

- OCTOBER 16, 2019 -

Tall Grass Grazing: Transition Off of Nitrogen Fertilizer



- PRESENTED BY -

Dave Scott

NCAT/ATTRA

- HOSTED BY -

FACT

Food Animal Concerns Trust

Introductions



Food Animal Concerns Trust (FACT) is a national nonprofit organization that advocates for the safe and humane production of meat, milk, and eggs.



Larissa McKenna

Humane Farming Program Director

Email: lmckenna@foodanimalconcerns.org

Website: foodanimalconcernstrust.org/farmer

FACT's services for livestock and poultry farmers include:

- **Fund-a-Farmer Grants – now accepting applications!**
- **Conference scholarships**
- **Free webinars**
- **Humane Farming Mentorship Program**



NATIONAL CENTER FOR
APPROPRIATE TECHNOLOGY

Tall Grass Grazing: Transitioning Off of N Fertilizer

Dave Scott ATTRA Program
406.533.6642 daves@ncat.org

ATTRA Resources

- Sustainable, Productive Grazing
- Sheep internal parasites



ATTRA
SUSTAINABLE AGRICULTURE

A PROGRAM OF THE NATIONAL CENTER FOR APPROPRIATE TECHNOLOGY

Visit us online at:

attra.ncat.org

[Nutrient Cycling In Pastures](https://attra.ncat.org/attra-pub-summaries/?pub=240)

<https://attra.ncat.org/attra-pub-summaries/?pub=240>



Gotta Fertilize with N, Right?

- Do you want grass? Of course you need to.



July 11, 2019



Tall Grass=Less Inputs

- Four Year Transition 2014-2017
 - 160 units of N/acre to 0
 - 25% less irrigation
 - Almost the same lamb production (0.65 lb/day vs 0.62 lb./day ADG)

