

# Planning the Feeding of Your Beef Herd This Winter

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Many producers have been asking questions about supplementing their beef cattle herd. There are three things people need to know when deciding how they are going to feed the beef herd this year. These questions are:

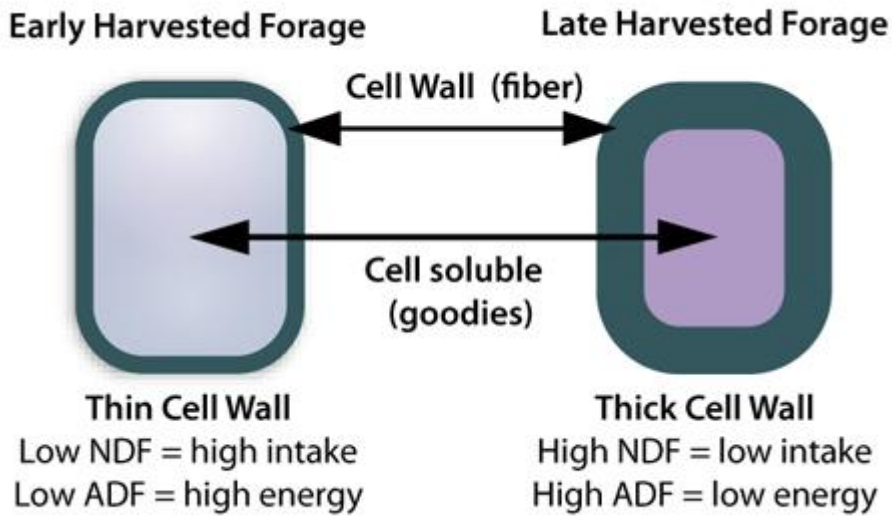
1. What are the requirements of my cows?
2. What do I have on hand to feed my cows?
3. Where are my cows lacking and how can I supplement what is lacking for my cows?

Table 1 shows the nutrient requirements for a 1,200 pound beef cow of moderate milking ability. This should represent the average beef cow in Virginia. Spring calving herds have the lowest nutrient requirements during early winter while fall calving herds are at or near peak nutritional needs. The nutrient requirements of beef cattle presented have been well established through research but do not account for any environmental factors. There are many environmental factors that affect the nutrient requirements of a beef cow being wintered in Virginia. Mud, wet hair coats, and very low temperatures can add significantly to the energy requirements of the beef cow. Total Digestible Nutrients (TDN) is a common measure of the energy density of various feedstuffs.

Table 1. Requirements of a 1200 pound beef cow of average milking ability

Type of Cow	DMI Pounds	Percent TDN	TDN Pounds	Protein %	Protein Pounds
Mid-gestation dry cows	23.3	49%	11.4	6.9%	1.6
Late gestation dry cows	24.1	53%	12.8	7.9%	1.9
Early/peak lactation	27.8	61%	16.9	10.6%	3.0

The next thing you have to look at is what you have on hand to feed your cows. This includes both the quantity and quality of what is available. The level of fiber in the hay can decrease the amount of hay that a cow will eat. Neutral Detergent Fiber (NDF) is a measure of the "bulkiness" of the hay. Research indicates that beef cows will intake a maximum of 1.2% of their bodyweight in forage NDF. Acid Detergent Fiber (ADF) is a measure of the digestibility of the hay. If the ADF of the hay is high, less of the hay will be utilized by the cow and more will pass through the cow undigested. Figure 1 shows the relationship between harvest stage and fiber content.



