## Forage Management for Fiber Animals





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## Good forage management geared towards -

Keeping your enterprise healthy and sustainable (environmentally and financially). Healthy productive plants Healthy productive animals Nutrition Parasite Loads

## Tools for determining nutrition and health

Diversity of pasture plants Plant Productivity – dry matter content Forage analysis Body condition scoring, animal production records Your eyes and mind\*



## Plant Diversity – palatable plants ?



## **Dry Matter Content**

- How much is actually out there? How does it vary from season to season, year to year?
- Can start out by sampling pastures to get some real data
- Then relate it to pasture height/density or appearance



Dry matter content helps us Evaluate plant health Animals - Match reproductive needs to availability of nutrition

 Determine how many animals you can put in a section for how many days

# In a pasture-based sheep or goat farm

- Usually try to have animals lactating when most nutrition available from pasture
- Rather than kidding/lambing in winter when would needs lots of high quality stored forage ->
- Kid or lamb in April/May
- May delay birthing until herd can safely kid/lamb out on pasture -> less labor, less hassle

#### **Dry Matter & TDN for Grazing Season 1999**



## Ability to utilize different types of forage depends partially on -

 Unique characteristics of your animal species and their effect on
 Plant and animal health
 Internal parasite loads



# Matching nutrition to the animal's needs -

What phase in production are they?

Pregnant? - Energy Lactating? - Protein, energy, calcium Growing?

How much are they producing?



### Goats are :

 Very social animal - Learn their eating habits from their herd
 Appear to have a higher dry matter intake than many other livestock species Intermediate feeders – prefer forbs and browse but also graze grasses – crave variety-> on the move

## Angora goats – extremely heavy producers of fiber, very seasonal breeders, twins rare



## Angora Goats – When is Nutrition Critical?

Just before and after breeding – flushing, growth of young does?
Late gestation – last 6 to 8 wks – energy critical

Early lactation – first 12 to 16 weeks

Weaning – post weaning growth

Keep in mind that we are often shearing 2 X a year – prior to kidding and shortly before or after weaning



## **Angora wethers**

Mohair very responsive to nutrition especially protein Optimal nutrition – fiber may thicken somewhat but usually not greatly affected Genetics, age, and sex are much stronger influences Urinary Calculi – have a Ca : P ration of  $\geq 2:1$ 



## **Cashmere type goats**

- Not heavy yielders of fiber –not a significant nutritional demand
- Shorn once a year Cashmere growth affected by day length. Growth starts at the Summer Solstice (longest day June 20),
   Ends at Winter Solstice (shortest day Dec 20).
- Shed a couple of months later.
- Stress of lactation fleeces can be prematurely shed
- Therefore, often breed to kid shortly after cashmere harvested
- Some cashmeres will breed out of season

Cashmere Goats – When is Nutrition Critical?

Breeding - To flush or not?



 Late Pregnancy/Early Lactation – level of nutrition strongly affects number of secondary follicle (cashmere producing) formed in the kid

Cashmere growing period – June 20 – Dec 20 Goats should not be losing weight. Otherwise yield and length of fiber suffer. Thickness?

Mobile upper lip allows goats to be selective eaters. Sheep do not have mobile upper lip.



Sheep – Also intermediate feeders – However, prefer grass although they will also graze forbs and browse. Graze close to ground.

## Camelids – Alpacas, Llamas

Substantially larger than goats and sheep – especially llamas Intermediate feeders – adapted to arid/sparse vegetation Pseudo-ruminants Chew cud 3 compartments to stomach no omasum

## **Periods of critical nutrition**

Moderate fleece production – not a great drain on nutrition Long gestations Last third of pregnancy Early lactation Growth



# Goat and sheep are small ruminants, so

they have a rapid rate of passage of food through their rumens ->
do not utilize mature highly fibrous forages as well as large ruminants do
Therefore, fermentable fiber content of pasture very important

of pasture very important

 Fermentable fiber – fiber that rumen microbes can digest

Llamas more like cattle in using fiber

#### **3 PHASES OF PASTURE GROWTH**



## Phase 1 – Beginning to grow



## **Beginning Phase III**





## **Pasture health**

 Usually recommend going into a pasture at the top of Phase 2, and

 Moving out of a pasture at the top of Phase 1

 5 day rule - Move animals out of a section before they start defoliating the very palatable new growth, often around 5 days –depends on amount of forage out there and rate of regrowth (weather related).

