Experimental Number: Sheep Operations - 01

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Experimental Outline

1. **Project Title and Number:**

1a. Experiment Title:
Scrapie program ear tag field evaluation

2. **Experimental Leader(s):**

Gary Ross, AHPIS and Mike Wallace, MARC

3. **Person(s) Responsible for Analysis of Data and Publication of Results:**

Gary Ross and Mike Wallace

4. **Research Unit(s) Involved:**

Sheep Operations

5. **Specific Experimental Objective(s):**

Contribute to a national data set designed to evaluate four different sheep and goat eartags that are proposed to be used in the National Scrapie Eradication Program.

6. **Rational for the Experiment:**

Scrapie is a fatal, degenerative disease affecting the central nervous system of sheep and goats. Infected flocks that contain a high percentage of susceptible animals can experience significant production losses. Animals sold from infected flocks spread scrapie to other flocks. The presence of scrapie in the U.S. also prevents the export of breeding stock, semen, and embryos to many other countries.

Increased attention and concern has been paid to all transmissible spongiform encephalopathy (TSE) diseases, including scrapie, as a result of the discovery of bovine spongiform encephalopathy (BSE) in cattle, and link between BSE and new variant Creutzfeldt-Jakob disease (nvCJD) in people and feline spongiform

encephalopathy (FSE) in cats in Europe. This increased concern led to the decision to develop a full-fledged scrapie eradication program in the U.S..

The United States Department of Agriculture (USDA) has initiated an accelerated scrapie eradication program. One of the primary aspects of this program is the tracing of infected animals to their flock/herd of origin. This back tracing relies on the mandatory tagging of all mature, or breeding, sheep and goats before they enter into interstate commerce. These official ear tags are imprinted with a nationally registered premise of origin identification, and an individual animal number. Since scrapie cannot be clinically diagnosed until sheep or goats are several years old, it is imperative that the official ear tags remain intact, readable, and attached to the animal for its entire life.

The USDA, APHIS, provide these mandatory official ear tags to producers. Because MARC has a large number of sheep representative of various breeds, and a high level of expertise managing sheep identification and data, we were asked to participate in a field trial evaluation of ear tags proposed by several manufacturers for this program.

7. **Specific Experimental Procedure:**

The following is a plan for the evaluation of each ear tag type submitted by tag manufacturers during the upcoming contract bidding process by APHIS

Location	Species	Environment	Number*	Physical Tests†	#
San Angelo	Goats	Fence/ Brush	30-50/group	UV /Dust	10 Tags
Minnesota	Goats	Fence/Grass	30-50/group	Artificial UV	10 Tags
Minnesota	Sheep	Fence/Grass	30-50/group	Freezing	10 Tags
Nebraska	Sheep	Fence/Feedlot/	30-50/group	Chemical Tests	10 Tags
California	Sheep	Fence/Grazing	30-50/group	--	

We would be testing a minimum of 150 tags per manufacturer in the field as well as 40 tags for various physical tests. For consistency in applying and evaluating the physical tests we are conducting these tests at one site. † The physical tests are being done at NVSL.

*The sample size of 30 would provide a 99% confidence interval of detecting at least 1 or greater failure in each tag type or an approximately 3% failure rate for the various time intervals.

The purpose of the test is to measure various qualities of each of the tag types:

- Ease of application
- Tag clinching (metal tags) - Please report any clinching problems as soon after application as possible.

- Tag retention
- Loose or tenuously retained tags
- Ear infections associated with tags
- Printing durability of tags

Factors that need to be controlled:

- Regional effects - using five different flocks in 4 different geographical locations
- Species and breed effect - Apply all four tag types uniformly by species and breed
- Ear - If using both ears for tag testing, apply all four tag types uniformly between right and left ears
- Apply only one test tag/ear do not use a preexisting hole
- If another management tag is present in a test ear, make certain the optimal application site is used for the test tag and indicate on the spread sheet when this occurs.
- Make certain to apply all four tag types uniformly among animals in different management environments within each test location (i.e.- brush pasture, woven-wire fence pasture, feedlot)
- Keep the number of tags of each type applied as near equal as possible in the 30-50 tag range.
- Where practical use the left ear for one tag type and the right ear for another tag type so that a more direct comparison can be made.

At MARC we propose to use a set of 107 head (214 ears) of May, 2005 born lambs from lambing bands 0518, 0519, 0520, and 0521. These lambs include Dorset, Rambouillet, Suffolk, and Finnsheep breeding. The four types of ear tags will be stratified across the known variables of right or left ear, the four lamb breeds, and the two lamb sexes.

The tags will be evaluated for ease and effectivieness of application. The tags will also be evaluated for retention, readability, and infections noted at 30 days, 60 days, and 120 days post-application.

8. **Duration of Experiment:**

September 20, 2005 - January 30, 2006

9. **Specific Requirements of Research Units:**

N/A

10. **Specific Requirements of Livestock Operations:**

Care and feeding of lambs

Application of tags
Periodic evaluation of tags
Record keeping

11. Specific Requirements of Laboratory Support Services:

N/A

12. Estimated Receipts from Sale of Experimental Animals or Products:

107 X 130 lb. X $1.10/lb. = $15,587
No lost value.

13. Reviewed by:

Date Rec'd	Sheep Operations Manager, Mike Wallace	Date Approved
		9/19/05

Adequate resources (animal, labor, equipment) are available to conduct this experiment, it is experimentally sound, and it complies with RLH US MARC Animal Care.

14. Approved by:

Date Rec'd	Acting Herd Health Veterinarian: D. Pachta	Date Approved
		9-19-05
9/19/05	Director (MARC): M. Koohmaraie	9-28-05
Date Rec'd		Date Approved