The Ohio State University / College of Food, Agriculture, and Environmental Sciences / Department of Animal Sciences

Small Ruminant Welfare: Early Life Stages

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INTRODUCTION

Why is Animal Welfare Important?[9]

- Consumer perception of agriculture
  - Consumers today are disconnected from food production.
  - It is important to build trust through being transparent and discussing care and practices of animal husbandry with the public.
- Health and productivity of animals
  - Chronic stress dampens the immune response, suppresses energy production and utilization, and could lead to the onset of disease.[5]
- Potential economic losses
  - Poor welfare results in increased costs due to greater morbidity, mortality, and labor.[9]
  - Good welfare results in increased product yield from animals whose energy can be maximally directed toward growth.

Audits & Assessments: Assure consumers that animal welfare meets certain standards defined by specific criteria.

- Allows farmers to market their product differently, thus adding value to their product.
  - Responsible Wool Standard Program: 3rd party voluntary certification program for wool.
  - Certified Humane and AssureWel have online standards for sheep producers in general.

Parameters for Assessing Animal Welfare:

It is crucial to keep accurate records and perform observations of animals and facilities daily.

5 Freedoms[9]:

1.) from hunger and thirst
2.) from discomfort
3.) from pain, injury, or disease
4.) to express normal behavior
5.) from fear and distress

Figure A: Scottish Blackface sheep without a docked tail at the Hill & Mountain Research Centre in Scotland[10]

PAINFUL PROCEDURES:

- These procedures are stressful and painful for the animal, as indicated by the representation of elevated cortisol levels in Figure B, therefore approaching them as carefully as possible is not only best for welfare, but for greatest product yield.
- These are procedures which, in many cases, are most practical for the operation by reducing damage from fighting, increasing handler safety, increasing meat quality by eliminating meat taint, and reducing the risk of fly strike.

Disbudding

Destruction of horn cells via caustic paste or hot-iron, to prevent unwanted horns that can injure animals and handlers.

- **Paste:** Applied topically, destroying horn cells and cauterizing via chemical burn. Least invasive, but more time consuming.
- **Hot-iron:** destroys horn cells via heat very quickly.
- Ideally done ages 4-10 days, with use of caustic paste.[12]

Castration

Removing or destroying the function of the testicles to prevent unwanted breeding, aggression, and meat taint.

- **Banding:** Tight band around scrotum neck. Takes a longer period of time but is bloodless.
- **Surgical:** Use of scalpel to surgically remove testicles. Greatest risk of infection and highest cortisol levels
- **Emasculator:** Clamp to crush spermatic cords and blood supply. Causes necrosis and death, testes detach.
- Ideally done 24 hours post birth but then as early as possible.[2]
  * Least stressful option is band in tandem with emasculator.

Tail docking

Shortening of the tail via docking iron, rubber band, or both to reduce fecal clumping and fly strike.[1]

- **Band:** Cuts of blood flow, killing tissue and tail eventually falling off. Least amount of blood, results in short-term cortisol spike.[14]
- **Hot-iron:** Cuts and cauterizes tail with heat and crushing motion. Quicker and commonly used in larger production, but more dangerous.
- Ideally done as early as possible after 24 hours. Least stressful and safest option is banding.[14]

Conclusion

- Carefully evaluate each method, based on individual facility need, to select the appropriate procedure to reduce pain and stress in the flock.
- Overall, it is up to the farmer to analyze and implement welfare conscious practices to result in not only the best quality of life for the animal, but the best possible product for the consumer and highest yield for producer.
- If feasible, pain management greatly reduces both peak and sustained cortisol levels in all procedures.[1,2,9]

WEANING[11,13]:

- Naturally occurs when lambs are ~5 months, depends on breed and maternal milk supply.[1]
- Artificial weaning often occurs when lambs are ~1 month
- No “perfect” age to wean. At a minimum, lambs should be eating solid feed and gaining weight.

Stressors[11,13]

- **Breaking the ewe/lamb bond**: increased vocalizations, stress hormone production, and movement; decreased eating and rumination
- **New diet**: creep feed starting at 2 weeks of age – promotes rumen development
- **Transport**: attempt to reduce duration/movement, provide bedding, feed, and water during
- **New pen/barn**: move ewes, not lambs
- **New group mixing** : keep siblings together (if possible)
- **Disease exposure**: vaccinate lambs before weaning

It is crucial to practice good management techniques to prepare lambs and ewes for weaning and make the transition as gradual as possible to reduce the duration and severity of stress. Some techniques that can be utilized are:

- **Nose Clips:** placed in the lamb's nose for 4-6 weeks, discourage lambs from suckling, ewe/lamb bond maintained.[11]
- **Fence Line Weaning**: ewe and lamb are separated by a fence line, can still smell, see, and hear each other.[4]
- **Trainer Animals:** newly weaned lambs placed into pens with older sheep to encourage eating/drinking behavior.[6]

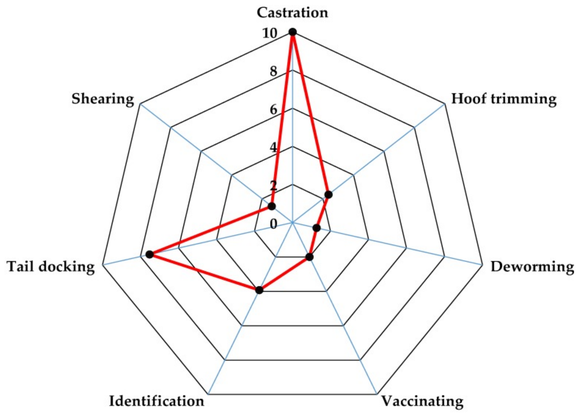

Figure B: Median pain scores associated to husbandry practices in lambs using a numerical rating scale, from 0 (no pain) to 10 (maximum pain)[7]

PAIN MANAGEMENT

The use of anesthetic and analgesia:

Options for pain relief in sheep are complicated by the fact that there are currently no local anesthetics licensed in the U.S. for use in sheep.[2]

- Local anesthetics – reduced acute pain during procedure
  - Ex. Lidocaine: subcutaneous injection into the tail or scrotal neck reduced peak blood cortisol levels. [1]
- Analgesia – post operative sustained pain relief
  - Ex. Meloxicam: shown to reduce pain 7-fold for over 24 hours after the procedure is completed.[8]

ECONOMIC IMPACT:

Good welfare → less costs in labor/feed/medications and a greater yield in meat/wool/milk.

- Intact rams at weaning were approximately 4.5 lbs. heavier, and ready for slaughter 2 weeks earlier, than their twin who was castrated.[8]
- Lambs weaned at 123 days had a greater final BW, total ADG, and PCV count compared to lambs weaned at 60 days and in addition spent fewer days in the feedlot to reach a marketable weight. [3]

Figure C: Health is a continuum[9]

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