Factors affecting chemical composition

1. Soil and climatic factors
2. Stage of growth:
3. Genotype:
4. Sampling and processing:

5. Toxic substances: Some forages that rated high in their dietary components also contain substances such as cyanogenetic glucosides, organic acids such as oxalic acid, amino acids, alkaloids, oestrogenic isoflavones and saponin which cause deleterious effects in livestock that feeds on them

Digestibility

is an important measure of the nutritive of forage and can be defined as the difference in value between the feeds eaten and materials voided by the animals, expressed in percentage of feed eaten. Thus, the overall digestibility of forage will be the summation of the content, digestibility of the chemical components of the forage (Harden 1975)

Factors affecting digestibility

- **1. Stage of growth and genotype – Digestibility declines with advancing age and (maturity) rate vary considerably between genera, species and varieties.**

a. Plants high initial digestibility (70-85%) followed by high decline – Andropogon gayanus, cynodon dactylon, Pennisetum purpureum, sorghum sudaness.

- **Intermediate initial digestibility (60-70%) followed varying decline – Andropogon gayanus, Cynodon dactylon, Dactylis glomerata & Digitaria unighumos.**

- Low initial digestibility (50-60%) generally Low rate of decline – Paspalum, Cymbopogon, Hyparrhenia and Themeda spp.
- 2. Plant fractions
- 3. Climate
- 4. Protein and mineral content
- 5. Digested products: Quantitative determinations of these acids and their relative proportions, as well as the efficiency of their utilization by the animals are also used to estimate the nutrient value of forages.

Forage Intake

The feeding value of a feed is related to the amount which the animal will consume voluntarily. Assessment of forage quality depends not only on the nutritive value of the forages, but also on the total quantity of digestible nutrients consumed by the animal. In Ruminates, unlike monogastrics intake depends on the capacity of the digestive system, particularly the rumen.

Factors affecting intake

1. Season of the year
2. Stage of growth
3. Digestibility & genotype
4. The animal factor – size of animal, potential productions

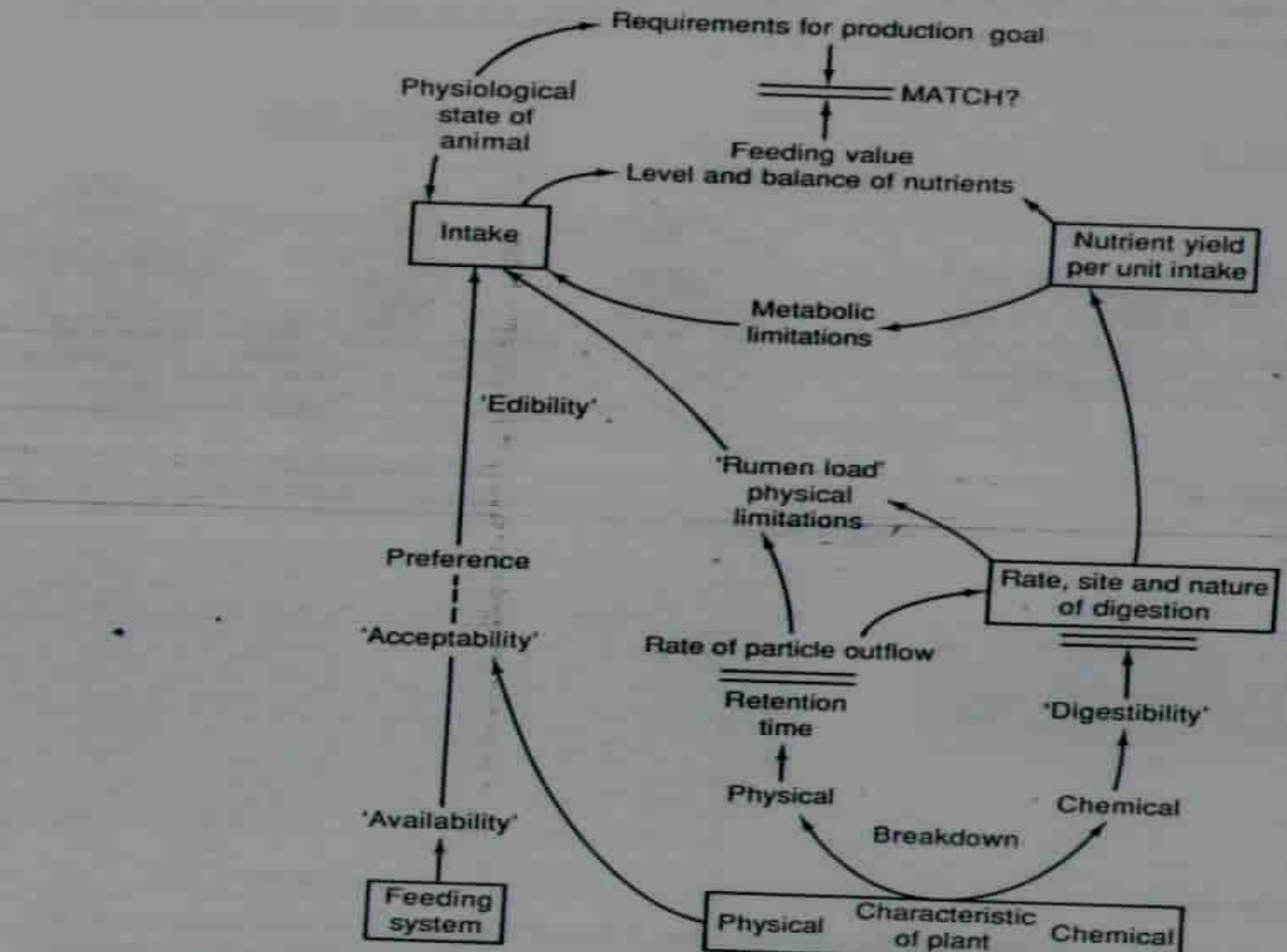

Fig. 6.1. Relationships between digestibility, intake and retention time. (From Egan *et al.*, 1986.)

Pasture Terminologies

- Acceptability: Readiness with which animals select and ingest a forage; sometimes used interchangeable to mean either palatability or voluntary intake.
- Ad libitum: the voluntary intake achieved when feed is available to the animal at all times.
- Acid detergent fiber (ADF): Insoluble residue following extraction with acid detergent (Van Soest); cell wall constituents minus hemicellulose.

- Acid detergent lignin (ADL): Lignin in the residue determined following extraction with acid detergent.
- Adventitious roots: The second root system which develops from the lower nodes of each grass tiller.
- Browse: A class of range forage including twigs with their shoots and leaves which are selectively cropped by livestock or other wild herbivores from shrubs, small trees and woody vines.
- Carbohydrate: Complex polyhydroxy, aliphatic aldehydes and their anhydric polymers which the proportion of hydrogen and oxygen generally the same as in water e.g. glucose, sucrose, starch, cellulose

- Please photocopy others

THANK YOU

MERCI BEAUCOUP

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