

Small Ruminant Health Basics

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Farm Resources

Land	<ul style="list-style-type: none">• 3-4 ewes or does per acre• Depends on good to poor pasture forage production
Fences	<ul style="list-style-type: none">• Important to keep animals in and/or keep predators out• Beware of goats getting heads stuck
Buildings	<ul style="list-style-type: none">• Need 15 square feet per female• Open, cool, dry; not tight, warm and humid
Market	<ul style="list-style-type: none">• How to market product(s)?
Guard animals	<ul style="list-style-type: none">• LGD (livestock guardian dog), donkey, llama

Land Estimate

- 20 acres
 - 5 = rough/poor
 - 10 = average
 - 5 = good to excellent
- Forage production: ewe/doe require 0.75 ton/yr
 - 5 x 1 ton/acre = 5 tons
 - 10 x 2 tons/acre = 20 tons
 - 5 x 4 tons/acre = 20 tons
 - SUM = 45 tons
 - ❖ $45/0.75 = 60$ does or ewes on 20 acres

Nutrition

- Efficient users of forages
 - Goats are browsers
 - Sheep are grazers
- Could co-graze with cattle
- Supplemental feed
 - Winter
 - Late pregnancy
 - Lactation
 - Growing kids and lambs

Nutrition- COPPER

- Sheep do not need copper in feed and mineral
 - Copper toxicity occurs if too high
 - Beware of horse feed- high in copper
- Goats need copper
 - Do NOT use sheep & goat mineral for goats!

Nutrition- Minerals

- Need salt, calcium, phosphorous, zinc, selenium, etc. while grazing forages
- Consider ionophores to reduce coccidia problems:
 - Goats- Rumensin or Deccox
 - Sheep- Bovatec or Deccox
 - Beware- do NOT feed Rumensin or Bovatec if horses will consume

Small Ruminant Health Management



Body Condition Score Determination

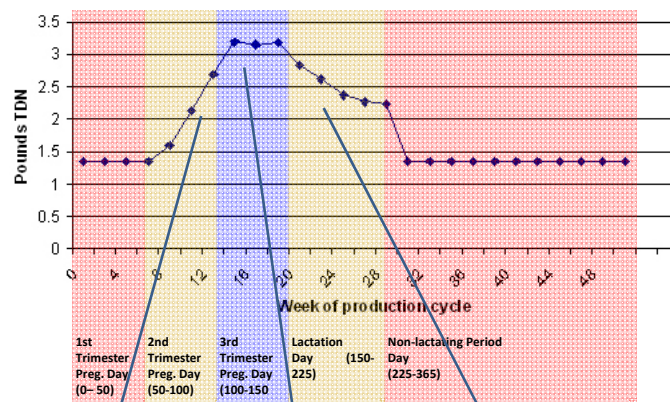


Importance of Knowing BCS

- An estimate of fat and muscle
- Subjective score
- **Failure to recognize BCS has associated cost**
 - Decreased fertility
 - Increased disease
 - Incidence of internal parasites
 - Decreased milk production
 - Increase operating costs

Energy (TDN) Needs During Pregnancy & Lactation

Pounds of TDN Required/Day



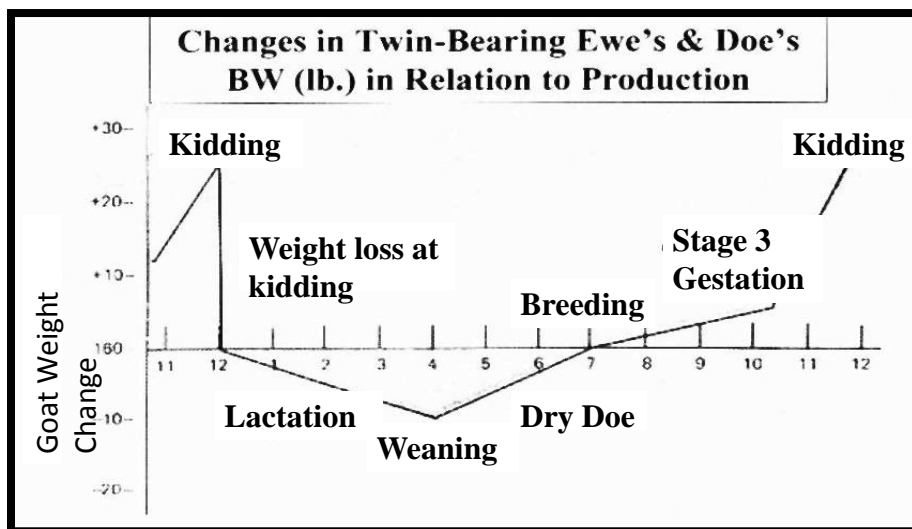
Graph modified from Langston Univ. online certification short course.

