CHAPTER 8

PRINCIPLES OF RANGE MANAGEMENT - VI

——— grazing systems ———

A grazing system is the realization of principle of "vegetation management" largely through planned utilization of vegetation by livestock for the benefit of both vegetation and livestock. In other words a grazing system is planned utilization of range vegetation.

There are a number of grazing systems in vogue. Each one has its advantages and disadvantages. No system is without faults. Success of a system depends on many factors such as climate and physiography of the area, type and condition of vegetation, grazing pressure, kind of animals etc. Success or failure of a system has generally been found to be more due to outside factors rather than its intrinsic weakness. If we follow various principles of range management faithfully, diligently and actively, almost every grazing system will succeed to the same extent more or less. The following golden rule should, however, particularly be kept in view.

"The number of animals that can be allowed to graze on one square mile of area is the maximum number that land will support during a poor season".

Whenever this rule is ignored, every system is bound to fail. It has been observed that effect of a grazing system is more on quantity of vegetation rather than on animals. It has also been observed that implementation of a planned grazing system is always associated with adoption of numerous range management/improvement operations; thus effect of planned grazing is always complemented by other factors.

A brief description of the well known grazing systems is as follows:

A. Unplanned grazing system

Nomadic grazing: It refers to uncontrolled and unplanned grazing by animals of distant/migratory people (nomads). No consideration is given to carrying capacity of the area, type and condition of vegetation and season of seed maturity etc. It generally takes the form of very intensive seasonal grazing. Range vegetation is almost always overgrazed. Graziers are completely indifferent to the wellbeing of the soil and vegetation. They are only interested in the utilization of vegetation. Once the grazeable vegetation is consumed in its entirety, they move out of such areas and march forward in search of new areas. Nomadic grazing is always symbol of over use and mismanagement. It is invariably accompanied by heavy pollarding of forage shrubs and trees.

B. Planned grazing systems:

A number of grazing systems have been evolved with the passage of time in order to overcome the defects of unplanned grazing. All these systems have two common features i.e. these provide a period of rest to the vegetation and have a systematic grazing schedule. Moreover all these systems have following common objectives:

a. Restore vigour of the vegetation.
b. Allow seed production.
c. Attain heavier utilization (even less palatable species are also grazed).

d. Attain uniform utilization.
e. Increase animal production.

I. CONTINUOUS GRAZING SYSTEM

The entire range area makes one unit and is open to animals for grazing throughout the grazing season (The grazing season may be equal to a calender year or less than that). The animals are completely free to roam about and graze any where in the range they like. This system is very simple to understand and execute and is inexpensive. Animals are happier and get food of their choice. Gain in animal's weight is high. This system, however, may result in undesirable successional changes in vegetation. Good, palatable species become weaker and tend to disappear whereas inferior species become common and vigorous. Grazing tends to be non-uniform. Some areas are overused, others are less used and their vegetation goes waste. Animals have to travel longer distances in general.

Merits:

1. It is easy to comprehend.
2. It is cheap to operate.

Demerits:

1. It leads to un-even grazing.
2. It lends little control over vegetation composition. Animals consume palatable species and leave those to reseed which have low or no forage value.

II. ROTATIONAL GRAZING SYSTEM (Alternate grazing system)

This system is based on rotation of grazing period over the entire range area. According to this system, range is divided into a number of units (blocks); all the animals are allowed to graze in one unit (block) for some specified period; animals are then shifted to the next unit (block) for the next similar period and so on. Vegetation of each unit (block) gets a period of rest throughout the year except its specified grazing period. The grazing schedule is rather rigid. The periods of grazing and of rest are permanently fixed for each uni The vegetation of some units (blocks) may be more fortunate in having a favourable period of rest than of oth units (blocks). The system is more useful in areas where climate is favourable for plant growth and for grazing throughout the year. Short Duration Grazing System or Mob stocking is a modification of the above system. Here the entire range is divided into numerous small units sub-block/strip); each little unit (sub-block/strip); is allowed to be grazed intensively by all the animals one by one for a short specific grazing period. Flexible Strip Grazing System is one where size of strips and their shapes are flexible.

