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COMPUTING LEAST COST DIETS

D. J. Arshem<sup>1</sup>

Computing least cost diets with the aid of the computer and linear programming techniques is a widely accepted and an efficient means of reducing feed costs in the livestock and poultry industry. A system of this type for use in the field has been developed at State University.

The savings of only a few cents per ton justifies the investment in some means of computerized feed formulation service where large tonnage is handled. The small feed manufacturer and independent producer generally may not be able to justify subscription to such a service. The situation is similar with the University where the use of least cost feed formulation is needed only for a limited number of research diets and classroom experience for students. However, a system was built utilizing existing programs from IBM in an effort to fill this need at the University.

The library of feed ingredients and their nutrient composition was built from the Joint US-Canadian Tables of Feed Composition, published by the National Research Council. This library system, though not as sophisticated as some commercially available systems, provides the user with a complete analysis of a computed diet.

A study was conducted to compare least cost diets with the standard University corn-soy diet at 3 month intervals over the past year. There would have been a savings of \$3.66 to \$5.34 per ton with the least cost diets which represents a reduction of nearly 1 cent per dozen eggs produced. This means a savings of \$135 to \$205 per month for 10,000 birds at 70% production.

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COMPOSITION OF LEAST COST DIETS AND ANALYSIS OF POTENTIAL SAVINGS

	SDSU Standard Diet (%)	Least Cost Diets				
		Aug. 1969 (%)	Nov. 1969 (%)	Feb. 1970 (%)	May 1970 (%)	Aug. 1970 (%)
Corn	71.45	32.24	58.60	64.77	37.88	59.22
Milo					33.44	6.86
Wheat		22.88				
Barley		22.60				
Ground Oats			15.62	6.32	1.28	5.33
Soybean Meal (47)	14.00	9.84	15.75			
Soybean Meal (44)				19.19	17.65	18.87
Alfalfa Meal (17)	2.00	0.87				
Meat and Bone Meal	5.00	5.00	2.46	2.00	2.00	2.00
Dicalcium Phosphate	1.50	0.13	0.91	1.05	1.03	1.05
Limestone	5.00	5.44	5.66	5.67	5.68	5.67
Salt	0.50	0.50	0.50	0.50	0.50	0.50
Vit Premix	0.50	0.50	0.50	0.50	0.50	0.50
MHA	0.50				0.40	
Cost of Least Cost Diet		\$ 50.65	\$ 50.23	\$ 52.99	\$ 51.96	\$ 53.88
Comparable Cost of Standard Diet		56.09	53.99	57.40	56.98	57.93
Savings in Favor of Least Cost Ration						
Dollars/Ton		5.34	3.66	4.41	5.02	4.05
Cents/Dozen (4.25 lbs/Dozen)		1.134	0.778	0.938	1.066	0.860
\$/month for 10,000 Birds @ 70% production		204.00	139.00	169.00	192.00	155.00