

A large flock of sheep is grazing on a grassy hillside. The sheep are scattered across the slope, which is covered in dry, yellowish-brown grass and some small green shrubs. In the background, there are rolling hills under a clear blue sky. The overall scene is a typical pastoral landscape.

Parasite Management and Western Range Breeds

Jake Thorne
Texas A&M AgriLife
University of Idaho

Gastrointestinal Nematodes

Haemonchus contortus

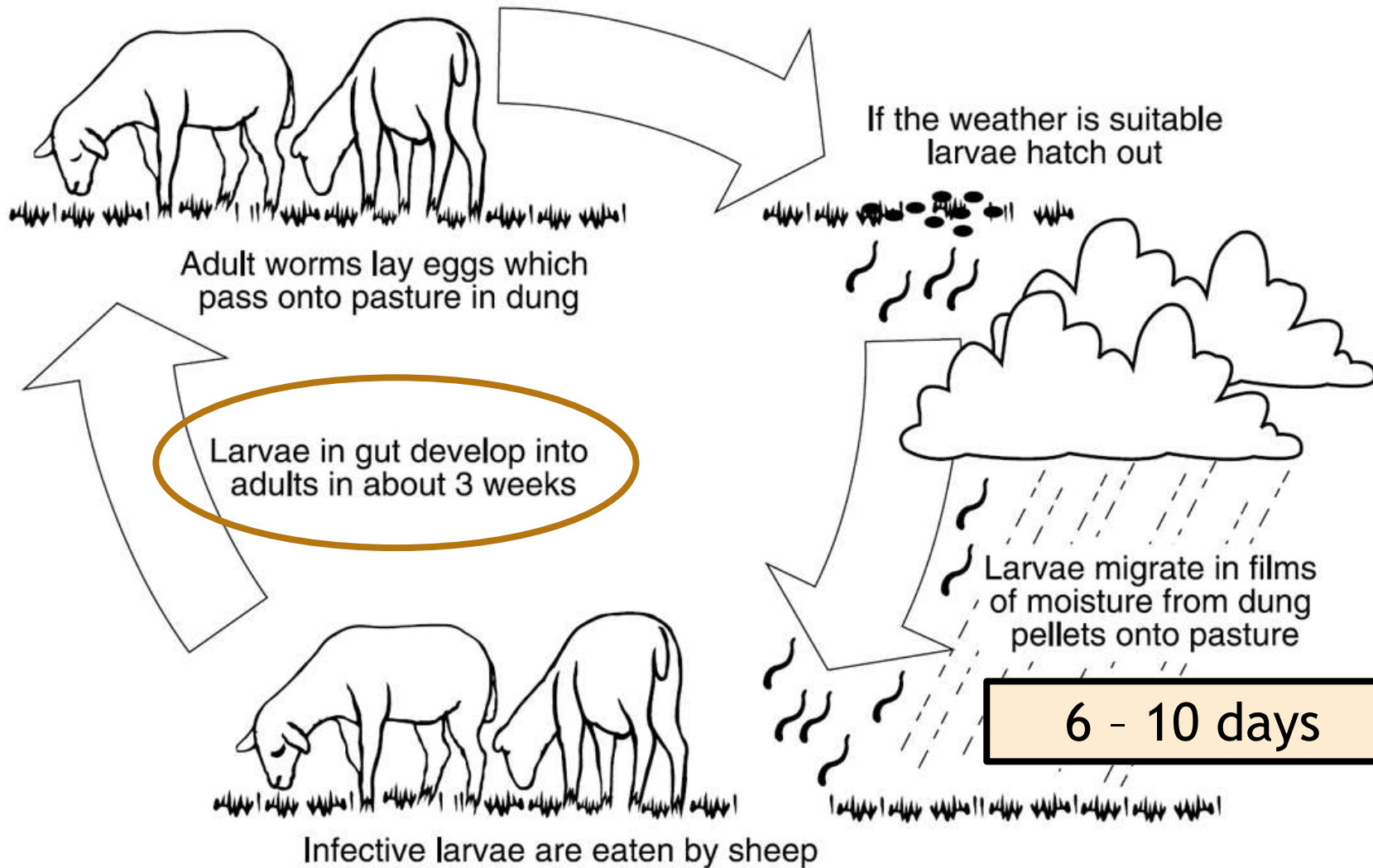
- ▶ Blood feeder
- ▶ High fecundity - 10,000 eggs/day!
- ▶ Causes anemia, bottle jaw, death

