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Calcium and Phosphorus Content of Grasses at Different Stages of Growth

G.F. Gastler
South Dakota State College

A.L. Moxon
South Dakota State College

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Progress Report on Research Project No. 120
Calcium and Phosphorus Content of Grasses at
Different Stages of Growth

G. F. Gastler, Station Analyst
and
A. L. Moxon, Station Chemist

AGRICULTURAL EXPERIMENT STATION
South Dakota State College
Brookings, South Dakota

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Factors Affecting the Composition and Nutritive Values of
South Dakota Range Grasses and Their Cured Forages.★

The attached tables and graph show the calcium and phosphorus content of Western Wheat grass (Agropyron smithii) and Blue Grama grass (Bouteloua, gracilis) at different stages of growth. The percentages are calculated on an air dry basis which would be comparable with the moisture content of very dry hay. The values, therefore, represent the approximate calcium and phosphorus levels in hay made from these grasses if they are cut at the stages indicated in the graph and tables.

Forages which contain less than 0.11 o/o of phosphorus are considered to be deficient in phosphorus and should be supplemented with bonemeal or some other suitable source of this important element.

At the mature and weathered stage in late October both grasses from most of the areas were at or below this "borderline" value for phosphorus. If grass is cut for hay at this time of year it should be supplemented with a phosphorus containing mineral. The grasses also contain low levels of protein at this time of year. Animals on winter grazing and no other feed should be given a phosphorus supplement.

The "borderline" value for calcium in forages has been set at about 0.20 o/o. The calcium values were all above this level.

★

Mr. C. J. Franzke of the Agronomy Department supervised the collection of the samples.

WESTERN WHEAT GRASS

CALCIUM AND PHOSPHORUS CONTENT OF 1945 GRASS SAMPLES

Air Dry (dry hay) Basis -- Average Values for Replicate Plots

		Date of Sampling	July 10-15		Sept. 1-10		Oct. 25-30	
		Stage of Growth	Shooting		Seed Ripe		Mature and Weathered	
Area No.	Location of Plots	Ca ¹	P ²	Ca ¹	P ²	Ca ¹	P ²	
		%	%	%	%	%	%	
1	Minnehaha County 4 mi. N. of Humbolt	.45	.25	.34	.18	.35	.08	
2	Sanborn County 3 mi. N. of Forestburg	.38	.27	.35	.16	.33	.09	
3	Day County 2 mi. S. W. of Webster	.32	.25	.33	.16	.33	.09	
4	Spink County 10 mi. S. of Redfield	.34	.26	.40	.20	.34	.11	
5	McPherson County Eureka Sub-Station	.30	.30	.34	.21	.36	.11	
6	Brule County 4 mi. N. E. of Chamberlain	.34	.22	.24	.16	.27	.08	
7	Lyman County Reed Ranch-20 mi. N. Presho	--	--	.40 ³	.27 ³	.32	.07	
8	Todd County Tom Arnold Ranch	.37	.25	--	--	.28	.10	
9	Jackson County Cottonwood Range Station	.46	.23	.44	.19	.36	.09	
10	Butte County U.S. Field Station, Newell	.35	.30	.40	.24	.26	.13	
11	Perkins County 18 mi. S. of Lemmon	.31	.23	.37	.18	.31	.08	

¹ Ca = Calcium

² P = Phosphorus

³ Sample taken August 25th.

