

Short Duration Grazing in Rhodesia¹

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Highlight

Remarkable results from a grazing management system were seen in three visits to Rhodesia between 1964 and 1969. The system, Short Duration Grazing, depends on intensive use for two weeks or less with varying rest periods. There are significant indications that the short duration—high intensity grazing period is just as important to range improvement as the rest period. Production records are essential to the success of the system.

In a recent JOURNAL OF RANGE MANAGEMENT I noticed a plea for a greater exchange of ideas. This article briefly tells the history and principles of a fresh approach to grassland use being tried in Rhodesia. I hope it will stimulate in research scientist and rancher alike, a renewal of interest in seeking a real breakthrough in range management. A success story is always a pleasure to tell, and I consider it a privilege to be able to record the work done by a group of clear thinking and dedicated range men.

It was my good fortune to see a good portion of Rhodesian rangeland in 1964 and I was aware that something was wrong somewhere. Much of the rangeland in Rhodesia had begun a headlong dive toward irreparable deterioration. Palatable species such as *Panicum* spp., *Eurochelea* spp., and *Brachiaria* spp. were being replaced by *Heteropogon* spp. and *Hypparrhenia* spp. resulting in a drastic drop in usable forage production. Like everyone else I assumed that many of the areas were overstocked and that destocking and brush control should be the first moves toward range restoration.

I returned in 1967, a drought year, to discover a few ranches showing a marked improvement in range cover and condition. It was then that I learned of the aggressive step taken toward range reclamation called "Short Duration Grazing."

The basic facts for the development of Short Duration Grazing (SDG) had been there all along—in research publications and journals—but it took men that think originally and independently to marry them to a system that would work on the ground.

Expanding on work done by Andri Voisin of France, Mr. John Acocks and Mr. and Mrs. L. N. Howell of Hillside Farm, Springfontein, South Africa, put into practice what was then called "Non Selective Grazing." Although the system did not eliminate selective grazing, the term was applicable because it reduced selective grazing and thus increased the efficiency of utilization of the pastures. The semiarid grazing land on Hillside Farm responded in a way few stockmen thought possible. Not only was pasture reclamation achieved, but an increase in carrying capacity was obvious from the beginning.

To a young Rhodesian ecologist, Mr. Allan Savory of Bulawayo, the basic principles of the new Acocks-Howell grazing system were ecologically sound. He went to see for himself and returned to Rhodesia convinced that finally a breakthrough had been made. He began immediately with boundless enthusiasm and determination to fit this system, renamed "Short Duration Grazing," to the requirements of his own country.

The skeptics thought it was too expensive, and since it contrasted with the officially recommended slow rotation systems, cold water was poured on the idea. In spite of this significant opposition, Mr. Savory persisted and began to share his ideas with ranchers at local field days.

These ideas made sense to many who heard him, and soon the system was being tried in most parts of the country. I found those pioneers who tried it first, to be extremely open-minded people desperately searching for a solution to the problem of continued pasture deterioration. Only this type of rancher could accept such a radical change.

I made another visit to Rhodesia in early 1969. Progress made by these practical ranchers revealed the importance of economics as a prerequisite to the acceptance of any grazing management system. I saw ranches where existing fences had been stripped of one or two wires and those wires strung from tree to tree to divide pastures until the increased carrying capacity brought in enough money to build permanent fences.

Mr. D. Parkin, a rancher from Bulawayo, stated that he had more than doubled the carrying capacity of his ranch since starting the system in September of 1966. During this period annual rainfall was average or below.

Short Duration Grazing soon became the chief topic of conversation when ranchers got together.

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As results became apparent, "the penny dropped" for others, and a clamor went up for guidance from the Conservation and Extension Service.

Officially no recognition was forthcoming because of the lack of carefully planned research. The ranchers argued that results were plainly visible and that they couldn't wait for years of research.

