ASI PERC New and Emerging Production Technologies Panel Discussion

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Approach to tech at the USSES

➡ **As a commercial-scale sheep & rangeland research enterprise, our tech "needs" are like those of the industry.**

➡ **Our criteria for tech is simple, low-cost, low-energy, and when possible, open source.**

➡ **Tech must not increase workloads, but rather, foster efficiency and real-time decision-making, seamlessly integrate into the system, and complement the human element.**

➡ **We focus mainly on existing tech and how tech can be modified for use in sheep production and rangeland management.**

Tech initiatives…

➡ **CameraTrapDetectoR**

- ▪ **AI tech for rapid classification of trail camera images**

USDA United States Department of Agriculture
Agricultural Research Service
US Sheep Experiment Station, Dubois ID

CameraTrapDetectoR: Detecting, Classifying and Counting Animals in Camera Trap Images

By: Amira Burns, Hailey Wilmer, and Ryan S. Miller | 10/30/2023

ARS SCINet Fellow, ARS Research Rangeland Management Specialist, and APHIS-CEAH Senior Ecologist

https://github.com/CameraTrapDetectoR

Prediction plots from CameraTrapDetectoR models (species, family, and class)

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Tech initiatives...

- **CameraTrapDetectoR**
  - **AI tech for rapid classification of trail camera images**
- **Reimagining virtual fence architecture and deployment**
  - **Partnered with Cloud Positions Inc. and Idaho Wild Sheep Foundation**
- **Low-energy, long-distance, affordable communication to facilitate real-time monitoring**
  - **LoRa**
- **Quantifying difficult-to-measures traits**
  - **Lamb survivability**