Sheep and Goat 101

Nebraska Lincoln EXTENSION

Know how. Know **now.**

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Start with the right animals

- Select healthy, sound animals from reputable breeders.
  - Be wary of hoof problems, respiratory problems, chronic digestive problems, abscesses, abortions etc.
- Select the appropriate breeds or breed cross(es) for your operation.
  - Crossbreed for meat production.
- Start with mature females.
- Start small and grow the size of your operation gradually.
- Do not get more animals than your pasture, facilities, and labor can support.

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Production Considerations

- Most expensive part of any livestock operation?
  - Feed
- Aspect of production that controls income?
  - Number of kids weaned and sold/doe exposed (reproduction)
- Nutrition and Reproduction cannot be separated in a production setting!!

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Differences: Nutrition

- Feed sheep ~2% BW
- Sensitive to copper
- Higher protein requirement

- Feed goats ~3% BW
- Need 2-3x Cu level
- More sensitive to P levels

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FACTORS AFFECTING NUTRIENT REQUIREMENTS

- Sex
- Age
- Weight
- Stage of production – maintenance, early or late gestation, lactation
- Level of production – high production rate vs. low, lactating for twins vs. singles.
- Climate and environment – temperature, humidity, wind velocity, length and density of fleece, travel distance, land topography, exercise
- Body Condition

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WATER

- Most critical of all nutrients.
- Primary roles – maintenance of body temperature, transport of nutrients and waste, establishment of an appropriate medium for the many chemical reactions that must take place.
- 1.0 to 1.5 gallons of water for each 4.0 pounds of dry matter consumed

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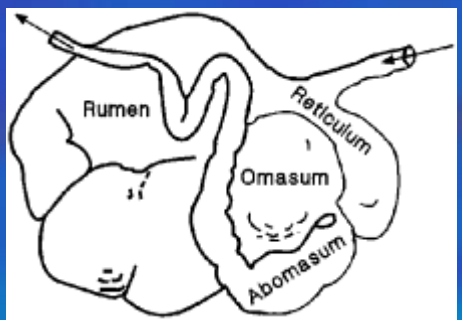
ENERGY

- Most common limiting nutrient
  - Grains and protein supplements – high
  - Hay – intermediate
  - Silage and fresh forage – low



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PROTEIN

- Quantity more important than quality
- Blood, feather, fish, poultry by-products, and meat meals – 50 to 90%
- Soybean, cottonseed, sunflower, linseed, and peanut meals – 35 to 50%
- Legume hays – 15 to 25%
- Grains – 8 to 13%

- Urea – non-protein nitrogen

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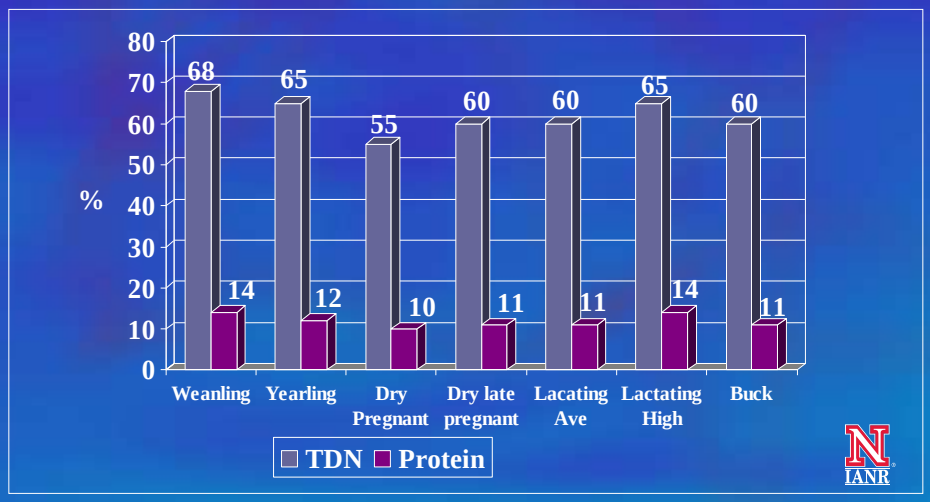
Nutrient Requirements of Goats



