NATIONAL ANIMAL HEALTH MONITORING SYSTEM

GOAT 2019 STUDY UPDATE

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ANIMAL AND PLANT HEALTH INSPECTION SERVICE
VETERINARY SERVICES
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What are NAHMS Studies?

Developed in collaboration with industry

Collect and analyze animal health data
  Health management and biosecurity practices of U.S. livestock
  Diseases and risk factors

Nationally representative

Voluntary and Confidential

Statistically based for population estimation
NAHMS Study Schedule

2008: Beef Cow-Calf
2009: Goats
2010: Catfish
2011: Beef Feedlot
2012: Swine
2013: Layers
2014: Ranched Bison
2015: Equine
2017: Beef Cow-Calf
2019: Goats

Beef Cow-Calf
Goats
Cattle Death Loss
Sheep Death Loss
Sheep
Small-Scale Operations
Poultry
Dairy
Sheep Death Loss
Farmed Cervids
Goat Death Loss
Cattle Death Loss
Antimicrobial Use Swine
Antimicrobial Use Feedlot
NAHMS Study Process

Needs Assessment

Study Design

Data Collection

Data Analysis

Reporting
Needs Assessment Phase

- Trichostongylus
- Haemonchus contortus
NAHMS Study Process

Needs Assessment

• Identifies information gaps
  • On-line survey
  • Producer meetings
  • Expert Opinion
  • Literature Review
On-line survey : August-September 2017
1,269 respondents: 50 states, 3 countries
Responses from: Producers, Academia, State and Federal Government, Animal Health Professionals

Thanks to ADGA, AGF, USAHA, and other organizations for getting the word out!
Needs Assessment - Respondents

- Goat Owners: 80%
- Veterinarians: 11%
- Government and University Employees: 8%
- Other: 1%
- Meat: 36%
- Dairy: 50%
- Other goats: 14%
Specific Management Topics of Concern

Veterinarians, Infectious, Disease, Nutrition, Reproduction, Marketing, Raw Milk, Parasites, Kid Health, Antibiotics, Biosecurity, Predator Control, Doe Health, Cost, Disease, Vaccines, Traceability, Organics
### Top Disease Priorities

<table>
<thead>
<tr>
<th>Disease</th>
<th>1st priority</th>
<th>2nd priority</th>
<th>3rd priority</th>
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<tbody>
<tr>
<td>Abortions</td>
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<tr>
<td>Scours</td>
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<tr>
<td>Johne's disease</td>
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<td>Pregnancy toxemia</td>
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<td>Respiratory disease</td>
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<td>External parasites</td>
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<tr>
<td>Nutritional disorders</td>
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<td>Lameness/hoof health/foot rot</td>
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<td>Mastitis/udder health</td>
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<tr>
<td>Caprine arthritis encephalitis (CAE)</td>
<td>1st</td>
<td>3rd</td>
<td>2nd</td>
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<tr>
<td>Caseous lymphadenitis (CL)</td>
<td>1st</td>
<td>2nd</td>
<td>3rd</td>
</tr>
<tr>
<td>Internal parasites</td>
<td>1st</td>
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</tbody>
</table>

Number of respondents
Top 10 Disease Priorities by Industry Involvement

- **Internal parasites**
  - Government and University Employees
  - Veterinarians
  - Goat Owners

- **Caseous lymphadenitis**
  - Government and University Employees
  - Veterinarians
  - Goat Owners

- **Caprine arthritis encephalitis**
  - Government and University Employees
  - Veterinarians
  - Goat Owners

- **Q fever**
  - Government and University Employees
  - Veterinarians
  - Goat Owners

- **Lameness**
  - Government and University Employees
  - Veterinarians
  - Goat Owners

- **Johne's disease**
  - Government and University Employees
  - Veterinarians
  - Goat Owners

- **Abortion**
  - Government and University Employees
  - Veterinarians
  - Goat Owners

- **Johne's disease**
  - Government and University Employees
  - Veterinarians
  - Goat Owners

- **Nutritional Disorders**
  - Government and University Employees
  - Veterinarians
  - Goat Owners
Needs Assessment: Study Participation Incentives

90% responses indicated parasite and resistance testing

68% responses indicated testing for disease agents
NAHMS Study Process

Study Design

• Define study States
• Set study objectives
• Develop questionnaires
• Design biologic sampling
• Train data collectors
83% U.S. goats and 78% U.S. goat farms with ≥5 goats
Included states with high dairy goat production
Enhanced dairy questionnaire
Study Objectives

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Describe Practices to Control Internal Parasites and Reduce Anthelmintic Resistance
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- Describe Antimicrobial Stewardship and Antimicrobial Resistance Prevalence

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Describe management practices associated with economically important diseases
Study Objectives


Describe Practices to Control Internal Parasites and Reduce Anthelmintic Resistance

