



## Vigortone Mineral Usage Guide

Phosphorus is very important in growth and development of animals as far as energy storage and structure of muscle and bone. Phosphorus is required by ruminal microorganisms for optimal fiber digestion. Phosphorus is often discussed in conjunction with calcium because the two minerals function together in bone formation.

Phosphorus has increased in cost significantly over the last few years and is a major cost in range mineral. Also, as environmental awareness comes more to the forefront, excessive phosphorus supplementation is more highly scrutinized. By using phosphorus values from Nutrient Requirements of Beef Cattle (Sixth Revised Edition, 1984) and Nutrient Requirements of Beef Cattle (Update 2000), Vigortone calculated and compiled a Mineral Usage Guide (Table 1). By using this guide, one can determine the Vigortone mineral that will meet the nutritional needs of the animal based on stage of production and diet phosphorus content. As noted, Table 1 is based on a year-round average intake of 3.5 to 4.0 ounces of mineral per head per day.

The guide is broken up into four different groups of cows based upon their stage of gestation and/or level of milk output. The groups are:

- Dry Pregnant Mature Cows – Middle Third of Pregnancy
- Dry Pregnant Mature Cows – Last Third of Pregnancy
- Cows Nursing Calves – Average Milking Ability – First 3-4 Months Postpartum
- Cows Nursing Calves – Superior Milking Ability – First 3-4 Months Postpartum

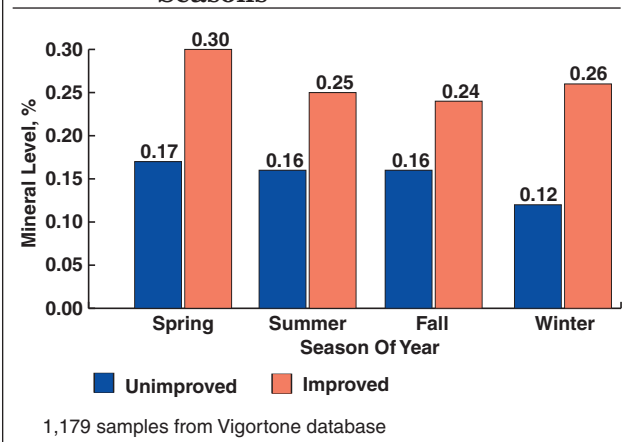
Each of these four groups is subdivided by weight (from 1,000 to 1,400 pounds – in 100 pound increments). Listed across the top of the guide is the percentage phosphorus in the total diet (on a dry matter basis) for the cow. To determine the percentage phosphorus in forage, samples may be analyzed or a value can be estimated from the following table:

**TABLE 1. Vigortone Mineral Usage Guide**

Cow Body Weight	Percent Phosphorus Of Forage (Diet) On Dry Matter Basis																
	0.10	0.125	0.15	0.175	0.20	0.225	0.25	0.275	0.30	0.325	0.35	0.375	0.40	0.425	0.45		
<b>Dry Pregnant Mature Cows – Middle Third Of Pregnancy</b>																	
1000 lb	3V2 S or 3V4S			3V5 S				3V0 S									
1100 lb	3V2 S or 3V4S			3V5 S				3V0 S									
1200 lb	3V2 S or 3V4S			3V5 S				3V0 S									
1300 lb	3V2 S or 3V4S			3V5 S				3V0 S									
1400 lb	3V2 S or 3V4S			3V5 S				3V0 S									
<b>Dry Pregnant Mature Cows – Last Third Of Pregnancy</b>																	
1000 lb	3V2 S or 3V4S			3V5 S				3V0 S									
1100 lb	3V2 S or 3V4S			3V5 S				3V0 S									
1200 lb	3V2 S or 3V4S			3V5 S				3V0 S									
1300 lb	3V2 S or 3V4S			3V5 S				3V0 S									
1400 lb	3V2 S or 3V4S			3V5 S				3V0 S									
<b>Cows Nursing Calves – Average Milking Ability – First 3-4 Months Postpartum – 11 lb milk/day</b>																	
1000 lb	3V2 S or 3V4S			3V5 S				3V0 S									
1100 lb	3V2 S or 3V4S			3V5 S				3V0 S									
1200 lb	3V2 S or 3V4S			3V5 S				3V0 S									
1300 lb	3V2 S or 3V4S			3V5 S				3V0 S									
1400 lb	3V2 S or 3V4S			3V5 S				3V0 S									
<b>Cows Nursing Calves – Superior Milking Ability – First 3-4 Months Postpartum – 22 lb milk/day</b>																	
1000 lb	3V2 S or 3V4S			3V5 S				3V0 S									
1100 lb	3V2 S or 3V4S			3V5 S				3V0 S									
1200 lb	3V2 S or 3V4S			3V5 S				3V0 S									
1300 lb	3V2 S or 3V4S			3V5 S				3V0 S									
1400 lb	3V2 S or 3V4S			3V5 S				3V0 S									

