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BURLINGTON, VERMONT

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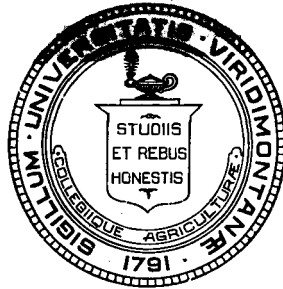
STEAM USAGE IN VERMONT COOPERATIVE CREAMERIES

By O. M. CAMBURN

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Steam tests were carried on at seven creameries. Where boilers were properly tended better results were attained than when less close attention was given.

The coal cost of evaporating 1,000 pounds of water ranged from 45 to 87 cents, the cost of coal accounting for half of the total cost of steam generation.

Coal wastage through steam leaks ranged from 177 to 522 pounds, averaging \$2.43 daily.

The straight-away can washers used more steam than did the rotary type.

The coal usage for condensing operations averaged 54 pounds of coal per 100-weight of plain condensed and 57 pounds per 100-weight of sweetened condensed skim milk. Total steam consumption used for manufacturing casein averaged 14 pounds per 100-weight of skim milk, an average coal usage of 76 pounds per 100-weight of dried casein.

A steam turbine cream separator used nearly eight pounds of coal per 1,000 pounds of milk separated.

The steam usage at two creameries using steam engines averaged 414 pounds per 1,000 pounds of milk received. The exhaust steam could have been utilized in water heaters to conserve the heat units.

The small reciprocal steam pumps used to pump milk cost two-thirds of a cent per 1,000 pounds of milk pumped.

The steam usage in preheating milk for separation cost three cents per 1,000 pounds of milk heated.

Steam usage per 100-weight of cream pasteurized ranged from 4.5 to 10.5 pounds, being lowest when the temperature rise was smallest. The most efficient work was done when vats were nearly full.

# BULLETIN 339: STEAM USAGE IN VERMONT COOPERATIVE CREAMERIES

By O. M. CAMBURN

## INTRODUCTION

In connection with a study heretofore made of several Vermont cooperative creameries (Bul. 335), a special steam study was conducted to determine the evaporating efficiency of the several boilers and the amounts of steam used at the different operations.<sup>1</sup> The total cost of generating steam in six creameries including usage of building and equipment, labor, coal, supplies, etc., was 14.1 percent of the total operating expenses, exclusive of selling costs. The steam tests were conducted through the courtesy of the several managements.

## PROCEDURE

Prior to the day of running each test, a special water weigh-tank, equipped with a quick acting gate, was installed on a scale near the boiler, so that all boiler feed-water might be weighed. All coal stoked to the furnace, including that used to bank the fire at night, was weighed. The temperature of feed water and the readings of the steam gauge were also recorded. Leak-tests of 1½ to 2 hours' duration were run under normal working pressure but with all machinery idle. Condensers were attached to those pieces of equipment where applicable, the exhaust steam reclaimed and the resultant water weighed. Steam usage was obtained for other equipment by operating only one machine at a time for an hour or more, taking the steam usage from the water fed to the boiler less leaks for a like period of time. Later all these data were reduced to a 100-weight basis to make them comparable.

## BOILER TESTS

*Water Evaporation.*—The boiler test data are recorded in table 1. The actual rates of water evaporation per pound of coal burned were 5.33, 7.79, 6.53, 3.83, 7.19, 5.97 and 6.47 pounds respectively at creameries R, S, T, U, V, W and X. Pennsylvania coal was used in all cases, but no samples were taken to determine the heat units available nor the ash content.<sup>2</sup> In order to correct for the differences in tem-

<sup>1</sup> Acknowledgment is here made and appreciation expressed for the excellent cooperation of the late Prof. V. R. Yates of the College of Engineering who greatly assisted in carrying out the several steam tests.

<sup>2</sup> Pennsylvania coal has averaged 13,360 B. T. U. per pound for coal fired.

perature of feed water and steam gauge pressure, each actual rate of evaporation was multiplied by the accepted factor of evaporation, in order to obtain "evaporation from and at 212° F."

*Boiler Care.*—The boilers at creameries, S, T, V, W and X, were constantly tended by a fireman while under test. Their respective "evaporations from and at 212° F." were 9.25, 7.80, 8.51, 7.11, and 7.71 pounds per pound of coal consumed. These compare somewhat favorably with the "expected evaporation from and at 212° F." for 13,000 B. T. U. coal "for small return tubular boilers, hand fired,  $7\frac{3}{4}$  to  $8\frac{1}{2}$  pounds of water evaporated per pound of coal fired."

The boiler at creamery R was given less close attention and "evaporation from and at 212° F." was 6.38 pounds per pound of coal fired. The boiler at creamery U was tended intermittently and here the "evaporation from and at 212° F." was only 4.56 pounds per pound of coal. Clearly efficiency is impaired when the boiler receives only occasional attention. Irregular firing causes a loss of volatile gases, the full heat value of the coal is not attained and the evaporating ability of the boiler is lessened. When much cold water is admitted boiler temperature is quickly lowered and forced firing is required to maintain pressure.

*Evaporation Cost.*—The coal cost of evaporating 1,000 pounds of water ranged from 44.8 to 87.1 cents. The highest cost occurred at a creamery where the boiler was tended only occasionally. Since the data were taken a larger boiler has been installed.

The total cost of producing steam averaged \$6,091.46 for six cooperative creameries, the average cost \$13.69 per ton of coal burned. This figure was made up of the following items: Buildings \$1.26, equipment \$2.79, wages \$2.23, coal \$6.92 and supplies \$0.49. Coal alone accounted for 50.55 percent of the total cost.

*Leak Tests.*—The results of the leak tests appear in table 2. The weight of steam thus lost per hour ranged from 191 to 426 pounds. At creamery T where the greatest loss was recorded, many leaks were seen, one on the main steam line about 20 feet from the boiler. At creamery X, which had the least leakage, the fireman took a keen personal interest and stopped leaks as soon as they appeared.

The loss for an eight-hour day was calculated from the leakage data. It ranged from 1,152 to 3,408 pounds. These data were reduced to the basis of pounds of coal necessary to evaporate the respective amounts of water lost as steam. The pounds of coal thus wasted daily were 342, 225, 522, 403, 294, 255 and 177 for creameries R, S, T, U,

V, W and X. The daily coal cost of these leaks ranged from 73 cents to \$1.83 and averaged \$1.23. The average total cost of generating the steam lost was \$2.43 daily. A saving of a dollar a day by reducing this wastage where noticeably large steam leakages occurred would have been equivalent of a half cent per 100-weight of milk with average daily milk receipts of 20,000 pounds.

#### STEAM USAGE

*Can Washer Steam Usage.*—The amounts of steam used per 100-weight and per hour to wash farmer cans appear in table 3. At creameries R, T, and W, where straight-away can washers were operated, the steam usages per 100-weight of milk received were respectively 16.6, 13 and 13.4 pounds, or 838.4, 1,026.4 and 1,400. pounds per hour of operation. The rotary can washers operated at creameries U, V and X used respectively 6.9, 6.8 and 5 pounds per 100-weight of milk received or 422.5, 749.5, and 409.7 pounds per hour of operation. At creamery S, the cans were washed by hand and sterilized over a steam jet and here the per 100-weight steam usage was 11.3 pounds or 521.7 pounds per hour of washing. The straight-away can washers used larger amounts of steam per 100-weight of milk received than did the rotary type. No inspection was made of the cans as they left the washers, as to their cleanliness, dryness or bacterial count.

*Steam Usage to Condense Milk.*—The steam requirements to condense skimmilk are shown in table 4. A condensing evaporator was used at creamery V and vacuum pans at creameries W and X. The hot wells used 9.3, 11.2 and 18.5 pounds of steam per 100-weight of skimmilk, at creameries V, W and X respectively. At creameries V and W, where plain condensed milk was made, the temperature increase in the hot wells was 70° F. and 80° F. respectively, while at creamery X sweetened condense was made with a temperature increase of 130° F. in the hot wells. The vacuum pumps at creameries W and X used per 100-weight of skimmilk, 12 and 14.8 pounds respectively.

The condensers at V and W, where plain condensed was made, used 85.9 and 79.1 pounds of steam respectively per 100-weight of skimmilk. At X, where sweetened condensed was made, the condenser used 102 pounds of steam per 100-weight of skimmilk. The total amount of steam used for all condensing operations per 100-weight of skimmilk was 95.2 and 102.4 pounds respectively at creameries V and W, and 135.3 pounds at creamery X, which made sweetened condensed. The steam usage per 100-weight of condensed milk manu-

factured was 337.1, 362.9, 369.1 pounds or 46.8, 60.7, 57 pounds of coal respectively at creameries V, W and X.

*Casein Steam Usage.*—The steam data for casein manufacturing at creameries T and W are shown in table 5. The green pressed curd gave a yield of 43 percent dried casein. The yields from each 100-weight of skimmilk were 2.7 and 3.3 pounds of dried casein at creameries T and W respectively. It required 4.4 pounds of steam to heat each 100-weight of milk. The weights of steam used for drying curd were 7.7 and 12 pounds per 100-weight of skimmilk or 284 and 364 pounds per 100-weight of dried casein, at creameries T and W and the total steam consumption for manufacturing casein was 12.1 and 16.4 pounds per 100-weight of skimmilk or 451 and 497 pounds per 100-weight of dried casein. These figures represent coal usage per 100-weight of dried casein of 69 and 83 pounds respectively.

*Cream Separator Steam Usage.*—Creamery R was the only plant at which a steam turbine cream separator was used. Here the steam consumption was 40.3 pounds, a coal usage of 7.56 pounds per 1,000 pounds of milk separated.

*Steam Engine Usage of Steam.*—Steam engines were used at creameries R and X. The steam consumption at R was 718 pounds per hour or 394 pounds per 1,000 pounds of milk received; at X, 1,111 pounds per hour or 433 pounds per 1,000 pounds of milk received. Since each used live steam to heat the water with which to pasteurize cream, a part of the heat units in the exhaust steam from the engine could have been conserved by the use of a water heater. Indeed the heat thus conserved or salvaged from the engine exhaust could have been utilized about the creamery wherever hot water was used, thus avoiding the use of large amounts of live steam direct from the boiler.<sup>1</sup>

*Milk Pump Steam Usage* (table 6).—Steam driven milk pumps were used at four creameries to move the milk from the receiving tank to the coil mixing vats or to the preheater before separation. The steam used per 100-weight of milk pumped was 0.81, 0.71, 0.69, and 0.83 pounds respectively at creameries R, T, V and W. The average steam usage per 1,000 pounds of milk pumped was 7.6 pounds. This approximates the amount of water evaporated by a pound of coal. Since the total cost of generating steam averaged \$.0068 per pound of coal burned, the cost of steam used to pump milk was slightly more than two-thirds of a cent per 1,000 pounds of milk pumped.

<sup>1</sup> Since these data were taken electricity has become available and is being used for power purposes at both plants.

I. BRANDS IN ALL RESPECTS UP TO GUARANTY

WHEAT OFFALS—WHEAT BRANS—*Continued*

		GUARANTIES		
		Crude protein %	Crude fat %	Crude fiber %
Federal Mill, Inc., Lockport, N. Y. ....	Lucky (+) .....	14	3	14
General Mills, Inc., Minne- apolis, Minn. ....	Washburn's Gold Medal (+). 14	4	4	12
Gooch Milling & Elevator Co., Lincoln, Neb. ....	Pure .....	14.5	3.5	11
Frank B. Ham & Co., Ltd., Toronto, Ont. ....	"Hamco Brand" .....	13.5	3	12
International Milling Co., Minneapolis, Minn. ....	Blackhawk Pure .....	15	3.2	12
Kansas Flour Mills Corp., Kansas City, Mo. ....	Big Flake .....	15	3.5	11
Lake of the Woods Milling Co., Ltd., Montreal, Que. ....	Lake Woods .....	15	3.5	11.5
Larabee Flour Mills Co., Kan- sas City, Mo. ....	Winter (+) .....	15	3.5	10
Maple Leaf Milling Co., Ltd., Toronto, Ont. ....	Maple Leaf Pure .....	15	3.5	11.5
Midland Flour Milling Co., Kansas City, Mo. ....	Town Crier .....	16	3.5	10
Minneapolis Milling Co., Min- neapolis, Minn. ....	Standard (+) .....	14	4	12
Geo. Q. Moon & Co., Inc., Binghamton, N. Y. ....	Moon's (+) .....	13	3	10
National Milling Co., Toledo, Ohio .....	Pure .....	14	3	10
Niagara Falls Milling Co., Lockport, N. Y. ....	Niagara Standard (+) .... 15.5	4	4	11.5
	Niagara Choice .....	14	3.5	11
Northwestern Consolidated Milling Co., Minneapolis, Minn. ....	Pure .....	14	4	12
Ogilvie Flour Mills Co., Ltd., Montreal, Que. ....	Ogilvie's .....	15	3.5	11.5
Pillsbury Flour Mills Co., Minneapolis, Minn. ....	Pillsbury's (+) .....	14.5	3.5	10
	Pillsbury's Hard (+) .....	14	4	12
	Pillsbury's Durum (+) .... 13	4	4	14
Quaker Oats Co., Chicago, Ill. ....	Bell Cow (+) .....	15	3.5	10
Red Star Milling Co., Wichita, Kas. ....	Red Star (+) .....	15	3.75	10
James Richardson & Sons, Ltd., Montreal, Que. ....	Richardson Pure .....	15	3.5	11.5
Robin Hood Mills, Ltd., Moose Jaw, Sask. ....	Superior .....	15	3.5	11.5
Russell-Miller Milling Co., Minneapolis, Minn. ....	Occident .....	14	4	11.5
St. Lawrence Flour Mills Co., Ltd., Montreal, Que. ....	.....	15	3.5	11.5
Sheffield Elevator Co., Minne- apolis, Minn. ....	Alpine Canadian .....	15	3.5	11.5
Southwestern Milling Co., Inc., Kansas City, Mo. ....	Red Turkey .....	14.5	3.5	11
Sparks Milling Co., Alton, Ill. ....	Try Me (+) .....	15	3.5	10

+ = "With ground screenings not to exceed mill run" or equivalent phraseology.

## I. BRANDS IN ALL RESPECTS UP TO GUARANTY

WHEAT OFFALS—WHEAT BRANS—*Concluded*

		GUARANTIES		
		Crude protein %	Crude fat %	Crude fiber %
J. C. Shaffer Grain Co., St. Louis, Mo. ....	Shafco (+) .....	14.5	3.5	10
Spillers, Limited, Calgary, Alta. ....	Spillers .....	15	3.5	8.5
F. W. Stock & Sons, Hills- dale, Mich. ....	————— (+) .....	16	3	10
David Stott Flour Mills, Inc., Detroit, Mich. ....	Spring (+) .....	14.5	4	12.5
	Winter (+) .....	13.5	3.5	12
Stratton & Co., Concord, N. H. ....	Stratton & Co.'s (+) .....	14	4	11
Valley City Milling Co., Grand Rapids, Mich. ....	Rowena .....	13	4	10.9
Vannatter & Co., Ltd., Toronto, Ont. ....	Eagle Brand .....	15	3.5	11.5
Western Canada Flour Mills Ltd., Toronto, Ont. ....	Pioneer .....	15	3.5	11.5

## WHEAT OFFALS—WHEAT MIDDINGS

Bill, Bell & Co., Inc., Ogdens- burg, N. Y. ....	Flour (+) .....	16	4	6
	Shorts (+) .....	15	4	9.5
Commander-Larabee Corp., Minneapolis, Minn. ....	Sunfed (+) .....	14.5	4	9.5
Copeland Flour Mills, Ltd., Midland, Ont. ....	"Dandy Shorts" .....	15	5	8
Elmore Milling Co., Inc., Oneonta, N. Y. ....	Red Dog Flour .....	15	4	6
Federal Mill, Inc., Lockport, N. Y. ....	Lucky Hard (+) .....	15	4.5	9.5
	Dairy Maid (+) .....	13	4.5	8
General Mills, Inc., Minne- apolis, Minn. ....	Washburn's Gold Medal (+) ..	15	4	9.5
Frank B. Ham & Co., Ltd., Toronto, Ont. ....	"Hamco Brand" Shorts .....	15	3.5	10.5
International Milling Co., Minneapolis, Minn. ....	Blackhawk Standard (+) ...	16	4.5	8.5
Maple Leaf Milling Co., Ltd., Toronto, Ont. ....	Rex (+) .....	16	5	7.5
	Maple Leaf Shorts .....	15	3.5	10.5
Geo. Q. Moon & Co., Inc., Binghamton, N. Y. ....	Moon's Fresh Ground White ..	15	3.5	7.5
Mosley & Motley Milling Co., Rochester, N. Y. ....	Big B (+) .....	15	4.5	9
Niagara Falls Milling Co., Lockport, N. Y. ....	Niagara Standard (+) .....	15.5	4.5	7
Pillsbury Flour Mills Co., Minneapolis, Minn. ....	Pillsbury's Hard Wheat "A" (+) .....	16	4	6
	Pillsbury's Hard Wheat Stand- ard B (+) .....	15	4	9.5
Quaker Oats Co., Chicago, Ill. ....	Bell Cow Shorts (+) .....	15	4	8
Robin Hood Mills, Ltd., Moose Jaw, Sask. ....	Blackhawk Standard (+) ...	17	4.5	9.5
	Superior Pure Shorts .....	17	5	8

+ = "With ground screenings not to exceed mill run" or equivalent phraseology.



