

SOME OBSERVATIONS ON THE NITRATE CONTENT
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Extensive livestock losses due to oat hay (nitrate) poisoning have been recorded in the past by the Colorado², Wyoming³, and South Dakota⁴ Agricultural Experiment Stations. Since 1940, losses due to nitrate poisoning have been infrequently reported in South Dakota. The following investigation is part of a general study being made to ascertain the factor or factors responsible for abnormal accumulations of nitrates in oat straw.

In the summer of 1940, samples of Kanota, Nakota, Early Burt, F 40, Richland, Iogold, and Rusota oats, and Spartan and Odessa barleys were collected at various stages of maturity⁵. The experimental plots from which the samples were obtained were located at the North Central Substation at Eureka, South Dakota, the Central Substation at Highmore, South Dakota and the West Central Substation at Vivion, South Dakota. Three samples were taken of each variety on the given sampling date. These are air-dried, ground, and analyzed for nitrate nitrogen using the Devarda metal method⁷. The results are recorded in the following table.

¹Approved for publication by the Director of the South Dakota Agricultural Experiment Station.

²Newsom, I. E., E. N. Stout, F. Thorp, Jr., C. W. Barber, and A. H. Groth. Oat hay poisoning. *Jour. Am Vet Med Assoc.* **90**: 66-75 (1937).

³Thorp, F. Jr. Further observations on oat hay poisoning. *Jour. Am. Vet. Med. Assoc.* **92**:157-170 (1938).

⁴Bradley, W. B., H. F. Eppson, and O. A. Beath. Livestock poisoning by oat hay and other plants containing nitrates. *Wyo. Agric. Exp. Sta. Bull. No. 241*, 20 pp., illus. (1940).

⁵Olson, O. E., and E. I. Whitehead. Nitrate content of some South Dakota plants. *Proc. S. D. Acad. Sci.* **20**:95-101 (1940).

⁶We thank Dr .S. P. Swenson, formerly Associate Agronomist, South Dakota State College, Brookings, S. D., and now Associate Professor of Agronomy, Washington State College, for making the samples available.

⁷Bradley, Eppson and Beath. *loc. cit.*

On scanning these data, it is apparent that considerable variation exists in the nitrate content of a given variety of oats grown on the same experimental plot. Therefore, when accurate investigation of the nitrate content of field-grown oats is desired, a special sampling technique should be adapted to the study.