2nd Trimester

3rd Trimester

Lactation

Weight Change Curve

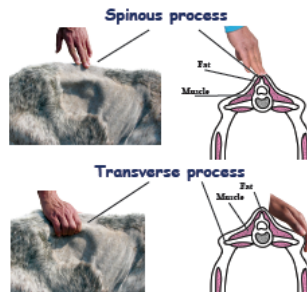


Hand Placement

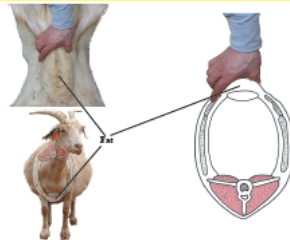


How To Determine BCS

Lumbar region



Sternum



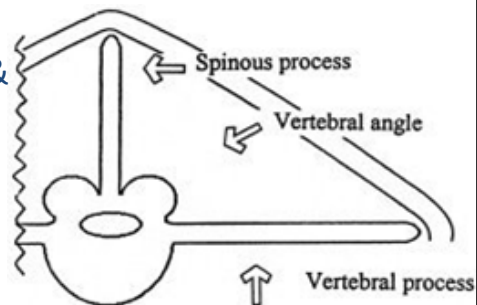
Body Condition Score (BCS)

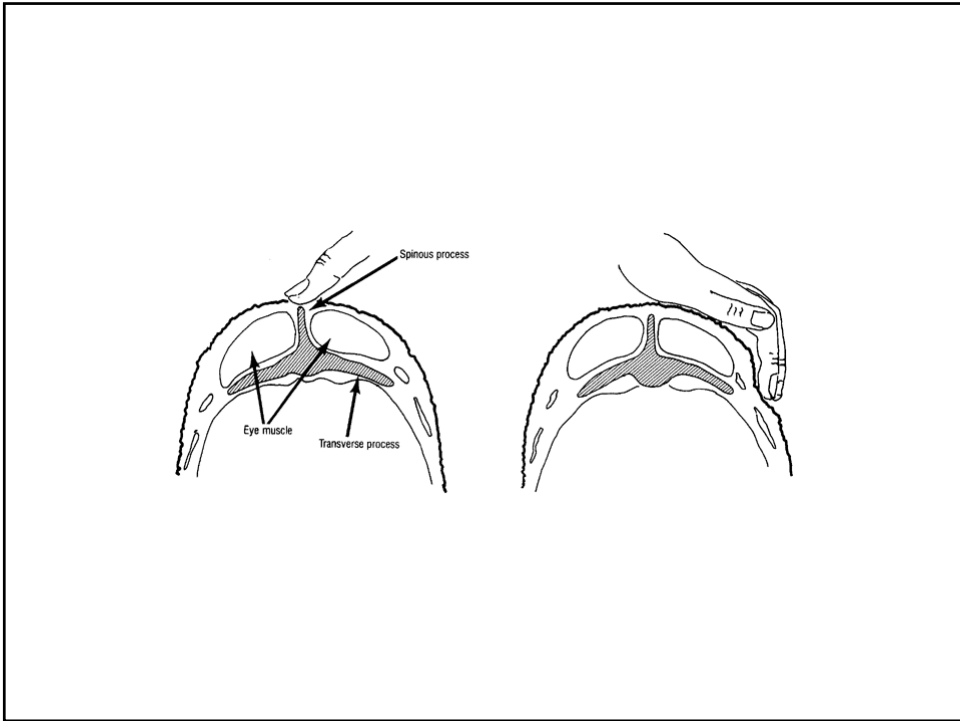
- 1 = Emaciated or too thin
- 2 = Thin
- 3 = Moderate
- 4 = Fat
- 5 = Obese

