Collaborative Adaptive Rangeland Management

Review where it all began
CARM herds are in their final pastures.

**Sandy Soils**
- Cool Season Grasses
- Vegetation Threshold: 450 pounds/acre
- Grazed Jun 4th - Jun 18th, regrazing

**Snowfence**
- Sandy Soils
- Cool Season Grasses
- Vegetation Threshold: 450 pounds/acre
- Grazed May 15th - Jun 4th
Highlights of Happenings

Rainfall Totals

- Average and 2020 precipitation graphs for September to December 2020.
- Sep: 0.37 in

Total Rainfall
2020-09-13 to 2020-09-20

Rainfall Distribution

- Map showing rainfall distribution with contours indicating different rainfall amounts.

Drought Monitor
Grass-Cast

September 24th, 2020 :: CARM :: Elm & Snowfence
Soil Moisture Distribution

Current Soil Moisture
2020-09-20

What's in our cup?
Nothing.

September 24th, 2020 :: CARM :: Elm & Snowfence
A detailed look at greenness across the station:

Relative greenness:
- Extremely high
- Above average
- Average
- Below average
- Extremely low

Legend:
- Herd
- Next
- Grazed
- Rest

Graph:
- Very high
- High
- Moderate
- Low
- Very low

Timeline:
- January
- March
- May
- July
- September
- November
- January

Relative greenness distribution map:
- Aug-10
Elm - Entry VOR
Note: Regrazed.

Let's track CARM-1 VOR

CARM - 1 ending the season in Elm
# Rotation planned:
1) Snowfence & Saltflat  
2) Saltflat & Elm  
3) Crossroads  
4) Highway  
5) Nighthawk

## Rotation adaptations:
- Headed to Elm.

<table>
<thead>
<tr>
<th>Rotation</th>
<th>Pasture</th>
<th>What actually happened</th>
</tr>
</thead>
</table>
| 1        | Snowfence & Saltflat | Gates open between, Shoot for 21-24 days, measure VOR separate & use average to gauge veg trigger, cattle gains, 5/15 - 6/6  
Date In  | 15-May  
Date Out | 4-Jun  
Trigger | Max Days  
Grazing Season |  
| 2        | Saltflat & Elm     | Gates open between, Shoot for 21-24 days, measure VOR separate & use average to gauge veg trigger, cattle gains, 6/6 - 6/29  
Date In  | 4-Jun  
Date Out | 18-Jun  
Trigger | VOR Threshold  
Grazing Season | Left almost two weeks earlier than planned.  
| 3        | Crossroads         | Reduce VO for MCLO (< 5cm) 6/29-8/10  
Date In  | 18-Jun  
Date Out | 1-Jul  
Trigger | VOR Threshold  
Grazing Season | Used drought threshold  
| 4        | Highway            | Reduce VO for MCLO (< 5cm) 8/10 - 9/21  
Date In  | 1-Jul  
Date Out | 6-Aug  
Trigger | VOR Threshold  
Grazing Season | Used drought threshold  
| 5        | Nighthawk          | 9/21 - end of season  
Date In  | 6-Aug  
Date Out | 3-Sep  
Trigger | VOR Threshold  
Grazing Season | Used drought threshold  
| 6        | Crossroads         |  
Date In  | 3-Sep  
Date Out | 15-Sep  
Trigger | Days  
Grazing Season | Regrazed, entered below drought threshold  
| 7        | South              |  
Date In  | 15-Sep  
Date Out | 23-Sep  
Trigger | Max Days  
Grazing Season | Regrazed, entered below drought threshold  
| 8        | Elm                |  
Date In  | 23-Sep  
Date Out |  
Trigger |  
Grazing Season | Regrazed, entered below drought threshold  

Let's track CARM-2 VOR

Snowfence - Entry VOR
Note: Regrazed.