Based on a year-round average intake of 3.5 to 4 ounces per head per day

**TABLE 2. Phosphorus Levels In Various Seasons**



This table is a summarization (nearly 1,200 samples) of phosphorus content in unimproved and improved forages over the course of the year.

**TABLE 3. Average Phosphorus Content (dmb)**

<b>Forages</b>	<b>% P</b>	<b>% DM</b>
Alfalfa	0.23	90
Brome Grass	0.22	90
Coastal Bermuda Grass	0.26	92
Fescue	0.22	91
<b>Grains</b>		
Corn Grain	0.32	88
Corn By-Product	0.85	90
Corn Silage	0.22	35
Soy Hulls	0.21	91
Wheat Midds	0.95	91

Table 3 outlines the approximate phosphorus content of some common feedstuffs. With these values, along with the values shown in Table 4, one can estimate the total phosphorus content of a cow diet.

**TABLE 4. Resulting Dietary Phosphorus**

<b>Diet</b>	<b>% P In Diet</b>
All Forage	0.20
w/ 2 lb Corn Grain	0.21
w/ 4 lb Corn Grain	0.22
w/ 6 lb Corn Grain	0.23
All Forage	0.20
w/ 2 lb Corn By-Product	0.26
w/ 4 lb Corn By-Product	0.31
w/ 6 lb Corn By-Product	0.37
All Forage	0.20
w/ 5 lb Silage	0.20
w/ 10 lb Silage	0.20
w/ 15 lb Silage	0.21
w/ 20 lb Silage	0.21
All Forage	0.20
w/ 2 lb Wheat Midds	0.26
w/ 4 lb Wheat Midds	0.33
w/ 6 lb Wheat Midds	0.39

Example: Which Vigortone mineral should be fed to a 1,200 lb cow that is due to calve in two months? The owner is feeding her forage that contains 0.20% phosphorus, along with three pounds of a corn by-product.

From Table 4, an all-forage (in this case, 0.20% phosphorus) diet supplemented with three pounds of corn by-product will have a phosphorus content of approximately 0.285% {halfway between 0.26 (with 2 lb of corn by-product) and 0.31 (with 4 lb of corn by-product)}. From Table 1, it can be determined that a 1,200 lb cow in her last third of pregnancy, consuming a diet with 0.285% phosphorus, should be fed Vigortone 3V5 S.

**TABLE 5. Vigortone 3V Mineral Program**

	<b>3V0 S</b>	<b>3V5 S</b>	<b>3V4 S</b>	<b>3V2 S</b>	<b>Fescue Balancer</b>
Calcium, %	22.0	22.0	21.7	14.8	14.8
<b>Phosphorus, %</b>	<b>0.1</b>	<b>3.5</b>	<b>6.0</b>	<b>7.0</b>	<b>7.0</b>
Salt, %	20.0	20.0	6.5	20.0	20.0
Magnesium, %	1.0	1.0	1.0	1.0	1.0
Potassium, %	0.1	0.1	0.1	0.1	0.1
Copper, ppm	2,000	2,000	2,000	2,000	2,500
Selenium, ppm	26.4	26.4	26.4	26.4	26.4
Zinc, ppm	7,500	7,500	7,500	7,500	10,000
Vit A, IU/lb	400,000	400,000	400,000	400,000	400,000
Vit D, IU/lb	20,000	20,000	20,000	20,000	20,000
Vit E, IU/lb	200	200	200	200	200

Table 5 shows an overview of the Vigortone cow mineral program. As can be seen in this table, one of the major differences between the 3V minerals is the phosphorus content. Therefore, a mineral program for a cow herd can be based on the phosphorus content of the diet and the nutritional needs of the animal.

The Vigortone Mineral Usage Guide will help design a mineral program that allows for judicious, precise feeding of phosphorus to a cow herd.

Tables 1 through 4 are available upon request.