

Connecticut Agricultural Experiment Station

NEW HAVEN, CONN.

BULLETIN 221

MARCH, 1920

BEING THE
Report on Commercial
Feeding Stuffs
1919

By E. M. BAILEY

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March, 1920.

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Commercial Feeding Stuffs

BY E. M. BAILEY.*

PROVISIONS OF THE STATUTES RELATING TO FEEDING STUFFS.

Under the Connecticut statutes the term "concentrated commercial feeding stuffs" covers practically all feeds excepting hay and straw, whole seeds, unmixed meal made directly from any of the cereals or from buckwheat, and feed ground from whole grain and sold directly from manufacturer to consumer.

Section 4775 requires that every lot or parcel of concentrated commercial feeding stuff shall bear a statement giving the name and address of the manufacturer or importer, the number of net pounds in the package, the name of the article, and the percentages of protein and fat contained in it. The law forbids the use of any metal in affixing tags.

No registration of feeds or payment of analysis or license fees is required.

The penalty for violation of the statute is not more than \$100 fine for the first offense and not more than \$200 for each subsequent offense.

The law authorizes this Station to take samples from any manufacturer or dealer, in a prescribed manner, and requires the Station to analyze annually at least one sample of each brand which it has collected, and to publish these analyses "together with such additional information in relation to the character, composition and use thereof as may be of importance."

THE STATUS OF COTTONSEED MEAL UNDER THE NEW FERTILIZER LAW.

By act of the General Assembly of 1919 cottonseed meal is classed as a commercial fertilizer within the meaning of the law.

* With the assistance of Messrs. C. E. Shepard and H. D. Edmond. The inspection and collection of samples were carried out by Mr. V. L. Churchill.

It is required that every brand shall be registered at this Station before it is offered for sale in the state, and an analysis fee of ten dollars paid thereon. On July first and January first thereafter a tonnage fee of six cents per ton shall be paid. It is provided that cottonseed meal sold and used as feeding stuff shall be exempt from the tonnage fee.

As regards the adjustment of the tonnage fee, the law provides for a sworn statement from dealers as to their sales. This Station will provide forms for this purpose, the same to be duly filled in, certified and returned to the Station semi-annually. Said statement shall show the total tonnage sold and the proportion thereof sold for use as a fertilizer; and such statement will be used as a basis to determine the deduction in tonnage to be made for goods sold for feeding purposes.

CLASSIFICATION OF SAMPLES ANALYZED DURING THE YEAR.

In the official inspection two hundred and four samples were collected, which may be classified as follows:

Cottonseed Meal	15	Maize Products	19
Cottonseed Feed	2	Brewers' and Distillers' Grains	3
Linseed Meal	7	Dried Beet Pulp	6
Wheat Bran	15	Cocoanut Meal	2
Wheat Mixed Feed	15	Peanut Meal	2
Wheat Middlings	12	Proprietary Stock Feeds	78
Rye Products	3	Poultry Feeds	14
Barley Products	1		
		Total	204

Sixty-two samples of miscellaneous feeding stuffs have been examined for the Dairy Commissioner and for individuals.

Four hundred and sixty-seven partial or complete analyses have been made of fodder and other materials in connection with field experiments. Of this number three hundred and ninety-one were received from Storrs and the remainder were from the Station Farm at Mt. Carmel.

Partial analyses of thirty-one samples of shelled corn were made for the Department of Plant Breeding.

The total for the year is seven hundred and sixty-four.

This report is concerned only with the results of the official inspection and samples submitted by the Dairy Commissioner and by individuals.

DETERMINING FACTORS IN COMPOUNDING RATIONS.

GROSS AND DIGESTIBLE NUTRIENTS.

The significance of the conventional analysis of a feeding stuff and the rôle of each of the nutrient groups contained therein have been discussed in previous bulletins.¹ Such proximate analyses show the gross amounts of nutrient materials in various concentrates or roughages but do not furnish any information as to the nature and quality of the several types of nutrients found. The gross supply of nutrient material eaten is not entirely utilized in the animal body; some is lost in the excretions. The amount not excreted is considered to be utilized or digested; thus if 100 parts of protein are fed in a given ration, e. g., cottonseed meal, and 16 parts are recovered in the excreta, then 84 parts are assumed to have been digested and 84 is the coefficient of digestibility for the protein of cottonseed meal. These figures are obtained by actual feeding experiments. Such trials also show that protein, fat and carbohydrate have different degrees of digestibility, and that the same type of nutrient from different sources may vary in this respect. Thus the protein of dried beet pulp is only 52 per cent. digestible. Henry and Morrison² have prepared a useful table which gives data of this kind upon a very wide range of fodder materials.

ENERGY VALUES.

To illustrate the various transformations of food in digestion, the animal body is often compared with an engine and the food with fuel. Feeding experiments all prove the fitness of this comparison. As the engine transforms the energy of its fuel supply into other forms, such as heat and mechanical work, so the animal body transforms the energy of its food; and in both cases the general law of conservation of energy holds true since the total amount of energy in the fuel or food is eventually accounted for in some form.

The gross energy value of any food is equal to the heat evolved upon burning that food completely. This is determined by means of an apparatus called a calorimeter, in which a definite amount of food material is burned with pure oxygen under pressure, the

¹ Conn. Agr. Exp. Sta., Bull. 206, Feb., 1918; Bull. 212, March, 1919.

² Feeds and Feeding, p. 647, et seq.

heat liberated being absorbed by a weighed amount of water and measured with a thermometer. If the amount of food material when completely burned liberates heat enough to raise the temperature of 1000 grams of water 1 degree Centigrade (or 1 pound of water 4 degrees Fahrenheit), the energy equivalent of that amount of material is one *Calorie*. Another unit of measure is the Therm, which has a value 1000 times that of the Calorie, i. e., it is the amount of heat required to raise the temperature of 1000 pounds of water 4 degrees F. By burning unit quantities of the various types of nutrient materials their energy values are established.

Since the gross supply of energy in food material cannot be completely utilized by the animal body it is evident that the fuel value of a given food is judged by that proportion of the gross supply which the animal can convert to its use. Deduction must be made therefor for the energy lost to the body in the solid, liquid and gaseous excreta. The remainder is the *available* or *metabolizable* energy and represents that part of the gross energy which the animal can transform; or its value to the animal for heat production purposes. But further energy is required in digesting the food and preparing it for absorption and assimilation. By making this further deduction the *net energy value* of the food is obtained, and it represents that part of the original gross supply finally counted on to maintain the activities of heart, lungs and other internal organs and, if the supply is in excess of these requirements, to contribute to the gain of flesh or the production of milk or the performance of mechanical work.

Differences between various feeding stuffs with respect to metabolizable energy are chiefly due to the varying energy losses in the excreta. Metabolizable energy per unit of digestible organic matter therefore shows considerable uniformity and may be estimated on that basis. For this purpose Armsby¹ gives the following factors which may be used for cattle and probably for other ruminants.

Roughage	1.588 Therms per lb.
Grains and similar feeds:	
less than 5% digestible fat	1.769 Therms per lb.
more than 5% digestible fat	1.814 Therms per lb.
Oil meals, etc.	1.996-2.177 Therms per lb.

¹ Penn. Agr. Exp. Sta., Bull. 142, 1916.

To obtain net energy values, however, a further deduction for the energy expended in the consumption of feed is required. This energy expenditure has been determined by Armsby and Fries¹ for a number of roughages and concentrates and they have prepared the following table which includes their own results and others obtained by Kellner and Köhler.

TABLE I. AVERAGE ENERGY EXPENDITURE BY CATTLE PER HUNDRED POUNDS OF DRY MATTER EATEN.

<i>Roughages.</i>	Energy Expenditure, Therms.
Timothy hay	35.47
Red clover hay	44.13
Red clover hay	42.27
Mixed hay	44.45
Alfalfa hay	53.03
"Grass hay"	47.40
Meadow hay	56.88
Rowen	43.46
Corn stover	48.31
Wheat straw	51.62
Barley straw	39.78
Oat straw	46.00
Straw pulp	52.62
<i>Concentrates.</i>	
Corn meal	58.33
Hominy chop	61.92
Wheat bran	53.39
Grain mixture No. 1	60.19
Grain mixture No. 2	51.76
Cottonseed meal	44.36
Linseed meal	54.79
Palmnut meal	45.68
Peanut meal	52.57
Beet molasses	44.82
Starch	56.61
Peanut oil	78.34
Wheat gluten	95.08

The application of these data in the case of cottonseed meal, for example, having 91.8 per cent. dry matter and 66.3 per cent. digestible nutrients is as follows:

¹ Penn. Agr. Exp Stat, Bull 142, 1916.

One hundred pounds of cottonseed meal contain:

Dry matter	91.8 lbs.
Digestible	
Protein	30.2 lbs.
Fat	6.1 lbs.
Carbohydrates (includes digestible fiber)	30.0 lbs.
Total	66.3 lbs.

From the table on page 248 it appears that the metabolizable energy in one hundred pounds of cottonseed meal may be taken approximately as 2.1 Therms; and from Table I that the energy expenditure in consumption of one hundred pounds dry matter is 44.36 Therms. Thus

Metabolizable energy =	$2.1 \times 66.3 = 139.2$ Therms
Expenditure of consumption =	$.4426 \times 91.8 = 40.7$ Therms
Net energy value	= 98.5 Therms

On the basis of Henry and Morrison's compilation of American analyses of feeding stuffs and digestible nutrients therein, Armsby and Putney¹ have computed net energy values for a great variety of feeds; and the net energy values in the following table are taken from this source (Table II).

Energy values of feeding stuffs may be expressed in other ways. Kellner² has adopted the *starch value* as a standard of measurement. He found by experiment that one pound of digestible starch fed to an ox in excess of his maintenance requirements produced about one quarter (0.248) of a pound of body fat. One hundred pounds of a feed which produced twenty pounds of fat would have a starch value of about 80. Fraps³ uses *productive value* as a basis of comparison, this being the amount of fat a given feed will produce upon a fattening animal when fed in addition to a basal ration already adequate for the bodily needs of the animal. He expresses productive value in terms of fat and takes into account the variations in the productive values of the several groups of digestible nutrients. Productive value is calculated by means of production coefficients established for each class of nutrients.

¹ Penn. Agr. Exp. Stat., Bull. 142, 1916.

² Henry and Morrison, 15th ed., pp. 118-119.

³ Texas Agr. Exp. Sta., Bull. 185.

TABLE II. COEFFICIENTS OF DIGESTIBILITY AND NET ENERGY VALUES OF FEEDING STUFFS.¹

Feed	Average dry matter, lbs. per hundred.	Coefficient of digestibility.				Net energy value, Therms per hundred lbs.
		Protein.	Fiber.	Carbohydrates.	Fat.	
Cottonseed Meal	92.2	84	37	75	95	90.0
Cottonseed Feed .....	...	58	45	61	90	...
Linseed Meal (old process)	90.0	89	57	78	89	88.9
Linseed Meal (new process)	90.4	86	73	87	95	85.1
Wheat Bran	89.9	76	43	74	62	53.0
Wheat Feed .....	...	77	36	76	87	...
Wheat Middlings	89.6	77	30	78	88	59.1
Red Dog Flour .....	...	88	36	88	86	...
Rye Flour .....	...	80	..	88	90	...
Barley, ground	90.7	88	70	93	86	89.9
Barley Bran .....	...	85	20	86	87	...
Corn Gluten Meal	90.9	85	55	90	93	84.2
Corn Gluten Feed	91.3	85	76	88	85	80.7
Hominy Feed	89.9	66	76	90	91	81.3
Brewers' Grains	92.5	81	49	57	80	53.4
Malt Sprouts	92.4	77	87	80	85	72.7
Distiller's Grains, Corn	93.4	73	95	81	95	85.1
Distiller's Grains, Rye	92.8	59	..	67	84	56.0
Beet Pulp, dried	91.8	52	83	83	..	75.9
Peanut Cake, without shells	80.3	90	9	84	90	93.6
Soybean Meal, fat extracted	88.2	92	99	100	68	99.7
Cocoonut Cake	90.4	90	23	87	100	83.5

¹Henry and Morrison; Armsby and Putney.