I. BRANDS IN ALL RESPECTS UP TO GUARANTY

WHEAT OFFALS—WHEAT MIDLINGS—*Concluded*

		GUARANTIES		
		Crude protein %	Crude fat %	Crude fiber %
Russell-Miller Milling Co., Minneapolis, Minn. ....	Alta Hard Wheat .....	15	4.5	8.5
	Hard Wheat Occident Stand- ard .....	15	4	9.5
	Hard Wheat Occident Flour..	15.5	4.5	5
St. Albans Grain Co., St. Al- bans, Vt. ....	Wirthmore Flour (+) .....	15	4	6
Sheffield Elevator Co., Minne- apolis, Minn. ....	Alpine Canadian Pure Wheat Shorts .....	16	5	8
David Stott Flour Mills, Inc., Detroit, Mich. ....	Pennant (+) .....	15	4	9
	Stott's Fine Flour (+) .....	14.5	3.7	6
Stratton & Co., Concord, N. H. ....	Stratton & Co.'s White .....	16.2	4.26	8.5
Valley City Milling Co., Grand Rapids, Mich. ....	Rowena (+) .....	13.75	4	6
	Rowena (+) .....	13	4.5	5.75
Vannatter & Co., Ltd., Toronto, Ont. ....	Eagle Brand .....	16	5	8
Western Canada Flour Mills, Ltd., Toronto, Ont. ....	Pioneer Wheat Shorts .....	16	5	8

WHEAT OFFALS—WHEAT MIXED FEEDS

E. W. Bailey & Co., Mont- pelier, Vt. ....	Capital .....	14	3	7
G. N. Bartemus Co., Concord, N. H. ....	Barco .....	14	3	7
Bill, Bell & Co., Inc., Ogdens- burg, N. Y. ....	Wise King (+) .....	15	4	8.5
Caledonia Mills, Inc., St. Johnsbury, Vt., ....	Brook's Fancy .....	15	5	8
	Brook's Fancy .....	15	4	8
J. W. Eshelman & Sons, Lancaster, Pa. ....	Eshelman Choice (+) .....	14.5	4	8.5
Federal Mill, Inc., Lockport, N. Y. ....	Dairy Maid (+) .....	12.5	3.5	10
General Mills, Inc., Minne- apolis, Minn. ....	Washburn's Gold Medal Fancy (+) .....	15	3.5	7.5
E. T. & H. K. Ide, St. Johns- bury, Vt. ....	Ideal .....	15	4	8
Lyon & Greenleaf Co., Inc., Ligonier, Ind. ....	Waseo (+) .....	15	4	8
Malted Cereals Co., Burling- ton, Vt. ....	Maltex Cereal (§) .....	12.5	4.5	8
Northfield Milling Co., Minne- apolis, Minn. ....	Orient (+) .....	15.5	5	8.5
Park & Pollard Co., Buffalo, N. Y. ....	Light (+) .....	15.3	3.85	10.25
	Heavy .....	15.5	3.35	8
Pillsbury Flour Mills Co., Minneapolis, Minn. ....	Pillsbury's Fancy (+) .....	15	4	8.5
Russell-Miller Milling Co., Minneapolis, Minn. ....	Occident Hard .....	15	4.5	9.5

+ = "With ground screenings not to exceed mill run" or equivalent phraseology.  
§ Wheat, barley bran "wheat parts processed" (+).

## I. BRANDS IN ALL RESPECTS UP TO GUARANTY

WHEAT OFFALS—WHEAT MIXED FEEDS—*Concluded*

		GUARANTIES		
		Crude protein %	Crude fat %	Crude fiber %
St. Albans Grain Co., St. Al-				
bans, Vt. ....	Wirthmore (+) .....	15	4.5	8
F. W. Stock & Sons, Hills-				
dale, Mich. ....	Superior (+) .....	16	4.5	7
David Stott Flour Mills, Inc.,				
Detroit, Mich. ....	Stott's Honest (+) .....	15	3.7	10.5
	Columbus (+) .....	14.5	3.7	8.5
Stratton & Co., Concord,				
N. H. ....	Stratton & Co.'s (+) .....	13.5	4.11	7.13
Valley City Milling Co., Grand				
Rapids, Mich. ....	Rowena (+) .....	13.5	3.8	8.5
Ray P. Webster, Barton, Vt.	Ray's R-E-A-L .....	14	4	7

## WHEAT OFFALS—RED DOG FLOURS

Bay State Milling Co., Wi-				
nona, Minn. ....	Wingold Diamond G .....	16.5	3.8	3.5
Commander-Larabee Corp.,				
Minneapolis, Minn. ....	Sunfed .....	16	4	4
Federal Mill, Inc., Lockport,				
N. Y. ....	Kennel Club .....	13	2	1
General Mills, Inc., Minne-				
apolis, Minn. ....	Adrian .....	16	3.5	4
	Arlington Second Clear Flour	14	3	1.5
International Milling Co.,				
Minneapolis, Minn. ....	Blackhawk .....	16	3.5	4
Maritime Milling Co., Inc.,				
Buffalo, N. Y. ....	B B .....	16	4	4
Minneapolis Milling Co., Min-				
neapolis, Minn. ....	————— .....	16	4	4
Niagara Falls Milling Co.,				
Lockport, N. Y. ....	Choice .....	16	4	4
Northwestern Consolidated				
Milling Co., Minneapolis,				
Minn. ....	XXX Comet .....	16	4	4
Pillsbury Flour Mills Co.,				
Minneapolis, Minn. ....	Pillsbury's XX Daisy .....	16	4	4
David Stott Flour Mills, Inc.,				
Detroit, Mich. ....	Stag Flour .....	14	1.5	2
Thornton & Chester Milling				
Co., Buffalo, N. Y. ....	T. & C. ....	16	4.5	4

## HOMINY FEEDS

Decatur Milling Co., Decatur,				
Ill. ....	Homco .....	10	7	6
Kellogg Co. of Canada, Ltd.,				
London, Ont. ....	OcornO .....	10	6.5	5
Kellogg Sales Co., Battle				
Creek, Mich. ....	White .....	10	6	5
	Hexite Sweet .....	9	4	3.5
Charles A. Krause Milling Co.,				
Milwaukee, Wis. ....	Badger White .....	10	6	5
Patent Cereals Co., Geneva,				
N. Y. ....	————— .....	10	5	5
Postum Co., Inc., Battle Creek,				
Mich. ....	Burt's .....	10	6	5

+ = "With ground screenings not to exceed mill run" or equivalent phraseology.

I. BRANDS IN ALL RESPECTS UP TO GUARANTY

HOMINY FEEDS—*Concluded*

	GUARANTIES			
	Crude protein	Crude fat	Crude fiber	
	%	%	%	
Quaker Oats Co., Chicago,				
Ill. ....	White .....	9.5	4	5
	Yellow .....	9.5	4	5
St. Albans Grain Co., St.				
Albans, Vt. ....	Paragon .....	10	6	7
David Stott Flour Mills, Inc.,				
Detroit, Mich. ....	White .....	9.5	5.5	6.5
	Yellow .....	9.5	5.5	6.5

DRIED BEET PULPS

Larowe Milling Co., Detroit,				
Mich. ....	_____	8	0.5	22
	Molasses .....	8	0.5	20
Schwartz Grain Co., Inc.,				
New York, N. Y. ....	_____	7.5	5	20

ALFALFA MEALS

California-Hawaiian Milling				
Co., San Francisco, Cal....	Chicken Greens .....	20	2.5	18
A. B. Caple Co., Toledo, Ohio.	_____	13	1	33
Denver Alfalfa Milling &				
Products Co., Lamar, Colo..	Leafalfa Brand .....	20	2.5	18
	Triple XXX .....	13	1	33
Pecos Valley Alfalfa Mill Co.,				
Hagerman, N. M. ....	Peevee .....	20	2.5	18
	Velvet .....	17	1.5	23
	_____	12	1.5	35

OAT, RYE AND CORN FEEDS

J. W. Eshelman & Sons,				
Lancaster, Pa. ....	Red Rose Corn Feed Meal...	8	3	4
Quaker Oats Co., Chicago,				
Ill. ....	Barley Feed .....	12	3	12
David Stott Flour Mills, Inc.,				
Detroit, Mich. ....	Winner Chop .....	10	3.5	12
Upper Hudson Rye Flour				
Mills, Inc., Troy, N. Y....	Rye Feed§ .....	13.5	3	6

§ = With (rye) screenings not exceeding mill run.

## I. BRANDS IN ALL RESPECTS UP TO GUARANTY

## PROPRIETARY FEEDS—DAIRY FEEDS OR "RATIONS"

		GUARANTIES			
		Crude protein %	Crude fat %	Crude fiber %	See foot- note*
Allied Mills, Inc., Peoria,					
Ill. ....	Amco 32% Supplement	32	4	9	✓
	Amco 24% .....	24	3.5	9	✓
	Amco 20% .....	20	3.5	9	✓
	Emergency 20% .....	20	4.5	12	✓
	Amco 20% National	20	3.5	9	✓
	Wayne 20% Sucrene	20	3.5	12.5	✓
	Sweet Dairy Mix	20	3.5	9	✓
	Amco 16½% Sucrene	16.5	4	12	✓
E. W. Bailey & Co., Mont- pelier, Vt. ....	Capital	24	5	9	✓
	Sweetened Capital	24	5	9	✓
	Bailey's Open Formula 24%..	24	4.5	9	✓
	Bailey's Open Formula 20%..	20	4.5	9	
	Favorite	20	4.5	7.5	✓
	Sweetened Favorite	20	4.5	7.5	✓
	"Our Own"	16	5	9	✓
	"Our Own" Sweetened	16	5	9	✓
G. N. Bartemus Co., Concord, N. H. ....	Concord 20% Sweetened†	20	3	9	
Berkshire Coal & Grain Co., Inc., North Adams, Mass....	Green Mountain	23	5	10	
Bethel Mills, Bethel, Vt.....	Bethel Mills 24% Protein...	24	5	9	✓
	Bethel Mills 20% Protein...	20	5	9	✓
	Bethel Mills 16% Pasture...	16	4.2	9.5	✓
Black Rock Milling Corp., Buffalo, N. Y. ....	Bidwell 24% .....	24	4	11	✓
	Bidwell 20% .....	20	4	11	✓
Caledonia Mills, Inc., St. Johnsbury, Vt. ....	Green Mountain	23	5	10	
Chapin & Co., Hammond, Ind. ....	Ajax 32% .....	32	5	10	✓
	Unicorn 20% .....	20	4.5	10	
	Unicorn 24% .....	24	4.5	10	
Danville Grain Co., Inc., Dan- ville,, Vt. ....	Danville 24% .....	24	5	9	✓
	Blue Ribbon	20	4	11	✓
	Danville 20% .....	20	4	10	✓
Davis Feed Co., Rutland, Vt..	Davis Special 24	24	4	9	✓
	Davis Special 20	20	4	8.5	✓
	Davis 20 % Kow Feed	20	4.5	8.5	
H. W. Demick, Inc., Derby Line, Vt. ....	Beats 'Em All	20	4	10	✓
Dewey Bros. Co., Blanchester, Ohio .....	Dewey's Buckeye	20	5	10	✓

\*The presence of the check mark (✓) at the right of most of the lines indicates that the microscopist avers that the several ingredients (e.g., cottonseed meal, wheat bran, hominy feed, salt, etc.) which the manufacturer stated were used in the mixture—a statement required by a state law—as a matter of fact were found to be present in the samples he analyzed. The absence of such a check mark in any instance indicates that the microscopist failed to find some one or more of the ingredients in the samples submitted to him or that he found other and undesirable ingredients (e.g., weed seeds) to be present. Every feeding stuff listed in this table of "brands in all respects up to guaranty" against which the check mark (✓) appears passed muster both chemically as to its nutrient content and microscopically as to its ingredient content. The statement of the ingredients claimed for the several brands of mixed feeds and of the cases where the microscopist "failed to find" appear on pages 29 to 45.

†Open formula.

I. BRANDS IN ALL RESPECTS UP TO GUARANTY

PROPRIETARY FEEDS—DAIRY FEEDS OR "RATIONS"—Continued

		GUARANTIES			
		Crude protein %	Crude fat %	Crude fiber %	See footnote* (p. 12)
Eastern States Farmers' Exchange, Springfield, Mass.	Eastern States 30% Supplement†	30	5	8	✓
	Eastern States Milkmore†	24	4.5	8	✓
	Eastern States Fulpail†	20	4.5	8	✓
	Eastern States Fulpail†	20	4	8	✓
	Eastern States Highland 20†	20	4	12	✓
	Eastern States Sixteen†	16	4	8	✓
Elmore Milling Co., Inc., Oneonta, N. Y.	Elmore 32% Supplemental	32	4	9	✓
	Elmore Milk Grains	25	5	11	✓
	Granger	24	4	9	✓
	Elmore's Economilk 24%	24	4	10	
	Economilk	20	4	11	
	Emco	20	4.5	10	✓
	Elmore Milk Grains Junior	20	5	10	
	Otsego Economy	20	4	11	✓
	Elmore's Sweet Digesto	16	4	12	✓
John W. Eshelman & Sons, Lancaster, Pa.	Eshelman Certified 20%†	20	4	8	✓
	Eshelman Conestoga 20	20	4	11	✓
	Eshelman Lancaster 20	20	4	11	✓
	Eshelman Open Formula 20%	20	4	9	
	Eshelman Pennsy 16	16	3	11	✓
For-All Grain Co., Inc., Groton, Vt.	For-All Milk Grains 20%	20	5	8.5	✓
General Mills, Inc., Minneapolis, Minn.	Eventually Gold Medal	20	5	8.5	✓
D. H. Grandin Milling Co., Jamestown, N. Y.	Grandin's 32%	32	4	9	✓
	Grandin's Sweetened 24%	24	4	10	✓
	Grandin's Sweetened 12 Twin Six 12	22	5	12	✓
	Grandin's Milk Maker	20	5	12	✓
	Grandin's Sweetened 20%	20	4	10	✓
	M-S (Money Saver) 20% Sweet	20	4	12	✓
	Grandin's Sweetened 16%	16	4	10	✓
E. T. & H. K. Ide, St. Johnsbury, Vt.	Ideal Sweetened	24	5	10	✓
	Ide's Special	20	4	10	✓
	Royal Sweetened	20	4	10	
	Sunshine	20	4	10	✓
	Vermont Sweetened	16	3	12	
W. B. Johnson & Son, Essex Junction, Vt.	Economy	20	4	12	✓
	Perfection No. 1	20	5	9	✓
Kasco Mills, Inc., Waverly, N. Y.	Kasco 32% Mixing Feed	32	5	10	✓
	Kasco Mormilk	24	4.5	10	
	Beatsall Milk Grains	22	4.5	10	
	Kasco 20% Milk Maker	20	4.5	11	✓
Larrowe Milling Co., Detroit, Mich.	Larro	20	4	12	✓

†Open formula.

