

Director's Digest



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Hydrolyzed Feather Meal as a Source of Natural Protein for Liquid Supplements

High-urea supplements have been widely used by producers as a method of providing additional protein and other nutrients for cattle. The popularity of liquid supplements is reportedly due to a number of factors including the following:

- Liquid supplements are easy to handle and store with relatively low equipment costs.
- Liquid supplements generally can be fed with less labor on a freechoice basis than dry feeds.
- Liquid supplements are usually more economical than dry supplements.

Most liquid supplements are high in urea and contain little if any natural protein. Generally, the use of high-urea liquid supplements result in somewhat lower performance than is obtained when natural proteins are used as a portion of the supplemental protein. Usually, this difference is observed during the early portion of the feeding period when cattle appear to be "adjusting" to the high-urea supplements.

Recent research has shown that hydrolyzed feather meal can serve as an effective source of natural protein in dry supplements for ruminants. Professor T. W. Perry and his associates at Purdue University, with a grant from the Fats and Proteins Research Foundation, have studied the effectiveness of hydrolyzed feather meal

as a replacement for a portion of the supplemental protein in a corn-corn silage ration for heifers. The results of this study indicate that feather meal can satisfactorily replace at least 25% of the soybean meal as a source of supplemental protein in a dry ration.

In 1978 Professor D. C. Church, Oregon State University reported on an investigation supported by the Fats and Proteins Research Foundation. In this study, supplemental protein was supplied by soybean meal, hydrolyzed feather meal, and hydrolyzed feather meal with urea in feedlot cattle. The results of this study indicated there was essentially equal performance between the soybean meal and the feather meal rations. It is significant to note that supplementing the feather meal with urea appeared to have a stimulatory effect which showed a trend toward faster gains and improved feed efficiency.

Previously it has not been possible to dissolve or suspend such insoluble sources of protein as feather meal in liquid supplements. However, new research results with suspending agents has introduced the capability of suspending insoluble materials in liquid supplements for an extended period of time.

Professor Elliott Barrick, at North Carolina State University, with grant support from the Fats and Proteins Research Foundation, investigated the effectiveness of hydrolyzed feather meal when suspended at a level of 15% in a typical liquid supplement. Since most liquid supplements are commonly self-fed on a free-choice basis, Professor Barrick wanted to determine if feather meal would influence intake and performance. In the first study, a favorable response was obtained from the feather meal, when added at the 15% level and fed with cottonseed hulls as the roughage. In another group, the intake of the corn stover was so low that it was not possible to evaluate the liquid supplement during this test. In the second study, 15% feather meal was again added to a 32% protein liquid supplement for heifers fed corn silage and limited grain. The results are shown in Table I.

Performance of Heifers fed Corn Silage (drought-stricken) and limited corn supplemented with a Liquid Supplement or a Liquid Supplement with Feather Meal.

	Liquid Supplement	Liquid Supplement and 15% Feather Meal	% Improvement over Control
Number of Heifers	20	20	--
Initial Weight, Pounds	599	602	--
Average Daily Gains, Pounds	2.0	2.35	17.5
Feed (Including Supplement, Grain & Roughage) Required per Pound of Gain, Pounds	18.17	15.23	16.2

In this study the heifers fed the liquid supplement with hydrolyzed feather meal gained approximately 17% faster during the test period. A similar improvement was observed in feed efficiency. The favorable response to the feather meal liquid supplement demonstrates a distinct advantage over conventional liquid supplements. These findings indicate considerable potential for feather meal, a low-cost, abundantly available product of the rendering industry, as a natural source of protein for use in the more than 2 million tons of liquid cattle supplements now being produced annually.

Additional research studies are being conducted in order to determine the advantages of hydrolyzed feather meal in liquid supplements for light weight calves as well as growing and finishing cattle.