

Building Momentum: Preventive Health Planning

Brian Vander Ley, DVM PhD DACVPM

October 7, 2017

Disease Prevention or Health Promotion?

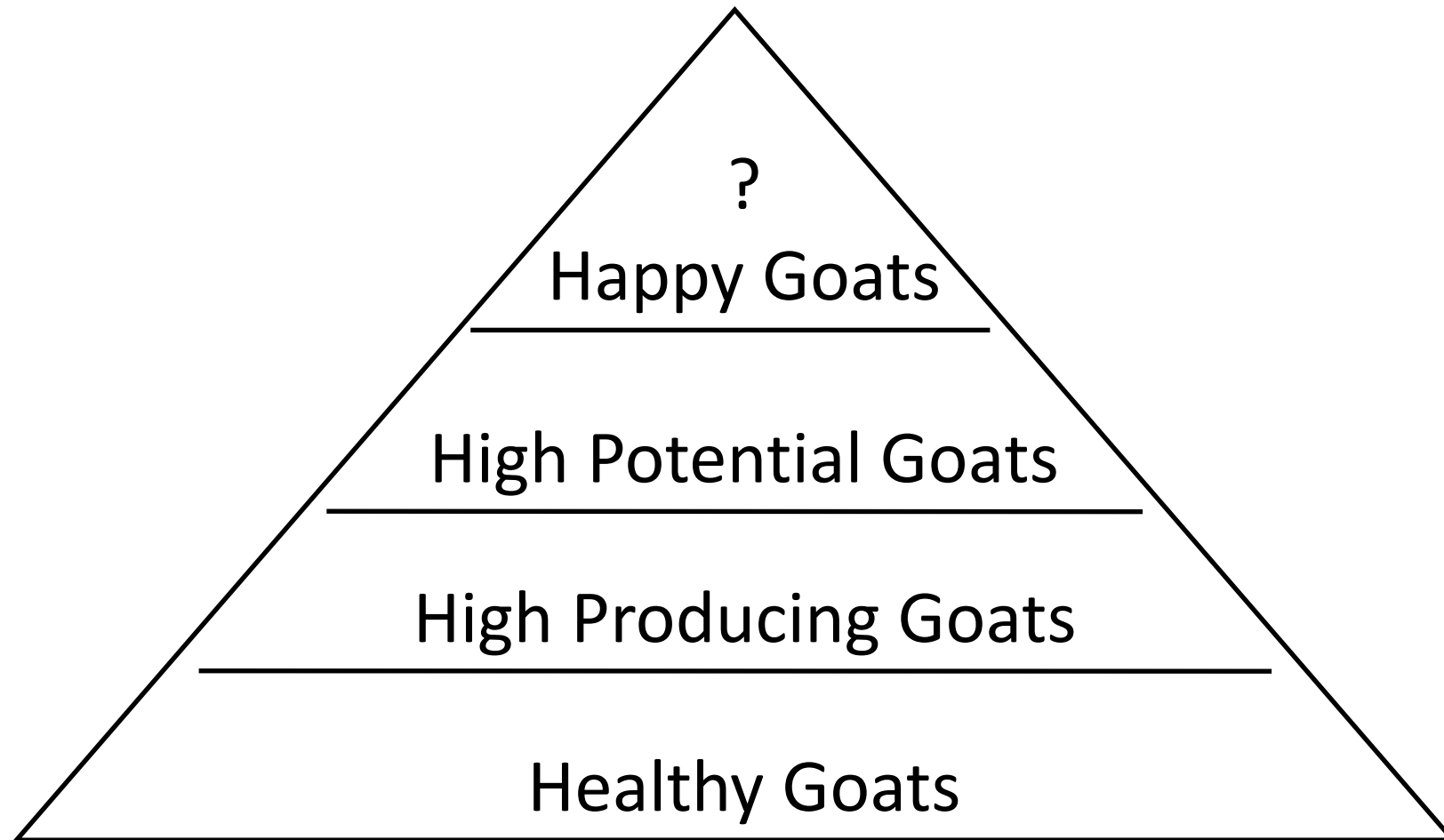
Disease Prevention

- Focus tends to be on preparing animals for diseases
- My experience: What can you **GIVE** my livestock to keep them healthy
 - Focuses on solutions delivered through a needle

Health Promotion

- Focus tends to be on maintaining a resilient, productive group of livestock
- My experience: What can I do **FOR** my animals to keep them healthy
 - Focus is on animal husbandry

Goat Production Hierarchy



Step 1. Nutrition for Health

- Adequate
 - Energy
 - Fiber
 - Protein
 - Micronutrients
 - Clean, Fresh Water
- Low BCS is a leading risk factor for most diseases

Step 2. Stress Management

Table 6. Effects of weaning management on morbidity, mortality, and health costs¹