I. BRANDS IN ALL RESPECTS UP TO GUARANTY  
 PROPRIETARY FEEDS—DAIRY FEEDS OR "RATIONS"—Continued

		GUARANTIES			
		Crude protein %	Crude fat %	Crude fiber %	See foot- note <sup>4</sup> (p. 12)
Maritime Milling Co., Inc., Buffalo, N. Y. ....	Sweetened B B Farmers Mix- ing Feed .....	32	5	10	✓
	B-B Bull Brand Sweetened "24" .....	24	4.5	11	✓
	B-B Hi-Test 20% Protein Sweetened .....	20	4.5	12	
	Sweetened B-B Bull Brand "20" .....	20	4.5	11	✓
	B-B Marmico 16% Protein with Molasses .....	16	4	12	✓
	R. H. McEwen Milling Co., Ogdensburg, N. Y. ....	McEwen's .....	24	4	9
	McEwen's 20% .....	20	4	10	✓
T. J. McGovern, Cambridge, Vt. ....	McGovern's 24% .....	24	4	8	✓
	McGovern's 20% .....	20	4	8	✓
	McGovern's 16% .....	16	4	8	✓
Geo. Q. Moon & Co., Inc., Binghamton, N. Y. ....	Moon's 24% .....	24	5	10	✓
	Moon's 20% with Molasses... 20	20	4.5	11	✓
Mt. Mansfield Co-op. Cream- ery & Grain Assoc., Inc., Stowe, Vt. ....	Mt. Mansfield 20%† .....	20	4	8.5	✓
Philip R. Park, Inc., San Pedro, Calif. ....	ManAmar .....	40	3	4	✓
Park & Pollard Co., Inc., Buf- falo, N. Y. ....	Milk-Maid 24% Sweetened... 24	24	4.5	11	✓
	Overall 24% .....	24	4.5	9	✓
	Bet-R-Milk 20% .....	20	4	9	✓
	Herdhelth 16% .....	16	3.5	9	
	Top Notch 16% .....	16	3.5	12	✓
Quaker Oats Co., Chicago, Ill. ....	Quaker 24% Protein .....	24	4	12	
	Quaker 20% Protein .....	20	3.25	12	✓
	Quaker 16% Protein .....	16	3.5	13.5	
Ralston Purina Co., St. Louis, Mo. ....	Purina 34% Cow Chow .....	34	3	12	✓
	Purina 24% Cow Chow (Buf- falo Mill) .....	24	3	12	✓
	Purina 24% (Buffalo Mill) .. 24	24	3	14	✓
	Protena 24% (Buffalo Mill). 24	24	3	12	✓
	Purina 20% Cow Chow (Buf- falo Mill) .....	20	3	12	✓
	Protena 20% .....	20	3	14	✓
	Purina Bulky Cow Chow .... 16	16	3	12	✓
	Protena 16% .....	16	3	14	
St. Albans Grain Co., St. Al- bans, Vt. ....	Wirthmore 25 Balanced .....	25	5	9	✓
	Wirthmore 25 Balanced Sweetened .....	25	4.75	8.5	✓
	Hygrade 24 Sweetened .....	24	4	9	✓
	Hygrade 20 Sweetened .....	20	4	8.5	✓
	Wirthmore 20 .....	20	5	8.5	✓
	Wirthmore 20 Sweetened.... 20	20	4.75	8	✓

†Open formula.

I. BRANDS IN ALL RESPECTS UP TO GUARANTY

PROPRIETARY FEEDS—DAIRY FEEDS OR "RATIONS"—*Concluded*

		GUARANTIES			
		Crude protein %	Crude fat %	Crude fiber %	See footnote* (p. 12)
St. Albans Grain Co., St. Albans, Vt. ....	Wirthmore with Beet Pulp				
	Sweetened .....	20	4	11	✓
	Paragon Sweetened .....	20	3.25	11	✓
	Utility .....	20	3.5	10.5	✓
	Wirthmore 16 Sweet .....	16	4	8	✓
	Hygrade 16 Sweetened .....	16	3.5	8.5	✓
Seabury Grain Co., Waterbury, Vt. ....	Our Own Make 20% .....	20	4	9	✓
	Our Own Make 16% .....	16	4	9	✓
Chas. M. Seaver & Co., Williamstown, Vt. ....	Honor Brand 20% .....	20	4	10	✓
H. A. Slayton & Co., Morrisville, Vt. ....	Economy .....	20	3.75	8.5	✓
R. D. Small, Lyme, N. H. ....	Small's 20% .....	20	4.2	11.8	✓
C. A. Smith, St. Johnsbury, Vt. ....	Smith's .....	20	4	12	✓
C. H. Stearns & Son Co., Johnson, Vt. ....	Stearnco .....	20	4	9	✓
Stratton & Co., Concord, N. H. ....	Stratton's White Clover 20% ..	20	3.5	10.5	✓
J. G. Turnbull Co., Orleans, Vt. ....	Turnbull's Special .....	20	3.5	12	✓
Ubiko Milling Co., Cincinnati, Ohio .....	Union Grains Ubiko 32%				
	Sweet .....	32	4	10	
	Union Grains Ubiko 24% Dry	24	5	10	
	Union Grains Ubiko 24% Sweet .....	24	4.5	10	
C. H. Utley, Hardwick, Vt. ....	Veri-Best .....	20	5	7.5	✓
Valley City Milling Co., Grand Rapids, Mich. ....	Rowena 20% .....	20	4	8	✓
	Valco 16% .....	16	3	9	✓
Valley Grain Store, Piermont, Vt. ....	Valley 20% .....	20	4	10	✓
Wayne Co. Grangers' Feed Corp., Clyde, N. Y. ....	Grange Superior 20% .....	20	4	10	✓
West-Nesbitt, Inc., Oneonta, N. Y. ....	Super Pure Sweetfeed .....	24	4.5	10	
	All Pure 20% .....	20	4.5	10	
	Pure Sweetfeed .....	20	4	10	✓

PROPRIETARY FEEDS—STOCK FEEDS, HORSE FEEDS, FITTING FEEDS, ETC.

Allied Mills, Inc., Peoria, Ill. ....	Amco 12% Fitting .....	12	3	9	✓
	June Pasture .....	10	0.5	21	✓
	Wayne Supreme Horse .....	9.5	3.5	8	✓
	Wayne Rabbitt .....	13	3.5	8	✓
E. W. Bailey & Co., Montpelier, Vt. ....	Bailey's Fitting .....	14	4	9	✓
	Bailey's Fitting Sweetened ..	14	4	9	✓
	Pennant Horse .....	10.75	3.5	6.5	✓
	Pennant Brand Stock .....	9.5	4	9.5	✓
	Pennant Brand Stock Sweetened with Molasses .....	9.5	4	9.5	✓

## I. BRANDS IN ALL RESPECTS UP TO GUARANTY

PROPRIETARY FEEDS—STOCK FEEDS, HORSE FEEDS, ETC.—*Continued*

		GUARANTIES			
		Crude protein %	Crude fat %	Crude fiber %	See foot- note* (p. 12)
Eastern States Farmers' Exchange, Springfield, Mass.	Eastern States Highland 12†	12	3.5	11.5	✓
	Eastern States Fitting†	12	3.5	7	✓
	Eastern States Horse†	10.5	3.5	6.5	
	Eastern States Horse & Calf†	10.5	3.5	7	✓
Elmore Milling Co., Inc., Oneonta, N. Y.	Elmore Horse with Molasses	9	2.5	11	✓
	John W. Eshelman & Sons, Lancaster, Pa.	Eshelman S-O-S	11	2	15
	Eshelman Steamed-Cooked Horse	9	4	6	✓
	Eshelman Red Rose 85 Horse	9	3	10	✓
	Eshelman Red Rose Stock	9	3	11	
	Eshelman Red Rose Rabbit	12	3.5	9.5	✓
D. H. Grandin Milling Co., Jamestown, N. Y.	Grandin's Sweetened Horse	9.5	3.5	11	✓
	Grandin's Stock	8.5	4	12	✓
Hales & Hunter Co., Chicago, Ill.	College Horse	9	2.5	10	✓
	Excelsior Horse	9	3	8	✓
	Victoria Rabbit	14	3.5	10	✓
E. T. & H. K. Ide, St. Johnsbury, Vt.	Ideal Fitting	12	4	10	✓
Imperial Grain & Milling Co., Toledo, Ohio	Imperial Steam Cooked	9.5	4	4.6	✓
	Maritime Milling Co., Inc., Buffalo, N. Y.	B-B Bull Brand Horse with Alfalfa and Molasses	8	2	10
Park & Pollard Co., Inc., Buffalo, N. Y.		Fitting	12	3.5	7
	Park & Pollard Horse	10	3.5	9	✓
	Park & Pollard Stock	8.5	4	12	✓
Quaker Oats Co., Chicago, Ill.	Banner	13	4.5	18	✓
	Quaker Full-O-Pep Station Grade Fattening	13	5	5	✓
	Quaker Green Cross Horse	10	2.5	12	✓
	Quaker Schumacher	10	3	12	✓
	Quaker Sugared Schumacher	10	3	12	✓
	Quaker Thorobred Horse	10.5	3.5	9	✓
	Horse Power	9.5	2.8	11	✓
	Quaker Molabulk	9	2.5	16	✓
	Richford White Diamond Stock	9	3	14	✓
	Sugared Vim	5	1.25	26	✓
	Sugared Vim	5	1.25	27.5	✓
	Ralston Purina Co., St. Louis, Mo.	Purina Fitting	13.5	2.6	12
Purina Red Bag Steer Fatena Chow		12	2.5	10	✓
Purina Bulky Las Chow (Buffalo Mill)		9	1.3	15	✓
Purina Bulky Omolene Chow		9.7	3.2	11	✓
Purina Omolene Chow		9.7	3.2	9	✓
Protene Stock		9	2.3	12	✓

†Open formula.



## I. BRANDS IN ALL RESPECTS UP TO GUARANTY

PROPRIETARY FEEDS—STOCK FEEDS, HORSE FEEDS, ETC.—*Concluded*

		GUARANTIES			
		Crude protein %	Crude fat %	Crude fiber %	See foot- note* (p. 12)
Ralston Purina Co., St. Louis, Mo. ....	Protena Sweet Roughage Feed (Buffalo Mill) .....	6	1	30	✓
	Purina Rabbit Chow (in Checker Form) .....	16	3.5	8	✓
	Purina Lamb Chow .....	14	3	12	✓
St. Albans Grain Co., St. Al- bans, Vt. ....	Utility 60 Pasture .....	14	3	13	✓
	Wirthmore 14 Fitting .....	14	4	7	✓
	Hygrade Fitting .....	10	3.25	12	✓
	Wirthmore Stock .....	9	4	9.5	✓
	Wirthmore Horse .....	9.8	3.25	9	✓
	Wirthmore Fodder Greens... ..	9	1.25	19	✓
	Wirthmore Rabbit .....	14	3.5	9	✓
Ubiko Milling Co., Cincinnati, Ohio .....	Alfalfa & Molasses Meal ....	10	0.5	30	
	Crusader Horse .....	9	3	10	✓
	Ubiko Horse .....	9	3.5	7	✓

## PROPRIETARY FEEDS—CALF MEALS, HOG MEALS, ETC.

Allied Mills, Inc., Peoria, Ill. ....	Wayne Calf .....	24	4	7	✓
	Amco Calf .....	24	4	6.5	✓
	Emergency Hog .....	14	3	7	
	Wayne Hog Meal .....	28	4.5	8	
	Wayne Pig Meal .....	18	3.5	7	✓
Blatchford Calf Meal Co., Waukegan, Ill. ....	Blatchford's Calf .....	24	5	6.75	✓
Eastern States Farmers' Ex- change, Springfield, Mass...	Eastern States Calf Starter..	22	3	6.5	✓
	Eastern States Hog Meal ....	15	4	5.5	✓
Elmore Milling Co., Inc., One- onta, N. Y. ....	Elmore "Three Point" Calf Meal .....	24	4	4	✓
	Elmore's Hog Ration .....	15	5	6	
John W. Eshelman & Sons, Lancaster, Pa. ....	Eshelman Red Rose Calf Starter .....	18	3	5	✓
	Eshelman Red Rose Hog Meal .....	16	5	10	✓
D. H. Grandin Milling Co., Jamestown, N. Y. ....	Grandin's Pig and Hog Ration	18	5	10	✓
Hales & Hunter Co., Chicago, Ill. ....	Pioneer Hog Feed with Dried Buttermilk .....	16	4	9	
Larrowe Milling Co., Detroit, Mich. ....	Larro Pork-Maker .....	25	5	10	✓
	Larro Calf Meal .....	23	4	3.5	✓
	Larro Hog Feed .....	18	5	10	✓
Maritime Milling Co., Inc., Buffalo, N. Y. ....	B-B Bull Brand Calf Meal....	22	4	5	✓
	B-B Bull Brand Pig and Hog with Minerals .....	18	4	8	✓
Park & Pollard Co., Inc., Buf- falo, N. Y. ....	Milkade Calf .....	20	7	6.5	✓
	Go Tu It Pig and Hog .....	15	3.5	8	✓

## I. BRANDS IN ALL RESPECTS UP TO GUARANTY

PROPRIETARY FEEDS—CALF MEALS, HOG MEALS, ETC.—*Concluded*

		GUARANTIES			
		Crude protein %	Crude fat %	Crude fiber %	See foot note (p. 1)
Quaker Oats Co., Chicago, Ill. ....	Schumacher Calf .....	18	7.5	4	
	Quaker 18% Protein Pig-N-Hog .....	18	3.5	10	✓
Ralston Purina Co., St. Louis, Mo. ....	Purina Calf Chow .....	27	3.2	4.5	✓
	Purina Pig Chow .....	25	3.2	8	✓
	Purina Ho <sub>3</sub> Fatena Chow....	14	3	7	✓
Ryde & Co., Chicago, Ill. ....	Ryde's Cream Quality Calf...	18.5	4	4	✓
St. Albans Grain Co., St. Albans, Vt. ....	Wirthmore Calf .....	24	5.5	4	✓
	Wirthmore Pig and Hog ....	17	4	9	

## PROPRIETARY FEEDS—MEAT AND BONE SCRAPS

Burlington Rendering Co., Burlington, Vt. ....	Burlington Meat and Bone...	45	8	..	
	Burlington Meat and Bone...	45	8	..	
Consolidated Rendering Co., Boston, Mass. ....	Corenco Bone Meal .....	20	3	..	
New England Rendering Co., Brighton, Mass. ....	Boston Pure Cod and Had-dock Meal .....	62	3	..	
	Brighton Special—Quality Brand .....	50	10	..	
	Brighton Bull Meat .....	45	8	..	
Swift & Co., Chicago, Ill. ....	Swift's Blood Flour .....	80	..	3	
Van Iderstine Co., Long Island City, N. Y. ....	Vico Pure Meat and Bone ...	45	5	3	
	Vico Special Steamed Bone..	5	0.5	3	

## PROPRIETARY FEEDS—POULTRY FEEDS—SCRATCH FEEDS, CHICK FEEDS

Allied Mills, Inc., Peoria, Ill. ....	Wayne Scratch .....	10	2.5	5	✓
	Sucrene Scratch .....	9	2.5	5	✓
E. W. Bailey & Co., Montpelier, Vt. ....	Pennant Scratch .....	10	3	6.5	✓
Berkshire Coal & Grain Co., Inc., North Adams, Mass. ....	Berkshire Scratch .....	10	2.5	5	
Black Rock Milling Corp., Buffalo, N. Y. ....	Bidwell Scratch .....	10	1.5	5	✓
Chapin & Co., Hammond, Ind. ....	Ajax Scratch .....	9	2.5	5	✓
Eastern States Farmers' Exchange, Springfield, Mass. ....	Eastern States Chick† .....	10	2	3	✓
	Eastern States Scratch Grains (with Coarse Cracked Corn)† .....	10	2.5	4	✓
	Eastern States Scratch Grains (with Whole Corn)† .....	10.5	2.75	4.25	✓
Elmore Milling Co., Inc., Oneonta, N. Y. ....	Elmore Intermediate Chick..	10	3	3	✓

†Open formula.

