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Using FAMACHA to Fight Parasites on Irrigated Pastures

The Barber Pole Worm (*Haemonchus contortus*) ultimately becomes a major source of concern on every irrigated sheep operation. It has a proven track record, and recent and ongoing research conducted by Montana State University and NCAT has uncovered that Montana sheep producers are not exempt. Fecal Egg Counts (FEC) and FAMACHA are two of the main tools that producers have for successfully reducing *Haemonchus* infections. While these two tools go hand in hand, FAMACHA© scoring is the go to resource for sheep producers interested in controlling the Barber Pole Worm. For an ATTRA video on FAMACHA Scoring Out West, go to <https://www.youtube.com/watch?v=qk9vtCnbhz4>.

Haemonchus sucks blood from the abomasum in small ruminants, causing anemia. This anemic condition can be noted in mucosal tissue, especially the lower eyelid. FAMACHA scoring quantifies the anemic condition, making it easy for producers to diagnose and treat only the infected animals, creating beneficial outcomes. Initially, FAMACHA should be used in conjunction with a Fecal Egg Count (ask your veterinarian) to ascertain the species of worm involved. However, if you have anemia, you most likely have the Barber Pole Worm. Lambs and lactating ewes under stress are most susceptible.

Parasite Resistance versus Resilience

A sheep's *resistance* to Barber Pole Worm infection and its *resilience* to the effects of that infection are two different properties.

Resistance. Fecal egg counts measure the presence of the Barber Pole Worm in the abomasum. Resistance is the sheep's ability to avoid Barber Pole infection in the first place. The mechanism is not well known. It is thought that a resistant sheep's immune system in some way reduces the Barber Pole Worm's ability to penetrate and extract blood from the abomasal wall.

Resilience is the animal's response to Barber Pole infection. One avenue of mitigation by the host animal is increasing the amount of red blood cells in the blood stream. There may be more responses. The combination of resistance and resilience are determined by FAMACHA scoring. It is a more direct method than manured butts, dull wool, sagging ears, or other physical observations. It also has a graduated scoring scale, so you can treat a worm infection before it gets to an advanced and often fatal state.



FAMACHA scoring is the go-to tool to use against the Barber Pole Worm.

Use FAMACHA to Create Parasite Refugia

Unrestrained use of dewormers has caused the Barber Pole Worm to develop resistance to all three classes of dewormers: Benzamidizoles, Ivermectins and Levamisoles. This is happening in some flocks already in Montana and no doubt will be even more prevalent if integrated approaches to *Haemonchus* control are not employed.

The most valuable use of FAMACHA is to create a parasite refugia, extending the effective life of dewormers. Refugia dilutes the parasite genetic pool. For example, if you only deworm those sheep that are exhibiting the symptoms of the infection and leave the others alone, both resistant and non-resistant worms can interbreed. Conversely, if you deworm all sheep, the only worms left to interbreed with each other are those that are resistant to the dewormer. You then create a population of the super worms, which is soon completely resistant to the dewormer. Refugias keep your dewormer working.

How to Create Refugia Using FAMACHA

Creating a refugia is simple. The only thing you need to remember is to always FAMACHA score first before deworming. Then:

- Deworm sheep with a FAMACHA score of 3, 4, or 5. Leave the others alone. Typically, you will treat *20 to 30% of the flock*, which harbors 80% of the infection.
- Never turn treated animals into a clean pasture by themselves. This allows only resistant worms to breed with each other.
- Enter all animals scored into flock records for future reference and management.
- Score animals as needed. Every two weeks during the height of the parasite season (unusually from July 1 to Sept 30) is recommend if lambs are being lost from worms. If you lose one, you are bound to lose another.
- Remember, once you take sheep off of pasture, there is a lag period of approximately one month in which they may still become anemic. Don't forget to keep monitoring. Consider suspending FAMACHA scoring when you only have 2% of the flock scoring 3, 4, or 5.

The Practical Advantages of FAMACHA Scoring

- Creating refugia increases the effective life of a dewormer.
- Because 70 to 80% of the infection typically resides in 20 to 30% of the flock, you will use much less dewormer and it will take less time to deworm.
- With good facilities and some practice, two people (one scoring, one drenching) can score and deworm 125 to 150 sheep per hour.
- If you FAMACHA score regularly, you will be able to identify infected individuals early, reducing production losses.
- FAMACHA scoring can be an early warning alert of significant Barber Pole Worm loads on your pastures. A large uptick in FAMACHA 3 and 4 scores should initiate appropriate measures to mitigate the threat.
 - Graze to control. See the ATTRA publication, Tools for Managing Internal Parasites in Small Ruminants: Pasture Management <https://attra.ncat.org/attra-pub/summaries/summary.php?pub=415>
 - Feed hay. Haemonchus requires pasture to complete its life cycle.
 - Move to dryland pastures, if available.
 - Graze fields that have been previously hayed.

Other Excellent Uses of FAMACHA Scoring

- Selecting ewe-lamb replacements. Choose ewe lambs that score 1 and 2 throughout the pasture season.

- Selecting cull ewes. The economic value of any chronic 3 or 4 score ewe should be questioned. Remember, not only do they lessen the flock genetic resistance to the Barber Pole Worm, they are shedding millions of eggs onto your pasture. Do you need that?
- Selecting rams from your own flock. Select rams out of 1 and 2 score dams and those that demonstrate 1 and 2 scores on your pasture.
- Imported sheep—inspect them before buying or, if already purchased, while in a two-week quarantine. Remember, when you buy sheep, you are also buying the parasites they harbor and the deworming regimen that they have been subjected to. Ask first. Don't buy resistance!
- Got a sick lamb or ewe? FAMACHA score it first.

Where Can I Learn How to FAMACHA Score?

- Attend one of the Integrated Parasite Management workshops in Montana, Wyoming, or Utah in 2018 and 2019. Contact Dave Scott at 406-533-6642, or visit www.ncat.org/events. The 2018 Montana workshop will be held July 18 at Sharon Johnson's Longview Farm/Ravalli Hops in Stevensville. Producers, ag extension agents, and 4H and FFA leaders are welcome to attend. The cost is \$20 and it includes a FAMACHA card.
- Complete the online FAMACHA Course offered by the University of Rhode Island at <https://web.uri.edu/sheepngoat/famacha/>.

Fecal egg counts have their place. But for the down and dirty work, learn how to FAMACHA score.