=More Grass

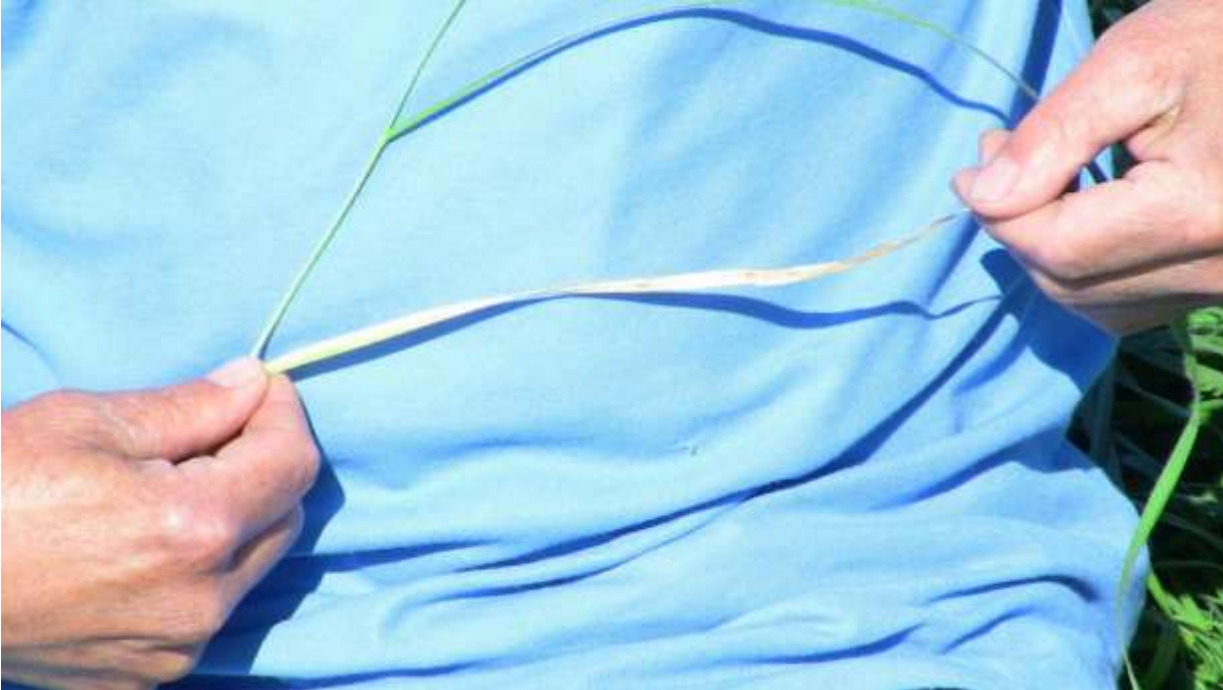
2013= 12,000 lb. Dry Matter /Acre

2019= 14,000 lb. Dry matter/Acre



What is Tall Grass?

- Full Recovery PLUS 14 Days
For Us!



Tall Grass Feeds Soil Microbes

- Provides More Root Exudates
- Grows More Roots
- Grows More Canopy for Trampling



Microbes Feed Plants



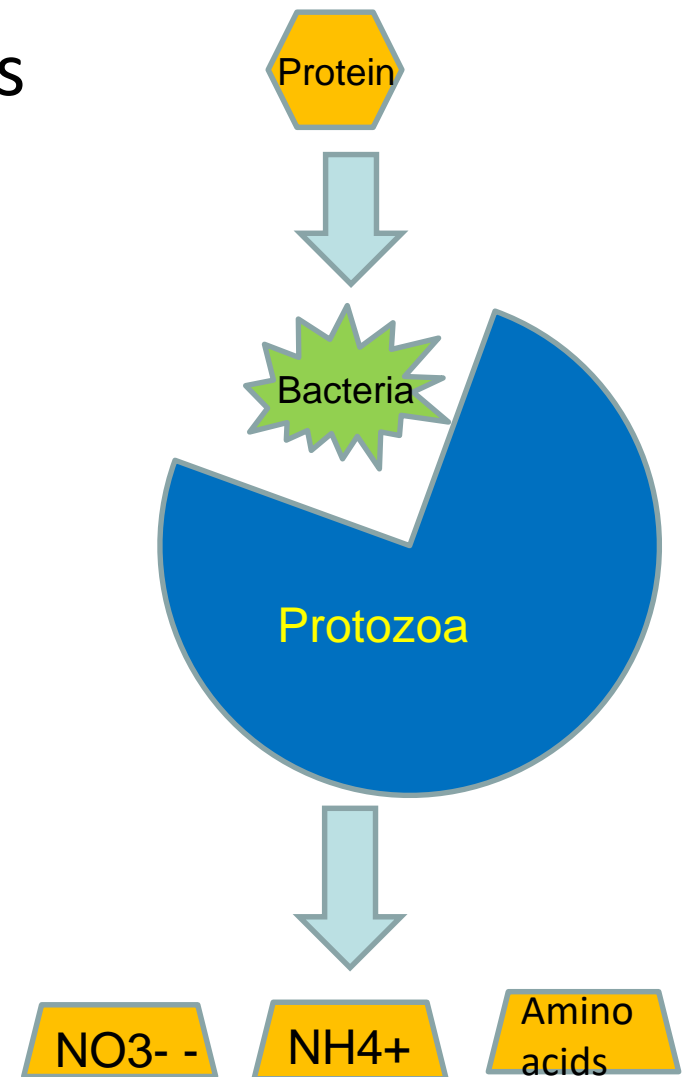
How: N & the Soil Food Web

- There's Plenty of Raw Nutrients
- Bacteria and Fungi
 - The grabbers and immobilizers
- Protozoa and Nematodes
 - The predators and releasers

[ATTRA Publication:](#)

[Nutrient Cycling In Pastures](#)

<https://attra.ncat.org/attra-pub-summaries/?pub=240>



Nutrient Cycling



June 18, 2019

Where did the grass go?



"The bugs ate it!"