After months of discussion, trips by Members of Parliament, research officers and Conservation and Extension Service (CONEX) personnel, SDG has been recognized as a practical, economic method of improving range production. In early 1969 Mr. Savory was employed by the Ministry of Agriculture to train CONEX officers in the application of the SDG system.

As a further vote of confidence, one of the largest ranches in Rhodesia, Charter Estate, has offered full facilities for large scale field trials (Charter Field Trials). The Rhodesian Cattlemen's Association donated \$3,360 to ensure that the project began as scheduled March 1, 1969. Comparisons will be between (1) the old three herd, four pasture system, (2) SDG with limited capital, and (3) SDG with adequate capital for immediate water development and fencing.

Mr. Savory stresses that this system must remain highly flexible and no two ranches will follow the same course of development. The underlying principle of "short graze-sufficient rest" remains the same regardless of conditions. This holds true for ranches in the Rhodesian low veld where a scant 10 inches of rainfall is the average, as well as in the Eastern Highlands where over 100 inches is recorded. Altitude varies from 2000 feet to 6000 feet on ranches of from 1500 acres to 750,000 acres.

The ranches I visited had started the system with a maximum grazing period of two weeks and minimum rest period of eight weeks, depending on climatic conditions. I noticed that as further pasture division and water development became possible, there was a tendency to shorten the grazing period.

Some difference of opinion was noted as to the benefits of continuing the two week grazing periods right through the seven to eight month dry season. Some ranchers wanted to let their cattle "relax" during this period but others were adamant in continuing the system the year round. They claim that dry season SDG breaks the parasite cycle, puts the standing dry grass (top hamper) down to litter, eliminates trails to and from water and *chips* the soil surface for better seed germination.

"Details of the system keep changing because we are still learning," says Mr. Savory. Our discussion revealed that the following major points are always kept in mind:

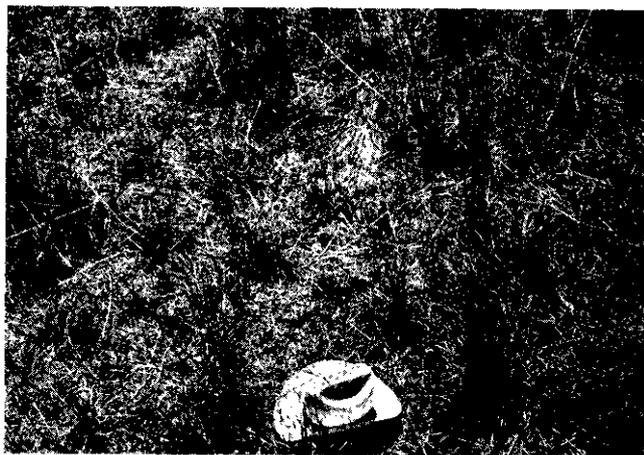


FIG. 1. "Laying the litter" by short duration—high intensity grazing in Rhodesia.

(1) In planning for the use of SDG on any ranch the first consideration is the economics of additional fencing and water development. So far it has proved to be a reclamation system that is able to generate capital and support itself.

(2) Short Duration Grazing is based on a short period of grazing with varying periods of rest. There are significant indications that the short duration-high intensity grazing period is just as important to range improvement as the rest period. The grazing prepares a seed bed by converting the top hamper to litter (Fig. 1) and chipping, but not compacting the soil surface. The following rest period allows seedlings to become established and existing plants to rebuild root reserves. The old emphasis on seed production as the climax of a rest period has been scaled down somewhat in favor of seed bed preparation.

(3) As a ranch starts to increase the complexity of its system, the emphasis begins to be shortening the grazing period rather than lengthening the rest. The rule of thumb is to put the heaviest possible density of stock on the land for the shortest possible time without significant damage to stock condition. The key phrase is "time on the land."

(4) In areas where brush control was normally considered the first move, the method now is to wait until pasture production in unit days per acre ceases to increase, then go into the pasture and find out why. If brush control is needed, then the economics of such a program should be considered.

