

Publications

The following publications appeared last year:

- Tillman, A. D. 1967. Urea utilization by ruminant animals. *Southern Veterinarian* 3:8.
- McCartor, M. M. and A. D. Tillman. 1967. The performance of beef steers fed isonitrogenous, isomineral all-concentrate rations. *Okl. Agr. Exp. Sta. M.P.* 79:97.
- Clifford, A. J., R. D. Goodrich and A. D. Tillman 1967. Effects of supplementing ruminant all-concentrate and purified diets with vitamins of the B complex. *J. Animal Sci.* 26:400.
- Merina, Hector Z. 1967. Effect of molasses on feed utilization by sheep. Thesis for M.S. Degree. Oklahoma State University, Stillwater.
- Clifford, A. J. 1967. Urea utilization studies with ruminants. Thesis for Ph.D. Degree. Oklahoma State University, Stillwater.

Five additional papers have been prepared from results obtained during the past year and four of these have been accepted by the *Journal of Animal Science*.

Future Work

Additional practical tests to determine how to use urea under typical Oklahoma winter range conditions are underway as are basic studies on the mechanism of urea toxicity.

Development of Methods for Relating Forage Properties to Intake and Digestibility

J. E. McCroskey

Rumen fistulated steers are being used to sample grazed bermudagrass and to compare different indicators for estimating forage intake. Undigestible cellulose (determined by nylon bag technique) and lignin are the natural grass constituents being compared as indicators of forage digestibility. Chromic-oxide and polyethylene glycol are external indicators being compared in estimating fecal output. By the use of these internal and external indicators intake of grazed forage is being calculated. Chemical composition of bermudagrass at various times during the year is being related to voluntary forage intake.
