

Sheep - Which Breeds are Right for Me? And Why?



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In a Nutshell

- A brief history of sheep
- What you can do with sheep
- Survey of selected breeds
- Starting a sheep enterprise
- Sheep in the farm ecosystem



A little history

- Sheep were among the first animals to be domesticated
 - Mesopotamia: 11,000 – 9,000 ya
- Desirable characteristics:
 - Relatively docile, manageable size, high reproductive rate, they aggregate
 - Allowed for selection of desirable traits → new breeds
- Today there are 244+ breeds plus crosses
- Peak of the industry – 1940 to 1950: 55 million head in the US



Wild Mouflon
Ancestor of
modern sheep

What do you want to do?

- Wool –
 - Merino, Rambouillet, Cormo, Shetland, Corriedale, Cotswold, Leicester Longwool; Icelandic
- Meat
 - Dorper, Tunis, Oxford, Katahdin, Suffolk, Romney
- Dairy
 - East Friesian, Lacaune, Awassi
- Breeding Stock
 - Rare breeds – Navajo Churro, Shetland, Leicester Longwool, Barbados



Finding your breed

- Settle on your product(s)
 - Meat
 - Wool
 - Dairy
- Use the breeds chart to identify some breeds that meet your needs
- Check the characteristics of desirable breeds
- Talk/visit breeders



Principal sources: *Storey's Guide to Raising Sheep*, by Paula Simmons & Carol Ekarius (2001. Storey Publishing, North Adams, MA); Breed societies

Border Cheviot

- A mountain breed – Cheviot hills on the England-Scotland border
- Lack strong herding instinct but do well in small flocks
- Easy lambing, high twinning rate; hardy lambs; good meat quality/quantity
- Light weight, medium fleece – good for hand spinning
- Tend to be high strung; jump fences



Dorper

- Originally bred in South Africa from Horned Dorset and Blackhead Persian sheep
- Two types: black face; white face
- Fairly easy to handle
- Hair sheep – no need to shear, but will put on some wool in the winter
- Very weather-hardy; good herding instincts
- Extended lambing season
- Excellent meat



Dorset

- Horned and polled forms exist
- A good dual purpose (meat & wool) breed
- Originally used as dairy sheep – good milk quantity
- Today, mostly used for meat (they can lamb twice a year)
- Good wool



East Friesian

- Large breed from Holland & Germany
- Large milk volume; excellent for cheeses
- Good lambers and lambs grow fast
- Not particularly good meat; but good wool production



Katahdin

- A medium size hair breed
- First produced in Maine
- Good lambers; good mothers
- Produce lean, meaty carcasses
- Do well in a flock; fairly docile, though they can be a bit skittish



Leicester Longwool

- Small-medium sized breed
- Foundational breed for many others
- Nearly became extinct; being brought back Colonial Williamsburg
- Originally bred for meat, but today breeders focus on wool
- Docile and good herders
- Work well in a small operations



Merino

- Several Merino breeds:
 - Delaine (Type C – least folding of skin) – most common breed in North America; low twinning rate
 - Booroola (Contains F-gene which increases multiple birth rate)
- Mid-size breed
- Excellent flocking instincts
- Breed all year long; slow lamb growth – not highly desirable for meat
- Very desirable wool



Rambouillet

- Developed by French King Louis XVI in the 18th Century
- Large, stocky, hearty
- Excellent fleece
- Good meat
- Excellent herding characteristics
- Resist parasites but white hooves lead to concern about adaptability to damp soils



Romney

- One of the world's most popular breeds
- Resist foot rot and parasites typical of damp environments
- Ewes up to 225 lbs.; rams to 275 lbs.
- Do well in cool environments
- Good quality, long wool
- Excellent carcasses
- Docile; good herding instinct



Scottish Blackface

- Horned breed
- Hardy mountain breed; do well in cool, wet climates
- Long, course wool; used in Harris tweed and carpets
- Excellent meat
- Good mothers



Shetland

- Small, hardy, primitive breed from the Shetland Islands
- Was in danger of extinction; came to the US in the 1980s
- Ewes are polled; rams are horned
- Fine, strong fleece; 11 different colors
- Meat: chops and legs are small
- Variable temperament from docile to skittish



Southdown

- Old and popular meat breed
- Moderate size carcass
- Medium wool; short staple
- Good in a variety of climates and terrains



Suffolk

- British breed; popular in US
- Hardy, prolific, fast growing, very efficient with feed
- Good on open range; good herding instinct
- Produce high quality meat
- Not used for wool



Hybrid Vigor

- Unless you are selling a specific kind of breeding stock you may do better crossing breeds
- Get the attributes best suited to your land and operational goals
- Increase genetic diversity of your flock
- Genetic diversity creates
 - Health
 - Faster growth