The following figure explains this system clearly.

Range livestock are allowed grazing in given blocks during prescribed grazing period.

Block I	Block II	Block III		Stall feeding at headquarter
2 + 7	3 + 6	5 + 8	1992	1 + 4

3 + 6	5 + 8	2 + 7	1993	1 + 4
5 + 8	2 + 7	3 + 6	1994	1 + 4
2 + 7	3 + 6	5 + 8	1995	1 + 4
3 + 6	5 + 8	2 + 7	1996	1 + 4
5 + 8	2 + 7	3 + 6	1997	1 + 4

Grazing periods

1 =	16 Dec. - 28 Feb.	5 =	16 July - 23 Aug.
2 =	1 March - 7 April	6 =	24 Aug. - 30 Sep.
3 =	8 April - 15 May	7 =	1 Oct. - 7 Nov.
4 =	16 May - 15 July	8 =	8 Nov. - 15 Dec.

Merits

1. It promotes forage vigour by avoiding repeated and continuous grazing of one block year after year. It provides necessary rest for recovery.
2. It promotes uniform grazing; unpalatable species are also consumed per force.
3. It lends more control on vegetation composition.

Demerits

1. It is expensive due to high cost of fencing and water development and is profitable on good range lands only.
2. It is rather complex system.

III. DEFERRED GRAZING SYSTEMS:

i. Deferred Continuous Grazing System: According to this system the entire range is opened to grazing throughout the grazing season. A watchful eye is, however, kept on the condition of range vegetation. Wherever vegetation appears weak and thin, that area is temporarily protected from grazing. Utilization by animals is delayed till seed setting is over. Grazing is generally delayed for 2-3 consecutive years in order to ensure a thoroughly successful establishment of vegetation through natural reseeding.

The following figure explains this system clearly:

Range livestock is allowed grazing in given blocks during prescribed grazing period.

Block I	Block II	Block III		Stall feeding at headquarter
5	2 + 4	2 + 4	1992	1 + 3
5	2 + 4	2 + 4	1993	1 + 3
2 + 4	5	2 + 4	1994	1 + 3
2 + 4	5	2 + 4	1995	1 + 3
2 + 4	2 + 4	5	1996	1 + 3
2 + 4	2 + 4	5	1997	1 + 3

Grazing periods

1 = 16 Dec. - 28 Feb.
2 = 1 March- 15 May
3 = 16 May - 15 July
4 = 16 July - 30 Sep.
5 = 1 Oct. - 7 Nov. (deferred grazing)

Merits

1. It promotes forage vigour by avoiding repeated grazing of one block at one specific growth stage (early growig season) year after year.
2. It promote natural reseeding in each block by delaying grazing until after seed production. Each block gets this opportunity after every 6 years.
3. It provides grazing during winter.

Demerits

1. It deteriorates the quality of forage.
2. It is not suitable for a mixture of grasses and low growing legumes. (Legumes get suppressed).

ii. Deferred Rotational Grazing System:

The above mentioned Rotational Grazing System is made flexible by shifting the grazing period of any unit (whichever is in need of protection for reseeding) till seed setting/seed maturity is over. Grazing is delayed in any particular unit for 1-3 years consecutively so that newly reseeded plants are able to get deep and extensive root system established.

It has been generally observed that delayed grazing till after seed maturity is better for vegetation itself than complete protection from grazing. Delayed grazing, however, leads to poor quality forage with the exception of some species which cure very well while standing. It has following two modifications.

a. Deferred Rotational Grazing System - I

Range livestock grazing in given blocks during prescribed grazing periods.

Block 1	Block II	Block III		Stall feeding at headquarter
4	2	5	1992	1 + 3
2	5	4	1993	1 + 3
5	4	2	1994	1 + 3
4	2	5	1995	1 + 3
2	5	4	1996	1 + 3
5	4	2	1997	1 + 3

Grazing periods

1 = 16 Dec. - 28 Feb.
2 = 1 March- 15 May
3 = 16 May - 15 July
4 = 16 July - 30 Sep.
5 = 1 Oct. - 15 Dec.

b. Deferred Rotational Grazing System - II

Range grazing in given blocks during prescribed grazing periods.