Item	RANCH				SEM ²	<i>P</i> > <i>F</i>
	MARKET	WEAN	WEAN45	WEANVAC45		
Morbidity, %	41.9 ^a	35.1 ^a	5.9 ^b	9.5 ^b	4.2	<0.001
Treated once, %	31.9 ^a	22.2 ^a	5.0 ^b	7.7 ^b	3.8	<0.001
Treated twice, %	4.0 ^{ab}	9.2 ^a	0.9 ^b	1.8 ^b	2.2	0.05
Treated thrice, %	6.0 ^a	3.7 ^{ab}	0.0 ^b	0.0 ^b	1.5	0.02

Step, D. L. et al. 2008. Effects of commingling beef calves from different sources and weaning protocols during a forty-two-day receiving period on performance and bovine respiratory disease. *Journal of Animal Science* 86: 3146-3158.

Step 3. Biological Risk Management (Biosecurity)

Exclusion

- Aimed at keeping disease out

Containment

- Aimed at preventing spread of endemic herd diseases to high risk populations

BioExclusion



My preferred way to prevent disease is to have no pathogen exposure

Livestock Exhibitions

- Voluntary Commingling
 - Very high risk for disease introduction
- Risk Management
 - Do not share equipment
 - Wash hands constantly
 - Quarantine show string away from resident animals
 - Minimize animal contact



BioExclusion

- Practical Quarantine

- Keep new arrivals separate from resident herd for at least 30 days
 - Allows active infections to resolve
- Time addition of new arrivals to coincide with periods when disease exposure will have minimal impact
 - For Example, do not introduce new animals to herd during gestation
- Implement disease screening to prevent introduction of targeted diseases
 - Parasites
 - Caseous Lymphadenitis
 - Caprine Arthritis Encephalitis Virus
 - Johne's Disease

Disease Screening

- Can be very valuable
- Need clearly defined goals
 - “I do not want to import highly resistant parasites into my herd”
- Three Step Process
 - Test current herd
 - Establish status of individuals and take appropriate action (Cull)
 - Quarantine and test all new arrivals
 - Monitor herd routinely
 - Screening
 - Postmortem exams
 - Sick animal work-up

Biocontainment-Closing Windows of Opportunity

- Identify susceptible populations
- Minimize/eliminate exposure risk
- CAE Example

BioContainment-Other Examples

- Clean water tanks
 - Tanks have been used as “sampling” devices to detect viral shedding
- Avoid using feeding equipment for manure handling
- Feed off the ground if possible
- Pest control-particularly flies
- Pasture Rotation

Biosecurity

- <http://cfsph.iastate.edu/>



Immune Preparation-Vaccination

- Principles

- Match vaccines to challenges
 - Diagnosed or highly probably
 - Aim to provide maximal immunity at the time of challenge or risk
 - Use vaccines that induce appropriate immune responses for the probably challenge
- Design vaccination schedule to maximize compliance
 - Consider labor/trips through chute
- Always look for ways to avoid challenge through management first
- Do NOT give vaccines when animals are sick or at risk of adverse effects from Vaccines

Treatment-More than drugs and bugs

- Choose effective treatments
 - Based on literature when available
 - Fine tuned based on health records
- Records
 - Cannot be emphasized enough
 - Important for avoidance of drug residues-legal implications
 - Important for treatment efficacy determination
 - Critical for disease management

My Opinion on Records

- At least when, why, and where disease occurs along with treatment information (drug/s, doses, route of administration)
- When processing occurs, record details that pertain to health problems on the herd (e.g. if infertility is a problem, monitor BCS, Age).
- Performance data is probably not mandatory, but can be very useful when making selection and culling decisions.

Mortality

- Dead animals do not have to be a complete loss
- Post mortem exams are a treasure trove of information
 - Open-ended surveillance
 - Often the only opportunity to detect insidious diseases



Specific Scenarios

Unthrifty Goats-Solving the Riddle

- Many forms
- Chronic weight loss
- Poor condition despite supplementation



Measure, Record, Track

APPENDIX 1

CONDITION SCORES

© NSW Agriculture

1
Very Lean

Body angular, narrow and slab sided. Backbone raised and sharp. Ends of short ribs sharp and easily felt.

© NSW Agriculture

2
Lean

Backbone raised and barely covered. Pin and hip bones obvious and barely covered. Ends of short ribs smooth but easily felt.

© NSW Agriculture

3
Medium

Backbone slightly raised, smooth and rounded over top. Pin and hip bones lightly covered. Ends of short ribs smooth but can still be felt. Moderately rounded appearance.

© NSW Agriculture

4
Fat

Smooth, rounded appearance. Backbone can only just be felt. Pin and hip bones smooth and rounded. Ends of short ribs cannot be felt.