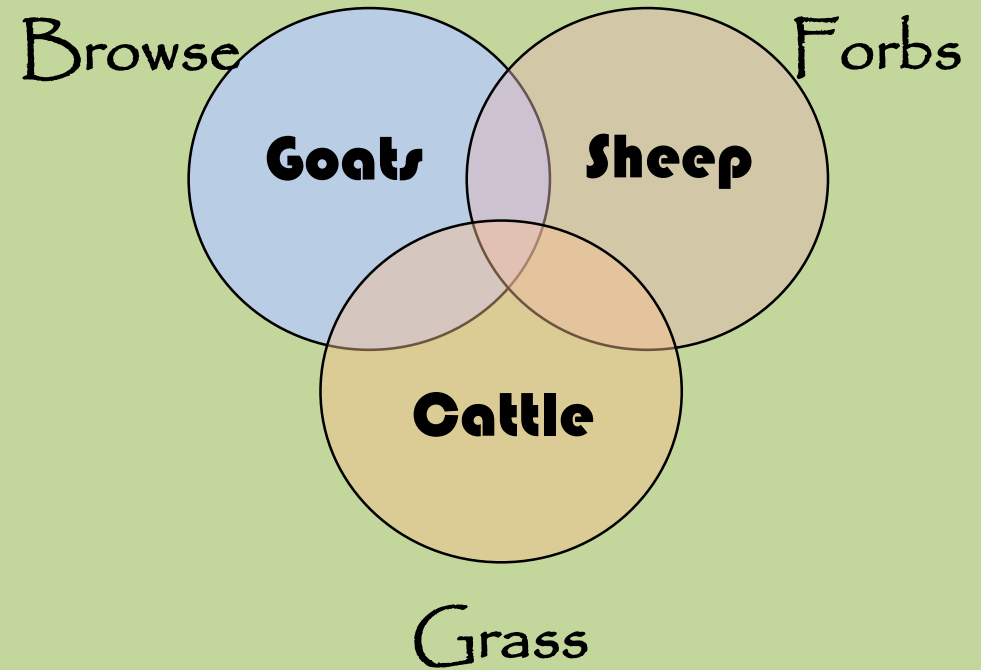
A Sheep Operation

- Identify your goal
- Match breeds with your goals
- Focus on the soil – the more C in the soil the better
- Diversify stock, products, markets



What you need

- Land
 - You need enough pasture
 - Forage quality
 - How will you get water to your sheep?
 - Shade
- Infrastructure
 - Barn/Shelter
 - Fencing
 - Tractor + cutter
 - Sheep Dog/ Guard animals
- Other
 - Hay
 - Grain
 - Seed
 - Shearing
 - Medicines + Vet visits



First set your goals

- Why am I doing this?
 - Career, economic
 - Farm business as part of an overall working life
 - Hobby
 - Children's project
- What do I want my sheep "enterprise" to be?
 - Starter farm
 - Addition to an existing farm
 - Part of a homestead
- What do I want to produce?
 - Meat, Milk (fluid, cheese, yogurt), Wool
- What do I have? What do I need to get?



Holistic Goal – *To create a farm that is healthy from the soil up*

- *Environmental - Make Longfield Farm a functional, wildlife friendly ecosystem*
- *Economic - Make the farm pay for itself*
- *Ethical - Behave ethically on the farm and in the market*
- *Social - Use the farm to educate people about small-scale family farming and sustainable food production*

Land

How much do I need?

- Depends on breed (size, forage requirements), forage characteristics, soil and availability of water
- How much land can you afford? \$1000 - \$30,000 per acre
- Some rules:
 - Rule of thumb: A sheep eats about 5% of its body weight per day – this is its daily ration (so a 150 lb sheep needs $150 \times 0.05 = 7.5$ lb/sheep · day)
 - Calculate the carrying capacity of your pasture (the number or weight of sheep you can sustain on you land for a specified amount of time)
 - Determine useable forage (UF) with a grazing stick
$$UF = \frac{1}{2} [(lbs \text{ of dry matter/acre}) \times \# \text{ of acres}]$$
To support your sheep, UF for time period, t, must equal Daily ration x days/t
$$\text{Carrying Capacity (C)} = [UF / (0.05 \text{ lb/sheep/day})] \times \text{days/unit time, t (such as a month)}$$
$$= (UF / \text{Daily Ration}) \times \text{days/t}$$
$$= \text{Sheep/t}$$
$$= [\text{some call this Stocking Rate (SR)}]$$
then $C = SR \times \text{grazing period (such as months)}$

Land

How much do I need?

- If I have a flock of sheep (or know how many sheep I need in order to be profitable), here is how to determine how much land I need:

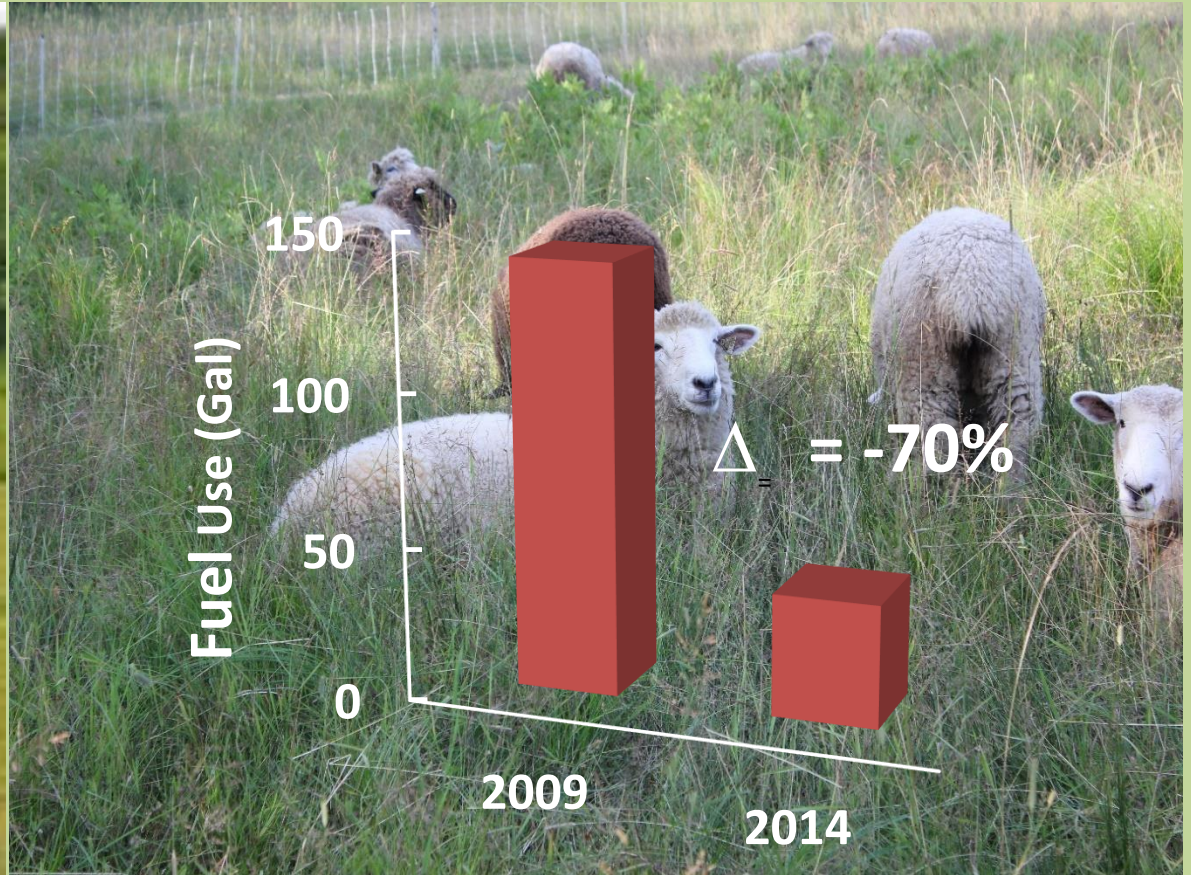
$$\text{Acres needed} = \frac{0.05 \times \text{lb}}{\text{sheep}} \times \frac{1}{\text{d}} \times \# \text{ sheep} \times \text{days of grazing} / \text{lb DM/acre}$$

- Stocking Rate using Animal Units:
 - Animal Unit (AU): a term originally developed by USDA to manage grazing on public lands
 - Animal Unit equivalents AUE: based on an AU = 1.0, the value of a 1000 lb cow/calf pair
Different institutions use different AUE values for sheep, ranging from 0.1 to 0.2 (I use 0.1)
 - # sheep x AUE = AU x Months of grazing = AUM
 - If we convert C in the previous slide to AU x grazing period, we get C based on animal units. If C > AUM, sustainable grazing is possible.

