

(HOW I THINK ABOUT) KENTUCKY'S PASTURES: ONE OF KENTUCKY'S UNTAPPED RESOURCES

Jimmy Henning

Associate Dean and Director of Kentucky Cooperative Extension
University of Kentucky

One of the privileges of old(er) age is the prerogative to take liberties with assigned tasks. At the risk of confusing producers and offending more scientifically-current forage scientists, the topic of pasture as an untapped resource presented an opportunity to address task from an unexpected angle. Certainly, Kentucky's pastures are a resource with untapped potential. But the idea that their value as a resource depends on how we think about them is one worth pursuing.

How one thinks about the Productivity, the Profit and the People of Kentucky's pasture is an underdeveloped resource to be exploited in the positive sense.

Productivity

We think of productivity as yield, primarily. But that is a limited definition. There are other dimensions to productivity that should share the definition with yield. These dimensions include timing or seasonality, adaptation to a particular set of resources (such as your farm), harvest management, inherent nutritiousness or quality, and manageability.

Seasonality – the month by month production of usable forage - is crucial to livestock enterprises. Seasonality is set by the genetics and the physiology (the plumbing and chemistry) of the forage. Cool season species will do most of their growing before mid-June. Wishing it were otherwise is futile. Cool season forages produce less forage per gallon of water when it is hot. (No forage, cool or warm season, will produce well when water is limiting). But warm season forages will be more productive with the water that they have because their chemistry is inherently different from cool season ones, and this difference is a significant advantage.

Adaptation to given resources. The University of Missouri did an extensive study of the productivity of several forage crops when grown across a variety of landscapes and soil types. The net result of that study is that the 'best' forage is one that will grow when the soil is prepared to provide water and nutrients when that particular forage is able to grow (during its 'season'). If a soil has available water only during spring and fall, a fescue-white clover system was as good or better than anything else. Better than alfalfa or other species thought to be more 'productive.'

Harvest management – the frequency and extent of harvesting – greatly affects productivity. The early days of intensive grazing touted the increased carrying capacity

and percentage utilization of the new systems. While true, there were optimums that were often discovered the hard way, after over-grazing led to poorer productivity and even stand loss.

Forage productivity is related to growth. Maximum growth of a forage, or in the case of grazing, regrowth, is a function of the environment and the forage's regrowth mechanism. Perennial legumes like alfalfa regrow initially from root reserves – management that keeps reserves up and the crown healthy will promote faster regrowth. Grasses regrow from a combination of stored energy and from the photosynthate coming from leaves left after defoliation. Faster growth comes when there can be contributions from both.

Put another way, overgrazed forages won't grow well, or sometimes at all, in spite of additional resources. A tightly grazed tall fescue field fertilized and rested from Mid-August until fall will grow significantly less over the same period than a hay field of the same forage with little or no additional N. The rest and additional fertilizer did not overcome being overgrazed all summer long.

Inherent Forage Quality is the ability of a given forage to supply energy, protein and minerals in the diet of livestock. The limits of this forage quality are genetically determined but the absolute quantity of a nutrient can be affected by management. For example, mature timothy is going to be very low in crude protein and tends to be much lower than other forage grasses at the same stage of maturity. All legumes have Ca:P ratios that are greater than most grasses. Knowing these nutritional characteristics is helpful, and can help maximize a pasture resource. Other general trends for forage quality are that annuals > perennials, legumes > grasses, and cool seasons > warm seasons.

Another thought provoking aspect to inherent forage quality differences lies in the rule-defying exceptions of some forages. For example, crabgrass might be thought of a trash grass, and a waste of good pasture ground. The work of R.L. Dalrymple using natural strains of crabgrass disproves this idea, with mid-summer gains of well over a pound per day and even approaching two pounds a day possible. Thought provoking? You bet.

Grazing corn is another example. A corn field in July or August does not resemble the general definition of high quality pasture being a stemmy warm season plant. But gains on corn are also deceptively high. Again, thought provoking.

Manageability – the extent to which a forage's management needs align with the time and resources of the producer. Kentucky's producers have demonstrated the ability to grow all types of forages and to prosper by them. Ultimately, a forage will only be productive if it is resilient to sub-optimal management by the grower. A forage system that is forgiving of over-grazing will stay in stand longer and will be more productive in that setting than a forage system with a more 'productive' forage that will not tolerate management mistakes. Everybody makes mistakes, and mistakes cost more with more management-sensitive species. Put simply, 'the forage I can grow is always better than the one I can't'.

Profit

Perhaps the profit dimension of pastures requires the most thought of all. Profit – revenue minus costs – is often hard to quantify exactly. Confounding the calculation of profit is the quantification of revenue, and that not all revenue comes in the form of dollars. Non-dollar revenue includes aesthetics, environmental benefit and more. Other confounding questions are which pasture(s) created the product?

But the most thought provoking dimension of pasture profit is that it is often not a function of pasture at all, or at least not much. It can be argued that the most important pasture characteristic for profit is a well-designed cattle handling facility. Think about the benefits such a facility provides. These include:

- Increased ability to have a controlled calving season,
- Greater likelihood of a more uniform calf crop (calves are closer together in age and therefore have similar weights),
- Greater ability to pregnancy check and cull non-productive cows or poor performing calves, and
- Greater ability to vaccinate, medicate, implant, castrate, dehorn and tag cattle.

A good handling facility can have an unexpected benefit on the cost side as well. Consider the cost of a visit to the emergency room due to sub-standard facilities. The figure will easily be in the hundreds of dollars if not thousands.

People

The relationship between people and tapping Kentucky's pasture resource may be less obvious than even the cattle handling example. But people, especially the right people and the right type of social interaction and have profound effects.

There is a growing body of literature that indicates that developing strong, positive social relationships has profound effects on health and well-being. Although far beyond the scope of this article, the connection between people and positive outcomes can be outlined more tangibly in the following ways:

- People stimulate ideas,
- People share experiences,
- People (especially the right people) can encourage,
- People can mentor, and assist, and
- People can collectively contribute towards a quicker, more robust and more adoptable solution to a management problem.

Seaman A Knapp, the father of the Cooperative Extension Service, discovered that demonstration plots on real farms were much more effective in rapid practice adoption because of the influence of seeing practices work on another's farm – the 'people' affect. Sharing possible solutions among constructive farmers and

professionals can lead to more effective solutions – the ideas of the individual seem to be multiplied or magnified and certainly sharpened by the questions and thoughts of others.

Organizations like the Kentucky Forage and Grassland Council, the Kentucky Cattleman's Association, the Kentucky Sheep and Goat Producers, the Kentucky Horse Council, and many others provide just this kind of people interaction.

Every local Cooperative Extension Office has ample opportunity for like-minded people to meet and to learn together about issues of common interest. The resource of the Cooperative Extension Service, born officially almost 100 years ago with the passage of the Smith-Lever Act in 1914, has been providing this opportunity for informal education and learning by doing and will continue to do so in the future. With all due respect to the value of technology on the dissemination of science, it is the people dimension of learning that will form the basis for Cooperative Extension for the next 100 years.

Use all of these organizations and use the internet and other communication media to meet and learn from experts from across the world and from across the county and state. The power of people, of all types, to refine and inform how you utilize YOUR pasture resource is limitless, if we tap into it. Perhaps this is the most untapped resource of all.

Summary

Kentucky's pastures are one of the under-utilized resources available to forage/livestock producers. But the way we think about them, and how we utilize our minds to exploit this resource, to adapt new ideas and to shape old ones is arguably one of the most underutilized, untapped resources relative to Kentucky's pasture resource. Don't let it be so with you.