Teladorsagia

Trichostrongylus



Life cycle of sheep worms



Susceptibility

Resistance



Health

Nutrition Age

Stage of Production

Pasture Contamination

Breed Genetics

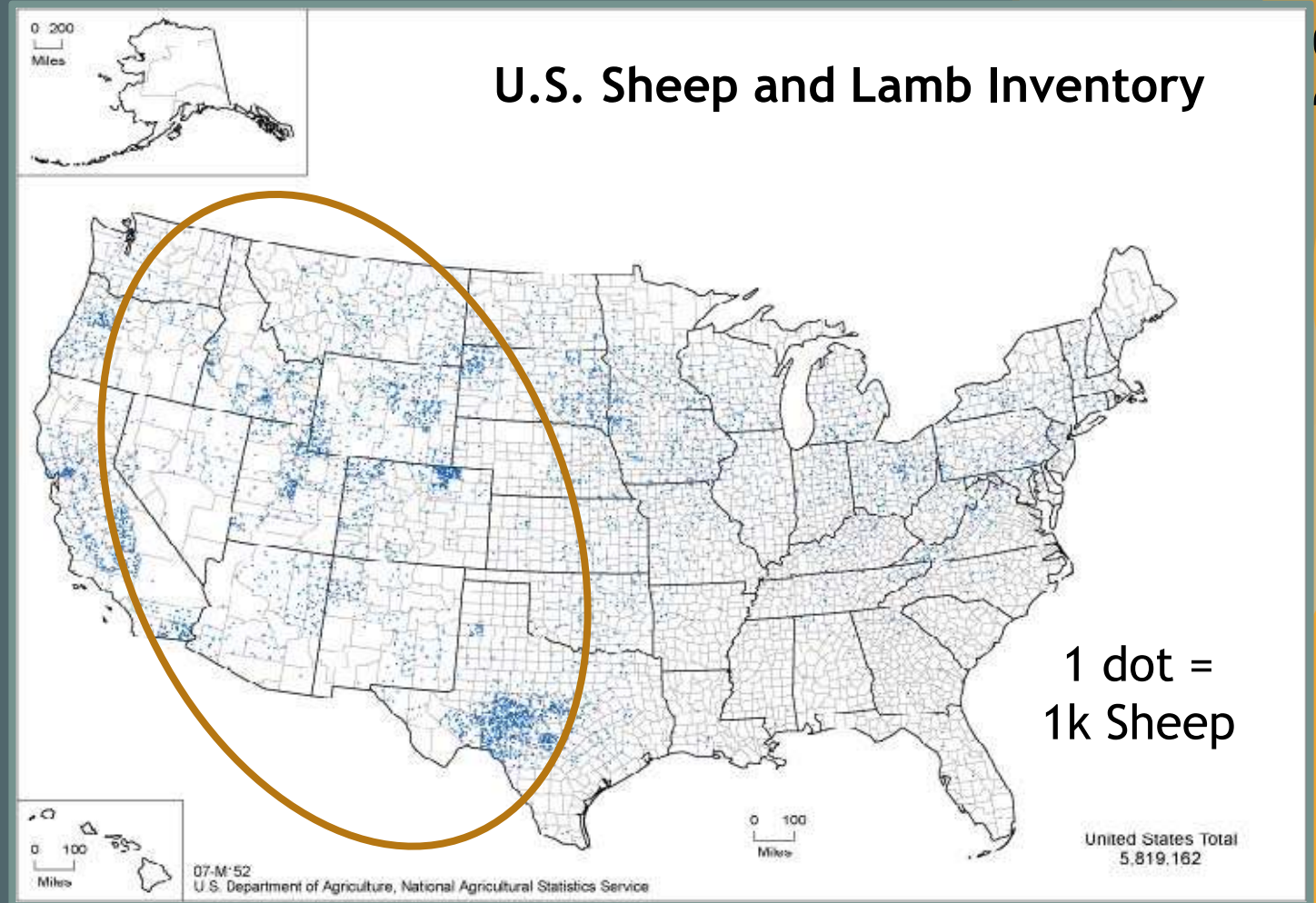
Barber's Pole Worm & Arid environments

Barber's Pole need:

- Warm weather (50-90F)
- Forage
- Moisture (rain, dew)

BP in the West:

- Irrigated fields
- Smaller pastures/traps
- Constant grazing
- Not “every year”



Barber's Pole Worm & Arid environments



$5,000 \text{ epg} \times 1000 \text{ g of feces} = 5,000,000$

Treatment for Parasites

- ▶ Three classes of dewormers
 - ▶ Nicotinic Agonists - Levamisole, Prohibit
 - ▶ Macrocyclic Lactones - Cydectin, Ivermectin
 - ▶ Benzimidazoles - Valbazen, Safe-Guard
- ▶ Resistance to ALL classes in the United States - Kaplan, 2004
- ▶ Copper Oxide Wire Particle Bolus
 - ▶ Adult Barber's Pole



Producers Livestock Auction Co.

