



University of Kentucky
UKnowledge

Agriculture and Natural Resources Publications

Cooperative Extension Service

2-1981

Efficient Pasture Systems

J. Kenneth Evans
University of Kentucky

Garry D. Lacefield
University of Kentucky, garry.lacefield@uky.edu

Follow this and additional works at: https://uknowledge.uky.edu/anr_reports



Part of the [Plant Sciences Commons](#)

[Right click to open a feedback form in a new tab to let us know how this document benefits you.](#)

Repository Citation

Evans, J. Kenneth and Lacefield, Garry D., "Efficient Pasture Systems" (1981). *Agriculture and Natural Resources Publications*. 52.

https://uknowledge.uky.edu/anr_reports/52

This Report is brought to you for free and open access by the Cooperative Extension Service at UKnowledge. It has been accepted for inclusion in Agriculture and Natural Resources Publications by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.

AGR-85

EFFICIENT PASTURE SYSTEMS

ISSUED: 2-81

REVISED:

J. Kenneth Evans and Garry Lacefield,

Department of Agronomy

The manner in which a pasture is grazed will have a marked influence on pasture productivity, persistence, quality and animal performance. Very light grazing pressure (few animals per unit area) results in high production per animal because animals can graze selectively. Low production per acre will be obtained because forage is wasted. Very heavy grazing pressure (many animals per unit area) may force animals to consume low quality plants or plant parts. If this occurs for very long, production per animal will be low, but production per acre may be increased because little forage is wasted. Also, persistence of desirable plants will be reduced by extended heavy grazing. A conflict often exists between production per animal and production per acre.

If you want to obtain optimum production per acre and per animal you should plan the best grazing system or systems to more completely utilize pasture on your farm. With the pasture plants commonly used and seasonal growing conditions prevalent in Kentucky, there are several grazing systems or techniques which could be considered.

Continuous Grazing

Continuous grazing is a system in which animals graze one area for long periods of time, perhaps even the entire grazing season. Because it requires little movement of animals and less fencing, this system is most widely used by farmers. If continuous grazing pressure is too heavy, yields of both pasture and animal products may be low because there are never enough leaves to make maximum use of sunlight. If grazing pressure is too light, individual animal performance may be high because the large amount of available forage permits animals to selectively graze only the highest quality plant parts or species. Production per acre may be low because much of the pasturage is wasted. Also, if the pasture is a mixed stand of grass and clover, taller grass growth and selective grazing of clover encourage grass domination (1).*

Most pastures with white clovers may be grazed continuously with moderate to heavy grazing pressures without loss of clover stands, but continuous close grazing of red clover may reduce stands. (Figure 1.) Alfalfa stands will always be reduced if they are grazed continuously (3).

If grazing pressure is such that 3-4 inches of top growth are present all the time, productivity of both pasturage and animal products may be more acceptable than with either very heavy or very light grazing. It would be hard for most farmers to maintain an animal population which would keep this 3-4 inches growth on a pasture throughout the growing season. Very high animal populations would be required in spring, much lower populations in summer and intermediate animal numbers in fall.

* Numbers in parentheses refer to publications listed on last page.

Fields newly renovated with legumes should be grazed continuously to suppress grass growth. When the young legume plants are big enough that animals begin biting plant tops, animals should be removed from the pasture to permit legumes to become established. This will usually require 4-6 weeks for clovers and 8-10 weeks for alfalfa. After the establishment period, a rotational grazing system can be used (1).

Rotational Grazing

Rotational grazing requires dividing large fields into small areas such that animals will rapidly graze plants down to a 2-3 inch height. Animals are then moved to another field or area and the first area is permitted to recover. Clover-grass mixtures should regrow 4-5 weeks or 8-10 inches high before they are grazed again. Alfalfa regrowth should be permitted for 30-35 days before the next grazing.

Rotational Grazing

This system allows a comparatively short grazing period and thus forage is more completely utilized. Less forage is wasted by trampling and selective grazing, especially during peak growth periods. It is desirable to size fields so that pasturage is removed in 10 days or less.