harvest stage and fiber content

Figure 1. Relationship between

In the samples in Table 2, the forage quality can be best described as less than ideal. The timing of the rainfall made producing quality hay in Virginia a challenge this year. Many producers have commented that the hay was “actually much greener and better than they thought it would be due to all the undergrowth”. The hay samples below demonstrate that on a whole that statement is probably not true and we need to take care when feeding this year’s hay crop. When feeding very poor quality hay high fiber levels serve as a double whammy. Not only are cows consuming hay with less energy and protein content, but because they will fill up their rumen faster they will eat less total pounds and take in even less total pounds of nutrients. Hay that is stored outside unprotected or baled when it is too green may have significant areas of mold. Moldy hay may limit intake as well. These issues explain why we commonly have problems maintaining weight on beef cows even when we are providing them with all the hay they want (can) eat. Table 2 contains the Total Digestible Nutrients (TDN), Crude protein, and NDF analysis from 61 hay samples from farms across the state of Virginia

Table 2. Nutrient analysis of 61 hay samples from Virginia beef cattle farms

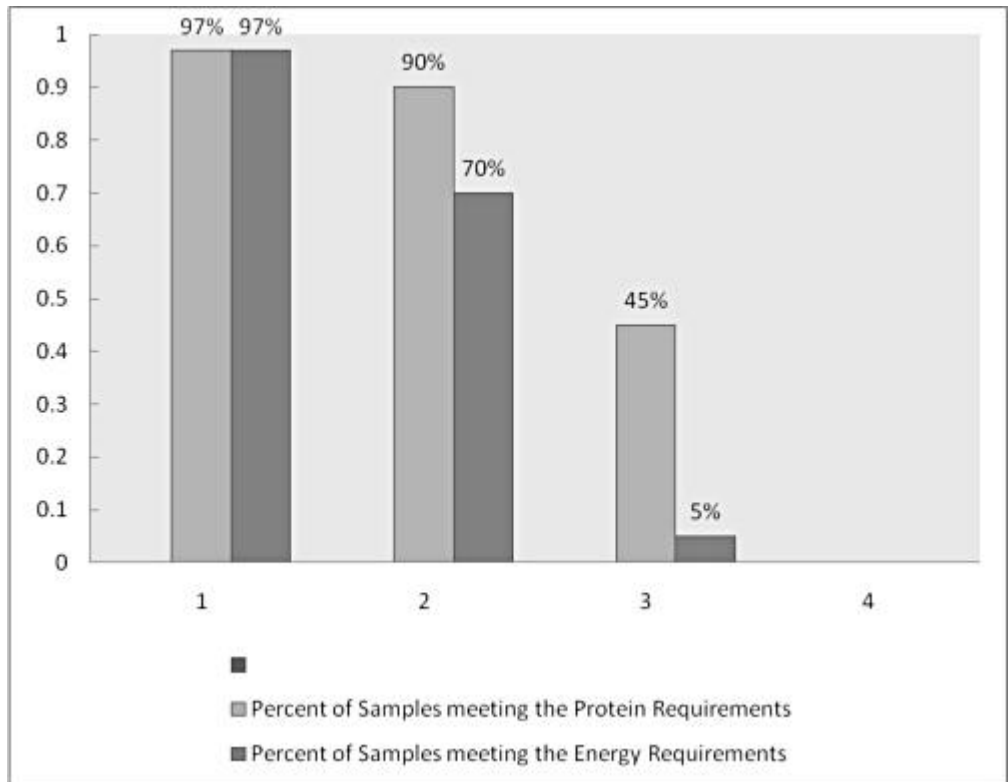
Farm	Geographic Location	Type	Cutting	Dry Matter	Crude Protein	TDN	NDF
1	Northern Piedmont	Grass Hay		88.4	8.1	55	69.3
		Grass Hay		86.8	9.8	49.1	71.2
		Grass Hay		88.2	9.6	57.8	63.5
2	Northern	Grass Hay	2nd	86.9	10.7	55.9	68.1