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Office 325-653-3371

www.producersandcargile.com

General News:

Of the utmost importance to the livestock industry is the care and well being of our livestock. We all use different medications in our attempt to raise quality livestock and provide a safe and healthy product to the consumer. Recently I was visited by an investigator of the FDA at Producers Livestock who was attempting to do a traceback on a goat that showed moxidectin (Cydectin) residue in its carcass when slaughtered. **This chemical is not approved for use in goats.** One may think because a chemical is approved for sheep that it is approved for goats. This is not always the case.

The result of an innocent mistake with a chemical can have disastrous consequences for the market. The FDA threatened to issue an injunction against the market that sold the animal and/or the buyer of the animal that was sold to a packer if they can determine where or from whom the animal came, even though that market or buyer never gave the medicine in question to the animal in question. Should an injunction be levied against a market or buyer, it will put a livestock market and/or buyer out of commission and this will almost definitely have a severe detrimental affect on the price of all sheep and goats.

There is a simple answer to avoiding a problem like this. Please read the label and do your homework before using anything on or in your animals!

We must all help to take care of the markets we have worked so hard to create and maintain and be certain we are providing the top quality product we all want to grow and harvest for the American public.

Charley Christensen, Gen Mgr. 325-234-4939

Integrative Management



- Pasture rotation
- Forage height
- Forage type



- Combination Dewormers
- Selective Treatment
- Alternative Products
 - COWP

Strategic
Treatment

Pasture
Management

Genetics

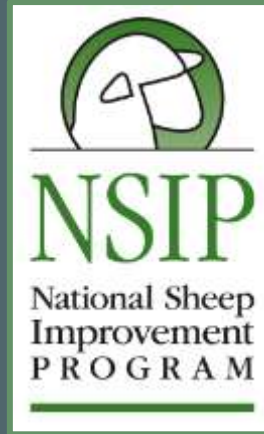
- Selecting for increased parasite resistance
 - Culling susceptible stock
 - Purchasing using EBV

Successful
Parasite
Control



Who is the most susceptible?

National Sheep Improvement Program



- ▶ Estimated Breeding Values
 - ▶ Weaning/Postweaning FEC
 - ▶ Increasing accuracy with **MORE** data
- ▶ TAMU Resource Flock
 - ▶ “Melting pot of industry Rambouillet flocks”
 - ▶ Yearly egg counts submitted