Rotational grazing favors persistence of legumes such as alfalfa, red clover and bird's-foot trefoil. Also, yields of forage and amount of animal products per acre are more nearly optimized when this system is used than when either continuous very light or very heavy grazing is practiced.

Strip Grazing

Strip grazing is really a form of rotational grazing. It is accomplished by using temporary electric fences, allowing

grazing animals access to only a small area (strip) of pasture at any time. More labor is required than with other systems, but it is especially desirable if one wants to achieve high utilization. It is most often used when grazing summer annuals such as Sudan grass, grain crop residues (4), stockpiled fescue or bluegrass, growth on alfalfa and other hay fields which accumulated after the last cutting, and fields where big hay packages have been left for winter feeding.

Strip Grazing

Restricted Grazing

Restricted grazing is a practice which can be used with any system. Animals are restricted to small areas when plant growth is rapid and have access to larger areas when plant growth is slow.

Restricted Grazing

Cool season grasses such as tall fescue (5), orchard grass (6), bluegrass, brome grass and timothy (7) usually produce about two-thirds of their seasonal growth during the first third of the growing season. Light stocking during spring to ensure a summer feed supply allows much of the spring growth to become mature. This results in wasted feed since cattle usually refuse to eat the mature seed shoots. Spring growth can be more efficiently utilized if animals are restricted to small fields which they can keep grazed to 2-4 inches high during April, May and June. Animal intake and quality will be high when plants are kept in a young, leafy stage of growth.

Forage which is not used for grazing during spring should be harvested and stored as hay or silage. For best quality and yield, harvest grass plants in the boot to early flowering stage and legumes in bud to early bloom stage of growth (2, 3, 11). Early-cut hay will be leafier, more digestible, and consumed with less waste than late cut hay.

Advance Grazing

Advance grazing (also called "forward grazing," "top grazing," or "first grazing") embodies a concept which can be used in many different situations. It simply permits animals which need highest quality feed (e.g. calves, yearlings, lactating dairy cows or horses) to have first access to a pasture or feed source (first grazers). Animals with lower nutritional requirements (e.g. dry, mature pregnant cows) graze or clean up the remaining lower quality material (second grazers).

Advance Grazing

The first grazers get highest quality feed before being moved to another area, which results in higher production per animal. Animals with lower requirements are brought in as second grazers and forced to clean up the remaining pasturage, resulting in more complete forage utilization.

Table 1 shows research results from Virginia in which this technique was used with steers as both first and last grazers. First grazers had 1.36 lbs average daily gain (ADG) and a total of 238 lbs of gain per acre. Second grazers had only 0.81 lbs ADG and total gains of 144 lbs. Rotationally grazed steers had ADG (1.07 lbs) which was about the average of the first and last grazers. Total gains per acre were not different for the steers rotationally grazed in one group (371 lbs/acre) and those split into first and last grazers (238 + 144 = 382 lbs/acre). The higher production was, however, obtained on first grazers where high individual performance was wanted.

Table 1. Performance of first and last grazer steers compared to one group rotationally grazed on grass-legume pastures, 2 year average.

Performance	One Group, Rotationally Grazed	First Grazers	Last Grazers
Average Daily Gain (ADG), lb.	1.07	1.36	0.81
Gains per Acre, lb.	371	238	144

Source: VPI Bulletin 45.

Creep Grazing

Creep grazing is an advance grazing technique in which calves are permitted access to higher quality pasture by passing through "creeps" or slots in the fence which are too small to admit cows. Weaning weights may be increased by 50 or more pounds per calf by creep grazing. When using this technique, calves should be permitted to "creep" in any direction where higher quality feed is available.

