

OPTIMUM LEVELS OF AMINO ACID SUPPLEMENTATION FOR LIME-TREATED CORN.

Ricardo Bressani. Institute of Nutrition of Central America and Panama (INCAP), Guatemala, Central America.

The number of limiting amino acids in lime-treated corn (masa) and optimum levels of supplementation were estimated from the growth, total serum protein and liver fat of rats. Groups of six animals were fed a basal masa diet supplemented with all nutrients, and varying levels of known limiting amino acids were added. The optimum amounts of added lysine and tryptophan in combination were 0.31 and 0.05 per cent. For lysine alone 0.31 per cent was also optimum but tryptophan alone had no effect. Lysine addition did not always increase growth, but consistently improved feed and protein efficiencies, raised serum proteins and lowered liver fat. When isoleucine, threonine and methionine were each tested at three levels in the presence of optimum lysine and tryptophan, the most desirable levels were 0.20, 0.20 and 0.15 per cent respectively. Anyone of these three amino acids combined with lysine and tryptophan increased growth, feed and protein efficiency and serum proteins, and either threonine or methionine lowered liver fat. Methionine had the least effect in raising serum proteins. Two of the three also improved some or all of these measures. It is concluded that in rats the simultaneous addition of 0.31 per cent L-lysine, HCl 0.5 per cent DL-tryptophan and 0.20 per cent DL-isoleucine, 0.20 per cent DL-threonine and 0.15 per cent DL-methionine to a corn masa diet is optimal as judged by the criteria used. (Assisted by funds from E. I. du Pont de Nemours and Company and from U. S. Public Law 480 arranged through the National Millers Federation).

Fed. Proc., 19:320, 1960. INCAP Publication I-147