

Optimizing Bison Health and Well-Being

Support:

Five-State Ruminant Consortium
South Dakota State University USDA/NIFA

USDA Tribal College Research Grants
Oglala Lakota College
Sinte Gleska University
Sitting Bull College

Intertribal Buffalo Council

University of Nebraska Medical Center
Central States Center for Agricultural Safety and Health

Oglala Lakota College

Ale Higa

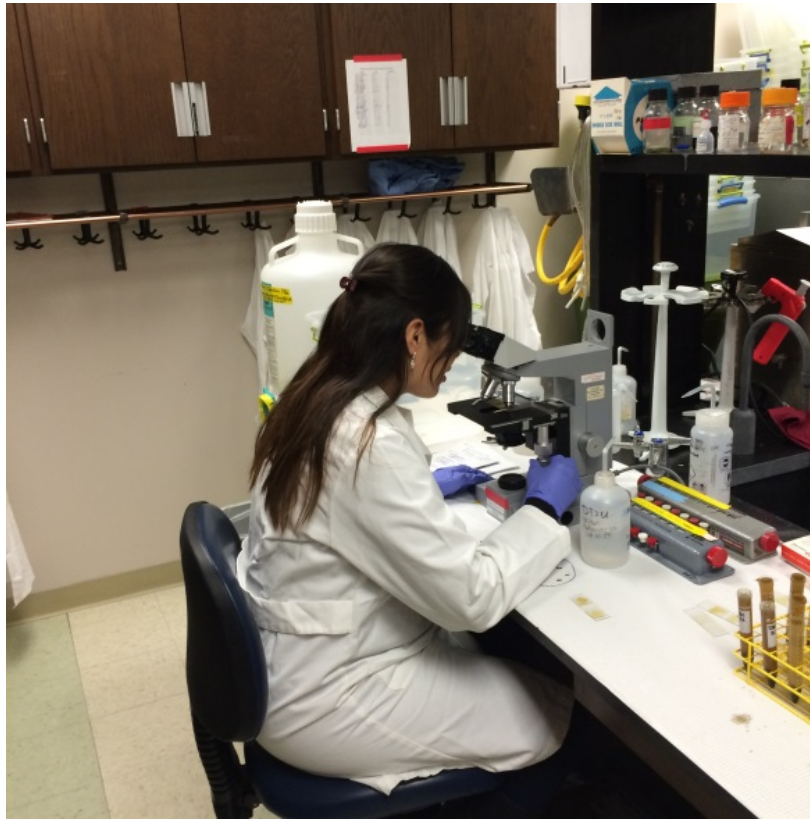


Sinte Gleska University

Lisa Colombe



Sitting Bull College Mafany Mongoh



Limiting production parameter in certain regional bison herds is:

Low reproductive efficiency

Reflected by:

- low calving percentage
- prolonged calving intervals

Considerations Vision/Notions VS Opportunities



Optimizing Health and Well-Being:

1. ID animals
2. Records
3. Cull non-productive animals
4. Nutrition
5. Salt and mineral supplementation
6. Control parasites
7. Facilities

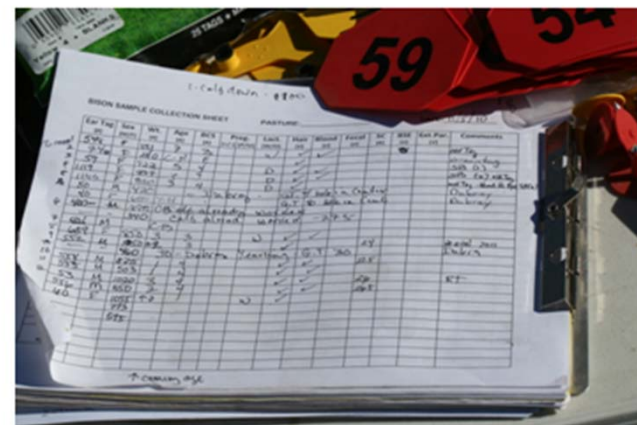


1. Animal Identification



2. Maintain Production Records

- Animal identification
- Body weight
- Age distribution
- Fertility
- Pregnancy status
- Body condition
- Disease exposure status
- Parasite exposure



