

# FATS AND PROTEINS RESEARCH FOUNDATION, INC.

# Director's Digest



FRED D. BISPLINGHOFF, D.V.M.  
Director Technical Services

7150 ESTERO BLVD • APT. 906  
FT. MYERS BEACH, FL 33931  
AREA CODE 813 — 463-4744  
FAX 813 — 463-1315

March 1990 No. 193

THIS DIGEST WILL COVER BLENDED ANIMAL PROTEIN PRODUCTS THAT RENDERERS  
HAVE FORMULATED FOR SALE TO FEED MANUFACTURERS AND DIRECT TO MILK PRODUCERS

Fred D. Bisplinghoff, D.V.M.

MOPAC  
RENPLUS<sup>R</sup> - 65%  
TM  
ANIMAL BYPASS PROTEIN

TYPICAL ANALYSIS OF MOYER PACKING 65% ANIMAL & FISH PROTEIN BLEND FOR USE  
IN FEED FORMULATIONS ON AN AS FED BASIS.

DRY MATTER	94.0	%
CRUDE PROTEIN	65.5	%
SOLUBLE PROTEIN (% OF CP)	6.9	%
DEGRADE PROTEIN (% OF CP)	34.0	%
UNDEGRAD PROTEIN (% OF CP)	66.0	%
PEPSIN CRUDE PROTEIN DIGESTIBILITY	91.5	%
METABOLIZABLE ENERGY-POULTRY	1280	KCAL/LB
METABOLIZABLE ENERGY-SWINE	1100	KCAL/LB
TDN	76.0	%
NET ENERGY - MAINTENANCE	0.78	MCAL/LB
NET ENERGY - GAIN	0.47	MCAL/LB
NET ENERGY - LACTATION	0.79	MCAL/LB
CRUDE FAT	7.5	%
CRUDE FIBER	1.5	%
ASH	15.0	%
CALCIUM	5.1	%

PHOSPHORUS (AVAILABLE)	2.6 %
SALT	0.85 %
SODIUM	0.50 %
CHLORIDE	0.55 %
MAGNESIUM	0.50 %
POTASSIUM	0.35 %
SULFUR	0.60 %
IRON	905.00 PPM
COBALT	0.12 PPM
COPPER	5.75 PPM
MANGANESE	12.30 PPM
ZINC	73.00 PPM
IODINE	0.65 PPM
SELENIUM	0.42 PPM
ARGININE	4.10 %
LYSINE	3.00 %
METHIONINE	1.00 %
CYSTINE	1.35 %
TRYPTOPHAN	.61 %
TYROSINE	1.95 %
THREONINE	2.80 %
GLYCINE	5.62 %
PHENYLALANINE	3.20 %
VALINE	3.58 %
LEUCINE	6.15 %
ISOLEUCINE	1.75 %
HISTIDINE	2.12 %
VITAMIN E	0.40 IU/LB
THIAMINE	0.17 MG/LB
RIBOFLAVIN	1.93 MG/LB
NIACIN	17.70 MG/LB
PANTOTHENATE	2.70 MG/LB
CHOLINE	637.30 MG/LB
PYRIDOXINE	2.70 MG/LB
BIOTIN	.15 MG/LB
FOLACINE	.10 MG/LB
VITAMIN B <sub>12</sub>	51.60 MCG/LB
LINOLEIC ACID	.45 %

Moyer Packing Company  
 PO Box 395  
 Souderton, PA 18964-0395  
 215 723-5555



Beef Packers/Renderers

PERFORMANCE OF COWS FED ISONITROGENOUS DIETS CONTAINING  
 SOYBEAN MEAL OR ANIMAL BY-PRODUCT MEALS IN EARLY LACTATION  
 =====

Considerable research has been reported in this country on controlling protein degradability in the rumen with such protein sources as brewers dried grains, distillers dried grains and corn gluten meal. However, limited research had been run on an excellent undegradable protein source, animal and fish by-products. Cornell University with Charles Sniffen, Phd., as project director, conducted a study for MOYER PACKING COMPANY from June 1986 to July 1987. The research project compared MOPAC's RenPlus-65% \*, 48% soybean meal, and fish meal on milk and growth response with 1st calf lactating holstein heifers, and growing heifers.