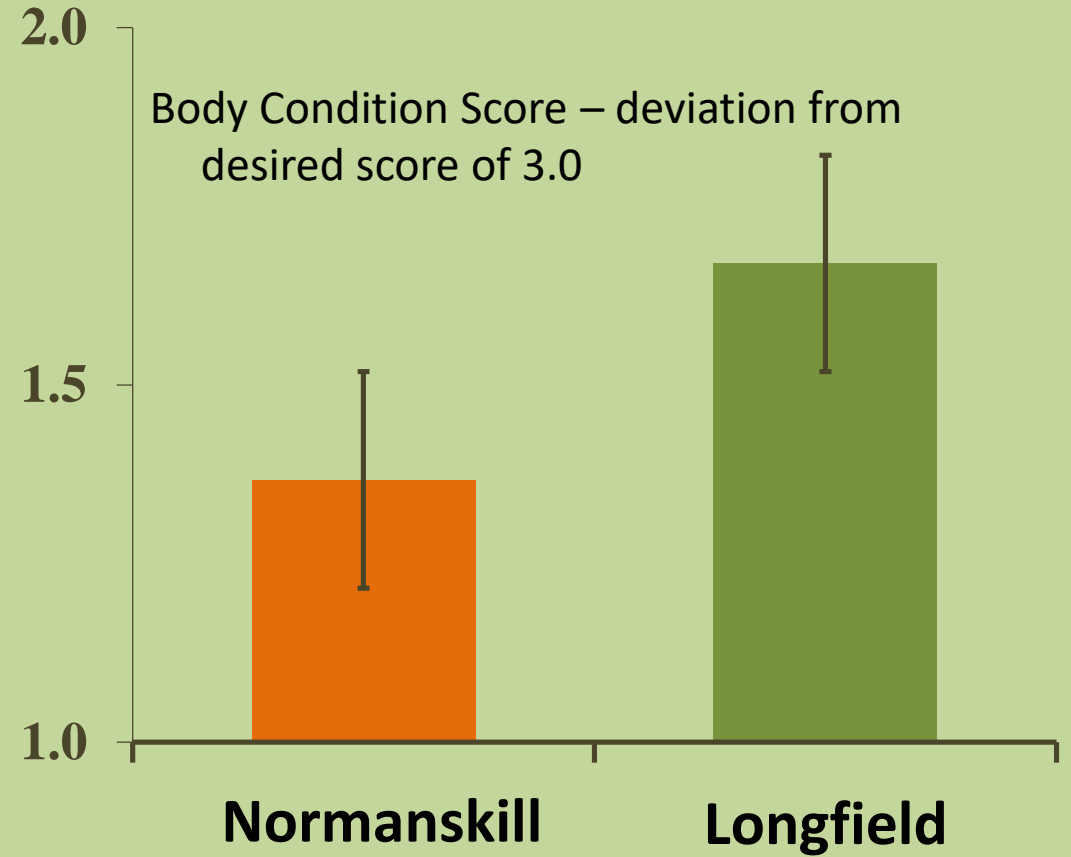
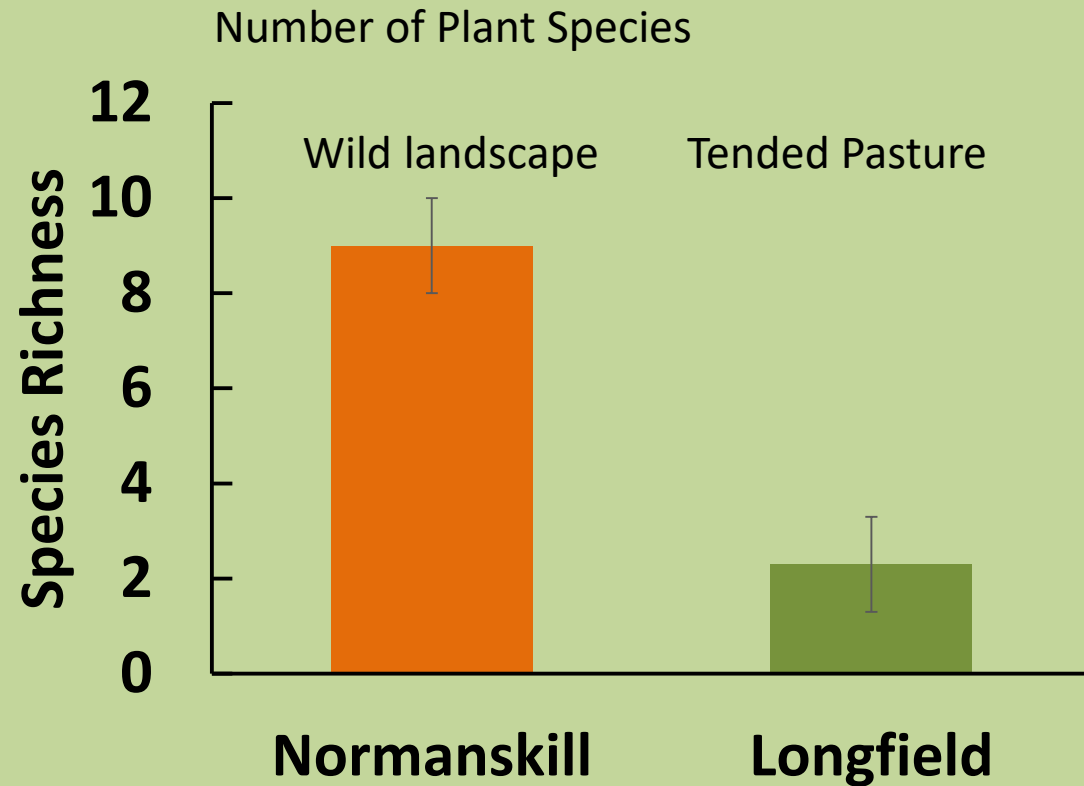
Forage Quality

- Especially important in a grass-fed/grass finished operation
- Possibly the thing that most influences flock health and your profitability
- There are many “opinions” about what constitutes pasture/forage quality
- Focus on soil health, carbon sequestration, nutrient density and biodiversity

Do we really need to cut the grass?