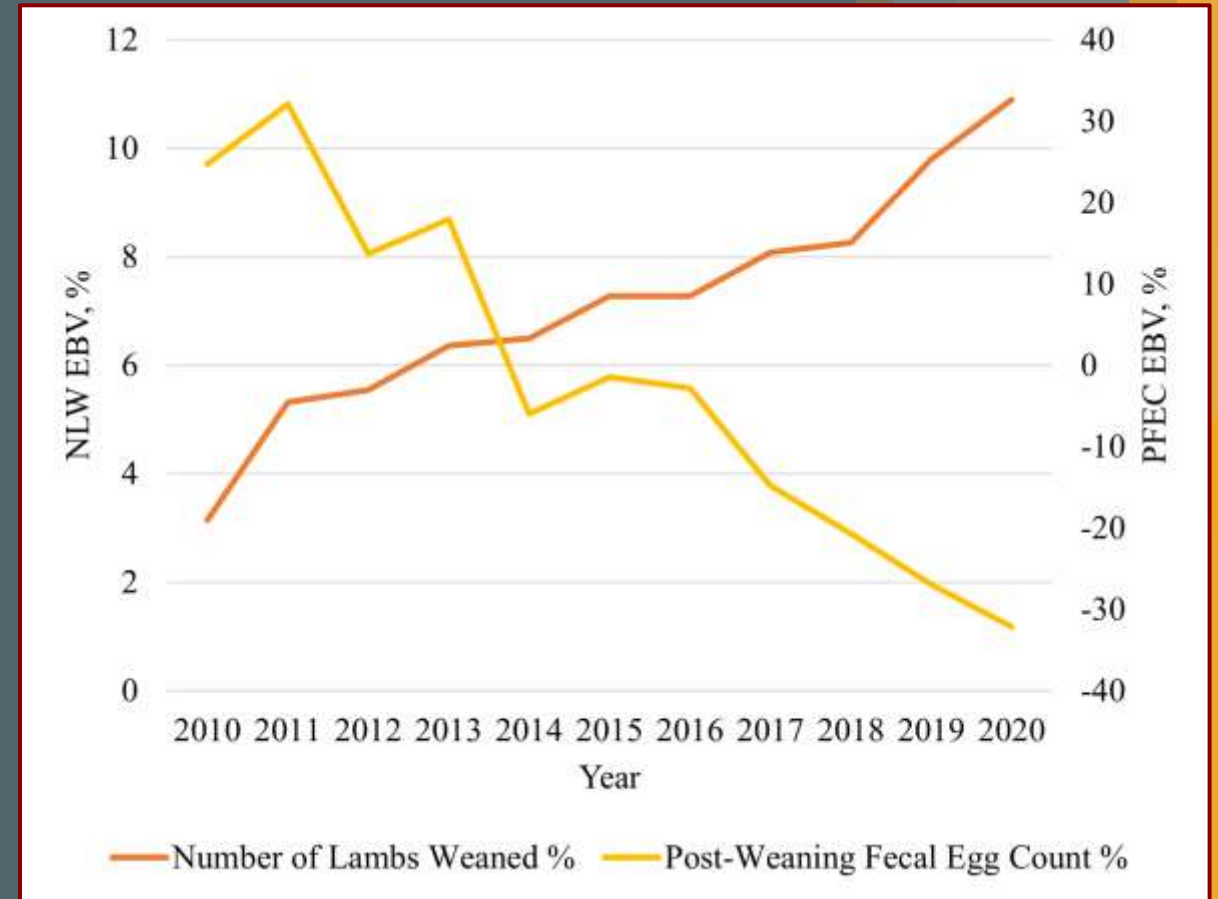


National Sheep Improvement Program



Katahdin NSIP Breed Trends

- ▶ Estimated Breeding Values
 - ▶ Weaning/Postweaning FEC
 - ▶ Increasing accuracy with **MORE** data
- ▶ TAMU Resource Flock
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Ram “L” -> FEC EBV =
-9.2%