OTHER IMPORTANT CONSIDERATIONS.¹

Feeding problems cannot, however, be entirely solved by knowledge of energy values, digestibility coefficients or nutritive ratios, useful as these may be for the purposes they are intended to serve. Many of the difficulties encountered in feeding have arisen from ignorance of the nature and quality of the ingredients of the feed. The striking differences in the feeding values of different proteins as shown by investigations at this Station and elsewhere illustrate this point and emphasize the fact that a knowledge of the chemical constitution of nutrient materials is quite as important as a knowledge of energy values.

¹We quote largely from an unpublished paper by Dr. T. B. Osborne read at a conference of County Agents and others at this Station.

In feeding animals the quantity, kind and proportion of nutrients should be kept in mind.

As to quantity, energy values indicate how much should be fed per unit of live weight of the animal or unit of its production. Whether the animal will eat that amount of food or not depends upon the food or upon the animal. If the animal is healthy but does not eat as it should and does not grow, the food is inadequate in some way; if the food is corrected so that it produces growth, the animal will then eat as much as it should.

As to kinds of food, protein is of course necessary for its tissue-building qualities and fats and carbohydrates are necessary sources of energy. Mineral salts are also essential. There are conspicuous differences among proteins as regards nutritive values. For example, if zein is the sole source of protein in an animal's diet it dies within a short time. If zein is supplemented by tryptophane, or a protein containing it, the animal continues to live but does not grow. Finally if lysine is added to the ration the animal not only maintains itself but grows normally. Our present knowledge of carbohydrates and fats does not indicate such radical differences in nutritive values. Their functions in metabolism are different from that of protein. Probably the carbohydrates are chiefly valuable insofar as they may be converted into dextrose in digestion. Mineral nutrients are more important than has been generally supposed and it is important that the ration contain a sufficient amount of these materials. A corn and skimmed milk ration can be improved by adding calcium and chlorine to compensate the deficiency of these elements in corn.

Nutritive ratios indicate the proportion in which the different types of nutrients should be fed for particular purposes. Thus narrow ratios are fed for growth and production while wide ratios suffice for maintenance. But it has been shown that a young animal obtaining all its protein from gluten feed grows very poorly even though the nutritive ratio of the ration is narrow; and that by supplementing a part of the protein supply by the protein of milk, marked improvement in the rate of growth results even though the nutritive ratio remains the same. Nutritive ratios then can be most efficiently applied only with a knowledge of the nature and quality of the nitrogenous part of the ration.

An important feature of animal feeding is the proper and rational use of roughage. This problem is complicated by the fact that very little is known about the chemical constitution of the nitrogenous constituents of green leaves. These constituents are conventionally classed as proteins but this practice may be very far from the truth. Osborne and Wakeman have lately shown that about 50 per cent. of the nitrogen of spinach leaves is in protein form, 20 per cent. is non-protein and the nature of the remaining 30 per cent. has yet to be determined. This represents practically the sum of our present knowledge of the proteins in green foods.

Some of the practical conclusions to be drawn from these newer ideas regarding nutrition may be briefly summarized. It is a waste of good protein to mix it with feeds which are already adequate for normal growth or production. The more economical use of such protein is in supplementing those proteins which are deficient in kind or quantity of requisite amino acids. Again, although good results may sometimes be obtained by feeding enough poor protein, it is cheaper to feed less amounts of good protein because the market price will generally be about the same for each kind. Food intake is determined by the energy requirements of the animal; a maximum production cannot be expected without a maximum consumption of food. The animal is a machine which must be made to produce at a maximum capacity if it is to be run at a profit. If a healthy animal does not eat as much as it should there is generally something wrong with the food; if its consumption is normal but its production is low, something is wrong with the animal. The maximum capacity for growth or production is an inherited quality; it cannot be increased by feeding but it may be decreased by feeding improperly.

Recent work done at this Station and elsewhere proves that to the four or five nutrients hitherto considered as making a perfect food, must be added others, known as food accessories or vitamins. These are needed in only small amounts but are absolutely essential to maintenance and growth. While their nature and functions are not fully understood the work already done shows the special value of alfalfa, clover and green feed for growing stock, due to these valuable constituents.

DEFINITIONS OF FEEDING STUFFS.

Definition of feeding stuffs adopted by the Association of Feed Control Officials of the United States and revised to January, 1919, are as follows:

GENERAL DEFINITIONS.

Meal is the clean, sound, ground product of the entire grain, cereal or seed which it purports to represent.

Chop is a ground or chopped feed composed of one or more different cereals or by-products thereof. If it bears a name descriptive of the kind of cereals, it must be made exclusively of the entire grains of those cereals.

Screenings are the smaller, imperfect grains, weed seeds and other foreign material having feeding value, separated in cleaning the grain.

Alfalfa meal is the entire alfalfa hay ground, and does not contain an admixture of ground alfalfa straw or other foreign materials.

ANIMAL PRODUCTS.

Blood meal is ground dried blood.

Cracklings are the residue after partially extracting the fats and oils from the animal tissue. If they bear a name descriptive of their kind, composition or origin, they must correspond thereto.

Digester Tankage is the residue from animal tissue, exclusive of hoof and horn, specially prepared for feeding purposes by tanking under live steam, drying under high heat, and suitable grinding. If it contains more than 10 per cent. of phosphoric acid ($P_2 O_5$) it must be designated *Digester Meat and Bone Tankage*.

Meat Scrap and *Meat Meal* are the ground residues from animal tissues exclusive of hoof and horn. If they contain more than 10 per cent. of phosphoric acid ($P_2 O_5$) they must be designated *Meat and Bone Scrap* and *Meat and Bone Meal*. If they bear a name descriptive of their kind, composition or origin, they must correspond thereto.

BREWERS' AND DISTILLERS' PRODUCTS.

Brewers' Dried Grains are the properly dried residue from cereals obtained in the manufacture of beer.

Distillers' Dried Grains are the dried residue from cereals obtained in the manufacture of alcohol and distilled liquors. The product shall bear the designation indicating the cereal predominating.

Malt Sprouts are the sprouts of the barley grain. If the sprouts are derived from any other malted cereal, the source must be designated.

BUCKWHEAT PRODUCTS.

Buckwheat Shorts or *Buckwheat Middlings* are that portion of the buckwheat grain immediately inside of the hull after separation from the flour.

CORN PRODUCTS.

Corn Bran is the outer coating of the corn kernel.

Corn Feed Meal is the by-product obtained in the manufacture of cracked corn, with or without aspiration products added to the siftings, and is also the by-product obtained in the manufacture of table meal from the whole grain by the non-degerminating process.

Corn Germ Meal is a product in the manufacture of starch, glucose and other corn products, and is the germ layer from which a part of the corn oil has been extracted.

Grits are the hard, flinty portions of Indian corn, without hulls and germs.

Corn Gluten Meal is that part of commercial shelled corn that remains after the separation of the larger part of the starch, the germ and the bran, by the processes employed in the manufacture of cornstarch and glucose. It may or may not contain corn solubles.

Corn Gluten Feed is that portion of commercial shelled corn that remains after the separation of the larger part of the starch and the germ by the processes employed in the manufacture of cornstarch and glucose. It may or may not contain corn solubles.

Hominy Feed, Hominy Meal or Hominy Chop is the kiln-dried mixture of the mill run bran coating, the mill run germ, with or without a partial extraction of the oil and a part of the starchy portion of the white corn kernel obtained in the manufacture of hominy, hominy grits and corn meal by the degerminating process.

Yellow Hominy Feed, Yellow Hominy Meal or Yellow Hominy Chop is a kiln-dried mixture of the mill run bran coating, the mill run germ, with or without a partial extraction of the oil and a part of the starchy portion of the yellow corn kernel obtained in the manufacture of yellow hominy grits and yellow corn meal by the degerminating process.

OIL CAKE.

Oil Cake is the residual cake obtained after extraction of part of the oil by crushing, cooking and hydraulic pressure from seeds screened and cleaned of weed seeds and other foreign materials by the most improved commercial processes. When used alone the term "oil cake" shall be understood to designate the product obtained from partially extracted, screened and cleaned flaxseed. When used to cover any other product, the name of the seed from which it is obtained shall be prefixed to "oil cake."

Ground Oil Cake is the product obtained by grinding oil cake. When used alone, the term "ground oil cake" shall be understood to designate the product obtained from partially extracted, screened and cleaned flaxseed. When used to cover any other product the name of the seed from which it is obtained shall be prefixed to "ground oil cake."

COTTONSEED PRODUCTS.

Cottonseed Meal is a product of the cottonseed only, composed principally of the kernel with such portion of the hull as is necessary in the

manufacture of oil; provided that nothing shall be recognized as cottonseed meal that does not conform to the foregoing definition and that does not contain at least 36 per cent. of protein.

Choice Cottonseed Meal must be finely ground, not necessarily bolted, perfectly sound and sweet in odor, yellow, free from excess of lint, and must contain at least 41 per cent. of protein.

Prime Cottonseed Meal must be finely ground, not necessarily bolted, of sweet odor, reasonably bright in color, yellow, not brown or reddish, free from excess of lint, and must contain at least 38.6 per cent. of protein.

Good Cottonseed Meal must be finely ground, not necessarily bolted, of sweet odor, reasonably bright in color, and must contain at least 36 per cent. of protein.

Cottonseed Feed is a mixture of cottonseed meal and cottonseed hulls, containing less than 36 per cent. of protein.

Cold Pressed Cottonseed is the product resulting from subjecting the whole undecorticated cottonseed to the cold pressure process for the extraction of oil, and includes the entire cottonseed less the oil extracted.

Ground Cold Pressed Cottonseed is the ground product resulting from subjecting the whole undecorticated cottonseed to the cold pressure process for the extraction of oil, and includes the entire ground cottonseed less the oil extracted.

LINSEED AND FLAX PRODUCTS.

Linseed Meal is the ground product obtained after extraction of part of the oil from ground flaxseed screened and cleaned of weed seeds and other foreign materials by the most improved commercial processes, provided that the final product shall not contain over six per cent. of weed seeds and other foreign materials and provided further that no portion of the stated six per cent. of weed seeds and other foreign materials shall be deliberately added.

Oil Meal is the ground product obtained after the extraction of part of the oil by crushing, cooking and hydraulic pressure, or by crushing, heating and the use of solvents from seeds which have been screened and cleaned of weed seeds and other foreign materials by the most improved commercial processes. When used alone the term "Oil Meal" shall be understood to designate linseed meal as defined. When used to cover any other product the name of the seed from which it is obtained shall be prefixed to the words "oil meal."

Old Process Oil Meal is the ground product obtained after extraction of part of the oil by crushing, cooking and hydraulic pressure from seeds screened and cleaned of weed seeds and other foreign materials by the most improved commercial processes. When used alone the term "Old Process Oil Meal" shall be understood to designate linseed meal as defined, made by the old process. When used to cover any other product the name of the seed from which it is obtained shall be prefixed to "old process oil meal."

New Process Oil Meal is the ground product obtained after extraction of part of the oil by crushing, heating and the use of solvents from seeds

screened and cleaned of weed seeds and other foreign materials by the most improved commercial processes. When used alone the term "New Process Oil Meal" shall be understood to designate linseed meal as defined, made by the new process. When used to cover any other product the name of the seed from which it is obtained shall be prefixed to "new process oil meal."

Flax Plant By-Product is that portion of the flax plant remaining after the separation of the seed, the bast fiber and a portion of the shives, and consists of flax shives, flax pods, broken and immature flax seeds, and the cortical tissue of the stem.

Ground Flaxseed or Flaxseed Meal is the product obtained by grinding flaxseed which has been screened and cleaned of weed seeds and other foreign materials by the most improved commercial processes, provided that the final product shall not contain over four per cent. of weed seeds and other foreign materials, and provided further that no portion of the stated four per cent. of weed seeds and other foreign materials shall be deliberately added.

Unscreened Flaxseed Oil Feed is the ground product obtained after extraction of part of the oil from unscreened flaxseed by crushing, cooking and hydraulic pressure, or by crushing, heating and the use of solvents. When sold without grinding the unground product shall be designated as "unscreened flaxseed oil feed cake."