### Moving goats and sheep before significant new growth is attacked is critical



Moving goats and sheep into a field at the top of the vegetative phase before it can reach the mature phase makes lots of sense

Not only for Plant health and productivity, but also

To provide good nutrition to these small ruminants

# When they are forced to eat this, you are lucky if you get this



#### CONTINUOUS STOCKING METHOD HIGH FORAGE SUPPLY (SPRING AND EARLY SUMMER) (MID-SUMMER AND FALL)





#### HIGH ANIMAL NUMBERS

LOW ANIMAL NUMBERS

THE ACREAGE REMAINS CONSTANT BUT THE NUMBER OF ANIMALS CHANGES

### ROTATIONAL STOCKING METHOD

#### HIGH FORAGE SUPPLY (SPRING AND EARLY SUMMER)

#### LOW FORAGE SUPPLY (MID-SUMMER AND FALL)



THE NUMBER OF ANIMALS REMAIN CONSTANT BUT THE ACREAGE CHANGES

## **Grazing Plan Basics**

Small Paddocks
Short Duration
Rest Interval
6-8" Forage Height



## SHAPE OF PADDOCK

4



NO

## MAYBE
## GATE LOCATION

NO





## The ability of goats to selectively eat means they can choose a diet far higher in nutrition than the basture average

#### As long as the grazing pressure is not too strong

Their ability to selectively eat means they may be choosing a diet that is lower in fiber than you think.

 If you supplement their forage diet with a concentrate that is low in fermentable fiber you will aggravate this problem.

If you supplement them when forages are low in high quality fiber, try to choose a concentrate high in fermentable fiber – wheat middlings, soy hulls, dried distillers grain, corn gluten feed, beet pulp, cottonseed hulls etc.



## **Poisons?**







# **Browsing** –

Goats love browse. Camelids and Sheep are also capable browsers depending on grazing pressure and forage choices



How you manage animals on browse and woods depends on whether you want to eradicate the browse or sustain it

When will you graze it?
 How much defoliation will you allow?
 How often in a grazing period



## If trying to sustain browse:

- Don't browse it early in the season before the root reserves exhausted from putting out spring growth have been replenished,
- Don't browse it late in the season after leaves have fallen when goats will tend to girdle trunks and branches,
- Don't defoliate it more than ~66%,
- Don't return onto it before leaf growth has recovered

Browse usually deteriorates in feed quality over a growing season slower than conventional pastures



## Pasturing Goats and Sheep in Winter

 Few goats will naturally paw through snow (very tough with ice) to get to grasses – learned response

 Small animal -Difficulty moving through deep snow



In contrast, sheep more inclined to paw, more comfortable in snow and cold temperatures for longer periods as long as they have relief from wind and snow is not too high or crusted

## **Small ruminants and worms**



## Haemonchus contortus

#### **The Barber Pole Worm**

A blood-sucking parasite that pierces the mucosa of the abomasum (ruminant "stomach"), causing blood plasma and protein loss to the sheep or goat.



- short generation time, heavy egg producer; 5,000-10,000 eggs/worm/day
- can infest and kill host in 4 weeks

 Each worm can consume 0.05 ml blood per day

# Haemonchus (Barber pole worm) and other strongyles

 pasture problem - especially if pasture is small and damp
 few larvae picked up in barn - ammonia gas from bedding pack discourages larvae survival
 infective larvae in dewdrops on grass

# Does/Ewes lose immunity to worms while lactating

In a management intensive system, when do we usually have them lactating? L3 - Takes about 5 -14 days from fresh fecal pellet to L-3  $\rightarrow$ Pasture becomes infective at this time



Most L3s do not get more than about 2 inches high on grass blade.