Determined by “feel” in loin & rump region on goat

Includes:

- spinous process
- vertebral angle
- vertebral process





BCS 1.0



Visual aspect of the goat: Emaciated and weak animal, the backbone is highly visible and forms a continuous ridge. The flank is hollow. Ribs are clearly visible. There is no fat cover and fingers easily penetrate into intercostal spaces (between ribs).



The spinous process of the lumbar vertebrae can be grasped easily between the thumb and forefinger; the spinous process is rough, prominent, and distinct giving a saw-tooth appearance. Very little muscle and no fat can be felt between the skin and bone. There is a deep depression in the transition from the spinous to transverse process.



The hand can easily grasp the transverse process of the lumbar vertebrae which is very prominent. Clearly half of the length of the transverse process is discernible.



Diagram adapted from Edmonson, et al, 1989. J. Dairy Science, 72:65-73. Used with permission from the American Dairy Science Association.



Sternal fat can be easily grasped between thumb and fingers and moved from side to side. The cartilage and joints joining ribs and sternum are easily felt.



BCS 1



BCS 2.0



Visual aspect of the goat: Slightly raw-boned, the backbone is still visible with a continuous ridge. Some ribs can be seen and there is a small amount of fat cover. Ribs are still felt. Intercostal spaces are smooth but can still be penetrated.



The spinous process of the lumbar vertebrae is evident and can still be grasped between the thumb and forefinger; however, a muscle mass can be felt between the skin and bone. There is an obvious depression in the transition from the spinous to transverse process.



The hand can grasp the transverse process but the outline of the transverse process is difficult to see. About one-third to one-half of the length of the transverse process is discernible.



Sternal fat is wider and thicker but can still be grasped and lifted by the thumb and forefinger. The fat layer can still be moved slightly from side to side. Joints are less evident.



BCS 2



BCS 3.0



Visual aspect of the goat: The backbone is not prominent. Ribs are barely discernible; an even layer of fat covers them. Intercostal spaces are felt using pressure.



The spinous process of the lumbar vertebrae cannot be easily grasped because the tissue layer covering the vertebrae is thick. When running a finger over the spinous process, a slight hollow is felt. There is a smooth slope in the transition from the spinous to transverse process.




The outline of the transverse process of the lumbar vertebrae is slightly discernible. Less than one-quarter of the length of the transverse process is discernible.




Sternal fat is wide and thick. It can still be grasped but has very little movement. Joints joining cartilage and ribs are barely felt.




BCS 4.0





Visual aspect of the goat: The backbone cannot be seen. Ribs are not seen. The side of the animal is sleek in appearance.







It is impossible to grasp the spinous process of the lumbar vertebrae, which is wrapped in a thick layer of muscle and fat. The spinous process forms a continuous line. There is a rounded transition from the spinous to transverse process.