Ingredients of Unscreened Flaxseed Oil Feed—Ground cake from partially extracted flaxseed and foreign seeds (wheat, wild buckwheat, pigeon grass, wild mustard, etc.).

Screenings Oil Feed is the ground product obtained after extraction of part of the oil by crushing, cooking and hydraulic pressure, or by crushing, heating and the use of solvents from the smaller imperfect grains, weed seeds and other foreign materials having feeding value separated in cleaning the grain. The name of the grain from which the screenings are separated shall be prefixed to "screenings oil feed."

OAT PRODUCTS.

Oat Groats are the kernels of the oat berry.

Oat Hulls are the outer chaffy coverings of the oat grain.

Oat Middlings are the floury portions of the oat groat obtained in the milling of rolled oats.

Oat Shorts are the covering of the oat grain lying immediately inside the hull, being a fuzzy material carrying with it considerable portions of the fine floury part of the groat obtained in the milling of rolled oats.

Clipped Oat By-Product is the resultant by-product obtained in the manufacture of clipped oats. It may contain light chaffy material broken from the ends of the hulls, empty hulls, light, immature oats and dust. It must not contain an excessive amount of oat hulls.

PEANUT PRODUCTS.

Peanut Oil Cake is the residue after the extraction of part of the oil by pressure or solvents from peanut kernels.

Peanut Oil Meal is the ground residue after the extraction of part of the oil from peanut kernels.

Unhulled Peanut Oil Feed is the ground residue obtained after extraction of part of the oil from whole peanuts, and the ingredients shall be designated as *Peanut Meal and Hulls*.

RICE PRODUCTS.

Rice Bran is the cuticle beneath the hull.

Rice Hulls are the outer chaffy coverings of the rice grain.

Rice Polish is the finely powdered material obtained in polishing the kernel.

WHEAT PRODUCTS.

Wheat Bran is the coarse outer coatings of the wheat berry obtained in the usual commercial milling process from wheat that has been cleaned and scoured.

Shorts or Standard Middlings are the fine particles of the outer and inner bran separated from bran and white middlings.

Wheat White Middlings or White Middlings are that part of the offal of wheat intermediate between shorts or standard middlings and red dog.

Shipstuff or Wheat Mixed Feed is a mixture of the products other than the flour obtained from the milling of the wheat berry.

Red Dog is a low grade wheat flour containing the finer particles of bran.

Wheat Bran with Mill Run Screenings is pure wheat bran plus the screenings which were separated from the wheat used in preparing said bran.

Wheat Bran with Screenings not Exceeding Mill Run is either wheat bran with the whole mill run of screenings or wheat bran with a portion of the mill run of screenings, provided that such portion is not an inferior portion thereof.

MISCELLANEOUS PRODUCTS.

Yeast or Vinegar Dried Grains are the properly dried residue from the mixture of cereals, malt and malt sprouts (sometimes cottonseed meal) obtained in the manufacture of yeast or vinegar, and consists of corn or corn and rye from which most of the starch has been extracted, together with malt added during the manufacturing process to change the starch to sugars, and malt sprouts (sometimes cottonseed meal) added during the manufacturing process to aid in filtering the residue from the wort and serve as a source of food supply for the yeast.

Palm Kernel Oil Meal is the ground residue from the extraction of part of the oil by pressure or solvents from the kernel of the fruit of *Elaeis guineensis* or *Elaeis malanococca*.

Ivory Nut Meal is ground ivory nuts.

TENTATIVE DEFINITIONS.

Barley Feed is the entire by-product resulting from the manufacture of pearl barley made from clean barley.

Barley Mixed Feed is the entire offal from the milling of barley flour from clean barley and is composed of barley hulls and barley middlings.

Dried Beet Pulp is the material obtained by drying the residue from sugar beets which have been extracted in the process of manufacturing sugar and shall not contain excessive amounts of crowns, tails or sand.

Cocoanut Oil Meal is the ground residue from the extraction of part of the oil from the meat of the cocoanut.

Wheat Bran consists of the coarse outer coatings of the kernel obtained in the usual commercial process of milling from wheat that has been cleaned and scoured.

Shorts or *Standard Middlings* consists mostly of the fine particles of bran and germ and contains very little of fibrous offal obtained from the "tail of the mill."

Gray (or total) *Shorts* consists of the fine particles of the outer bran, the inner or "Bee-wing" bran, the germ and the offal or fibrous material, obtained in the last reductions in milling.

White Shorts or *White Middlings* consists of a smaller portion of the fine bran particles and the germ and a much greater portion of the fibrous offal from the "tail of the mill."

Red Dog consists of a mixture of low-grade flour, fine particles of bran and the fibrous offal from the "tail of the mill."

Wheat Mixed Feed consists of pure wheat bran and the gray or total shorts or middlings combined in the proportions obtained in the usual process of commercial milling.

Wheat Bran and Standard Middlings consists of the two commodities as defined above mixed in the proportions obtained in the usual process of commercial milling.

(NOTE—If to any of the foregoing brands of feed there should be added screenings, or scourings, as hereinafter defined, either ground or unground, bolted or unbolted, such brand shall be so registered, labeled and sold as clearly to indicate this fact. The word "Screenings" or "Scourings" as the case may be, shall appear as a part of the name or brand and shall be printed in the same size and face of type as the remainder of the brand name.)

Screenings consists of the smaller imperfect grains, weed seeds and other foreign materials having feeding value separated in cleaning the grain.

Scourings consists of such portions of the cuticle, brush, white caps, dust smut, and other materials as are separated from the grain in the usual commercial process of scouring.

INSPECTION OF 1919.

REMARKS ON ANALYSES.

(Analyses on pages 370-393.)

Cottonseed Meal. Of the fifteen samples examined only two exceeded 40 per cent. protein. The average protein content is 37.10 per cent. as compared with 36.01 per cent. the preceding

year. Collectively the samples have exceeded their guaranties by about 0.6 per cent. protein and 1.4 per cent. fat. The average price of \$82.67 is an increase of about 25 per cent. over the price a year ago. Deficient samples are noted in Table III.

Cottonseed Feed. Only two samples were examined, one of which was deficient in protein and contained excess fiber. These two brands sold at cottonseed meal prices.

Linseed Meal. The quality this year, as judged by the protein content, is lower than the average last year by about 3 per cent. The price has ranged from \$82.00 to \$93.00 per ton. As compared with cottonseed meal it has averaged nearly \$3.00 per ton higher in price and carried 4.3 per cent. less protein.

Wheat Products. The quality of these products has been generally satisfactory and guaranties have been met in nearly every instance. Middlings have sharply advanced in price, the average, \$68.62, being about \$17.00 per ton more than the average in 1918. The price of wheat feed has averaged somewhat less than last year.

Rye, Barley and Maize Products have maintained average quality but prices have considerably advanced in most cases.

Miscellaneous Feeds. Peanut oil meal has sold for \$75.00 to \$81.00 per ton as compared with \$58.00 last year. No samples of velvet bean feed have been found in this inspection. Apparently stock becomes accustomed to this feed rather slowly even in mixture although no trouble of this sort is experienced in the South. Copra cake meal is used to an increasing extent as an ingredient of mixed feeds. Its proteins are of a desirable kind and both fat soluble and water soluble vitamins are present.

Proprietary Mixed Feeds. When compounded with materials of good quality these feeds possess undoubted merit. The variety of sources from which they derive their nutrients makes possible a supplementing of nutritive qualities which modern ideas of efficient feeding endorse as a rational practice. The criticism of them is that on account of their variety, they furnish an outlet for low-grade materials of little worth. Some of these show plainly on the tags the ingredients of which they are composed. While the law in this State does not require such information it is a valuable guide to the feeder, and is given in case of the following brands:

Algrane Milk Feed. Cottonseed meal, linseed oil meal, corn gluten feed, ground corn, wheat middlings (with screenings), ground barley, molasses, one-half of one per cent. salt, oat hulls, shorts, clippings not over 600 pounds per ton.

Bufceco Chop Feed. Ground corn, oats and barley, hominy feed, oat shorts and oat hulls.

Bufceco Dairy Feed. Ground corn, wheat bran and middlings, hominy feed, corn gluten feed, oat shorts, oat middlings, oat hulls, one-half of one per cent. salt.

Bufceco Horse Feed. Ground corn, oats and barley, hominy feed, oat shorts, oat hulls, linseed meal, corn gluten feed, wheat middlings containing mill run ground screenings, one-half of one per cent. salt.

Crosby's 1918 Dairy Ration. Distillery dried grains, cottonseed meal, peanut meal, brewers' dried grains, hominy feed and oat feed (oat hulls, oat shorts and oat middlings).

Crosby's Stock Food. Ground barley, ground hominy feed, ground oats, oat feed (oat hulls, oat shorts, oat middlings).

Emerald Horse Feed. Cracked corn, oats, barley, alfalfa meal and molasses.

H. & S. Horse, Mule and Dairy Feed. Crushed flaxseed meal, old process oil meal, alfalfa meal, dried brewers' and distillers' grains, pure cane syrup, one-half of one per cent. salt.

Mystic Feed. Ground oats and barley, wheat middlings, corn meal, white hominy feed, oat middlings, oat hulls, old process oil meal, not over one per cent. salt.

Pennant Brand Stock Feed. Fine white hominy and oat by-products (oat middlings, hulls and shorts).

Purina Cow Chow Feed. Old process linseed oil meal, gluten feed from corn, hominy feed, cottonseed meal, ground alfalfa, molasses and one per cent. salt.

Purina Pig Chow. Hominy feed, cane molasses, ground barley, gluten feed from corn, cracked corn, digester tankage, old process linseed oil meal, alfalfa, charcoal, one per cent. salt.

Big Q Dairy Ration. Cottonseed meal, corn distillers' grains, corn gluten feed, old process linseed oil meal, wheat middlings, wheat bran (with screenings not exceeding mill run), oat meal mill by-products (oat middlings, hulls and shorts), hominy feed, yellow hominy feed, one per cent. salt.

Read the Tag Dairy Feed. Cottonseed meal, corn gluten feed, linseed oil meal, corn meal, hominy feed, ground barley, wheat middlings (with mill run screenings), molasses, three-fourths of one per cent. salt, oat hulls and oat shorts not over 225 pounds per ton.

Biles Ready Dairy Ration. Corn distillers' grains, choice cottonseed meal, old process linseed meal, white wheat middlings, winter wheat bran, hominy meal, cocoanut oil meal, corn gluten feed, brewers' dried grains, barley malt sprouts, one-half per cent. fine table salt.

Yellow Tag Stock Feed. Ground barley, ground hominy meal, ground

corn, oat meal mill by-product (oat middlings, shorts and hulls), one-half of one per cent. salt. Part of the ingredients have been cooked or steamed.

Bufceco Poultry Mash. Ground corn, wheat bran and middlings, hominy feed, corn gluten feed, oat middlings, rolled oats, one-half of one per cent. salt.

H.-O. Laying Mash. Linseed oil meal, corn gluten feed, bone meal, ground corn, oat middlings, wheat middlings, wheat bran (with mill run screenings), hominy feed, rolled oats, ground peas.

Tioga Growing Mash. Wheat middlings, hominy feed, old process linseed oil meal, wheat bran, corn feed meal, kaffir corn meal, corn gluten meal, corn gluten feed, phosphate of lime.

Bicorn Hog Feed. Digester tankage, corn germ meal, wheat middlings, hominy feed, corn feed meal, barley, oats, linseed meal, bone meal, corn gluten feed and salt.

Summary of deficiencies. Variations from guaranty greater than one per cent. in protein and fiber and one-quarter of one per cent. in fat together with other points of criticism revealed by the inspection this year are summarized in Table III.

TABLE III.—FEEDS NOT CONFORMING TO GUARANTIES OR OTHERWISE ILLEGAL.

