



For rental of established hay, an alfalfa/grass summer hay price of \$120 per ton and an alfalfa/grass yield of from four to six tons per acre (Table 1) results in a rental rate per acre of from \$168 ( $\$120 \text{ per ton} \times 35 \text{ percent} \times 4 \text{ tons per acre} = \$168 \text{ per acre}$ ) to \$252 ( $\$120 \text{ per ton} \times 35 \text{ percent} \times 6 \text{ tons per acre} = \$252 \text{ per acre}$ ) for hay production.

### Rent per Head per Month

With this method, the livestock owner pays rent according to the number of animals grazed and length of time the pasture is used. This is measured by computing the animal unit months (AUMs). An AUM is the amount of forage required to support a 1,000 pound cow with a calf up to 4 months of age for one month. Table 2 can be used for figuring AUMs. For example, 10 cows and calves pastured for three months equals 30 AUMs ( $10 \times 1.0 \times 3$ ). Note that forage consumption normally parallels the weight of the animal.

**Table 2. Animal unit equivalents**

Type of Animal	AUM
Mature cow	1.0 to 1.4
Bull	1.5
Yearling steer/heifer	0.7 to 0.9
Two-year-old heifer	1.0 to 1.2
Calf	0.4
Ewe	0.20 to 0.28
Replacement ewe lamb	0.13 to 0.17
Horse	0.9 to 1.2

Rent is calculated by multiplying a rental rate per AUM by the number of AUMs. A rental rate per AUM can be figured by using the current hay price and the quality rating of the pasture. Forage quality factors are shown in Table 3.

**Table 3. Pasture quality factors**

Lush, green high-protein pasture	.22
Good tallgrass pasture	.20
Fair to good native pasture, mostly shortgrass	.15
Poor or weedy shortgrass pasture	.12
Cornstalks	.10

For example, let's assume the pasture is brome (tallgrass) pasture. Also, assume the average grass hay price during the summer is \$100 per ton. The rental rate per AUM is \$20 ( $\$100 \times .20$ ). If 10, 1,000-pound cows with a calf by their side are pastured for three months, 30 AUMs of pasture are used during the summer. The rent is \$600 ( $30 \text{ AUMs} \times \$20 \text{ per AUM}$ ) for the summer.

Typical rates per AUM by county and region of the state are shown in *AgDM File C2-10, [Cash Rental Rates for Iowa Survey](#)*.

### Carrying Capacity

This method is based on the carrying capacity of the pasture. The rental rate per AUM is multiplied by the carrying capacity of the pasture in AUMs per acre to estimate a pasture rental rate per acre for the whole grazing season. The rental rate per AUM is computed by either multiplying the hay price during the grazing season by the pasture quality factor (Table 3), or by using a typical rental rate from *AgDM File C2-10, [Cash Rental Rates for Iowa Survey](#)*.

For example, a \$100 grass hay price and a tallgrass pasture rating of .20 results in a rental rate per AUM of \$20 ( $\$100 \times .20$ ). A brome grass pasture may produce four AUMs per acre during the grazing season (Table 1). Multiplying the rate per AUM by the AUMs per acre results in a rent of \$80 per acre ( $\$20 \text{ per AUM} \times 4 \text{ AUMs}$ ).

### Rent per Pound of Gain

With this method, pasture rent is based on the added weight the livestock gain while they are on pasture. This approach is best suited for stocker and feeder cattle rather than beef cows. To determine the rent payment, it is necessary for the cattle to be weighed or an average weight estimated before they are placed on pasture and after they are taken off pasture. This may not be practical in some situations.

Gain from pasture forage can be valued at about two-thirds to three-fourths the feed costs of gain in a feedlot. In a normal year the value of gain of livestock on pasture is from 50 to 60 cents per pound of gain. Rent is figured by multiplying the value of the gain by the total amount of gain per day.

For example, assume the average weight per animal is 585 pounds at the beginning of the period and 815 pounds at the end. The amount of gain is 230 pounds ( $815 \text{ pounds} - 585 \text{ pounds}$ ). If the rental rate is 60 cents per pound of gain, the rental charge is \$138 per head ( $60 \text{ cents} \times 230 \text{ pounds}$ ).

To calculate pasture and hay land cash rents, use the worksheet on the following page, or *Decision Tool C2-23, [Calculating Pasture and Hay Land Cash Rents](#)*.

## Pasture and Hay Cash Rent Worksheet

### A. By Forage Value

1. Forage production per acre (Table 1) \_\_\_\_\_ tons
2. Hay price during grazing season \$ \_\_\_\_\_ / ton
3. Rent per acre (A1 x A2 x 30% for hay, 25% for pasture) \$ \_\_\_\_\_ / acre

### B. Per Animal Unit Month

1. Hay price during grazing season \$ \_\_\_\_\_ / ton
2. Pasture quality factor (Table 2) \_\_\_\_\_
3. Rent per animal unit month (AUM) (B1 x B2) \$ \_\_\_\_\_ / AUM
4. Total animal units (Table 3 factors x number of animals) \_\_\_\_\_ units
5. Total rent per month (B3 x B4) \$ \_\_\_\_\_ / month

### C. By Carrying Capacity

Rent per AUM (B3) \_\_\_\_\_ x AUM / acre (Table 1) \_\_\_\_\_ = \$ \_\_\_\_\_ / acre

### D. Per Pound of Gain

Rent per lb of gain \_\_\_\_\_ x (End lbs \_\_\_\_\_ - Beg lbs \_\_\_\_\_) = \$ \_\_\_\_\_ / head

**Table 1. Forage production <sup>1</sup>**

	Hay Equivalent, <sup>1</sup> Ton / acre	AUM / acre
Bluegrass, unimproved	1.0 – 1.5	3.0
Bluegrass, improved, with legume or nitrogen	1.5 – 2.5	4.0
Birdsfoot trefoil and grass	3.0 – 4.0	5.0
Orchard or brome grass, alone	3.0 – 4.0	4.0
Orchard or brome grass, with legume or nitrogen	4.0 – 5.0	6.5
Warm season grasses	4.0 – 5.0	4.0
Alfalfa, plus grass	4.0 – 6.0	6.0
Cornstalks	0.5 – 1.0	0.7

**Table 2. Animal unit equivalents <sup>2</sup>**

Type of Animal	AUM
Mature cow	1.0 to 1.4
Bull	1.5
Yearling steer/heifer	0.7 to 0.9
Two-year-old heifer	1.0 to 1.2
Calf	0.4
Ewe	0.20 to 0.28
Replacement ewe lamb	0.13 to 0.17
Horse	0.9 to 1.2

**Table 3. Pasture quality factors**

Lush, green high-protein pasture	.22
Good tallgrass pasture	.20
Fair to good native pasture, mostly shortgrass	.15
Poor or weedy shortgrass pasture	.12
Cornstalks	.10

Source: NCR-149

<sup>1</sup> Rotational grazing can increase production about 25 percent.

<sup>2</sup> For more detailed information see publication PM-1771, "[Guide for Year-Round Forage Supply](#)."

... and justice for all

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Many materials can be made available in alternative formats for ADA clients. To file a complaint of discrimination, write USDA, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and July 30, 1914, in cooperation with the U.S. Department of Agriculture. Cathann A. Kress, director, Cooperative Extension Service, Iowa State University of Science and Technology, Ames, Iowa.