

MANAGING WORMS IN YOUR SHEEP AND THE FAMACHA SYSTEM

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Managing Worms in Your Sheep and the FAMACHA System

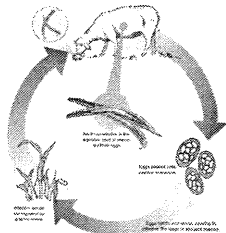
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Parasites in Sheep

- Stomach and intestinal worms are the biggest health problem faced by producers in southeastern U.S.

Parasites in Sheep

- Most important is barber pole worm, *Haemonchus contortus*
 - Blood sucking parasite
 - Anemia (pale) and bottle jaw
 - Other parasites contribute but not usually a problem by themselves



Virginia Coop. Extension

Parasites in Sheep

- Worms in the stomach and intestine are biggest health problem in the southeastern U.S.
- Why?
 - Climate
 - Management
 - Drug resistance

Why Are Parasites a Problem Here?

- Climate
 - Long, warm, humid summers perfect for life cycle of *Haemonchus*
 - 300 worms → 1.5 million eggs/day
 - All the common worms have the same life cycle
 - Sheep infected when ingest larvae on pasture

Why Are Parasites a Problem Here?

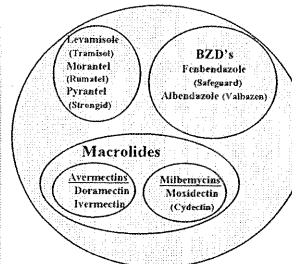
- Climate
- Management
 - High stocking density
 - Small flocks don't move much

Why Are Parasites a Problem Here?

- Climate
- Management
- We've had these for years, why is it worse now?

– DRUG RESISTANCE

Drug Resistance



- Modern dewormers fall into 3 major groups
- Resistant barber pole worm can be found for all drug groups
 - Goats in Georgia
 - 90% of farms, resistance to BZD, macrolides
 - Sheep nearly as bad
 - Once resistant to 1 drug in a group, resistant to all

DRUG RESISTANCE

- What is it?
 - Hereditary ability of worm to withstand the effects of a drug

DRUG RESISTANCE

- What causes it?
 - A few worms have the genetic ability to resist a drug before you use it
 - Use of a drug gives those worms an advantage
 - Gradually the number of resistant worms increases

DRUG RESISTANCE

- What increases the number of resistant worms
 - Frequent treatments
 - Treating all animals at the same time
 - Sheep do not get full drug dose
 - Underdosing
 - Spit it out

DRUG RESISTANCE

- By the time you suspect it, most of the worms are resistant
- Not all apparent drug failures are resistance
 - Under and inappropriate dosing
 - Drug no longer good—too old, etc
 - So many worms present that effective drug only a drop in the bucket

DRUG RESISTANCE

- How do you know you have it?
 - Test for it
 - Fecal egg count reduction test
 - Fecal samples before and after treatment
 - Count eggs, look at percentage reduction
 - Drenchrith test
 - University of Georgia
 - More convenient for producer

WHAT CAN YOU DO TO SLOW RESISTANCE?

- Use drugs correctly
 - Rotation
 - Correct dosing
- Don't bring in resistance
 - Deworm new sheep with drugs from 2 major groups and quarantine off pasture
- Reduce Number of Deworming Treatments

Reducing Deworming by Integrated Control Program

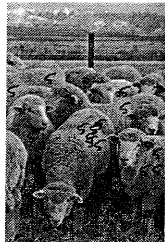
- Combine best elements for you
 - “Selective deworming”—deworm wormiest animals
 - FAMACHA program, for example
 - Others
 1. Good nutrition— maximize immunity, blood cell production
 2. Put most susceptible animals on safest pasture
 3. Reduce stocking density
 4. Mixed or alternate grazing
 5. Cull highly susceptible animals

REDUCING DEPENDENCE ON DRUGS

- FAMACHA system used in a “selective deworming” program
- Opposite of previous recommendations to deworm all animals at the same time
- Not all worms exposed to drug treatment, slows development of resistance
 - Susceptible worms in untreated animals reproduce
 - Helps dilute out resistant worms

Why Does Selective Deworming Work?

- Usually parasite numbers are low in most sheep
 - 20-30% of the animals have most of the worms and deposit 80% of the eggs
 - Treat those sheep and most of the larvae on pasture go



USDA ARS

Selective Deworming

- Additional advantage to this type of program is that it slows down the development of resistance
- BUT, it doesn't “fix” resistance if it is already present

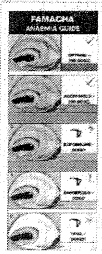
Who Do You Treat in a Selective Deworming System?