I. BRANDS IN ALL RESPECTS UP TO GUARANTY

PROPRIETARY FEEDS—POULTRY FEEDS—SCRATCH FEEDS, CHICK FEEDS—*Continued*

		GUARANTIES			
		Crude protein %	Crude fat %	Crude fiber %	See footnote* (p. 12)
John W. Eshelman & Sons, Lancaster, Pa. ....	Eshelman Red Rose Scratch. ....	10	2.5	4	✓
	Eshelman Imperial Scratch ..	9	2.5	4	✓
	Eshelman Penny Scratch ...	9	2.5	4	✓
D. H. Grandin Milling Co., Jamestown, N. Y. ....	Grandin's Screened Scratch..	10	2.5	5	✓
	Grandin's Baby Chick .....	10	2.5	5	✓
	Grandin's Intermediate Chick	10	2.5	5	✓
Great Atlantic & Pacific Tea Co., New York, N. Y.....	Daily Egg Scratch .....	10	2.5	5	✓
Hales & Hunter Co., Chicago, Ill. ....	Red Comb Scratch .....	10	2.5	5	
	Red Comb Coarse Chick.....	10	2.5	5	✓
	Red Comb Fine Chick .....	10	2.5	5	✓
E. T. & H. K. Ide, St. Johns- bury, Vt. ....	Ideal Scratch (1929) .....	10	2.5	4	✓
	Ideal Scratch .....	10	3	4	
Kasco Mills, Inc., Waverly, N. Y. ....	Kasco Scratch .....	9	2.5	4	✓
Larroe Milling Co., Detroit, Mich. ....	Larro Scratch .....	10	2	3.5	✓
	Larro Growing .....	10	3	4	
	Larro Growing .....	10	2	3.5	✓
Maritime Milling Co., Inc., Buffalo, N. Y. ....	B-B Daisy Scratch .....	9	2.5	5	
	Moon's Scratch .....	10	2	5	
Geo. Q. Moon & Co., Inc., Binghamton, N. Y. ....	Red Ribbon Scratch .....	10	3	5	✓
	Park & Pollard Chick Scratch	10	3	3	✓
	Intermediate Chick .....	10	3	3.5	✓
	Pigeon Feed .....	12	1.5	5	
Quaker Oats Co., Chicago, Ill. ....	Big Egg Scratch .....	10	3	4.25	✓
	Quaker Ful-O-Pep Scratch... ..	9	2	3.5	✓
	Quaker Ful-O-Pep Coarse Chick .....	10	2	2.5	✓
	Quaker Ful-O-Pep Fine Chick	11	2.5	2	✓
	Schumacher Little Chick....	10	2	2	✓
	Early Bird Coarse Chick ....	9.5	2	3.5	✓
Ralston Purina Co., St. Louis, Mo. ....	Purina Hen Chow .....	10	2.5	4	✓
	Protena Scratch (Buffalo Mill) .....	9.5	2	4	✓
	Purina Chick Chow .....	10	2	4	✓
	Purina Intermediate Hen Chow .....	10	2.5	4	✓
	Purina Checker Chops.....	9	3	3.5	✓
	Purina Pigeon Chow contain- ing Corn .....	12.5	2	4	✓
	Paragon Scratch .....	10	2.5	5	✓
	Wirthmore Scratch .....	10	2.5	4	✓
St. Albans Grain Co., St. Al- bans, Vt. ....	Wirthmore Intermediate Chick .....	10	2.5	3.5	
	Wirthmore Baby Chick Scratch .....	10	2.5	3.5	✓

## I. BRANDS IN ALL RESPECTS UP TO GUARANTY

PROPRIETARY FEEDS—POULTRY FEEDS—SCRATCH FEEDS, CHICK FEEDS—*Concluded*

		GUARANTIES			
		Crude protein %	Crude fat %	Crude fiber %	See foot- note* (p. 12)
Skeels & Weidman, Swanton, Vt. ....	Scratch .....	10	2	5	
Ubiko Milling Co., Cincinnati, Ohio .....	Ubiko Intermediate Scratch..	9	2.5	5	✓
	Ubiko Chick .....	9	2.5	5	✓
Valley City Milling Co., Grand Rapids, Mich. ....	Valco Scratch .....	9.5	2.5	4	✓

PROPRIETARY FEEDS—POULTRY FEEDS  
MASHES, GROWING FEEDS, ETC.

Allied Mills, Inc., Peoria, Ill. ....	Wayne Egg .....	18	3.5	7	✓
	Wayne Egg with Cod-liver Oil	18	3.5	7	✓
	Wayne Poultry Fattener....	13.5	4	6	✓
	Wayne All Mash Grower ....	15	5	6	✓
E. W. Bailey & Co., Mont- pelier, Vt. ....	Pennant Brand Laying .....	20	5	6	✓
Black Rock Milling Corp., Buffalo, N. Y. ....	Bidwell Dry-Mash .....	18	3	8.5	✓
Caledonia Mills, Inc., St. Johnsbury, Vt. ....	Green Mountain Laying ....	19	4	9	✓
Chapin & Co., Hammond, Ind. ....	Chapin Kernels Lay-All ....	16	3.5	5.5	
	Chapin Kernels Grow-All ...	16	3.5	5.5	✓
Eastern States Farmers' Ex- change, Springfield, Mass. . .	Eastern States Milk Egg†....	16.5	4	6.5	✓
	Eastern States Milk Egg with Cod-liver Oil† .....	16.5	4	6.5	✓
	Eastern States Egg† .....	16.5	4	6.5	✓
	Eastern States Egg with Cod- liver Oil† .....	16.5	4	6.5	✓
	Eastern States Starting and Growing† .....	16.5	4	6	✓
	Eastern States Broiler Ration with Cod-liver Oil† .....	18.5	4	5.5	✓
Elmore Milling Co., Inc., One- onta, N. Y. ....	Elmore Egg .....	18	4	8	✓
John W. Eshelman & Sons, Lancaster, Pa. ....	Eshelman Red Rose Laying..	20	5	7	✓
D. H. Grandin Milling Co., Jamestown, N. Y. ....	Grandin's Laying with But- termilk .....	20	4	8	✓
	Grandin's Laying with But- termilk—Cod-liver Oil ....	20	4	8	✓
	Grandin's Complete Starting with Buttermilk—Cod-liver Oil .....	16	4	6	✓
	Grandin's Growing Mash with Buttermilk—Cod-liver Oil..	15	4	8	✓
	Grandin's Broiler Mash with Buttermilk—Cod-liver Oil..	15	4	6	✓
General Mills, Inc., Minne- apolis, Minn. ....	Eventually Gold Medal Grow- ing .....	18	4	6	✓
Great Atlantic & Pacific Tea Co., New York, N. Y. ....	Daily Egg Mash Feed .....	20	4.5	7	✓

## I. BRANDS IN ALL RESPECTS UP TO GUARANTY

PROPRIETARY FEEDS—POULTRY FEEDS—MASHES, ETC.—*Continued*

		GUARANTIES			
		Crude protein %	Crude fat %	Crude fiber %	See foot- note* (p. 12)
Hales & Hunter Co., Chicago, Ill. ....	Red Comb Egg with Dried Buttermilk .....	18	4	7	
	Red Comb Growing with Dried Buttermilk .....	15	4	6	
E. T. & H. K. Ide, St. Johns- bury, Vt. ....	Ideal Buttermilk Egg .....	24	5	6	✓
Jersee Co., Minneapolis, Minn. ....	Just Right Egg .....	20	4	8	
	Just Right Growing .....	16	4	6	✓
	Just Right Chick Starter....	15	4	6	✓
Kasco Mills, Inc., Waverly, N. Y. ....	Apex Laying .....	20	4	8.5	
	Kasco All Mash Laying .....	15	4	6	✓
Larrowe Milling Co., Detroit, Mich. ....	Larro Egg .....	19	5	8	✓
	Larro Egg .....	19	5	7.5	✓
	Larro Growing .....	16	5	6.5	✓
	Larro Growing .....	16	4.5	6.5	✓
	Larro Chick Starter .....	16.5	4.5	5	✓
	Larro Broiler Feed .....	15	4.5	7	✓
	Larro Poultry Fattening ....	14	4	7.5	✓
	Larro Turkey and Game Bird Starter .....	17	4.5	6.5	✓
R. H. McEwen Milling Co., Ogdensburg, N. Y. ....	Red Feather Egg .....	20	4	9	✓
Maritime Milling Co., Buffalo, N. Y. ....	B-B Daisy Egg with Dried Buttermilk .....	18	3.5	7	✓
Park & Pollard Co., Inc., Buf- falo, N. Y. ....	Lay or Bust Dry .....	18	3	7	✓
	Growing .....	14	3	7	✓
	Park & Pollard Chick Starter	17	3.5	5	✓
	Park & Pollard Broiler .....	16	3.5	5	✓
Pratt Food Co., Buffalo, N. Y. ....	Pratt's Cak-Cak with Butter- milk .....	18	4	8	✓
Quaker Oats Co., Chicago, Ill. ....	Quaker Ful-O-Pep Egg .....	20	4.5	8	✓
	Quaker Ful-O-Pep Growing..	19	5	6	✓
	Quaker Ful-O-Pep Chick Starter .....	15	5	7	✓
	Quaker Ful-O-Pep Chick Starter .....	17	5	7	✓
	Quaker Ful-O-Pep Broiler....	19	5	7	✓
Ralston Purina Co., St. Louis, Mo. ....	Purina 32% Egg Chowder containing Mineral .....	32	3	8	✓
	Purina Egg Chowder contain- ing Mineral .....	19	3.5	8	✓
	Purina Egg Chowder (with Dried Buttermilk) .....	19	3.5	8	✓
	Purina Egg Chowder (with Cod-liver Oil) .....	19	3.5	8	✓
	Purina Chicken Chowder contain- ing Mineral .....	19	3.5	8	✓

## I. BRANDS IN ALL RESPECTS UP TO GUARANTY

PROPRIETARY FEEDS—POULTRY FEEDS—MASHES, ETC.—*Continued*

		GUARANTIES			
		Crude protein %	Crude fat %	Crude fiber %	See foot- note* (p. 12)
Ralston Purina Co., St. Louis, Mo. ....	Purina Breeder Egg Chowder containing Mineral .....	19	3.5	8	
	Purina Lay Chow containing Mineral .....	17	2.5	8	✓
	Purina Lay Chow with Dried Buttermilk .....	17	2.5	8	✓
	Purina Lay Chow with Cod- liver Oil .....	17	2.5	8	✓
	Purina All Mash Startena Chow containing Mineral..	18	4	7	✓
	Purina Chicken Fat Chow containing Mineral .....	15.5	3	5	
	Purina Chick Growena Chow containing Mineral .....	16.3	3.5	7	✓
	Purina Chicken Fatena Chow containing Mineral .....	12	3	6.6	✓
	Purina Chick Startena Chow containing Mineral .....	19	4	7	✓
St. Albans Grain Co., St. Al- bans, Vt. ....	Wirthmore Laying Mash with Buttermilk—Cod-liver Oil..	20	4	7	✓
	Wirthmore Laying with But- termilk .....	20	4	7	✓
	Wirthmore Growing contain- ing Buttermilk .....	15	4.5	6	✓
	Wirthmore Growing contain- ing Cod-liver Oil—Butter- milk .....	15	4.5	6	✓
	Wirthmore Complete Ration for Broilers .....	16.5	4	4.5	
	Wirthmore Baby Chick Starter .....	17	4	5	
	Wirthmore Baby Chick Starter containing Cod-liver Meal— Buttermilk—Cod-liver Oil..	18	4	5	✓
	Wirthmore Turkey Starter containing Cod-liver Meal— Buttermilk .....	20	4.5	5	
	Wirthmore Breeder Mash....	20	4.5	7	✓
Ubiko Milling Co., Cincinnati, Ohio .....	Ubiko Egg Mash .....	20	4	6	✓
	Ubiko All-Mash Starter ....	18	4	5	✓
	Ubiko All-Mash Developer...	14	4	5	✓
	Ubiko All-Mash Complete Laying .....	16	3.5	6	✓
	Ubiko All-Mash Complete Lay- ing with Cod-liver Oil.....	16	3.5	6	✓
Valley City Milling Co., Grand Rapids, Mich. ....	Valco Egg .....	19	3.5	7.5	✓
West-Nesbitt, Inc., Oneonta, N. Y. ....	Pure Feed Egg Maker .....	18	4.5	7	✓

I. BRANDS IN ALL RESPECTS UP TO GUARANTY

BUTTERMILK AND SKIMMILK

		GUARANTIES			
		Crude protein %	Crude fat %	Crude fiber %	See foot- note* (p. 12)
C. E. Buell, Inc., Boston, Mass. ....	Buell-Boston Dried Skimmilk	31.1	0.2	..	
Collis Products Co., St. Paul, Minn. ....	Collis Process Pure Dried Buttermilk .....	30	5	..	
Dairymen's League Co-Opera- tive Assoc., Inc., Utica, N. Y. ....	Dairylea Dried Skimmilk....	33	0.75	..	
S. T. Edwards & Co., Inc., Chicago, Ill. ....	Yankee Dried Buttermilk ...	32	4	..	
Land O'Lakes Creameries, Inc., Minneapolis, Minn....	Dried Buttermilk .....	30	3	..	
St. Albans Grain Co., St. Al- bans, Vt. ....	Pure Dried Skimmilk Powder	32	0.5	..	
Sheffield Farms Co., Inc., New York, N. Y. ....	Sheffield Skimmilk Powder...	32	0.75	..	
Trout Brook Creamery Co., Concord, Vt. ....	Trout Brook Skimmilk Powder .....	32	0.25	..	

## II. BRANDS FAILING TO MEET GUARANTIES

(In respect to one or more of the samples analyzed)<sup>1</sup>

## COTTONSEED MEALS

ASHCRAFT-WILKINSON Co., Atlanta, Ga. *Helmet Brand Prime*. 41/5.5/10. Twelve samples, one below protein guaranty (41%). Stock of E. H. Bixby & Son, Poultney, 38.33%. Nine samples below protein guaranty but within tolerance limits. Average twelve samples 40.54%.

CAIRO MEAL & CAKE Co., Cairo, Ill. *Miss Cairo Brand Prime*. 41/6/10. Eight samples, one below protein guaranty (41%). Stock of H. A. Slayton & Co., Morrisville, 38.54%. Five samples below protein guaranty but within tolerance limits. Average eight samples 40.63%.

HUMPHREYS-GODWIN Co., Memphis, Tenn. *Bull Brand*. 43/5/10. Six samples, one below protein guaranty (43%). Stock of C. A. Smith, Newport, 41.17%. Two below protein guaranty but within tolerance limits. Average six samples 42.70%.

HUMPHREYS-GODWIN Co., Memphis, Tenn. *Bull Brand*. 43/5/11. Nine samples, one below protein guaranty (43%). Stock of Grand Isle Grain Co., Grand Isle, 41.39%. Three below protein guaranty but within tolerance limits. Average nine samples 42.88%.

HUMPHREYS-GODWIN Co., Memphis, Tenn. *Dixie Brand*. 41/5/12. Twenty-one samples, three below protein guaranty (41%). Stocks of W. S. Wright, Lyndonville, 39.86%; R. G. Whitman, North Bennington, 39.64%; Taylor & Hawkins, South Shaftsbury, 39.42%. Five below protein guaranty but within tolerance limits. Average twenty-one samples 41.25%.

HUMPHREYS-GODWIN Co., Memphis, Tenn. *Danish Brand*. 36/5/15. Six samples, two below protein guaranty (36%). Stocks of H. N. Gray, Cambridge, 33.07%; S. A. White, Northfield, 34.17%. One below protein guaranty but within tolerance limits. Average six samples 35.81%.

L. B. LOVITT & Co., Memphis, Tenn. "*Lovit Brand*" 36%. 36/5/15. Two samples, one below protein guaranty (36%). Stock of C. E. Johnson, Island Pond, 34.83%. Average two samples 36.36%.

MARIANNA SALES Co., Memphis, Tenn. *White Mule Brand Prime*. 41/6/10. Twelve samples, one below protein guaranty (41%). Stock of E. T. Chatterton, Middlebury, 40.08%. Seven samples below protein guaranty but within tolerance limits. Average twelve samples 41.01%.

## DISTILLERS DRIED GRAINS

THE DEWEY BROS. Co., Blanchester, Ohio. *Eagle 3D Distillers' Dried Grains*. 30/10/13. One sample below protein guaranty (30%). Stock of For-all Grain Co., Groton, 28.26%. Fat below guaranty but within tolerance limits.

