SHEEP HUSBANDRY

1. PURPOSE

1.1. The purpose of this Animal Care and Use Procedure (ACUP) is to describe the routine husbandry and preventative health procedures for sheep at Cornell University. This ACUP is approved by the Cornell Institutional Animal Care and Use Committee (IACUC). Any deviation must be approved by the IACUC prior to its application.

2. SCOPE

2.1. This ACUP is intended for use by sheep facility staff and Center for Animal Resources and Education (CARE) at Cornell University staff.

3. INTRODUCTION

3.1. This ACUP provides general husbandry and preventative animal health guidelines for sheep housed at research and/or teaching facilities at Cornell University. These outlined procedures are intended to assure that sheep are maintained in a healthy, clean, and productive environment. Contact CARE at care@cornell.edu for more information or for assistance.

4. MATERIALS AND EQUIPMENT

4.1. Personal Protective Equipment (PPE)
4.2. Animal Support:
   4.2.1. Feed
   4.2.2. Bedding
   4.2.3. Equipment (e.g., shovels, skid loaders, feed mixers, etc.)

4.3. Preventative Health:
   4.3.1. Vaccines
   4.3.2. Needles and syringes
   4.3.3. Shearing supplies
4.3.4. Hoof trimming shears

4.4. Health records

5. PROCEDURES

5.1. Observation of Animals

5.1.1. Observe all sheep daily (including weekends and holidays) for illness, injury, and general condition.

5.1.2. Report any injuries or illness to the facility manager, Principal Investigator (PI), clinical veterinarian, and / or Center for Animal Resources and Education (CARE) at Cornell University veterinary staff. Refer to ACUP 607 Reporting Sick Animals.

5.1.3. Clinical Veterinary Care:

5.1.3.1. Veterinary care is provided by Cornell’s Attending Veterinarian or a designee as specified in a formal letter of agreement as per IACUC Policy 500 Primary Clinical Veterinary Care Performed by Non-CARE Veterinarians.

5.2. Animal Identification Methods

5.2.1. Use ear tags, tattoos, and / or ear notches for identifying the sheep.

5.3. Records and Documentation

5.3.1. Refer to ACUP 542 Maintaining Health and Procedure Records for Research and Teaching Animals.

5.4. Animal Health

NOTE: These procedures are conducted by trained and experienced staff unless otherwise indicated.

5.4.1. Quarantine procedures for new additions to Cornell Sheep Flock

5.4.1.1. Evaluate available health records of incoming, non-Cornell originating sheep to assess the need to vaccinate or treat as required prior to contact with the Cornell flock.

5.4.1.2. Test incoming animals for Ovine Progressive Pneumonia (OPP).

5.4.1.3. Examine on arrival, and upon release from quarantine, all sheep for foot rot, caseous lymphadenitis, and other contagious diseases.

5.4.1.4. Perform fecal parasite exam on a representative group of animals while in quarantine.

5.4.1.5. Quarantine (isolated pens) all sheep brought in from outside farms for at least one month.
5.4.2. Vaccination:

5.4.2.1. Lambs

5.4.2.1.1. *Clostridium perfringens* types C&D and tetanus:

5.4.2.1.1.1. Initial: 60 to 90 days of age
5.4.2.1.1.2. Booster: 21 to 28 days following initial vaccination

5.4.2.2. Ewes

5.4.2.2.1. Booster *C. perfringens* types C&D and tetanus prior to each lambing, as per manufacturer’s recommendations.

5.4.2.3. Rams

5.4.2.3.1. Booster for *C. perfringens* types C&D and tetanus annually.

5.4.3. Rabies Vaccination:

5.4.3.1. Administer rabies vaccine annually to all sheep.

5.4.4. Parasite Control

5.4.4.1. Internal parasite control is accomplished through a dynamic integrated parasite management system, using FAMACHA scoring, pasture management, and appropriate deworming agents based on veterinary recommendations.

5.5. Procedures with Potential for Stress or Discomfort

*NOTE:* Clean and disinfect all equipment after each session of use.

5.5.1. Dehorning:

5.5.1.1. Dehorning is not conducted.

5.5.2. Castration:

5.5.2.1. Ram lambs are not routinely castrated. If experimental design or specialty markets require castration, use standard industry methods (elastrator band, Burdizzo, emasculator, surgical castration, etc.) prior to 2 months of age. If rams in need of castration are >2 months of age, refer to a veterinarian.
5.5.3. Tail-docking:

5.5.3.1. Applies to breeding stock only, or is based on the needs of specific agricultural markets.

5.5.3.2. Prior to 2 weeks of age, perform tail docking on lambs (using either a clean electrical tail docker, tail bander, or a clean and disinfected emasculator).