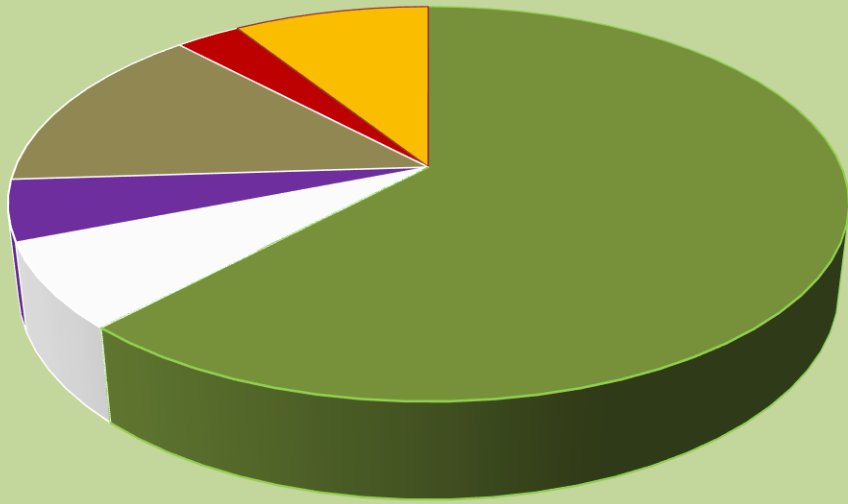


Diversity of pasture plants and livestock health

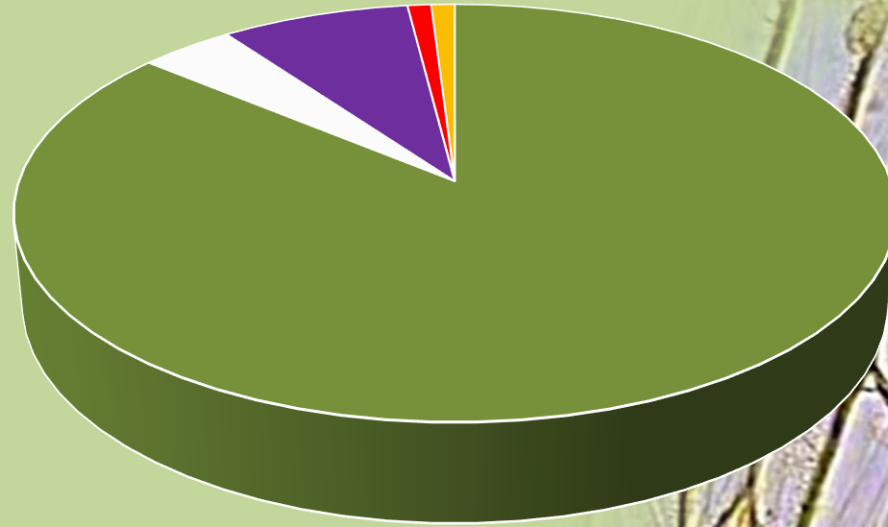


Microhistological Diet Analysis

Normanskill



Longfield

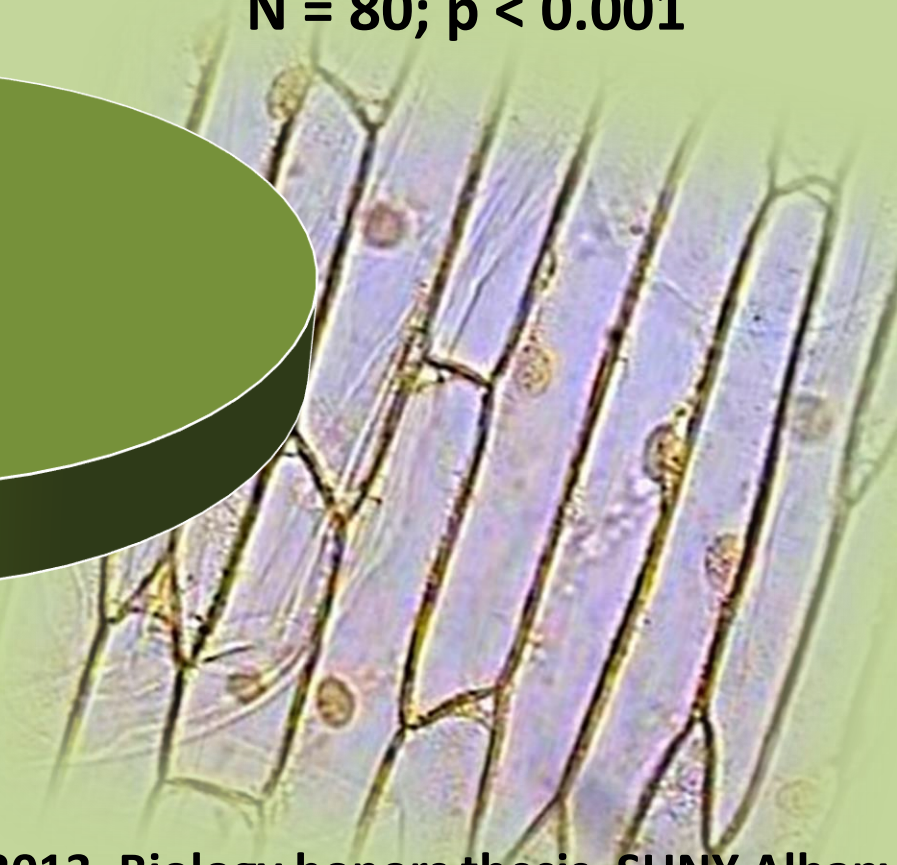


Chi Square

Goodness of Fit = 34.82

N = 80; p < 0.001

- % Graminoids
- % Non-Legume Forbs
- Legumes
- Woody Plants
- Herbaceous Invasives
- Woody Invasives



Water

- Providing water can be challenging
- A sheep can drink up to 8 gal of water/day
- Possibilities: ponds, pumps, wells, irrigation hoses, water wagons
- Sheep need water in the winter too (they can eat snow but should have access to liquid water)



