Sheep and Goat Herd Health Management

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Course description

- Health and production management in sheep and goat farms. Important diseases and disorders in goat and sheep emphasizing on etiology, pathogenesis, clinical signs, diagnosis, treatment, prevention and control.
Course outline

- Introduction to sheep and goat
- General health and management
- Routine observations and procedures
- Infectious diseases in sheep and goats
- Metabolic diseases in sheep and goats
- Parasitic diseases and deworming programs
- Reproduction management of sheep and goats
- Lamb and kid cares
- Tests and diagnostics
การวัดผลสัมฤทธิ์ในการเรียน

- คืนคว้า  20%
- รายงาน  20%
- สอบกลางภาค  20%
- สอบปลายภาค  30%
- ความสนใจเรียน  10%
Books/study materials

- Current Veterinary Therapy 4
- Sheep & Goat Medicine
- Manual of sheep diseases
- Diseases of the goat
- Other scientific papers
Introduction

- Starting a sheep enterprise
- Starting a meat goat operation
- A guide for the new or prospective dairy goat owner
Starting a sheep enterprise

- Before getting into the sheep business – ask yourself these questions:
  - Do I like sheep?
  - Will sheep fit into my current operation?
  - What size of sheep operation do I want?
  - Do I have adequate facilities to handle the number I want?
Starting a sheep enterprise

- Will I have an adequate feed supply?
- Do I want to lamb in the spring or fall?
- What breeds should I select to achieve my goals?
- When and where can I market my lambs?
- Could I have a predator problem?
Starting a sheep enterprise

- Why raise sheep?
- Pasture
- Building and fences
- Protection from predators
- Seasonality of breeds
- Selecting breeding stock
Starting a sheep enterprise

- Internal parasites
- Marketing
Starting a meat goat production

- What do I expect from my goat operation?
- What is a good herd size to start out with?
- What sort of goats am I looking for?
- What breed should I choose?
Starting a meat goat production

- Some breeds and strains of goats genetically selected by man for meat production
  - Spanish meat goat
  - Tennessee meat goat
  - South African boer goat
  - New Zealand Kiko goat
A guide for the new or prospective dairy goat owner

- Dairy goat management
- Recommended starting equipment and supplies
- Health care
- Housing
- Feeding
Starting a meat goat production

- Breeding
- Kidding
Herd health program for meat goats

Important of health program

- All effective animal health program is an essential part of a successful meat goat management program.

- Owner and the vet work out -> medication, vaccinations, wormers, injuries, production, breeding and culling
Herd health program for meat goats

- The best economic returns are realized when disease problems are at a minimum.
Herd health program for meat goats

- Observation and records
  - Spending a few minutes every day watching your animals is time well spent.
  - You can learn the normal behavior and attitude of your goats and then recognize anything that may be wrong.
Herd health program for meat goats

- If abnormal behavior is observed, use common sense, your experience and knowledge and your physical senses to determine the problem.
A physical exam may show an abscess, cut or bruise

- How is the behavior abnormal?
- Is head down or are the ears drooping?
- Is the animal off-feed?
- Is the respiratory rate normal at 12 – 20 times/min?
A physical exam may show an abscess, cut or bruise

- Is there a fever?
- Temperatures range from 101.7 – 103.5 F with an average of 102.3F
- Is heart rate normal at 70 – 100 times/min?
- His this disease occurred previously?
Nutrition and Feeding Practices

- Goats too skinny or too fat and goats off-feed are the most common nutritional problems.

- The quality and quantity of feed during the dry period affects the doe and kids throughout at least the year after.
Nutrition and Feeding Practices

- Meat goats should be fed similarly to maximize production while minimizing feed costs.
- As such, good quality roughage should be the basis of the ration, and minimal amounts of a 14 – to 18 – percent protein concentrate should be fed as a supplement when does are nursing kids.
Nutrition and Feeding Practices

- Higher producing does with multiple kids may require additional energy in the ration.