Station No.	Brand and Manufacturer.	Protein deficiency.	Fat deficiency.	Fiber excess.	Remarks.
	<i>Cottonseed Meal.</i>	%	%	%	
13794	Buckeye. Buckeye Cotton Oil Co., Cincinnati, Ohio .....	....	....	....	Wire tags, illegal.
13904	Clover Leaf. Manufacturer unknown	1.75	....	....
13873	Hall. W. D. Hall Co., Atlanta, Ga. ....	....	....	....	Wire tags, illegal.
13864	Quaker Oats Co., Richford, Vt.	5.75	....	4.31	
13931	A-1. Winner Feed Co., Chattanooga, Tenn.	1.44	....	....
	<i>Cottonseed Feed.</i>				
13788	Beauty. S. P. Davis, Little Rock, Ark.	1.00	....	1.84	
	<i>Linseed Meal.</i>				
13834	Archer Daniels Linseed Co., Buffalo, N. Y. ....	....	....	....	Wire tags, illegal.
13802	Economic Feed Co., New York .....	....	1.10	....	Wire tags, illegal.
13783	Kelloggs & Miller, Amsterdam, N. Y. ....	....	....	....	Wire tags, illegal.
13763	Spencer Kellogg & Sons, Buffalo, N. Y.	2.06	....	....	Wire tags, illegal.
	<i>Wheat Products.</i>				
13823	Bell Cow Bran. Quaker Oats Co., Chicago, Ill. ....	....	0.37	....
13791	Tekoe Middlings. Russell Miller Mills Co., Minneapolis, Minn. ....	....	....	....	No guaranty.
13859	Roberts Roller Mill Co., Batavia, N. Y. ....	....	....	....	No guaranty.
	<i>Corn Gluten Feed.</i>				
13804	Cream of Corn. American Maize Products Co., Roby, Ind. ....	....	....	....	Wire tags, illegal.

TABLE III.—FEEDS NOT CONFORMING TO GUARANTIES OR OTHERWISE ILLEGAL—Continued.

Station No.	Brand and Manufacturer.	Protein deficiency.	Fat deficiency.	Fibre excess.	Remarks.
		%	%	%	
<i>Hominy Feed.</i>					
13910	Bufceco. Buffalo Cereal Co., Buffalo, N. Y....	....	0.40	....
13779	Yellow. Buffalo Cereal Co., Buffalo, N. Y. ....	....	1.56	....
13875	Cereal Mills Co., Wausau, Wis. ....	....	1.20	....
13835	Paragon. Chas. M. Cox Co., Boston, Mass. ...	....	0.56	....
13874	National Feed Co., St. Louis, Mo. ....	....	0.76	....	Wire tags, illegal.
13790	Burts. Postum Cereal Co., Battle Creek, Mich. ....	....	0.51	....
<i>Brewery Products.</i>					
13846	Dried Brewers' Grains. James Hanley Brewing Co., Providence, R. I. ....	....	....	....	Wire tags, illegal.
<i>Miscellaneous.</i>					
13778	Peanut Meal. Richland Cotton Oil Co., Richland, Ga. ....	....	....	1.03	
<i>Proprietary Mixed Feeds.</i>					
13787	Red Horn Calf Meal. Hales & Edwards Co., Chicago, Ill. ....	....	0.58	....
13933	Purina Calf Chow. Purina Mills, St. Louis, Mo. ....	....	1.19	....
13913	H. & S. Dwight E. Hamlin, Pittsburgh, Pa.	2.56	1.96	....
13848	Harvest. Hales & Edwards Co., Chicago, Ill. ....	....	0.31	....
13831	Monogram. Metropolitan Mills, New York ..	3.31	1.12	....
13919	Mystic. Mystic Milling & Feed Co., Rochester, N. Y. ....	....	....	1.41	Wire tags, illegal.
13747	Emerald. Prairie State Milling Co., Chicago, Ill. ....	....	0.60	3.23	
13854	Purina Pig Chow. Purina Mills, St. Louis, Mo. ....	....	....	1.77	
13923	Niagara. Boston Feed Store, Willimantic ...	....	....	....	No guaranty.
13906	Yellow Tag Stock Feed. F. L. Cressey, Boston, Mass. ....	....	....	1.17	
13867	Iowa. Purity Oats Co., Davenport, Iowa ....	....	0.26	....
13751	Schumacker. Quaker Oats Co., Chicago, Ill. ....	....	0.26	....
13842	Winner. David Stott, Detroit, Mich. ....	....	0.60	....
13768	Provender. D. L. Talcott, Torrington ....	....	....	....	No guaranty.
13927	Niagara. Boston Feed Store, Willimantic ....	....	....	....	No guaranty.
13749	H. O. Milk Feed. H. O. Co.'s Mills, Buffalo, N. Y. ....	....	0.49	....
13813	Read the Tag. H. O. Co.'s Mills, Buffalo, N. Y. ....	....	0.51	....
13757	Gold Flake. Hales & Edwards Co., Chicago, Ill.	1.50	0.50	....
13830	Barfords. Meech & Stoddard, Inc., Middletown ....	....	0.71	....
13868	Purina Cow Chow. Purina Mills, St. Louis, Mo. ....	....	0.49	....
13780	Syragold. Syracuse Milling Co., Syracuse, N. Y. ....	....	0.41	....
<i>Poultry Feeds.</i>					
13881	Buffalo Laying Mash. Globe Elevator Co., Buffalo, N. Y. ....	....	3.58	....
13786	Red Comb Mash Feed. Hales & Edwards Co., Chicago, Ill. ....	....	0.42	....

Feeds Containing Molasses. As in previous years feeds containing molasses have been examined for fat both by the official method and by extraction after removing sugar by washing with water.

Results by the two methods are as follows:

TABLE IV. FAT IN MOLASSES FEEDS.

No.	Brand.	Official	Modified	Guaranty.
		Method.	Method.	
		%	%	%
13743	Peters King Corn Horse and Mule Feed ..	0.77	1.47	1.50
13747	Emerald Horse Feed	0.61	1.40	2.00
13762	Purina Molene Feed	4.60	3.64	3.20
13765	Eshelman's 40 Horse Feed	2.06	2.16	2.00
13811	Greenfield Brand	0.45	0.94	0.50
13826	Allstock Molasses Grains	2.34	3.18	2.00
13831	Monogram Feed	1.22	1.88	3.00
13833	Bufceco Horse Feed	4.69	3.52	4.00
13848	Harvest Horse Feed	1.39	1.69	2.00
13871	Lancaster Horse Feed	2.63	2.70	2.50
13895	Harvest Horse Feed	1.29	2.03	2.00
13912	Sucrene Dairy Feed	3.91	4.39	3.50
13913	H. & S. Horse, Mule and Dairy Feed	0.90	1.54	3.50
13919	Mystic Feed, Horse, Cattle & Swine	3.99	2.77	3.00

In eleven cases the results after removing sugar were higher than those by the regular official method; in three cases they were lower.

MISCELLANEOUS SAMPLES.

VELVET BEANS.

Analyses have been made of three of the principal varieties of velvet beans, samples of which were obtained through the courtesy of the Bureau of Plant Industry at Washington.

Variety	Osceola.	Alabama.	Georgia.
	%	%	%
Moisture	9.79	7.42	7.73
Ash	3.22	3.22	3.02
Protein (N. x 6.25)	25.25	24.81	23.85
Fiber	5.65	5.35	6.72
Starch	32.50	32.88	32.02
Other nitrogen-free extract	19.29	20.03	20.61
Ether extract	4.30	6.29	6.05

SAMPLES SUBMITTED BY THE DAIRY COMMISSIONER.

Two samples were examined; **12523**, Morgan B Stock Feed, and **15954**, Brewers' Grains, contained 15.63 per cent. and 17.31 per cent. of protein, respectively. These numbers are of the Commissioner's series.

SAMPLES SUBMITTED BY INDIVIDUALS.

Barley Feed. **13382**, sent by E. Manchester and Sons, Winsted, contained 12.25 per cent. protein, 10.25 per cent. fiber and 3.86 per cent. fat and conformed to its guaranty.

Corn Products. **13404**, Fancy Cracked Corn (degerminated), manufactured by the Krause Milling Co. and sent by Chas. M. Cox Co., Boston.

13399, Corn Meal, sent by A. B. Congdon, Middletown.

14243, Gluten Feed, sent by Frank C. Beach, New Milford.

12368, Hominy Feed, sent by The P. Schwartz Co., Inc., New London.

14390, Corn and Cob Meal, sent by A. Bender, Port Chester, N. Y.

Analyses of these materials are as follows:

	13404	13399	14243	12368	14390
Moisture	12.93	....	5.78	....	....
Ash	0.39	....	3.43	....	....
Protein	8.88	13.25	27.38	11.19	8.63
Fiber	0.26	....	5.64	....	....
Nitrogen-free extract	77.24	....	54.48	....	....
Fat	0.30	....	3.29	....	....

Cottonseed Meal. **12381**, **12946**, American Cotton Oil Co.; **12436**, **12739**, Park and Pollard Co.; **12603**, Deutsch & Sickert Co.; **12738**, E. Crosby & Co., all sent by The Coles Company, Middletown.

12467, sent by E. J. Wells, Jr., East Windsor Hill.

13160, Pioneer, sent by Wood Ford Farm, Avon.

13512, Danish, sent by Wm. E. Wheelock, Quinebaug; **14180**, sent by Humphreys-Goodwin Co., the same being a portion of a sample taken by Mr. Wheelock from the same lot as sample **13512** and sent by him to them at their request.

14303, sent by H. H. McKnight, Ellington.

Analyses of these samples are as follows:

Station No.	Protein found. %	Protein guaranteed. %
12381	35.81	36.00
12946	36.63	36.00
12436	40.94	36.00
12739	35.00	36.00
12603	36.81	36.00
12738	31.75	36.00
12467	43.44	Unit basis
13160	40.44	41.00
13512	34.31	36.00
14180	36.31	....
14303	35.31	....

A recheck on our sample **13512**, made in this laboratory, substantiated our original result.

Oat Products. **12605**, Ground Oats, sent by B. W. Ellis, County Agent, Putnam, and **13629**, sent by Almon N. Perkins, Litchfield, contained 11.63 per cent. and 14.00 per cent. protein respectively.

Wheat Products. **13383**, Big Diamond Standard Middlings, sent by Henry Peacock, Wilton, contained 15.75 per cent. protein, 8.05 per cent. fiber and 5.20 per cent. fat. The sample conformed to its guaranty.

12920, Middlings, sent by M. Hurwitz & Co., Stepney, to be examined for foreign material. Examination showed no material other than wheat products.

Proprietary Mixed Feeds. **14244**, Dairy Feed, sent by Frank C. Beach, New Milford.

14392, Eshelman's 24 Dairy Feed, sent by Fairlea Farm, Orange.

12282, Federal Stock Food, sent by Frank S. Platt Co., New Haven.

12462, Stock Feed, sent by C. A. Cowles, Plantsville.

12497, Sweet Stock Feed, made by Metropolitan Mills, N. Y., composed of unground oat feed, cocoanut oil meal, dried brewers' grains and molasses.

12546, W. & C. Dairy Feed, mixed and sent by Boston Grain Store, Willimantic.

12702, Davis Stock Feed, mixed and sent by R. G. Davis and Sons, New Haven.

13395, Ideal Cow Ration, sent by Washington Supply Co., Inc., Washington Depot.

12887, Barford's Balanced Dairy Ration, sent by Meech and Stoddard, Inc., Middletown, composed of ground oats, barley, wheat bran, standard middlings, gluten feed, peanut, cocoanut and linseed meals.

14027, Barford's Balanced Dairy Ration, sent by Connecticut State Hospital, Middletown.

14236, Barford's Balanced Dairy Ration, sent by Meech and Stoddard, Inc., Middletown.

12474, Morgan's Balanced Ration, sent by The Hubbell Coal and Storage Co., Saugatuck.

14340, Morgan's Balanced Ration, sent by The A. E. Plant Sons Co., Branford.

14245, Dairy Ration, sent by Mrs. I. E. Bauch, Woodbury.

12185, Dairy Feed, sent by R. M. Fenn, Middlebury.

14388, Holsum Horse Feed, and **14389**, King Corn, sent by Lewis Sperry, Hartford.

12883, Special Mixture. Analysis requested by J. P. Stillson, New Preston.

12746, sent by G. W. Thorpe, West Cheshire.

12307, sent by Daniel H. Morgan, Southport.

Analyses of these feeds are as follows:

TABLE V. ANALYSES OF MISCELLANEOUS PROPRIETARY FEEDS.