Describe Antimicrobial Stewardship and Antimicrobial Resistance Prevalence

Describe management practices associated with economically important diseases

Provide a seroologic and DNA bank for future research
Requested Additions

Estimate Prevalence of *Mycoplasma ovipneumoniae*

- ARS Request
- Strong support from ADGA, AGF and ASI
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Estimate Prevalence of *Mycoplasma ovipneumoniae*
- ARS Request
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Describe Coxiella genotypes in US goats
- CDC Request
- Examine association between shedding, antibody status and abortion history
Biologic Sampling

Fecal samples
- Fecal egg count reduction test
- *E. coli, Salmonella, Campylobacter, Enterococcus, Giardia, Cryptosporidium*

Blood samples
- Scrapie resistance genotyping at K222 and S146

Nasal swabs
- *Mycoplasma ovipneumoniae*

Vaginal swabs
- *Coxiella testing*
Questionnaire Development

Work with stakeholder, collaborators, and industry groups

- Receive feedback on all questionnaires

Pretest all study questionnaires

- Variety of goat operations across the U.S.

Finalize all study documents
Data Collection

Phase I:
NASS
- July 1 – August 9, 2019
- General Management Questionnaire

Phase II:
VS VMO field
- September – December 2019
- Targeted Health and Disease Questionnaire
- Biologic sampling
Next Steps

• Study Promotion
• Training
• Data collection
Study Promotion: How you can Help!

National Animal Health Monitoring System

2019 GOAT STUDY

What is the 2019 Goat Study?
The 2019 Goat Study is a national study conducted every ten years by the U.S. Department of Agriculture's (USDA) National Animal Health Monitoring System (NAHMS). NAHMS is a voluntary federal non-regulatory program. The 2019 Goat Study is designed to take an in-depth look at the U.S. goat industry and provide new and valuable information about goat health and management practices in the United States.

Is your information protected?
We use the data collected for statistical purposes only. All responses will be kept confidential. Because NAHMS' studies rely on voluntary participation, the privacy of every participant is protected. Only those collecting the data know the identity of the respondent. No participant name or address is recorded in any APHIS database.

How was the study designed?
This study addresses the priority issues of the U.S. goat industry and other stakeholders. We developed these priority issues from 1,372 responses received from a needs-assessment questionnaire. We also received input from meetings we held with industry stakeholders and government entities across the country with representatives from all segments of the goat industry.

Who will participate?
About 4,790 goat producers (with 3 or more goats) in 25% of the major goat producing States will be asked to participate in the NAHMS 2019 Goat Study (see map). These States represent 77.9% of U.S. goat operations and 82.7% of U.S. goats on operations with 5+ goats.

What are the goals of the study?
The NAHMS 2019 Goat Study will:
1. Identify changes in animal health, nutrition, and management practices in the U.S. goat industry from 2009 to 2019
2. Report practices producers use to control internal parasites and reduce antibiotic resistance
3. Describe antimicrobial stewardship on goat operations and estimate the prevalence of enteric pathogens and antimicrobial resistance patterns
4. Describe management practices and producer-reported occurrence associated with economically important diseases
5. Provide a serologic bank for future research

Why participate?
Your participation in the NAHMS 2019 Goat Study will help your industry—and your own operation—by providing valuable information used to:
- Help policymakers and industry representatives make informed decisions
- Conduct economic analyses of the health and productivity of the U.S. goat industry
- Assist university researchers, extension personnel, producer groups and others to identify educational needs related to goat health and production
- "In addition to providing useful feedback to participants about the health status of their goats the information from this study will play a critical role in answering current research needs and funding research dollars." — John Dean New, 2001 American Dairy Goat Association member and breeder

Test includes:
Pre- and post-deworming fecal egg counts and egg count reduction tests will give you information about dewormer resistance on your operation. Do not deworm 60 days prior to VS Visit.

Free Biological Testing
Total Savings of up to $2,467

NAHMS 2019 Goat Study

Internal Parasite Test*
You Save: $532

Test includes:
Cultures to look for E. coli, Salmonella, Campylobacter, Giardia and Cryptosporidium in your goats.

Scrapie Genetic Test*
You Save: $450

Test includes:
DNA based blood test to identify genetic resistance/susceptibility to scrapie.

Enteric Pathogen Test*
You Save: $1,485

Test includes:
DNA based blood test to identify genetic resistance/susceptibility to scrapie.

* Biological testing costs includes: Diagnostic testing and an interpretive report of results
* Values based on estimated national average cost at diagnostic laboratories for the sampling of 15 goats
* Results are confidential

To learn more, visit www.aphis.usda.gov/nahms
Safeguarding American Agriculture

USDA is an equal opportunity provider, employer, and lender.

Deceptive 2015 NAHMS Doc NMS.0715
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• Centers for Disease Control
• Colorado State University
• Harmody Alpines
• Havin Hope Livestock
• Jumping Good Goat Dairy
• Louisiana State University
• National Veterinary Services Laboratory
• North Carolina State University
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