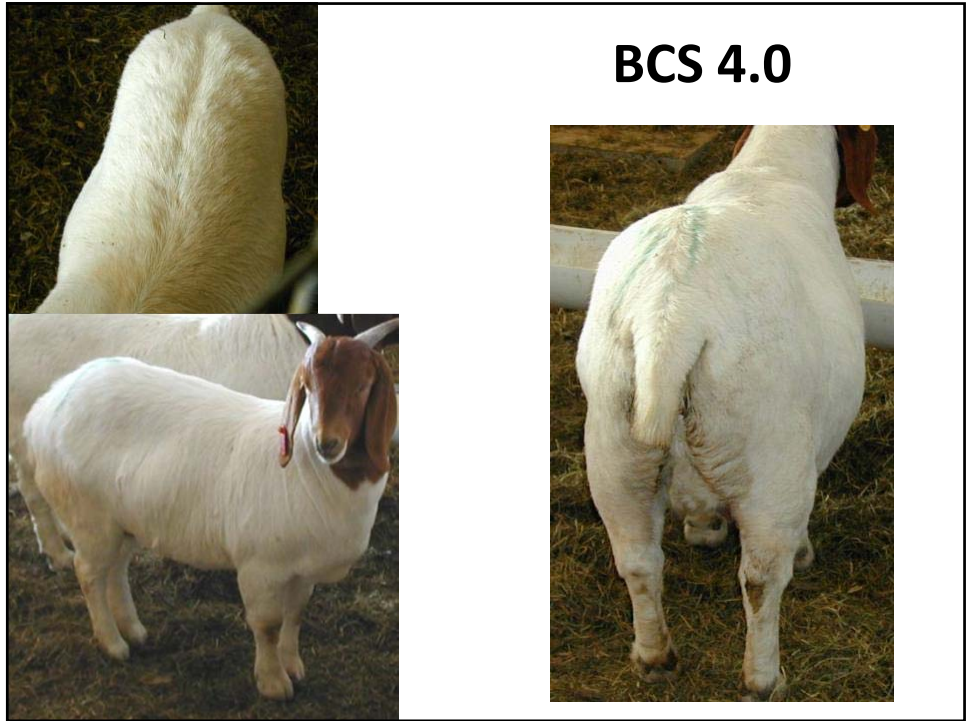
The outline of the transverse process of the lumbar vertebrae is no longer discernible. The transverse process forms a smooth, rounded edge, with no individual vertebrae discernible.






Sternal fat is difficult to grasp because of its width and depth. It cannot be moved from side to side.







BCS 5.0





Visual aspect of the goat: The backbone is buried in fat. Ribs are not visible. The rib cage is covered with excessive fat.







The thickness of the muscle and fat is so great that reference marks on the spinous process are lost. The spinous process forms a depression along the backbone and there is a bulging transition from the spinous to transverse process.






The thickness of the muscle and fat is so great that reference marks on the transverse process are also lost. It is impossible to grasp the transverse process.





The sternal fat now extends and covers the sternum, joining fat covering cartilage and ribs. It cannot be grasped.



The sternal fat now extends and covers the sternum, joining fat covering cartilage and ribs. It cannot be grasped.

Body Condition Scores in Goats Page 4

BCS 5.0



Body Condition Score – Sheep
Your turn...



BCS = 1-1.5



BCS = 3-3.5

Body Condition Score



Preventative health care



Biosecurity
Vaccination program
Parasite control program
Good nutrition and
feeding management
Predator management
Hoof care

Good biosecurity



- Start with healthy stock
- Buy from reputable breeders
- Isolate new animals for at least 30 days
- ✓ Maintain a closed herd

<http://www.sheep101.info/201/biosecurity.html>

Biosecurity for farms

- Don't mix goats with other goats (or sheep)
- Don't loan
- Don't board other sheep/ goats
- Don't loan equipment
- Limit access to your farm and animals
- Control dog, cat, rodent, fly, and bird populations



Vaccination Program for Sheep & Goats

- Clostridial diseases (CD-T)
"over eating disease"
Clostridium perfringens
type C affects kids < 1 month
type D affects kids > 1 month
Most critical for farms which feed a lot of grain
Vaccine not as effective in goats
- *Clostridium tetani* – tetanus



Vaccination Program for Sheep & Goats



- Lambs/Kids
 - Vaccinate at approximately 8 weeks of age
 - Booster at 12 weeks old
 - Vaccinate earlier if dams were not vaccinated
 - Use tetanus antitoxin at the time of castration or disbudding if dam was not vaccinated