Shade

- Very important in warm weather and strong sun
- Lambs are especially sensitive to heat and sun
- If you don't have shade, move the flock off pasture
- Have plenty of water available in warm weather



Shelter



Classic Sheds & Gazebos
(518) 869-7474



Lamb jug

Lambing (gestation = 145 to 147 days)

When to Lamb

Winter

- Many operators lamb between January and February
- Few parasites
- Greatest risk is the cold
- Moms are eating hay – not as good as grass



Spring

- Lambing on grass seems less stressful
- Greatest risks are parasites and predators
- Moms are eating grass – lambs start nibbling on grass after 2 or 3 days
- Pastures are usually cleaner than barns

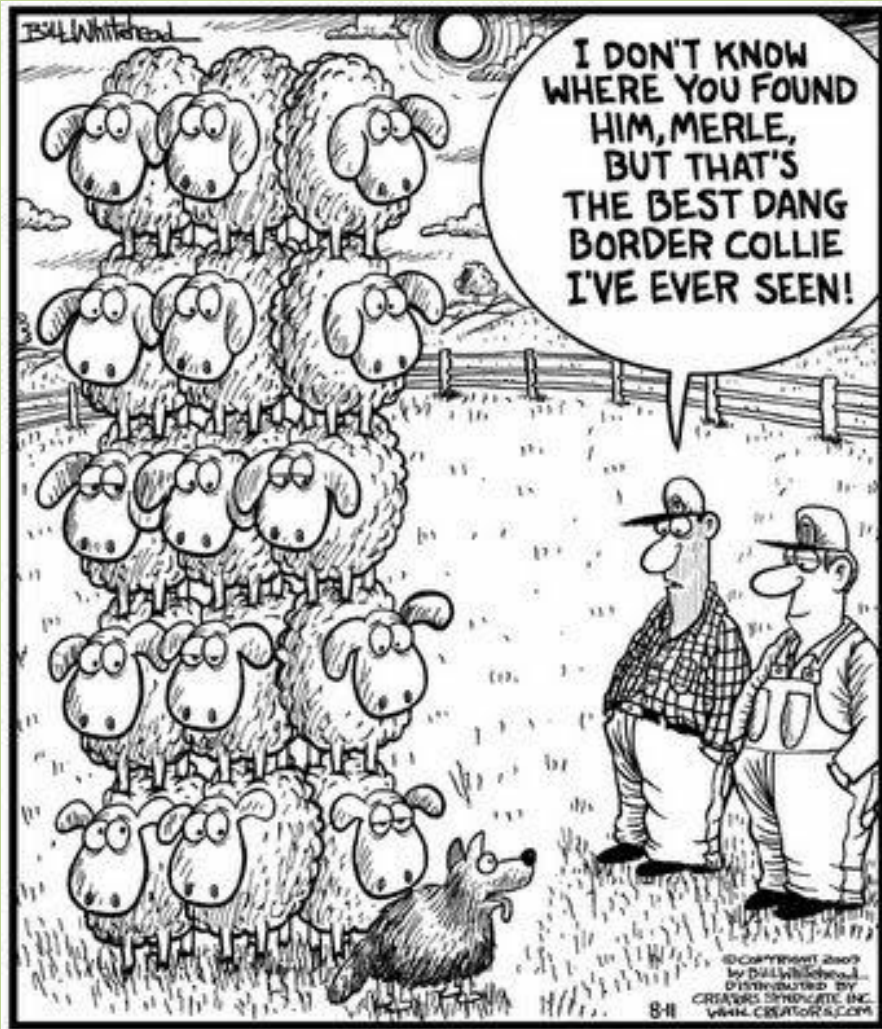
Infrastructure

- If you're raising livestock, the most sophisticated piece of equipment you need is a wheel barrow.
 - Gabe Brown (Brown Ranch, ND)



Sheep dogs

- Help manage sheep and other farm animals
- Serve as warning, *not* guard dogs
- Write off the costs
- The NY Times called the border collie “the farmer’s most useful tool.”
- Fun!



Guardian Animals



Great Pyrennes



Maremma



Seeding

- Many kinds of grasses, legumes, cover crop cocktails, forage plants
- Broadcast seeds
 - Timothy, orchard grass, fescue
 - Red clover, birds foot trefoil, hairy vetch
- Harrowed or drilled seeds
 - Sorghum, sudan grass – warm weather varieties
 - Wheat, rye, oats, corn, barley – energy
 - Winter forage – sugar beets, turnips, carrots

Hay

- Expensive recurring cost
- Grass-fed operations require high quality hay - 2nd cut
- Analysis:

TDN (Energy content)	50%;
Crude protein	10-12%; optimal 15%
Indigestible portion:	
Neutral Detergent Fiber (NDF)	<40%;
Acid Detergent Fiber (ADF)	<30%

- Cutting hay is expensive: equipment, maintenance & repairs, fuel
- Keep your animals on pasture as long as possible

Jim Gerrish. 2013. *Kick the Hay Habit*. Green Park Press, Ridgeland, MS





Sheep grazing on stockpiled grass
January 2018

Grain

- Do not use medicated grains (Bovitech) – these are used to increase growth rates but can cause antibiotic resistance
- We had more problems with grain than it was worth – obesity, milk fever, hoof problems
- We make more money without grain