5.5.4. Foot Care:

5.5.4.1. Restrain sheep manually by tipping them up on their rumps and trim with hoof trimming shears.

5.5.4.1.1. Check ewes’ feet at the end of each lambing period and trim as needed a minimum of twice annually.

5.5.4.1.2. Check breeding rams’ hooves prior to the start of each breeding period and trim as needed.

**NOTE:** To prevent spread of infection while trimming - if a foot abscess is encountered, clean the trimmer with a standard detergent and disinfect with a dilute (1:10) bleach solution before using the trimmer on another animal.

5.6. Nutrition

5.6.1. Feed animals to meet current National Research Council recommendations for sheep nutrition or based upon the Cornell-developed Feed Form system.

5.6.2. Store feed ingredients and finished feeds in a manner that minimizes their contamination or spoilage (e.g., covered containers, not in direct contact with moist surfaces).

5.6.3. Check water containers daily for cleanliness and adequate supply.

5.6.4. Animals on pasture receive water from forage, snow (non-lactating adults on range), or from permanent or portable troughs.

5.7. Social and Environmental Enrichment

5.7.1. Pen sheep in groups of compatible animals to assure visual and physical contact with other sheep.

5.7.2. Provide foraging opportunities.

5.8. Euthanasia and Disposal of Dead Animals

5.8.1. Euthanize sheep as per ACUP 307 Euthanasia of Non-Rodent Mammals.

5.8.2. Dispose of dead animals through Cornell University’s College of Veterinary Medicine (CVM) waste management.

5.9. Pest Control
5.9.1. Refer to ACUP 532 Cleaning and Sanitizing Materials Used in the Transport of Animals for a description of the vermin control program in agricultural facilities.

5.10. Facilities and Housing

5.10.1. Space, Temperature, Ventilation, and Lighting

5.10.1.1. Meet or exceed regulatory parameters set forth in the Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching, 2010.

5.10.1.2. Guidelines for sheep housed in a biomedical facilities can be found in the Guide for the Care and Use of Laboratory Animals, 2011.

5.10.2. Indoor Housing

5.10.2.1. Keep sheep in solid floor pens with bedding.

5.10.2.2. Cleaning and sanitation of primary enclosures.

5.10.2.2.1. Bedded packs:

5.10.2.2.1.1. Remove bedded pack 2 to 3 times per year.

5.10.2.2.2. Metabolism cages: clean waste from collection trays daily.

5.10.3. On Pasture

5.10.3.1. Ensure windbreaks for all outdoor housing.

5.10.3.2. Ensure shade for sheep housed outdoors during hot summer months.

5.11. Cleaning and Sanitation of Equipment

5.11.1. Inspect feed troughs daily, clean troughs found to be soiled.

5.11.2. Clean automatic waterers of gross material daily. Scrub waterers weekly.

5.11.3. Clean and sanitize milk buckets and nipples (for lambs) after each use (1:10 dilution of bleach or chlorine powder diluted per manufacturer’s instructions).

5.12. Transportation

5.12.1. Use appropriate transport vehicle (e.g., stock trailer) with clean, dry, non-slippery floor.


5.12.3. Clean truck beds after each use and sanitize after hauling animals from an outside source. Document cleaning and sanitization on the vehicle’s cleaning log. Refer to ACUP 532 Cleaning and Sanitizing Materials Used in the Transport of Animals.
5.13. Waste Management

5.13.1. Deposit non-regulated or non-infectious medical waste and soiled material in dumpsters or covered receptacles for removal from the facility.


5.13.3. Manure is picked up and disposed of by Farm Services.

6. PERSONNEL SAFETY

6.1. Medical Emergencies: CALL 911.

6.2. When working with animals wear appropriate PPE, observe proper hygiene, and be aware of allergy, zoonosis, and injury risks. Refer to the CARE Occupational Health and Safety webpage for more information.

7. ANIMAL RELATED CONTINGENCIES

7.1. Post contact information for emergency assistance in a conspicuous location within the animal facility.

7.2. Emergency veterinary care is available at all times including after working hours and on weekends and holidays through the Ambulatory and Production Medicine Service at (607) 253-3140 and the CARE (pager 1-800-349-2456).

7.3. Non-emergency veterinary questions & requests for care, email CARE veterinary staff at care@cornell.edu.

8. REFERENCES

8.1. IACUC Policy 500, Primary Clinical Veterinary Care.


8.3. Guide for the Care and Use of Laboratory Animals, 2011; National Research Council:
http://books.nap.edu/openbook.php?record_id=12910&page=R1

8.4. Nutrient Requirements of Small Ruminants: Sheep, Goats, Cervids, and New World Camelids. 2007. National Research Council:
http://www.nap.edu/catalog.php?record_id=11654

8.5. Feed Form. Copyright 2010 by Dr. Michael L. Thonney, Cornell University Sheep Program:

8.6. Cornell University Sheep Program
http://sheep.cornell.edu/

8.7. Cornell STAR reproductive management system
http://sheep.cornell.edu/management/reproduction/star-management/

9. APPENDIX

9.1. None

10. HISTORY

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