

Enough Grass to Make Your Head... Rotate: The Keys to Rotational Grazing

—Wylie Harris

“Rotational grazing” has become a real buzzword these days. But what is rotational grazing, really? How does it work? And what in grazed green pastures does it have to do with community food security?

In simplest terms, rotational grazing is basically what it sounds like: a system of moving grazing livestock from one pasture to another to keep fresh forage in front of them. Beyond that basic point, practice quickly gets more complicated than theory, and definitions and disagreements multiply.

The principles behind rotational grazing are nothing new. North America’s bison herds practiced them on a continental scale, as did Spanish shepherds pushing their lords’ sheep up and down the royal highways to the rhythm of the seasons.

Rotational grazing was born of human efforts to put those same principles to work within the fences of a single farm. The earliest husbanders to attempt this feat may have been the landlords of 18th-century England.

Their motive wasn’t the value of livestock production itself, but rather that of the manure the livestock produced, as a source of fertility for sustaining and increasing crop production in a country where land was scarce and at a time when synthetic fertilizers were as yet undreamt.

This British movement of “convertible husbandry” had agricultural writers like Arthur Young and James Anderson for its chroniclers and apostles. Two centuries later, Frenchman André Voisin picked up their mantle, and his book *Grass Productivity* remains a classic manual on what he called “rational grazing.”

Long after its first printing, it inspired a writer whose name is much more widely recognized in today’s grass-based circles, that of Allan Savory. (Savory will speak in Oklahoma Aug. 5-6. See p. 18)

The Name Game

Every new wrinkle on a grazing system seems to sprout names like grass after a spring rain. André Voisin worked to distinguish his system of “rational grazing” from a variety of close copies and distant cousins.

These days, Savory and other modern-day grassfarming gurus like Allan Nation and Joel Salatin still have their work cut out for them keeping their readers straight on the differences between “rotational grazing,” “intensive grazing,” “management intensive grazing,” “pasture farming,” and so on.

The grazing systems carrying those names fall out along a

spectrum of gradually increasing holism or sustainability in management. At a minimum, a rancher trying to meet consumer demand for the health and nutritional qualities of grassfed beef might shift cattle from one pasture to another as the seasons progress – wheat in the spring, bermudagrass in summer.

That approach grows beef that satisfies consumer demand for the nutritional and health qualities of grassfed meat, and it is “rotational” grazing in the sense that the animals do move from one pasture to another over time.

At the other end of the spectrum, where terms like “management intensive grazing” are more common, the purest purists of holism and sustainability abide.

Several traits can separate these opposite ends of the rotational grazing spectrum, but the most important one has remained unchanged from the days of Anderson and Young through the era of Voisin to the modern times of Savory and Nation. That factor is time.

All in the Timing

In application, observing the time factor means making sure that pasture plants get a short enough time exposed to cow’s teeth during bouts of grazing, and a long enough time to recover and regrow between those bouts. Naturally enough, the reason for that has everything to do with how grass grows.

When a seed sprouts, it begins a race against time, trying to grow enough roots to capture water and nutrients, and leaf area to catch sunshine, before its own limited energy reserves are used up.

New plants grow slowly at first, barely maintaining a positive balance in their internal energy banks.

At some point, the seedling unfurls a large enough solar sail and underground anchor to bring in more nutrients and energy than it needs to break even. At that point, the plant begins to grow much more rapidly, in a phase that Voisin poetically called the “blaze of growth.”

Eventually, that blaze of growth begins to fade, and the plant grows again at a slower rate as it diverts more energy into making flowers and then seed.

The ideal time to graze is just before plants’ blaze of growth fades. Nibble them too long before that, and they won’t have energy reserves enough to reestablish their root system and put on a vigorous spurt of regrowth.

Graze them too late, and they’ll already have begun shift-

ing their nutrients into reproductive structures, making the leaves less palatable to livestock.