	Piedmont	Grass Hay	1st	85.8	12.6	50	75.7
		Grass Hay		83.7	9.7	50.9	73.9
		Grass Hay	3rd	88.3	8.8	54.8	67.4
3	Southern Piedmont	Grass Hay	1st	87.7	10.2	57.1	64.7
		Grass Hay	2nd	87.3	14.7	60.9	51.7
		Grass Hay		87.7	10.5	58.4	63.9
4	Coastal Plain	Clover/ Fescue	1st	87.7	12.1	54.4	63.7
		Coastal Bermuda	1st	87.1	7.5	64.8	66.2
		Bermuda Coastal	1st	87.6	6	61.2	71.2
		Fescue/ Clover	2nd	87.6	8	53	74.8
		Grass Hay	1st	86.4	7.8	45.9	71
5	Southern Piedmont	Alfalfa	1st	84.5	17.4	58.5	53.2
		Grass Hay	2nd	87.4	9.6	53	74
		Grass Hay Wrapped	2nd	69.5	8.5	50.8	70.9
		Alfalfa	1st	87.7	19.7	55.4	51.7
6	Coastal Plain	Bermuda Mix	1st	88.2	10.5	55.8	67.8
		Grass Hay	1st	88.8	8.3	54.9	70.7
		Bermuda (3)	2nd	85.8	10.3	52.5	75.3
7	Southside	Orchardgrass/ Clover	2nd	74.4	13.2	49.2	74.8
		Orchardgrass	1st	87.2	11.5	54.2	70

		Orchardgrass	1st	87	14.1	60.7	63.6
8	Coastal Plain	Bermuda Wrapped	2nd	49.3	11	57.6	72.9
		Grass Hay	1st	86.1	9.7	52.3	78.9
		Grass Hay	1st	87.9	9.6	53.9	74.8
		Grass Hay		86.3	5.9	43.8	83.9
		Orchardgrass/ Clover	1st	86	8.9	50.4	72.1
9	Southern Piedmont	Oats		84.7	7.5	56.5	67.1
		Orchardgrass/ Clover	2nd	83.5	9.5	51.7	72.3
		Halifax Hay	1st	86.8	11.6	58.1	66.5
		Orchardgrass/ Clover	1st	86	8.9	50.4	72.1
10	Southside	Fescue/ Orchardgrass	1st	87.8	10.7	54.2	72.5
		GrassHay	2nd	84.7	10.3	53.9	72
		GrassHay	1st	87.2	10.8	53.8	72.8
11	Southern Piedmont	Bermudagrass	2nd	84.9	7	60.4	70.8
		Bermudagrass	1st	85.9	11.5	58	66.1
		Orchardggrass	1st	87.5	13.1	56	64.2
		Grass Hay	2nd	86.2	9.7	59.2	67.6
		Grass Hay	1st	86	11.4	55.6	67.5
		Alfalfa	2nd	88	17.9	58.3	51.6
		Alfalfa/ Orchardgrass	2nd	84.6	16.8	61.4	53.2
		Alfalfa/ Orchardgrass	1st	88.7	13.4	55.7	56.8
12	Southwest Virginia	Alfalfa/ Orchardgrass	2nd	88.1	16	57.3	56.4
		Clover/Grass Wrapped	1st	70.9	18.1	56.2	61.9
		Grass Hay Wrapped	1st	60.8	12.1	51.9	68.8
		Clover/ Orchardgrass Wrapped	1st	24.5	17.8	49.7	60.9
		Grass Hay	1st	89	11.8	55	61

13	Blue Ridge Mountains	Grass Hay	1st	88	9.8	51.7	69
		Grass Hay	1st	85.8	8.3	51.5	71.4
		Clover/ Orchardgrass	2nd	82.9	17.7	52.4	66.2
		Orchardgrass	1st	87.5	9	52.1	72.3
		Clover/ Orchardgrass Wrapped	1st	54.3	12.9	54.6	67.6
		Grass Hay	1st	87.3	8.1	49.9	78
		Grass Hay	1st	87.9	10	54.5	70.5
		Alfalfa		87.5	9.3	55.4	66.6
		Millet Wrapped		52.2	10.1	55.4	61.5
		Grass Hay	1st	85.4	9.3	53.7	71.3
		Grass Hay	1st	86.9	8.9	55.4	66.2
		Wheat Wrapped		59.6	8.7	58.8	60.3