Oct 7, 2019

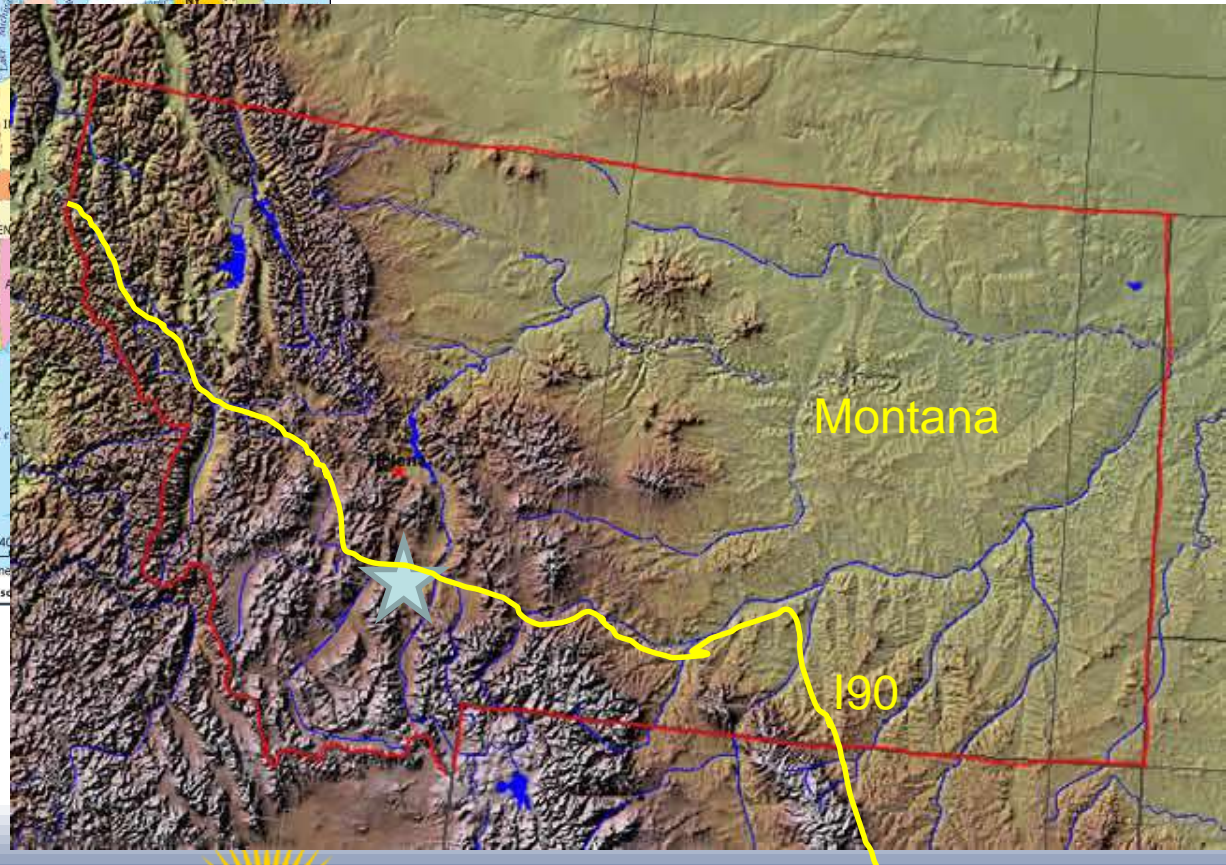
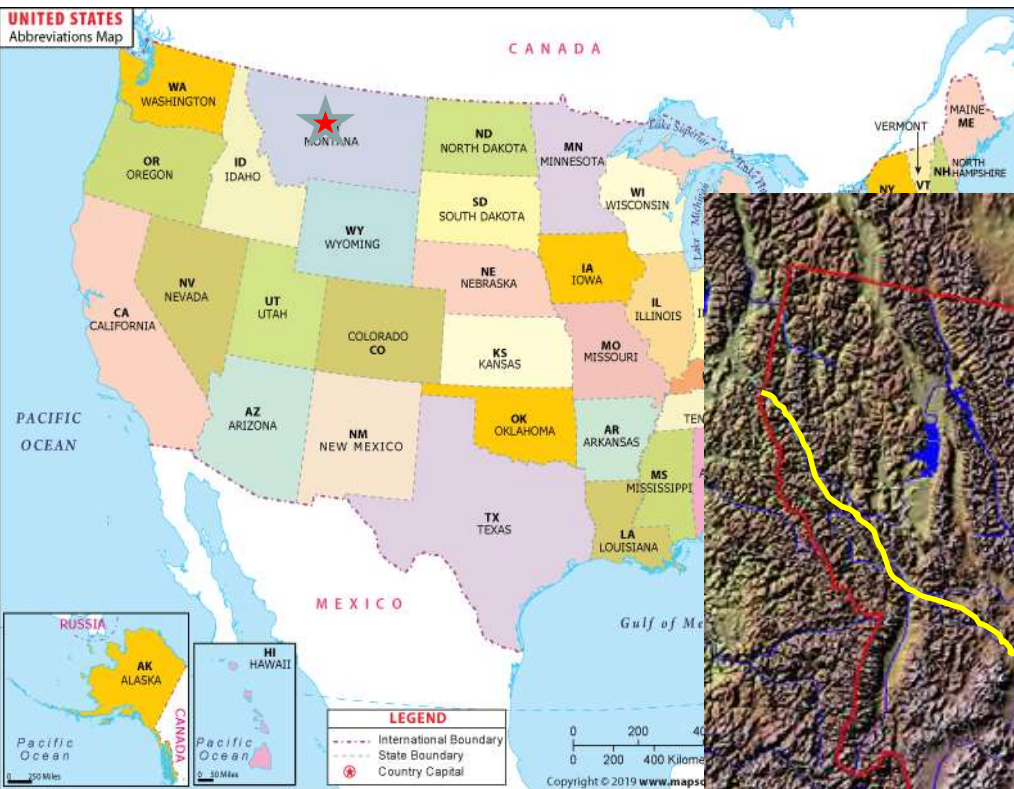
The House the Bugs Built



