Best Practices to Increase Your Lamb Crop

Presenter: Reid Redden, Ph.D.
Sheep and Goat Specialist
Texas A&M AgriLife Extension

Host/Moderator: Jay Parsons
August 30, 2016

This webinar is made possible with funding support from the Let’s Grow Committee of the American Sheep Industry Association.
INDUSTRY COOPERATION

Misty Oaks Farm

Lewis White Dorpers

NDSU Extension Service

Montana State University Extension

Texas A&M Agrilife Extension

LambResourceCenter.com
Current Lamb Crop

111% National Average

Lamb Crop Percentages by State

- Less than 100%
- 100-124%
- 125-149%
- 150-175%

150% by 2020

Based on lambs per 100 ewes as reported in the USDA National Agricultural Statistics Services Sheep and Goats Report (January 2015)
Reproductive Efficiency Task Force

Reid Redden, Ph.D. (Chair)
Texas A & M University

Kathy Bielek
Ohio sheep producer

Paul Lewis
Oregon sheep producer

Rodney Kott, Ph.D.
Montana State University (retired)

Dan Morrical, Ph.D.
Iowa State University

LambResourceCenter.com
### Reproductive Key Indicators

<table>
<thead>
<tr>
<th>KEY INDICATOR</th>
<th>RANGE FLOCK</th>
<th>FARM FLOCK</th>
<th>MY FLOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High Input</td>
<td>Low Input</td>
<td>High Input</td>
</tr>
<tr>
<td>Dry Ewes</td>
<td>&lt; 7%</td>
<td>&lt; 10%</td>
<td>&lt; 5%</td>
</tr>
<tr>
<td>Lamb Crop</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Born</td>
<td>150%</td>
<td>NA</td>
<td>200%</td>
</tr>
<tr>
<td>Docked</td>
<td>NA</td>
<td>120%</td>
<td>NA</td>
</tr>
<tr>
<td>Lamb Losses&lt;sup&gt;b&lt;/sup&gt;</td>
<td>15%</td>
<td>17%</td>
<td>11%</td>
</tr>
<tr>
<td>Lambs Weaned</td>
<td>127%</td>
<td>100%</td>
<td>178%</td>
</tr>
<tr>
<td>Ewe Lambs Lambing</td>
<td>50%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>30%</td>
<td>85%</td>
</tr>
</tbody>
</table>

---

<sup>a</sup> Data for the Key Reproductive Indicators were generated by the Reproductive Efficiency Task Force based upon research, surveys and industry experience.

<sup>b</sup> Lamb losses between docking and weaning.

<sup>c</sup> Generally, ewe lambs are not bred in range flocks but this may provide a great opportunity to increase overall productivity.

---

**High input flocks:**
- shed lambing, herded, multiple management groups, strategic supplementation and improved pastures, etc.

**Low input flocks:**
- range/pasture lambing, fenced pastures, simple management groups and limited supplementation.
Breed Ewe Lambs 7-9 Months of Age
Select for Prolific Genetics
Use Cross-breeding
Cull Under-performing Ewes
Reduce Lamb Loss
Test for Pregnancy Status
Match Reproduction to Mgmt
Disease Prevention and Treatment
Test Rams
Manage Seasonal Changes in Reproduction
Accelerate Lambing Cycles
Optimal Nutrition

12 LAMB CROP BEST PRACTICES

LambResourceCenter.com
Project Goal

- Gain Industry Acceptance of Need to Improve
- Awareness of Lamb Crop Best Practices
- Set Goal to Improve Lamb Crop
  - Implement 2 or 3 New Methods
1. Optimal Nutrition (Dan Morrical, ISU)

- 5 Time Periods
  - Maintenance
  - Breeding
  - Early Gestation
  - Late Gestation
  - Lactation
    - Single
    - Twin
    - Triplet

[Diagram showing TDN requirements by stage and level of production for 150 pound ewes.]

TDN requirements by stage and level of production for 150 pound ewes.

