

Kansas Agricultural Experiment Station Research Reports

Volume 0
Issue 1 *Cattleman's Day (1993-2014)*

Article 1201

1981

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Recommended Citation

Harbers, L.H.; Sapienza, D.A.; Schwanke, L.; Kazemi, S.M.; and Smith, E.F. (1981) "Selenium content of native bluestem pastures," *Kansas Agricultural Experiment Station Research Reports*: Vol. 0: Iss. 1. <https://doi.org/10.4148/2378-5977.2604>

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Selenium content of native bluestem pastures

Abstract

We used steers with esophageal cannulas to measure selenium in burned and unburned bluestem pastures between May and September. Individual variation among steers sampled varied as much as two fold in selenium content. All values were considered adequate for cattle.

Keywords

Cattlemen's Day, 1981; Report of progress (Kansas State University. Agricultural Experiment Station); 394; Beef; Selenium content; Bluestem pastures

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Selenium Content of Native Bluestem Pastures

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S.M. Kazemi, and E.F. Smith**U**Summary

We used steers with esophageal cannulas to measure selenium in burned and unburned bluestem pastures between May and September. Individual variation among steers sampled varied as much as two fold in selenium content. All values were considered adequate for cattle.

Introduction

The micronutrient, selenium, is required by animals at about 0.10 ppm of their ration. Levels above 8.5 ppm can produce chronic toxicity. Eastern Kansas grains and forages are thought to have adequate selenium, while western Kansas has toxic levels in local areas.

Materials and Methods

Samples were collected from burned and unburned pastures monthly during the growing season (May-September) from steers with esophageal cannulas. Collected samples were dried at 50 C, ground, digested in perchloric acid, and analyzed for selenium by a fluorimetric procedure.

Results and Discussion

Selenium contents, summarized in table 26.1, ranged from 0.6 to 2.25 ppm in control pastures and from 1.05 to 1.95 ppm in burned pastures. Variation was wide among steers grazing the same pasture. Differences between sampling dates were small. We found less than 0.1 ppm in only one case, but a sample from a second steer grazing the same pasture contained 1.2 ppm.

The average selenium content from nonburned pastures was 1.34 ppm and that from burned pastures, 1.54 ppm. So selenium content is probably adequate during the growing period. We are now measuring selenium and vitamin E on the same pastures during fall and winter.

Table 26.1. Selenium content (ppm) of esophageally collected samples of nonburned and burned Flint Hills pastures.

| | May | June | July | Early Aug | Late Aug | Early Sept | Late Sept | Average |
|-----------|------|------|------|--------------|-------------|---------------|--------------|---------|
| Nonburned | 0.95 | 1.10 | 0.60 | 1.55 | 2.25 | 2.25 | 1.55 | 1.34 |
| Burned | 1.45 | 0.65 | 1.55 | 1.05 | 1.25 | 1.90 | 1.95 | 1.54 |
| Average | 1.20 | 1.38 | 1.08 | 1.30 | 1.30 | 2.08 | 1.75 | 1.44 |