

BENEFITS OF MULTISPECIES GRAZING

A photograph of a farm scene. In the background, there is a white barn with a brown roof and several dark-colored doors. The barn is surrounded by a dense line of green trees. In the middle ground, a large green field is visible, with several hay bales scattered across it. In the foreground, a group of cows is grazing in a field of tall green grass. The cows are of various colors, including black, white, and brown. The overall scene is a peaceful rural landscape.

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WHAT IS MULTISPECIES GRAZING?

- ✘ The use of more than one species of herbivore to graze forage resources.
- ✘ Cattle, Horses, Goats and Sheep



WHY MULTISPECIES GRAZING?

- Utilization of more plants in a pasture
- Improved pasture quality
- Increased carrying capacity
- More total pounds of gain per acre
- More uniform grazing (grazing around dung and urine patches)
- Reproductive efficiency
- Efficient foragers
- Vegetation control
- **More profit potential**



Grazed by cattle for 4 years.



Grazed by goats for 4 years.



These two pastures are directly across the road from one another and have the same owner. The picture on the left is the pasture that has been grazed by cattle only for approximately four years. The picture on the right has been grazed by goats only for the same time period. More total production and greater plant diversity in each pasture would be achieved by mixing or alternating the two herds.

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MULTISPECIES GRAZING IS A SOUND MANAGEMENT PRACTICE

Jill Heemstra, Extension Educator

Wayne and Dixon counties

Multispecies grazing refers to the use of more than one large species of animals to graze a common pasture. This practice is widespread throughout the world but is not common in the U.S. Most references will be made to the use of sheep, goats, and cattle although bison

Add one sheep or goat for each cow.

DIFFERENT TYPES OF PLANTS



Grass



Forbs (weeds)

broadleaf

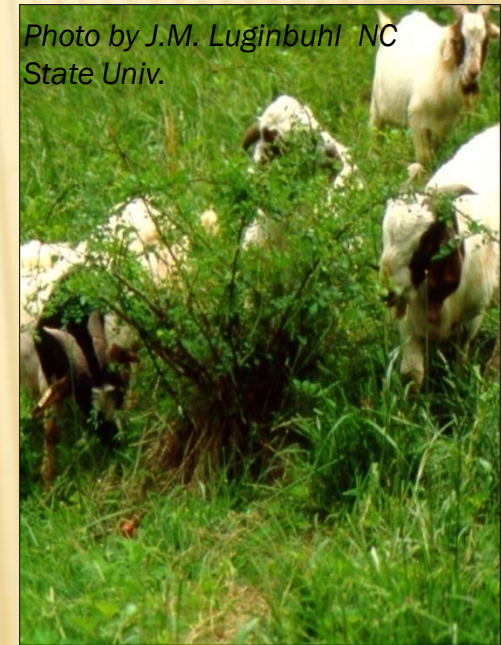


Photo by J.M. Luginbuhl NC State Univ.

Browse

shrubs, trees, vines

Sheep and goats will eat a majority of the plants that grow in North America.

GRAZING PREFERENCES

GOATS	BROWSE
SHEEP	FORBS (WEEDS)
CATTLE	GRASS

FORAGING BEHAVIOR OF GOATS



“Clean-up Artists”

- ✘ Opportunistic grazers.
- ✘ Browsers - prefer woody plants, shrubs, and vines.
- ✘ Do not like clover, but will eat it.
- ✘ Do not like to graze close to soil surface.
- ✘ Inclined to graze higher, drier areas.
- ✘ Tolerance for tannins and bitter compounds and fewer problems with plant toxicities.

Browse => Forbs => Grass

FORAGING BEHAVIOR OF SHEEP

- ✘ Prefer forbs (weeds)
- ✘ Eat grass and browse
- ✘ Like clover
- ✘ Graze close to the ground
- ✘ Inclined to graze higher, drier areas.
- ✘ Can tolerate salty compounds.

