GRAZING CAPACITY

- Successful grazing mgmt is dependent on the number of animals the veld can support.
- Grazing capacity is dependent on a number of factors:
  - Rainfall, veld condition, slope, aspect, soil etc.
Therefore grazing capacity can vary considerably from area to area (VTUs).

NB that the GC for each VTU be determined separately.

Importance of stocking rate (SR)

- As SR is increased, animal performance decreases

Herbage yield

- Positive correlation between herbage yield and the growing season rainfall (Oct - Mar)
- As veld condition decreases:
  - Basal cover decreases
  - Runoff increases
  - Effective rainfall decreases
Therefore get a decrease in herbage yield

So use growing season rainfall to determine herbage yield

In KZN the growing season rainfall is approx 80% of the MAP

Use a figure of 5 kg DM/mm/annum for all BRGs except BRGs 14 & 23 (4 kg DM/mm/annum)

Calculating grazing capacity

Expressed in terms of animal units (AU)

An AU refers to an animal with a mass of 450 kg which consumes 10 kg of DM per day (3500 kg/annum)

Essential to have a common term to cater for different enterprises eg: cattle, sheep, game etc.
Calculating animal units

- Two methods of calculation:

1. Conventional formula:

   \[ AU = \text{mass of animal}^{0.75} \times 0.01 \times CF \]

   \( CF = 1.5 \) for dairy cows
   \( = 1.25 \) for other lactating female animals
   \( = 1.0 \) for all other animals

2. ‘Thumb Rule’

   \[ AU = 2(\text{mass of animal}) + 100 / 10 \]

- Example: calculate AU for a 420 kg lactating female

Method 1:

\[ AU = 420 \text{ kg}^{0.75} \times 0.01 \times 1.25 \]
\[ = 1.16 \text{ AU} \]
Method 2: Thumb Rule

420 kg lactating cow

\[ \text{AU} = 2(420) + 100 \]

As the palatability and value of the grass sward decline at different rates during the late summer months throughout KZN:

- Herbage consumption by livestock will vary according to veld type (BRG)

<table>
<thead>
<tr>
<th>Veld type</th>
<th>BRG</th>
<th>Herbage consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sourveld</td>
<td>3 to 11,15</td>
<td>2500</td>
</tr>
<tr>
<td>Sour/mixed</td>
<td>1,2,12,14,17</td>
<td>2750</td>
</tr>
<tr>
<td>Mixed</td>
<td>13,16,18,19,20</td>
<td>3000</td>
</tr>
<tr>
<td>Sweet</td>
<td>21,22,23</td>
<td>3500</td>
</tr>
</tbody>
</table>
A fundamental principle of veld mgt is to limit utilization to half the total production.

Therefore to calculate grazing capacity:

1. Assess herbage yield/ha (MAR x 0.8 x yield factor x Veld condition score %)
2. Yield/ha is halved (take half leave half)
3. Yield/ha divided into annual herbage consumption per AU

EXAMPLE:
Calculate the Grazing capacity for an area in BRG 5, with a MAR of 885 mm and a veld condition score of 49%

1. Herbage yield = (885 mm x 0.8) x (5 kg DM/mm) x 0.49
   = 1734.6 kg DM/ha
2. Halve the yield = 1734.6 kg DM/ha x 0.5
   = 867.3 kg DM/ha
3. Grazing capacity = Annual AU consumption/867.3
   =(2500 kg/AU) / 867.3 kg/ha
   =2.88 ha/AU