Shearing

- Every 10 months for most breeds; fine wool breeds every 6 months
- Find a good shearer (can be expensive - \$10/sheep) or learn to shear
- If wool is important in your operation, make sure you have a good wool breed – Merino, Rambouillet, Leicester Longwool



Vets and Meds

- Know basic medical care/treatment –vet visits are expensive
 - Storey's raising sheep is a good resource
 - The web has some good information
- Some standard meds and tools:
 - cdt vaccine – *Clostridium perfringens*
 - BoSE – Selenium deficiency - white muscle disease
 - Antibiotics – Penicillin, LA-200
 - Anthelmynthic – Levamsol (Prohibit, Leva Med), Ivermectin, fenbendazol, garlic juice, tannins, chickens
 - Anti-inflammatory meds – aspirin, Banamine
 - Drenching syringes
 - Injecting syringes – 20 g & 22 g, 1 inch needles
 - Rectal thermometer



Markets and marketing

Meat

- Commodity Markets/Auction
- Direct marketing
- Direct sales to restaurants
- Take advantage of ethnic markets



Wool

- Direct marketing
- Wholesale
- On-line sales
- Fiber sheds – www.fibershed.com
- Value added products increase market breadth

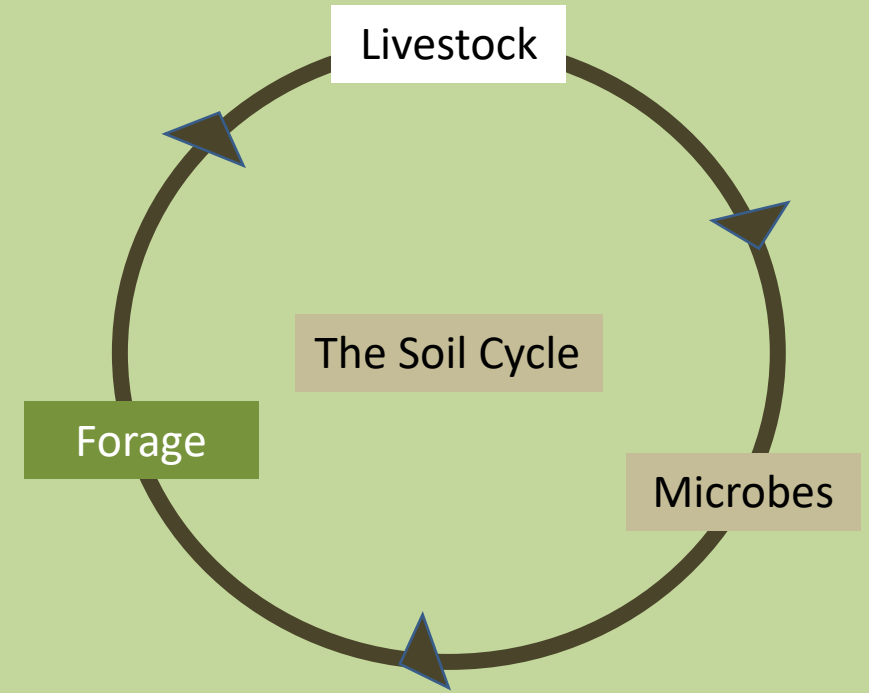


Some thoughts about managing a flock of sheep:
Manage the ecosystem not the sheep



Start with the soil

- Good soil
 - Sequesters carbon
 - Supports nutrient turnover
 - Holds water
- Keep the soil covered
- Sheep are part of the fertility process
- Make sure the pH is between 6 and 7



“The only thing that stands between civilization and starvation is a thin layer of soil.”

Which is more “sustainable”?



Conventional: Low stock density, continuous grazing ~ Bare ground loses H_2O , C and Nutrients



Mob grazing – high stock density, frequent rotation
Result: Soil remains covered; retains H_2O and C; Resists erosion/leaching



Aggregate & Move



Allan Savory (2016) – Holistic Planned Grazing
Jim Gerrish (2004) – Management Intensive
Grazing
Sarah Flack (2016) – The Art & Science of Grazing

Management Intensive Grazing



- Electronet Fencing + Fence Chargers – Premier 1 Supplies:
(800) 282-6631; www.premier1supplies.com
- Border Collies – Taravale Farm & Kennels: (518) 875-6471; taffaway@aol.com

2016 Circuit 4

15

16

1

9/15-16

21 10/9 PM-10

17 10/3-4

Farmsitter's Paddock (9/25)

2

9/17

22 10/11-12

14 10/1-2

18 20
10/5 10/
-6 8

23 24 25
10/ 10/ 10/
13- 17 19-
14 -18 20

13 9/30

3 9/18

4-5

9/19

19 10/7

12 9/29

9/20

11 9/22

6 9/21

10 9/23 -24

7 9/28

9 9/26

8 9/27

Circuit: 32 days
Grazed = 6 %
Rested = 94%

Paddock size

- Stock Density: Number or weight of sheep/acre
- Target Stock Density = 2-4 tons of sheep per acre
- Approximate (average) weight of sheep
 - Weight (lb) = $A \times B \times B / 300$
- Flock Weight = Sum individual weights