- Wormiest Sheep based on
 - Fecal Egg Counts
 - Inspection of eye membranes, treat if pale
 - The FAMACHA® system
 - Assessment of *Haemonchus contortus* and need for treatment
 - Developed in South Africa by Dr. Francois “Faffa” Malan
 - » Faffa MALan CHArt
 - » Dr. Jan van Wyk, Prof. Gareth Bath, Dr. Adriano Vatta, Dr. Tami Krecek, Dr. Jørgen Hansen (FAO)

FAMACHA System

- Works only where *H. contortus* is the predominant parasite
 - Anemia the principal sign caused by *Haemonchus*
 - Indirectly measure number of *Haemonchus* (and treatment need) by measuring anemia

The FAMACHA® System



- Eye color chart with five color categories
- Compare chart with color of mucous membranes of sheep or goat
- Classification into one of five color categories:
 - 1 - not anemic
 - 5 - severely anemic

Using FAMACHA



- General criteria for deworming
 - Score 1 or 2-- don't deworm
 - Score 4 or 5--deworm
 - Score 3-?
 - If lambs--deworm
 - Adults--it depends
 - Lactating or stressed or high parasite challenge--consider deworming
 - Consider deworming if want maximum effect on egg production
 - Score based on lowest eye score

FAMACHA SYSTEM

- | | |
|---|--|
| <ul style="list-style-type: none"> • WHAT IT WILL DO <ul style="list-style-type: none"> – Slow accumulation of resistant worms – Save money on dewormers – Allow you to identify and cull susceptible sheep – Keep you looking at your sheep | <ul style="list-style-type: none"> • WHAT IT WON'T DO <ul style="list-style-type: none"> – Be the answer to parasite problems by itself – Make drug resistant worms go away – Free up time for you to lounge by the pool |
|---|--|

Precautions

- Only properly trained persons should apply the FAMACHA® system
 - In U.S. must attend a workshop with hands on exposure to sheep with different eye colors to get card
 - The card is an AID in the control of *Haemonchus* only
- Only part of a parasite control program, remember other management strategies
- Best used by producers with back-up assistance from a veterinarian

FAMACHA and Parasite Control Information

- Southern Consortium for Small Ruminant Parasite Control
www.scsrpc.com
- Provides information on parasite control, FAMACHA workshops

FAMACHA

- Used as guide to determine which animals to treat
 - Significantly reduces number of treatments given compared to standard deworming practices
 - Should significantly decrease the rate of development of anthelmintic resistance
 - Trial at Virginia Tech in 2004

Other Recommendations for Proper Use

- Check both eyes in direct light
- Pale membranes may have other causes
 - Nutritional deficiencies
 - Other diseases
 - Other parasites
- Red membranes have other causes
 - Environmental conditions
 - Other diseases
 - Infectious eye diseases

Other Recommendations for Proper Use

- Keep records !!!!
 - Record numbers of animals in each category on the block histogram sheet provided
 - Keep treatment records

Using FAMACHA

- Get used to it before depending on it
- Intervals for checking depend on time of year, geographic location
 - Every 2-3 weeks at the start of worm season, maybe weekly at peak transmission season
 - If more than 10% 4's and 5's recheck in 1 week, may also consider treating 3's

Using FAMACHA

- Always score animals with the help of the chart, not from memory
- Replace card each year--it fades
- Be prepared to be flexible
 - Weather will determine length and intensity of parasite season, will vary form year to year

Using FAMACHA in Breeding

- Base selection decisions based on scores
- Sheep that have consistent high FAMACHA scores should be removed from flock

USING THE FAMACHA SYSTEM

- FAMACHA is only part of an integrated control program
- Maintain standard worm control measures:
 - Monitoring of fecal egg counts
 - Rotational grazing
 - Resting pastures (3 or more months)
 - Alternation of sheep with cattle or horses
 - Use of broad deworming treatments taking into consideration the danger of selecting for resistance

REDUCING DRUG DEPENDENCE

- What is in the future?
 - Probably not not drugs!
 - Predatory fungus
 - Vaccine--not anytime soon
 - Plant tannins--maybe
 - Copper
 - Nothing new will be a complete fix

Easy parasite control is over for the foreseeable future

Acknowledgement

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