Forbs => Grass => Browse



Good “second grazers”

FORAGING BEHAVIOR OF CATTLE

- ✘ Primarily grazers of grasses
- ✘ Tend to graze taller grasses sheep will reject
- ✘ Prefer lower flatter areas



COMPARISONS TO BEEF CATTLE

- ✘ Vary in their grazing behavior.
- ✘ Are more selective foragers; select a more nutritious diet.
- ➔ Sheep and goats have higher nutritional needs.
(goats > sheep > beef cattle)
 - + Higher maintenance requirements due to their smaller size (weight)
 - + Much greater reproductive potential
- ✘ Rotate sheep and goats ahead of cattle



VEGETATION MANAGEMENT

- ✘ Sheep and goats are used to reduce fuel loads to reduce wildfires
- ✘ To control unwanted vegetation on public lands & environmentally sensitive areas where chemicals cannot be used



VEGETATION MANAGEMENT

- ✘ Where mechanical means are too expensive and landowners or the public desire an environmentally friendly alternative
- ✘ Convert heavily wooded land back to native pastureland.

*Photo by J.M. Luginbuhl
NC State Univ.*



Controlling Multiflora Rose

PROFIT FROM 1 TON OF BRUSH ?

✘ Get goats!

- + It takes about 5 – 6 pounds of intake to get 1 lb. gain
- + Current 60 – 70 lb kid prices = \$1.75/lb
- + $\$1.75/5 = \0.35
 $\$1.75/6 = \0.292
- + $\$0.35 \times 2000 = \700



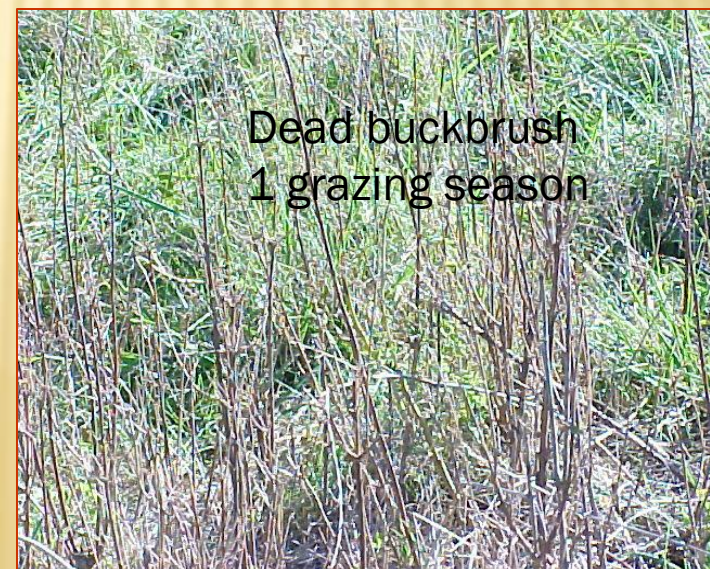
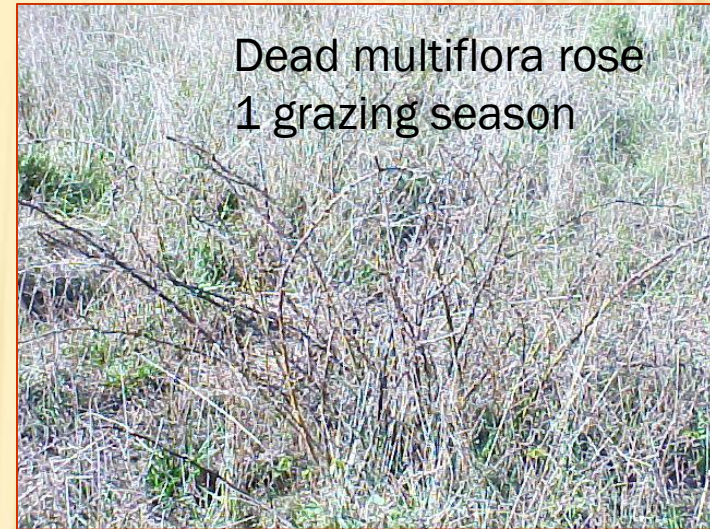
Based on Current Market Report, Missouri Dept. of Agriculture

GOATS IN LAND AND FORAGE MANAGEMENT

- ✘ In a NC State study, after 4 years of goat grazing pastures containing herbaceous weeds, vines, multiflora rose, blackberry and hardwood sprouts, pastures became dominated with grass and clover
- ✘ In a West Virginia study goats reduced brush cover from 45% to less than 15% in one season.