<sup>1</sup>In cases where one or more samples of a given brand proved deficient in its or their protein contents at the same time that others were within the tolerance limits or up to or above guaranty, and where the average figure was within tolerance limits or up to or above guaranty, the brand in question is listed *both* in this table as "failing to meet guaranty" (because some one or more of the samples was deficient) and in the preceding table as "in all respects up to guaranty" (because on the basis of the average of the several analyses it was "up to guaranty"). A hypothetical case may be cited. Eighteen samples are analyzed and two are deficient. Hence the brand, because of these two, is listed here. But 16 of the 18 were as good as they were said to be, actually or essentially, and on the average the shortage was either almost infinitesimal or, indeed, actually nonexistent. Hence the brand is listed among those that passed muster. Every sample taken is analyzed for its protein content. All samples of a given brand are mixed, forming one analytical sample for the determination of its fat and fiber contents. Hence it is that no sample of a brand showing material shortage in fat or overage in fiber is listed as "up to guaranty."



II. BRANDS FAILING TO MEET GUARANTIES—*Continued*

QUAKER OATS Co., Chicago, Ill. *Vim Feed*. 5/2/30. Four samples, three below protein guaranty (5%). Stocks of W. B. Johnson & Son, Essex Jct., 4.62%; Farmers' Feed & Grain Co., St. Albans, 4.40%; E. F. Seabury Grain Co., Waterbury, 2.21%. One below protein guaranty but within tolerance limits. Average four samples 4.02%. Fat guaranty 2%, found 1.55%.

QUAKER OATS Co., Chicago, Ill. *Sugared Vim*. 5/15/25. Two samples, one below protein guaranty (5%). Stock of R. D. Small, East Thetford, 3.08%. Average two samples 4.29%. Fat guaranty 1.50%, found 1.26%.

QUAKER OATS Co., Chicago, Ill. *Sugared Vim*. 5/1.25/26. Twelve samples, three below protein guaranty (5%). Stocks of C. S. Brush, Jericho, 4.62%; J. F. Curtis, Sharon, 4.62%; A. C. Cutler, Townshend, 4.40%. Average 12 samples 5.40%.

QUAKER OATS Co., Chicago, Ill. *Sugared Vim*. 5/1.25/27.5. Six samples, two below protein guaranty (5%). Stocks of Frank Tyler, Essex Jct., 4.62%; J. D. Thompson Est., Norwich, 4.62%. Two below protein guaranty but within tolerance limits. Average six samples 4.91%.

ST. ALBANS GRAIN Co., St. Albans, Vt. *Utility 60 Pasture*. 14/3/13. Four samples, two below protein guaranty (14%). Stocks of F. C. Brown, Barton, 12.72%; St. Albans Grain Co., St. Albans, 13.37%. Average four samples 14.35%.

## CALF MEAL, HOG MEALS

ALLIED MILLS, INC., Chicago, Ill. *Wayne Calf*. 24/4/7. Four samples, one below protein guaranty (24%). Stock of For-All Grain Co., Groton, 23.22%. One below protein guaranty but within tolerance limits. Average four samples 24.09%.

UBIKO MILLING Co., Cincinnati, Ohio. *Ubiko Calf*. 28/3/3. One sample below protein guaranty (28%). Stock of E. G. & A. W. Norton, Vergennes, 26.94%.

## MEAT AND BONE SCRAPS

BURLINGTON RENDERING Co., Burlington, Vt. *Burlington*. 50/8/—. Three samples, one below protein guaranty (50%). Stock of H. A. Slayton & Co., Morrisville, 45.99%. Average three samples 49.20%.

ECONOMY REDUCTION CORPORATION, Buffalo, N. Y. *Economy Bone*. 5/1/3. One sample below protein guaranty (5%). Stock of Valley Grain Co., Piermont, 4.18%.

JOHN REARDON & SONS Co., Cambridge, Mass. *Register Brand*. 50/6/—. One sample below protein guaranty (50%). Stock of C. W. Colburn, West Fairlee, 44.02%. Fat guaranty 6%, found 8.85%.

JOHN REARDON & SONS Co., Cambridge, Mass. *Pure Raw Bone*. 25/3/2. Average of two samples below fat guaranty (3%). Found 1.15%.

## SCRATCH FEEDS, CHICK FEEDS

ELMORE MILLING Co., INC., Oneonta, N. Y. *Elmore Scratch*. 10/3.5/7. Average of seven samples below fat guaranty (3.5%). Found 3.23%.

## MASHES, GROWING FEEDS, ETC.

ALLIED MILLS, INC., Peoria, Ill. *Wayne Egg Mash*. 18/3.5/7. Eight samples, two below protein guaranty (18%). Stocks of J. F. Curtis, Sharon, 16.88%; Sharon Mills, South Royalton, 15.34%. Three samples below protein guaranty but within tolerance limits. Average eight samples 17.98%.

II. BRANDS FAILING TO MEET GUARANTIES—*Continued*

- ALLIED MILLS, INC., Peoria, Ill. *Wayne Turkey Mash*. 15/3.5/6. Average of three samples above fiber guaranty (6%). Found 7.29%.
- ST. ALBANS GRAIN CO., St. Albans, Vt. *Wirthmore Laying Mash Containing Cod-liver Oil—Buttermilk*. 20/4/7. Twenty-one samples, one below protein guaranty (20%). Stock of C. A. Smith, Newport, 18.85%. Average twenty-one samples 22.78%.
- ST. ALBANS GRAIN CO., St. Albans, Vt. *Wirthmore Breeder Mash Containing Cod-liver Oil—Buttermilk*. 20/4.5/7. Five samples, one below protein guaranty (20%). Stock of St. Albans Grain Co., St. Albans, 19.06%. Average five samples 21.65%.

## SKIMMILK

- THE DRY MILK CO., INC., New York, N. Y. *Chikora Dry Skim Milk*. 35.14/1/—. One sample below protein guaranty (35.14%). Stock of For-All Grain Co., Barnet, 33.73%.

## III. INGREDIENT STATEMENTS

The ingredient make up of a ready-mixed feed is as important as, perhaps more important than, the statement of its guaranty. The guaranty may be met, so far as protein, fat, and fiber are concerned, and yet the whole story may not be told. A mixture may contain low grade ingredients yet meet its guaranty. The materials used in feed manufacture are many and varied. Speaking in general terms it may be said that about three-quarters of the dairy and stock feeds found on sale in Vermont last winter were composed of the better grades of ingredients, whereas the other quarter contained not only these but also materials of lesser feeding value, as, for example, oat mill feed (oat hulls, shorts and middlings) and wheat screenings. Extensive feeding trials carried on during recent years have shown that oat mill feed—sometimes called oat feed or oatmeal mill by-product, obtained in the first hulling of oats—has a feeding value approximately 70 percent that of wheat bran when fed to dairy cows in amounts not exceeding one-fourth of the grain ration. The use of this type of feeding stuff has increased considerably within the last three years and it is not now viewed with the same disfavor that existed 10, 20 and 30 years ago. Furthermore as sold today it seems to be on the whole of better grade than it was in the days of long ago. Many samples have been tested and found to be as guaranteed, but a few have shown an excessive fiber content. This indicates that in the manufacture some of the shorts and middlings have been removed, leaving a higher percentage of hulls resulting in a high fiber content. This practice is to be decried since the feeding value of the product is thus greatly reduced.

The term "screenings" is defined in Vermont bulletin 246 as follows:

*"Screenings.* Broken, imperfect, shrunken, wheat kernels, weed seeds, etc.; obtained in the main in the process of cleaning and grading at elevators; highly variable in character, ranging from a product composed in the main of small, broken, immature grain kernels, to one composed in the main of chaff, sticks, hulls, weed seeds, sweepings, etc."

The phraseology used by feed manufacturers in stating on their packages the presence of these screenings is far from uniform. The material is variously termed: "Ground and bolted screenings from flax, wheat, corn, oats and barley." "Fine ground grain screenings." "Pulverized and bolted screenings from wheat." "Ground grain screenings." "Ground grain screenings (from wheat, corn, oats, barley, kafir.)" This lack of uniformity in statement would indicate that the term "screenings" covers a large variety of by-products some of which are of questionable value. Some of the better grades undoubtedly have considerable feeding value, but in the main they are inferior. It is gratifying to note that their usage is proclaimed in only 11 percent of the brands of dairy and stock feeds sampled during the past winter.

During the past five years, there has been considerable increase in the use of alfalfa meal, not only as an ingredient in stock and poultry feed but also by way of general use as a roughage. It is an expensive source of protein and care should be used in its purchase. Reference should be made to guaranties so that only high grades may be chosen, which may cost more per ton and yet really be cheaper to buy.

Alfalfa stem meal has appeared on the market in some places in New England, but as yet has not been found on sale in Vermont. This material might be taken for alfalfa meal, since it resembles it in appearance; but it contains over 33 percent of fiber. As its name indicates, it contains large percentages of stem and is a by-product of the manufacture of alfalfa leaf meal. Buyers should note those brands of alfalfa meal which are shown by the guaranties made by their purveyors or by station analyses to carry 33 percent or more of fiber, since this indicates a removal of some of the leaves or the addition of stems, which of course reduce the feeding value.

The following pages show the ingredient contents statement. An asterisk (\*) indicates usage as claimed by the manufacturers. The microscopist almost always found claim and performance to be identical. The few instances where he finds otherwise are listed at the foot of each table.

DAIRY FEEDS

Dairy Feeds or "Rations"	Guaranty			Alfalfa meal	Beet pulp	Bone meal	Brewers' dried grains	Calcium carbonate	Cocanut oil meal	Corn meal	Corn oil meal	Cottonseed meal	Distillers' dried grains	Gluten meal and feed	Hominy feed	Linseed meal	Malt grains	Molasses	Oats	Oat mill feed	Salt	Screenings	Wheat bran	Wheat middlings
	Protein	Fat	Fiber																					
<b>Allied Mills, Inc.</b>																								
Amco 32% Supplement†	32/4/9			*	*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	1
Amco 24%†	24/3.5/9			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 2, 3
Amco 20%†	20/3.5/9			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 2, 3
Emergency 20%	20/4.5/12			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 2
Amco 20% National†	20/3.5/9			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2, 3, 4
Wayne 20% Sucrene	20/3.5/12.5			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1
Sweet Dairy Mix	20/3.5/9			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 13, 20
Amco 16½% Sucrene†	16.5/4/12			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
<b>E. W. Bailey &amp; Co.</b>																								
Capital	24/5/9			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Sweetened Capital	24/5/9			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Open Formula 24%	24/4.5/9			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Open Formula 20%	20/4.5/9			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Favorite	20/4.5/7.5			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Sweetened Favorite	20/4.5/7.5			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
"Our Own"	16/5/9			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
"Our Own" Sweetened	16/5/9			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
<b>G. N. Bartemus Co.</b>																								
Concord 20% Sweetened†	20/3/9			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
<b>Berkshire Coal &amp; Grain Co., Inc.</b>																								
Green Mountain	23/5/10			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
Berkshire Hills Sweet	20/5/10			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
<b>Bethel Mills</b>																								
Bethel Mills 24%	24/5/9			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Bethel Mills 20%	20/5/9			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Bethel Mills 16%				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Pasture	16/4.2/9.5			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
<b>Black Rock Milling Corp.</b>																								
Bidwell 24%	24/4/11			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2, 5
Bidwell 20%	20/4/11			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2, 5
<b>Caledonia Mills, Inc.</b>																								
Green Mountain	23/5/10			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
<b>Chapin &amp; Co.</b>																								
Ajax 32%	32/5/10			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Unicorn 24%	24/4.5/10			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
Unicorn 20%	20/4.5/10			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
<b>Danville Grain Co., Inc.</b>																								
Danville 24%	24/5/9			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	5
Blue Ribbon	20/4/11			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
Danville 20%	20/4/10			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	5

†Open Formula.

## DAIRY FEEDS—continued

Dairy Feeds or "Rations"	Guaranty			Alfalfa meal	Beet pulp	Bone meal	Brewers' dried grains	Calcium carbonate	Cocconut oil meal	Corn meal	Corn oil meal	Cottonseed meal	Distillers' dried grains	Gluten meal and feed	Hominy feed	Linseed meal	Malt grains	Molasses	Oats	Oat mill feed	Salt	Screenings	Wheat bran	Wheat middlings
	Protein	Fat	Fiber																					
Davis Feed Co., Inc.																								
Davis Special 24 Milk	24	4/9		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
Davis Special 20 Milk	20	4/8.5		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
Davis 20% Kow Feed	20	4.5/8.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	12
H. W. Demick, Inc.																								
Beats 'Em All	20	4/10			*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Dewey Bros. Co.																								
Dewey's Buckeye	20	5/10			*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Eastern States Farmers' Exchange																								
Eastern States 30%												*	*	*	*	*	*	*	*	*	*	*	*	
Supplement†	30	5/8										*	*	*	*	*	*	*	*	*	*	*	1, 6	
Eastern States Milk-													*	*	*	*	*	*	*	*	*	*		
more†	24	4.5/8										*	*	*	*	*	*	*	*	*	*	*	1, 6	
Eastern States Fulpall†	20	4.5/8										*	*	*	*	*	*	*	*	*	*	*	1, 6	
Eastern States Fulpall†	20	4/8										*	*	*	*	*	*	*	*	*	*	*	1, 2, 6	
Eastern States High-																								
land 20†	20	4/12		*						*	*	*	*	*	*	*	*	*	*	*	*	*	1, 6	
Eastern States Sixteen†	16	4/8								*	*	*	*	*	*	*	*	*	*	*	*	*	6	
Elmore Milling Co., Inc.																								
Elmore 32% Supplemental	32	4/9			*					*	*	*	*	*	*	*	*	*	*	*	*	*	1	
Elmore Milk Grains	25	5/11			*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	5	
Elmore Milk Grains																								
Sweetened	24	5/10			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	5	
Granger	24	4/9		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 7	
Elmore's Economilk 24%	24	4/10			*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	1, 2	
Economilk	20	4/11			*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	1, 2	
Emco Feed	20	4.5/10	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Elmore Milk Grains Jr.	20	5/10			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	5	
Otsego Economy	20	4/11			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	7, 8	
Elmore's Sweet Digesto	16	4/12			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
J. W. Eshelman & Sons																								
Eshelman Certified 20%†	20	4/8		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1	
Eshelman Conestoga 20	20	4/11		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1	
Eshelman Lancaster 20	20	4/11		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 9	
Eshelman Open Formula																								
20%	20	4/9		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1	
Eshelman Pennsy 16	16	3/11		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1	
The For-All Grain Co.																								
For-All Milk Grains										*	*	*	*	*	*	*	*	*	*	*	*	*	*	
20%	20	5/8.5								*	*	*	*	*	*	*	*	*	*	*	*	*	2	
General Mills, Inc.																								
Eventually Gold Medal	20	5/8.5								*	*	*	*	*	*	*	*	*	*	*	*	*	8, 10	
D. H. Grandin Milling Co.																								
Grandin's 32%	32	4/9		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Grandin's Sweetened																								
24%	24	4/10		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	9	
Grandin's Sweetened 12																								
Twin Six 12	22	5/12	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	9	
Grandin's Milk Maker	20	5/12	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	9	

†Open formula.



