

# Studies of Rotation Grazing in the Southeast

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**S**TUDIES of rotation grazing in switch cane (*Arundinaria tecta*) areas in eastern North Carolina were made over a three-year period. The chief objectives were to determine: (1) if a rest from grazing is beneficial to the forage plants in allowing them a period of undisturbed growth even though they must support more animals during the time they are grazed, and (2) to find the effects on cattle gains. The forage was studied as to vegetation density, species composition, and utilization; the cattle were weighed every 28 days and grazing habits observed. The pasture plan is shown in Figure 1. It consists of 12 pastures, each 15<sup>1</sup>/<sub>2</sub> acres in size. The pastures were stocked so that forage for the cattle was always sufficient and the areas were moderately grazed.

Two rotation systems were tested by comparing each with continuous grazing, making a total of three systems:

1. Mid-season rotation grazing. Each pasture was used about one-half of each grazing season, from May to November, and rested the other one-half.
2. 28-day rotation grazing. Under this system the animals were shifted between pastures every 28 days.
3. Continuous grazing. This served as a control or check group. The pastures were grazed continuously but with only one-half as many animals at any one time as on the other pastures. The animals were exchanged between areas every 28 days to simulate the changes of animals in the other groups.

The experiment was replicated once

with steers used in one set of pastures and heifers in the other. Results showed no significant difference in gains of the steers and heifers. Twenty animals were used for each grazing system making a total of 60 animals on test each year. The steers and heifers were produced in the general area, hence they were accustomed to grazing on switch cane forage (Fig. 2). This study was made by the Southeastern Forest Experiment Station and the Bureau of Animal Industry, of the U. S. Department of Agriculture, in cooperation with the North Carolina Agricultural Experiment Station (Biswell and Foster, 1947).

## RESULTS

*Forage.*—The three systems of grazing gave about the same results. No appreciable differences occurred in forage density, species composition, or utilization as a result of the grazing systems. The principal results are contained in Table 1. The figures for 1941 were obtained previous to any grazing use.

In the various pastures, switch cane comprised 67 to 91 percent of the forage and warty panicum (*P. verrucosum*) a trace to 17 percent. Several less abundant plants also were found in the pastures and grazed to some extent.

*Cattle.*—No significant differences in cattle weight gains showed up under the three systems of grazing management. Average weights and gains of the cattle by 28-day periods are given graphically in Figure 3. Although the gains were not significantly different, the cattle under continuous grazing gained slightly more on the average than those under the 28-

### Heifer Ranges

<b>3-b</b>	<b>1-b</b>	<b>2-b</b>	<b>3-a</b>	<b>1-a</b>	<b>2-a</b>
<i>28-day rotation</i>	<i>Continuous grazing</i>	<i>Mid-season rotation</i>	<i>28-day rotation</i>	<i>Continuous grazing</i>	<i>Mid-season rotation</i>
<b>2-b</b>	<b>3-b</b>	<b>1-b</b>	<b>2-a</b>	<b>3-a</b>	<b>1-a</b>
<i>Mid-season rotation</i>	<i>28-day rotation</i>	<i>Continuous grazing</i>	<i>Mid-season rotation</i>	<i>28-day rotation</i>	<i>Continuous grazing</i>

### Steer Ranges

*TO SCALES*

FIGURE 1. Diagram showing the plan of experimental pastures. The steers and heifers were handled independently of each other in the two sets of pastures.



FIGURE 2. Switch cane, fairly representative of that in the experimental pastures

day rotation system, and the cattle in each of these systems gained more than those under the mid-season system. The

CONCLUSIONS

There seems to be no advantage in rotation grazing in switch cane forage

TABLE 1  
*Forage Under Each System of Grazing Management*

ITEM	MID-SEASON ROTATION			28-DAY ROTATION GRAZING			CONTINUOUS GRAZING		
	1941	1942	1944	1941	1942	1944	1941	1942	1944
Density of vegetation (%).....	69	56	63	80	57	70	65	59	67
Main species in forage cover (%)...									
Switch cane.....	47	69	43	53	70	48	47	67	42
Warty panicum.....	34	8	4	33	8	4	38	8	4
Degree of utilization (%)									
Switch cane.....	0	52	60	0	55	52	0	57	57
Warty panicum.....	0	60	80	0	60	77	0	60	78

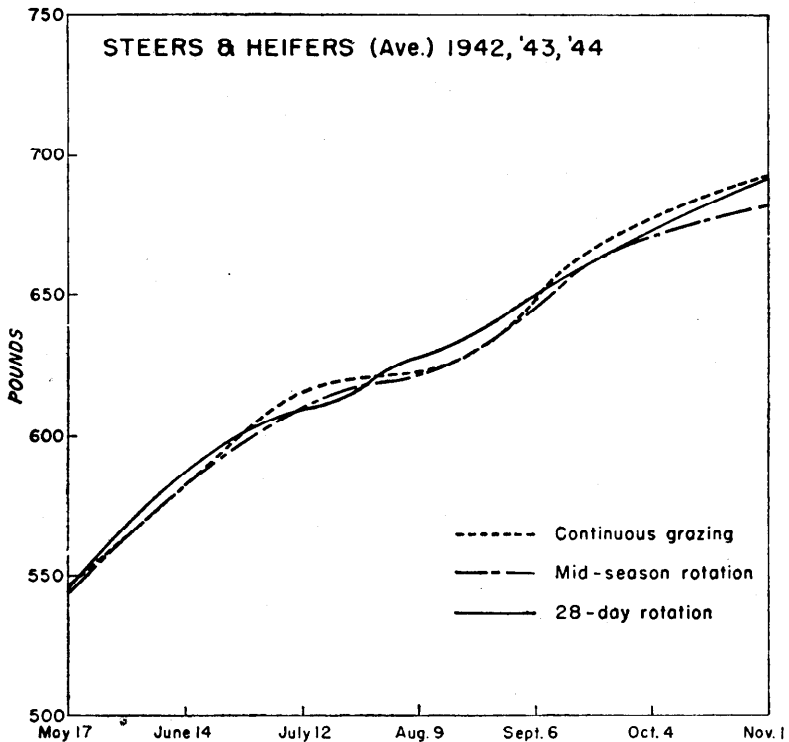


FIGURE 3. Average weights of cattle under the three systems of management at 28-day intervals for the three years, 1942, 1943, 1944.

cattle weight gains for the three years averaged as follows: continuous grazing, 147 pounds; 28-day rotation grazing, 145 pounds; and mid-season grazing, 138 pounds.

where the rotation plan requires a doubling up of grazing pressure during the time a range is used. If rotation grazing necessitates extra labor, fencing, and development of watering places, continuous graz-

ing is more practical. Therefore, one should be cautious about recommending rotation grazing here as a general practice. There are probably exceptions where rotation grazing, or at least deferred grazing, would be worthwhile. For example, following fires in switch cane areas it would seem desirable to defer grazing until as late in the season as possible to permit the switch cane plants to grow until they are less subject to damage by grazing, especially since young sprouts of switch cane are easily pulled by cattle.

The results from this study are essentially the same as those from studies conducted elsewhere, as listed under Literature Cited. Although results of other early studies vary somewhat, none have indicated marked advantages in rotation grazing.

Other studies in switch cane forage indicate that conservative grazing is important in maintaining vigor of the plants and grazing capacity; therefore, emphasis

in management could well be placed on conservative use rather than on rotation grazing.

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