Should benefit from the regrowth in Snowfence.
### Rotation adapted:
1) Snowfence & Saltflat
2) Saltflat & Elm
3) South
4) Hilltank
5) Ridgeline

### Rotation planned:
Saltbrush, a tasty snack this summer.

### Rotation adaptations:

<table>
<thead>
<tr>
<th>CARM 2</th>
<th>Pasture</th>
<th>Notes from April</th>
<th>Date In</th>
<th>Date Out</th>
<th>Trigger Used</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Snowfence &amp; Saltflat</td>
<td>Gates open between, Shoot for 21-24 days, measure VOR separate &amp; use average to gauge veg trigger, cattle gains, 5/15 - 6/8</td>
<td>15-May</td>
<td>4-Jun</td>
<td>Max Days</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Saltflat &amp; Elm</td>
<td>Gates open between, Shoot for 21-24 days, measure VOR separate &amp; use average to gauge veg trigger, cattle gains, 6/8 - 6/29</td>
<td>4-Jun</td>
<td>18-Jun</td>
<td>VOR Threshold</td>
<td>Left almost two weeks earlier than planned.</td>
</tr>
<tr>
<td>3</td>
<td>South</td>
<td>Reduce VO for MCLO (&lt; 5cm) 6/29-8/10</td>
<td>18-Jun</td>
<td>1-Jul</td>
<td>VOR Threshold</td>
<td>Used drought threshold</td>
</tr>
<tr>
<td>4</td>
<td>Hilltank</td>
<td>MCLO 8/10 - 9/21</td>
<td>1-Jul</td>
<td>20-Jul</td>
<td>VOR Threshold</td>
<td>Used drought threshold</td>
</tr>
<tr>
<td>5</td>
<td>Ridgeline</td>
<td>9/21 - end of season</td>
<td>20-Jul</td>
<td>26-Aug</td>
<td>VOR Threshold</td>
<td>Used drought threshold</td>
</tr>
<tr>
<td>6</td>
<td>Headquarters</td>
<td>Rest</td>
<td>26-Aug</td>
<td>23-Sep</td>
<td>VOR Threshold</td>
<td>Used drought threshold</td>
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<tr>
<td>7</td>
<td>Snowfence</td>
<td></td>
<td>23-Sep</td>
<td></td>
<td>Regrazed</td>
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</table>
Late season diet quality is poor.

Diet Quality:
- Good
- Protein Deficient
- Energy Deficient

**Crude Protein (%)**

**Digestible Organic Matter (%DOM)**

**Crude Protein (%)**
Remote WOW

Walk-over Weigh Scale Data

Weight (pounds)

Much bigger gap between treatments this year at a glance to last year.

Maybe the foraging work can shed light on these differences.
## Review 2019 vs 2020

<table>
<thead>
<tr>
<th>Treatment</th>
<th>2019</th>
<th>2020</th>
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<tr>
<td>Light stocking: 1st 28 days</td>
<td>4.3</td>
<td>3.2</td>
</tr>
<tr>
<td>Moderate stocking: 1st 28 days</td>
<td>3.8</td>
<td>3.0</td>
</tr>
<tr>
<td>Heavy stocking: 1st 28 days</td>
<td>3.7</td>
<td>2.8</td>
</tr>
<tr>
<td>Light stocking: 2nd 28 days</td>
<td>3.8</td>
<td>3.1</td>
</tr>
<tr>
<td>Moderate stocking: 2nd 28 days</td>
<td>3.4</td>
<td>2.1</td>
</tr>
<tr>
<td>Heavy stocking: 2nd 28 days</td>
<td>3.9</td>
<td>1.3</td>
</tr>
<tr>
<td>Light stocking: 3rd 28 days</td>
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<td>1.7</td>
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<tr>
<td>CARM: first third of grazing season (about 45 days)</td>
<td>3.4</td>
<td>2.4</td>
</tr>
<tr>
<td>CARM: second third of grazing season (about 45 days)</td>
<td>1.7</td>
<td>1.9</td>
</tr>
<tr>
<td>Low-High-Low: Low-stock density gains (about 80 days)</td>
<td>2.8</td>
<td>2.1</td>
</tr>
<tr>
<td>Low-High-Low: High-stock density gains (about 30 days)</td>
<td>1.8</td>
<td>0.7</td>
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</table>
On behalf of the USDA-ARS Rangeland Resources & Systems Research Unit, I thank you all for your continued participation in this project.

Happy Trails!