Montana Highland Lamb

Whitehall, MT

Elevation 4200 ft.
92 day growing season
7 months grazing



Montana Highland Lamb
680 Hwy 55
Whitehall, MT 59759
406-490-7596

Mountainous Country

June 6, 2019



Montana Highland Lamb History



- 1982 - 2003 Grazing Dairy
- 2004 – 2009 Sheep 22 days of pasture rest
- 2010-2013 Sheep 32 days of pasture rest
- 2014-2019 Sheep 42 days of pasture rest

MHL Flock Facts

- 150 lb. ewe, multiparous Polypay (Finn, Dorset, Rambouillet, Targhee)
- 1 lb. Grain last 45 days gestation, 17 days flushing
- Grass: 7 months: 7 tons per acre (on farm)
- 2 Months custom grazing Leafy Spurge(off farm)
- Lambs direct marketed



The Seasons

Active Grazing: 4 months



Stockpile Grazing: 3 months



Winter in Montana

5 months



Montana Highland Lamb (MHL) 2019 Grazing Schedule

- May 17 MHL Turnout (Cold Spring)
- Aug 1 Wean(100 days)- lambs remain on grass
- Aug 28 Lambs off grass
- Aug 1 Ewes off farm-custom graze weeds
- Oct 5 Ewes return to MHL stockpiled pasture
- Nov 1 Breeding on MHL- Stockpile Grass
- Jan 10 (?) End of grazing MHL



Montana Highland Lamb Stocking Density

600 Total sheep/acre- 2019

6.3 ewes/acre (150 lb live wt)



Gross Income

- Conception
 - 1.7 lambs per exposed ewe
 - 10% mortality

Equals:

70 lb. lamb @100 days = 119 lb./ exposed ewe
@ \$1.65/ lb.= \$196/ewe

5.6 ewes per acre

Equals: \$1097/acre



Gross Margin: 2003-2009

18 Inch Grass: 22 Days Rest, Move Daily

Costs/acre for 12,000 lb. DM/acre

- Irr Power \$114 US
- Fertilizer \$122 (160 units N /A X \$0.76/lb. N)
- Fencing labor @ \$20/hr \$56 (0.75 hrs/day, 120 days)
- Irr labor @\$20/hr \$187 (3 hrs/day, 100 days)