X

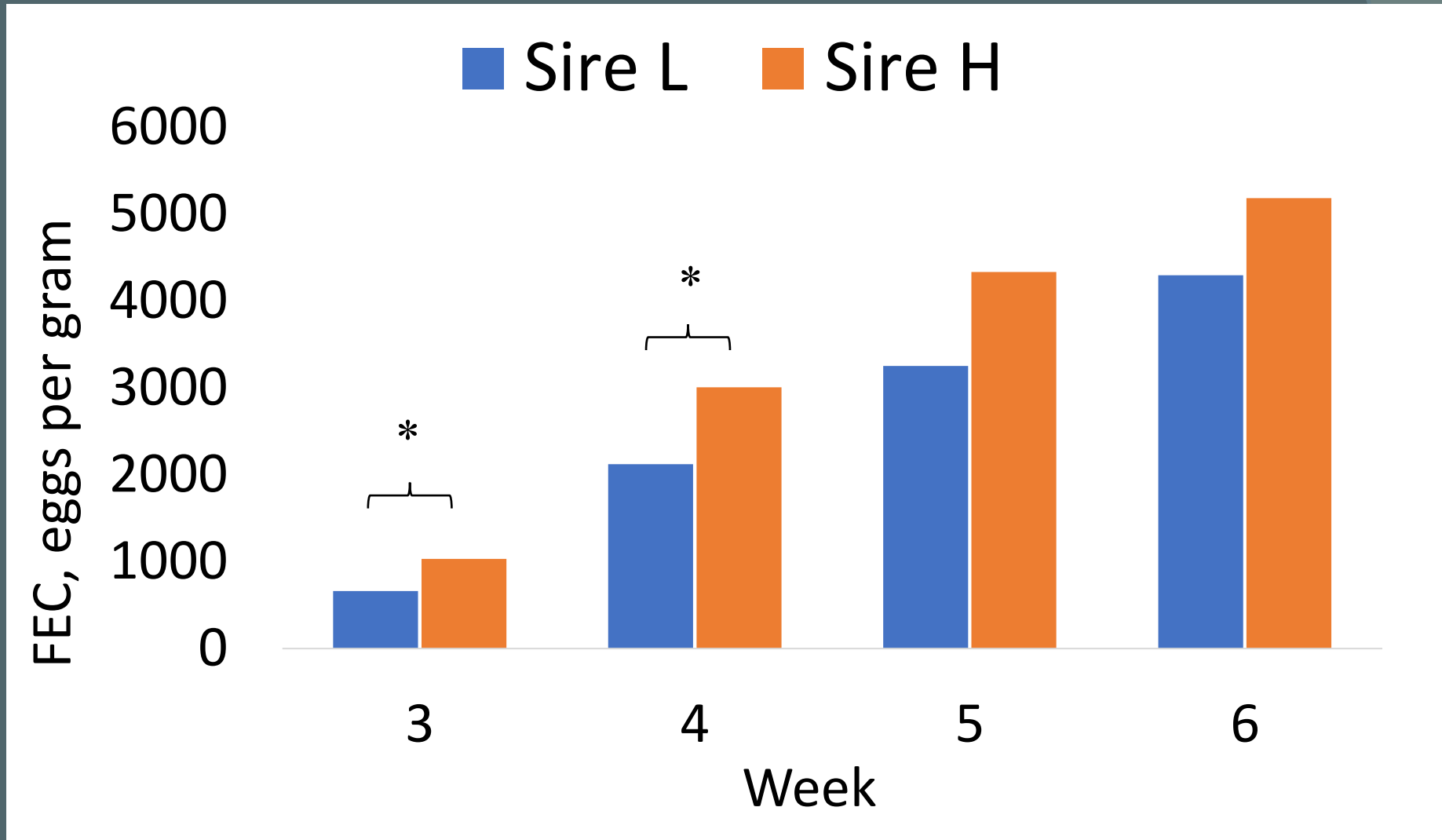


X

Ram “H” -> FEC EBV =
+9.0%



Artificial Parasite Challenge - Results



Artificial Parasite Challenge - Results



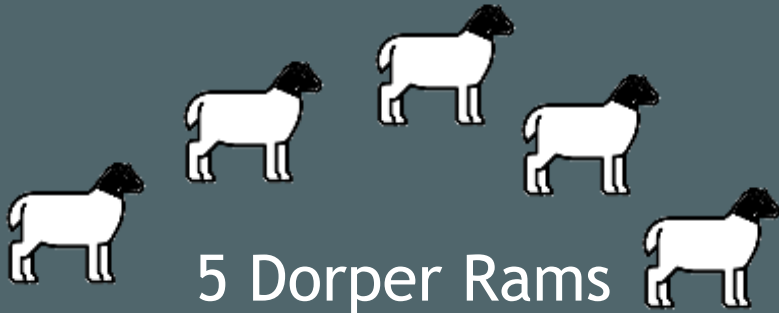
Wool Analysis

- Fleece Weight
- Staple Length
- Fiber Diameter
- Fiber Diameter Standard Deviation