GOATS IN LAND AND FORAGE MANAGEMENT

- ✘ In an Ohio State University study, goats eliminated 92% of the multiflora rose in 1 season, however it took up to 4 years for total elimination



CONTROLLING SERICEA LESPEDEZA WITH GOATS

- ✘ Research and field experience in OK & KS
 - + Reduced seeds per stem from 960 to 3
 - + No new seedling spread
 - + Reduction in stem count (25 – 30%)
- ✘ Research at Langston University in OK
 - + Stocked at 6-8 goats/ac year 1, 4 – 6/ac. year 2, 3 – 4/ac. year 3
 - + End of 3rd year virtually no live sericea plants
 - + Left 1 goat/ac. thereafter to control germinating seedlings
 - + Weaned goats gained about .3 lb/hd/day during the summer on Sericea

SHEEP FOR WEED CONTROL

- ✘ Sheep naturally prefer forbs over grasses and grasses over shrubs, so they make good candidates for consuming weedy forbs in a weed-control context.
- ✘ Preference in browse varies by breed
- ✘ In the West, sheep effectively control spotted knapweed (*Centaurea maculosa*), and other aggressive rangeland invaders that are displacing native plant species.



MATCH ANIMALS TO RESOURCES



- ✘ Sheep and goats are not miniature cows
- ✘ And they're certainly not pigs or chickens



✘ Many of the health problems with sheep and goats are directly related to not letting a goat be a goat or a sheep be a sheep!

✘ Use animals that fit your land and forage resources



SHEEP AND/OR GOATS? (VS. OTHER LIVESTOCK)



What is your forage-base?

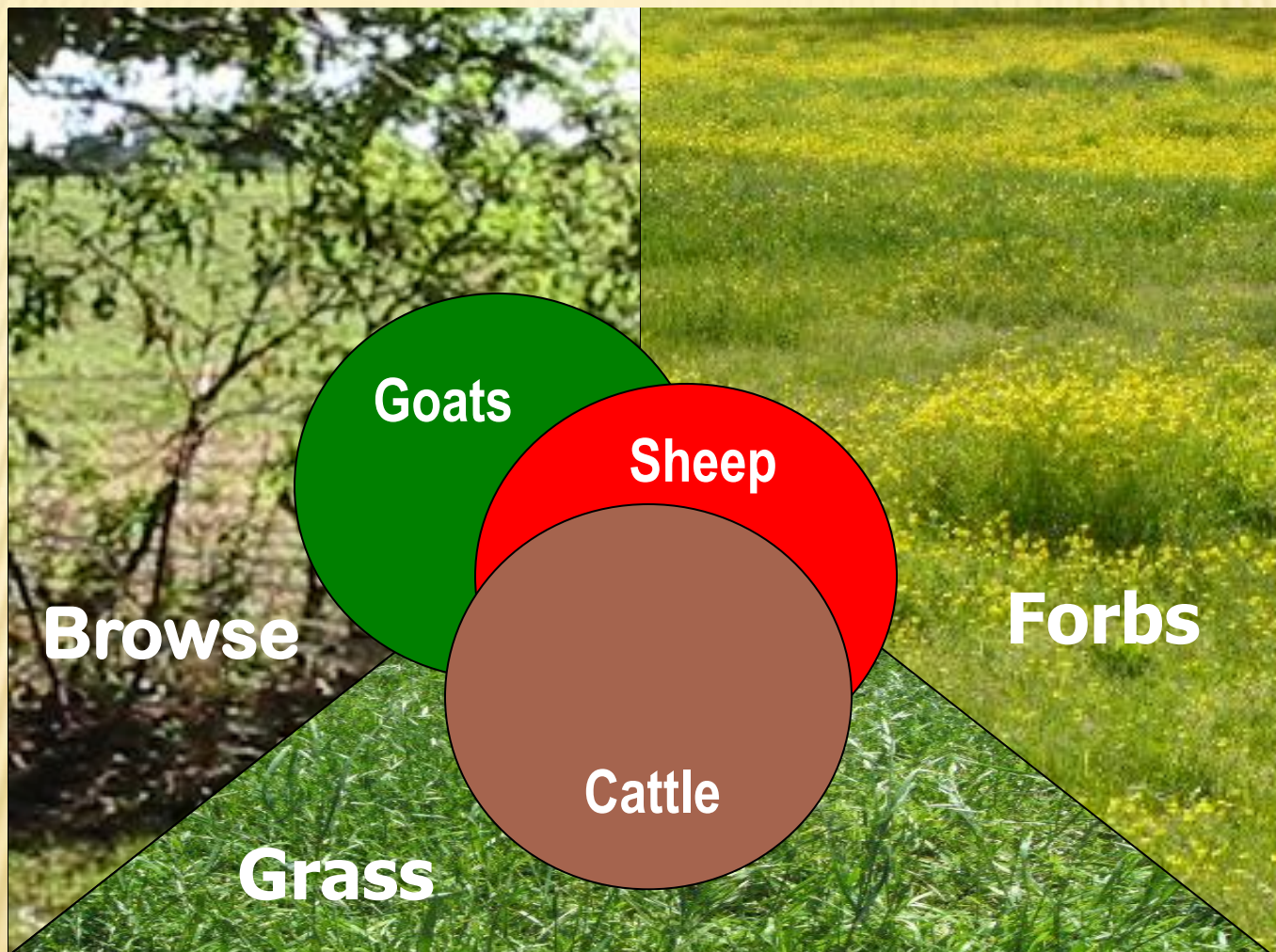
- + Sheep prefer forbs (weeds) and are probably the most efficient grazers.
- + Goats prefer to browse, but will graze.
- + Cattle and especially horses eat mostly grass.
- + Goats are more selective grazers than sheep, who are more selective grazers than cattle.
- + Diverse pastures favor small ruminants and multi-species grazing.