DAIRY FEEDS—continued

Dairy Feeds or "Rations"	Guaranty			Alfalfa meal	Beet pulp	Bone meal	Brewers' dried grains	Calcium carbonate	Cocoanut oil meal	Corn meal	Corn oil meal	Cottonseed meal	Distillers' dried grains	Gluten meal and feed	Hominy feed	Linseed meal	Malt grains	Molasses	Oats	Oat mill feed	Salt	Screenings	Wheat bran	Wheat middlings
	Protein	Fat	Fiber																					
Plin Morse, Inc. Balanced	18/5/10									*	*	*	*	*	*	*	*	*	*	*	*	*		
E. G. & A. W. Norton Kow Feed	20/4/10					*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	14
P. R. Park, Inc. ManAmar	40/3/4							*																8, 1
The Park & Pollard Co. Milkmaid 24% Sweetened	24/4.5/11					*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	5,
Overall 24%	24/4.5/9					*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Bet-R-Milk 20%	20/4/9					*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	5,
Herdhelth 16%	16/3.5/9					*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	15
Top Notch 16%	16/3.5/12					*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	5
The Quaker Oats Co. Quaker 24% Protein	24/4/12					*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Quaker 20% Protein	20/3.25/12					*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
Quaker 16% Protein	16/3.5/13.5					*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
Ralston Purina Co. Purina 34% Cow Chow	34/3/12	*				*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1,
Purina 24% Cow Chow (Buffalo Mill)	24/3/12	*				*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1,
Protena 24% (Buffalo Mill)	24/3/14					*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	17
Protena 24%	24/3/12					*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	17
Purina 20% Cow Chow (Buffalo Mill)	20/3/12	*	*			*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1,
Protena 20%	20/3/14					*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	17
Purina Bulky Cow Chow	16/3/12	*	*			*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1,
Protena 16%	16/3/14					*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	17
St. Albans Grain Co. Wirthmore 25 Balanced	25/5/9					*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Wirthmore 25 Balanced Sweetened	25/4.75/8.5					*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Hygrade 24 Sweetened Milk	24/4/9					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
Hygrade 20 Sweetened Milk	20/4/8.5					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
Wirthmore 20	20/5/8.5					*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*																				
				</																				

DAIRY FEEDS—concluded

Dairy Feeds or "Rations"	Guaranty			Alfalfa meal	Beet pulp	Bone meal	Brewers' dried grains	Calcium carbonate	Cocoanut oil meal	Corn meal	Corn oil meal	Cottonseed meal	Distillers' dried grains	Gluten meal and feed	Hominy feed	Linseed meal	Malt grains	Molasses	Oats	Oat mill feed	Salt	Screenings	Wheat bran	Wheat middlings
	Protein	Fat	Fiber																					
C. M. Seaver & Co.																								
Honor 24	24/5.5/9			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Honor 20	20/4/10			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
H. A. Slayton & Co.																								
Economy Feed	20/3.75/8.5			*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
R. D. Small																								
Small's 20 Per Cent	20/4.2/11.8								*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
C. A. Smith																								
Smith's	20/4/12			*						*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
C. H. Stearns & Son Co.																								
Stearnco	20/4/9			*	*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Stratton & Co.																								
Stratton's White																								
Clover 20	20/3.5/10.5			*	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
J. G. Turnbull Co.																								
Creamery	20/5/10								*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	8
Turnbull's Special	20/3.5/12									*	*	*	*	*	*	*	*	*	*	*	*	*	*	8, 12
The Ubiko Milling Co.																								
Union Grains Ubiko																								
32% Sweet	32/4/10			*	*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	1
24%	24/5/10			*	*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	
24% Sweet	24/4.5/10			*	*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	
C. H. Utley																								
Veri-Best	20/5/7.5			*	*				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Valley City Milling Co.																								
Rowena 20%	20/4/8			*	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Valco 16%	16/3/9			*	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2
Valley Grain Store																								
Valley 20%	20/4/10			*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	5
Wayne County Grangers																								
Feed Corp.																								
Grange Superior 20%	20/4/10			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	5, 18
West-Nesbitt, Inc.																								
Super Pure Sweetened	24/4.5/10			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 19
All Pure 20% Milk	20/4.5/10			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Pure Sweet Feed	20/4/10			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1
R. P. Webster																								
Ray's Ready	20/5/10			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	8

Additional ingredients: 1. Soy bean oil meal. 2. Barley. 3. Wheat. 4. Peanut oil meal. 5. Malt sprouts. 6. Di-calcium phosphate. 7. Copra oil meal. 8. Phosphatic limestone. 9. Corn feed meal. 10. Wheat germ. 11. Ground phosphate rock. 12. Rye feed. 13. Potassium iodide. 14. Red dog flour. 15. Dried ground fish. 16. Ground kelp. 17. Iodized salt. 18. Tri-calcium phosphate. 19. Dried yeast grains. 20. Iron oxide.



All dairy feeds, with few exceptions, were found to be "*as certified*."

In the following instances, the ingredients named were "*not detected*":

- E. W. Bailey & Co., Bailey's Open Formula 20%: Salt.
- Berkshire Coal & Grain Co., Green Mountain: Calcium carbonate.
- Davis Feed Co., 20% Kow Feed: Alfalfa leaf meal
- Elmore Milling Co., Inc., Elmore Milk Grains Junior: Barley, malt sprouts.
- E. T. & H. K. Ide, Royal Sweetened: Calcium carbonate.
- E. T. & H. K. Ide, Vermont Sweetened: Calcium carbonate.
- Kasco Mills, Inc., Kasco Mormilk: Calcium carbonate.
- Kasco Mills, Inc., Beatsall Milk Grains: Calcium carbonate.
- Park & Pollard Co., Herdhelth 16%: Fish meal.
- Quaker Oats Co., Quaker 24% Protein: Calcium carbonate.
- Quaker Oats Co., Quaker 16% Protein: Calcium carbonate.
- Ubiko Milling Co., Union Grains Ubiko 32% Sweet: Calcium carbonate.
- Ubiko Milling Co., Union Grains Ubiko 24% Dry: Calcium carbonate.
- Ubiko Milling Co., Union Grains Ubiko 24% Sweet: Calcium carbonate.
- West-Nesbitt Co., All Pure 20% Milk: Salt.

In the following instances small quantities of ingredients named were found in addition to those certified:

- G. N. Bartemus Co., Concord 20% Sweetened: Malt sprouts.
- Caledonia Mills, Inc., Green Mountain: Bone, calcium carbonate, salt.
- Chapin & Co., Unicorn 24%: Malt sprouts.
- Chapin & Co., Unicorn 20%: Malt sprouts.
- Davis Feed Co., 20% Kow: Ground barley, weed seeds.
- Elmore Milling Co., Inc., Economilk (1932): Alfalfa meal, few whole weed seeds.
- Elmore Milling Co., Inc., Economilk (1931): Alfalfa meal, few whole weed seeds.
- John W. Eshelman & Sons, Eshelman's Open Formula 20%: Brewers' dried grains.
- Maritime Milling Co., B-B Hi-Test 20% Sweetened: Few weed seeds.
- Ralston Purina Co., Protena 16%. Few whole weed seeds.
- West-Nesbitt Co., Inc., Super Pure Sweetfeed: Distillers' dried grains.

Forty-one ingredients were used in making the 146 brands of dairy feeds sampled. Bran, salt, cottonseed meal, linseed meal, gluten meal or feed in nine-tenths or over; molasses and calcium carbonate or bone in eight-tenths; corn meal and wheat middlings in six-tenths; hominy feed, ground oats, bone meal, and brewers', distillers' or malt grains in one-half; barley and soy bean meal in one-fifth; either screenings or oat mill feed in one-fifth of brands sampled. Eighty-seven percent of brands carry minerals other than salt.

STOCK FEEDS, HORSE FEEDS, FITTING FEEDS, ETC.

Stock Feeds, Horse Feeds, Fitting Feeds, etc.	Guaranty			Alfalfa meal	Barley	Bone meal	Calcium carbonate	Corn meal	Cottonseed meal	Cracked corn	Horniny feed	Linseed meal	Molasses	Oats	Oat mill feed	Salt	Screenings	Wheat bran	Wheat middlings	Wheat red dog
	Protein	Fat	Fiber																	
<b>Allied Mills, Inc.</b>																				
Amco 12% Fitting†	12/3/9			*	*	*	*			*	*	*	*	*	*	*	*	*		1
June Pasture	10/0.5/21	*																		
Wayne Supreme Horse	9.5/3.5/8								*				*	*				*		
Wayne Rabbit	13/3.5/8	*	*	*	*								*	*						1, 9, 12 13, 14, 15
<b>E. W. Bailey &amp; Co.</b>																				
Bailey's Fitting	14/4/9			*	*					*	*	*	*	*	*	*	*	*	*	
Sweetened Bailey's Fitting	14/4/9			*	*					*	*	*	*	*	*	*	*	*	*	
Pennant Horse	10.75/3.5/6.5								*	*	*	*	*	*	*	*	*	*	*	
Pennant Brand Stock	9.5/4/9.5			*						*	*	*	*	*	*	*	*	*	*	
Sweetened Pennant Brand Stock	9.5/4/9.5			*						*	*	*	*	*	*	*	*	*	*	
<b>Eastern States Farmers' Exchange</b>																				
Eastern States Highland 12†	12/3.5/11.5						*			*	*	*	*	*	*	*	*	*	*	2, 4, 9
Eastern States Fitting†	12/3.5/7						*			*	*	*	*	*	*	*	*	*	*	2, 9
Eastern States Horse Feed†	10.5/3.5/6.5			*					*	*	*	*	*	*	*	*	*	*	*	
Eastern States Horse and Calf†	10.5/3.5/7								*	*	*	*	*	*	*	*	*	*	*	2
<b>Elmore Milling Co. Inc.</b>																				
Elmore Horse with Molasses	9/2.5/11	*							*		*	*	*	*	*	*	*	*	*	
<b>J. W. Eshelman &amp; Sons</b>																				
Eshelman S-O-S	11/2/15	*	*	*							*	*	*	*	*	*	*	*	*	3, 4
Eshelman Steam-cooked Horse	9/4/6								*		*	*	*	*	*	*	*	*	*	
Eshelman Red Rose 85 Horse	9/3/10	*							*	*	*	*	*	*	*	*	*	*	*	
Eshelman Red Rose Stock	9/3/11	*							*	*	*	*	*	*	*	*	*	*	*	5, 16
Eshelman Red Rose Rabbit	12/3.5/9.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	17
<b>D. H. Grandin Milling Co.</b>																				
Grandin's Sweetened Horse	9.5/3.5/11	*							*	*	*	*	*	*	*	*	*	*	*	
Grandin's Stock	8.5/4/12	*	*						*	*	*	*	*	*	*	*	*	*	*	5
<b>Hales &amp; Hunter Co.</b>																				
Collee Horse	9/2.5/10	*	*						*	*	*	*	*	*	*	*	*	*	*	
Excelsior Horse	9/3/8	*							*	*	*	*	*	*	*	*	*	*	*	
Victoria Rabbit	14/3.5/10	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 7, 8 18, 19, 20
<b>E. T. &amp; H. K. Ide</b>																				
Ideal Fitting	12/4/10	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
<b>Imperial Grain &amp; Milling Co.</b>																				
Imperial Steam Cooked	9.5/4/4.6								*	*	*	*	*	*	*	*	*	*	*	
<b>Maritime Milling Co. Inc.</b>																				
B-B Bull Brand Horse	8/2/10	*							*	*	*	*	*	*	*	*	*	*	*	
<b>The Park &amp; Pollard Co.</b>																				
Fitting	12/3.5/7				*	*			*	*	*	*	*	*	*	*	*	*	*	6

†Open Formula.

## STOCK FEEDS, HORSE FEEDS, FITTING FEEDS, ETC.—concluded

Stock Feeds, Horse Feeds, Fitting Feeds, etc.	Guaranty			Alfalfa meal	Barley	Bone meal	Calcium carbonate	Corn meal	Cottonseed meal	Cracked corn	Hominy feed	Linseed meal	Molasses	Oats	Oat mill feed	Salt	Screenings	Wheat bran	Wheat middlings	Wheat red dog
	Protein	Fat	Fiber																	
The Park & Pollard Co.																				
Park & Pollard Horse	10/3.5/9								*	*	*	*	*	*						
Park & Pollard Stock	8.5/4/12			*	*	*				*				*	*	*				
Chelsea Horse	8/2/12	*							*				*	*	*					
The Quaker Oats Co.																				
Banner	13/4.5/18														*					
Full-O-Pep Station Grade																				
Fattening	13/5/5			*	*	*							*	*						11, 21, 22, 23
Quaker Green Cross																				
Horse	10/2.5/12	*						*	*	*	*	*	*	*	*	*				
Quaker Schumacher	10/3/12			*	*	*	*	*	*	*	*	*	*	*	*	*				11
Sugared Schumacher	10/3/12			*	*	*	*	*	*	*	*	*	*	*	*	*				11
Quaker Thoroughbred Horse	10.5/3.5/9	*						*	*	*	*	*	*	*	*	*				
Horse Power	9.5/2.8/11	*						*	*	*	*	*	*	*	*	*				
Quaker Molabulk	9/2.5/16	*						*				*	*	*	*	*				
Richford White Diamond																				
Stock	9/3/14			*	*	*	*			*				*	*					
Vim	5/2/30													*	*					
Sugared Vim	5/1.5/25											*	*	*	*					
Sugared Vim	5/1.25/26											*	*	*	*					
Sugared Vim	5/1.25/27.5											*	*	*	*					
Ralston Purina Co.																				
Purina Fitting Chow	13.5/2.6/12	*							*	*	*	*	*	*	*	*				9, 10
Purina Red Bag Steer																				
Fatena Chow	12/2.5/10							*	*	*	*	*	*	*	*					8, 10
Purina Bulky Las Chow																				
(Buffalo Mill)	9/1.3/15	*										*	*	*	*	*				3, 4, 10
Purina Bulky Omolene																				
Chow	9.7/3.2/11								*	*	*	*	*	*	*	*				
Purina Omolene Chow	9.7/3.2/9	*							*	*	*	*	*	*	*	*				
Protena Stock	9/2.3/12						*				*	*	*	*	*	*				10
Protena Sweet Roughage																				
(Buffalo Mill)	6/1/30	*										*	*	*	*					4
Purina Rabbit Chow																				
(In Checker Form)	16/3.5/8	*		*	*	*	*	*	*	*	*	*	*	*	*	*				9, 21, 24
Purina Lamb Chow	14/3/12							*	*	*	*	*	*	*	*	*				7, 8
St. Albans Grain Co.																				
Wirthmore 14 Fitting	14/4/7			*	*	*	*	*	*	*	*	*	*	*	*	*				6
Utility 60 Pasture	14/3/13			*	*	*	*	*	*	*	*	*	*	*	*	*				7, 4
Hygrade Fitting or Stock	10/3.25/12			*	*	*	*	*	*	*	*	*	*	*	*	*				
Wirthmore Stock	9/4/9.5			*	*	*	*	*	*	*	*	*	*	*	*	*				
Wirthmore Horse	9.8/3.25/9	*						*	*	*	*	*	*	*	*	*				
Wirthmore Fodder Greens	9/1.25/19	*		*	*	*	*	*	*	*	*	*	*	*	*	*				3
Wirthmore Rabbit	14/3.5/9	*		*	*	*	*	*	*	*	*	*	*	*	*	*				1, 7, 12, 13
Ubiko Milling Co.																				
Alfalfa and Molasses	10/0.5/30	*										*	*	*	*					
Crusader Horse	9/3/10	*				*					*	*	*	*	*					
Ubiko Horse	9/3.5/7								*	*	*	*	*	*	*					

Additional ingredients: 1. Ground wheat. 2. Di-calcium phosphate. 3. Beet pulp. 4. Brewers' dried grains. 5. Corn feed meal. 6. Fish meal. 7. Gluten feed or meal. 8. Charcoal. 9. Soy bean meal. 10. Iodized salt. 11. Low grade wheat flour. 12. Dried skim milk. 13. Cod-liver oil. 14. Iron oxide. 15. Potassium iodide. 16. Ground rye. 17. Dried buttermilk. 18. Rock phosphate. 19. Magnesium sulphate. 20. Calcium iodide. 21. Corn germ meal. 22. Cod-liver meal. 23. Ground puffed rice. 24. Wheat germ meal.

All stock feeds were found to be "as certified" with a few minor exceptions.

In the following instances the ingredients named were "not detected":

Eastern States Farmers' Exchange, Horse: Salt.

J. W. Eshelman & Sons, Red Rose Stock: Salt.

In the following instance, small quantities of ingredients named were found in addition to those certified:

Ubiko Milling Co., Alfalfa and Molasses: Few whole weed seeds.

Forty-one ingredients were used in making 63 brands of stock feeds, etc., sampled. Molasses, salt and oats appear in seven-tenths of more; linseed meal, alfalfa, barley, wheat bran, cracked corn, oat mill feed in four to five-tenths; corn meal and bone meal or calcium carbonate in three-tenths; cottonseed meal, hominy, wheat middlings in two-tenths of brands sampled. Oat mill feed appears in 23 and screenings only in three brands.

#### CALF MEALS, HOG FEEDS

*Allied Mills, Inc., Amco Calf Meal.* 24/4/6.5. Cottonseed oil meal, corn gluten meal, cocoanut oil meal, wheat middlings, wheat bran, wheat second clear flour, dried buttermilk, bone meal, salt, and cane molasses.

*Allied Mills, Inc., Wayne Calf Meal.* 24/4/7. Cottonseed oil meal, corn gluten meal, cocoanut oil meal, wheat middlings, wheat bran, wheat second clear flour, dried skimmilk, molasses, bone meal, salt.

*Allied Mills, Inc., Emergency Hog Feed.* 14/3/7. Tankage, ground wheat, ground barley, corn meal, wheat middlings, cocoanut oil meal, alfalfa meal, molasses, ground limestone, bone meal, iron oxide, copper sulphate and potassium iodide.

