ATS AND PROTEINS RESEARCH FOUNDATION, INC.

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Low Levels of Feather Meal in Ruminant Rations

The high protein content and relatively low cost of hydrolyzed feather meal has suggested its use as an economical replacement for soybean meal in animal feeds. Because of the deficient amino acid composition of keratin, the principal protein present, it has a limited application in the nutrition of monogastric animals. The amino acid profile of dietary protein, however, is not critical for ruminants who are able to meet their requirements of essential amino acid by rumenal synthesis. Thus, hydrolyzed feather meal is of special interest in the formulation of rations for cattle and sheep.

The investigations by Prof. W. M. Beeson and his coworkers (Director's Digest No. 124, September, 1975; M. I. Wray, M.S. Thesis, Purdue University, 1977) demonstrated that hydrolyzed feather meal can satisfactorily replace 25-100% of the protein in a soybean meal-based supplement fed to steer and heifer calves with a Midwestern corn and corn silage ration. Feed conversions were slightly better in some groups of animals fed the soybean meal supplements. Prof. D. C. Church (Director's Digest No. 137, March, 1978) replaced 25-75% of the soybean meal protein with hydrolyzed feather meal in sheep rations containing 40% roughage. Although the digestibility of the feather meal appears to be somewhat less than that of soybean meal, particularly at higher levels, its biological value and nitrogen retention compare quite favorably with the soybean meal diet.

Prof. T. W. Perry and his associates at Purdue University, with grant support from the Fats and Proteins Research Foundation, have now investigated the effectiveness of hydrolyzed feather meal as a replacement for up to 10% of the supplemental protein in heifer beef calves fed a Midwestern corn silage-corn ration.

Over three hundred animals averaging 500 lbs. each were used in replicate experiments conducted in three separate barn locations and fed three different protein supplements (0:100, 5:95 and 10:90 percent ratios of protein from hydrolyzed feather meal and soybean meal, respectively). Weight gains and feed consumption of the calves over a period of 172 days were essentially the same. These preliminary data indicate that modest feeding economies can be realized by replacing limited amounts of soybean meal supplements with hydrolyzed feather meal in finishing beef rations.