FEC  =  GFW



Current Research



5 Dorper Rams
(varied FEC
EBVs)

X

=

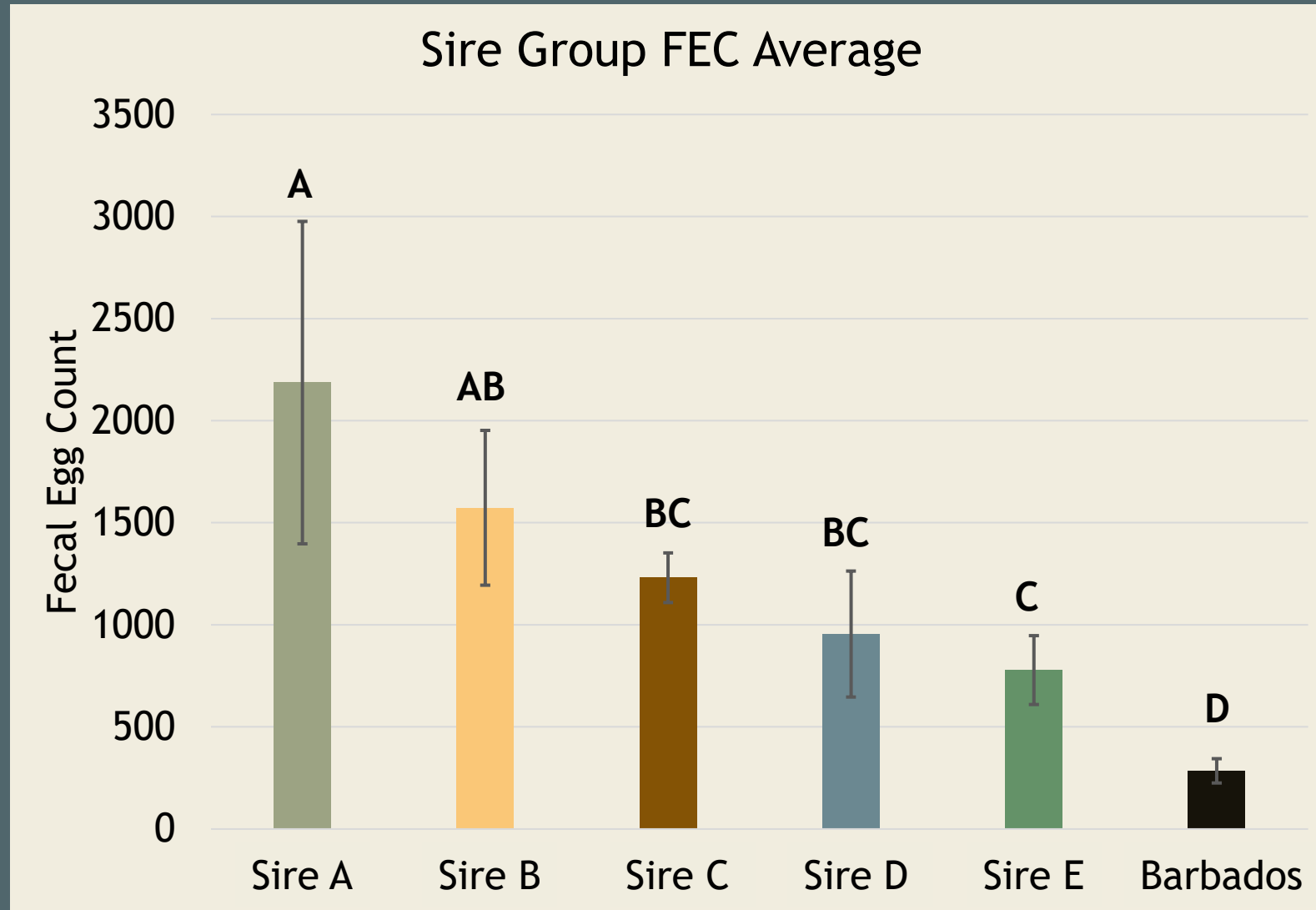


TAMU Dorper
Research Flock

Artificial Parasite Challenge

1. Place lambs in worm-free environment
2. Inoculate all lambs with the same amount of Barbers Pole Worm larvae
3. Measure response over 35 d (5 weekly collections)
 - Fecal Egg Counts
 - Packed-cell Volume
 - Antibody levels

Results - FEC by Sire



Sire PFEC EBV

+ 26.7

+ 24.2

- 18.0

- 24.7

Fecal Egg Counting - Genetic Selection



Step 1

Identify a contemporary group of animals to test (Ideally “post-weaned” lambs)



Step 2

Collect a sample from all lambs and analyze for FEC



Step 3

Use FEC information to identify outlier animals - manage as necessary



Eliminate “super spreaders”

Step 4

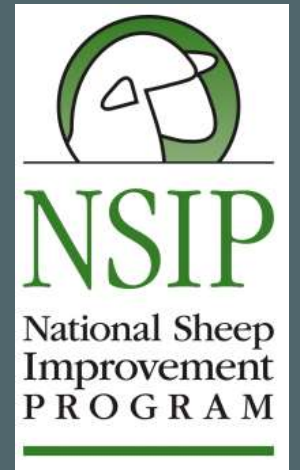
Enroll in NSIP and regularly submit data