- Periodically, feel your does to determine their body condition and avoid overfeeding grain to does in late lactation.
Nutrition and Feeding Practices

- Usually does will not need extra grain after the kids are weaned unless they have poor quality roughage or you want to flush the does before breeding.
- Fat goats are more prone to go off feed, have problems at kidding and tend to have pregnancy toxemia.
Nutrition and Feeding Practices

- Loose or block trace mineral salt should be available at all times.
- Goats are susceptible to copper deficiency and, unlike sheep are fairly resistant to copper toxicity.
- Water should be fresh and plentiful.
Bucks and wethers fed on substantial amount of grain are prone to develop urinary calculi.

Genetics may also be a factor in the disease.
Annual calendar

- **Dry doe**
  - At the drying off, check to verify that the does is in good body condition and will be in adequate body condition to withstand the draw of nutrients from milk when she kids.
  - Usually, good quality forage will be adequate for does in good condition when dry.
Inject does with 250 mg vitamin E and 5 mg selenium 3 weeks before due date if white muscle disease is a problem or over 10% of the kids die within 3 days of birth.

Provide clean yards and housing. Sanitation is essential.
Annual calendar

- Kidding
  - Provide a clean, dry, well-ventilated area
  - Examine doe’s udder for mastitis
  - Kids should receive colostrum within one hour following birth
Annual calendar

- Dip or inject navels of kids with iodine if they appear to be a problem with navel ill or related diseases
- Give weak or sick kids 50 mg vitamin E (or vitamin ADE) and 1 mg selenium
Annual calendar

- Kids at 1 day to weaning
  - If a large commercial herd, observe closely to ensure that at least 90% of the kids live.
  - Castrate male kids unless they are to be sold before 90 d of age
Annual calendar

- Consider giving tetanus toxoid and clostridial disease vaccination at 3 – 4 wk before weaning and at weaning, especially if you are feeding out the kids.

- Kids should be checked closely and culled for genetic disorders, especially hermaphroditism and abnormal teat structure.
Annual calendar

- Deworming program
  - To minimize contamination of uninfected goats, maintain a dry, clean environment with a sound manure management plan.
Depending on location and density, deworming should be repeated as needed. For most producers with a high density of goats, worming will be 4 to 6 times per year.
Annual calendar

- Kids should be dewormed at weaning and treated for coccidia if it is in the herd.
- Adult goats should be dewormed at least 1 – 2 times per year, but as often as needed to control various types of worms.
Annual calendar

- Alternate dewormers since goats may build up worms that are resistant to one dewormer. At least once per year, goats should be dewormed for tapeworms.
Annual calendar

- Vaccination program
  - Your vaccination program should be for disease in your herd and should be developed in consultation with your local veterinarian.
Annual calendar

- **Foot care program**
  - Trim hooves as needed but usually at least once a year. Herds in confinement may require trimming 2 – 4 times per year.
  - Fence goats out of wet, marshy area where the organisms causing foot rot are more likely to grow.
Annual calendar

- Use a foot bath of dilute copper sulfate if foot rot becomes a herd problem

- Treat foot rot with appropriate antibiotics. Follow recommended withholding guidelines
Annual calendar

- External parasite control program
  - Control flies with appropriate insecticides and strict manure management
Annual calendar

Breeding program

- If suspected, test all breeding-age animals periodically for brucellosis, caprine arthritis encephalitis or CAE and tuberculosis.

- Observe the buck for libido and conduct a breeding soundness exam if there are any suggestions of him not being a fertile breeder
Annual calendar

- Try to have a buck for each 20 – 30 does
- Mate buck to no close relative so that inbreeding is minimized.
- Maintain good records so that you know the parentage of each goat.
Annual calendar

- Culling
  - Culling is an essential to the overall productivity of the herd.
  - Goats will be injured, some will not become pregnant during the breeding season and some will produce less milk than you are willing to accept.
Assignment

- Grouping
- Topic
  - Sheep enterprise
  - Dairy Goat enterprise
  - Meat Goat enterprise
CONSTRUCTION PLAN FOR PERMANENT SHEEP AND GOATS BOMA

FOR SMALL SCALE FARMERS HAVING 40 ADULT SHEEP OR GOATS LOCATED IN HIGH RAINFALL AREAS

BUILDING MATERIAL USED AND ESTIMATED COSTS

- 10 cedar posts, 9 feet long @ 18 shs
- 7 corrugated iron sheets, 10' long @ 77 shs
- 50 galvanized nails, each piece 7 shs
- 2" x 2" for the floor, 529 running feet
- 1 bag cement
- 2 rolls of galvanized wire @ 85 shs
- Miscellaneous

Total material costs = 2100 shs

REMARKS
Boma investment costs can be considerably reduced by using locally available materials. For example, if side walls are built with steel poles and the floor is built by using blue gum poles, the house will not cost more than 1000 shs. However, in this case annual costs for repairs will be much higher.