Vaccination Program for Sheep & Goats



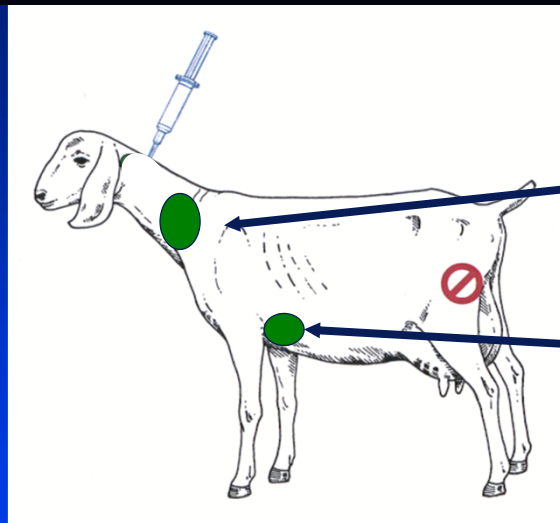
- Ewes & Does
 - Vaccinate 1 to 2 months prior to kidding
 - Two shots are necessary the first time an animal is vaccinated
- Rams, bucks and wethers
 - Vaccinate annually

Other Vaccines

- × Soremouth (live)- ONLY in infected herds
 - × Pneumonia
 - × Chlamydia* or Campylobacter* (vibrio)- in infected herds
 - × Rabies*
 - × Caseous lymphadenitis
 - CaseBac* beware in pregnant does
 - CL Bacterin restricted approval in goats
 - **Autogenous**
vaccine made from bacteria isolated on a specific farm
- * not labeled for goats



Site of administration



Recommended injection site

Show or purebred

Subcutaneous Injections

- Meat goats
 - Prefer injections in neck
- Breeders
 - Prefer the axilla area (behind the elbow)
 - Nodular mass not as visible
 - Not readily mistaken for caseous lymphadenitis



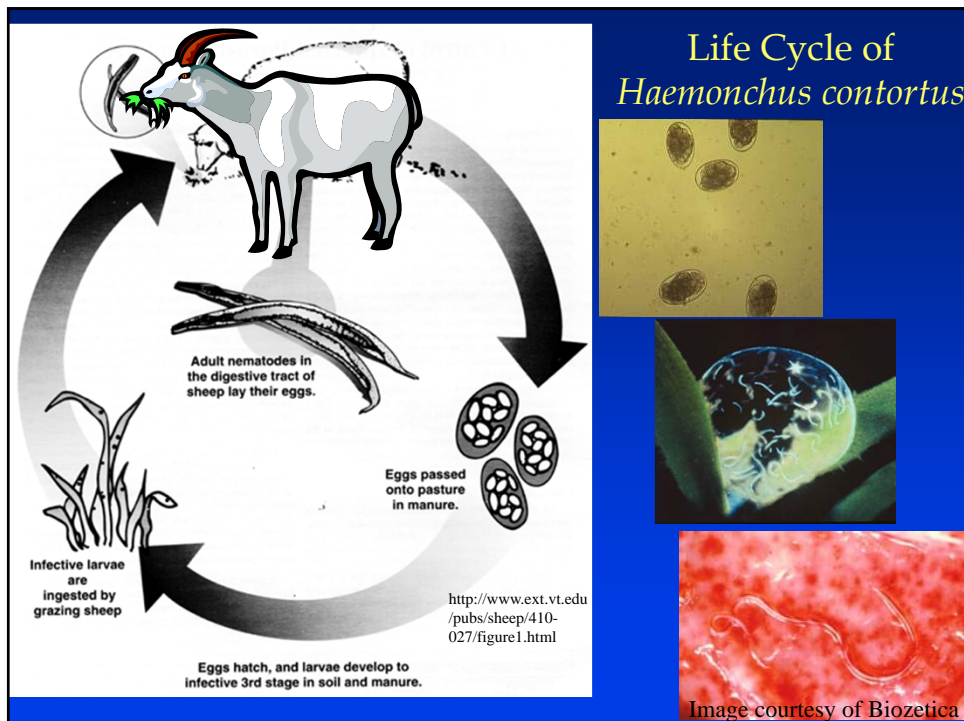
~~Deworming program~~ Integrated Parasite Management (IPM)