\$479

Gross Income/acre \$1097

Gross Margin Lambs/acre **\$618**

Gross Margin Stockpile/acre **\$69** (90 head @5 lb. @\$0.07/lb@70 days/32A)



Gross Margin: 18 Inch Grass

- Gross Margin- Lambs \$618/acre
- Gross Margin Stockpile \$69/acre
- Total Gross Margin/acre \$687



Gross Margin: 2014-2019

30 Inch Grass: 42 Days Rest, Move Daily

Costs/acre for 12,000 lb/acre

- Irr Power \$84 US /acre
- Fertilizer \$0
- Fencing labor@ \$20/hr \$56(0.75 hrs/day, 120 days)
- Irr labor @\$20/hr \$141 (3 hrs/day,75 days)

\$281/acre

Gross Income/acre \$1097

Gross Margin Lambs/A \$816

Gross Margin Stockpile/A \$197(200 head @5 lb. @\$0.07/lb@90/32A



Gross Margin: 30 inch Grass

- Gross Margin- Lambs \$816/A
- Gross Margin Stockpile \$197/A
- Total Gross Margin/A \$1013/A



Gross Margin/acre

Choose:

(Fertilizer)

\$687 /A



Soil Health

\$1013 /A



\$1000 GM/A

What Will It Take?