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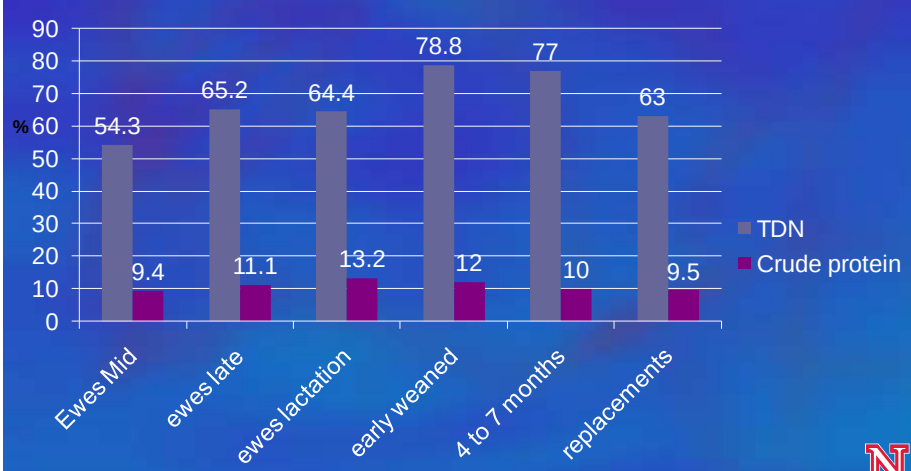
Nutritional Requirements of Sheep



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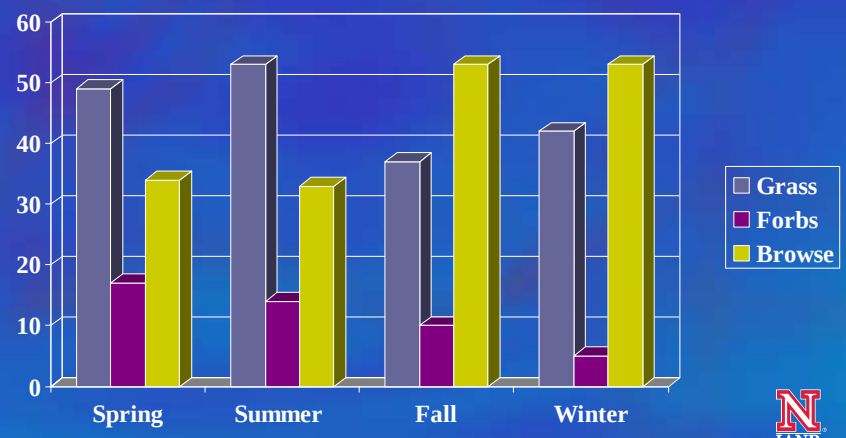
SEASONAL DIET COMPOSITION FOR GOATS



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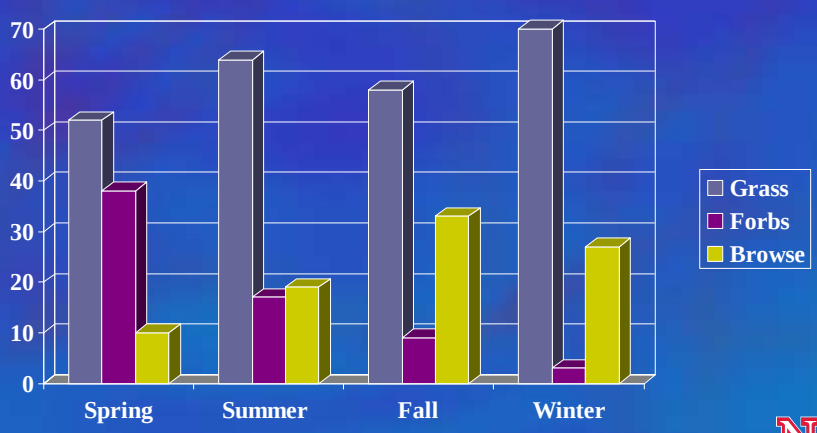

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Foraging behavior of sheep

- Prefer forbs (weeds)
- Eat grass and browse
- Like clover
- Graze close to the ground
- Inclined to graze higher, drier areas
- Shy away from wet areas.
- Tolerant of salt.

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Foraging behavior of goats

- Browsers – prefer woody plants, shrubs, vines and leaves.
- Top-down grazer, graze evenly (first grazer)
- Tend to select grass over clover
- Inclined to graze steeper, higher, drier areas.
- Like to graze fencelines
- Have a tolerance for tannins and other bitter compounds.
- Tend to have fewer problems with plant toxicities.

