



CALCULATION OF FAIR PASTURE RATES

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Every spring, one of the most frequently asked questions is, “What is a fair pasture grazing rate?” There are several variables in setting a pasture rate that is fair to all parties, but the most important factors are supply and demand. If there is a large quantity of pasture available in a region and few livestock, pasture rates will tend to be lower. Conversely, if available grass is limited and local livestock demand is high, the rates will trend higher. A commercial market for pasture does not exist. Setting a price for pasture rent often involves bargaining for an agreement.

Pasture rental rates also depend on competing uses, such as crops, livestock and land uses. A dairy producer may be willing to pay a higher pasture price if a pasture “fits” into a heifer development program. Available water, handling facilities, type and condition of fences, irrigation, forage variety, plant population and quality are important variables in accurately determining pasture rent.

Landowner and Renter Responsibilities

The division of responsibilities between landowner and renter needs to be understood, considered in rental rates and written into the rental agreement.

In most cases, the renter is responsible for production activities, such as irrigating, tending livestock, checking water, providing trace minerals and fly control. Land-related activities, such as weed and brush control, major fence rebuilds and repairs, reseeding and fertilizing are typically negotiable and are bargained into the agreement. In many cases, it is the responsibility of the renter to repair fences, and of the landowner to provide materials.

Far too often, agreements fall apart because of a misunderstanding about the division of responsibilities. Write it down. Landowner and renter should both have a copy of the agreement. Written, dated and signed agreements are good management practices.

Rental Agreement Considerations

The landowner’s goal is to cover all of the costs associated with owning the land. Taxes, fence repair, insurance, water cost, and interest on the investment in the land are most of the costs. Under realistic conditions the landowner will have difficulty covering all ownership costs with payments from the renter.

Pasture renters need to know the price they can afford. This price should be based on projected animal gains and budgeted returns. Responsibilities such as fencing, irrigation, pasture fertility, and cross fencing need to be in the budget and reflected in the price.

A first-rate fence and irrigation system are valuable for production and animal management, and merit a higher rent (Figure 1). Cool season forages respond well to increased fertility in both production and protein (Fuller 1971). When urea cost is \$600 a ton, each \$1 of nitrogen applied will increase forage yields roughly \$9. This forage yield increase remains fairly constant to 170 pounds of available nitrogen in the soil.

Urine spots within a grazed pasture are a sign of low fertility and lost grazing potential (Figure 2). Higher levels of pasture fertility can significantly increase net returns for the renter, therefore soil testing is a best management practice.

Methods for Establishing Pasture Rental Rates

Several methods can be used to set pasture rental rates. Methods include a historical fee per head per month, pounds gained, fee per acre and Animal Unit Month (AUM). Annual lease rates, calculated by formula, to determine the livestock carrying capacity are common and rational.



Figure 1. Excellent fence and irrigation in an irrigated pasture situation. (Photo credit: W.F. Hendrix, WSU Extension)



Figure 2. Urine spots (clumps of taller, greener grass) are a sign of poor fertility in a pasture. (Photo credit: W.F. Hendrix, WSU Extension)

Fee Per Head Per Month Method

This method is not frequently used because carrying capacity can change drastically during the grazing season. For the producer who has other places to move livestock, or the ability to add or subtract animals as forage levels vary, this method may work. This is simply an agreed-upon dollar amount for every animal. Care should be taken not to overgraze or cause negative environmental impacts to the property or forage population health.

Fee Per Acre Methods

There are three ways to figure this; none is used very often.

Land value percentage. The annual cash rate to rent land across the nation runs from 3.5% to 6% of current land market values, according to agricultural economy professionals. This has been constant for many years. Pasture land is not different. If the market value of the pasture land is \$3,000 an acre, the pasture rent at 5% of land value would be \$150 an acre for the grazing season.

Percentage of cropland value. This method varies by the property's agronomic capabilities and regional crops. Pasture rental rates are approximately 70% of the potential cropland rent value.