BE CAREFUL!

- ✘ Sheep and especially goats will destroy tree seedlings.
- ✘ Trees with larger diameters often die when goats remove bark.
- ✘ Goats and especially sheep will eat perennial grasses if there is no other preferred forage.



Multi-Species Grazing Preferences



However, there is regular crossover among the 3 types of feeders as diet preferences and food availability changes throughout the year.

WHAT'S THE BEST SHEEP OR GOAT TO RAISE?



- ✘ The one that **fits** your system, **matches** your resources, and **makes** you the most money.
- ✘ There is as much difference within breeds as between breeds.
- ✘ Crossbreeding is the recommended breeding practice due to hybrid vigor and breed complementarity.
- ✘ The “**best**” sheep or goat is not necessarily the one that looks the best, it’s the one that **produces** the best.
- ✘ Record keeping !!!

HOW MANY SHEEP/GOATS CAN YOU RAISE?

- ✘ It depends upon your management system and resources.
 - + Each farm has a different set of resources to use to raise livestock.
 - ✘ Land, labor, management and capital



$$\text{Carrying Capacity} = \frac{\text{Forage Production} \times \text{Seasonal Utilization Rate}}{\text{Daily Intake} \times \text{Length of the Grazing Season}}$$

STOCKING RATE GUIDELINES

Pasture Type	Cows	Sheep	Goats	Cows + Goats
Excellent Pasture	1	5 - 6	6 - 8	1 + 1 - 2
Brushy Pasture	1	6 - 7	9 - 11	1 + 2 - 4
Brush Eradication			8 - 12 / ac	.5 + 6 - 8/ac
Sustainable browse mgmt.			1 - 3 / ac	

ECONOMIC COMPARISON

× Cattle

- + 1 cow/calf unit/3 ac
- + 95% calf crop
- + 500 lb. weaning weight
- + 475 lbs. weaned/ 3ac
- + \$1.35/lb.
- + \$641.25 gross/3 ac
- + 158.33 lbs./ac
- + **\$213.75 gross/ac**

