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The concept in which animals select from the available feeds, those that are essential to satisfy its body nutrients requirement, is called diet selection. In general terms, **diet selection defines which vegetation are consumed where, when, and to what degree.**

This procedure determines both the amount and the quality of feed intake and hence the nutritional status of individual animals, their time and activity budgets, their physiological condition, growth rates, and potential reproductive and survival rates.

WHY ANIMALS SELECT DIET

The primary objective of an animal is to **select a diet that fulfills its nutrient requirements.**

Animals have the capability to select from a variety of feeds on offer, feeds that supply them with the nutrients needed to maintain their basic biological functions.

Another objective of diet selection is for the animal to feel sated:

- The feed selected by animals in captivity and those in intensive animal production systems is severely **limited by the fact that man supplies them with a ration.**
- In free-ranging animal production systems, where the animals are allowed to forage in the natural vegetation, **the capacity of an animal to select a feed from the variety of plants on offer becomes crucial to its well-being.**

- Plants however have developed defences ([Anti-nutritional factors](#)) against defoliation, while animals have in turn developed foraging strategies to overcome these defences.

Factors which influences diet selection for foraging animals

Animal factors

1. Type of species and body size
2. Size and shape of the mouthpart
3. Morpho-physiological characteristics
4. Physiological status (animal state)
5. Dietary experiences, postingestive feedback
6. Social interaction/learning

Plant factors

Plants appearances affect *animals' foraging decisions*, the *length of time to graze* a spot before moving to another, and the further *choice of a new plant*.

- **Availability of forage:** quantity and quality such as texture, nutritional characteristics, and sensory properties.
- **Plant species:** palatability, toxicity (the presence of secondary compounds), Sward structure, plant morphology (thorns, thick cuticle, etc.) Sward factors such as sward surface height, bulk density, leaf and stem distribution within the canopy

Foraging behavior

Foraging is a procedure of observing and feeding by animals.

In grazing systems, animal does come across complex problems e.g. climatic effects, pasture type and state, and grazing competition with co-inhabitants in the grazing/foraging field.

Animals foremost react to the environmental influences by changing their activity pattern in field in order to avoid climatic stress. In addition, **animals improve their foraging approach** by shifting their feeding behavior to reach their nutrient obligation.

For the persistence among fellow competitors in the same grazing land, they select a feeding niche whereby competition for food material could be avoided and feed requirement can be fulfilled.

Factors that influence foraging behavior

Landscape features

Characteristics of the landscape that affect the distribution, movement, and diet selection of grazing animals include:

- **Boundaries:** fences, home range, migration routes
- **Distribution of plant communities:** sites, soils, aspect, elevation, structure, species composition
- **Accessibility:** gullies, Slope, streams, shrub density, rockiness, roads, trails, fence lines, cut openings
- **Distribution of important features:** shade, idle and comforter sites, Location of water holes, and other convergent and divergent

points in a landscape

Physiological needs of animals

Biological needs of animals that determine distribution and movement across the landscape include, in order of importance to the animal:

1. **Thirst:** it is the most influential physiological need determining animal movement and distribution across the landscape.
2. Heat/cold: **thermal balance.**
3. **Hunger.**
4. Orientation and predator avoidance: **this will be a position in the landscape where the animal feels safe from predators or other threats.**
5. **Resting:** during foraging most animals move to be idle or comforter areas to ruminate and digest food. **The distance traveled while grazing is a function of their digestive (gut) capacity, potential harvest rate of forages encountered, grazing velocity, and level of hunger.**

Conclusion

The awareness of the center of why animals select one food item and not the other is necessary for an **understanding of their forage needs** and is the underlying basis for understanding possible competitive interactions amongst them.