

Stocking Rate & Economics

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Late time, stocking rate and carrying capacity were discussed. Stocking rate was defined as the land area allocated to each grazing animal for a specific length of time. Stocking rate influences:

- How well plants can recover from grazing during and after the growing season.
- Future forage production.
- Type and quality of available forage.
- Animal performance.
- Long-term change in species composition.

Many operations base their stocking rate on tradition, the advice of their neighbors, financial pressure, research results, or simply a best guess. For grazed forages to remain productive, grazing use must be matched to the individual pasture's carrying capacity.

Changes in the type of grazing animals, the animals' physiological stage and forage availability can each cause a change in grazing pressure. When matching grazing pressure and carrying capacity, the goal is to devise a management system that will reach the profit maximizing optimal compromise between animal production and forage production over the long-term, rather than attempting to maximize either factor alone.

Figure 1 depicts a generalized relationship showing the relationship between animal performance, stocking rate, and economics. The figure is derived from several research sources, primarily from domesticated livestock. Comparable deer research hasn't been done that I could find. However, we can look at the concept that stocking rate

impacts long-term animal performance and future forage availability. In summary, reduced or poor quality forage availability usually leads to reduced animal performance, size and probably antler size.

Historically, the goal of moderate stocking should be to attain the best compromise between maximum gain per animal and maximum gain per acre rather than to maximize either. Based on Figure 1, maximum profit occurs about midway between the maximum animal performance per acre and the point at which individual animal performance begins to decline.

When stocking rate research studies had economic analysis, the trend was a light intensity grazing was always

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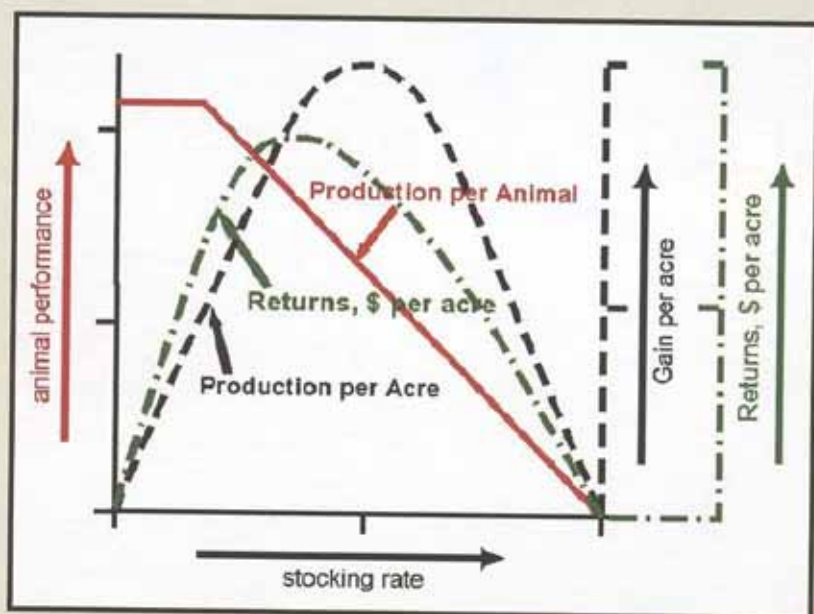


Figure 1. The response animals to heavier stocking rates reduces animal performance while increasing animal production per acre to a maximum and then declining. Economic returns require a compromise to maintain high animal performance and gain per acre simultaneously.

Management Notes for May-July



Evaluate rainfall history and current soil moisture status. If soil moisture is short, early to mid-season plant growth may be limited. Limited or no soil moisture can mean little plant growth.

If plant growth is excellent, avoid the urge to add animals to harvest the forage. Instead, let the plants have the opportunity to store food for next year, stockpile forage for fall and winter, and look to the future.

Central and North Texas - monitor for introduced and invasive weed and brush, and plan control options.

Monitor water sources for needed levels. Develop options if sources are less than optimal.

Review and adjust grazing and economic management plans for 2007, and adjust as needed.

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profitable. However, a moderate intensity grazing was profitable most years, and a high intensity grazing was rarely profitable.

When returns to land, labor, and management for different stocking rates were calculated, net returns to land were the highest for the heavy stocking intensity, followed by the moderate stocking intensity. However, average net returns decreased significantly for the light intensity grazing program.

These averages do not, however, tell the whole story. Net returns to land, labor, and management were much more variable for the heavy intensity grazing program. Generally, the standard deviation of returns (a measure of risk) where highest for the heavy stocking intensity followed moderate and light grazing intensity systems respectively. Also the estimated return to land is more likely to be negative when relying on a heavy intensity grazing program.

Research and experience have shown that a manager's goal should be to maximize profits, taking into account the level of risk they are willing to bear. For

most managers, this goal is achieved by using a moderate stocking rate, but adjusting the stocking rate based on weather, prices, and other variable situations.

Another factor in many of the cattle research efforts was the change in vegetation. The general trend was for high intensity grazing to reduce the most desirable grasses, most forbs (broadleaf plants), and some browse. Moderate grazing maintained most desirable grasses and forbs while the light grazing increased them.

The bottom line is that how forage is harvested (intensity of grazing of desired species) determines what forage is available for grazing animals. If the grazing animals graze the most desirable species continuously, the plants will disappear over time. This will force the animals to utilize less desirable or lower quality species with the potential to reduce animal performance.

Next time: enjoying nature while managing. This will be a look at how you learn to listen to what nature is telling you.

See the references at the website www.grassbydesign.com/tda.htm.

