





Figure 2. The amount of forage left ungrazed (residue threshold) determines next year's forage production. The most important thing is not how much rain you get, but how effective the soil moisture is for future plant growth. (No rainfall data were available for one location).

forage use cannot be accurately measured until the end of the growing season, and then only if annual production can be measured accurately. Residual vegetation (stubble height, litter, etc.) during and after grazing is much easier to gauge and better reflects grazing severity because it also indicates how well wildlife habitat, watershed health, the forage resource, and esthetic values are being maintained.

In recent years threshold residue levels been quantified. Table 1 shows the minimum amounts of ungrazed forage necessary on different types of rangeland to keep plants healthy, capture rainfall effectively, and protect the soil. The levels vary according to vegetation density, growth form, annual or perennial life cycle, and other vegetative characteristics. To improve the rangeland or reduce risk, the higher amounts should be left ungrazed.

## Recommendations and Suggestions

Balance stocking rates with the available forage supply to provide enough for livestock consumption, allow for the amount that will be destroyed (by insects, decay, etc.), and leave enough residue to promote the next season's growth. The minimum amount of forage needed to meet all these requirements can be estimated. Then determine the number of head to stock or the amount of time to graze each pasture. Monitor grazing and make adjustments based on the status of residual forage.

Because grazing animals selectively graze the forage plants they prefer, pay particular attention to the residues of the two to three key forage species in key areas. These species are abundant, palatable and provide the bulk of forage in a pasture. Key areas are parts of a pasture or range that can serve as indicators for the entire management unit. In general, when forage residues of key species in key areas reach the thresholds, livestock should be moved from the pasture until plants regrow.

Making timely decisions, before forage quantity or quality becomes a limiting factor, allows the manager to reduce or increase herd size gradually, while maintaining the body condition of livestock and reducing risk.

**Table 1. Optimal amounts\* of ungrazed forage for different types of rangeland (oven dry weight).**

Desert	250 lbs./ acre
Shortgrass	300-500 lbs./ acre
Midgrass**	750-1,000 lbs./ acre
Tallgrass	1,200-1,500 lbs./ acre
<p>* To improve rangeland, leave the higher amounts of residue for each category.</p> <p>** To promote midgrass over shortgrass, leave the higher amount of midgrass residue.</p>	

### Other Extension Publications

(available at <http://texaserc.tamu.edu>)

E-128, "Using Forage Harvest Efficiency to Determine Stocking Rate"  
L-5400, "Stocking Rate: The Key Grazing Management Decision"

### Further Reading

Holechek, J. L., R. D. Pieper and C. H. Herbel. 2001. Range Management: Principles and Practices, 4th Ed. Prentice Hall: New Jersey.

For additional range management information see: <http://texnat.tamu.edu>

For additional risk management information see: <http://trmep.tamu.edu>

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