(5) A compromise must be reached between: (A) What the rancher requires to start the system and what he can afford, and (B) the degree of stock concentration and its effect on stock condition. A slight loss in stock condition is expected compared with continuous selective grazing, but range condition and animal production per acre improve markedly.

GRAZING CONTROL CHART

PADDOCKS			YEAR 1967					GLENDYE RANCH-1491 ACRES					YEAR 1968				
TOTAL U.D.A.'S	AREA	NO	JULY	AUGUST	SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE			
50.5	78.4	1		11.5/2										31.5/3			
30.7	11.8	2								4.2/2			26.5/2				
57.5	11.3	3		14.0/2			18.0/2		6.3/2			19.2/2					
47.3	11.3	4	22.9/2						4.7/2			19.9/2					
47.3	136	5	16.9/2		8.9/2			4.1/2			17.6/2						
28.8	120	6				9.8/3		3.0/1			13.0/2						

WEIGHT GAINS—COW GROUP																	
53 Dry 1.80 lbs/Day 155 Days																	
51 Wet 0.68 lbs/Day 155 Days																	
RHOMOL SUPPLEMENTARY LICK																	
115 COWS @ 1.37 lbs/Day 124 Days																	
RAIN FALL																	
						2.01	0.31	0.14	0.98	1.06	0.38	1.04	6.31	1.06	— — — 0.05	1.36	
						2.32	2.46	3.44	4.50	4.88	5.92	2.23	1.32	1.29	1.32	1.34	1.47

FIG. 4. The Grazing Control Chart as used by Glendye Ranch, Que Que, Rhodesia. Planning for future use of pastures is done in pencil, then production (in UDA's) is recorded in ink after stock is moved.

$$(A) \frac{\text{Animal units} \times \text{days in pasture}}{\text{Acres in pasture}} = \text{Animal unit days per acre}$$

$$\text{i.e. } \frac{300 \text{ AU} \times 14 \text{ days}}{200} = 21 \text{ UDA's}$$

(B) Grass Use Record

A grade is given to the pasture at the end of the grazing period to indicate the amount of grass remaining.

1. Abundant grass left (over $\frac{1}{4}$)
2. Some grass left (about $\frac{1}{4}$)
3. No grass left (less than $\frac{1}{4}$)

When written in the Range Register it might read "Pasture No. 9, 21 UDA's/3, Dec. 15 to 31." This would indicate that no further use could be made of pasture No. 9 until the growing season had begun and ample time was given to the grasses to produce forage and resupply the root system. Consideration should be also given to the possibility of reducing the number of stock for the next time the pasture is used.

Should the Range Register read 21 UDA's/1 for pasture No. 9, the manager would be able to (1) graze additional UDA's after sufficient rest even though no more growth had occurred, or (2) increase the number of animal units for the next grazing period after completion of the growth cycle. Above all, the grazing period should not be longer than two weeks. A yearly record of UDA's is kept for each pasture and when plotted on a graph indicates the rise or fall in its forage yield.

The "Grazing Control Chart" (Fig. 4) is used to record the following:

1. Pasture use planning
2. Animal use and grass use
3. Rainfall
4. Herd deployment
5. Supplemental feeding periods
6. Livestock performance records

Summary

The short graze-long rest approach to range management is not entirely new nor has the Rhodesian system had time to prove itself absolutely reliable. However, the enthusiastic welcome it has received from Rhodesian ranchers coupled with official recognition and commencement of large

scale field trials are indicators of a worthwhile development in the field of range management.

The SDG system demands that the rancher stay on top of everything that happens on his place—from reading grass species transects to projecting the grazing control chart. This in itself is a significant contribution to more efficient management.

Another significant outcome of the SDG system that will prove invaluable to custodians of range

land the world over, is the beginning of pasture production record keeping on a large scale. Working hand in hand with livestock performance records, this finally gives the stockman a way to accurately measure his total off take.

I, for one, will be watching the Charter Field Trials with interest, and wondering where parts of the SDG system might fit our approach to range management in North America.