1. Do not overstock pastures and pens
2. Don't overgraze
3. Rest pastures sufficiently
4. Enable browsing for goats
5. Practice selective deworming, not prophylactic deworming = "smart drenching"



~~Deworming~~ program Integrated Parasite Management (IPM)

6. Administer drugs properly
7. Determine which drugs work on your farm
8. Select sheep/goats which are more resistant to internal parasites
9. Practice good sanitation
10. Use coccidiostats



Good nutrition and feeding management



- ❑ Feed balanced rations
- ❑ Feed according to production cycle and growth stage
- ❑ Separate animals according to their nutritional needs
- ❑ Supplement pasture and forage, when necessary and economical
- ❑ Make feed changes gradual
- ❑ Adequate feeder space
- ❑ Good feeder design



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- ❑ Good feeder design
- ❑ **Provide free choice sheep or goat minerals**

Selenium, Copper, Zinc Se, Cu, Zn

- ❖ Disease resistance- immune response
- ❖ Reproductive function



Common health problems

- Internal parasites
- Digestive/Nutritional
- Respiratory complex
- Reproductive
- Hoof
- Skin
- Chronic



Internal parasites (worms)



- Primary health problem affecting small ruminants
- It is normal to have some parasites
- Goal is to control, not eradicate parasites
- Due to long-time overuse and misuse of anthelmintics, parasites have developed resistance to all of anthelmintics
 - Resistance varies by drug, animal, and farm
 - Safeguard, Ivermectin have most reported resistance

Gastro-intestinal parasites

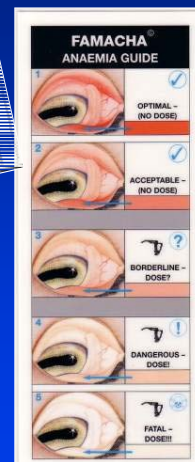
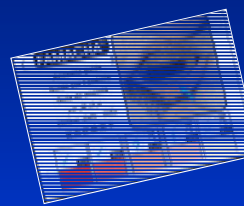
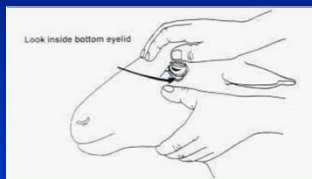
#1 health problem affecting small ruminants

- ✓ Round worms
 - ✓ Barber pole worm
 - *Ostertagia*
 - *Trichostrongyles*
- Lungworms
- Tapeworms
- Liver flukes
- Meningeal (deer) worm
- ✓ Coccidia



The FAMACHA[®] System

for assessing anemia and barber pole worm infection in small ruminants



Clinical Category	Color	PCV	Deworm?
1	Red	≥ 28	No
2	Red-Pink	23-27	No
3	Pink	18-22	?
4	Pink-White	13-17	Yes
5	White	≤ 12	Yes

Classes of Dewormers

Drug Class

Benzimidazole

Imidazole/
Pyrimidine

Macrolide

Trade Names

Safeguard/
Panacur
Synathic/
Benzelmin
Valbazen*

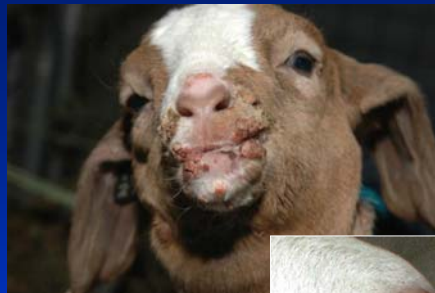
Levasole/ Tramisol
Rumatel
StrongidT

Ivomec
~~Dectomax~~
~~Eprinex~~
Cydectin**

*Do not use in first trimester pregnancy
** Minimize use to preserve efficacy

Skin

- o Sore mouth



Soremouth Treatment

- usually not needed
- systemic antibiotics if internal mouth lesions or mastitis
- Zoonotic!!
wear gloves



BACTOCYCLE EXTRA STRENGTH

NET-TEX INDUSTRIES LTD
Priestwood, Harvel, Meopham, Kent DA13 0DA, U.K.
Telephone: 01474 813999 Fax: 01474 812112
Website: www.net-tex.co.uk E-Mail: info@net-tex.co.uk

A combination disinfectant designed to be effective against the fungi and bacteria which challenge skin health.