BLUE GRAMA GRASS

CALCIUM AND PHOSPHORUS CONTENT OF 1943 GRASS SAMPLES

Air Dry (dry hay) Basis -- Average Values for Replicate Plots

		Date of Sampling	Sept. 1-10		Oct. 25-30	
		Stage of Growth	Seed Ripe		Mature and Weathered	
Area No.	Location of Plots	Ca ¹ (%)	P ² (%)	Ca ¹ (%)	P ² (%)	
1	Minnehaha County 4 mi. N. of Humbolt	.37	.17	.31	.11	
2	Sanborn County 3 mi. N. of Forestburg	.39	.14	.28	.09	
3	Day County 2 mi. S. W. of Webster	--	--	.46	.11	
4	Spink County 10 mi. S. of Redfield	.50	.30	.31	.11	
5	McPherson County Eureka 3rd Station	.34	.21	.31	.16	
6	Brule County 4 mi. N. E. of Chamberlain	.33	.16	.26	.09	
7	Lyman County Reed Ranch-20 mi. N. Presho	.27 ³	.13 ³	.27	.10	
8	Todd County Tom Arnold Ranch	--	--	.33	.10	
9	Jackson County Cottonwood Range Station	.32	.31	.27	.11	
10	Butte County U.S. Field Station, Newell	.21	.16	.23	.08	
11	Perkins County 18 mi. S. of Lemmon	.36	.15	.26	.08	

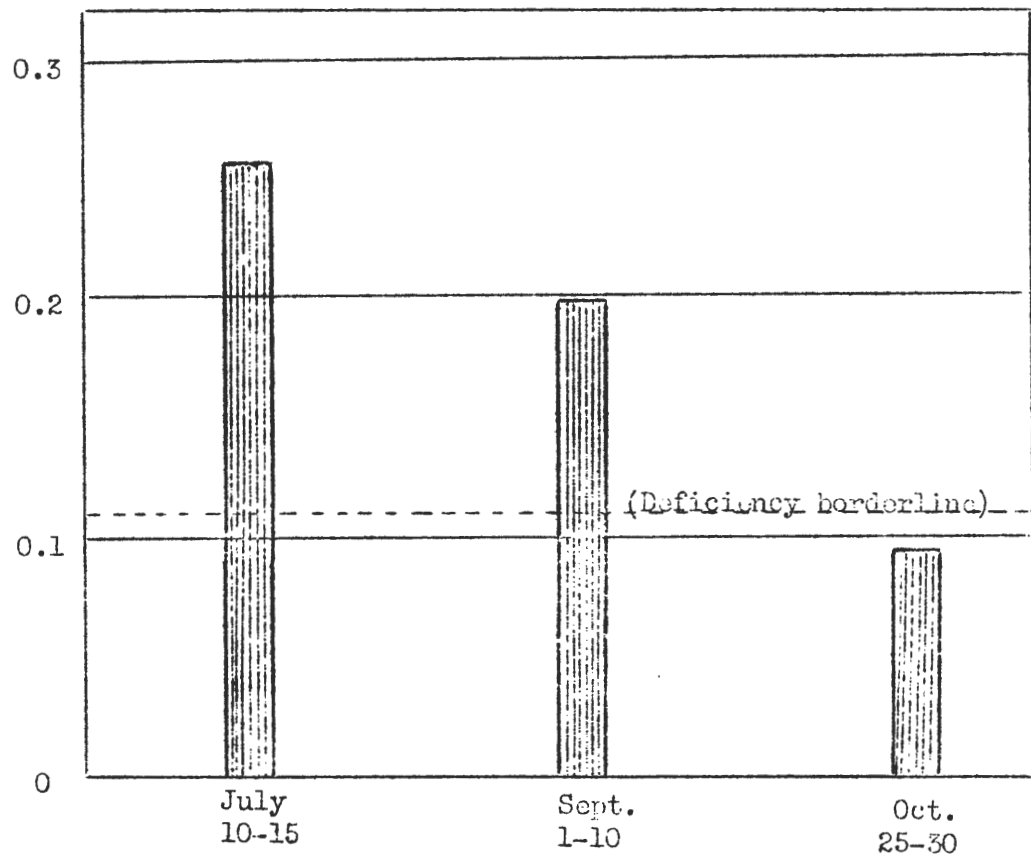
¹ Ca = Calcium

² P = Phosphorus

³ Sample taken August 25th

PERCENTAGE PHOSPHORUS IN 1943 GRASS SAMPLES

WESTERN WHEAT GRASS



BLUE GRAMA GRASS