Creep Grazing

Seasonal Adjustments

Seasonal adjustments in animal numbers and/or feed supply are necessary if you are to effectively utilize pastures. There are numerous reasonable adjustments which can be made regardless of the grazing system used. The option which you should select will depend on your cattle (age and numbers), feed available (stored and pasturage) and prices (current and future projection) of feed and cattle. A few possibilities are: (1) old cows or cows which have calved in early spring, but have not rebred could be culled and sold before the summer pasture slump. Beef calves could be weaned and kept or sold with the cows: (2} if you have calves (either bought or raised) which have been backgrounded through winter, the heaviest ones could be marketed to adjust animal numbers downward before the summer slump. Light weight calves would increase in size and feed requirements to utilize the increase in pasture growth which occurs in most fall seasons; (3) you could keep your heavier calves and move them to a small pasture where they can be fed "grain on grass" and carried to finished weights and grade (10); (4) if you do not want to sell animals before the summer slump you may either feed hay, silage or grain during the summer or plant emergency pastures such as Sudan grass or other sorghums for summer grazing; (5) if you are on a fall calving program you could wean calves in early April. When rapid pasture growth begins, use the calves as first grazers (if your fences are good enough) and the cows, on which you want to dry up milk flow, as last grazers. If you also have a spring calving herd, they could be used as second grazers (spring born calves creeped through with the fall born calves) and the fall calved cows could become a "third grazer" group to clean up lower quality pasture remaining.

Additional related publications, available from your county extension office:

AGR-26 Renovating Grass Fields

AGR-33 Growing Red Clover in Kentucky

AGR-76 Alfalfa--Queen of Forage Crops

ID-9 Salvage Feeds for Beef Cattle

AGR-59 Tall Fescue

AGR-58 Orchard grass

AGR-84 Timothy

AGR-81 Horse Pasture

ID-5 A Beef-Forage System

ASC-56 Producing Slaughter Beef With Grain on Pasture

AGR-62 Quality Hay Production

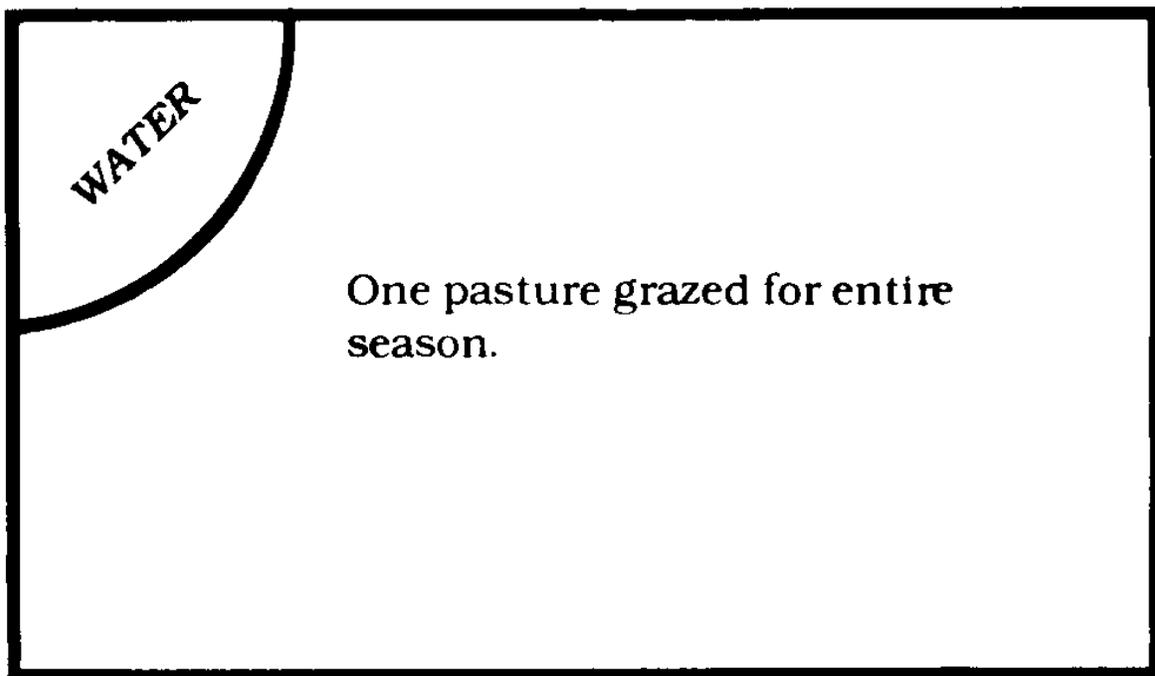
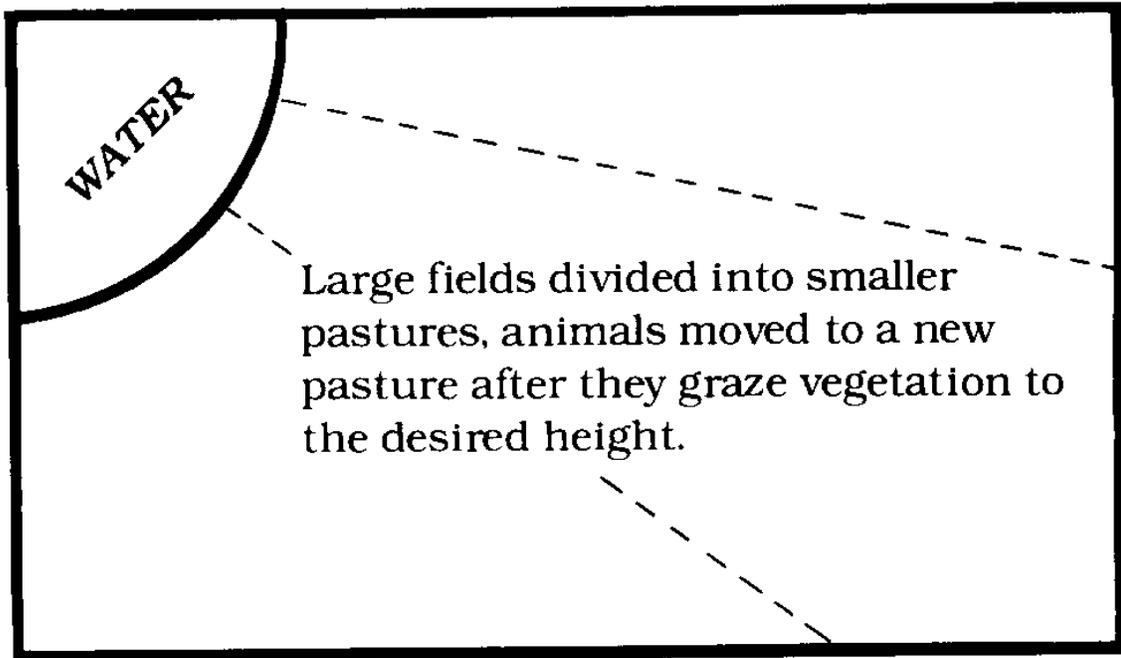
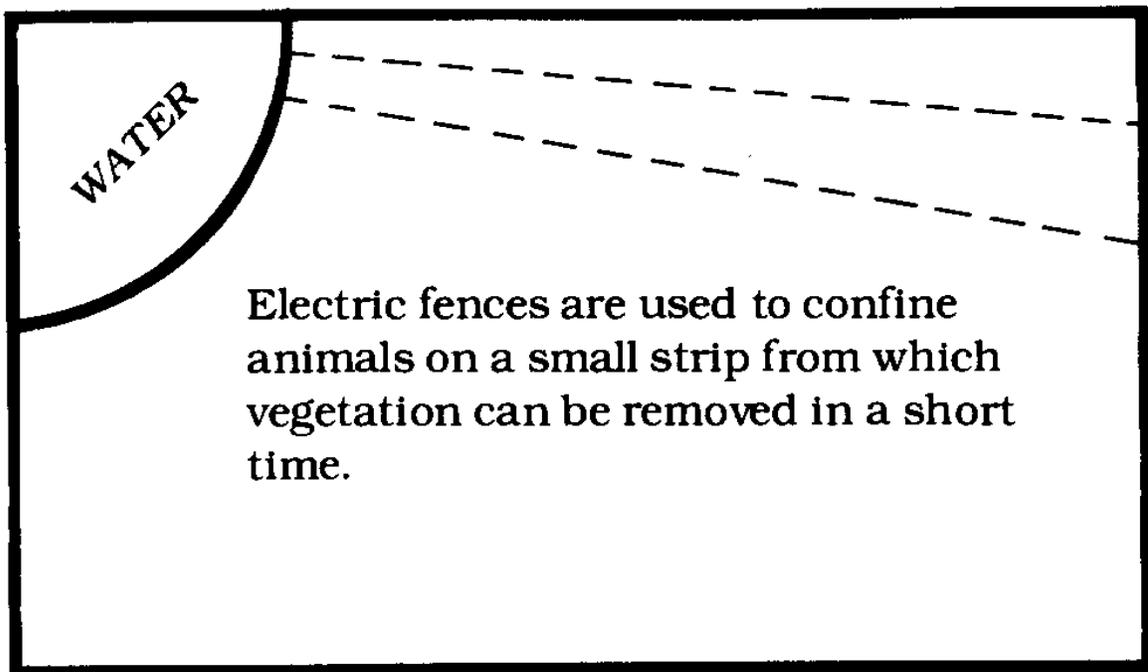