× Goats

- + 8 goat/kid units/3 ac
- + 150% kid crop
- + 60 lb weaning weight
- + 720 lbs. weaned/3 ac
- + \$1.75/lb.
- + \$1260.00 gross/3 ac
- + 240 lbs./ac
- + **\$420.00 gross/ac**

ECONOMIC COMPARISON

✘ Sheep

- + 6 ewe/lamb units / 3 ac.
- + 150% lamb crop
- + 120 lb. selling weight*
- + 1080 lbs. produced/3 ac.
- + \$1.00/lb
- + \$1080.00 gross/3ac.
- + 360 lbs. produce/ac
- + **\$360.00 gross/ac**



*May require supplemental feed from weaning to selling

INCREASING INVENTORY/EQUITY

REPRODUCTIVE EFFICIENCY

× Goats/Sheep

- + Start with 1 doe
- + Save all females for 5 years - sell all males
- + 150% kid crop
- + 50/50 doe/buck kids
- + At the end of 5 years:

× **24 females in herd**

× **24 males sold**

× Cattle

- + Start with 1 cow
- + Save all females for 5 years - sell all males
- + 95% calf crop
- + 50/50 heifer/bull calves
- + At the end of 5 years:

× **5 females in herd**

× **5 males sold**

PASTURE MANAGEMENT

- ✘ Proper stocking rates
- ✘ Pasture rotation (2 month rest period)
- ✘ Clean pastures
- ✘ Mixed species grazing
- ✘ Alternative forages
- ✘ Browsing decreases parasites except for deer worm (Meningeal worm).



OTHER CONSIDERATIONS.....

- ✘ Fencing
- ✘ Predators
- ✘ Parasites
- ✘ Management



KEYS TO SUCCESS



- ✘ Define success
 - + Profit
 - + Enjoyment
 - + Land management
- ✘ Determine success
 - + Record keeping
- ✘ Evaluate
 - + Find the weak points in your production
 - + Be willing to make changes in management.

ONLINE RESOURCES:

- ✘ American Sheep Industry Association - <http://www.sheepusa.org>
- ✘ Appropriate Technology Transfer for Rural Areas (ATTRA) – <http://www.attra.org>
- ✘ Missouri Alternatives Center – www.agebb.missouri.edu/mac
- ✘ Boer and Meat Goat Information Center – www.boergoats.com
 - ✘ Langston University Goat Research and Extension – www2.luresext.edu/goats/index.htm
 - ✘ Maryland Small Ruminant Page – www.sheepandgoat.com
 - ✘ Missouri Meat Goat Producers Association – www.meatgoatproducers.com
- ✘ North Carolina State University Meat Goat Research and Extension – www.cals.ncsu.edu/an_sci/extension/animal/meatgoat/

ONLINE RESOURCES (CON'T)

- ✘ Fort Valley State University Goat Center Publications – www.ag.fvsu.edu/html/publications/GoatCenter/Publications.htm
- ✘ Breeds of Livestock – OSU – www.ansi.okstate.edu/breeds/
 - ✘ Sheep & Goat markets - <http://www.ams.usda.gov/ismnpubs/GAuction.html>
- ✘ Premier 1 Supplies: sheep and goat supplies, electric fencing – www.premier1supplies.com/
 - ✘ Gallagher Power Fencing – www.gallagherusa.com
 - ✘ Kencove Fencing Supplies – www.kencove.com/
- ✘ Tru Test – Speedrite/PEL Power Fencing, livestock scales, supplies – www.tru-test.com/

TOXIC PLANT WEBSITES

- ✘ <http://cal.nbc.upenn.edu/poison/>
 - ✘ <http://vet.purdue.edu/depts/addl/toxic/cover1.html>
 - ✘ <http://www.library.uiuc.edu/vex/toxic/scilist.html>
 - ✘ <http://www.ansci.cornell.edu/plants/plants.html>
- ✘ Also be sure to check with your veterinarian and extension agent about weed identification.

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THANK YOU!!