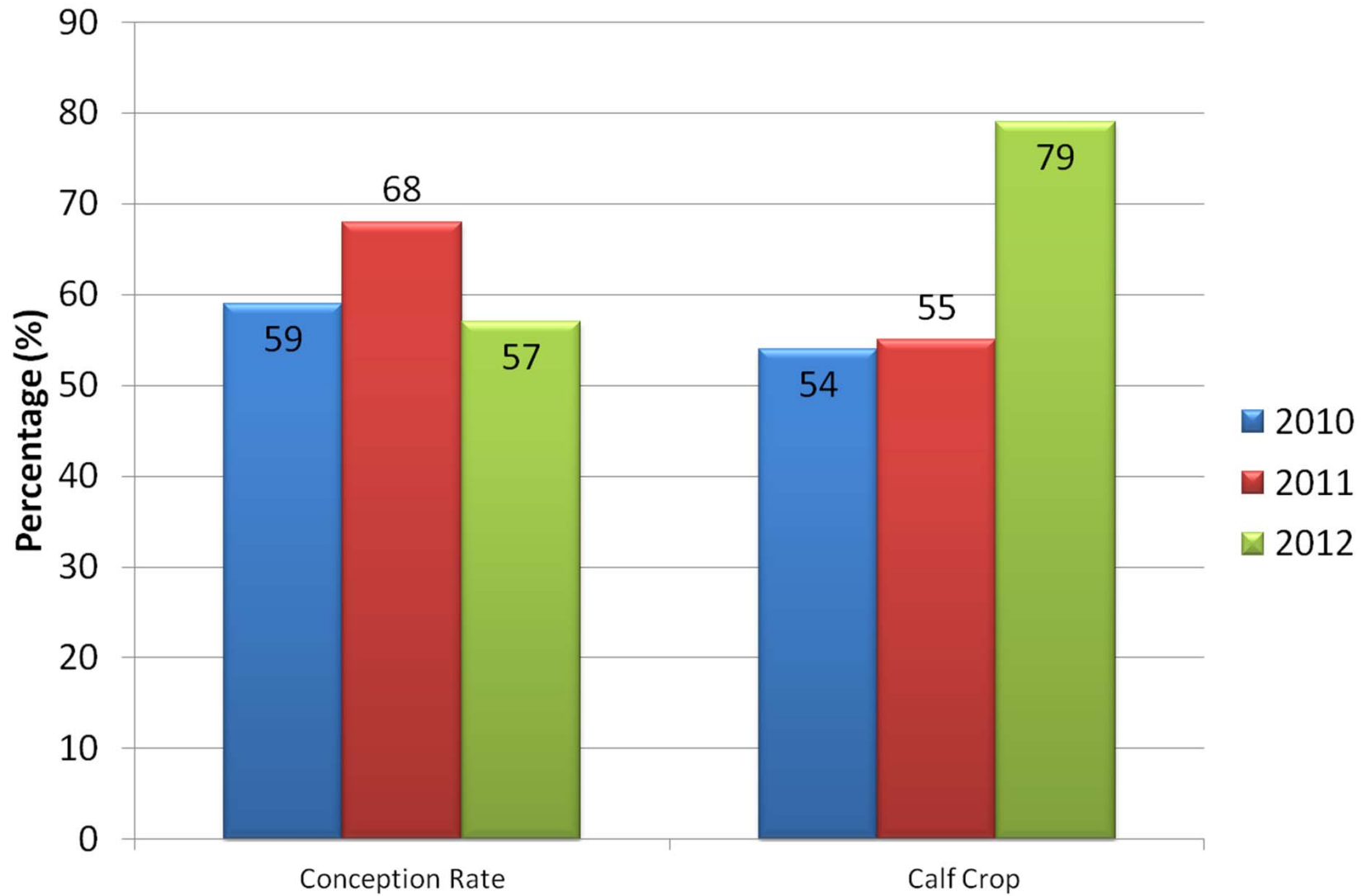
3. Cull non-productive animals

Cull Animals

- Infertile
 - Open
 - Low potential
- Nonproductive



OST Herd Conception Rate and Calf Crop

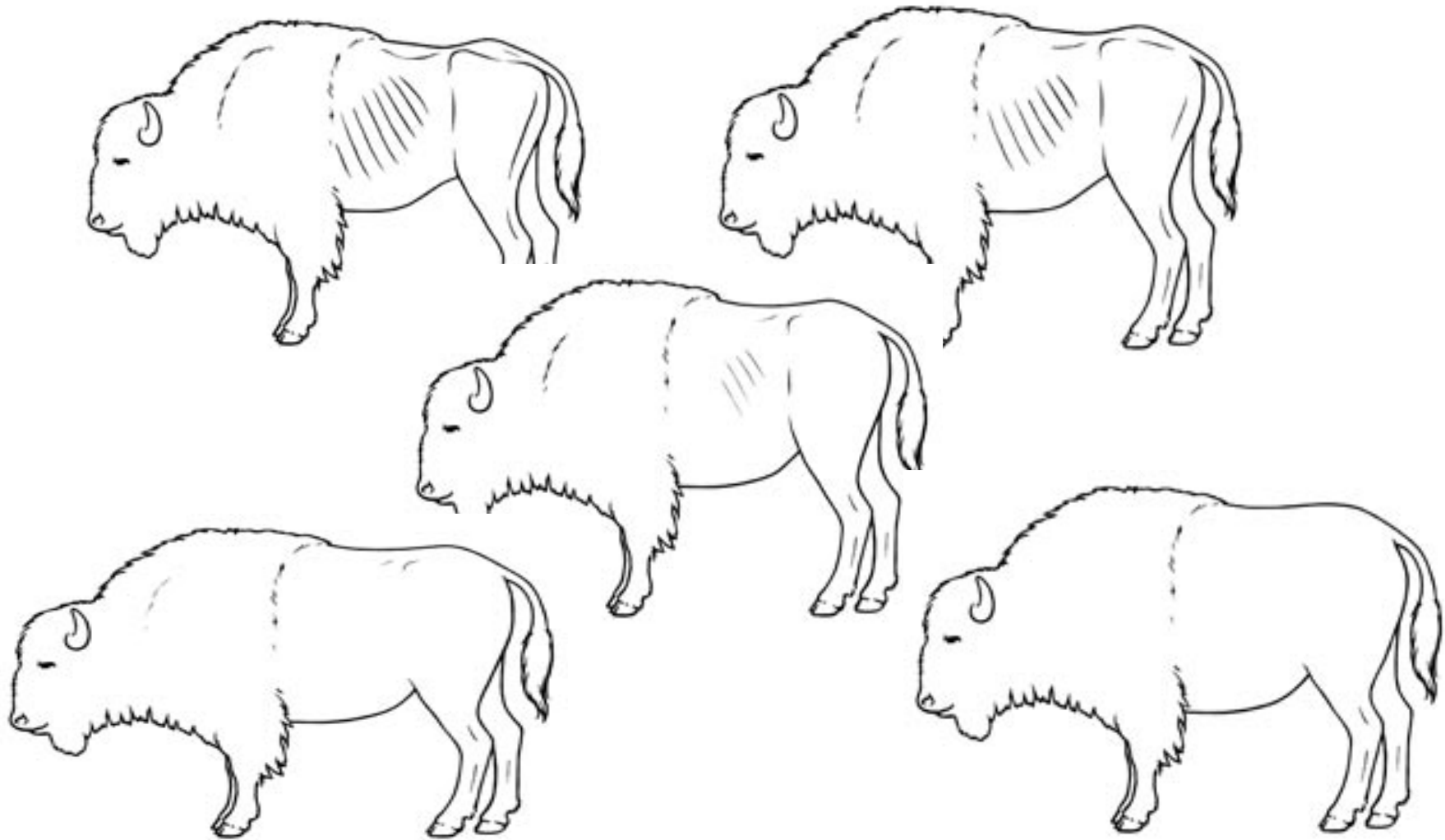


4. Meet Nutritional Requirements

- **Energy** - Limiting nutrient related to reproduction in cattle
- Determine Body Condition

4. Meet Nutritional Requirements

Body condition: 1-5



Body condition impacted reproduction



4. Meet Nutritional Requirements

- Cows with low BCS (≤ 3) were **2.4 times** more likely to be open than cows with higher BCS (≥ 3)



5. Trace Minerals

Copper Balance in Bison:

Trace minerals:

- Variation is common between and within different areas

Copper (Cu) deficiency:

- Primary Cu def- dietary Cu levels inadequate
- Secondary Cu def – Cu absorption is inadequate
(high levels of molybdenum)