*Allied Mills, Inc., Wayne Hog Meal.* 28/4.5/8. Soy bean meal, tankage, fish meal, cocoanut oil meal, linseed meal, wheat middlings, cottonseed meal, alfalfa meal, peanut oil meal, molasses, limestone, bone meal, iron oxide, copper sulphate, potassium iodide, salt.

*Allied Mills, Inc., Wayne Pig Meal.* 18/3.5/7. Peanut oil meal, fish meal, tankage, cottonseed meal, soy bean oil meal, linseed meal, wheat middlings, ground barley, corn meal, alfalfa meal, cocoanut oil meal, ground wheat, molasses, bone meal, ground limestone, iron oxide, copper sulphate, potassium iodide, salt.

*Blatchford Calf Meal Co., Blatchford's Calf Meal.* 24/5/6.75. Locust bean meal, unpressed flaxseed, blood flour, rice polish, fish meal, linseed meal, dried milk albumen, barley meal, ground beans, cocoa, bone meal, wheat flour, cocoanut oil meal, cottonseed meal, fenugreek, anise, salt.

*Eastern States Farmers' Exchange, Eastern States Calf Starter (Open Formula).* 22/3/6.5. Crimped oats, corn meal, linseed meal, wheat bran, blood flour, cracked corn, dried skimmilk, di-calcium phosphate, salt.

*Eastern States Farmers' Exchange Eastern States Hog Meal (Open Formula).* 15/4/5.5. Yellow corn meal, meat scraps, wheat flour middlings, linseed meal, alfalfa, di-calcium phosphate, calcium carbonate, salt.

*Elmore Milling Co., Inc., Elmore "Three Point" Calf Meal.* 24/4/4. Red dog, corn meal or corn feed meal, oat meal, linseed meal, malted barley, blood meal, dried buttermilk, bone meal, salt.

*Elmore Milling Co., Inc., Elmore's Hog Ration.* 15/5/6. Wheat middlings, linseed meal, corn meal, corn feed meal or hominy feed, tankage, salt.

*J. W. Eshelman & Sons, Eshelman Red Rose Calf Starter.* 18/3/5. Cooked wheat feed, linseed meal, wheat middlings, wheat flour, oatmeal, ground kaffir corn, blood meal, flaxseed.

*J. W. Eshelman & Sons, Eshelman Red Rose Hog Meal.* 16/5/10. Wheat middlings, corn feed meal, tankage, wheat bran, bone meal, fish meal, linseed meal, charcoal, ground screenings, calcium carbonate, salt.

*D. H. Grandin Milling Co., Grandin's Pig and Hog Ration.* 18/5/10. Linseed meal, cocoanut oil meal, wheat middlings, corn meal, corn feed meal, hominy feed, tankage, calcium carbonate, alfalfa meal, salt.

*Hales & Hunter Co., Pioneer Hog Feed with Buttermilk.* 16/4/9. Corn feed meal, wheat middlings, barley malt, ground oats, ground barley, linseed meal, gluten feed, ground screenings (from wheat, barley, kaffir corn and

oats), tankage, buttermilk, not over 3% mineral mixture (calcium carbonate, rock phosphate, salt, bone meal, charcoal, magnesium sulphate, calcium iodide).

*Larrowe Milling Co., Larro Pork-Maker.* 25/5/10. Meat scraps, dried beet pulp, linseed meal, wheat middlings (with screenings), alfalfa meal, wheat bran, corn germ meal, phosphatic limestone, salt.

*Larrowe Milling Co., Larro Calf Meal.* 23/4/3.5. Oatmeal, wheat red dog, yellow corn meal, linseed meal, blood flour, dried skimmilk, bone meal, cod-liver oil vitamin extract, salt.

*Larrowe Milling Co., Larro Hog Feed.* 18/5/10. Corn germ meal, linseed meal, hominy feed, meat scraps, alfalfa meal, wheat middlings, wheat bran, dried beet pulp, phosphatic limestone, salt.

*Maritime Milling Co., Inc., B-B Bull Brand Calf Meal.* 22/4/5. Dried skimmilk, blood flour, red dog wheat flour, corn meal, linseed meal, oat flour, steamed bone meal, calcium carbonate, salt.

*Maritime Milling Co., B-B Bull Brand Pig and Hog Meal with Minerals.* 18/4/8. Tankage, alfalfa meal, wheat middlings (plus screenings), linseed meal, soya bean meal, corn meal, pulverized barley, pulverized oats, steamed bone meal, red dog wheat flour, charcoal, calcium carbonate, salt.

*Park & Pollard Co., Inc., Milkade Calf Meal.* 20/7/6.5. Ground malt, linseed meal, wheat bran, wheat flour, coconut oil meal, bone meal, rice polish, wheat middlings, sesame oil meal, blood flour, calcium carbonate, ground fenugreek, ground anise, salt.

*Park & Pollard Co., Inc., Go Tu It Pig and Hog Ration.* 15/3.5/8. Alfalfa meal, hominy meal, ground barley, iodol fish meal, meat, bone, corn meal, corn germ meal, wheat middlings, fine ground grain screenings, calcium carbonate, salt.

*Quaker Oats Co., Schumacher Calf Meal.* 18/7.5/4. Oatmeal, ground flaxseed, ground puffed wheat, linseed meal, dried skimmilk, boiled and sterilized blood flour, bicarbonate of soda, salt, ground limestone, bone meal.

*Quaker Oats Co., Quaker 18% Protein Pig-N-Hog Meal.* 18/3.5/10. Hominy feed, yellow hominy feed, barley meal, wheat middlings, tankage, linseed meal, oatmeal mill by-products, ground limestone, salt, molasses.

*Ralston Purina Co., Purina Calf Chow.* 27/3.2/4.5. Blood flour, dried skimmilk, linseed flour, bolted corn meal, wheat flour (second clear), corn gluten meal, bone meal, salt, calcium carbonate.

*Ralston Purina Co., Purina Pig Chow.* 25/3.2/8. Tankage, meat scrap, linseed meal, alfalfa leaf meal, soy bean meal, molasses, alfalfa meal, wheat middlings, charcoal, iodized salt.

*Ralston Purina Co., Purina Hog Fatena Chow.* 14/3/7. Tankage, linseed meal, corn germ meal, alfalfa leaf meal, alfalfa meal, wheat middlings, hominy meal, molasses, iodized salt, charcoal.

*Ryde & Co., Ryde's Cream Quality Calf Meal.* 18.5/4/4. Skimmilk, blood meal, locust bean meal, barley malt flour, crude milk albumen, linseed meal, coconut oil meal, ground oat groats, corn meal, ground flaxseed, wheat flour, wheat flour middlings, fenugreek, anise, steamed bone meal, calcium carbonate, salt.

*St. Albans Grain Co., Wirthmore Calf Meal.* 24/5.5/4. Dried skimmilk, ground oatmeal, ground whole flax, blood flour, linseed meal, wheat red dog flour, yellow corn meal, edible bone meal, iodized salt.

*St. Albans Grain Co., Wirthmore Pig & Hog.* 17/4/9. Beef scraps, fish meal, edible bone meal, wheat red dog flour, wheat middlings, wheat bran, linseed meal, alfalfa meal, yellow corn meal, ground barley, corn gluten feed, calcium carbonate, molasses, salt.

*Ubiko Milling Co., Ubiko Calf Meal.* 28/3/3. Corn meal, wheat red dog, linseed meal, blood meal, di-calcium phosphate, milk-sugar feed (dried whey), calcium carbonate.

All calf and hog meals were found to be "as certified" with a few minor exceptions.

In the following instances, the ingredients named were "not detected":

Allied Mills, Inc., Emergency Hog: Copper sulphate.

Allied Mills, Inc., Wayne Hog: Copper sulphate.

Hales & Hunter Co., Pioneer Hog: Calcium iodide.

Quaker Oats Co., Schumacher Calf: Bicarbonate of soda, salt.

In the following instances, small quantities of ingredients named were found in addition to those certified:

Allied Mills, Inc., Emergency Hog: Few oats.

Elmore Milling Co., Inc., Elmore's Hog: Meat scraps.

St. Albans Grain Co., Wirthmore Pig and Hog: Few oats.

There were 38 different ingredients used in 14 brands of calf meals sampled. Salt and blood appeared in 12; bran and linseed meal in 11; either dried skimmilk, buttermilk, or milk albumen in 12; oats in 8; corn meal and second clear flour in 7; wheat middlings, cocoanut oil meal, ground flax, wheat red dog and calcium carbonate in 5.

There were 38 different ingredients used in 16 brands of pig and hog feeds sampled. Wheat middlings appeared in all; linseed meal and salt in 14; alfalfa meal in 12; tankage and calcium carbonate in 11; corn meal and bone in 8; barley and molasses in 7; meat scraps and hominy feed in 6; fish and charcoal in 5.

SCRATCH GRAINS AND OTHER POULTRY FEEDS COMPOSED IN THE MAIN OF WHOLE OR CRACKED GRAINS—concluded

Scratch Grains, etc.	Guaranty	Protein	Fat	Fiber	Barley	Buckwheat	Cracked corn	Kaffir corn	Milo maize	Millet	Oats	Peas	Sunflower seed	Wheat	Fish meal	
Quaker Oats Co.																
Big Egg Scratch, No Grit	10/3/4.25	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ful-O-Pep Scratch	9/2/3.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ful-O-Pep Coarse Chick	10/2/2.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ful-O-Pep Fine Chick	11/2.5/2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Schumacher Little Chick, No Grit	10/2/2	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Early Bird Coarse Chick	9.5/2/3.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ralston Purina Co.																
Hen Chow	10/2.5/4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Protena Scratch (Buffalo Mill)	9.5/2/4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Purina Chick Chow	10/2/4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Purina Intermediate Hen Chow	10/2.5/4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Purina Checker Chops	9/3/3.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Purina Pigeon Chow containing Corn	12.5/2/4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
St. Albans Grain Co.																
Paragon Scratch	10/2.5/5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Wirthmore Scratch	10/2.5/4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Wirthmore Intermediate Scratch	10/2.5/3.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Wirthmore Baby Chick Scratch	10/2.5/3.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Skeels & Weidman																
Scratch	10/2/5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ubiko Milling Co.																
Ubiko Intermediate Scratch	9/2.5/5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ubiko Chick	9/2.5/5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Valley City Milling Co.																
Valco Scratch	9.5/2.5/4	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

All scratch feeds, etc., were found "as certified" with few exceptions.

In the following instances the ingredients named were "not detected":

- Elmore Milling Co., Inc., Elmore Scratch: Kaffir corn.
- Larroe Milling Co., Larro Growing Grains (1930): Buskwheat.
- Maritime Milling Co., Inc., B-B Daisy Scratch: Sunflower.
- Geo. Q. Moon & Co., Inc., Moon's Scratch: Sunflower.
- Park & Pollard Co., Pigeon: Millet.

In the following instances small quantities of the materials indicated were found in addition to those certified:

- Berkshire Coal & Grain Co., Berkshire Scratch: A few weed seeds, moderate amounts "loose dirt and a few stones."
- Hales & Hunter Co., Red Comb Scratch: Few whole weed seeds.
- E. T. & H. K. Ide, Ideal Scratch: Few whole weed seeds and much "loose dirt."
- Park & Pollard Co., Pigeon: Numerous whole weed seeds.
- St. Albans Grain Co., Wirthmore Intermediate Chick: Whole barley.
- Skeels & Weidman, Scratch: Few whole weed seeds.

Wheat was used in all but one brand sampled; corn in all but two; kaffir corn, buckwheat and oats in seven-tenths; barley in six-tenths; milo maize in five-tenths; sunflower in four-tenths.

## MASHES AND OTHER FEEDS MADE OF FINE INGREDIENTS

Mashes, etc.	Guaranty																						
	Protein	Fat	Fiber	Alfalfa meal	Barley	Bone meal	Buckwheat	Buttermilk (dried)	Calcium carbonate	Corn meal	Corn feed meal	Flour meal	Gluten meal or feed	Hominy feed	Linseed meal	Meat meal	Oats	Salt	Wheat	Wheat bran	Wheat middlings	Wheat red dog	
Allied Mills, Inc.																							
Wayne Egg†	18/3.5/7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 2, 3, 4
Wayne Egg	18/3.5/7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 2, 3
Wayne Turkey	15/3.5/6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 2, 3, 5
Wayne All Mash Grower	15/4/6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 2, 3
Wayne Poultry Fattener	13.5/4/6																					*	6, 7
Bailey & Co.																							
Pennant Laying	20/5/6	*						*			*	*	*	*	*	*	*	*	*	*	*	*	1
Black Rock Milling Corp.																							
Bidwell Dry Mash	18/3/8.5	*	*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Caledonia Mills, Inc.																							
Green Mountain Laying Mash	19/4/9	*						*			*	*	*	*	*	*	*	*	*	*	*	*	5
Chapin & Co.																							
Kernels Lay-All‡	16/3.5/5.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	8, 9, 10
Kernels Grow-All	16/3.5/5.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	5, 8, 9, 10
Eastern States Farmers' Exchange																							
Eastern States Egg†	16.5/4/6.5	*						*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	11
Eastern States Egg‡	16.5/4/6.5	*						*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	4, 11
Eastern States Milk Egg†	16.5/4/6.5	*						*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 11
Eastern States Milk Egg‡	16.5/4/6.5	*						*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 4, 11
Eastern States Starting and Growing†	16.5/4/6	*						*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 11
Eastern States Broiler Ration‡	18.5/4/5.5	*						*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 4, 11
Elmore Milling Co.																							
Elmore Egg	18/4/8	*						*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	4
J. W. Eshelman & Sons																							
Eshelman Red Rose Laying	20/5/7	*						*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	12
D. H. Grandin Milling Co.																							
Grandin Laying*	20/4/8	*						*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Grandin Laying*†	20/4/8	*						*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	4
Grandin Complete Starting	16/4/6	*	*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	4
Grandin Growing*†	15/4/8	*	*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	4
Grandin Broiler*†	15/4/6	*	*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	4
General Mills, Inc.																							
Eventually Gold Medal Growing	18/4/6	*						*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	10, 14, 22
The Great Atlantic & Pacific Tea Co.																							
Daily Egg	20/4.5/7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 2, 3, 4, 9, 20
Hales & Hunter Co.																							
Red Comb Egg*	18/4/7	*	*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2, 13
Red Comb Growing*	15/4/6	*	*					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2, 13, 24
E. T. & H. K. Ide																							
Ideal Buttermilk Egg	24/5/6	*						*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	

\*With buttermilk. †Open formula. ‡With cod-liver oil.



MASHES AND OTHER FEEDS MADE OF FINE INGREDIENTS—*continued*

Mashes, etc.	Guaranty			Alfalfa meal	Barley	Bone meal	Buckwheat	Buttermilk (dried)	Calcium carbonate	Corn meal	Corn feed meal	Fish meal	Gluten meal or feed	Hominy feed	Linseed meal	Meat meal	Oats	Salt	Wheat	Wheat bran	Wheat middlings	Wheat red dog
	Protein	Fat	Fiber																			
The Jersey Co.																						
Just Right Egg	20/4/8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 5, 16,	25, 26, 27,
																					28, 29	
Just Right Growing	16/4/6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 5, 16	25, 26, 27,
																					28, 29, 30	
Just Right Chick Starter	15/4/6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 5, 16,	25, 26, 27,
																					28, 29, 30	
Gasco Mills, Inc.																						
Apex Laying	20/4/8.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2, 4, 12	
All Mash Laying Food	15/4/6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2, 4, 12	
Lawrence Milling Co.																						
Larro Egg	19/5/7.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 4, 14	
Larro Egg	19/5/8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Larro Growing	16/5/6.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Larro Growing	16/4.5/6.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 4, 14	
Larro Broiler Feed	15/4.5/7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 4, 14	
Larro Chick Starter	16.5/4.5/5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 4, 14	
Larro Poultry Fattening Feed	14/4/7.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 14, 15	
Larro Turkey and Game Bird Starter	17/4.5/6.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 4, 14	
L. H. McEwen Milling Co.																						
Red Feather Egg	20/4/9	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	9	
Lawrence Milling Co.																						
B-B Daisy Egg	18/3.5/7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2, 4	
Lawrence & Pollard Co.																						
Lay or Bust Dry	18/3/7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	17	
Growing	14/3/7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
Chick Starter	17/3.5/5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	4, 18	
Broiler	16/3.5/5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	4	
Pratt Food Co., Inc.																						
Pratt's Cak-Cak*	18/4/8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	16, 31	
Quaker Oats Co.																						
Ful-O-Pep Egg	20/4.5/8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 9, 20	
Ful-O-Pep Growing	19/5/6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 9, 20	
Ful-O-Pep Chick Starter	15/5/7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	4, 9, 20	
Ful-O-Pep Chick Starter	17/5/7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 4, 9, 20	
Ful-O-Pep Broiler	19/5/7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 4, 9, 20	
Walston Purina Co.																						
Purina Egg 32% Chowder¶	32/3/8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2, 6, 31	
Purina Egg Chowder¶	19/3.5/8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2, 6	
Purina Egg Chowder*	19/3.5/8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2, 6	
Purina Egg Chowder‡	19/3.5/8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2, 4, 6	
Purina Chicken Chowder¶	19/3.5/8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6	
Purina Breeder Egg Chowder¶	19/3.5/8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2, 4, 6	
Purina Lay Chow¶	17/2.5/8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2, 9	
Purina Lay Chow*	17/2.5/8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2, 9	

\*With buttermilk. ‡With cod-liver oil. ¶Containing minerals.