For the lactation study, RenPlus-65% was compared to soybean meal and fish meal. The three treatments consisted of 60-1st calf heifers housed in pens with 20 heifers per treatment. Each animal was on the experiment for the first 100 days of their lactation. The heifers were fed a total mixed ration (TMR) ad libitum. Feeding took place once a day at 1100 hr., and milking twice a day at 0200 hr and at 1400 hr.

\* RenPlus-65% Ingredients: Meat & Bone Meal, Meat Meal, Ring Dried Blood Meal, Fish Meal, Poultry By-Product Meal, Hydrolyzed Poultry Feathers, Deflourinated Phosphate, Calcium Carbonate, Ethoxyquin (1,2-Dihydro-6-Ethoxy 90, 2-2-4 Trimethylquinoline related material 10%) "preservative".

Moyer Packing Company  
 PO Box 395  
 Souderton, PA 18964-0395  
 215 723-5555



Beef Packers/Renderers

INGREDIENTS AND CHEMICAL COMPOSITION OF TOTAL MIXED RATIONS \*

=====

ITEM	MOPAC-65%	SOYBEAN MEAL	FISH MEAL
INGREDIENT			
Corn Silage	54.8	54.8	54.8
Shell Corn	19.6	16.6	18.9
Wheat Middlings	11.3	11.3	11.3
MOPAC-65%	6.3	---	---
Soybean Meal	6.7	15.4	6.7
Fish Meal	---	---	7.4
Minerals and Vitamins	1.2	1.9	.9
CHEMICAL ANALYSIS			
Crude Protein	17.1	17.4	17.3
Soluble <sup>1</sup>	30.4	33.2	33.7
Degradable <sup>2</sup>	57.6	68.0	62.2
Undegradable <sup>3</sup>	42.4	32.0	37.8
NDF	34.6	30.5	31.2
ADF	17.2	17.4	16.7
Ca	.76	.78	.76
P	.62	.50	.64
Mg	.28	.29	.29
Na	.20	.19	.22
S	.25	.22	.27
NE-lac <sup>4</sup>	1.65	1.65	1.65

<sup>1</sup> Soluble in borate-phosphate buffer.

<sup>2</sup> Nitrogen degradable after 18h incubation with protease in vitro.

<sup>3</sup> Nitrogen undegradable after 18h incubation with protease in vitro.

<sup>4</sup> Mcal/kg DM.

\* Mantysaari, P. and C.J. Sniffen. 1987. Effect of Animal Protein Sources on Animal Growth & Lactation. Cornell unpublished data.

Moyer Packing Company  
 PO Box 395  
 Souderton, PA 18964-0395  
 215 723-5555



Beef Packers/Renderers

MEANS OF MILK YIELD, MILK COMPOSITION AND BODY WEIGHT CHANGE ON  
 DIFFERENT DIETS \*

DIET ++	MILK		FAT	PROT	SNF	BODY	BODY
	YIELD	FCM				WEIGHT	SCORE
	---	LB/D	---	---	---	LB/D	---
MOPAC-65%	59.7	57.1 b	3.68 a	3.09	8.39	.580	-.01
SBM	57.7	55.1ab	3.74 a	3.19	8.48	.093	.01
FISH MEAL	59.1	52.9 a	3.39 b	3.19	8.43	.231	-.01

++ Each treatment consisted of 20-1st calf heifers from day of calving to 100 days postpartum.

a,b Means in the same column with different superscripts differ significantly ( $P < 0.05$ ).

\* Mantysaari, P. and C.J. Sniffen. 1987. Effect of Animal Protein Sources on Animal Growth & Lactation. Cornell unpublished data.

KRY 11-30-87

**MOPAC®**  
**Ren Plus™ - 65%**

**GUARANTEED ANALYSIS**

Crude Protein (Minimum)	65.00%
Crude Fat (Minimum)	6.50%
Crude Fiber (Maximum)	3.00%
Calcium (Maximum)	6.00%
Calcium (Minimum)	4.00%
Phosphorus (Maximum)	3.00%
Phosphorus (Minimum)	2.00%
Calcium:Phosphorus Ratio (Maximum)	2.2:1

**INGREDIENTS**

Meat & Bone Meal, Meat Meal, Flash Dried Blood Meal, Hydrolyzed Poultry Feathers, Poultry By-Product Meal, Fish Meal, Defluorinated Phosphate, Calcium Carbonate, Technical Ethoxyquin "added as a preservative".

