**North-West Pasture**
Mix of bluebunch wheatgrass and crested wheatgrass. Produces about 1,100 lbs/acre of forage with a proper use of 50%.

**Headquarters Pasture**
Native bunchgrasses (60%), Forbs (35%), and native shrubs (5%). Produces about 750 lbs/acre of forage with a proper use of 40%.

**Southside Pasture**
Bunchgrasses (50%), Forbs (30%), and native shrubs (20%). Produces about 600 lbs/acre of forage with a proper use of 30%.
**Stocking Rate Calculations Worksheet**

Stocking rate is the balance between forage supply and forage demand. For the Sage Ranch, we need to calculate both to determine if the current stocking rate is appropriate for the ranch. This worksheet (and the description of the ranch) will guide you through the process. We will start by calculating the forage supply for each pasture, then calculate the forage demand of the ranch, and finally, use those numbers to determine if our stocking rate is okay or if we need to change it (increase or decrease). Follow the step-by-step guide for the North-West Pasture and then do it for the Headquarters and Southside Pasture. Note: at the Skill-a-thon, you will be allowed to use a non-scientific calculator!

### FORAGE SUPPLY

<table>
<thead>
<tr>
<th>Pasture</th>
<th>Size of Pasture</th>
<th>How Much Forage Produced</th>
<th>Proper Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>North-West Pasture</td>
<td>280 acres</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Headquarters Pasture</td>
<td>240 acres</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southside Pasture</td>
<td>480 acres</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Step 1: Calculate the total amount of forage (supply) in the pasture (multiply the size of pasture by how much forage it produces).

\[
\text{Total Forage Supply} = \text{Size of Pasture} \times \text{How Much Forage Produced}\]

#### Step 2: Calculate the forage supply for the livestock (multiply the forage calculated above by the proper use percentage).

\[
\text{Total Forage Supply for Livestock} = \text{Total Forage Supply} \times \text{Proper Use} \%
\]

#### Step 3: Convert the forage supply to AUMs (Remember that 1 AUM = 750 lbs).

\[
\text{AUMs} = \frac{\text{Total Forage Supply for Livestock}}{750 \text{ lbs}}
\]

### FORAGE DEMAND

- Number of cows at the ranch: _________
- Average weight of each cow: _________ lbs
- % of body weight eaten daily: _________%
- Number of grazing days: _________

#### Step 1: Calculate how much each cow will each per day (multiply the weight of one cow by the % of body weight it will eat in one day).

\[
\text{Daily Forage Demand per Cow} = \text{Average Weight of Cow} \times \text{% of Body Weight Eaten Daily} \%
\]

#### Step 2: Calculate how many pounds of forage all the cows on the ranch will eat in one day (multiply the amount for one cow X number of cows on the ranch).

\[
\text{Total Forage Demand for One Day} = \text{Daily Forage Demand per Cow} \times \text{Number of Cows on the Ranch}
\]

#### Step 3: Calculate how much forage is needed for 90 days (multiple total forage needed by 90 days).

\[
\text{Total Forage Demand for 90 Days} = \text{Total Forage Demand for One Day} \times 90 \text{ Days}
\]

#### Step 4: Convert the forage demand to AUMs (Remember that 1 AUM = 750 lbs).

\[
\text{AUMs} = \frac{\text{Total Forage Demand for 90 Days}}{750 \text{ lbs}}
\]

### Reflect Questions

- **Total forage available for livestock grazing at the Sage Ranch (add together forage supply for each pasture)**

\[
\text{Total Forage Supply} = \text{North-West Pasture} + \text{Headquarters Pasture} + \text{Southside Pasture}
\]

- **Total forage demand at the Sage Ranch**

\[
\text{Total Forage Demand} = \text{North-West Pasture} + \text{Headquarters Pasture} + \text{Southside Pasture}
\]

Use this information to answer the Reflect questions
Stocking Rate Calculations Worksheet

Stocking rate is the balance between forage supply and forage demand. For the Sage Ranch, we need to calculate both to determine if the current stocking rate is appropriate for the ranch. This worksheet (and the description of the ranch) will guide you through the process. We will start by calculating the forage supply for each pasture, then calculate the forage demand of the ranch, and finally, use those numbers to determine if our stocking rate is okay or if we need to change it (increase or decrease). Follow the step-by-step guide for the North-West Pasture and then do it for the Headquarters and Southside Pasture. Note: at the Skill-a-thon, you will be allowed to use a non-scientific calculators!

### FORAGE SUPPLY

- **North-West Pasture**
  - 280 acres (ac)
  - Size of pasture: __280__ acres
  - How much forage is produced: ___1,100___ lbs/acre of forage
  - Proper use: __50_ %

- **Headquarters Pasture**
  - 240 acres
  - Size of pasture: __240___ acres
  - How much forage is produced: ___750___ lbs/acre of forage
  - Proper use: __40_ %

- **Southside Pasture**
  - 480 acres
  - Size of pasture: __480___ acres
  - How much forage is produced: ___600___ lbs/acre of forage
  - Proper use: __30_ %

Use the space below to calculate the available forage for the Headquarters Pasture

**Answer:**

\[240 \text{ acres} \times 750 \text{ lbs} \times 40\% = 72,000 \text{ pounds OR 96 AUMs}\]

Use the space below to calculate the available forage for the Southside Pasture

**Answer:**

\[480 \text{ acres} \times 600 \text{ lbs} \times 30\% = 86,400 \text{ pounds OR 115 AUMs}\]

### FORAGE DEMAND

To calculate forage demand, you will need the following numbers from the information provided:
- Number of cows at the ranch: _180____
- Average weight of each cow: __600___ lbs
- % of body weight eaten daily: _2.5%_
- Number of grazing days: ___90__ days

**Step 1:** Calculate how much each cow will eat per day (multiply the weight of one cow by the % of body weight it will eat in one day).

\[600 \text{ lb cow} \times 2.5\% = 15\text{ lbs/day}\]

**Step 2:** Calculate how many pounds of forage all the cows on the ranch will eat in one day (multiply the amount for one cow X number of cows on the ranch).

\[15\text{ lbs/day} \times 180\text{ cow} = 2,700\text{ lbs forage demand for one day}\]

**Step 3:** Calculate how much forage is needed for 90 days (multiply total forage needed by 90 days)

\[2,700\text{ lbs forage demand for one day} \times 90\text{ days} = 243,000\text{ lbs total forage demand for the entire grazing period}\]

**Step 4:** Convert the forage demand to AUMs (Remember that 1 AUM = 750 lbs)

\[243,000\text{ lbs of forage demand} / 750\text{ lbs} = 324\text{ AUMs}\]

### Total forage available for livestock grazing at the Sage Ranch

**Forage supply = ___312,400___ pounds, which is ___416____ AUMs**

**Forage demand = ___243,000___ pounds, which is ___324____ AUMs**

*Use this information to answer the Reflect questions*