- 180 % Drop
- Long Rest Period
- High Stock Density
- Managed Residual



Long Rest Period

42 Days



5300 lb./A

June 7

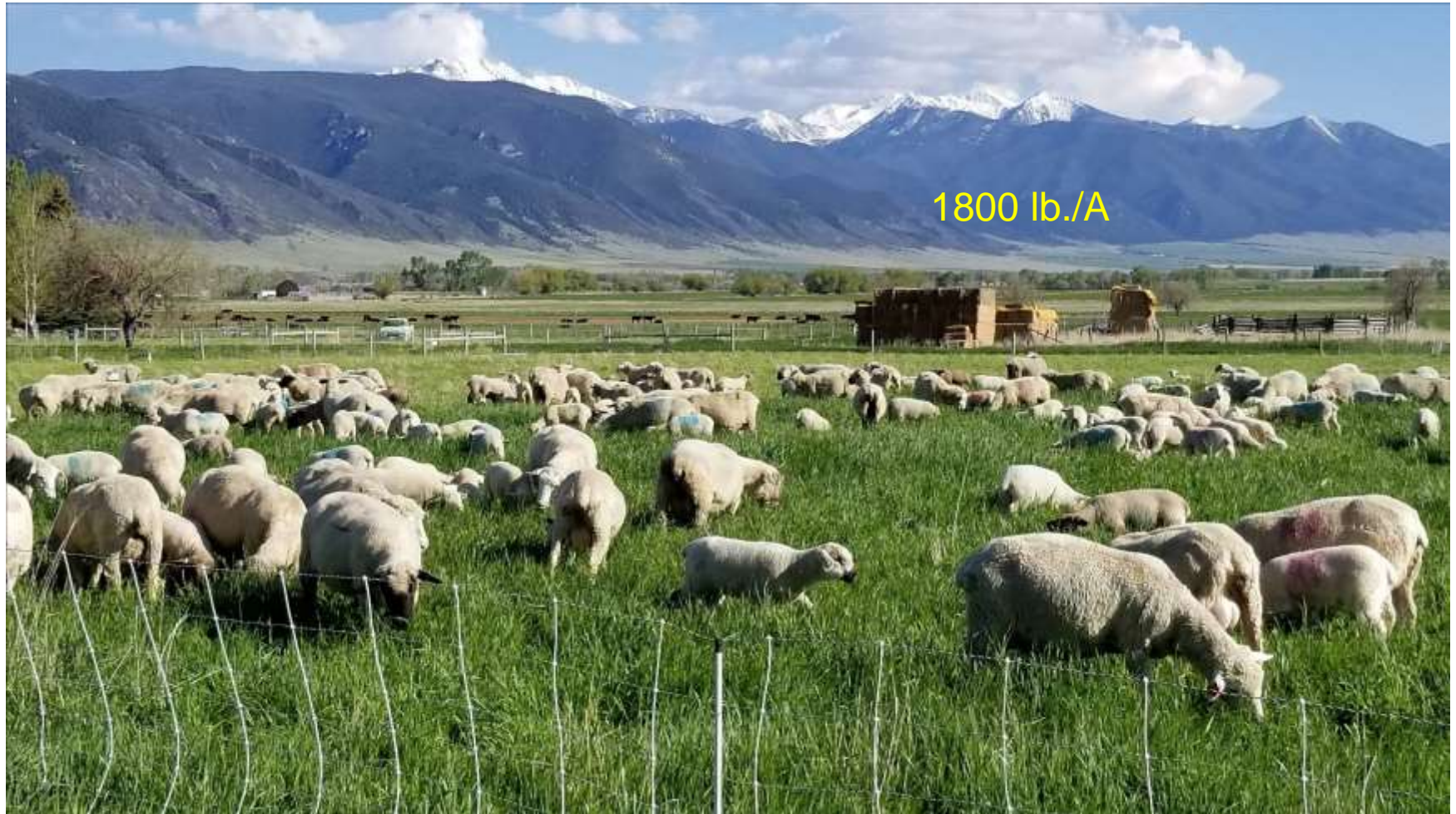
July 18



5700 lb./A



Delay Turnout 1 Week=42 Day Rest



42 days Later I Know! What are you doing???

Answer: Making Money



June 23, 2019



No Gain in Tall Grass? Not Necessarily True

Leaves only:

- TDN 59 %
- CP 17 %
- ADG 0.62 lb./day



Leaves-Only Forage Analysis

TDN 70.7%

CP 30.4%



June 8, 2019



24 Hour Graze

Note: leaves
and stems both
grazed.



High Stock Density

70,000 lb./A

Daily Moves

485 Hd.

0.7 Acres



Managed Residual

- Take Half / Leave Half



Monitor

- Forage Analysis
- Forage amount
- Haney Soil test



Need How Much SOM To Start?

- We had 4.7% average
- BUT: a small pasture started with 1.0% SOM
 - After 6 years=4.3%



Roadblocks to Success

- Fencing
- Water
- Parasites

And Me!



Fencing: Predators Out/Sheep In

- Nets 
- Polywire 3-5 strand



Move Often= Less Nets

- Daily
- Grazing efficiency ↑
- Parasites ↓



Stockwater

- Above ground supply
- Install wherever
- Good to 0 degrees F



Challenge: Parasites

Barber Pole Worm

- Animal Performance Loss
 - Milk Production
 - Less gain per acre
- Immune System Compromised
 - Disease
- Replacements



Haemonchus contortus

Beat the Barber Pole Worm

- FAMACHA score first, **Then** deworm=Refugia
- Grazing Strategies=long rest, daily moves, 8" stubble
- Genetic Selection
- Fenceline Wean



Me!

- Start small
- Transition
- Integrity- Commit for 7 Years
- Monitor
- Adapt
 - Solve problems with biology, not chemistry
 - Fenceline weaning
 - Compost and compost teas
- Enjoy the freedom



Gross Margin/Acre Our Choice

(Fertilizer)

\$687/ A



Soil Health

\$1013/A



How about 100
acres?



You Can Do It



Dave Scott
daves@ncat.org
406-533-6642

Resources

- ATTRA

- Nutrient Cycling in Pastures

- <https://attra.ncat.org/attra-pub-summaries/?pub=240>

- Gabe Brown

- <https://www.youtube.com/watch?v=GxlyKfWf9kU&feature=youtu.be>

- Building Healthy Pasture Soils

- <https://attra.ncat.org/attra-pub/download.php?id=580>

- Dr. Christine Jones

- <https://www.amazingcarbon.com/>



Questions?

Comments?



