



# FATS AND PROTEINS RESEARCH FOUNDATION, INC.

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## THE DIRECTOR'S DIGEST

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### NEW RESEARCH ON FATS IN HIGH MOISTURE CORN RATIONS

Feeding trials conducted by Professor W.M. Beeson and his co-workers at Purdue University indicate that feed grade animal fat is an effective source of energy in corn and corn silage rations under certain conditions. With grant support from the Fats and Proteins Research Foundation a study was conducted with steers to determine the effect of the dry matter content of a corn and corn silage ration on the acceptability of fat.

Both 36% and 45% dry matter corn silage were fed in combination with a) high moisture corn without fat, b) high moisture corn with fat and c) dried corn with fat. Fat was fed at a level of 3% based on the dry matter content of the ingredients. Purdue 64 high-urea supplement was incorporated into each ration at the rate of one pound daily per head.

A preliminary study was made to compare the acceptability of fancy fat with regular grade feeding fat. The two grades of fat were fed at the 3% level (about 0.4 pound per head daily) in a ration of high moisture corn and corn silage. Both grades of fat elicited identical daily weight gains but, significantly, the

gains were less than when the same ration was fed without added fat. Since no differences in response were observed with the two grades of fat subsequent feeding trials were conducted with feed grade animal fat.

When steers were fed a diet of regular corn silage (36% dry matter), dried corn and 3% fat daily weight gains and feed efficiency were higher than those of steers fed no fat. Feed efficiency was also improved by the addition of fat. When the 36% corn silage was replaced by 45% corn silage, however, steers fed no fat gained more rapidly and more efficiently than those receiving fat. Whether 36% or 45% dry matter corn silage was fed, the weight gains were made faster and more efficiently on rations containing dried corn and fat than on those from high moisture corn and fat. Gain rates of steers on diets containing dried corn and fat, however, were essentially the same as when no fat was fed.

These trials suggest that fat is effective as a source of energy for cattle fed a ration of dried corn and corn silage but is not adapted to rations formulated from high moisture corn and corn silage. The cause of this anomaly may be a change in rumen environment which is the subject of another investigation undertaken recently and supported by FPRF.