OR

Average Weight x Number in Flock

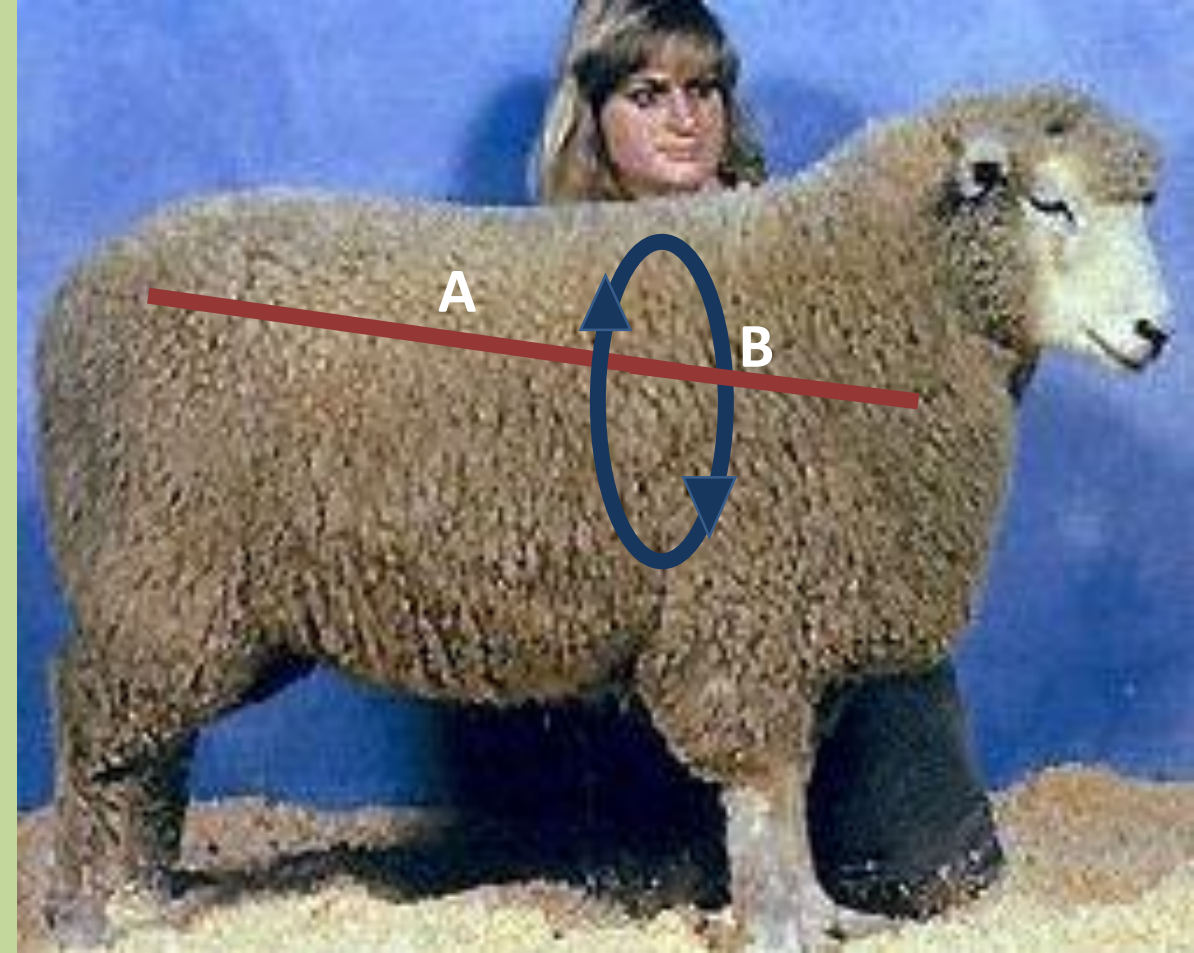
Tons of sheep =

Flock weight (lb)/2000 lb/ton

Acres/paddock = $\frac{\text{Flock Weight}}{\text{Desired tons/acre}}$

Note: 1 acre = 43560 square feet

Premier Electronet = 164 foot or 82 foot panels



Example

- I have 30 sheep:
 - 15 ewes @ ~180 lb each = 2700 lb
 - 11 lambs @ ~50 lb each = 550 lb
 - 2 rams @ 250 lb each = 500 lb
 - Total = 3750 lb/2000 lb/ton = 1.88 tons
- I want the equivalent of 3-4 tons/acre
- I can make a square of Electronet 164 ft x 164 ft = 26,896 ft², = 26896/43560 ft²/acre = 0.62 acre
- 1.88 tons/0.62 acres = 3.03 tons/acre



Summary

- There are a lot of breeds of sheep to choose from
- To get started:
 - set reasonable goals
 - select breeds that meet your goals
 - understand what you need to succeed
 - build an enterprise around your finances & other constraints
- Take care of the soil and everything else will follow



“If you want people to farm, farming has to be **PROFITABLE**
and it has to be **FUN.**”

Daryl Emmick, Miss State Extension