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How much pasture do you need?

- It depends on season, rainfall, forage species, grazing management, etc.
- Common rule of thumb is that two acres of permanent pasture will support one animal unit (1,000 lbs.) through the grazing season.
  - 1 AU = 1 cow = 5 to 7 sheep/goats
- Too much pasture can be a problem as too little, unless you can cut hay or clip pastures.

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Reproduction

Affected by photoperiod, short-day breeders

	GOATS	SHEEP
Length of estrus cycle	21 days	17 days
Duration of estrus	24-72 hours	20-48 hours
Time of ovulation	30-36 hrs. after onset of estrus	24-36 hrs. after onset of estrus
Gestation	142-150 days	
Out-of-season breeding	Less seasonal	More seasonal
Prolificacy	More prolific	Less prolific
Artificial insemination	Trans-cervical	Laparoscopic
Heat detection	many signs	difficult to detect
Teat structure	2 - 4 functional	2 functional
Males	Buck odor	No ram odor
Male : Female ratio	1: 15-25 males < 1 year; 1: 35-50 mature males	
	Buck and ram effect work	

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Puberty in the Female

- Rate to puberty will impact the female's lifetime productivity
  - Ewes 6 – 12 months
    - Impacted greatly by season of birth
  - Does 3 – 5 months
  - Provided nutrition is adequate and they are 60 – 70% of their mature weight
  - Breeding Doe kids and ewe lambs????
  - When she is large enough and old enough to get pregnant, carry her pregnancy to term and give birth to live offspring!!!

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Production Facts

- Goats
  - Temperature
    - 101.7 – 104.5° F
  - Heart Rate
    - 70 to 80 per minute
  - Respiration Rate
    - 12 to 15 per minute
  - Male = Buck
  - Female = Doe / Nanny
  - Castrated Male = Wether
- Sheep
  - Temperature
    - 102 to 103° F
  - Heart Rate
    - 60 to 90 per minute
  - Respiration Rate
    - 12 to 20 per minute
  - Male = Ram
  - Female = Ewe
  - Castrated Male = Wether

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Body Condition

- Overly thin females will often not breed
  - Biologically she is concerned with self survival rather than reproducing
- Overly Fat females will often not breed
  - Maintenance requirements increase
  - Fat is negative toward reproductive hormones

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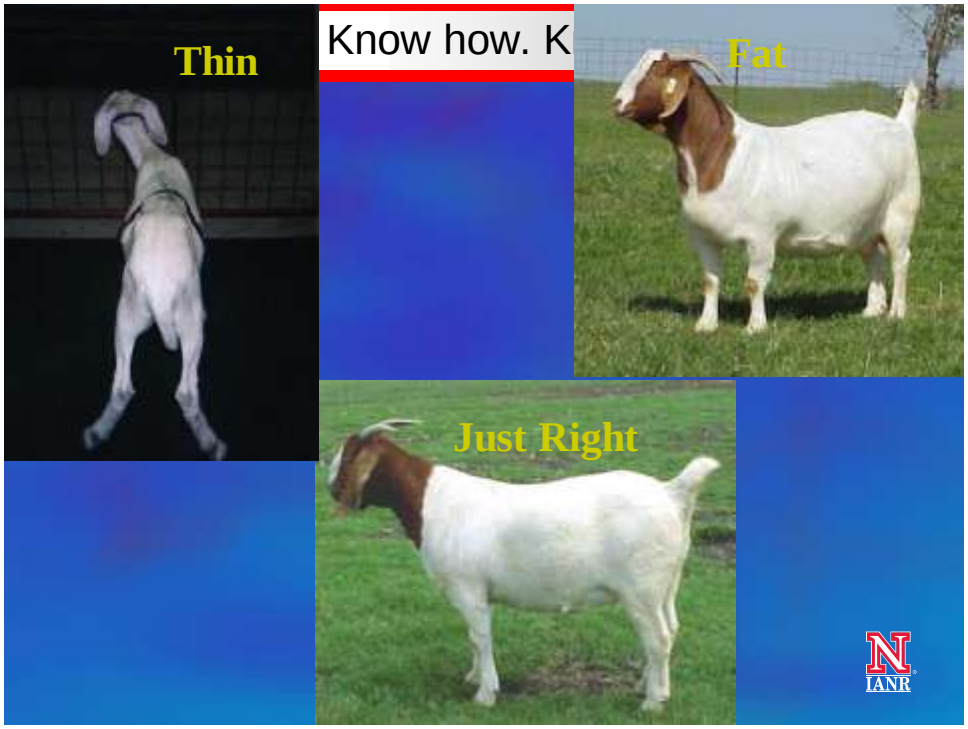

