MULTISPECIES GRAZING
WHAT IS MULTISPECIES GRAZING?

- The grazing management practice of stocking two or more species of grazing animals such as cattle, sheep, and goats together on the same rangeland in a single growing season.
Hofmann’s model provides the context or boundaries for adaptation.

- Concentrate Selectors such as goats, prefer to eat forbs and shrubs.
- Intermediate Feeders such as sheep, can survive on either a grass/roughage diet or on a concentrate diet.
- Grass/ Roughage Eaters such as cattle, are less selective and consume fewer meals per day.
Ruminants adapt to plant grazing resistance

- Prefer plants with grazing avoidance strategy
- Prefer plants with grazing tolerance strategy
ADVANTAGES

• Increased carrying capacity:
  • 24% increase with sheep added to cattle compared to cattle alone.

• Increased economic returns:
  • 20-25% increased net income.

• Improved cash flow:
  • Marketing different products at different parts of the year.

• Improved animal performance.

• Improved animal health:
  • Reduced parasite load.
  • Reduced disease transmission.

• Improved land condition.
DISADVANTAGES

- Increased costs:
  - Fencing, feed, damages, facilities, and labor.

- Lack of animal husbandry knowledge for a variety of species.

- Increased complexity because of enterprise diversity.

- Potential disease transmission from sheep to cattle:
  - Sheep are the carriers that are unaffected by the disease, where the cattle are susceptible.

- Potential of reduced efficiency within each specie.

- Potentially greater predator problems.
NICHE SEPARATION

Cattle prefer eat more grass than forbs or browse.
Sheep prefer forbs over grass and browse.
Goats are predominately browse eaters but will select some grasses and forbs.
Separation is accomplished in six different ways:

• Species concentrate in different parts of a vegetational mosaic.
• Species select different types of food.
• Species separate topographically on a seasonal basis.
• Species select the same area but at different seasons.
• Species select different feeding levels in the vegetation.
• Species separate on a vegetational basis according to the season of food stress.
CARRYING CAPACITY

In order to determine stocking rate, carrying capacity must be determined. A term that frequently used to aid in this calculation is the Animal Unit, or AU.

Carrying capacity is the stocking rate that is sustainable over time per unit of land area.

- **Common Animal Unit Equivalents, or AUE:**
  - One 1,000 lb. cow with calf = 1 AUE
  - One 175 lb. ewe with lamb = 0.5 AUE
  - One 125 lb. doe with kid = 0.15 AUE

**Other helpful abbreviations:**

- AUD = Animal Unit Day = 26 lbs. of dry forage
- AUM = Animal Unit Month = 780 lbs. of dry forage
- AUY = Animal Unit Year = 9,360 lbs. of dry forage
STOCKING RATE

To calculate stocking rate using AUEs, first estimate the total number of AUs:

\[(\text{# of head}) \times (\text{AUE}) = \text{Total AUs}\]

- Ex.: 100 head of sheep \( \times 0.5 = 50 \) AUs

Then, to get the stocking rate:

\[\frac{\text{Total land area}}{[(\text{# of AUs}) \times (\text{Grazing Season Length in months})]} = \text{Stocking Rate}\]

- Ex.: 100 acres ÷ (50 \( \times 6 \)) = .34 ac per AUM or 2 ac for the season
AVAILABLE FORAGE

To calculate the forage available:
(Average DM in lbs./ acre) X (# of acres) X (% utilization) = lbs. of forage DM
- Ex.: 5,000 lbs. X 100 X 0.65 = 325,000 lbs. of forage DM

Stocking rate can be calculated from available forage:
(Total forage DM) ÷ [(# of grazing days) X (daily forage demand for 1 AU or AUE)] = # of head
- Ex.: 325,000 ÷ [(120 days) X (26 lbs./day)] = 104 head of cattle

*In the examples above, it was assumed that the pasture was capable of producing 5,000 lbs. of dry matter (DM) forage.
REFERENCES

• Texas A&M AgriLife Extension Service:
  • https://agrilifeextension.tamu.edu/

• Oklahoma Cooperative Extension Service:
  • https://extension.okstate.edu/fact-sheets/stocking-rate-the-key-to-successful-livestock-production.html