### <u>Meningeal worm (deer, brain worm)</u> Parelaphostrongylus tenuis





Parasite of White Tail Deer

 Small ruminants are an abnormal host (sheep, goats, llama, alpaca)

 Parasite has <u>indirect</u> life cycle – snails and slugs needed for infection

Larva travel from intestinal tract to spinal cord to brain, causing →

Nerve damage (can include lameness, gait abnormality, itching) → can be as extreme as paralysis or even DEATH

#### Animals maintain appetite



# Treatment of *P. tenuis* in aberrant hosts

- no controlled studies
- escalation of drug dosages
- ivermectin 0.2 to 1.0 mg/kg for 1-5 d
- fenbendazole 10 to 50 mg/kg for 1-5 d
- usually both simultaneously
- anti-inflammatories important
  - corticosteroids if not pregnant: dexamethasone
     0.1 mg/kg s.i.d. for 3-5 d
  - flunixin 1 mg/kg s.i.d. or b.i.d. for 3 d

## **Prevention of exposure**

- do not pasture at edge of woods or in brush pastures - especially during wet season/early fall
- avoid low-lying poorly drained fields except under very dry conditions
- fence off deer watering spots
- use fields deer prefer for hay, not grazing
- guardian dog may help
- take advantage of hunting season!



## Pasture Management to reduce barber pole worm problems

 Use clean, "safe" pastures or pasture alternatives

 Make wise management decisions about pasture height, pasture rest, and pasture rotation

 Give priority to recently weaned young stock -> lactating does/ewes
 -> dry animals

## Use "clean or safe" pastures



#### What is a truly safe pasture?

- A pasture that has not been grazed by sheep or goats for the past 6 to 12 months
  however, worm populations do start to drop sharply after 45-60 days.
- 2. Pasture grazed solely by horses and/or cattle for the past 6 to 12 months.
  - Pasture in which a hay, baleage or silage crop has been removed.

# In a grazing system for small ruminants we are:

 Generally trying to move animals before the pasture is below 3 inches and get back in before pasture gets too mature

## Problem



 Pasture rest periods to control internal parasites need to be longer than normal recommendations for either pasture health or nutritional value

## Things to consider when grazing small ruminants

Are there safe "pastures" that animals can be switched to as the grazing season progresses?

 Brush pastures, hayfield regrowth, pastures that your cattle or horses have been grazing, crop residues

Can you disrupt the worm cycle by mowing the pasture extremely short, grazing other species, or harvesting a crop of hay, haylage or baleage before resuming grazing? Rotational grazing in the spring appears to reduce the "barnyard effect" and delay the onset of summer parasite problems

## **Barnyard Effect**

- Barnyards with grass or other good forage
- → Lead to high concentration of manure and internal parasites in grazing material
- → Can contribute greatly to herd contamination with internal parasites
- Any have a "barnyard effect" in pastures that border barn and are not rotated

Manure pile right in yard – kids born late April – barn situated in very large pasture but kids and does tend to graze right by barn where manure concentration (and worm contamination) is highest. By late July → kid loss to worms and coccidia



Please note that we are talking about herds that are rotating in the spring and summer and that by late July most of these also had high worm loads

Worm eggs per gram in kids in herds that rotate vs herds that do not -State #1



## Some options to help reduce barnyard effect – Can you implement any of them?



- lay down gravel, concrete, or herbicides
- close off access to barnyard during day and on full moon nights
- provide hay in barn at night when animals come in from pasture to cut down on night grazing in the barnyard

make barnyard small enough that very little forage present



replace barnyards with narrow lanes from pastures to barn

v. h.


leave animals in rotated pastures 24 hours a day with portable shelter, water and feeder



### **Camelids – Dung piles**

Other Pasture Concerns
Good fencing
Predator Control



# Fencing

Five + wires high-tensile
Electronet? Poly wire?
Stock fencing, page wire

Hot fence
 Mowing/weed wacking/herbicide

Do most animals go over or under the fence? Page wire with wire along the ground.

How will you stop animals from climbing on fence – offset electric insulators?









### Predator Management

**Guardian Animals** You with a gun Llamas Dogs – Pyrenees, Maremmas, Mastiffs Donkeys, Horses Brood Cow





## The Big Three + a few more...

Fencing, Predators and ParasitesWhat about??

Water
Minerals
Shade
Barn Access
Mud



### What About??

- Water yes but...
  - When the grass is lush they don't drink as much
  - Lactating sheep and goats drink alot
  - Snow is adequate for non-lactating animals?
  - Pasture waterers or back to the barn?
- Minerals –
- don't forget them!!
  - Barn or pasture?
  - Small amounts/day



### What about??

- Mud lanes help, be aware of runoff routes
- Shade technically not necessary
  - Animals will use it
  - May encourage worms
  - Bug Break
- Barn Access not necessary
  - Unless your water and minerals are there
  - Close them out?