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Estrogen content of pastures

Phytoestrogens

- The estrogen content of legumes can interfere with reproduction.
- Ewes and does should be kept off of pastures containing high amounts of legumes 2 to 4 weeks before breeding

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Weaning

- Lambs and kids can be weaned as early as 30 days and as late as 6 months or more.
- There are numerous advantages and disadvantages to early and late weaning.

Early weaning (2-3 mos.)

- Save best pasture for lambs and kids
- Can market cull ewes/does earlier
- Focus parasite control on young stock

Late weaning (> 3-6 mos.)

- More natural
- Less stressful to lambs/kids
- Less problems with mastitis
- Ewes/does contaminate pastures with worm eggs
- Need to castrate males

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Predators

- 3-4% of total number of sheep lost to predation in 1994
- Number of sheep lost = 368,050 or 38.9% of all losses
- Loss of $17.7 million in revenue
- West and Mountain states lost 91.8% of sheep to coyotes
- Coyotes were biggest cause of predation losses at 66.2%
- 29.3% of goats lost to predation by coyotes = $5.48 million lost revenue
- 45% of sheep farms employ livestock guardians.
  - Guardian dogs (29.6%)
  - Llamas (14.2%)
  - Donkeys (11.4%)

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PREDATION - PREVENTION

- Livestock husbandry practices – penning at night, dispose of dead animals, fall lambing/kidding, barn lambing/kidding
- Frightening tactics – lights, bells and radio, vehicles, propane exploders, strobe lights
- Aversion – repellants, aversion conditioning
- Fencing – net wire, electric, electric modification of existing fences, portable electric
- Guarding animals – livestock guard dogs, donkeys, llamas, bonding with cattle, etc.

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Predator Control

- Guardian dogs
- Donkeys
- Llamas
- Fence

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Infectious Diseases

- Foot rot
- OPP
- Caseous lymphadenitis
- Paratuberculosis (Johne's)
- Pneumonia
- Sore mouth
- Pink eye
- Scrapie

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Foot Rot

- **Prevention – do not bring onto farm!**
- **Two anaerobic bacteria: *Dichelobacter nodosus* and *Fusobacterium necrophorum***
- **Control during wet season**
- **Eradicate during dry season – foot paring, foot bath (zinc sulfate), cull**

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Ovine Progressive Pneumonia/ Caprine Arthritis Encephalitis

- **Lentivirus**
- **Transmitted by colostrum, milk, nasal secretions, needles, surgical equipment**
- **Animals infected for life**
- **No treatment/cure**
- **Signs include weight loss, difficulty breathing (adults), cheesy udder/mastitis, arthritis, neurological syndromes**

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Ovine Progressive Pneumonia/

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Caprine Arthritis Encephalitis

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Caprine Arthritis Encephalitis

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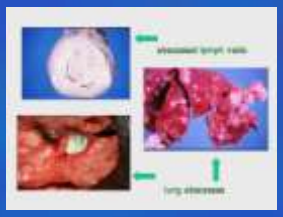
Caseous Lymphadenitis

- ***Corynebacterium pseudotuberculosis***
- **Abscesses in external lymph nodes, internal organs**
- **Spread by shearing, close confinement, respiratory secretions**
- **Infected animals are condemned at slaughter**



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Johne's

- Chronic intestinal infection with *Mycobacterium avium subsp. paratuberculosis*
- Spread through feces and orally
- Signs include weight loss, poor production, increased parasitism, occasional diarrhea
- Early culling essential

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Pneumonia

- *Mannheimia (Pasteurella) haemolytica*
- Cranioventral lung lobes
- Found dead or with difficulty breathing
- Poor growth if chronic
- Colostrum is a preventative in newborns
- Control through good ventilation

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Contagious Ecthyma – Sore Mouth

- Parapox virus
- Sores on and around mouth
- Can spread to teats while infected lambs/kids nurse – leads to mastitis
- Can build immunity after infection
- Vaccine is a live virus
- Zoonotic – can spread to open sores of people

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Pink Eye

- Mycoplasma or chlamydia
- Tearing, squinting, corneal ulcer
- Temporary response to tetracycline
- Develop immunity but relapse if stressed
- Different from entropian

Entropian

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Health and Diseases

Goats and sheep are generally affected by the same diseases.

