

Ration Rules of Thumb
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This document is designed to guide producers through understanding a feed test. With a feed test in front of you, look at the following rules and compare to the feed test. Remember, these are rules of thumb, which means they hold true most of the time. Variations in management and cow type will affect the end result. These rules of thumb should not be a replacement for balancing rations with proven software, but rather an aid to understand the feed and where it fits in the management.

- Always refer to the “**dry matter**” numbers. These have the moisture factored out and allow comparison of all feeds, from silage to grains
- **Crude Protein.** Protein is a building block. **Beef Cow Rule of Thumb – 7-9-11.** An average mature beef cow requires a ration with crude protein of 7% in mid pregnancy, 9% in late pregnancy and 11% after calving. The method to monitor protein in terms of cow performance is to look at the manure – high levels of undigested fibre in the manure indicates low protein.
- **Crude Protein – Feeder Calf Rule of Thumb – 14-12-10.** A feeder calf from 550-800 lbs needs a ration of 14% protein, from 800-1050 lbs needs 12% protein, and from 1050 lbs to finish needs 10% protein. Implant program with create variations to this rule
- **Energy** is the basis to use the building blocks for growth and other productive purposes. Learn one of the 6 measures for energy and stick with it. Using Total Digestible Nutrients (TDN)%, the **Rule of Thumb is 55-60-65.** This rule says that for a mature beef cow to maintain her body condition score (BCS) through the winter, the ration must have a TDN energy reading of 55% in mid pregnancy, 60% in late pregnancy, and 65% after calving. Energy can be monitored in the beef cow by watching BCS; low energy rations result in a loss of BCS. Other energy units of measure include DE, ME, NEI, NEm, and NEg, and producers can develop their own rules for these measures if the need arises.
- The **calcium to phosphorous ratio (Ca:P)** for a mature beef cow should be within the range of **2:1 and 7:1**, assuming actual required grams of each are adequate. Using a feed test, the ratio is calculated by dividing the dry matter Ca (%) by the dry matter P (%). Ratios outside this range need to be addressed using feed blends or commercial minerals.
- On an average feed analysis sheet, two other related minerals are reported – Magnesium (Mg) and Potassium (K). These two, in combination with calcium (Ca) make up the tetany ratio, which is $K/(Mg + Ca)$. Cowbytes, which is a ration balancing software program available through AAFRD, says this ratio should not exceed 2.2:1. The combination of high K (**Rule of Thumb - over 1.75%**), and/or low Ca (**Rule of Thumb – under 0.6%**) and low Mg (**Rule of Thumb – under 0.3%**) can lead to animal performance issues. Because this ratio involves three different numbers, producers are encouraged to look at each of the three individually, and as a ratio, to determined if the need for caution exists.

- With respect to commercial minerals, an average 25kg bag of minerals will last about **1 week for 50 cows**. Read label for specific feeding rates
- On many feed analysis sheets, only Sodium (Na) is reported. **Rule of Thumb** says that **Na x 2.5 equals NaCl (salt)**.
- **Salt Rule of Thumb** - if the feed analysis shows that Na is over 0.1%, which equates to salt over 0.25%, livestock will receive all their salt requirements from the feed and therefore will not consume commercial minerals with added salt. High salt levels are very prevalent in cereal greenfeed and their associated feed analysis.

Once producers understand the quality of their individual feeds, the next step is to determine the quantity of feed required, both for individual animals per day, and for the herd for the winter. Several Rules of Thumb apply to feed quantity.

- **Rule of Thumb for Consumption** - all beef cattle will consume approx 2.5% dry matter (DM) of their body weight per day. For example, and 1000 pound cow will eat 25 lbs of dry matter feed per day. Moisture and feed waste must be factored in further to this number. The following chart, taken from Cowbytes, shows different consumption levels based on forage quality.

Forage Intake Guidelines [as per cent of body weight (BW)]

	Straw and Poor Forage	Medium Quality Forage	Excellent Quality Forage
Growing and finishing cattle	1.0%	1.8 to 2.0%	2.5 to 3.0%
Dry mature cows and bulls	1.4 to 1.6%	1.8 to 2.0%	2.3 to 2.6%
Suckled cows	1.6 to 1.8%	2.0 to 2.4%	2.5 to 3.0%

- Under **cold stress**, for every 10 degrees C below –20 degrees C, feed 3 kg of hay, or 6 kg of silage, or 2 kg of grain AS FED to cows
- **Rule of Seven** – for quick calculation purposes, this rule says that in an average operation, a combination tons of silage, bales of hay and bales of straw need to add up to **seven per mother cow**. For example, you may need three tons of silage, two bales of hay and two bales of straw per cow per winter. Cow size, length of winter-feeding season and feed wastage contribute to variations in this rule.
- Backgrounding feeders calves require, as a **Rule of Thumb**, an additional three tons of silage or one ton of hay per 90 days of feeding.
- With respect to feed wastage, the **Rule of Thumb** says that if you see it on the ground, you have 15%. Many operations have over 20% feed waste every winter, and don't realize that this costs in excess of \$40/cow