## MASHES AND OTHER FEEDS MADE OF FINE INGREDIENTS—concluded

Mashes, etc.	Guaranty			Alfalfa meal	Barley	Bone meal	Buckwheat	Buttermilk (dried)	Calcium carbonate	Corn meal	Corn feed meal	Fish meal	Gluten meal or feed	Hominy feed	Linseed meal	Meat meal	Oats	Salt	Wheat	Wheat bran	Wheat middlings	Wheat red dog	
	Protein	Fat	Fiber																				
Ralston Purina Co.																							
Purina Lay Chow†	17/2.5/8	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	2, 4, 9	
Purina All Mash																							
Startena Chow‡	18/4/7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	4, 6, 22	
Purina Chicken Fat Chow‡	15.5/3/5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6, 21	
Purina Chick Growena Chow‡	16.3/3.5/7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6, 22, 23	
Purina Chicken Fatena Chow‡	12/3/6.6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6, 21	
Purina Chick Startena Chow‡	19/4/7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	4, 6, 22, 23	
St. Albans Grain Co.																							
Wirthmore Laying*	20/4/7	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	1, 8	
Wirthmore Laying†	20/4/7	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	1, 4, 8	
Wirthmore Breeder	20/4.5/7	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	1, 4, 6	
Wirthmore Growing*	15/4.5/6	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	1, 8	
Wirthmore Growing*†	15/4.5/6	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	1, 4, 8	
Wirthmore All Purpose Chick and Broiler	16.5/4/4.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 4, 20	
Wirthmore Baby Chick Starter	17/4/5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 4, 6, 20	
Wirthmore Baby Chick Starter*†§	18/4/5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 4, 6, 20	
Wirthmore Turkey Starter*§	20/4.5/5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1, 4, 6, 20	
Ubiko Milling Co.																							
Ubiko Egg	20/4/6							**	**	*	*	*	*	*	*	*	*	*	*	*	*	4, 11, 12	
Ubiko All-Mash Starter	18/4/5							**	**					*	*	*	*	*	*	*	*	4, 5, 11, 12	
Ubiko All-Mash Developer	14/4/5							**	**					*	*	*	*	*	*	*	*	4, 11, 12	
Ubiko All-Mash Complete Laying	16/3.5/6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	4, 11, 12	
Ubiko All-Mash Complete Laying	16/3.5/6	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	4	
Valley City Milling Co.																							
Valco Egg	19/3.5/7.5	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	5	
West-Nesbitt, Inc.																							
Pure Feed Egg Maker	18/4.5/7	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1	

Additional ingredients: 1. Dried skim milk. 2. Soy bean meal. 3. Iron oxide and potassium iodide. 4. Cod-liver oil. 5. Charcoal. 6. Corn germ meal. 7. Coconut oil meal. 8. Milo maize. 9. Molasses. 10. Corn oil meal. 11. Di-calcium phosphate. 12. Milk sugar feed (dried whey). 13. Rock phosphate, charcoal, iron sulphate, sulphur. 14. Phosphatic limestone. 15. Dried beet pulp. 16. Calcium phosphate. 17. Kaffir corn. 18. Rice. 19. Cracked corn. 20. Cod-liver meal. 21. Low-grade wheat flour. 22. Wheat germ. 23. Oat middlings. 24. Oat flour. 25. St. John's bread. 26. Starch. 27. Anise. 28. Dried blood. 29. Iron oxide. 30. Sugar. 31. Iodized salt.

†Containing minerals. \*With buttermilk. ‡With Cod-liver oil. §With cod-liver meal.

The mashes and other feeds were found to be "as certified" with the following exceptions:

- Allied Mills, Inc., Wayne Turkey Mash: Fish.
- Chapin & Co., Chapin Kernels Lay-All: Milo.
- Hales & Hunter Co., Red Comb Egg Mash with Dried Buttermilk: Sulphur.
- Hales & Hunter Co., Red Comb Growing Mash with Dried Buttermilk: Sulphur, iron sulphate.
- Kasco Mills, Inc., Apex Laying Mash: Salt.
- Ralston Purina Co., Purina Chicken Fat Chow containing Minerals: Bone, calcium carbonate.
- St. Albans Grain Co., Wirthmore Baby Chick Starter: Salt.
- St. Albans Grain Co., Wirthmore Turkey Starter containing Cod-liver Meal—Buttermilk: Alfalfa leaf meal.

In the following instances a small quantity of materials indicated was found in addition to those certified:

- The Jersee Co., Just Right Egg Mash: Sugar.
- Ralston Purina Co., Purina Breeder Egg Chowder containing Minerals: Corn meal.
- St. Albans Grain Co., Wirthmore Complete Ration for Broilers: Ground wheat.

Fifty ingredients were used in making 83 brands of mashes sampled. Wheat middlings appear in all but one; alfalfa, meat scraps and wheat bran in nine-tenths; corn meal, oats, calcium carbonate and salt in eight-tenths; bone and buttermilk in six-tenths; fish and cod-liver oil in five-tenths; linseed meal and skimmilk in four-tenths; barley and gluten meal or feed in three-tenths of brands sampled. All brands carried minerals.

### DISCUSSION OF RESULTS

The table on the next page sets forth the results of the inspection of December, 1931. The proportions of the total number of brands found deficient in recent inspections were:

Spring 1923.....	22%	Winter 1923-24.....	11%
Spring 1924.....	16%	Winter 1924-25.....	10%
Spring 1925.....	15%	Winter 1925-26.....	13%
Spring 1926.....	13%	Winter 1926-27.....	10%
Spring 1927.....	8%	Winter 1927-28.....	9%
Spring 1928.....	18%	Winter 1928-29.....	9%
Spring 1929.....	7%	Winter 1929-30.....	6%
Spring 1930.....	9%	Winter 1930-31.....	7%
Spring 1931.....	8%	Winter 1931-32.....	4%

## DECEMBER, 1931, INSPECTION

	Samples	Protein up to guaranty	Protein below guaranty	Brands	Brands up to guaranty	Brands below guaranty	Deficiencies					
							Protein	Fat	Fiber	Protein and fat	Protein and fiber	Fat and fiber
Cottonseed meals	108	97	11	17	17	..	..	..	..	..	..	..
Soy bean meals	4	4	..	1	1	..	..	..	..	..	..	..
Linseed meals	68	68	..	15	15	..	..	..	..	..	..	..
Gluten meals and feeds	105	105	..	14	14	..	..	..	..	..	..	..
Distillers' and brewers' dried grains	11	9	2	6	4	2	2	..	..	..	..	..
Wheat offals	459	459	..	113	113	..	..	..	..	..	..	..
Brans	176	176	..	45	45	..	..	..	..	..	..	..
Middlings	134	134	..	32	32	..	..	..	..	..	..	..
Mixed feeds	84	84	..	23	23	..	..	..	..	..	..	..
Red dog flours	65	65	..	13	13	..	..	..	..	..	..	..
Alfalfa meals	19	17	2	9	7	2	..	..	..	..	2	..
Dried beet pulps	37	37	..	3	3	..	..	..	..	..	..	..
Hominy feeds	25	25	..	12	12	..	..	..	..	..	..	..
Oats and rye feeds	19	19	..	4	4	..	..	..	..	..	..	..
Proprietary feeds	1,474	1,453	21	387	369	18	3	9	4	1	..	..
Dairy	508	507	1	146	137	9	..	7	2	..	..	..
Stock, horse, etc.	288	277	11	63	60	3	..	..	1	1	..	..
Calf and hog	120	118	2	30	29	1	1	..	..	..	..	..
Poultry feeds	558	551	7	148	143	5	2	2	1	..	..	..
Scraps	22	19	3	12	9	3	2	1	..	..	..	..
Scratch, chick	187	187	..	53	52	1	..	1	..	..	..	..
Mashes, growing	349	345	4	83	82	1	..	..	1	..	..	..
Skim- and buttermilks	28	27	1	9	8	1	1	..	..	..	..	..
Totals	2,357	2,320	37	590	567	23	6	9	4	1	2	..
Spring, 1931	1,748	1,710	38	543	497	46	10	22	10	..	3	1
Winter 1930	2,060	2,022	38	540	503	37	5	23	9	..	..	..
Spring 1930	1,651	1,607	44	474	433	41	10	25	4	1	..	1
Winter 1929-30	1,695	1,650	45	469	443	26	10	10	3	1	2	..
Spring 1929	1,369	1,324	45	430	402	28	6	15	6	1	..	..
Winter 1928-29	1,220	1,154	66	375	342	33	17	8	5	1	2	..
Spring 1928	1,406	1,223	183	406	331	75	48	13	6	5	3	..
Winter 1927-28	1,051	982	69	303	275	28	14	2	8	2	2	..
Spring 1927	1,254	1,197	57	395	365	30	17	9	4	..	..	..
Winter 1926-27	1,339	1,281	58	363	325	38	12	6	14	1	2	3
Spring 1926	1,147	1,109	38	332	288	44	10	13	12	..	7	2
Winter 1925-26	1,219	1,161	58	345	300	45	15	9	14	1	5	1
Spring 1925	1,031	953	78	335	285	50	24	15	4	3	2	2
Winter 1924-25	1,076	1,024	52	314	283	31	7	11	6	2	1	4

The average prices at which the several classes of feeds sold during the past seven years appear on the next page.

	Dec., '25	Mar.-Apr., '26	Dec., '26	Apr., '27	Dec., '27	Apr., '28	Dec., '28	Apr., '29	Dec., '29	Apr., '30	Dec., '30	Apr., '31	Dec., '31
<b>Cottonseed</b>													
meals 43%.....	\$50	\$47	\$41½	\$47	\$57	\$65	\$64	\$58	\$55	\$54	\$43	\$42	\$30
<b>Cottonseed</b>													
meals 41%.....	50	47	40	45	53½	62	59	57	63	48	41	40	29
<b>Cottonseed</b>													
meals 36%.....	48	45½	38	44	50½	58½	55	54½	50	47½	41	40	28
<b>Linseed</b>													
meals 34%.....	57	57	56	56	58	63	67	65½	64	58	48	45	40
<b>Linseed</b>													
meals 30-33%...	53	56	54	56	58	61½	..	61	..	61	47	42	39
<b>Distillers' grains..</b>	56	57	59	..	57	61	50	..	..	50	47	32	30
<b>Gluten meals 40%</b>	60	57	52	54	56	62	63	72½	60	54	49½	40½	34
<b>Gluten feeds 23%</b>	50	48	41½	44	48	51½	53	55½	50½	43½	42	38	27
<b>Wheat brans ....</b>	39	37	38	39½	44½	49	44	40	40½	38½	30	31	25
<b>Wheat middlings:</b>													
Standard .....	40	39	40	41	44	49	46	44	43½	39½	32½	31½	26
Shorts .....	40	37	39½	40½	43	49	45	40½	42	38	30	31	26
Flour .....	46	45½	45	46	50	58	47½	47	45½	44	36	35	29
<b>Wheat mixed feeds</b>	44	42½	42	43	48	51	58	46	46½	42	36	33	28
<b>Red dog flours....</b>	53	52½	50	50½	54	54	57	51½	51½	45	39½	35	30
<b>Dried beet pulps..</b>	49	50	45	45	48	51½	54	54½	53	51	38½	35	28
<b>Hominy feeds....</b>	41	37	39½	38	48	48	46	46	45½	50½	38	34½	27
<b>Alfalfa meals ....</b>	44	47	44	45	49	..	55	48	50	62	54½	55	41
<b>Proprietary feeds:</b>													
Dairy 24%.....	52	50	47½	49	53½	56	56	56	54	50	45½	42	34
20%.....	50	48	46	47	50	54	53	53½	51½	48	42½	39½	32
16%.....	43	41½	39	40½	43	48½	47	46½	48	43	39	35	30
<b>Stock and</b>													
Horse 9-10%*.	43	40	39½	41	45½	50	49	48½	49	48½	42	40	34
8%*.	41	38	..	..	..	47	49	45	46½	..	44½	34	29
Fitting 9-12%...	..	..	..	..	..	..	..	..	50½	45	43	39	31
14%.....	..	..	..	..	..	..	..	..	53	45½	43	39	36
<b>Calf .....</b>	93	99	95	94	100	99	96	96	98	92½	89	84	80
<b>Hog .....</b>	52	58	55	50½	60	60	57	57½	57	53½	50	48	38
<b>Poultry:</b>													
Scraps .....	70	71	74	80½	..	87	79	75	75	70	82	75½	58
Scratches ....	55	54	52	52	55	59	52	53½	52½	51	44½	41½	33
Mashes .....	60	60½	60	59	64½	68	63	64½	64	61	56	52	42
Chick grains..	73	78	72	72	63	68½	57	60	56½	55	52½	49	41
Chick mashes..	..	..	..	..	..	86½	64	74½	70½	77	69½	63	48

\*Horse feeds, as a rule, average five to six dollars higher in price than the so-called stock feeds of same guaranteed protein contents.

A comparison of the average prices for 1923, 1926, 1927, 1928, 1929, 1930, 1931, follow, 1923 being rated at 100.

	1923	1926	1927	1928	1929	1930	Apri., 1931	Dec., 1931
Cottonseed meals .....	100	73	84	108	93	77	69	49
Linseed meals .....	100	95	95	108	107	90	74	68
Gluten meals and feeds .....	100	86	85	102	104	81	70	55
Wheat offals (exclusive of red dog) .....	100	99	107	118	105	89	78	66
Beet pulps .....	100	94	93	105	107	88	69	50
Hominy feeds .....	100	90	106	117	115	110	86	69
Proprietary:								
Dairy 24%.....	100	91	94	104	102	90	79	63
20%.....	100	89	92	101	100	87	76	60
16%.....	100	87	91	104	103	89	76	65
Stock and horse .....	100	93	100	120	116	110	90	77
Calf, hog, etc. ....	100	108	112	111	109	103	93	83
Scratches .....	100	104	105	109	104	98	88	65
Mashes .....	100	94	98	103	102	102	90	71

A study of the table on page 47 reveals many interesting facts. The report is made on the largest number of samples taken in one collection in the history of the Vermont law. Not only were there more samples collected, but also the largest number of brands. Of the 764 brands registered only 33 were not sampled. The winter drawn samples were a fine lot. The cottonseed meals dropped from 60 percent deficient to zero. Those manufacturers who shipped inferior cottonseed meal were warned and decided improvement followed. Only one brand each of brewers' and distillers' dried grains, two of alfalfa meal and one dried skimmilk were deficient. Only 18 brands of ready-mixed feeds (4.6%) proved deficient, an improvement over all previous collections. The feeding stuffs sold during the year 1931 were the best ever offered.

The table on page 47 shows the approximately average prices obtaining in the last 13 inspections. Over 2,000 price statements from all over the State during 1931 have been averaged in obtaining the December, 1931, figures. Prices for all grades have dropped as compared with April, 1931, averaging about \$35 per ton. Dairy, stock, and fitting rations were nearly eight, poultry feed twenty and unmixed goods about seven dollars cheaper per ton.

Last winter's prices as compared with those of 1923 are very low, in fact, they are below 1915 prices. However the February, 1932, issue of "Flour and Feed" states that "General business conditions among the feed manufacturers, dealers, and the farmers are materially improved over a month ago." These low prices compensate in some measure for the very low prices farmers are receiving for their produce.