

Records for Rare Breeds



Oogie McGuire
Desert Weyr, LLC
Paonia, CO



3 Reasons to Keep Records

- Pedigree
- Performance
- Politics

Pedigree

- Who is this?
- How does this animal relate to the breed as a whole?
- What is the genealogy of this animal?
- What are the genetics of this animal?

Performance

- Who to Keep vs Cull
- Production Records
- Management Tasks
- Breed Characteristics

Politics

- State or Federal Mandated Programs
 - Slaughter Withdrawal Rules
 - Brucellosis Testing/Tagging
 - Federal Scrapie Program
- Voluntary Certification Programs
 - Grass Fed
 - OPP Free

What Do We Use Now?

LambTracker System

Suite of technologies we use to keep our flock records



What is Our LambTracker Setup?

- Shearwell EID tags in all sheep
- Home Built EID Reader
- Handheld Computer for Field Use
- LambTracker Mobile Software
- SQLite Database
- LambTracker Desktop Software

Why Use EID?

- Reduce Tag Reading Errors
- Save Labor
- Allows easy tracking of individual Sheep
- Performance Data linked easily
- Management Data linked easily
- Smaller tags are better for our small sheep

Shearwell SET Tags

- Very low cost
 - ~\$1.49 each including Shipping from UK
 - Varies with exchange rate
- Very good retention
 - Canadian 2 year trial
 - 46,538 tags applied
 - 332 tags reported lost 0.7%
- Approved as US Official Tags
 - Sheep, goats, pigs, deer and elk.



Our EID Reader Design

- RFID Reader Module from Australia \$43 + \$19 shipping (Reads both HDX & FDX-B tags)
- Antenna (Included with reader but options are available)
- Bluetooth Radio \$10-15
- Battery Pack Varies
- Plumbing parts under \$10
- **Total Cost Under \$100**
- **You need to be a "hobbyist" to build one.**



Handheld Computer

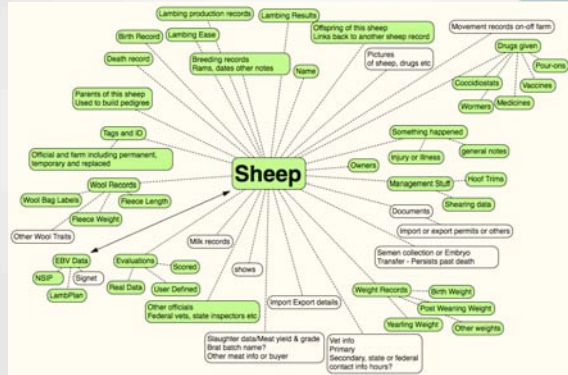
- Kids Android Tablet Nabi Jr. \$99-\$139
- Other Android Tablets and Phones
- Future Plans for rugged and sunlight readable Android systems



Our Current Software Design

- LambTracker Mobile Version
 - Android™ Application written in Java
- LambTracker Desktop Version
 - Application will be written in Java
 - Leverage off the handheld system using Chrome browser as the platform.
- Database is using SQLite
 - Common to both Handheld and Desktop

LambTracker Database Overview



LambTracker Desktop

- Currently reports are hand produced using direct SQLite Queries in Firefox browser with SQLite extensions
- chromeos-apk/archon is working on Macintosh and Linux systems
- Development of the desktop activities is proceeding

Chute Side Debugging



Shearing Data



Find a New Lamb



Who is the dam?



Tag the Lamb



Collect Lamb Data



Data Entry Quality Control



All Done



LambTracker Saved Time

- From 1 August 2013 to 15 October 2014
- We worked sheep for 212 hours (2 or more people)
- Would have taken us 145 more hours w/o LambTracker
- Example – Sort 10 rams from a flock of 62
 - Total elapsed time 1 hour including moving rams to and from their pasture.
 - Normally that would have taken us 2-2.5 hours due to tag look-up time

LambTracker Costs

- Programming time - 1 April 2013 to 15 October 2014
- 1145 hours programming
- Over 20,000 lines of code
- 2 Nabi Jr. Handhelds \$238
- 2 EID Readers ~\$200
- 200 EID tags \$218 inclu. shipping from UK \$75.78
- 200 Pairs EID & Visual Tags ~\$300 inclu. shipping

Future Plans

- Better Integration with NSIP and LambPlan
- Full ownership and movement history
- More refined User Interface
- Improved entry of historical data
- Better reporting out
- Additional Language versions
 - Have had requests for Spanish and French
- More Developers
- Test with Automatic Sorting and Weighing Equipment

Why?

- Our goal is not to make \$ on this but to enable the sheep raising community to use appropriate technology.
- Other people can adapt the software to their own specific needs or for other species.
- Us giving back to the sheep industry.
- We are doing things the “big guys” can't or won't.

The shoulders we stand on

- Dr. Dan Love
- Dr. Susie Hirsch
- Dr. Phil Purdy
- Dr. Wayne Wiitanen
- Neil Oughton
- Eric Coker
- DXR
- Ray McGuinness
- Revolution Brewing
- Google
- Sun Microsystems & James Gosling
- Shearwell UK
- Allflex US
- Priority 1 Design
- Linus Torvalds
- Dennis Ritchie & Ken Thompson
- Donald Chamberlin & Raymond Boyce

For More Information

- Hardware Design on GitHub now
 - However, it's missing lots of details, by design.
- Presentation and information on our website
 - <http://www.lambtracker.com>
- Source Code on GitHub now
 - <https://github.com/OogieM>
- Got Questions? Contact us
 - oogiem@desertweyr.com
 - kenm@desertweyr.com
 - 970-527-3573

Androids DO dream of Electric Sheep...