- ORF
- RINGWORM
- NAVEL ILL

Bactocycle is spirit based and has astringent and drying properties.

5 035104 011107

HIGHLY FLAMMABLE IRRITANT

Bactocycle is a powerful disinfectant. Irritating to eyes, skin and respiratory system. May cause sensitisation by skin contact. Keep away from sources of ignition - no smoking. Avoid contact with skin and eyes. If swallowed, seek medical advice immediately and show this label. Wash all splashes with water. Keep out of reach of children.

INGREDIENTS
A blend of Benzalkonium Chloride, Iodine, Ethanol, Phenoxy Ethanol and Pentan-1,5-Dial.

BACTOCYCLE EXTRA STRENGTH VIOLET SPRAY
FOR FAST RECOVERY!
Use for general infection management.
EFFECTIVE AGAINST FUNGI AND BACTERIA
600ml

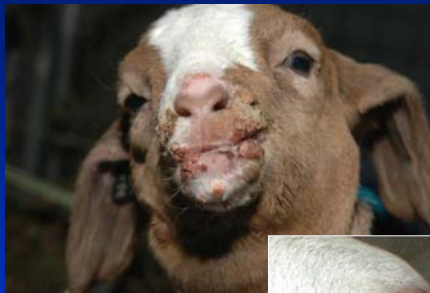
Mid-States Wool Growers
COOPERATIVE ASSOCIATION
SERVING THE AMERICAN SHEEP INDUSTRY SINCE 1911

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Online Store
West of Missouri Call: 800-233-3663

Skin

- Sore mouth
- External parasites
 - Lice
 - Mites
 - Ticks
 - Nose bots



General Sheep/Goat Husbandry

- Pasture
- Fencing
- Housing
- Handling
- Breeding
- Kidding
- Feeding
- Management





Goat Grazing Preference Trial
University of Kentucky Robinson Station

(Most to least)

- Sorghum Sudan
- White clover
- Turnip
- Red clover
- Chicory
- Sericea Lespedeza
- Tall Oatgrass
- Alfalfa
- Warm Season Grasses
(EGG, Switch, BB, Indian)
- Reed Canarygrass
- Orchardgrass
- Annual Lespedeza
- Novel Endophyte TF
- Endophyte Free TF
- Infected TF
- Bluegrass
- Bermudagrass