Station No.	Moisture. %	Ash. %	Protein. %	Fiber. %	Nitrogen-free Extract. %	Fat. %
I4244	6.31	5.18	21.94	9.66	51.45	5.46
I4392	6.91	6.30	24.06	11.14	45.87	5.72
I2282	12.98	....	7.06	....	....	5.25
I2462	9.12	3.83	7.81	13.52	62.69	3.03
I2497	5.53	7.61	7.13	13.70	64.06	1.97
I2546	6.99	....	17.88	....	....	4.01
I2702	8.32	....	10.94	....	....	4.09
I3395	11.92	4.02	21.13	8.13	49.79	5.01
I2887	10.80	4.94	20.00	7.50	50.25	6.51
I4027	6.84	4.86	20.50	8.64	52.14	7.02
I4236	9.60	5.18	21.25	10.91	47.78	5.28
I2474	5.52	7.04	15.75	14.04	46.73	10.92
I4340	....	....	22.31	....	....	....
I4245	8.83	5.07	20.75	16.97	43.83	4.55
I2185	7.39	7.06	22.25	11.33	47.38	4.59
I4388	5.20	7.80	10.13	14.97	60.19	1.71
I4389	5.04	7.88	11.88	15.25	58.00	1.95
I2883	10.39	4.66	22.50	9.14	48.23	5.08
I2746	7.06	....	18.94	....	....	9.00
I2307	....	....	18.06	....	....	....

Poultry Feeds, etc. **13412**, Meat Meal, and **13413**, Meat Scrap, sent by Z. N. Beach, Wallingford, contained 83.75 per cent. and 50.00 per cent. protein respectively.

13033, **13034**, **13035**, Beef Scraps, and **13036**, Meat and Bone Scraps, sent by L. C. Orcutt, Rockville, contained 44.63 per cent., 43.38 per cent., 57.00 per cent., and 41.00 per cent. protein in the order named.

12472, Dry Mash, sent by S. M. Crowell, Middletown, contained 23.19 per cent. protein.

Unclassified. **13351**, Extravim Feed Molasses, sent by E. D. Curtis, Bantam. Examination and analysis of this material showed the following results:

Color, very dark; odor and taste normal; total solids 71.14 per cent.; total reducing sugar 50.85 per cent. (sucrose 30.63 per cent., invert sugar 20.22 per cent.); nitrogen 1.39 per cent.

The material is probably the so-called "third molasses" obtained in the manufacture of sugar and used in the preparation of molasses feeds.

14171, Cull beans, sent by Edw. P. Smith and Co., Baltimore. They contained 8.86 per cent. moisture, 5.33 per cent. ash, 25.13 per cent. protein, 3.99 per cent. fiber, 55.00 per cent. nitrogen-free extract and 1.69 per cent. fat.

Proprietary Remedies. **13648**, More Egg Tonic, 2-4-1, and **13649**, Little Champions, a White Diarrhoea Remedy, both samples sent by the Associated Advertising Clubs of the World, New York.

More Egg Tonic is claimed to increase or double egg production; and Little Champions are claimed to be a preventative and cure for white diarrhoea in chicks.

Examination and analysis of these remedies showed the following composition:

13648. Tablets averaged 0.4780 gram each. Total nitrogen 1.36 per cent.; nitrogen in nitrates 1.03 per cent.; total ash 18.95 per cent. (contains chiefly sulphates, potassium, iron and calcium); fenugreek present; ginger present; possibly gentian.

The tablets consist essentially of ferrous sulphate, salt peter and ground roots or herbs or both, ingredients which are widely used in poultry remedies and conditioners.

13649. Tablets averaged 0.1689 gram each. Ash 0.14 per cent.; organic and volatile 99.86 per cent.; mercuric chloride 60.65 per cent.; filler undetermined; organic matter present.

These tablets contain bichloride of mercury as the chief medication with unidentified organic material probably used as a vehicle.

A great deal of study has been given to the subject of white diarrhoea at the Storrs Station where the bacterium causing the disease was discovered. There is no recognized cure for it and the claims made for this remedy are unjustified.

Feeds suspected of containing poisonous materials, etc. Complaints are occasionally received that certain feeds have apparently produced sickness or death, or that animals refuse to eat them. Conclusive evidence that sickness or death has resulted from a particular feed is difficult to establish, although the circumstances may strongly indicate such conclusions in some cases. Unless toxic chemical substances can be detected a satisfactory explanation as to the probable cause of the trouble can seldom be given. Feeding experiments, particularly in Canada, have shown quite conclusively that certain weed seeds, such as the mustards, produce ill or fatal results in animals, especially hogs. A refusal to eat a certain ration may indicate the presence of some unpalatable ingredient. Velvet beans, for example, are not relished by animals unaccustomed to such fodder.

Eight samples of suspicious feeds have been examined during the past year. In six of these unpalatability due to some ingredient to which the animals were not accustomed seemed to be the only explanation that could be made. **12775**, Starch Feed, containing "lumps," was sent for identification of the foreign material. The "lumps" were rock phosphate. **12856**, Middlings, suspected of containing foreign material, appeared to be a genuine wheat product.

TABLE VI.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Manufacturer and Brand.	Retail Dealer.
	OIL SEED PRODUCTS. <i>Cottonseed Meal.</i>	
13898	Paramount. Ashcraft Wilkins Co., Atlanta, Ga.	Middletown: Meech & Stoddard, Inc. Guaranty
13879	Dove. F. W. Brode & Co., Memphis, Tenn. ..	Brookfield: C. R. Dubia Guaranty
13872	Jay. F. W. Brode & Co., Memphis, Tenn.	Stamford: C. E. Slauson Co. Guaranty
13934	Jay. F. W. Brode & Co., Memphis, Tenn.	Rockville: Rockville Milling Co. Guaranty
13794†	Buckeye. Buckeye Cotton Oil Co., Cincinnati, Ohio	Granby: E. H. Rollins
13889	Good Luck. S. P. Davis, Little Rock, Ark. ...	Guaranty
13873†	Hall. W. D. Hall Co., Atlanta, Ga.	New Milford: Geo. E. Ackley Co. Guaranty
13744	Danish. Humphreys, Godwin Co., Memphis, Tenn.	Stamford: W. L. Crabb Guaranty
13904	Clover Leaf. Manufacturer unknown	Shelton: Ansonia Flour & Grain Co. Guaranty
13756	Upland. Park & Pollard Co., Boston, Mass. ..	Middletown: Meech & Stoddard, Inc. Guaranty
13864	Quaker Oats Co., Richford, Vt.	Watertown: M. D. Leonard Co. Guaranty
13817	Puritan. J. E. Soper Co., Boston, Mass.	Saugatuck: Hubbell Coal & Storage Co. Guaranty
13803	Good. Taylor Commission Co., Atlanta, Ga. ..	Plantsville: C. A. Cowles ... Guaranty
13852	Surety. Union Seed & Fertz. Co., Macon, Ga.	Hazardville: A. D. Bridges Sons
13931	A-1. Winer Feed Co., Chattanooga, Tenn. ...	Guaranty
		Meriden: Meriden Grain & Feed Co. Guaranty
		New Haven: R. G. Davis & Sons
		Guaranty
		Average guaranty
		Average of analyses
		Average digestible
	<i>Cottonseed Feed.</i>	
13870	Goodlow. M. F. Baringer, Philadelphia, Pa. ..	South Norwalk: S. Roodner Guaranty

† Wire tags.

INSPECTION OF 1919.

Station No.	Pounds per Hundred.						Price per ton.
	Water.	Ash.	Protein. (N. x 6.25)	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Crude Fat)	
13898	6.74	6.18	39.13	12.11	29.18	6.66	\$84.00
.....	.....	.....	36.00	14.00	27.00	5.50	.....
13879	7.30	6.55	40.19	11.59	27.66	6.71	87.00
.....	.....	.....	38.63	12.00	22.00	6.00	.....
13872	5.78	6.55	37.94	10.86	31.22	7.65	84.00
.....	.....	.....	36.00	14.00	30.00	5.00	.....
13934	7.59	6.35	36.06	12.41	31.44	6.15	83.00
.....	.....	.....	36.00	14.00	30.00	5.00	.....
13794	7.01	5.65	36.19	12.46	31.56	7.12	82.00
.....	.....	.....	36.00	14.00	30.00	5.00	.....
13889	8.00	6.90	43.63	9.65	23.62	8.20	88.00
.....	.....	.....	41.00	9.00	.....	6.00	.....
13873	7.95	6.05	37.88	12.95	29.29	5.88	70.00
.....	.....	.....	36.00	14.00	27.00	5.50	.....
13744	7.40	6.53	36.38	11.22	31.18	7.29	86.00
.....	.....	.....	36.00	15.00	25.00	5.00	.....
13904	7.55	6.17	34.25	12.92	31.78	7.33	84.00
.....	.....	.....	36.00	.....	.....	5.00	.....
13756	6.89	5.83	34.69	15.81	31.42	5.36	82.00
.....	.....	.....	36.00	.....	.....	5.00	.....
13864	8.70	5.31	30.25	18.31	32.20	5.23	85.00
.....	.....	.....	36.00	14.00	27.00	5.00	.....
13817	7.29	6.13	39.69	10.96	28.63	7.30	82.00
.....	.....	.....	36.00	15.00	30.00	5.00	.....
13803	7.28	6.00	37.94	11.96	29.88	6.94	80.00
.....	.....	.....	36.00	.....	.....	7.00	.....
13852	7.95	5.63	37.75	11.98	30.10	6.59	80.00
.....	.....	.....	36.00	14.00	27.00	5.50	.....
13931	6.99	5.78	34.56	13.94	31.72	7.01	83.00
.....	.....	.....	36.00	14.00	27.00	5.50	.....
.....	.....	.....	36.51	.....	.....	5.37	.....
.....	7.36	6.11	37.10	12.61	30.06	6.76	82.67
.....	.....	.....	31.2	4.7	22.5	6.4	.....
13870	7.42	5.89	36.38	12.47	31.22	6.62	84.00
.....	.....	.....	36.00	16.00	.....	5.00	.....

TABLE VI.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Manufacturer and Brand.	Retail Dealer.
	OIL SEED PRODUCTS— <i>Concluded.</i> <i>Cottonseed Feed—Concluded.</i>	
13788	Beauty. S. P. Davis, Little Rock, Ark.	Simsbury: Woods-Chandler Co. Guaranty Average guaranty Average of analyses Average digestible
	<i>Linseed Meal, Old Process.</i>	
13816	Oil Meal. American Linseed Co., New York .	Plantsville: C. A. Cowles ... Guaranty
13822	Amco. American Milling Co., Peoria, Ill.	West Cheshire: G. W. Thorpe Guaranty
13834†	Ground Oil Cake. Archer Daniels Linseed Co., Buffalo, N. Y.	Thompsonville: George S. Phelps Co. Guaranty
13892†	Economic Feed Co., New York	Hamden: I. W. Beers Guaranty
13783†	Oil Meal. Kelloggs & Miller, Amsterdam, N. Y.	Canaan: Ives & Pierce Guaranty
13763†	Oil Meal. Spencer Kellogg & Sons, Buffalo, N. Y.	Torrington: D. L. Talcott .. Guaranty
13893	Oil Meal. The Mann Bros. Co., Buffalo, N. Y.	Branford: S. V. Osborne ... Guaranty Average guaranty Average of analyses Average digestible
	WHEAT PRODUCTS. <i>Wheat Bran.</i>	
13849*	Commander. Commander Mill. Co., Minneap- olis, Minn.	New Britain: C. W. Lines Co. Guaranty
13795*	Fancy. C. C. Davison, Geneva, N. Y.	West Suffield: S. J. Orr Guaranty
13829	Gwinn's. Gwinn Milling Co., Columbus, Ohio..	Hartford: Meech Grain Co. Guaranty
13746*	Wm. Hamilton & Son, Honeoye Falls, N. Y...	Derby: Peterson-Hendee Co. Guaranty
13844*	The Hogan Milling Co., Junction City, Kans...	Manchester: Little & Mc- Kinney Guaranty
13857*	Hunter Milling Co., Wellington, Kans.	Wallingford: E. E. Hall Guaranty
13886	Majestic Milling Co., Aurora, Mo.	New Milford: Geo. T. Soule Guaranty
13771	Ogilvie Flour Mill. Co., Winnipeg, Canada	Torrington: F. L. Wadhams & Son Guaranty

* With screenings.

