



Alfalfa as a Protein Supplement

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Producing high-quality hay that eliminates the need for protein and energy supplementation from grain and other concentrates is normally the first choice of most forage producers, however Mother Nature doesn't always co-operate. Producers know the importance of protein supplementation with low quality forages or winter grazing. The issue is that protein supplements are often expensive. Before you spend money on a protein supplement be sure that it is really needed and then shop around.

Low-quality forage is generally defined as containing 7% crude protein or less. This is based on 7% being the minimum protein content needed to support a viable population of rumen microbes. Once crude protein falls below that level, the rumen microbial population will not be large enough to digest the fiber in the diet. The second requirement to meet is that of the animal. In the case of a beef cow in mid-gestation at, the protein requirement is also about 7% of the diet. Once she enters the last trimester of gestation, that requirement will increase to about 8% of her diet.

| Estimated crude protein and TDN requirements* | | |
|----------------------------------------------------------------------------------------------|------------------------|--------------|
| Cow stage of production | Crude protein, % of DM | TDN, % of DM |
| 2-year-old lactating cow | 11 | 62 |
| 3-year-old lactating cow | 11.5 | 63 |
| Mature lactating cow, 25 lbs. of milk | 11.5 | 63 |
| 3-year-old dry cow, 270 days pregnant | 9 | 58 |
| Mature dry cow, 270 days pregnant | 8 | 55 |
| Mature dry cow, 180 days pregnant | 7 | 49 |
| *Brahman influenced cows needed to maintain body condition for typical production conditions | | |

It becomes very important to have forage analysis done on feedstuffs to determine whether they are deficient in protein or not.

Any feedstuff that contains high enough concentration of protein to overcome the deficiency in low-quality forages can serve as a protein supplement. Alfalfa hay makes an ideal protein supplement. The protein in alfalfa hay is highly digestible and available in the rumen to feed the rumen microbes. Because of this, it stimulates digestion of the fiber in both the alfalfa and the low-quality forage. This stimulation of digestion also increases intake of the low-quality forage, and as result improves the total digested nutrients that the cow (or any other ruminant) receives.

This is not suggesting a diet consisting of only alfalfa hay. Using alfalfa as a supplement means that a few pounds are fed (just enough to overcome the protein deficiency), and the cow is expected to fill the rest of her daily intake needs with the low quality forage.

The question then becomes, is alfalfa hay the best value for the dollar spent? The answer boils down to the delivered cost per ton of protein. Manitoba Agriculture has a [FeedPlan - Feed Ingredient Cost Calculator](#). This spreadsheet program allows you to enter various feeds and compare the cost/lb for protein and/or TDN.

Looking at just the CP cost portion of the FeedPlan as an example, we can compare the purchase options of alfalfa hay with 20% crude protein at \$140 per ton, to other protein sources. The cost per lb of protein is approximately 40 cents/lb for alfalfa. These calculations are made on a dry matter basis. The best value as a protein supplement is provided by the alfalfa. Be sure that the prices used here include the cost of delivery, both from the source to your place and the cost of feeding it to the cows. Delivery to the cows may vary depending on the equipment needed for each (i.e. tractor vs. pickup, bale feeders vs. bunks, etc.). The nice thing about using hay as a supplement is that most producers are already equipped to handle it.

| FeedPlan - Feed Ingredient Cost Calculator | | | | | | | Printed: | 13/02/18 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------|----------|--------------|--------------|------------|------------|----------|
| *** Enter changes from feed test results and feed price to items in BLUE only | | | | | | | | |
| | Price/Unit | Weight | % | Weight | cents/lb | % | TDN | |
| Commodity | (As Fed) | (As Fed) | Moisture | (Dry Matter) | (Dry Matter) | (DM Basis) | (DM Basis) | CP Cost |
| Sorted based on lowest cost feed protein (CP) | | | | | | | | |
| alfalfa hay | \$ 140.00 | 2000 | 12.1 | 1758.0 | 7.96 | 63 | 20 | 39.82 |
| alfalfa hay | \$ 105.00 | 2000 | 12.1 | 1758.0 | 5.97 | 63 | 19.2 | 31.11 |
| 34% canola Meal | \$ 285.00 | 2205 | 8.0 | 2028.6 | 14.05 | 70 | 34 | 41.32 |
| 12% pellets | \$ 190.00 | 2205 | 10.0 | 1984.5 | 9.57 | 72 | 12 | 79.79 |
| oat grain | \$ 2.90 | 34 | 9.8 | 30.7 | 9.46 | 76.2 | 11.3 | 83.68 |
| 32% liquid suppl. | \$ 405.00 | 2205 | 41.5 | 1289.9 | 31.40 | 87.4 | 32 | 98.12 |
| 24% Molasses supp | \$ 385.00 | 2205 | 50.0 | 1102.5 | 34.92 | 65 | 51 | 68.47 |
| 22% Lick Tub | \$ 145.30 | 200 | 5.0 | 190.0 | 76.47 | 80 | 23.1 | 331.05 |
| Note: This budget is only a guide and is not intended as an in-depth study of livestock feed values. Interpretation and use of this information is the responsibility of the user. If you need help with a budget, contact your local Manitoba Agriculture office. | | | | | | | | |

Prices provided by Manitoba Ag

If you produced the alfalfa hay, then it can be priced at the cost of production, which will usually be favorable compared to the cost of purchased feedstuffs. In addition, it

provides an opportunity to add value to both the alfalfa hay and the low quality forage relative to purchased feedstuffs.

Using alfalfa hay, especially home-grown hay, provides an opportunity to meet protein deficiencies at a relative bargain.