Several US FEC Labs

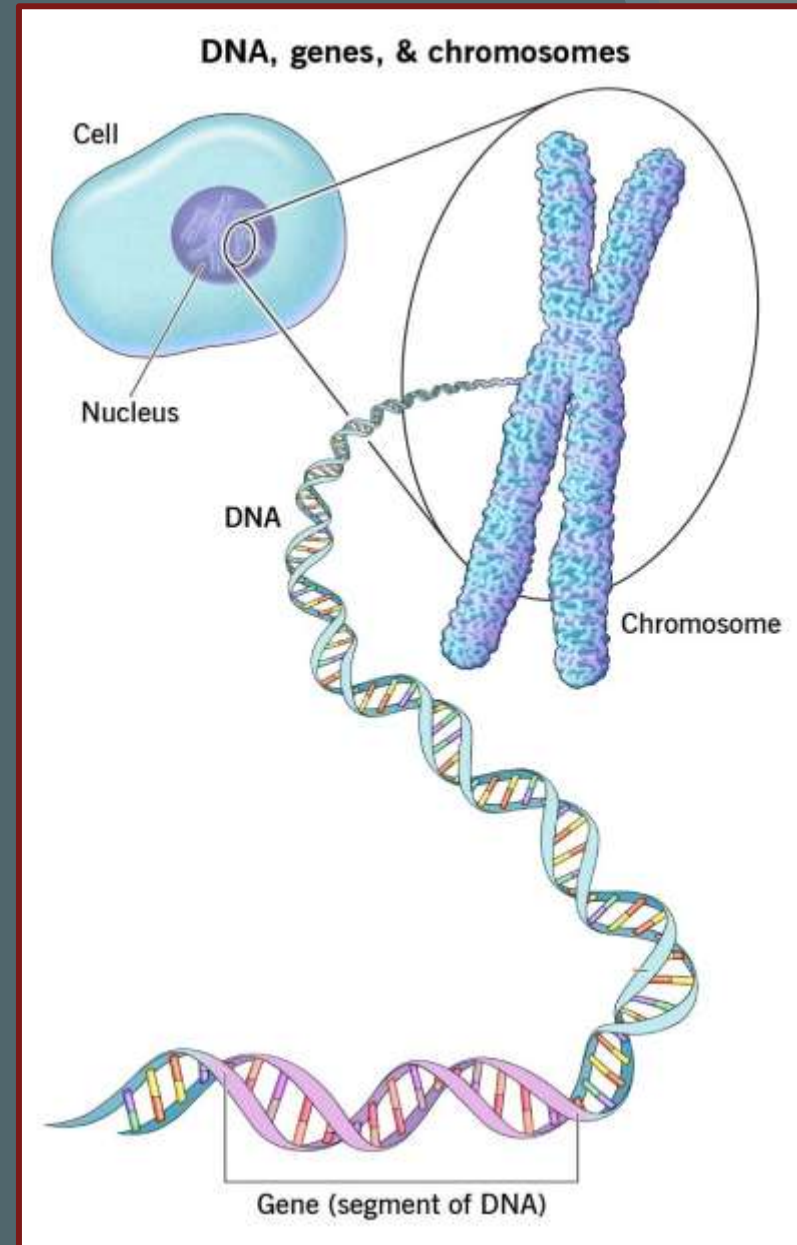
\$5/sample

Minimum of 20



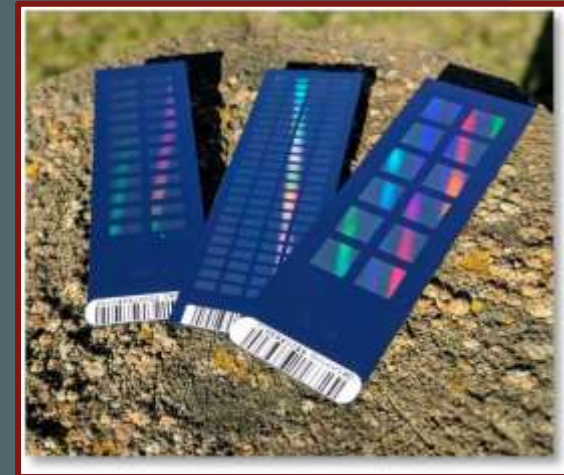
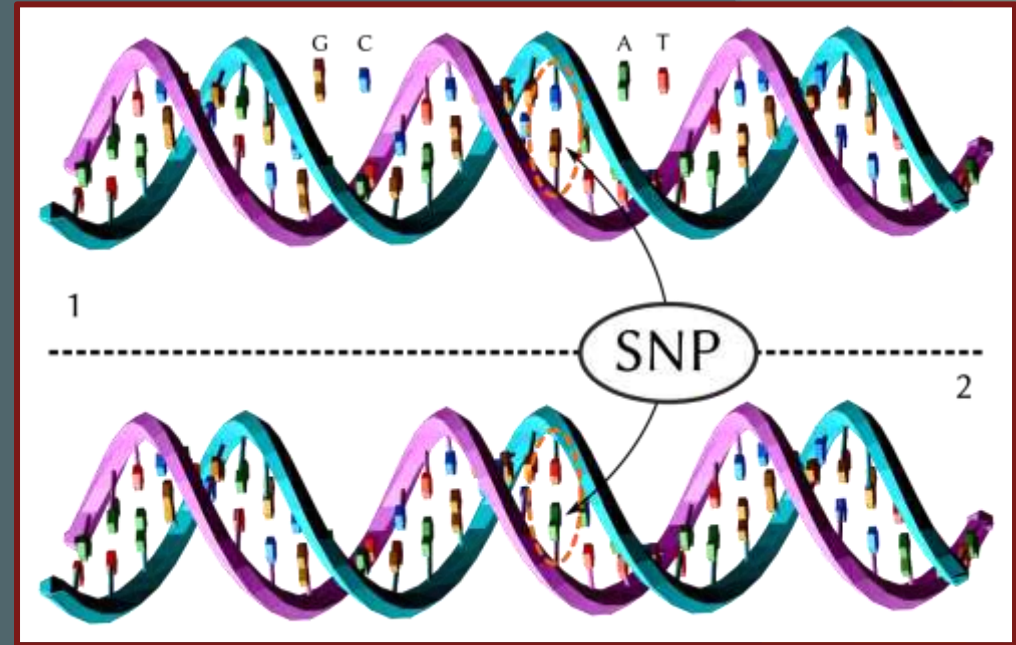
Genomic Technology

- ▶ Molecular - *DNA Analysis*
- ▶ Marker Assisted Selection
 - ▶ Scrapie Susceptibility
 - ▶ Spider Lamb
 - ▶ Horn/Poll
- ▶ Genomic EBVs
 - ▶ Molecular + Quantitative
 - ▶ Goal of sheep GEMS



Genomic Markers

1. Genome Wide Association Studies (GWAS)
2. Marker effects in American breeds/populations
3. Inclusion on a commercially available panel





Where to learn more?