Photo: Dave Scott, NCAT

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ATTRA Program

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Connect with



Upcoming webinars

- 🐔 **October 23:** Pasture Weed Management + ID
- 🐔 **October 29:** Grant + Certification Guide Info Session
- 🐔 **November 14:** Practical Tips for Multispecies Grazing
- 🐔 **December 4:** Strategies to Increase Farm Profitability & Reduce Work Load

Grants, Scholarships, Mentorship & More!

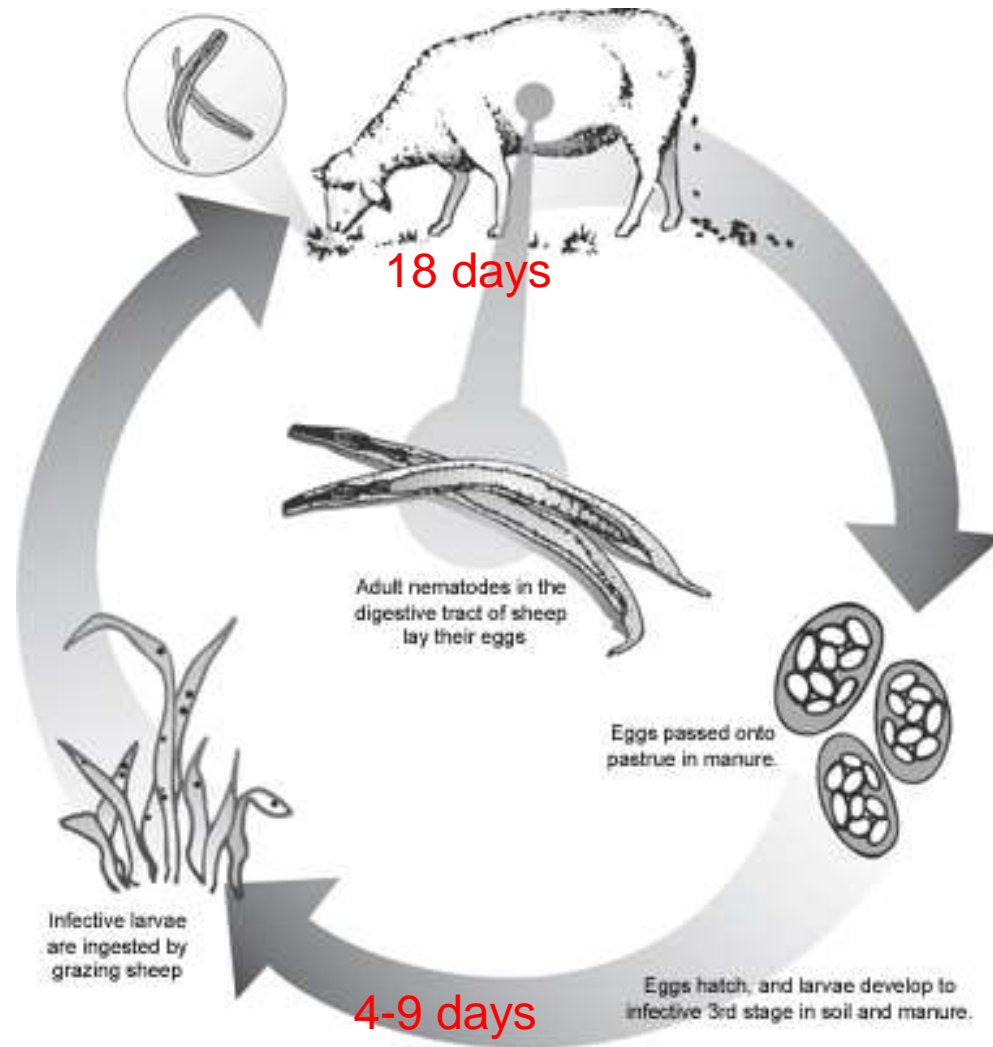
- 🐔 **Scholarships accepted on an on-going basis**
- 🐔 **Grants applications now available – deadline is December 2**
- 🐔 **Mentorship applications available in November**

Sign up for emails @ foodanimalconcernstrust.org/farmer/

Join us on social media



Barber Pole Life Cycle



How We Get Into Trouble

- Each adult worm lays 5000-10,000 eggs/day

One Ewe:

- 200 eggs per gram
- Ewe poops 4 lbs./day or 1814 gr.
- $1814 \text{ gr.} \times 200 = 362,000$ eggs per day!