Sheeting can be used in place of iron sheets for the roof.
All wood is to be painted with used motor oil BEFORE construction.
Shelter and fence for kid

House for older goats

1.5 m fence

slopes to front
The housing of milk goats
Introduction

- Pressure on housing develops because breeders accommodate more and more goats in a single building.
- Goats are sensitive to the influence of their surroundings.
- Adequate housing should be especially important to the breeder.
Environmental factors for goats

- Temperature – constant at 38.5°C and this must be maintained.
- Increase humidity can exercise a negative effect on goat herds as there is a concurrent rise in the probable level of pulmonary diseases.
Environmental factors for goats

- In the design of housing, air flow is a point of concern.
- Light is important for both the comfort of animal and its owner.
Standard techniques in goat breeding

- Several means available to overcome potentially negative environmental factors such as humidity and temperature.
- Goat keepers should learn correct ways for using equipment and incorporating aspects of good building design.
- Care should be taken with respect to some elementary rules of sanitation.
Standard techniques in goat breeding

<table>
<thead>
<tr>
<th>H₂O vapour</th>
<th>Total heat including H₂O vapour in kcal/h</th>
<th>CO₂ l/h</th>
</tr>
</thead>
<tbody>
<tr>
<td>g/h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>120</td>
<td>29</td>
</tr>
</tbody>
</table>
Standard techniques in goat breeding

- Space requirements: 0.50 m² (minimum) for an adult goat in stall housing, 1.50 m² for an adult goat in open housing with and outside yard, 0.30 m² for kid before weaning.
The surface of the bedding area for each animal must be adapted with a necessary feeding trough (0.4 m per goat).

Air volume should also be considered, with 3 m at the lowest part of the building and 3 m width for a central feeding corridor. Each goat should have an air volume of 9 m³.
Ventilation and insulation

- Ventilation will affect the inside temperature and humidity of the goat house.
- A day of fair and foul weather could have a marked influence of pulmonary diseases.
The environmental temperature effects on kid mortality during the post-birth period in a goat herd affected by toxoplasmosis disease

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 0°C</td>
<td>&gt; 0.1°C</td>
<td>&lt; 7.5°C</td>
</tr>
<tr>
<td>Number of kids born alive</td>
<td>425</td>
<td>914</td>
<td>491</td>
</tr>
<tr>
<td>Number of dead kids in the 12 days after birth</td>
<td>103</td>
<td>221</td>
<td>96</td>
</tr>
<tr>
<td>Mortality (%)</td>
<td>24.2  ^a</td>
<td>25.2  ^a</td>
<td>19.5  ^a</td>
</tr>
</tbody>
</table>

^a Not significant.
^b Significant (P < 0.01).
Standard techniques in goat breeding

- Sanitary problem – the keeper is not aware of the important balance which must be established between animal health and welfare and the goats’ surrounding.
Standard techniques in goat breeding

- Sanitary protection – ensuring good sanitary protection for goats, regularly decontamination
Standard techniques in goat breeding

- Defective environmental factors – negative environmental factors can have a marked effect on milking female goats.

- In extreme heat, the goat will want to lose as much as heat as possible and therefore, it consumes less food.
Values for certain physiological functions of the goat, the sheep and the cat in the thermal neutral zone (TNZ) 13–18°C and in a hot environment (40°C)