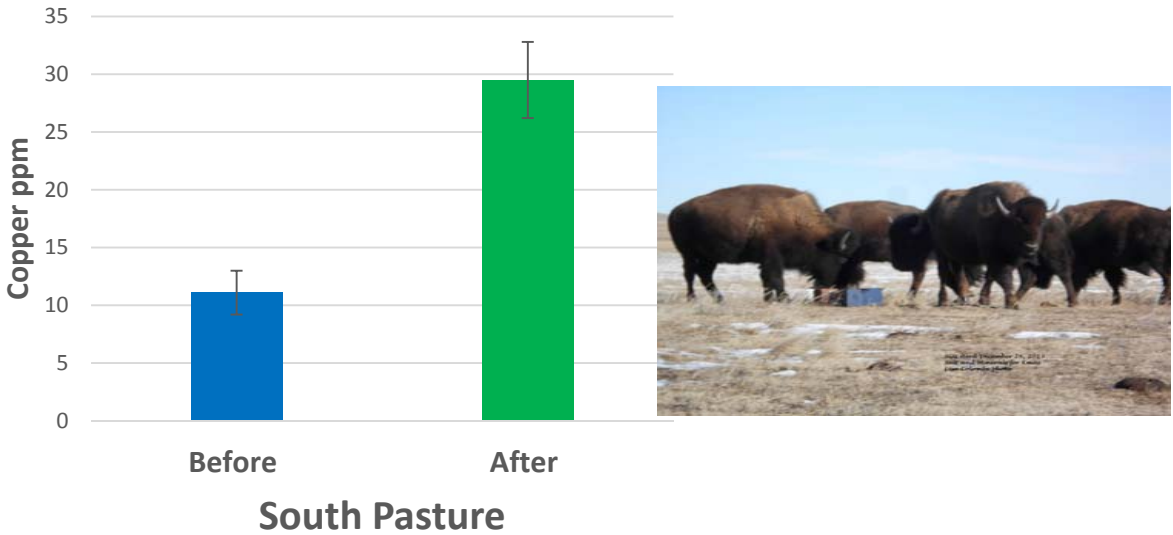
Copper Balance in Bison:

Signs:

Vague and nonspecific

(chronic diarrhea, anemia, poor growth rates, poor body condition, failure to reproduce)