	GOATS	SHEEP
Internal parasites	Use selective deworming (FAMACHA©), FEC's, and management to control parasites	
	Goats require higher dosages of anthelmintics	
Coccidiosis	Include coccidiostat in water, feed, or mineral	
Clostridial diseases	Vaccinate for *Clostridium perfringins* type C & D (overeating) and tetanus	
Other vaccinations	Varies by flock/herd, location, situation (soremouth, CL, abortion, rabies, foot rot)	
Common diseases	Foot rot, foot scald, Caseous Lymphadenitis (CL), sore mouth, ketosis, urinary calculi	
	CAE floppy kid silent pneumonia	OPP

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Gastro-Intestinal Parasites

Stomach Worms

- ***Haemonchus contortus****
- ***Ostertagia***
- ***Trichostrongylus***
- ***Nemotodirus***

Coccidia

- ***Eimera* spp.**

- **Good pasture and animal management**
- **Selective deworming using the FAMACHA© system**
- **Fecal egg counts to monitor pasture contamination and measure drug resistance.**

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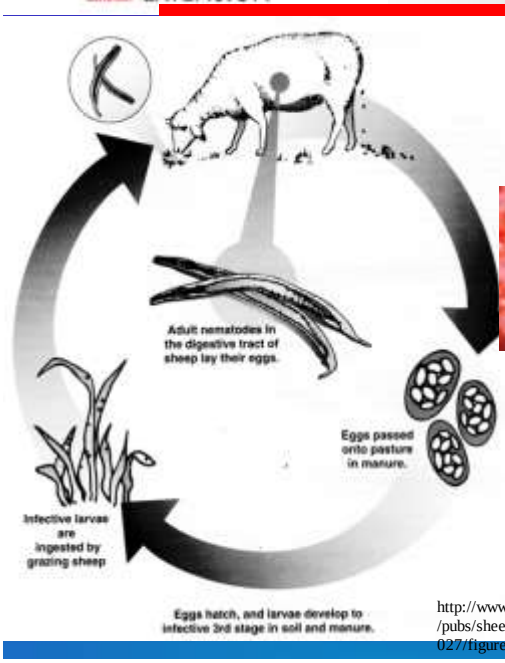

http://www.ext.vt.edu/pubs/sheep/410-027/figure1.html

Life Cycle of *H. contortus*

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Bottle Jaw

Anemia

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FAMACHA CARD

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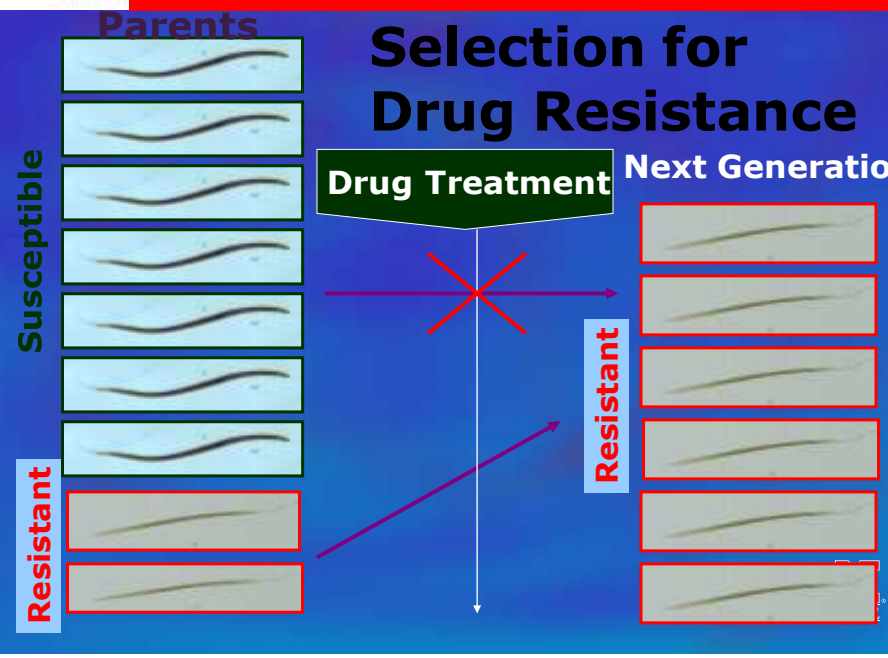
Selection for Drug Resistance