**MOYER PACKING CO.**

P.O. Box 395

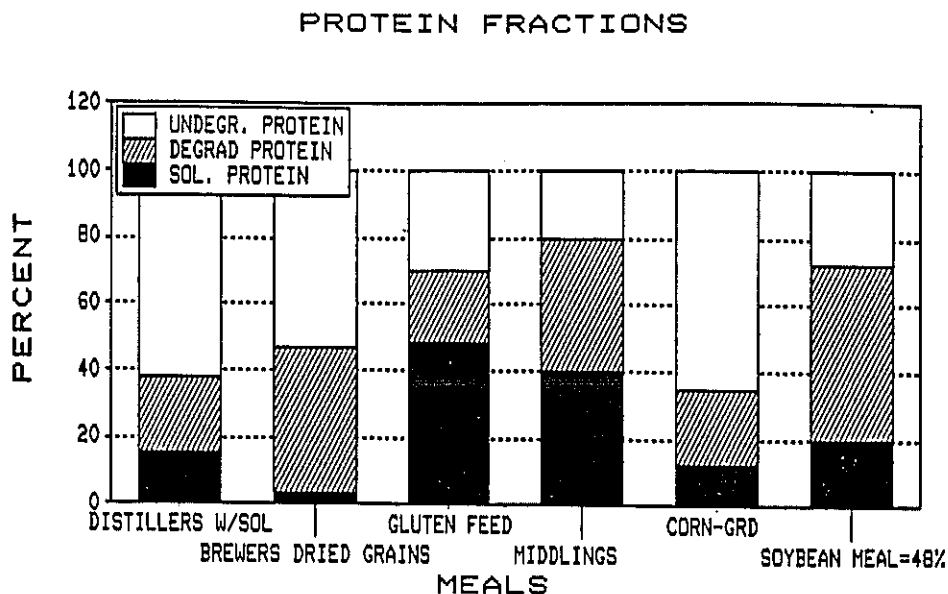
Souderton, PA 18964-0395

Moyer Packing Company  
 PO Box 395  
 Souderton, PA 18964-0395  
 215 723-5555



Beef Packers/Renderers

PROTEIN FRACTIONS OF VARIOUS INGREDIENTS \*



	DISTILLERS W/SOL	BREWERS DRIED GRAINS	GLUTEN FEED	WHEAT MIDLINGS	GROUND CORN	SOYBEAN MEAL
	-----% OF CRUDE PROTEIN-----					
UNDEGRADABLE PROTEIN	62	53	30	20	65	28
DEGRADABLE PROTEIN	38	48	70	80	35	72
SOLUBLE PROTEIN	15	3	48	40	12	20

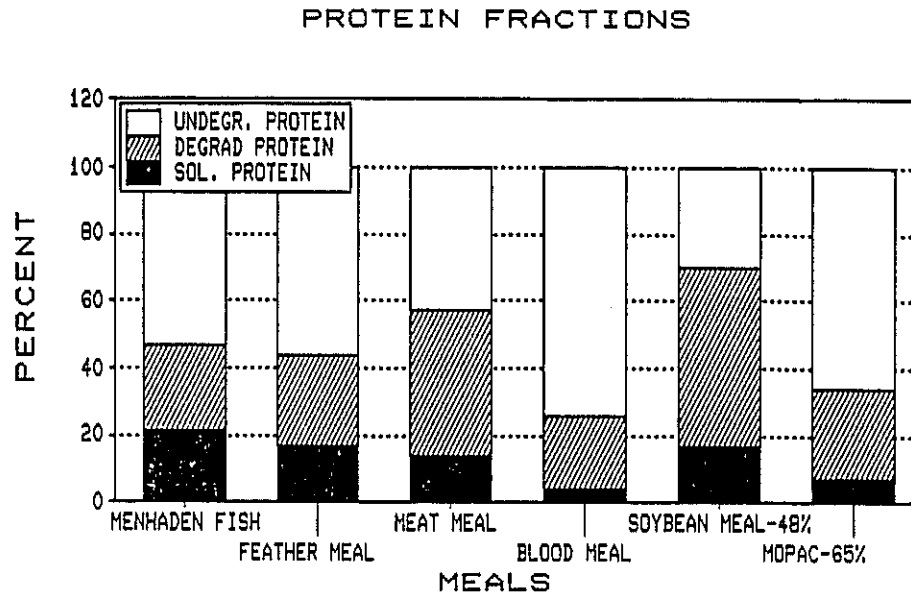
\* NATIONAL RESEARCH COUNCIL. 1985. RUMINANT NITROGEN USAGE. NATIONAL ACADEMY PRESS, WASHINGTON, D.C.  
 SNIFFEN, C.J., SOLUBLE PROTEIN, CORNELL DATA.