Rent per acre per season. This is the simplest method to rent, but has issues for both the landowner and renter. Carrying capacity, the possibility of overgrazing, post-season pasture conditions, and other environmental issues need to be discussed and agreed upon prior to leasing. Specific management benchmarks are important in this method.

Performance Method (priced on pounds gained)

Yearling cattle pasture rent is often based on pounds gained. An arranged price is charged per pound that each animal or the whole herd gains. This "on the gain" method has some risk associated with it, including animal health, parasites, flies and even availability of water and trace minerals. It is possible for one group of yearlings to gain an average of 3.2 pounds per day and another group 0.8 pounds per day during the same grazing season on pastures that seem to be the same (Hendrix 2014).

A current rate is \$0.30 per pound of gain. This rate is derived from the estimate of 200 pounds of gain (1.1 pounds a day) during a 5- to 6-month grazing season at a cost of \$10 per month. Any higher rate of gain means a higher net income to the pasture owner.

Quality of cattle, parasite control, trace minerals, availability of clean water, fly tags, and pinkeye vaccination, along with other vaccinations, are extremely important to the landowner in "on the gain" pasture rents. In some cases, the landowner's responsibility includes parasite control, pesticide tags, pinkeye vaccinations and soil fertility due to the large weight gain or loss consequences of these management practices.

AUM Pricing Method

Calculation of pasture rents on an Animal Unit Month (AUM) basis addresses animal forage consumption and grazing time, based on forage quality and quantity. Pasture rent on a property can be determined with elevated accuracy after a history of capacity and forage yields are established.

Animal Unit Month (AUM). This is defined as the amount of forage needed to maintain a cow/calf pair (AU, or Animal Unit) for 30 days. In an AUM pasture rent situation, the animal unit is assumed to be a 1,000-pound cow with a calf weighing less than 500 pounds, and M represents grazing forage to sustain that unit for 30 days.

A 1,400-pound cow is a 1.4 AU, a calf over 3 months of age is 0.30 AU, a weaned yearling calf (approximately 600 pounds) is 0.60 AU, a yearling calf (600–800 pounds) is 0.70 AU; a mature ewe with lambs is 0.20 AU, a weaned lamb is 0.12 AU; and a mature horse is 1.8 AU. These values are widely recognized and published in many publications.

It is important to note that wildlife can affect the amount of forage available for livestock. Under heavy wildlife grazing loads, both management and available forage can be greatly affected.

Pasture Quality Factor. Pasture quality factor values are derived from evaluating multiple random square-foot sample sites throughout the pasture and physically counting the plants. Only the mentioned forage plant species are considered desirable in the tally. Exposed soil without a plant is a negative to plant population. Less than a 70% desirable plant population is not good. Any pasture ranking below 70% is a candidate for refurbishing, frost seeding or interseeding to improve plant population.

- Less than 0.12 for poor desirable plant population, unimproved pasture (Figures 3, 4).
- 15 for fair to good permanent pasture with 50% desirable plant population of modern forage species.
- 18 for very good permanent pasture with 70% desirable plant population of modern forage species (Figure 5).
- 20 for excellent, permanent grass/legume mix pasture with 90% desirable plant population or the best meadow pasture (Figure 6).
- 22 for excellent, maximum fertility, legume-based pasture.