In addition to maintaining palatability and nutrition, grazing before the blaze of growth fades can actually postpone plants' reproductive development, causing them to grow leaves longer into the season. That can add up to a sizeable increase in forage production – up to twice as much per year. One key to capturing that advantage is to allow plants enough recovery time between bouts of grazing.

The other key is to make sure that a given bout of grazing doesn't go on for too long. The reasoning is the same: once a plant has been grazed, it drops back to an early point on the growth curve where it has to struggle to put out enough leaves and roots to keep itself growing.

If a cow's teeth crop a plant that's just been grazed, the effect is similar to grazing an establishing seedling: root recovery, and thus overall plant growth and forage production, all slow down markedly.

This is the source of the well known "take half, leave half" rule of stocking.

Planting Fenceposts

Achieving such fine-tuned control over the time factor is what makes fencing such an important part of rotational grazing.

To see why, consider the extreme bad example of a herd of cattle grazing a single pasture. Every set of bovine teeth can get at every plant all the time, so new growth is continually cropped back before it can carry the forage on into its blaze of growth. Productivity of both plants and animals is at its lowest.

Run a single wire across that pasture, dividing it into two paddocks, and suddenly each of the two paddocks is at rest from grazing 50 % of the time. Bisect the first wire with another, and the result is four paddocks, each of which spends three quarters of its time free from grazing.

Continuing that progression, graziers can determine the number of paddocks they need by choosing their two keys: the number of days each paddock will be grazed at a time, and the number of days each paddock will go between bouts of grazing.

For a single group of animals, a 5-day bout of grazing followed by 36 days of rest for each paddock requires a total of 8 paddocks. If the length of grazing is shortened to one day, the necessary number of paddocks increases to 37.

There are, naturally, complications. One is, although plant growth always follows the same progression, it doesn't always reach the same stage in the same amount of time. A plant that takes only 21 days to complete its "blaze of growth" in May might need 50 by August.

That means grass farmers have to increase or decrease the number of paddocks in the rotation during the course of the growing season to make sure that all paddocks get an adequate rest period.

Another wrinkle is that some graziers prefer to make hay from those extra paddocks while they're not in the rotation, while others have sworn off hay altogether and save the "slack" paddocks' forage for winter-feeding instead.

Add to that the fact that mixed range vegetation, as opposed to pure pasture stands, contains a number of different forage plant species, each of which has a different seasonal growth curve, and you begin to get a feel for why this end of the rotational grazing spectrum has picked up the label "management intensive."

Farm Friendly Food

While the management may become more intense, though, other aspects of raising grazing animals become more easeful in return.

Initial fencing costs aside, management-intensive rotational grazing requires fewer inputs than other approaches: as paddocks renovate themselves under

lengthened rest periods, they produce more and better forage and beef for less fertilizer, seed, and feed.

While intensive management's reduced capital inputs cut costs, the higher value accruing to marketing labels like "free-range," "grass-fed," and "natural" may raise per-unit returns, increasing profit margins from both ends.

Meanwhile, ecological sustainability increases in step with economic viability. Cropped fields and conventional pastures converted to management intensive rotational grazing have been shown to hold soil better, contaminate water less, and attract more wildlife than prior management practices.

Economically viable, ecologically benign farms play an important role in defining community food security. Whatever its name, management intensive rotational grazing fosters that sort of farm – making it an easy piece to fit into the community food security puzzle.

Further Reading

The classic work on the principles and practice of rotational grazing remains André Voisin's *Grass Productivity*.

Those looking for a more recent and readable book may enjoy *All Flesh Is Grass*, by Gene Logsdon, which also expands the horizons of pastured livestock from cattle down through hogs, goats, sheep, and poultry.

A new work by Logsdon's most trusted pasture scientist, Jim Gerrish is *Management Intensive Grazing*.

Finally, for readers more interested in cooking grassfed meat than raising it, there's *The Grassfed Gourmet Cookbook*, by Shannon Hayes.

Learn How to Do It

The Kerr Center is offering a three day workshop, *Grazing Management: \$Pasturing for Profit\$,* in Poteau, August 11th, 12th and 13th. See p. 17 for more information and registration.