- Maintenance: 2.2 pounds
- Breeding: 2.7 pounds
- Early Gestation, Single: 3.3 pounds
- Early Gestation, Twin: 3.6 pounds
- Early Gestation, Triplet: 4.1 pounds
- Lactation, Single: 4.5 pounds
- Lactation, Twin: 4.1 pounds
- Lactation, Triplet: 4.5 pounds
2. Breed Ewe Lambs (Bret Taylor, USSES)

- Common in Farm Flock, Not Common in Range Flock
- 10 - 20% of Flock
- Higher Lifetime Productivity
  - Heritable (0.18)

Implementation Suggestions:
- Retain Lambs from Highly Productive Dams
- Commit to Solid Growth Program (0.5 lb/d)
  - Weaning to Breeding
  - Breeding to Lambing
- Breed Ewe Lambs, Separately
- Early Wean Lambs from 1-Year-Old Ewes
3. Select for Prolific Genetics – (Dan Waldron, TAMU)

- Selection Challenges
  - Ewe Lifetime Trait, yet Rams Make Most Genetic Change
  - Limited Progress with Litter Size Selection
- Estimated Breeding Values (NSIP)
  - Number of Lambs Born & Weaned

3. Select for Prolific Genetics – (Dan Waldron, TAMU)

- Selection Challenges
  - Ewe Lifetime Trait, yet Rams Make Most Genetic Change
  - Limited Progress with Litter Size Selection
- Estimated Breeding Values (NSIP)
  - Number of Lambs Born & Weaned

**NSIP Reproduction**

- Katahdin - NLW
- Polypay - NLW
- Targhee - NLB

![Graph showing NSIP Reproduction](image)
Breeding a Ewe to a Ram of Another Breed

2 Reasons: Complimentary Traits and Heterosis

- Pairing Breeds to Maximize Lamb Performance based on Parental Breed Traits
- Hybrid Vigor or Heterosis - “The only free lunch”
  - Offspring will be better than the average of the parents

Figure 2. Diagram of three types of terminal crossbreeding systems where R = Rambouillet, F = Finnsheep, D = Dorset, T = Targhee, M = Montadale, and K = Katahdin

First cross

<table>
<thead>
<tr>
<th>R ewes</th>
<th>X</th>
<th>R rams</th>
</tr>
</thead>
</table>

Two-breed rotation

<table>
<thead>
<tr>
<th>2/3 T 1/3 M ewes</th>
<th>X</th>
<th>M rams</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>1/3 T 2/3 M ewes</th>
<th>X</th>
<th>T rams</th>
</tr>
</thead>
</table>

| 1/3 T 2/3 M ewes and 2/3 T 1/3 M ewes | X | Terminal sires |

Composite

<table>
<thead>
<tr>
<th>K ewes</th>
<th>X</th>
<th>K rams</th>
</tr>
</thead>
</table>

| K ewes | X | Terminal sires |
5. **Cull Underperforming Ewes**

Susan Schoenian (U of Maryland)

---

### Primary reason for culling

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percent of sheep</th>
<th>Percent of sheep operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>55.6</td>
<td>69.7</td>
</tr>
<tr>
<td>Failure to lamb</td>
<td>7.7</td>
<td>22.0</td>
</tr>
<tr>
<td>Teeth problems</td>
<td>7.6</td>
<td>8.0</td>
</tr>
<tr>
<td>Hard bag syndrome</td>
<td>7.1</td>
<td>24.1</td>
</tr>
<tr>
<td>Mastitis</td>
<td>6.7</td>
<td>20.9</td>
</tr>
<tr>
<td>Poor mothering</td>
<td>4.7</td>
<td>22.3</td>
</tr>
<tr>
<td>Other</td>
<td>3.7</td>
<td>7.6</td>
</tr>
<tr>
<td>Chronic weight loss</td>
<td>2.1</td>
<td>3.6</td>
</tr>
<tr>
<td>Economic issues</td>
<td>1.7</td>
<td>2.8</td>
</tr>
<tr>
<td>Other illness</td>
<td>1.2</td>
<td>2.4</td>
</tr>
<tr>
<td>Single births</td>
<td>1.1</td>
<td>3.9</td>
</tr>
<tr>
<td>Other reproductive problems</td>
<td>0.9</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td></td>
</tr>
</tbody>
</table>

---

"Culling underperforming ewes will reduce the cost of maintaining the flock. Underperforming ewes consume feed, take up space, and require labor, while producing less profit. Thus, culling underperforming ewes is a way to help make sheep production more profitable, sustainable, and viable.”