<table>
<thead>
<tr>
<th>Trait</th>
<th>Goat</th>
<th>Sheep</th>
<th>Cattle</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TNZ</td>
<td>HOT</td>
<td>Change (%)</td>
</tr>
<tr>
<td>Rectal temp.</td>
<td>38.8</td>
<td>40.0</td>
<td>+3.1</td>
</tr>
<tr>
<td>Skin temp. (°C)</td>
<td>34.6</td>
<td>38.9</td>
<td>+16.0</td>
</tr>
<tr>
<td>Pulse rate/min</td>
<td>94.5</td>
<td>108.2</td>
<td>+14.5</td>
</tr>
<tr>
<td>Resp. rate/min</td>
<td>25.3</td>
<td>271.4</td>
<td>+973.0</td>
</tr>
<tr>
<td>Blood pH</td>
<td>7.40</td>
<td>7.44</td>
<td>+5.4</td>
</tr>
<tr>
<td>Total evap. (g/m²/h)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweating rate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resp. evap. (g/m²/h)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water turnover (ml/kg/24 h)</td>
<td>96</td>
<td>98</td>
<td></td>
</tr>
<tr>
<td>Metabolic heat Prod. (kcal/h)</td>
<td>800 kcal/day</td>
<td>1254 kcal/day</td>
<td></td>
</tr>
</tbody>
</table>

\(a\) °C.

\(b\) g/m²/h.

\(c\) 86°F.

22°C, with fleece.
Working conditions in goat houses for breeder

- Goat house conception – the aim of the breeder should be to find a compromise between the goat’s natural living conditions and his own requirements to organize his work efficiently and profitably
### Some questions regarding the elements of choice before deciding to build

<table>
<thead>
<tr>
<th>Questions</th>
<th>Possibilities of choice</th>
<th>Advantages</th>
<th>Disadvantages</th>
<th>Obs. on the housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>How to feed?</td>
<td>Self loader with wide passage and feeding yoke</td>
<td>Good supervision of the animals</td>
<td>Larger ground space under cover. Complicated machinery. Surveillance of animals more difficult. Distribution of concentrate difficult</td>
<td>No pasture land</td>
</tr>
<tr>
<td></td>
<td>Loader with moving 'carpet'</td>
<td>Reduction of covered surface. Ability to milk on the spot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How to milk?</td>
<td>On the spot with a milking platform in the goat house</td>
<td>Speed of milking</td>
<td>Cleanliness more difficult</td>
<td>Mechanical milking</td>
</tr>
<tr>
<td></td>
<td>In a separate room with a milking platform and a milk pipeline</td>
<td>Better cleanliness</td>
<td>Rotation and circuit of animals. Automatization of distribution of concentrate raises cost</td>
<td></td>
</tr>
<tr>
<td>Storage of coarse food, preparation of concentrate food</td>
<td>Keeper near to goat house</td>
<td></td>
<td>Lots of handling</td>
<td></td>
</tr>
<tr>
<td>Where to raise young?</td>
<td>Far, with stocks for several days near to milking parlour</td>
<td>Reduction of daily handling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Where to place billy goats?</td>
<td>Distribution of milk in plastic rain-pipes</td>
<td>Moveable equipment</td>
<td>More work-time</td>
<td>Near to dairy</td>
</tr>
<tr>
<td></td>
<td>Lactation nourishment with an automatic bottle</td>
<td>Less work-time</td>
<td>Raised cost</td>
<td></td>
</tr>
<tr>
<td>Where to isolate sick animals?</td>
<td>Organised mature</td>
<td>Control and success of mating billy goats</td>
<td>Numerous upheavals</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Random mating</td>
<td>House quite near to goat housing</td>
<td>Control more difficult</td>
<td></td>
</tr>
<tr>
<td>How to clean out?</td>
<td>Infirmary</td>
<td>Quite near to goat house</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>By hand</td>
<td>Wide enough door</td>
<td>More work-time</td>
<td></td>
</tr>
<tr>
<td></td>
<td>By tractor</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Clawpieces for a worker

<table>
<thead>
<tr>
<th>Yield = number of goats/hour/worker</th>
<th>Average time available per goat in seconds</th>
<th>Estimate average milking time/per goat in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>45</td>
<td>3 4 6</td>
</tr>
<tr>
<td>100</td>
<td>36</td>
<td>4 5 7</td>
</tr>
<tr>
<td>120</td>
<td>30</td>
<td>4 6 8</td>
</tr>
<tr>
<td>140</td>
<td>25</td>
<td>5 8 10</td>
</tr>
</tbody>
</table>
Fig. 4. Automatic feeding yoke goat trap-plan.