

Lecture 6

Rational Grazing:

This system is an elaboration of Rotational Grazing advocated by the French man Andre Voisin. The system attempts to vary the rest period between grazing according to the season of the year. During the season of maximum pasture growth a smaller number of total available paddocks are rotationally grazed at frequent intervals and the rest is used for hay and silage making. The number of paddocks available for grazing is increased as the pasture growth diminishes. For instance, using 40 cows on 40 acres, there may be eight 5-acre paddocks only 4 of which will be grazed in rotation initially, then 6 and finally 8. The extra paddocks, in the meantime, have been cut for silage and hay. Rotational Grazing is thus illustrated;

Grazing	PADDOCKS							
Grazing Period	1	2	3	4	5	6	7	8
1 st -20 th April	<.....Grazed.....>							
Rainy season starts about March	5 days on each paddock							
21 st April - 11 th May	<.....Grazed.....><cut for silage..>							
	5 days on each paddock							
12 th May – 5 th June	<.....Grazed 4 days on each paddock..><...cut for hay...>							
6 th June – 30 th June	<....." " " ".....>							
1 st July – 1 st August	<.....Grazed 4 days on each paddock.....>							
By this time (August) the pasture growth is already decreasing								
2 nd August - 3 rd September	<.....Grazed 4 days on each paddock.....>							
4 th September 13 th October	<.....Grazed 5 days on each paddock.....>							

Such a system [Rotational Grazing] allows a "rest" period inversely proportional to the rate of grass recovery. Note: The above is for Tropical condition.

Split-herd and Creep Grazing:

This is based on the concept that the physiological needs of different groups within a herd demand different grazing management to meet nutritional requirement since a herd usually consists of cows in early, -mid-, and late lactation, heifers being grazed with adult cows and so on.

[A] The method ensures that the high yielding cows are fed first by allowing rotational grazing at low intensity. They are known as "top grazers" and graze the better parts of the herbage. They are then followed by the low yielders or "bottom grazers" with less nutrient requirement. The sequence of the groups thus takes into consideration both the requirements of the animals and their account to which they turn the herbage i.e. the purpose to which they utilize the herbage.

The sequence may be as follows:

1. Dairy cows
2. Fattening cattle

3. Young rearing stock(intermediate between calves and adult)

OR

1. High quality cows
2. Ordinary Dairy Cattle (1-2 years old heifer)
3. Dry cows and heifers more than 2 years old, horses, sheep etc

[B]The system is also adopted in the creep grazing of calves and young lambs as a means of satisfying their nutritional needs and to control worm infestation. The younger animals graze ahead of their dam at low intensity while the dams are following at higher intensity.

[C.] The system is also used in the beef industry for fattening steers by allowing them to graze at intensity ahead of replacement heifers.

Zero Grazing (Soilage):

This is a long established system of grazing control. The practice is becoming increasingly popular as a result of intensification of grassland management and the improvement of machinery for harvesting fresh herbage.

The system is believed to achieve a reduction in herbage wastage caused by selective grazing and by trampling and fouling. The system involves yarding (confining) the herds all year round and cutting the grass during the growing season for direct feeding of the animals. It is expensive in equipment but saves fencing and laying of water pipes to fields while enabling fields too distant or inaccessible for grazing to be utilized.

Production per acre is claimed to be 7-10% higher by better utilization of the grass. It is however difficult to make conclusive statement about zero grazing since results of study varies from place to place.

Zero grazing does not always result in an increase in milk production and may in fact, result in slight reduction in yield.

Results indicate that the extent of reduction in herbage wastage and extent of such increase in production/acre that may result is greatest when tall crops, such as elephant grass and Giant star grass are compared to shorter forage Spp. Any advantages from zero grazing would also depend on the intensity of the FREE GRAZING (The animals are left to harvest the herbage on their own) system with which it is composed. Some results have indicated that:

1. Yields/acre of energy in terms of TDN or milk production/acre has been reduced by zero grazing (grass cut and of energy in terms of TDN or the milk production/acre has reduced by zero grazing (grass cut and brought to the animals) can graze closer to the ground than is possible with machine harvesting.
2. On the other hand, it is difficult to strictly compare free grazed animals since differences in the quality of consumed herbage may result from the ability of the grazing animals to select their diet.
3. Animal's requirement for energy is also smaller under zero grazing while differences in the quality of herbage eaten are also bound to exist. Reduction in energy requirement is that due to movement in search of and harvesting of the feed.

4. It has also been indicated that the digestibility of free grazed herbage is 2 units higher than that of zero grazing, principally due to the selective effect of the grazing animal.
5. There is also experimental evidence to suggest that rumen activity is less and digested nutrients are efficiently metabolized under zero grazing when compared to free grazing. Considerable energy is however expended in grazing and the extent of such energy expenditure is dependent on the quality of the herbage.

Good quality herbage is grazed relatively faster and cost less in terms of energy expenditure than low quality herbage. In the final analysis, it appears that the efficiency of energy utilization is less in FAVOUR of grazing animals than those zero grazed.

Uses of Zero Grazing

1. It may be adopted if land is not abundant and stocking rate is higher (1/2 acre or less per cow).
2. To minimize wastage of herbage due to refusal of grass by cattle as a result of fouling with dung or urine.
3. Where fencing or water supply is poor.
4. Where most of the utilizable pasture is either inaccessible or too far from the dairy building and where expansion of adjacent pasture is limited by available space.
5. To effectively ration available grass to different groups of animals where there is shortage of grass.
6. It may be used where environmental conditions are unsuitable for grazing at certain times of the year e.g. when the grass is wet or the soil is muddy so as to avoid increased incidence of foot rot.

Problems of Zero Grazing

1. Efficient machine harvesting requires that grass be reasonably mature by which time a decrease would have occurred in the nutritive value of the grass. This thus, prevents the maximum utilization of pasture at optimum stage of growth and nutritive value.
2. Lack of storage facilities or inability to keep harvest in pace with needs sometimes results in staleness. Piling up of harvested grass also results in heating and spoilage. It is therefore desirable but difficult to ensure that only daily requirement should be harvested and this should be fed in as many installments as possible to increase or maximize intake.

ADVANTAGES OF ZERO GRAZING

- (a) It offers control over quantity and quality of grass fed
- (b) More farm space can be utilized for feeding
- (c) Allowance can be made for the requirement of different classes of animals.
- (d) It reduces fencing and water piping requirement for paddock
- (e) It saves time and labour required to graze animal to and from pasture especially where farm is very large

Disadvantages of Zero Grazing

1. There is need for increased machinery and labour for harvesting the grass
2. No flexibility with respect to public holiday's labour allocation
3. Increased labour is required to clear the yard and thus intensive handling of manure
4. Increased requirement for bedding materials since animals stay indoor all the time
5. Palatability of grass reduces rapidly after cutting and this may cause refusal and subsequent wastage

Zero grazing is becoming popular in Nigeria for the reasons that it serves:

- (a) A way out of the dangers of exposing imported cattle to solar radiation
- (b) A means of reducing the risk of diseases e.g. ticks, tsetse fly etc.

There, however, had been some problems in its efficient utilization. These include lack of machinery, and human and administrative problem e.g. overtime, public holidays etc

It is desirable especially for the exotic breeds of cattle in the afternoons. The economic aspects of its adoption have not been given serious investigation but it may be costly to operate on small and private farms. Generally speaking, rotation, strip and zero grazing are more practical and profitable on rotation and supplemental pastures than on permanent pastures, more productive with high producing dairy cows and more beneficial where parasite infestations are heavy.