-0.33 lb
Weanlings	16%	0.5-0.75 lb
Growing/Finishing	14%	1 lb
Flushing (1 month prior to through 1 month after breeding)	14-16%	1-3 lb
Gestation (2nd-3rd month)	14-16%	0.5-1 lb
Gestation (last 6 weeks)	14-16%	0.75-2 lb
Lactation (avg., single kid)	14-16%	0.75-1.25 lb
Lactation (heavy, twins)	14-16%	2 lb
Replacement does	16%	0.5-1 lb
Billies (adult, non-breeding)	14%	$\leq_{0.5}$ lb

Provide free-choice access to forage and ensure goats have unlimited supply of clean, fresh water. Provide free-choice mineral supplementation.

*Feeding rate may vary for medicated feed products. Refer to product feeding directions.

Table 2 Suggested Feeding Rates for DAIRY Goats		
Stage	**% Protein**	**Amount Daily (per head)**
Pre-weaning/starter feed (2 to 4 months)	**18%**	**Free-choice**
Growing goats (4 months to 6-8 weeks prior to kidding)	**14-16%**	**1-1.5 lb**
Dry does (6-8 weeks prior to kidding)	**14-16%**	**1-2 lb**
Lactating does	**14-16%**	**1 lb for each 3 lb of milk produced**
Provide free-choice access to forage and ensure goats have unlimited supply of clean, fresh water. Provide free-choice mineral supplementation.		

Animal	**Protein**	**Energy**
Bucks	11% CP	60% TDN
Dry doe	10% CP	55% TDN
Late gestation	11% CP	60% TDN
Lactation (avg. milk)	11% CP	60% TDN
Lactation (high milk)	14% CP	65% TDN
Kid (30 lbs, >.4 lbs/day)	14% CP	68% TDN
Yearlings (60 lbs.)	12% CP	65% TDN

Feedstuff	Protein	Energy
Mature pasture	8% CP	50% TDN
Clover pasture	25% CP	69% TDN
Orchard grass pasture	18% CP	65% TDN
Browse (Honeysuckle)	16% CP	72% TDN
Soybean meal	44% CP	88% TDN
Complete pellets	12% CP	78% TDN
Barley grain	13.5% CP	84% TDN
Corn grain	10% CP	89% TDN
Poor hay	8% CP	50% TDN
Grass hay	12% CP	58% TDN
Mixed hay	15% CP	60% TDN
Legume hay	18% CP	62% TDN

วัตถุดิบ (กก.)	ลูกแพะหลังหย่านม		
	อายุประมาณ 3-7 เดือน		
	สูตร1	สูตร2	สูตร3
ข้าวโพดบด	40	-	-
ปลายข้าว	-	40	-
มันเส้น	-	-	36
รำละเอียด	20	20	25
กากถั่วเหลือง(โปรตีน44%)	8	8	12
กากมะพร้าว	24.5	25.5	19.5
กากเนื้อในเมล็ดปาล์ม	-	-	-
ใบกระถินแห้ง(คุณภาพดี)	5	5	5
กากเต้าหู้แห้ง	-	-	-
ยูเรีย(46-0-0)	-	-	-
กระดูกป่น/ไดแคลเซียมฟอสเฟต	1	1	1
เกลือป่น	1	1	1
แร่ธาตุ+ไวตามิน/พรีมิกซ์สำเร็จรูป	0.5	0.5	0.5
กำมะถันผง	-	-	-
รวม	100	100	100

วัตถุดิบ (กก.)	แพะระยะขุนส่งตลาด (อายุประมาณ 7 เดือนขึ้นไป)				
	สูตร1	สูตร2	สูตร3	สูตร4	สูตร5
ข้าวโพดบด	50	-	-	-	-
ปลายข้าว	-	50	-	-	-
มันเส้น	-	-	45	40	45
รำละเอียด	10	10	18	15	16
กากถั่วเหลือง(โปรตีน44%)	-	-	-	-	-
กากมะพร้าว	26.5	26.5	23.5	26.5	-
กากเนื้อในเมล็ดปาล์ม	-	-	-	-	20.5
ใบกระถินแห้ง(คุณภาพดี)	10	10	10	10	10
กากเต้าหู้แห้ง	-	-	-	5	5
ยูเรีย(46-0-0)	1.5	1.5	1.5	1.5	1.5
กระดูกป่น/ไดแคลเซียม ฟอสเฟต	1	1	1	1	1.5
เกลือป่น	0.9	0.9	0.9	0.9	0.9
แร่ธาตุ+ไวตามิน/พรีมิกซ์ สำเร็จรูป	-	-	-	-	-
กำมะถันผง	0.1	0.1	0.1	0.1	0.1
รวม	100	100	100	100	100

วัตถุดิบ (กก.)	แม่แพะให้นมลูก			แพะธรรดาท้องว่าง (อายุเกิน 1 ปีขึ้นไป)		
	สูตร1	สูตร2	สูตร3	สูตร1	สูตร2	สูตร3
ข้าวโพดบด	50	-	-	56.5	-	-
ปลายข้าว	-	-	-	-	-	-
มันเส้น	-	46	45	-	46.5	45.5
รำละเอียด	10	-	-	20	-	-
กากถั่วเหลือง(โปรตีน44%)	-	-	-	-	-	-
กากมะพร้าว	26	25	20	-	20	18
กากเนื้อในเมล็ดปาล์ม	-	-	21	-	-	18
ใบกระถินแห้ง(คุณภาพดี)	10	10	10	15	15	15
กากเต้าหู้แห้ง	-	15	-	5	15	-
ยูเรีย(46-0-0)	1.5	1.5	1.5	1.5	1.5	1.5
กระดูกป่น/ไดแคลเซียมฟอสเฟต	1.5	1.5	1.5	1	1	1
เกลือป่น	0.9	0.9	0.9	0.9	0.9	0.9
แร่ธาตุ+ไวตามิน/พรีมิกซ์สำเร็จรูป	-	-	-	-	-	-
กำมะถันผง	0.1	0.1	0.1	0.1	0.1	0.1
รวม	100	100	100	100	100	100