Websites

- ▶ <https://www.wormx.info/>
- ▶ <http://www.wormboss.com.au/sheep-goats/>

Videos

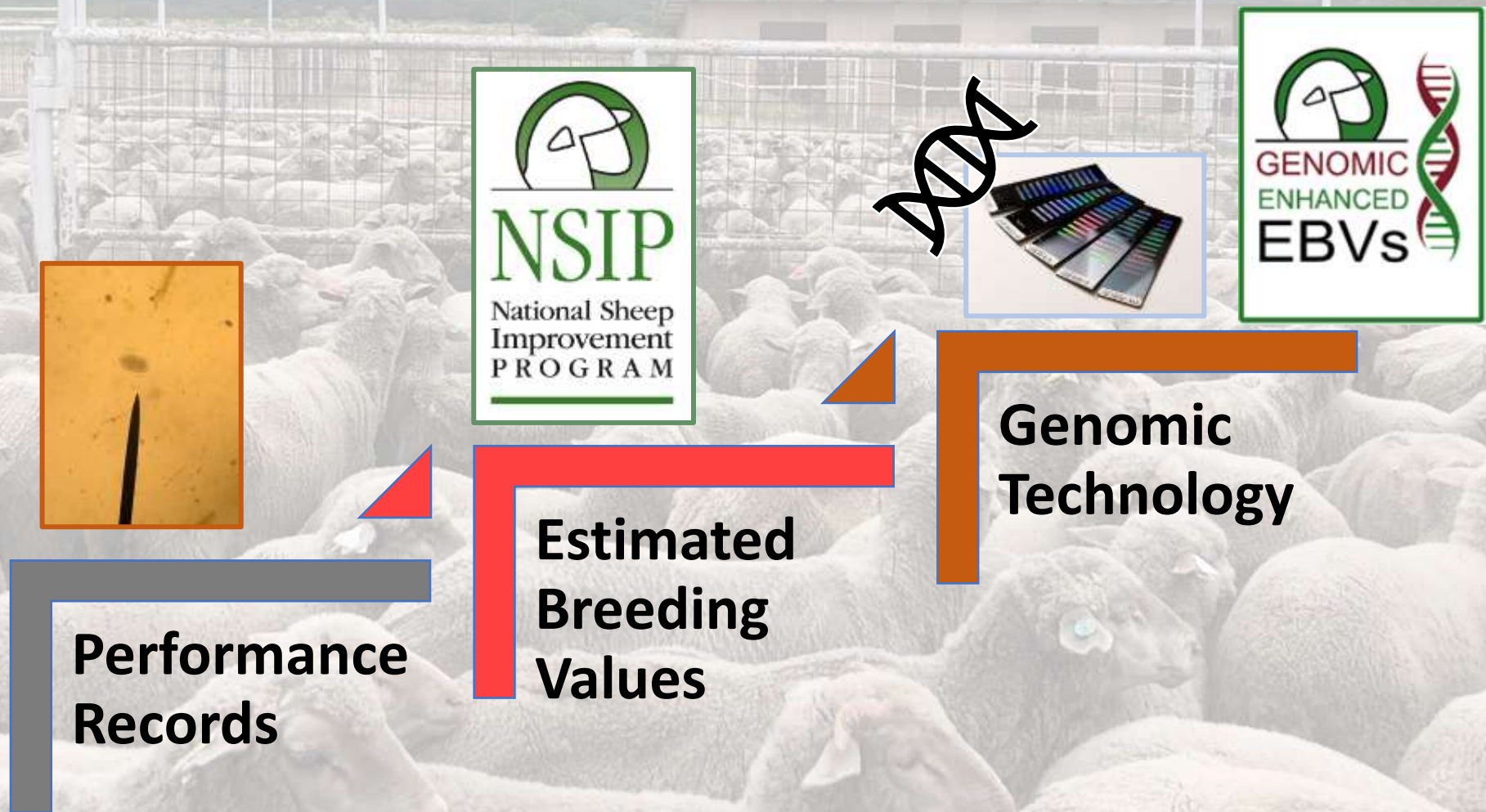
- ▶ Texas A&M AgriLife Sheep and Goat Extension Facebook/YouTube
 - ▶ <https://www.youtube.com/channel/UCJNtVhyg2crdb4GlrDP891Q>

Podcasts

- ▶ American Sheep Industry Association - Research Update
 - ▶ <https://soundcloud.com/user-637754734>
- ▶ Sheep Connect - New South Wales
 - ▶ <https://www.sheepconnectnsw.com.au/>



**“We cannot solve our problems with the same
thinking we used when we created them”
– A. Einstein**



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