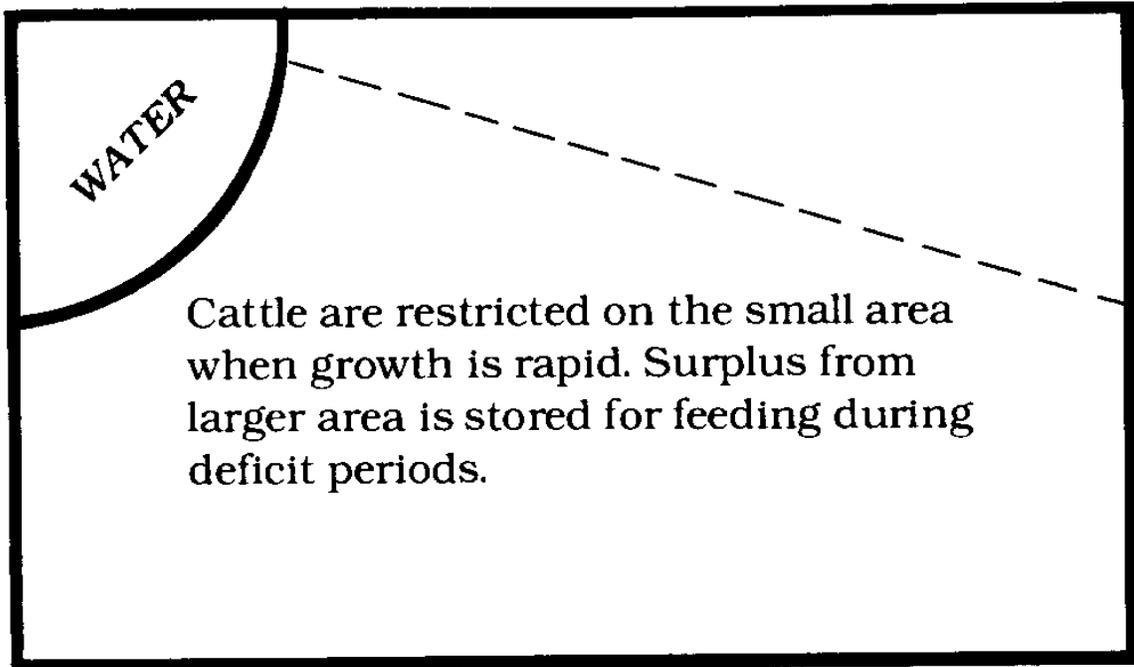
Figure 1



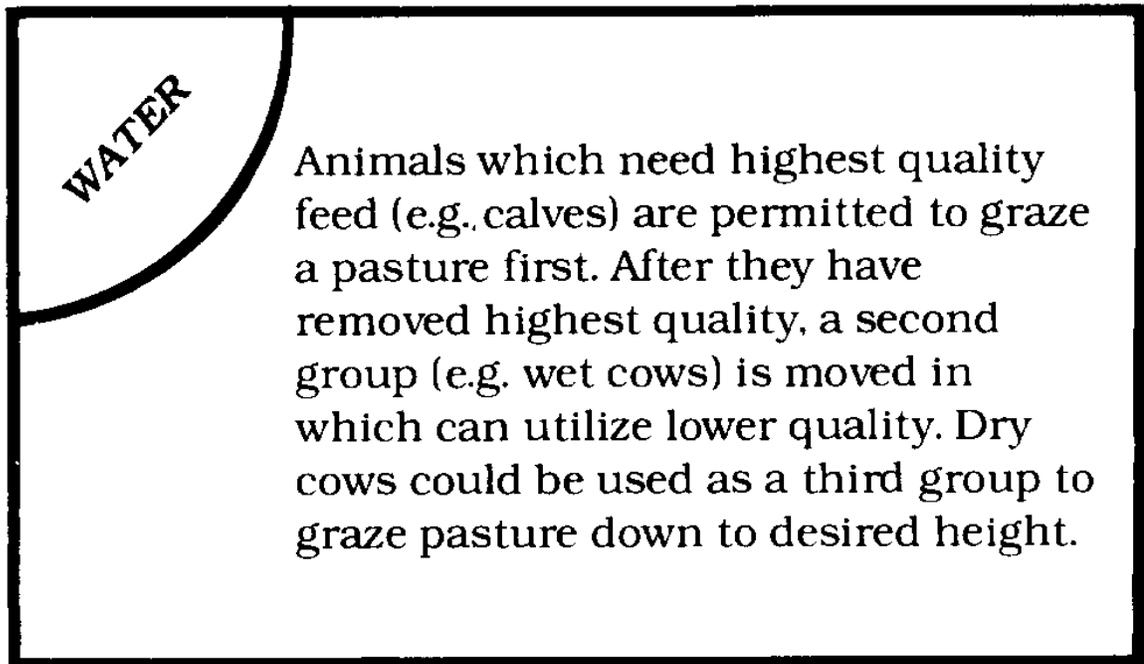
Rotational Grazing



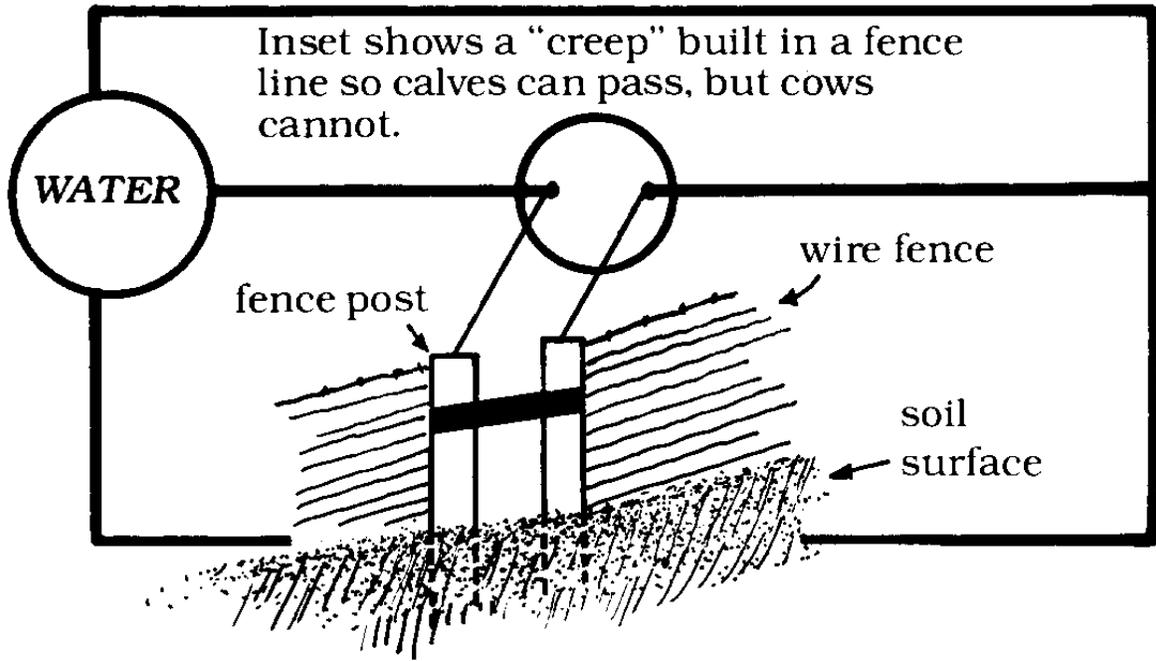
Strip Grazing



Restricted Grazing



Advance Grazing



Creep Grazing