† Wire tags.

INSPECTION OF 1919—Continued.

Station No.	Pounds per Hundred.						Price per ton.
	Water.	Ash.	Protein. (N. x 6.25)	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Crude Fat)	
13788	7.66	5.90	35.00	15.84	29.58	6.02	\$80.00
....	....	....	36.00	14.00	....	6.00	....
....	....	....	36.00	15.00	....	5.50	....
....	7.54	5.90	35.69	14.16	30.39	6.32	82.00
....	....	....	20.8	6.4	18.5	5.7	....
13816	8.13	5.76	34.50	7.38	38.00	6.23	82.00
....	....	....	34.00	....	....	5.00	....
13822	8.59	6.46	30.50	8.71	37.99	7.75	86.00
....	....	....	30.00	....	....	6.00	....
13834	9.09	5.76	33.75	7.29	37.60	6.57	82.00
....	....	....	33.00	10.00	....	6.00	....
13892	9.50	5.73	33.44	8.27	36.16	6.90	89.00
....	....	....	33.00	10.00	....	8.00	....
13783	8.15	6.15	31.44	7.55	40.98	5.73	84.00
....	....	....	31.00	9.00	....	4.00	....
13763	9.60	6.21	30.94	7.77	39.43	6.05	82.00
....	....	....	33.00	....	....	5.00	....
13893	9.03	5.82	35.19	7.77	34.22	7.07	93.00
....	....	....	33.00	10.00	....	6.00	....
....	....	....	32.83 ¹	....	....	6.16 ¹	....
....	8.99	5.98	32.82	7.82	37.78	6.61	85.42
....	....	....	29.2	4.5	29.5	5.9	....
13849	9.94	6.83	14.75	11.06	52.82	4.60	50.00
....	....	....	12.00	....	....	4.00	....
13795	9.18	7.15	15.69	10.17	53.58	4.33	72.00
....	....	....	15.00	....	....	4.00	....
13829	9.05	6.10	16.13	8.49	56.16	4.07	51.00
....	....	....	13.00	....	....	4.00	....
13746	10.06	6.73	14.69	9.76	54.70	4.06	52.00
....	....	....	13.15	10.97	....	3.00	....
13844	9.86	6.33	15.69	9.95	53.62	4.55	52.00
....	....	....	14.50	11.00	....	3.50	....
13857	10.14	6.94	15.75	10.76	52.05	4.36	48.00
....	....	....	14.50	....	....	3.50	....
13886	9.69	5.73	16.31	8.92	55.25	4.10	50.00
....	....	....	14.00	14.00	50.00	3.75	....
13771	8.95	6.10	17.50	10.08	51.64	5.73	52.00
....	....	....	13.00	....	....	4.00	....

¹ Average of six guaranties.

TABLE VI.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Manufacturer and Brand.	Retail Dealer.
<i>WHEAT PRODUCTS—Continued. Wheat Bran—Concluded.</i>		
13929	Phoenix Milling Co., Davenport, Iowa	Rockville: Rockville Milling Co. Guaranty
13894	Winter. Quaker City Flour Mills Co., Philadelphia, Pa.	Guilford: Morse & Landon .. Guaranty
13823*	Bell Cow. Quaker Oats Co., Chicago, Ill.	West Cheshire: G. W. Thorpe Guaranty
13839*	T. & C. Thornton and Chester Milling Co., Buffalo, N. Y.	Thompsonville: George S. Phelps & Co. Guaranty
13907*	Sun Beam. Schultz, Baujan & Co., Beardstown, Ill.	New London: P. Schwartz Co. Guaranty
13807*	Geo. Urban Milling Co., Buffalo, N. Y.	Unionville: F. D. Lawton ... Guaranty
13858*	Valier's. Valier & Spies Milling Co., St. Louis, Mo.	North Haven: Coöperative Feed Co. Guaranty
13750*	Washburn-Crosby Co., Minneapolis, Minn.	Ansonia: Ansonia Flour & Grain Co. Guaranty
Average guaranty Average of analyses Average digestible		
<i>Wheat Feed (Mixed Feed).</i>		
13775	Boston. Duluth Superior Milling Co., Duluth, Minn.	Winsted: E. Manchester & Sons Guaranty
13824	Frazee's. James Frazee Mill. Co., Baldwinsville, N. Y.	West Cheshire: G. W. Thorpe Guaranty
13748	Snow Flake. Lawrenceburg Flour Mills Co., Lawrenceburg, Ind.	Ansonia: Ansonia Flour & Grain Co. Guaranty
13761	Planet. Northwestern Consolidated Co., Minneapolis, Minn.	Litchfield: The Wadhams Co. Guaranty
13888*	Fancy. Pillsbury Flour Mills Co., Minneapolis, Minn.	New Milford: Geo. E. Ackley Co. Guaranty
13820*	Fancy. Pillsbury Flour Mills Co., Minneapolis, Minn.	Plantsville: C. A. Cowles ... Guaranty
13843*	Buckeye. Quaker Oats Co., Chicago, Ill.	Manchester: Little & McKinney Guaranty
13793	Occident. Russell Miller Mills Co., Minneapolis, Minn.	Granby: E. H. Rollins Guaranty

* With screenings.

INSPECTION OF 1919—Continued.

Station No.	Pounds per Hundred.						Price per ton.
	Water.	Ash.	Protein. (N. x 6.25)	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Crude Fat)	
13929	10.28	6.55	16.44	9.26	53.38	4.09	\$56.00
....	....	....	14.31	....	....	3.73	....
13894	10.03	6.50	16.06	9.54	53.62	4.25	52.00
....	....	....	13.00	....	....	3.00	....
13823	8.38	5.75	16.13	9.71	54.90	5.13	48.00
....	....	....	15.30	7.60	56.00	5.50	....
13839	8.20	6.60	15.19	9.95	55.63	4.43	50.00
....	....	....	14.00	....	....	4.00	....
13907	9.54	7.90	15.19	11.34	51.33	4.70	50.00
....	....	....	15.00	10.00	56.00	3.50	....
13807	9.24	6.83	15.19	10.43	53.22	5.09	48.00
....	....	....	14.00	12.50	....	3.50	....
13858	9.72	6.55	17.81	9.77	51.30	4.85	48.00
....	....	....	14.50	10.00	50.00	3.50	....
13750	9.46	6.88	15.38	9.81	53.65	4.82	49.00
....	....	....	13.00	....	....	4.00	....
....	....	....	13.89	....	....	3.78	....
....	9.42	6.59	15.87	9.94	53.61	4.57	51.75
....	....	....	12.0	4.3	40.3	2.8	....
13775	10.02	4.63	17.06	8.72	53.94	5.63	61.00
....	....	....	15.00	....	....	4.00	....
13824	9.54	5.23	16.19	7.18	57.08	4.78	61.00
....	....	....	14.00	12.00	....	3.50	....
13748	9.65	6.09	17.94	7.89	53.90	4.53	59.00
....	....	....	14.00	....	....	3.00	....
13761	10.24	5.00	17.88	5.88	55.69	5.31	60.00
....	....	....	15.00	....	....	4.00	....
13888	9.97	4.91	17.06	7.08	56.59	4.39	62.00
....	....	....	14.00	....	....	4.00	....
13820	9.78	4.91	17.00	8.07	55.48	4.76	58.00
....	....	....	14.00	....	....	4.00	....
13843	9.05	5.85	16.75	8.64	54.69	5.02	59.00
....	....	....	15.50	....	....	4.50	....
13793	9.34	5.50	16.69	8.41	54.30	5.76	58.00
....	....	....	15.00	....	....	4.50	....

TABLE VI.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Manufacturer and Brand.	Retail Dealer.
<i>WHEAT PRODUCTS—Continued.</i>		
<i>Wheat Feed (Mixed Feed)—Concluded.</i>		
13752	Gold Mine. Sheffield King Milling Co., Minneapolis, Minn.	Waterbury: Spencer Grain Co.
13769	Stott's Honest. David Stott's Flour Mills, Detroit, Mich.	Guaranty Torrington: F. L. Wadhams & Son
13850*	Angelus. Thompson Milling Co., Lockport, N. Y.	Guaranty New Britain: C. W. Lines Co.
13837*	T. & C. Thornton & Chester Milling Co., Buffalo, N. Y.	Guaranty Thompsonville: George S. Phelps & Co.
13914*	Victor. Victor Milling Co., Victor, N. Y.	Guaranty Norwich: Chas. Slosberg & Son
13812*	Washburn-Crosby Co., Minneapolis, Minn.	Guaranty Plainville: Eaton Bros.
13777	Kent. Williams Bros. Co., Kent, Ohio	Guaranty Winsted: E. Manchester & Son
Average guaranty		
Average of analyses		
Average digestible		
<i>Wheat Middlings.</i>		
13877	Bay State. Bay State Milling Co., Winona, Minn.	Danbury: F. C. Benjamin .. Guaranty
13796	Fancy. C. C. Davison, Geneva, N. Y.	West Suffield: S. J. Ora Guaranty
13745	Wm. Hamilton & Son, Honeoye Falls, N. Y. ..	Derby: Peterson-Hendee Co. Guaranty
13791	Tekoe Flour Middlings. Russell Miller Mills Co., Minneapolis, Minn.	Granby: E. H. Rollins Guaranty
13838	Choice. Niagara Milling Co., Niagara Falls, N. Y.	Thompsonville: George S. Phelps Co.
13930	Shorts. Phoenix Milling Co., Davenport, Iowa	Guaranty Rockville: Rockville Milling Co.
13827	B. Pillsbury Flour Mills Co., Minneapolis, Minn.	Guaranty Hartford: Meech Grain Co.
13841	XX Daisy. Pillsbury Flour Mills Co., Minneapolis, Minn.	Guaranty So. Manchester: G. W. Strant
13782	Quaker City. Quaker City Flour Mills Co., Philadelphia, Pa.	Guaranty Canaan: Ives & Pierce
13859	Roberts Roller Mill Co., Batavia, N. Y.	Guaranty North Haven: Coöperative Feed Co.
Guaranty		

* With screenings.

TABLE VI.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Manufacturer and Brand.	Retail Dealer.
	<i>WHEAT PRODUCTS—Concluded.</i> <i>Wheat Middlings—Concluded.</i>	
13809*	Washburn Mills, Minneapolis, Minn.	Plainville: Eaton Bros. Guaranty
13924	Shorts. Weber Flour Mills Corp., Salina, Kans.	Willimantic: Boston Feed Store
		Guaranty
		Average guaranty
		Average of analyses
		Average digestible
	<i>RYE PRODUCTS.</i>	
13825	Feed. Boutwell Mill & Grain Co., Troy, N. Y.	West Cheshire: G. W. Thorpe Guaranty
13776	Middlings. Northland Rye Mills Co., Minneapolis, Minn.	Winsted: E. Manchester & Sons
		Guaranty
13819	True Value Middlings. Stratton Ladish Mill Co., Milwaukee, Wis.	Plantsville: C. A. Cowles ... Guaranty
	<i>BARLEY PRODUCTS.</i>	
13773	Ground Barley. Albert Dickinson Co., Minneapolis, Minn.	Winsted: E. Manchester & Sons
		Guaranty
	<i>MAIZE PRODUCTS.</i> <i>Corn Gluten Feed.</i>	
13804†	Cream of Corn. American Maize Products Co., Roby, Ind.	Hazardville: A. D. Bridges Sons
		Guaranty
13770	Buffalo. Corn Products Refining Co., New York	Torrington: F. L. Wadhams & Son
		Guaranty
13742	Globe. Corn Products Refining Co., New York	Shelton: Ansonia Flour & Grain Co.
		Guaranty
13915	Staley's. A. F. Staley Mfg. Co., Decatur, Ill. ...	Yantic: Yantic Grain & Pro- ducts Co.
		Guaranty
		Average guaranty
		Average of analyses
		Average digestible
	<i>Hominy Feed.</i>	
13840	Armour Grain Co., Chicago, Ill.	Hartford: Garber Bros. Guaranty
13855	Spring Garden. Baltimore Pearl Hominy Co., Baltimore, Md.	Wallingford: E. E. Hall ... Guaranty
13910	Bufceco. Buffalo Cereal Co., Buffalo, N. Y. ...	Mystic: Mystic Grain Co. ... Guaranty

* With screenings.

