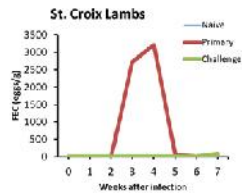


New Research and its Application to Dealing With Parasites

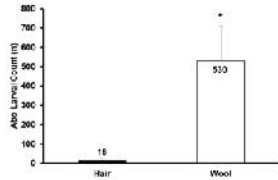


Scott Bowdridge
West Virginia University

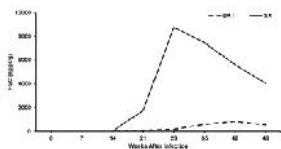
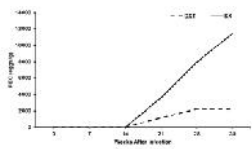
What does parasite resistance look like?



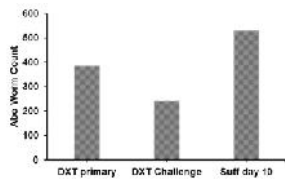
10 days after *Haemonchus* infection



Parasite resistance from heavier muscled sheep?



Worms in the sheep



- Can Texel be used as terminal sires while maintaining parasite resistance in resulting progeny?
- How much Texel is needed?
- Crossbreeding as an anthelmintic?

Things that we forget about when conducting parasite resistance research!

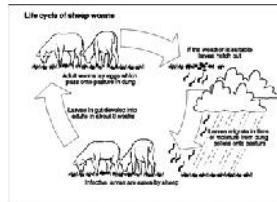
- St. Croix sheep are great but...
- Texel sheep are great but...
- Grazing animals will be exposed to constant reinfection
 - Threshold of resilience
- Grazing management
- Selective deworming
- Nutrition of the animals



“WU-style” grazing management

- Avoidance grazing
- Sheep are graze paddocks for 1-3 days
- Minimum rest period of 56 days
- Requires intermittent mowing to maintain forage quality

LABOR INTENSIVE!!!!!!!!!!!!



What happens to FEC when you graze lambs like this?

2010 – 52 weaned lambs (Suffolk/Merino/Dorset)

4 treatments

- Control
- Dewormed at weaning (moxidectin)
- Supplemented with corn/barley (1% bw)
- Deworm + Supplementation

What happens to FEC when you graze lambs like this?

	Post-weaning management system				P-value
	Control	De-wormed	Grain	De-wormed + grain	
Initial live weight (kg)	20.5	18.3	18.7	21.0	0.6588
Final live weight (kg)	22.4	20.9	20.4	23.2	0.6446
Total gain (kg)	1.9	2.6	1.6	2.3	0.6007
Initial FAMACHA score	2.8	3.3	3.1	3.0	0.5575
Final FAMACHA score	3.2	3.0	2.9	3.0	0.9052
ADG (kg.day ⁻¹)	0.03	0.04	0.02	0.03	0.6007
Strongylid FEC	4194b	1705a	4580b	3071ab	0.0093

What happens to FEC when you graze lambs like this?...and increase protein?

- Increase protein level in 2011 to 16%CP using corn and soybean meal
- Same:

4 treatments

- Control
- Dewormed at weaning (moxidectin)
- Supplemented with corn/SBM 1%BW
- Deworm + Supplementation

What happens to FEC when you graze lambs like this?...and increase protein?

2011

	Post-weaning management system				P-value
	Control	Dewormed	Grain	Dewormed + grain	
Initial live weight (kg)	22.41	20.41	22.68	24.14	0.3455
Final live weight (kg)	22.00ab	21.25b	24.27ab	27.97a	0.0312
Total gain (kg)	-0.2c	1.1b	1.9b	4.2a	0.0091
Initial FAMACHA score	3.5	2.9	2.8	3.1	0.2917
Final FAMACHA score	4.0a	3.3a	3.1b	2.6b	0.0014
ADG (kg.day ⁻¹)	-0.01c	0.02b	0.03b	0.06a	0.0111
Strongylid FEC	1837b	628a	1994b	537a	<0.0001

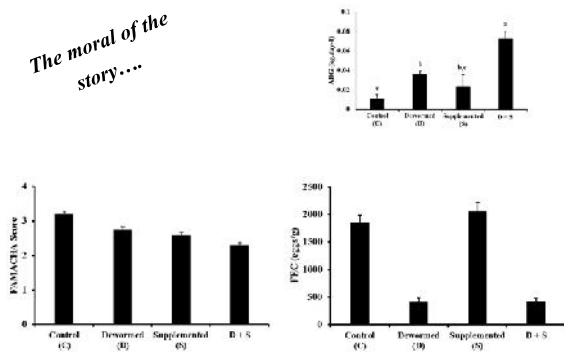
What happens to FEC when you graze lambs like this?...and increase protein?

2012

	Post-weaning management system				P-value
	Control	Dewormed	Grain	Dewormed + grain	
Initial live weight (kg)	22.82	22.85	22.97	20.78	0.7687
Final live weight (kg)	23.72	26.35	25.22	25.36	0.7195
Total gain (kg)	0.9b	2.3b	2.0b	4.8a	<0.0001
Initial FAMACHA score	2.5	2.5	2.6	2.6	0.9892
Final FAMACHA score	2.1	1.5	2.1	1.5	0.1362
ADG (kg.day ⁻¹)	0.01c	0.04b	0.03b	0.07a	<0.0001
Strongylid FEC	1908b	91a	2227b	237a	<0.0001

What happens to FEC when you graze lambs like this?...and increase protein?

The moral of the story....



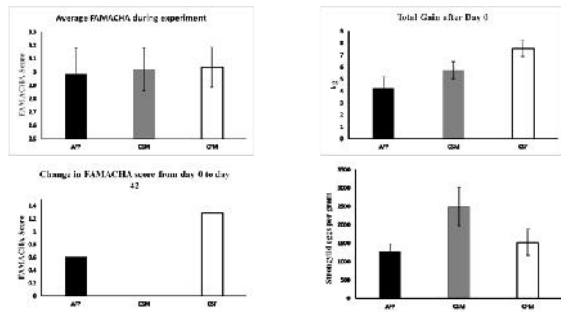
Can protein supplementation have any effect on FEC of grazing lambs?

"WVU-style" grazing

- Two types of protein that are available to ruminants
 - Rumen degradable protein
 - Plant derived, alfalfa
 - Rumen by-pass protein
 - No degradation in rumen, absorption occurs in small intestine
 - Fish meal
- Will adding more rumen by-pass protein affect FEC and growth?
 - Diets formulated to be 19% crude protein
 - 1.) Alfalfa pellets (70% rumen degradable, 30% by-pass)
 - 2.) Corn/SBM (60% rumen degradable, 40% by-pass)
 - 3.) Corn/SBM/FM (30% rumen degradable, 70% rumen by-pass)

Can protein supplementation have any effect on FEC of grazing lambs?

"WVU-style" grazing



Rumen by-pass protein can affect FEC and promote growth in grazing lambs

Feed	\$/lb	Lb consumed	Total cost of feed	kg of gain	\$/kg gain
AFP	\$0.46	349	\$160.45	5.8	\$2.77
CSM	\$0.48	296	\$141.90	6.4	\$2.22
CSF	\$0.41	285	\$145.45	7.8	\$1.86

- Fish meal is a mess to deal with from a producer and researchers perspective
- FM has a lot of oil!
- Is FEC reduction caused by higher oil?