Block I	Block II	Block III	Block IV		Stall feeding at headquarter
4	2	5	-	1992	1 + 3
2	5	-	4	1993	1 + 3
5	-	4	2	1994	1 + 3
-	4	2	5	1995	1 + 3

4	2	5	-	1996	1 + 3
2	5	-	4	1997	1 + 3
5	-	4	2	1998	1 + 3

Grazing periods

1 =	16 Dec. - 28 Feb.	4 =	16 July - 30 Sep.
2 =	1 March- 15 May	5 =	1 Oct. - 15 Dec.
3 =	16 May - 15 July	- =	No grazing.

Merits

1. It promotes forage vigour by avoiding repeated grazing of one block at one specific growth stage (early growing season) year after year.
2. It promotes uniform utilization. Unpalatable species are also consumed.
3. It permits more control on vegetation composition.
4. It promote natural reseeding in each block turn by turn. Each block gets this opportunity after a period of 6 years.
5. It provides grazing during winter.

Demerits

1. It is expensive due to high cost of fencing, salting and water development.
2. It is very complex system and it requires sound knowledge of plant and animal ecology.
3. It is suitable only for productive rangelands.
4. It is not suitable for mixture of grasses and low growing legumes.
5. It lowers the quality of forage in deferred blocks.

IV REST GRAZING SYSTEMS

i. Rest Continuous Grazing System: According to this system; the entire range is opened to grazing throughout the grazing season. A watchfull eye is, however, kept on the condition of range vegetation. Wherever range vegetation appears weak and thin, that area is temporarily protected for at least one year from grazing. Once the vegetation of the protected area is restored within 1-3 years to normal healthy condition, it is again opened for continuous grazing. A watchfull eye is again put on the lookout for new weak areas and so forth.

ii. Four Unit Grazing System: It is a type of Rest Continuous Grazing System. The range is divided into four units (blocks). Grazing is totally disallowed for full one year in one of the units. The unit to be protected is selected independently each year depending on the condition of vegetation. Continuous grazing is allowed in the remaining 3 units simultaneously; these units (blocks) act as one large unit (block).

The figure explaining Deferred Continuous Grazing System equally well explains Rest Continuous Grazing System.

iii. **Rest Rotational Grazing System:** It is similar to Deferred Rotational Grazing System except that instead of allowing delayed grazing in a specific unit (block), grazing is totally disallowed throughout the year. It is also flexible system. The unit (block), which is to be protected, is selected independently each year based on the condition of its vegetation. Sometimes, protection may have to be extended to a unit for more than one year.

The figures explaining Deferred Rotatinal Grazing System equally well explain Rest Rotational System.

V. BEST BLOCK GRAZING SYSTEM (BBG System).

Grazing is always allowed in the best unit (block) till about 50% utilization of vegetation is achieved. This is followed by next best unit (block) and so on. The system is flexible and allows continuous evaluation. It is the improved version of Nomadic Grazing or natural system of wildlife grazing where condition of 50% utilization does not exist; livestock generally vacate an area and get to next best after having first consumed well over 50% of the available forage. It is a good system for vast dry areas. It is easy to comprehend and easy to execute. It is very similar to Nomadic Grazing.

TEST QUESTIONS

1. Define or briefly explain the following.
   Grazing System, Grazing Period, Grazing Season, Strip Grazing System.
2. What are major grazing systems ? Enlist these in a systematic manner.
3. What is wrong with Nomadic Grazing System ? Which desirable grazing system is closed to it and can easily replace it ?
4. Compare "Deferred Grazing Systems" and "Rest Grazing Systems".
5. How can one compare "Continuous Grazing Systems" with Rotational Grazing Systems"?
6. Briefly describe "Best Block Grazing System".
7. What pre-requisites are essential for the success of a Grazing System?