---

USDA APHIS, National Animal Health Monitoring System, April 2014
6. Reduce Lamb Loss
Jeff Held (SDSU)

- 10 - 20% lamb crop mortality (US, UK, AU)
- 2 Categories
  - Prepartum – 2 to 4% natural causes
    - Aborting Diseases: Campylobacter, Chlamydia, & Toxoplasmosis
    - Ketosis (Twin Lamb Disease) – Improper nutrition late gestation
    - Low Birth Weight – Improper nutrition throughout pregnancy
  - Postpartum – most losses occur within 2 weeks
    - Starvation – Mismothering, Mastitis, “Hard Bag”
    - Hypothermia – Drop in Body Temperature
    - Predation – Confinement Rearing, Fencing, & Guardian Animals
7. Test for Pregnancy Status
Geri Parsons & Cleon Kimberling

- Benefits
  - Allocate resources (feed, labor, facilities, & equipment) to animals that need it the most

- Methods of Detecting Pregnancy
  - Breeding Harness
  - Bagging
  - Blood Test (PSPB)
  - Ultrasound
8. Disease Prevention and Treatment
Cindy Wolf – (U of Minnesota)

- 4 Categories
  - Nutritional
  - Infectious
  - Management-induced
  - Metabolic

- 3 Time Periods
  - Gestational
  - Pre-Weaning
  - Post-Weaning
9. Match Reproduction to Management
Dave Ollila (SDSU)

- Every Sheep Operation is Different
  - Land Access, Feed Resources, Facilities, Environment, Labor
  - Sheep are adaptable to a wide range of areas
  - Sheep respond to good management

- Set Realistic Goals
  - >200% lamb crop weaned – not realistic for arid range flocks
  - <100% lamb crop weaned – not realistic for farm flocks

- “Don’t Let Tradition Blind Yourself to Opportunity”
10. Test Rams

Geri Parsons & Cleon Kimberling

- Breeding Soundness Exam
  - Gross Physical Exam
  - Body Condition Score
  - Scrotal Circumference
  - Microscopic Semen Evaluation
    - B. Ovis Testing

- Why?
  - $400 annual cost per ram
  - Open or Late Bred Ewes are Costly
11. Manage Seasonal Changes in Reproduction

Marlon Knights (West Virginia University)

- **Seasonal Breeders**
  - **Day Length** – Sheep are Short-Day Breeders
  - **Location**
  - **Breed**
    - European Origin
    - Dorset has been selected for aseasonal breeding
  - Mediterranean / Tropical developed breeds
  - **Ram Effect**
  - **Nutrition**
  - **Lactation**
  - **Drug and Light Therapy**

**Graph:**
- **Y-axis:** Ewes Showing Estrus (%)
- **X-axis:** Month
- **Legend:**
  - Reproductive Activity
  - Percent of Average Lamb Price

- **Months:** Jan, Mar, May, Jul, Sept, Nov
- **Estrus Activity:**
  - Summer: Low activity (Jan, Mar)
  - Fall: Increase (May, Jul)
  - Winter: Peak (Sept, Nov)
- **Market Lambs:**
  - Fall Lambing
  - Market Lambs
# 12. Accelerated Lambing Cycles

Richard Ehrhardt – (MSU)

## Lambing More Than Once Annually

<table>
<thead>
<tr>
<th>STAR®</th>
<th>8 month</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Minimum birth interval</strong></td>
<td>7.2 months</td>
</tr>
<tr>
<td><strong>Lactation length</strong></td>
<td>42-72 days</td>
</tr>
<tr>
<td><strong>Breeding period</strong></td>
<td>&lt;30 days</td>
</tr>
<tr>
<td><strong>Time to rebreeding</strong></td>
<td>72 days</td>
</tr>
<tr>
<td><strong>Lambing periods/year</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>Breeding periods/year</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>Maximum births/ewe/year</strong></td>
<td>1.67</td>
</tr>
</tbody>
</table>

¹Lambing periods can be doubled to 6 if two 8-month systems are used within an operation and offset by 2 months
Best Practices to Increase Your Lamb Crop

- Optimal Nutrition
- Breed Ewe Lambs at 7 to 9 Months of Age
- Select for Prolific Genetics
- Use Crossbreeding
- Cull Underperforming Ewes
- Reduce Lamb Loss
- Test for Pregnancy Status
- Disease Prevention and Treatment
- Match Reproduction to Management
- Test Rams
- Manage for Seasonal Changes in Reproduction
- Accelerate Lambing Cycles

LambResourceCenter.com
PRODUCTION RESOURCES
THE AMERICAN SHEEP INDUSTRY HAS A NUMBER OF PRODUCTION RESOURCES

3. PRODUCTIVITY
VISIT

GENETICS
VIEW

QUALITY ASSURANCE
VISIT
Questions