† Wire tags.

INSPECTION OF 1919—Continued.

Station No.	Pounds per Hundred.						Price per ton.
	Water.	Ash.	Protein. (N. x 6.25)	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Crude Fat)	
13809	9.00	4.50	17.75	5.09	58.99	4.67	\$65.00
....	....	....	15.00	....	....	4.00	....
13924	10.88	4.84	18.00	6.85	55.01	4.42	60.00
....	....	....	16.00	....	....	3.50	....
....	....	....	14.93 ¹	....	....	4.16 ¹	....
....	9.98	4.29	18.02	5.69	57.34	4.78	68.62
....	....	....	13.9	1.7	44.7	4.2	....
13825	9.09	3.90	16.13	3.88	63.78	3.22	59.00
....	....	....	13.50	....	....	3.00	....
13776	9.58	4.58	16.25	7.39	57.90	4.30	54.00
....	....	....	14.00	....	....	3.00	....
13819	8.61	4.55	17.00	6.06	60.00	3.78	58.00
....	....	....	13.50	....	....	3.00	....
13773	9.67	3.60	12.75	9.05	61.40	3.53	67.00
....	....	....	10.00	8.00	....	2.00	....
13804	7.99	2.03	24.06	6.17	55.94	3.81	78.00
....	....	....	23.00	8.50	....	1.50	....
13770	7.58	4.20	27.63	6.67	49.67	4.25	76.00
....	....	....	23.00	....	....	1.00	....
13742	8.59	3.05	23.31	6.04	57.52	1.49	76.00
....	....	....	23.00	....	....	1.00	....
13915	7.94	4.23	29.30	6.34	49.55	2.64	....
....	....	....	23.00	....	....	2.50	....
....	....	....	23.00	....	....	1.50	....
....	8.02	3.38	26.07	6.31	51.17	3.05	76.66 ²
....	....	....	22.1	4.8	46.8	2.6	....
13840	7.54	2.55	11.50	5.13	65.87	7.41	70.00
....	....	....	10.00	....	....	5.00	....
13855	8.30	3.33	12.00	8.55	61.93	5.89	63.00
....	....	....	10.00	6.00	....	5.00	....
13910	9.71	2.52	12.13	3.87	66.17	5.60	63.00
....	....	....	10.00	4.00	....	6.00	....

¹ Average of ten guaranties.² Average of three prices.

TABLE VI.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Manufacturer and Brand.	Retail Dealer.
	<i>MAIZE PRODUCTS—Concluded. Hominy Feed—Concluded.</i>	
13779	Yellow. Buffalo Cereal Co., Buffalo, N. Y. ...	Winsted: E. Manchester & Sons Guaranty
13875	Cereal Mills Co., Wausau, Wis.	Ridgefield: S. D. Keeler Guaranty
13835	Paragon. Chas. M. Cox Co., Boston, Mass. ...	Thompsonville: George S. Phelps & Co. Guaranty
13891	Emco. Evans Milling Co., Indianapolis, Ind. ..	Hamden: I. W. Beers Guaranty
13774	Miller Cereal Mills, Omaha, Neb.	Winsted: E. Manchester & Sons Guaranty
13828	Choice Steam Cooked. Miner-Hillard Milling Co., Wilkesbarre, Pa.	Hartford: Meech Grain Co. Guaranty
13874†	National Feed Co., St. Louis, Mo.	Stamford: W. L. Crabb Guaranty
13790	Burts. Postum Cereal Co., Battle Creek, Mich.	Granby: E. H. Rollins Guaranty
13805	Yellow. Quaker Oats Co., Chicago, Ill.	Unionville: F. D. Lawton Guaranty
13883	True Value. Stratton Ladish Milling Co., Milwaukee, Wis.	New Milford: Geo. T. Soule Guaranty
13815	Wathen Milling Co., Louisville, Ky.	Bristol: Goodsell Bros. Guaranty
		Average guaranty Average of analyses Average digestible
	<i>Dried Corn Flake Feed.</i>	
13865	Kellogg Toasted Corn Flake Co., Battle Creek, Mich.	Saugatuck: Hubbell Coal & Storage Co. Guaranty
	<i>BREWERY PRODUCTS.</i>	
13846†	Dried Brewers' Grain. James Hanley Brewing Co., Providence, R. I.	Rockville: Rockville Grain & Coal Co. Guaranty
13758	Dried Brewers' Grain. Providence Brewing Co., Providence, R. I.	Thomaston: Thomaston Grain & Coal Co. Guaranty
		Average guaranty Average of analyses Average digestible
	<i>MISCELLANEOUS FEEDS.</i>	
13916†	Dried Beet Pulp. Continental Sugar Co., Blissfield, Mich.	Yantic: Yantic Grain & Products Co. Guaranty

† Wire tags.

‡ Sold, guaranteed and licensed by the Larrowe Milling Co., Detroit, Mich.

INSPECTION OF 1919—Continued.

Station No.	Pounds per Hundred.						Price per ton.
	Water.	Ash.	Protein. (N. x 6.25)	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Crude Fat)	
13779	10.39	1.65	10.50	2.43	70.59	4.44	\$72.00
....	....	....	10.00	4.00	65.00	6.00	....
13875	10.24	2.60	12.63	3.32	65.41	5.80	75.00
....	8.25	....	10.00	4.00	....	7.00	....
13835	8.98	2.85	11.06	3.61	66.56	6.94	68.00
....	....	....	9.50	7.00	60.00	7.50	....
13891	9.04	2.80	12.19	5.13	62.28	8.56	71.00
....	....	....	10.00	7.00	....	7.50	....
13774	9.69	2.90	11.88	4.58	62.64	8.31	72.00
....	11.00	2.00	10.00	4.00	65.00	8.00	....
13828	8.87	2.60	11.25	3.71	67.67	5.90	73.00
....	....	....	10.00	....	....	4.00	....
13874	8.74	3.03	13.25	4.63	66.11	4.24	72.00
....	....	....	10.00	10.00	....	5.00	....
13790	9.18	2.22	11.00	3.22	68.80	5.49	68.00
....	....	....	10.00	5.00	....	6.00	....
13805	9.14	2.95	12.38	4.79	63.94	6.80	68.00
....	....	....	9.00	4.50	....	4.00	....
13883	9.10	2.60	11.63	4.56	64.18	7.93	68.00
....	....	....	10.50	5.00	....	5.00	....
13815	9.16	2.08	10.38	4.85	67.32	6.21	79.00
....	....	....	10.00	7.00	....	6.00	....
....	....	....	9.21	....	....	5.80	....
....	9.14	2.62	11.70	4.45	65.70	6.39	70.14
....	....	....	7.7	3.6	58.9	5.8	....
13865	6.56	3.25	8.06	1.12	79.41	1.60	78.00
....	....	....	6.91	0.42	78.62	2.15	....
13846	7.18	4.23	20.50	16.62	44.37	7.10	68.00
....	....	....	20.00	....	....	6.00	....
13758	6.82	3.48	27.06	13.57	43.77	5.30	66.00
....	....	....	25.00	....	....	5.00	....
....	....	....	22.50	....	....	5.50	....
....	7.00	3.86	23.78	15.09	40.07	6.20	67.00
....	....	....	19.3	7.4	22.8	5.5	....
13916	9.26	4.73	10.00	15.80	59.25	0.96	64.00
....	....	....	8.00	20.00	58.00	0.50	....

TABLE VI.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Manufacturer and Brand.	Retail Dealer.
MISCELLANEOUS FEEDS— <i>Concluded.</i>		
13832	Dried Beet Pulp. Larowe Milling Co., Detroit, Mich.	Hartford: C. H. Northam Grain Co. Guaranty
13856	Dried Beet Pulp. Larowe Milling Co., Detroit, Mich.	Wallingford: E. E. Hall ... Guaranty
13905†	Beet Pulp with Molasses. Mich. Sugar Co., Alma, Mich.	New London: Conn. Grain Corp. Guaranty
13885†	Dried Beet Pulp and Molasses. Mich. Sugar Co., Caro, Mich.	New Milford: Geo. T. Soule Guaranty
13908	Dried Beet Pulp. West Bay City Sugar Co., Bay City, Mich.	New London: P. Schwartz Co. Guaranty
13754	Cocoanut Meal. Quaker Oats Co., Chicago, Ill.	Average guaranty
13902	Cocoa Brand Cocoanut Meal. Oil Seed Co., Bayonne, N. J.	Average of analyses
13772	Beta Brand Peanut Oil Meal, Oil Seed Co., Bayonne, N. J.	Average digestible
13778	Pride of Richland Meal (Peanut). Richland Cotton Oil Co., Richland, Ga.	Waterbury: H. S. Coe & Co. Guaranty
		Middletown: Meech & Stoddard, Inc. Guaranty
		Winsted: E. Manchester & Sons
		Winsted: E. Manchester & Sons
		Guaranty
PROPRIETARY MIXED FEEDS. <i>Horse, Dairy and Stock Feeds.</i>		
13806	Blatchford's Calf Meal. Blatchford Calf Meal Co., Wauregan, Ill.	Unionville: F. D. Lawton ... Guaranty
13787	Red Horn Calf Meal. Hales & Edwards Co., Chicago, Ill.	New Hartford: Case & Schwab
13933	Purina Calf Chow. Purina Mills, St. Louis, Mo.	Guaranty
13845	Schumacher's Calf Meal. Quaker Oats Co., Chicago, Ill.	New Haven: Crittenden-Benham Co. Guaranty
13833	Bufceco Horse Feed. Buffalo Cereal Co., Buffalo, N. Y.	Manchester: Little & McKinney
13765	Eshelman's 40 Horse Feed. John W. Eshelman & Sons, Lancaster, Pa.	Guaranty
13913	H. & S. Horse, Mule and Dairy Feed. Dwight E. Hamlin, Pittsburgh, Pa.	Hartford: C. H. Northam Grain Co. Guaranty
		Torrington: D. L. Talcott .. Guaranty
		Norwich: Chas. Slosberg & Son
		Guaranty

† Sold, guaranteed and licensed by the Larowe Milling Co., Detroit, Mich.

INSPECTION OF 1919—Continued.

Station No.	Pounds per Hundred.						Price per ton.
	Water.	Ash.	Protein. (N. x 6.25)	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Crude Fat)	
13832	4.82	3.10	9.25	19.81	62.54	0.48	\$68.00
.....	.....	.....	8.00	20.00	58.00	0.50	.....
13856	5.35	3.55	8.69	20.37	61.56	0.48	62.00
.....	.....	.....	8.00	.....	.....	0.50	.....
13905	8.79	4.71	11.19	15.53	58.79	0.99	68.00
.....	.....	.....	9.00	18.00	58.00	0.50	.....
13885	9.37	3.18	9.31	18.67	58.09	1.38	60.00
.....	.....	.....	9.00	18.00	58.00	0.50	.....
13908	4.32	3.43	9.94	19.03	62.80	0.48	64.00
.....	.....	.....	8.00	20.00	58.00	0.50	.....
.....	.....	.....	8.33	.....	.....	0.50	.....
.....	6.98	3.78	9.73	18.20	60.51	0.80	64.33
.....	.....	.....	5.1	13.1	50.2	.....	.....
13754	9.13	6.05	21.06	8.90	47.20	7.66	58.00
.....	.....	.....	20.00	.....	.....	7.00	.....
13902	8.25	6.85	26.94	9.77	35.59	12.60	77.00
.....	.....	.....	20.00	10.00	.....	7.00	.....
13772	7.73	5.10	29.63	8.94	36.85	11.75	75.00
.....	.....	.....	30.00	8.00	.....	7.00	.....
13778	7.45	4.74	36.56	23.03	22.16	6.06	81.00
.....	.....	.....	36.00	22.00	23.00	6.00	.....
13806	8.79	6.26	25.31	7.40	45.33	6.89	105.00
.....	.....	.....	24.00	.....	.....	5.00	.....
13787	9.76	4.95	18.06	1.91	60.90	4.42	108.00
.....	.....	.....	18.00	.....	.....	5.00	.....
13933	10.02	4.03	28.75	3.23	50.66	3.31	113.00
.....	.....	.....	27.00	.....	.....	4.50	.....
13845	7.77	5.36	18.31	2.63	57.99	7.94	110.00
.....	.....	.....	18.00	.....	.....	4.00	.....
13833	9.70	3.85	12.50	8.43	60.83	4.69	73.00
.....	.....	.....	10.00	9.00	.....	4.00	.....
13765	8.25	6.66	10.63	17.50	54.80	2.16	64.00
.....	.....	.....	9.00	.....	.....	2.00	.....
13913	10.33	10.20	11.44	14.93	51.56	1.54	58.00
.....	.....	.....	14.00	16.00	58.00	3.50	.....