Further reading: Condition Scoring of Goats, The New South Wales Department of Agriculture, Agfact A7.2.3



Possible Answers

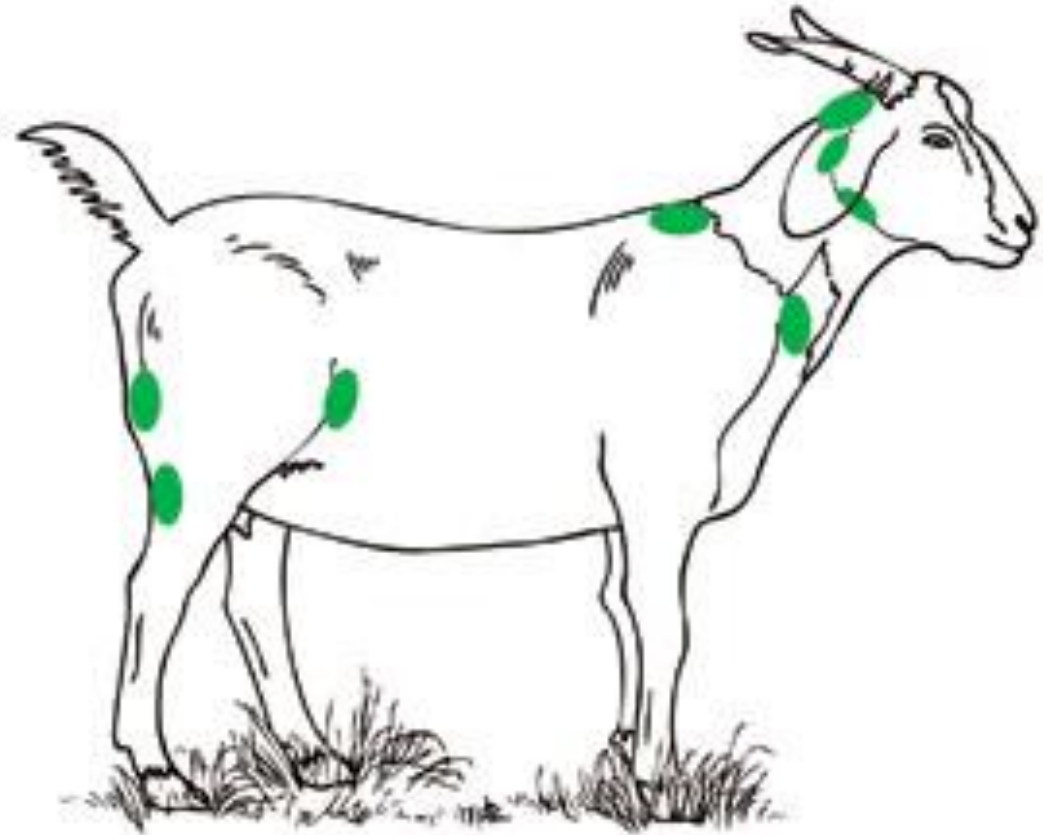
- Poor Nutrition/High Demands
 - Caseous Lymphadenitis
 - CAE
 - Johne's Disease
 - Parasites
 - Scrapie
- These are all chronic causes of weight loss

Rule Out Nutrition

- Test hay
 - 20-30 core samples for each batch of hay from random bales/locations
 - Select wet chemistry analysis that provides at least the following
 - Dry matter
 - Crude protein
 - TDN
- Langston University
 - <http://www2.luresext.edu/goats/research/>
 - Ration assessment tool

Pathogen Detection-CL

- Abscessed lymph nodes
 - Swollen lymph nodes
 - Draining abscesses
- Infection is caused primarily by exposure to pus from abscesses
- No effective treatment
- Prevention: Isolate/Cull any animals with draining abscesses



CAE

- Retrovirus infection-lifelong
- 4 Forms
 - Central Nervous System signs (young kids)
 - Arthritis (mature adults)
 - Pneumonia (mature adults)
 - Mastitis (mature adults)
- Transmission
 - Vertical through infected colostrum
 - Horizontal-Goat to goat
- Prevention
 - Test and segregate
- High value offspring can be removed prior to nursing and fed heat-treated colostrum

Johne's Disease

- Causes weight loss
 - Diarrhea in only 20% of cases in small ruminants
- Usually show signs after 2 years of age
- Triggered by stress
- Transmitted by in utero or by fecal oral early in life
- Test and cull
 - Shedding is intermittent so routine testing is necessary
- Keep does clean around kidding time
- Consider culling doe kids from positive dams
 - In-utero transmission

Scrapie

- Much less common in goats compared to sheep
- Progressive neurologic disease
 - Weight loss
 - Itching
 - Behavior changes
 - Gait abnormalities

Questions, Comments

- Brian Vander Ley
- Phone: 515-450-8620
- Email: bvanderley2@unl.edu