SGU Bison Herd Mineral Supplementation



6. Parasitism is Prevalent

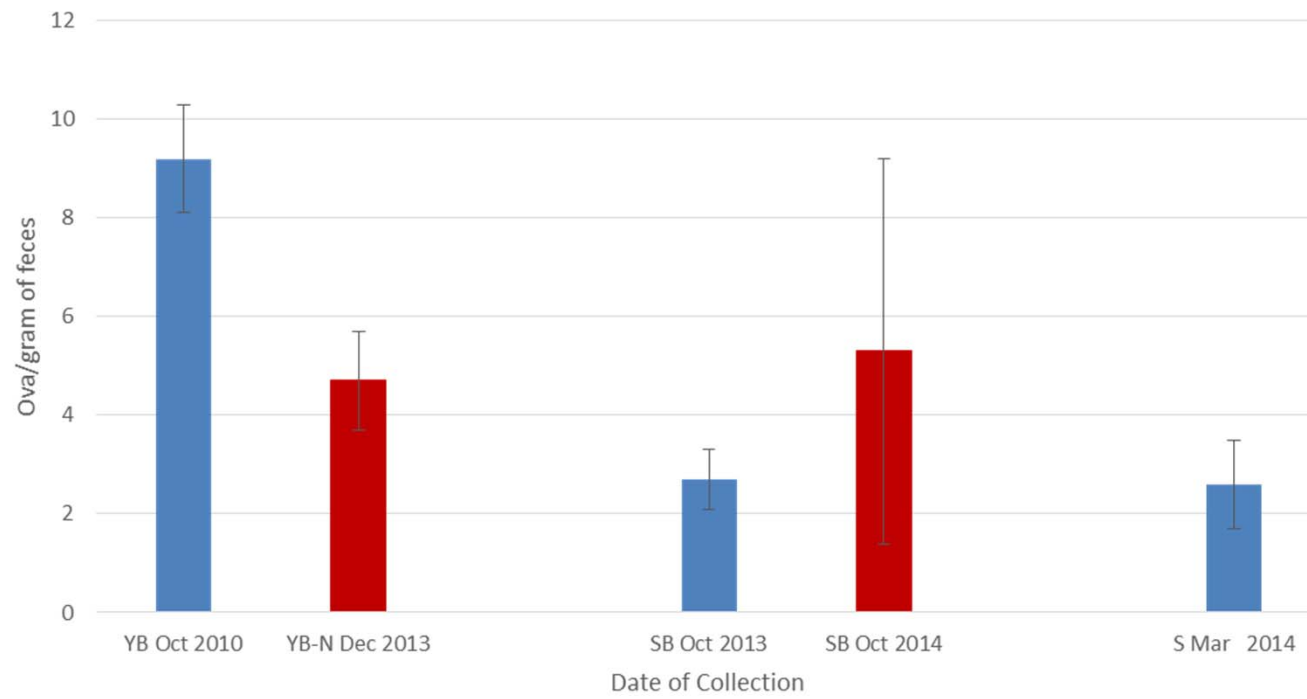


Parasite burdens

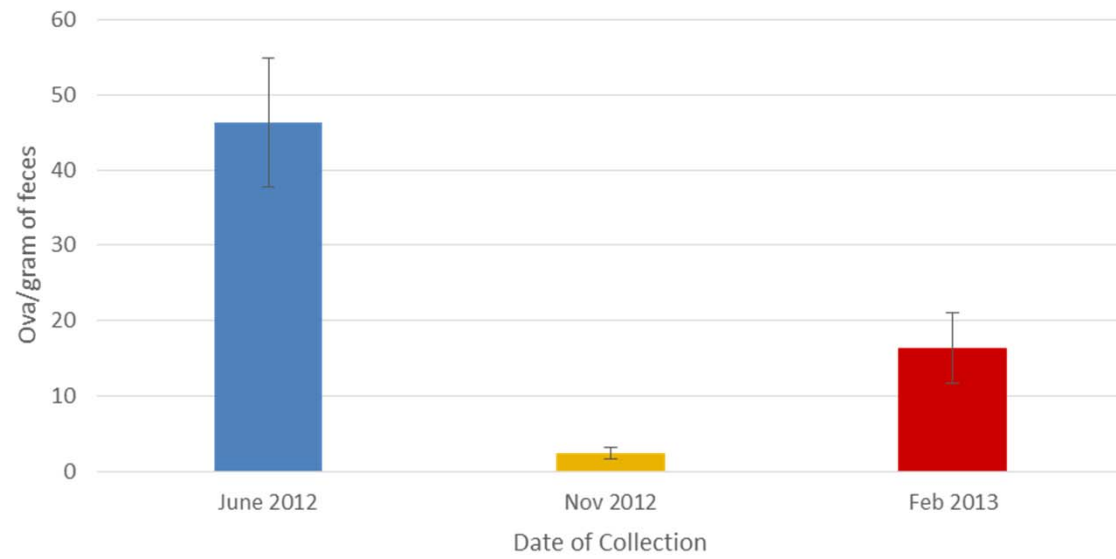
**Moderate to heavy
levels of
endoparasites**

- **Coccidia**
- **Monezia**
- **Strongyles**
- **Trichuris**
- **Nematodirus**
- **Strongyloides**

