

# Beef Cattle Feed Requirements

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Kansas beef producers use only a few basic beef cattle programs, but they use many modifications of these programs. This makes it somewhat difficult to state typical feed requirements for each livestock system. Some basic rations can be checked for the major systems and then substitutions can be made in the ration so long as all nutritional requirements are met.

Calculations for these have been made in accordance with the 1984 edition of *Nutrition Requirements of Beef Cattle* published by the National Academy of Sciences.

These feed requirements assume that ideal feeding conditions are prevalent and that growth stimulants are used to maximize feed efficiency. Also, the requirements assume that the cattle are ready to start gaining weight on each of these particular rations. If the cattle have been stressed or if adverse weather conditions exist, the gains as projected are too high. Producers may wish to adjust these total expected gains to better fit their particular operations.

The compositions of feedstuffs used in these rations are assumed to be average protein and energy calculated on the basis of megacals.

**Table 1.** Nutrient Content of Feedstuffs Moisture-Free (DM) Basis

| Feed                       | DM<br>% | NEM<br>Mcal<br>Per lb | NEG<br>Mcal<br>Per lb | TDN<br>% | CP<br>% | Ca.<br>% | Phos.<br>% | Pot.<br>% |
|----------------------------|---------|-----------------------|-----------------------|----------|---------|----------|------------|-----------|
| Corn, dry rolled           | 86      | 1.02                  | .70                   | 90       | 9.0     | .02      | .35        | .37       |
| Grain sorghum, fine rolled | 87      | .94                   | .64                   | 84       | 10.0    | .04      | .34        | .40       |
| Wheat, HRW                 | 88      | .99                   | .68                   | 88       | 14.0    | .05      | .43        | .49       |
| Soybean meal, 44%          | 89      | .93                   | .63                   | 83       | 49.9    | .33      | .71        | 2.14      |
| Corn silage, well-eared    | 33      | .74                   | .47                   | 70       | 8.1     | .23      | .22        | .96       |
| Sorghum silage, med. grain | 30      | .60                   | .34                   | 60       | 7.2     | .45      | .21        | 1.37      |
| Alfalfa hay, mid-bloom     | 88      | .54                   | .28                   | 56       | 16.0    | 1.31     | .21        | 1.78      |
| Prairie hay, late-bloom    | 90      | .45                   | .20                   | 51       | 5.8     | .43      | .15        | .60       |
| Wheat straw                | 90      | .29                   | .05                   | 41       | 3.6     | .18      | .05        | .80       |
| Animal fat, hydrolyzed     | 99      | 2.34                  | 1.80                  | 192      | —       | —        | —          | —         |
| Urea                       | 99      | —                     | —                     | —        | 287.0   | —        | —          | —         |
| Wheat hay, soft dough      | 88      | .58                   | .32                   | 58       | 8.5     | .32      | .22        | 1.00      |

The following table lists the amount of feedstuff needed for various livestock systems. If a growth stimulant is not used, the amount of dry-matter feed required per pound of gain should be increased about 10 percent. This amount of feed is also the amount actually consumed by the beef animal, not including wastage.

If these figures are used to plan for the amount of feed that needs to be produced on the farm, an allowance needs to be made for shrinkage and wastage. For instance, it is not uncommon for hay and silage to shrink 20 percent by weight while in storage, due to spoilage and loss of moisture. This means that 20 to 25 percent more silage and hay than the livestock will need should be produced.

**Table 2.** *Feed Requirements for Various Beef Enterprises*

| Enterprise                             | Sorghum Silage (Lbs.) | Prairie Hay (Lbs.) | Alfalfa Hay (Lbs.) | Corn (Lbs.) | Grain Sorghum (Lbs.) | Supplement <sup>a</sup> (Lbs.) | Wheat Pasture (Days) | Pasture (Days) | Beginning Weight (Lbs.) | Ending Weight (Lbs.) | Total Gain (Lbs.) | No. Days |
|--|-----------------------|--------------------|--------------------|-------------|----------------------|--------------------------------|----------------------|----------------|-------------------------|----------------------|-------------------|----------|
| Background Steers (Dry lot)            | 3,150                 | —                  | —                  | —           | 535                  | 180                            | —                    | —              | 550                     | 750                  | 200               | 100      |
| Background Heifers (Dry lot)           | 2,825                 | —                  | —                  | —           | 485                  | 160                            | —                    | —              | 500                     | 675                  | 175               | 100      |
| Finish Yearling Steers                 | —                     | —                  | 435                | 1,855       | 1,235                | 110                            | —                    | —              | 750                     | 1,200                | 450               | 141      |
| Finish Yearling Heifers                | —                     | —                  | 375                | 1,590       | 1,060                | 95                             | —                    | —              | 675                     | 1,050                | 375               | 132      |
| Backgrounding and Finishing Steers     | 1,565                 | —                  | 520                | 2,250       | 1,770                | 225                            | —                    | —              | 550                     | 1,200                | 650               | 212      |
| Backgrounding and Finishing Heifers    | 1,450                 | —                  | 455                | 1,940       | 1,545                | 200                            | —                    | —              | 500                     | 1,050                | 550               | 211      |
| Wheat Grazing Steers                   | —                     | 350                | —                  | —           | 240                  | 30                             | 120                  | —              | 450                     | 690                  | 240               | 120      |
| Wheat Grazing Heifers                  | —                     | 350                | —                  | —           | 240                  | 30                             | 120                  | —              | 425                     | 640                  | 215               | 120      |
| Wheat Graze Out Steers                 | —                     | 350                | —                  | —           | 360                  | 45                             | 180                  | —              | 450                     | 800                  | 350               | 180      |
| Wheat Graze Out Heifers                | —                     | 350                | —                  | —           | 360                  | 45                             | 180                  | —              | 425                     | 750                  | 325               | 180      |
| Season-Long Grazing Eastern Kansas     | —                     | —                  | —                  | —           | —                    | 20                             | —                    | 150            | 550                     | 790                  | 240               | 150      |
| Early-Intensive Grazing Eastern Kansas | —                     | —                  | —                  | —           | —                    | 10                             | —                    | 75             | 550                     | 700                  | 150               | 75       |
| Season-Long Grazing Western Kansas     | —                     | —                  | —                  | —           | —                    | 20                             | —                    | 150            | 550                     | 750                  | 200               | 150      |
| Early-Intensive Grazing Western Kansas | —                     | —                  | —                  | —           | —                    | 10                             | —                    | 75             | 550                     | 680                  | 130               | 75       |
| Raising Beef Replacement Heifers       | —                     | 3,840              | —                  | 1,320       | —                    | 360                            | —                    | 155            | 550                     | 1,100                | 550               | 535      |

<sup>a</sup> *Supplements for backgrounding and finishing programs include soybean meal, vitamins, salt, minerals, and rumensin or equivalent. Supplements for wheat grazing, season-long grazing, and early-intensive grazing programs include minerals and salt.*

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**Kansas State University Agricultural Experiment Station and Cooperative Extension Service**

MF-264

October 2002

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