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Classes of Anthelmintics (Dewormers)

Drug Class	Benzimidazole	Imidazole/ Pyrimidine	Macrolide
Trade Names	Safeguard / Panacur Synathic/ Benzelmin Valbazen*	Levasole/ Tramisol Rumatel StrongidT	~~Ivomec~~ Dectomax Eprinex Cydectin**

*Do not use in first trimester pregnancy

**Minimize use to preserve efficacy

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Commonly used dewormers in goats (Oral route of administration only)

Dewormer	Approval	Dosage/100 Lbs	Withdrawal Time: Meat	Withdrawal Time: Milk
Fenbendazole (Safeguard/Panacur)	Approved	2.3 ml	14 days	4 days
Morantel tartrate (Rumatel)	Approved	1 ml / 10 lbs	30 days	0 days
Albendazole (Valbazen)	Extra-label	8 ml	7 days	5 days
Levamisole (Levasol, Tramisol)	Extra-label	12 ml	10 days	4 days
Ivermectin (Ivomec for Sheep)	Extra-label	24 ml	14 days	9 days
Moxidectin (Cydectin)	Extra-label	4 ml	23 days	56 days

Source: Meat Goat Production Handbook

Extra label use requires a veterinarian-client-patient relationship and an appropriate medical diagnosis has been made by the veterinarian.

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Differences: Behavior

GOATS	SHEEP
Curious and independent	Aloof, flock mentality
Stronger social hierarchy	Stronger flocking instinct
More agile	Less agile
Shelter seeking	Shade seeking
Rear and butt	Butt head on

Goats tend to dominate sheep when they are kept together.

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Anthelmintic Choices for *Haemonchus*

- **Moxidectin (Cydectin) – resistance becoming common where used frequently**
  - Same mechanism of killing as ivermectin
  - Ivermectin-resistant worms are also moxidectin-resistant
  - How used will determine how long it will remain effective
  - Treatment of choice for severely clinically ill animals if no resistance
  - Must be used carefully and with prevention of resistance as a goal

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Anthelmintic Choices for *Haemonchus*

- **Ivermectin – least effective of all drugs**
- **Albendazole – high prevalence of resistance**
  - Withold feed and re-dose for improved efficacy – do not use in first 3 wks of pregnancy
  - More effective than fenbendazol
- **Levamasole – low prevalence of resistance**
  - Weigh goats – watch for toxicity
  - Do not use in debilitated animals or during last 3 wks of pregnancy in goats

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Books

Available at Amazon.com

- Sheep Production Handbook (2002) by American Sheep Industry Association (book and CD)
- Managing Your Ewe (1993) and Lambing Problems (1991) by Laura Lawson
- Small Ruminant Production Medicine and Management Notebook and CD by InfoVets.com
- Goat Medicine (1994) by Smith and Sherman
- Sheep and Goat Medicine (2002) by D.G. Pugh
- Veterinary Book for Sheep Farmers (2002, UK) by David Henderson
- Extension Goat Handbook (National Goat Database at www.adds.org)

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Web Sites

- Educational - .edu
- Information - .info
- Government - .gov
- Organization - .org
- Commercial - .com
- Business - .biz
- Network - .net
- Other countries - .au

Consider the source (bias) of the internet source.
Favor unbiased, research based, peer-reviewed information.

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Good Websites

- www.sheepandgoat.com
- www.sheepgoatmarketing.info
- www.sheep101.info
- www.sheep101.info/201
- www.sheepandgoat.com/bestoftheweb.html
- http://muextension.missouri.edu/howell/ag/goat_information.htm
- http://www2.luresext.edu/goats/index.htm
- http://www.extension.org/goat
- http://www.cals.ncsu.edu/an_sci/extension/animal/meatgoat/ahgoats_index.html

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