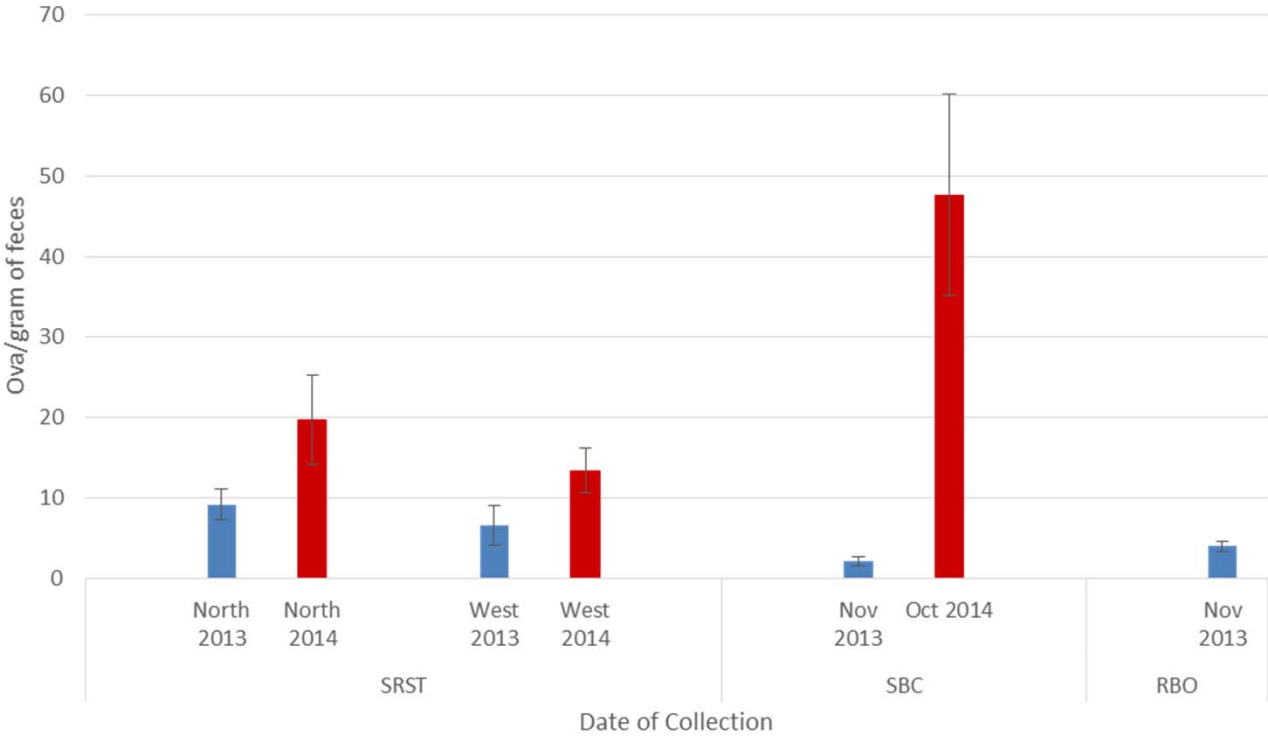
OSPRA Bison Herd
Large Roundworms (Strongyle-type)



SGU Bison Herd
Large Roundworms (Strongyle-type)



SRST, SBC, RBO Bison Herds
Large Roundworms (S**T**rongyle-type)



7. Provide Adequate Facilities



- How to:
 - Construct appropriate facilities



Gathering and Handling Bison

- Optimal for health management practices
- Close contact with the animals.



Roundup

- **All animals**
 - Identification
 - Body weight
 - Age
 - Body condition score

Females

- Pregnancy status
- Lactation status

Bulls

- Scrotal circumference
- Breeding soundness examination



Alternatives to Handling Bison to Conduct Practices:

- Without gathering the herd and handling bison individually
- Implement some of the practices
- Herd level



Alternatives to Handling Bison to Conduct Practices:

- Control parasites
- Maintain body condition
- Maintain mineral balance
- Not individual animal ID



Alternatives to Handling Bison to Conduct Practices:

- Assess herd health parameters:
 - Collect samples at harvest
 - Feces
 - Blood
 - Liver

Submit samples to a
diagnostic lab



Harvest Sample Collection

- **Nutritional analyses**
 - Liver - mineral status
 - Rumen fluids - VFA
 - Pasture clip – nutritional evaluation
- **Disease exposure status**
 - Blood
- **Parasite status**
 - Fecal specimen
- **Bull fertility**
 - Scrotal circumference
 - Testicular lesions



Many opportunities to positively-impact herd health and well-being



Summary

1. Identify individual animals
2. Maintain herd **records**
3. **Cull** non-productive animals
4. Manage herd **nutrition**
 - Forage supplements
 - Mineral supplements
 - Limit herd size
5. Implement **parasite control** program
6. Provide adequate facilities
7. Implement **best practices**
 - Low stress animal handling
 - Worker safety



Team

Oglala Sioux Tribe

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Bergil Kills Straight
Milt Around Him
Harvey Tallman

Taos Pueblo Tribe

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- Gary Rupp
- Richard Randle
- D. Scott McVey
- David Hardin

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- *Cornell University*
- *Donald Schlafer*

- *Texas A&M University*
- *James Derr*

Team

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Wild Idea Buffalo Co.

Dan O'Brien

Pearson Livestock Equipment

Jack Johnston



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