Moyer Packing Company  
 PO Box 395  
 Souderton, PA 18964-0395  
 215 723-5555



Beef Packers/Renderers

PROTEIN FRACTION OF VARIOUS INGREDIENTS \*



	MANHADEN FISH	FEATHER MEAL	MEAT MEAL	BLOOD MEAL	SOYBEAN MEAL	MOPAC 65%
	-----% OF CRUDE PROTEIN-----					
UNDEGRADABLE PROTEIN	53	56	43	74	30	66
DEGRADABLE PROTEIN	47	44	57	26	70	34
SOLUBLE PROTEIN	21	17	14	4	17	7

\* MANTYSARRI, P. AND C. J. SNIFFEN. 1987. EFFECT OF ANIMAL PROTEIN SOURCES ON ANIMAL GROWTH & LACTATION. CORNELL UNPUBLISHED DATA.



Moyer Packing Company  
 PO Box 395  
 Souderton, PA 18964-0395  
 215 723-5555

Beef Packers/Renderers

NEW YORK STATE  
DAIRY FARMER

MILKING 73 COWS  
 (Stanchion Barn)  
 (Ave. age of milking herd is 52 months)

Top Dressing concentrate  
 (cows receiving 0.8 to 1 pound per day  
 of RenPlus-65% in top dress.)

Top Dress consists of 150 pounds/ton of RenPlus-65%

	MILK Lb/d	B.F. -%-	FCM Lb/d
Control	66.0	3.80	64.02
Fish (fed for 5 weeks)	71.5	3.10	61.85
<u>RENPLUS - 65%</u>			
March 16th - Started feeding.			
March 18th - Low point - Began increasing 1 - 2 lbs/day.	66.3		
March 23rd	70.9	3.56	66.22
April 1st	73.0	3.50	67.53
May 1st	75.1	3.48	69.24

=====

COWS ARE STILL INCREASING IN MILK AS OF APRIL 13TH AND HOLDING IN BUTTER FAT.



Moyer Packing Company  
 PO Box 395  
 Souderton, PA 18964-0395  
 215 723-5555



Beef Packers/Renderers

POUNDS MILK INCREASE NEEDED TO BREAK EVEN FOR PRICE DIFFERENTIAL FOR GRAIN \*

Increased cost/ton of feed	Price/100 lbs. of milk						
	8	9	10	11	12	13	14
2	.31	.28	.25	.23	.21	.19	.18
4	.62	.55	.50	.45	.42	.38	.36
6	.92	.83	.75	.68	.62	.58	.54
8	1.25	1.10	1.00	.91	.83	.77	.71
10	1.56	1.39	1.25	1.14	1.04	.96	.89
12	1.87	1.67	1.50	1.36	1.25	1.15	1.07
14	2.19	1.94	1.75	1.59	1.46	1.35	1.25
16	2.50	2.22	2.00	1.82	1.67	1.54	1.43
20	3.12	2.78	2.50	2.27	2.08	1.92	1.79
24	3.75	3.33	3.00	2.73	2.50	2.31	2.14
28	4.40	3.89	3.50	3.18	2.92	2.69	2.50

\* Assume cow is consuming 25 lbs. grain per day and 50 pounds dry matter producing 90 pounds of milk.

