

May 7, 2004

NIH-11-142g

NIH SPECIFICATION

Open Formula Laboratory Swine Ration (NIH-2004)

Ingredients

<u>Ingredient Name</u>	<u>Amount (% by Wt.)</u>
Corn, Yellow grain	53.05
Soybean Meal 47.5%	10.00
Wheat Soft Gr.	10.00
Soy, Fullfat-extruded	8.20
Oats, grain- 10	8.00
Soy Hulls	3.50
Molasses, Cane	2.50
Dicalcium Phos.	2.42
Limestone	0.84
NaCl	0.55
NIH-80 Pig Vit. Mix 5-6-96	0.25
NIH-80 Pig Min. Mix 5-6-96	0.25
L Lysine 98.5%	0.16
Calcium Propionate	0.10
Choline-CL-70%	0.10
DL-Methionine 99	0.08
	100.00

Vitamin Fortification Per Ton (2,000 lbs.) of Finished Product

<u>Vitamin</u>	<u>Amount</u>	<u>Source</u>
A	4,994,000 IU	Stabilized Vitamin A palmitate or acetate
D ₃	1,005,448 IU	D activated animal sterol
K	1.123 g	Menadione activity
E	64.0 g	dl alpha-tocopheryl acetate
Folic Acid	5.6 g	
Niacin	4.8 g	
Pantothenic Acid	10.3 g	d-Calcium pantothenate
Pyridoxine	5.5 g	Pyridoxine hydrochloride
Riboflavin	7.0 g	
supplement		
Thiamin	2.7 g	Thiamin mono nitrate
B ₁₂	68,100.0 mcg	
supplement		
Biotin	136.2 mcg	

Mineral Fortification Per Ton (2,000 lbs.) of Finished Product

<u>Mineral</u>	<u>Amount</u>	<u>Source</u>
Magnesium	545.0 g	Magnesium Oxide
Manganese	42.7 g	Manganese Oxide
Selenium	0.2 g	Sodium Selenite
Cobalt	0.2 g	Cobalt carbonate
Copper	9.1 g	Copper sulfate
Iron	102.1 g	Iron sulfate
Zinc	81.7 g	Zinc oxide
Iodine	0.8 g	Potassium iodate

These concentrations of vitamins and minerals shall be added to the ration via two separate (vitamin and mineral) premixes. The final formulation may be adjusted so the total amount of ingredients will equal 100%. In the case of the mineral fortification, the actual amount of each element required is specified. Therefore, the contractor shall adjust the amount of each compound used in the premix according to its mineral concentration.

Micro Analysis - The total calculated concentration of nutrients in the ration from ingredients and from the fortifications at the time of manufacture should be as follows:

Crude protein	%	Minimum	14.0
Crude fat	%	Minimum	4.0
Crude fiber	%	Maximum	6.0

Amino Acids (% of total diet)	Minimum
Arginine	0.80
Lysine	0.55
Methionine	0.25
Cystine	0.18
Tryptophan	0.17
Glycine	0.50
Histidine	0.30
Leucine	1.00
Isoleucine	0.60
Phenylalanine	0.50
Tyrosine	0.43
Threonine	0.48
Valine	0.65

Minerals

Calcium	%	Minimum	0.95
Phosphorous	%	"	0.70
Potassium	%	"	0.63
Sodium	%	"	0.18
Magnesium	%	"	0.20
Iron	PPM	"	220.00
Zinc	PPM	"	110.00
Manganese	PPM	"	70.00
Copper	PPM	"	15.00
Cobalt	PPM	"	0.25
Iodine	PPM	"	0.80
Selenium	PPM	"	0.30

Vitamins

Vitamin K	PPM	"	0.60
Vitamin A	IU/g	"	6.20
Vitamin D	IU/g	"	0.90
Alpha-tocopherol	PPM	"	85.00
Thiamin	PPM	"	6.30
Riboflavin	PPM	"	8.90
Niacin	PPM	"	27.00
Pantothenic Acid	PPM	"	18.00
Choline	PPM	"	1400.00
Pyridoxine	PPM	"	9.00
Folic Acid	PPM	"	7.00
Biotin	PPM	"	.20
Vitamin B ₁₂	mcg/kg	"	70.00

*TRUE VITAMIN A ACTIVITY BY HPLC METHOD