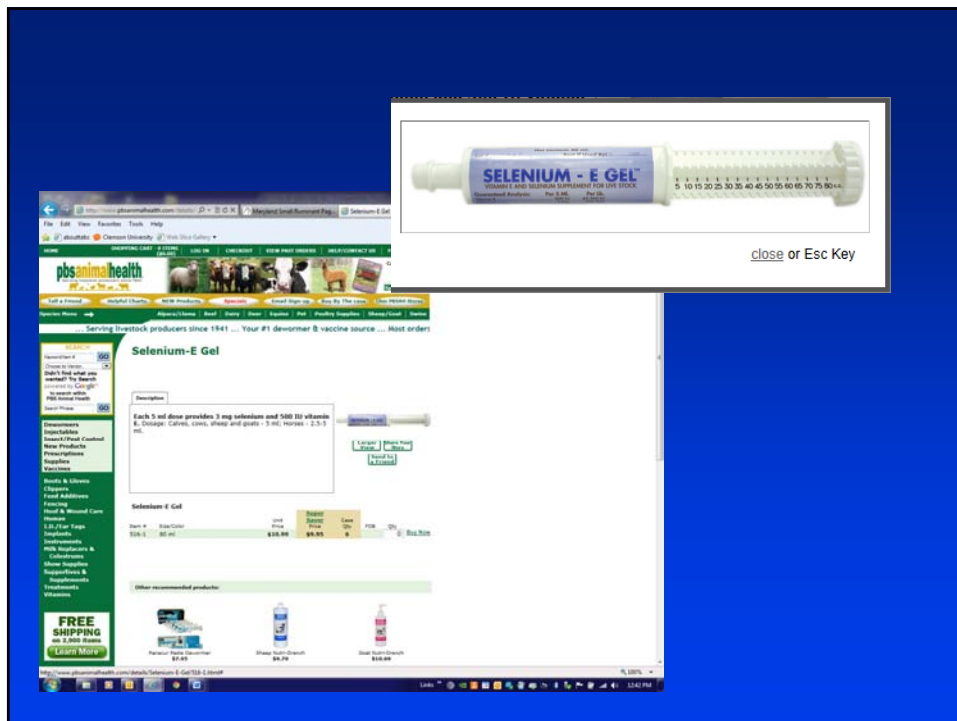
Zoonotic Diseases

- Rabies
- Q Fever- birthing fluids
- Anthrax
- Brucellosis- birthing fluids
- Tuberculosis
- Soremouth
- Leptospirosis
- E. coli
- Salmonella
- Avian Influenza



Selenium, Copper, Zinc Se, Cu, Zn

- ❖ Disease resistance- immune response
- ❖ Reproductive function



SELENIUM - E GEL
Selenium E and Vitamin E Supplement For SW STOCK

close or Esc Key

Selenium-E Gel

Description

Each 5 ml dose provides 3 mg selenium and 500 IU vitamin E. Dosage: Calves, cows, sheep and goats - 3 ml, Horses - 2.5-3 ml.

Item #	Item Name	Unit	Stock	Price	Qty	Per	Est. Ship
268.3	30 ml		10	\$25.95	1		Est. \$25

Other recommended products:

- Parvaxin Parvo-Denver \$1.00
- Shim's Super Growth \$5.95
- Shim's Super Growth \$10.00

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Jeffers Livestock > Search For Selenium > Selenium & Vitamin E Gel for Goats

Selenium & Vitamin E Gel for Goats

Kaeco



A unique combination of Selenium Selenite and Vitamin E at levels designed for goats. Both the Selenium Selenite and Vitamin E are ALL NATURAL.

Selenium and Vitamin E Gel is in a Real Gel™ base that melts at body temperature so when administered it will not roll off the tongue.

The Vitamin E level is 500 IU per 5ml (cc) dose. The maximum level of Selenium is at 3 ppm per animal. Each 5ml (5cc) dose contains 2.5 ppm of Selenium.

This product is to be used as the sole source of Selenium.

A butterscotch flavor has been added for increased palatability.

80 ml, dual-dose tube contains (16) 5 ml doses.

[View manufacturer and/or label information](#)

★★★★★ (5 customer reviews)





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Item #	Description	Price Each	Qty
KK-55	Selenium & Vitamin E Gel for Goats, 30 ml tube	Each \$4.95	<input type="text"/>
In Stock			
KK-5A	Selenium & Vitamin E Gel for Goats, 80 ml tube	Each \$8.95	<input type="text"/>
In Stock			

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You May Also Consider

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As low As \$8.85
-  **Weak Kid Syringe**
\$7.99
-  **Vitamin ADE & B12 Gel**
As low As \$7.95
-  **Disposable Poly Hub Needles**
As low As \$0.11



Goat manure: compost or apply directly to garden?

- Potential pathogens (zoonotic diseases)
 - Q fever
- Turn manure into ground with tillage
- Better= pile to compost or
- Best= Add carbon (browns) to manure
 - Fresh horse stable manure applied to garden = disappointment
 - High carbon (wood shavings) will pull nitrogen from soil and plants

Drought

- Stockpile
- Sacrifice one lot for feeding hay
- Do NOT open all pastures to graze
- Heavy culling