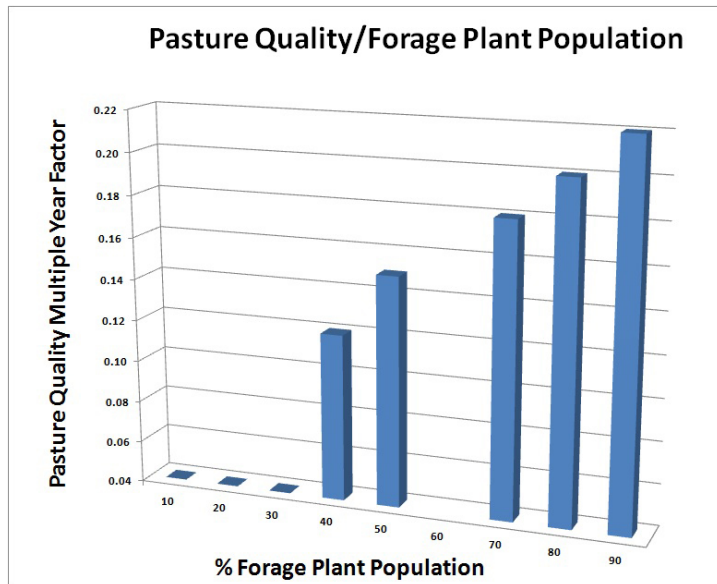


Figure 3. A higher percentage of forage plants in a pasture population increases the pasture's quality factor.

AUM Formula to Calculate Pasture Rent

The AUM grazing rate formula: $A \times B \times C = \text{Pasture rent per animal unit month}$

- A = market price per ton of hay
 B = pasture quality factor
 C = animal unit

For this method, the market value of baled hay and the quality of the pasture are entered into an equation with the appropriate AU. "A" in the equation is hay market price per ton. "B" is a pasture quality factor. "C" is the AU conversion factor.

The AUM formula should be evaluated and recalculated as market hay price and pasture quality change on an annual time frame. This AUM formula is developed for, and based on, the cool season and irrigated forages of eastern Washington and Oregon, and is published in several locations (Sedivec 1996).

Only orchardgrass, tall fescue, ryegrass and the legume forage species of alfalfa, red clover, white clover and birdsfoot trefoil are considered desirable forage species in the pasture quality factor. Everything else in the plant world, including mustard, morning glory, and dandelions, are not considered in this calculation. It is possible to have a very green pasture with a low desirable plant population, as indicated in Figure 3.



Figure 4. Under 50% desirable plant population. (Photo credit: W.F. Hendrix, WSU Extension)



Figure 5. Pasture with 70% desirable plant population. (Photo credit: W.F. Hendrix, WSU Extension)



Figure 6. Pasture with 90% desirable plant population. (Photo credit: W.F. Hendrix, WSU Extension)

Example of AUM Grazing Formula Application

- Market price for hay is \$150 a ton (A = 150)
- Pasture quality is excellent grass/legume 90% desirable (B = 0.20)
- Cow/calf pairs (1,200 pound cows) (1.20 AU) (C = 1.2)

$$150 \times 0.20 \times 1.2 = \$36 \text{ per pair per month}$$

This formula works because the pasture renter is paying for the forage crop (hay) harvested with livestock as an alternative to machinery. The AUM grazing formula adapts for forage moisture content, pounds consumed, forage volume within the pasture and plant population.

Summary

Many variables affect pasture rental values, but perhaps the most important factor will always be supply and demand. The landowner needs to have knowledge of the costs of owning the property. The livestock owner needs to know the approximate cost of production to know what amount is affordable for pasture grazing. In all cases, leases should be put in writing and signed. A written agreement will help each party understand and remember the negotiated agreement. Sample agreements are readily found online.

For additional information on the subject, see Extension Bulletin PNW614, *Pasture and Grazing Management in the Northwest*.

References

- Chessmore, R.A. 1979. *Profitable Pasture Management*. Danville, IL: Vero-Media.
- Sedivec, K. 1996. *Determining Pasture Rental Rates, Fact Sheet R-1092*. Fargo: North Dakota State University Extension.
- Fuller, William W. 1971. Tall Fescue in Oklahoma, a Review: In [*Oklahoma Agricultural Experiment Station Progress Report*, Volume 650](#). Stillwater: Oklahoma State University, Agricultural Experiment Station.
- Hendrix, W.F. 2014. Personal experience, observation and consultation.



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