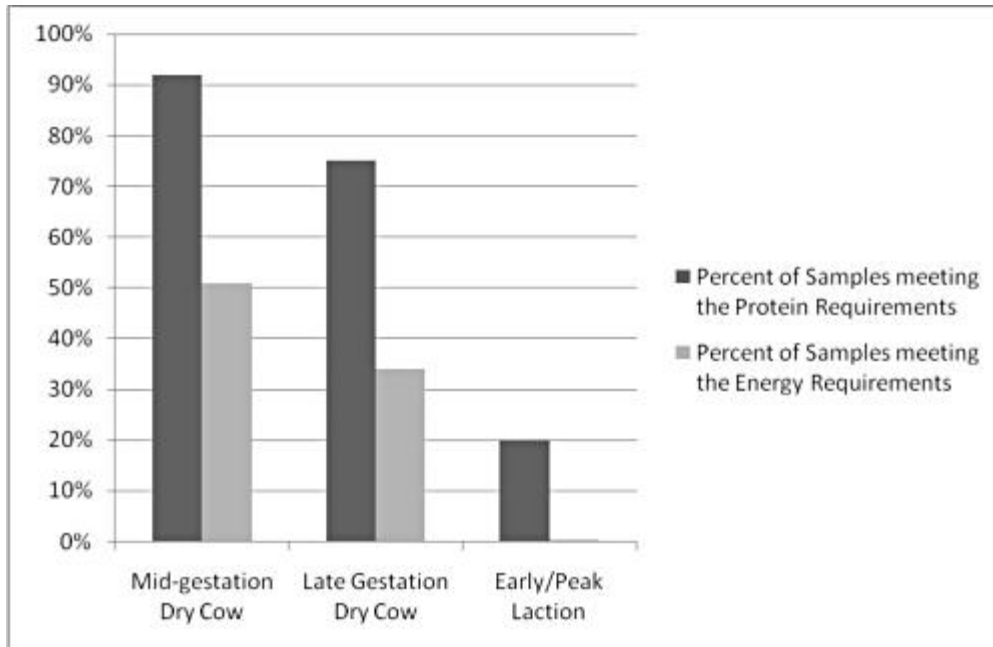
Graph 1 shows what how many of the hay samples will meet the nutrient requirements of beef cows at three different stages of production. The samples show that energy is the primary nutrient deficiency in cows in late gestation and early/peak lactation. Energy demands are very high for beef cows during these 2 stages of production any supplement strategy needs to be designed around meeting the energy demand of these cows.



Graph 1. Percent of samples meeting protein and energy requirements for different stages of production

### The effect of fiber on actual protein and energy intake in beef cows

In 51 out of 61 (83.5%) hay samples, the beef cows will run out of room in her rumen before she eats as much as she wants to eat. High fiber levels in the hay cause the cows to eat less than normal. While we talk about percentages of protein and TDN, it is important to remember that what is really vital is how many pounds of each nutrient each cow actually consumes. Graph 2 shows the percent of samples meeting the protein and energy requirements of beef cows when the hay intake level is adjusted for the fiber content of the hay.



Graph 2. Percentage of samples meeting protein and energy requirements for different stages of production when adjusting intake for hay fiber levels.

There is a common saying in business school that if you can't measure it you can't manage it. Farmers must run their farms like business if they want to maximize animal well being and profit. Feeding of beef cows generally makes up more than 60% of the costs of keeping a beef cow. Hay samples can be analyzed for \$15.50 per sample and you can body condition score cows while you are running them through the chute this fall. The chart above shows that it is near impossible to meet the energy needs of cows after they calve on hay alone. In order to ensure that cows are in adequate body condition so they will breed back in a timely manner producers have 3 choices.

1. Producers can have cows in a body condition score of 6+ so they can afford to lose 1 BCS
2. Cows can have access to grazing during this time frame
3. Producers can supplement cows to meet their needs

### **Coming next month:**

Evaluating the hay feeding on individual farms and planning a supplementation program

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