Chase, L.E. and C.J. Sniffen. 1979. Topics in dairy cattle nutrition.  
 Presented at Feed Dealer Seminars - November, 1979

**By Pro 2**

Manufactured by

**Baker Commodities Inc.**

Wm. Stappenbeck Division



2268 Browncroft Blvd.

Rochester, N.Y. 14625 • 716-482-1880

**INGREDIENTS:** meat and bone meal, feather meal, ring dried blood meal, calcium phosphate

**GUARANTEED ANALYSIS**

Crude Protein .....	Min. 63.5%
Crude Fat .....	Min. 6.0%
Calcium .....	Min. 5.4% Max. 6.1%
Phosphorus .....	Min. 3.2% Max. 3.7%
Sodium Chloride .....	Max. 1.5%
Fiber .....	Max. 3%
Net Weight .....	Bulk

**By Pro**

Manufactured by

**Baker Commodities Inc.**

Wm. Stappenbeck Division



2268 Browncroft Blvd.

Rochester, N.Y. 14625 • 716-482-1880

**INGREDIENTS:** meat and bone meal, feather meal, poultry by-product meal, calcium phosphate

**GUARANTEED ANALYSIS**

Crude Protein .....	Min. 58%
Crude Fat .....	Min. 8.5%
Calcium .....	Min. 6.4% Max. 7.4%
Phosphorus .....	Min. 3.5% Max. 4.0%
Sodium Chloride .....	Max. 1.5%
Fiber .....	Max. 3%
Net Weight .....	Bulk

BAKER COMMODITIES, INC.  
 Wm. STAPPENBECK DIVISION  
 2268 Browncroft Blvd.  
 Rochester, N.Y. 14625

BYPRO

MOISTURE	7%	
DRY MATTER	93%	100%
CRUDE PROTEIN DM BASIS		62%
SOLUBLE PRO. (% of CP)		12%
UNDEGRADABLE (% of CP)		65%
CRUDE FIBER		3%
FAT		8.5%
NE LACTATION		.77 Mcal/lb.
CALCIUM		7.00%
PHOSPHOROUS		3.50%
MAGNESIUM		.15%
POTASSIUM		.40%
SULFUR		.80%
SODIUM		.60%
IRON		750 ppm
MANGANESE		12 ppm
ZINC		90 ppm
COPPER		7 ppm
MOLYBDENUM		1 ppm

BYPRO is to be used as an aid in balancing for bypass protein. Each pound of BYPRO contributes the same amount of Calcium and Phosphorous provided by .3 pounds of a 2:1 mineral with 10% phosphorous.

TYPICAL PROFILE  
BYPRO

CRUDE PROTEIN	59.00%
LYSINE	2.16%
HYSTADINE	.68%
METHIONINE	.54%
CYSTINE	1.98%
TRYPTOPHAN	.38%
ARGININE	3.98%
GLYCINE	6.18%
THREONINE	3.30%
PHENYLALANINE	1.95%
VALINE	1.25%
LEUCINE	3.29%
ISOLEUCINE	1.69%

BAKER COMMODITIES, INC.  
 Wm. STAPPENBECK DIVISION  
 2268 Browncroft Blvd.  
 Rochester, N.Y. 14625

BYPRO 2

MOISTURE	7%	
DRY MATTER	94.7%	100%
CRUDE PROTEIN (DM BASIS)		68%
SOLUBLE PRO. (% of CP)		10%
UNDEGRADABLE (% of CP)		68%
CRUDE FIBER		3%
FAT		6%
CALCIUM		5.50%
PHOSPHOROUS		3.40%
MAGNESIUM		.12%
POTASSIUM		.38%
SULFUR		.85%
SODIUM		.57%
IRON		970 ppm
MANGANESE		10 ppm
ZINC		92 ppm
COPPER		9 ppm
ACID DETERGENT FIBER		8

BYPRO 2 is to be use only as an aid in balancing for bypass protein.

## TYPICAL PROFILE

## BYPRO 2

CRUDE PROTEIN	64.25%
LYSINE	3.16%
HYSTIDINE	1.38%
METHIONINE	.60%
CYSTINE	1.66%
TRYPTOPHAN	.56%
ARGININE	3.91%
GLYCINE	5.75%
THREONINE	3.29%
PHENYLALANINE	2.63%
VALINE	2.62%
LEUCINE	4.81%
ISOLEUCINE	1.55%