100 Ewes/ Acre

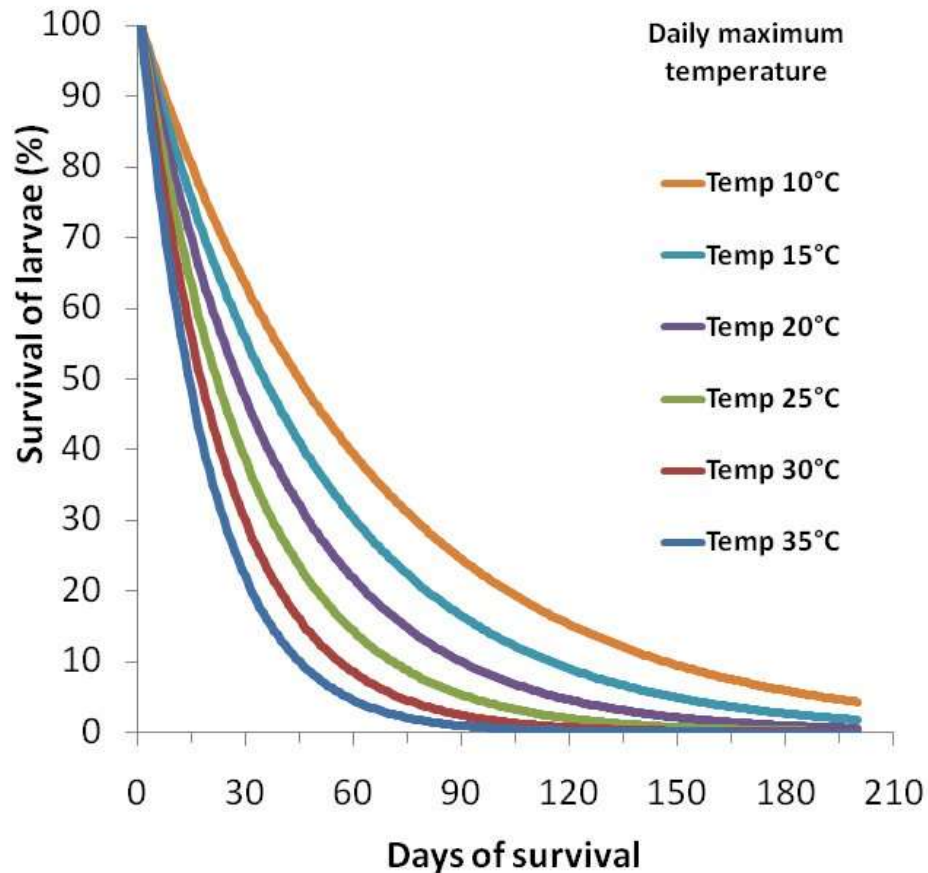
36.2 million eggs per acre

831 eggs per square foot



Larval Survival

Survival of barber's pole worm infective larvae on pasture at various daily maximum temperatures and 60% relative humidity



Source: WormBoss



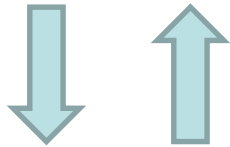
FAMACHA Score

- 70-80% of infection from 20-30% of ewes
- Identify infection, deworm and leave the rest
- Dewormer only can kill 98%
- Party time dilution



They Sync!

High Stock Density Grazing



Integrated Parasite Management



Tool # 4: **Select!**

- Select Replacement Dams
 - FAMACHA 1 & 2
- Replacements: FAMACHA 1 & 2
- Select Rams: ebv's= Katahdin, Polypay
 - Virginia
 - Oklahoma
 - Iowa
 - Ohio