TABLE VI.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Manufacturer and Brand.	Retail Dealer.
<i>PROPRIETARY MIXED FEEDS—Continued. Horse, Dairy and Stock Feeds—Continued.</i>		
13848	Harvest Horse Feed. Hales & Edwards Co., Chicago, Ill.	New Britain: Stanley Svea Grain Co. Guaranty
13895	Harvest Horse Feed. Hales & Edwards Co., Chicago, Ill.	Guilford: Morse & Landon.. Guaranty
13871	Lancaster Horse Feed. Lancaster Milling Co., Lancaster, Pa.	South Norwalk: S. Roodner Guaranty
13831	Monogram Feed. Metropolitan Mills, New York	Hartford: Meech Grain Co.. Guaranty
13919†	Mystic Feed. Horse, Cattle and Swine. Mystic Milling & Feed Co., Rochester, N. Y.	Jewett City: Havens & Son.. Guaranty
13743	Peters' King Corn Horse and Mule Feed. M. C. Peters Mill. Co., Omaha, Neb.	Shelton: Ansonia Flour & Grain Co. Guaranty
13747	Emerald Horse Feed. Prairie State Milling Co., Chicago, Ill.	Derby: Peterson-Hendee Co. Guaranty
13811	Greenfield Brand. Prairie State Milling Co., Chicago, Ill.	Plantsville: Eaton Bros. Guaranty
13762	Purina Molene Feed. Purina Mills, St. Louis, Mo.	Litchfield: The Wadhams Co. Guaranty
13802	Bicorn Hog Feed. Chapin & Co., Hammond, Ind.	Somers: W. C. Everett Guaranty
13785	Pioneer Hog Feed. Hales & Edwards, Chicago, Ill.	New Hartford: Case & Schwab
13903	Barford's Ready Ration for Growing Pigs. Meech & Stoddard, Inc., Middletown	Middletown: Meech & Stoddard, Inc. Guaranty
13755	Go-Tu-It Hog Ration. Park & Pollard Co., Boston, Mass.	Waterbury: H. S. Coe & Co. Guaranty
13854	Purina Pig Chow. Purina Mills, St. Louis, Mo.	Meriden: August Grulich Est. Guaranty
13911	Portage Stock Feed. Akron Feed & Milling Co., Akron, Ohio	Norwich: Chas. Slosberg & Son
13861	Armour's Stock Feed. Armour Grain Co., Chicago, Ill.	Southport: C. Buckingham.. Guaranty
13909	Pennant Brand Stock Feed. E. W. Bailey, Swanton, Vt.	Mystic: Mystic Grain Co. Guaranty
13923	Niagara Stock Feed. Boston Feed Store, Willimantic	Willimantic: Boston Feed Store
13876	Bufceco Chop Feed. Buffalo Cereal Co., Buffalo, N. Y.	Danbury: F. C. Benjamin ... Guaranty
13797	Wirthmore Stock Feed. C. M. Cox Co., Boston, Mass.	Suffield: Spencer Bros. Guaranty

† Wire tags.

INSPECTION OF 1919—Continued.

Station No.	Pounds per Hundred.						Price per ton.
	Water.	Ash.	Protein. (N. x 6.25)	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Crude Fat)	
13848	7.52	6.85	10.69	20.99	52.26	1.69	\$62.00
....	....	....	10.00	....	....	2.00	....
13895	10.25	7.00	10.81	13.75	56.16	2.03	63.00
....	....	....	10.00	....	....	2.00	....
13871	9.73	5.78	11.31	13.02	57.46	2.70	68.00
....	....	....	10.00	....	....	2.50	....
13831	8.43	5.93	10.69	13.10	59.97	1.88	58.00
....	....	....	14.00	....	....	3.00	....
13919	8.85	3.90	12.50	10.41	60.35	3.99	58.00
....	....	....	9.00	9.00	....	3.50	....
13743	8.99	8.30	12.60	16.81	52.63	1.47	64.00
....	....	....	10.00	....	....	1.50	....
13747	8.56	7.63	10.94	15.23	56.24	1.40	58.00
....	....	....	9.00	12.00	....	2.00	....
13811	9.99	8.43	10.56	15.81	54.27	0.94	56.00
....	....	....	8.00	....	....	0.50	....
13762	8.52	5.33	10.81	9.64	61.10	4.60	72.00
....	....	....	9.70	....	....	3.20	....
13802	9.51	4.96	18.81	5.82	56.30	4.60	80.00
....	....	....	17.50	6.00	....	4.50	....
13785	9.25	7.58	25.13	6.13	47.04	4.87	78.00
....	....	....	15.00	....	....	4.00	....
13903	9.78	4.33	19.75	7.39	52.96	6.79	78.00
....	....	....	18.00	....	....	5.00	....
13755	8.12	11.43	18.81	10.76	44.60	6.28	75.00
....	....	....	15.00	....	....	6.00	....
13854	11.03	7.50	17.25	10.77	50.56	2.89	81.00
....	....	6.00	15.00	9.00	59.00	2.50	....
13911	8.13	3.80	11.75	9.78	61.77	4.77	64.00
....	....	....	8.50	....	....	4.00	....
13861	7.30	4.98	13.75	8.86	58.66	6.45	64.00
....	....	....	12.00	....	....	4.00	....
13909	7.39	3.75	10.06	9.33	63.74	5.73	67.00
....	....	....	9.00	10.00	....	5.00	....
13923	8.16	4.95	13.63	15.28	52.81	5.17	60.00
....
13876	9.11	4.45	10.06	11.33	61.07	3.98	64.00
....	....	....	8.00	12.00	....	4.00	....
13797	8.29	3.68	10.75	7.72	64.50	5.06	68.00
....	....	....	9.00	....	....	4.00	....

TABLE VI.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Manufacturer and Brand.	Retail Dealer.
	<i>PROPRIETARY MIXED FEEDS—Continued.</i> <i>Horse, Dairy and Stock Feeds—Continued.</i>	
13906	Yellow Tag Stock Feed. F. L. Cressey, Boston, Mass.	New London: Conn. Grain Corp.
13926	Crosby's Stock Feed. E. Crosby & Co., Brattleboro, Vt.	Guaranty Willimantic: Boston Feed Store
13764	Stock Feed. John W. Eshelman & Sons, Lancaster, Pa.	Torrington: D. L. Talcott .. Guaranty
13882	No. 1. Chop Feed. Globe Elevator Co., Buffalo, N. Y.	New Milford; G. T. Soule .. Guaranty
13880	Buffalo Chop Feed. Globe Elevator Co., Buffalo, N. Y.	Brookfield: C. R. Dubia Guaranty
13878	Grandin's Stock Feed. D. H. Grandin Mill. Co., Jamestown, N. Y.	Danbury: H. E. Meecker, Inc. Guaranty
13759	College Stock Feed. Hales & Edwards Co., Chicago, Ill.	Thomaston: Thomaston Grain & Coal Co. Guaranty
13918	Haven's Stock Feed. Havens & Son, Jewett City	Jewett City: Havens & Son Guaranty
13836	Badger Monopoly Feed. Chas. A. Krause Mill. Co., Milwaukee, Wis.	Thompsonville: George S. Phelps & Co. Guaranty
13896	M. & S. Stock Feed. Meech & Stoddard, Inc., Middletown	Middletown: Meech & Stoddard, Inc. Guaranty
13826	Allstock Molasses Grains. Metropolitan Mills, New York	Hartford: Meech Grain Co.. Guaranty
13867	Iowa Stock Feed. Purity Oats Co., Davenport, Iowa	Norwalk: C. E. Slauson Co. Guaranty
13751	Schumacker's Stock Feed. Quaker Oats Co., Chicago, Ill.	Waterbury: Spencer Grain Co. Guaranty
13860	Victor Feed. Quaker Oats Co., Chicago, Ill. ..	Milford: E. L. Oviatt Guaranty
13920	Vitality Stock Feed. Rosenbaum Bros., Chicago, Ill.	Jewett City: Havens & Son Guaranty
13842	Winner Chop Feed. David Stott's Flour Mills, Detroit, Mich.	Manchester: Little & McKinney
13890	National Stock Feed. Stratton Ladish Mill. Co., Milwaukee, Wis.	Newtown: Newtown Coal & Grain Co. Guaranty
13768	Provender. D. L. Talcott, Torrington	Torrington: D. L. Talcott .. Guaranty
13912	Sucrene Dairy Feed. American Milling Co., Peoria, Ill.	Norwich: Chas. Slosberg & Son
		Guaranty

INSPECTION OF 1919—Continued.

Station No.	Pounds per Hundred.						Price per ton.
	Water.	Ash.	Protein. (N. x 6.25)	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Crude Fat)	
13906	9.48	5.03	10.88	10.67	59.35	4.59	\$65.00
.....	.....	.....	9.00	9.50	.....	4.00	.....
13926	9.60	3.75	11.25	10.76	60.20	4.44	66.00
.....	.....	.....	9.00	10.00	60.00	4.00	.....
13764	9.93	4.93	11.81	12.60	56.48	4.25	64.00
.....	.....	.....	10.00	.....	.....	3.00	.....
13882	8.92	4.00	10.19	11.62	60.21	5.06	65.00
.....	.....	.....	9.00	.....	.....	3.00	.....
13880	10.16	4.25	11.19	11.23	59.60	3.57	66.00
.....	.....	.....	10.00	.....	.....	3.00	.....
13878	8.76	4.38	11.31	12.96	58.39	4.20	70.00
.....	.....	.....	10.00	.....	.....	4.00	.....
13759	8.92	4.98	13.25	13.77	55.29	3.79	70.00
.....	.....	.....	12.00	.....	.....	3.00	.....
13918	8.47	3.93	10.69	12.06	60.36	4.49	65.00
.....	.....	.....	7.00	.....	.....	3.00	.....
13836	9.43	3.10	11.88	9.35	61.96	4.28	66.00
.....	.....	.....	10.00	.....	.....	3.00	.....
13896	9.00	3.50	12.56	8.55	61.16	5.23	63.00
.....	.....	.....	9.00	.....	.....	4.00	.....
13826	8.05	5.05	12.94	9.91	60.87	3.18	58.00
.....	.....	.....	13.00	.....	.....	2.00	.....
13867	8.72	4.98	11.88	10.88	59.80	3.74	65.00
.....	.....	.....	10.00	.....	.....	4.00	.....
13751	7.84	5.90	11.38	10.15	61.74	2.99	64.00
.....	.....	.....	10.00	.....	.....	3.25	.....
13860	8.43	4.18	9.38	12.82	60.04	5.15	63.00
.....	.....	.....	8.00	.....	.....	3.00	.....
13920	8.14	4.18	10.25	12.93	61.02	3.48	66.00
.....	.....	.....	9.00	.....	.....	3.00	.....
13842	10.68	3.20	9.81	8.14	63.77	4.40	66.00
.....	.....	.....	8.00	10.00	70.00	5.00	.....
13890	8.60	5.05	14.00	12.05	56.12	4.18	63.00
.....	.....	.....	10.00	.....	.....	3.00	.....
13768	11.38	2.40	11.00	5.87	64.92	4.43	66.00
.....
13912	8.13	8.25	20.88	11.21	47.14	4.39	58.00
.....	.....	.....	16.50	.....	.....	3.50	.....

TABLE VI.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Manufacturer and Brand.	Retail Dealer.
	<i>PROPRIETARY MIXED FEEDS—Continued.</i> <i>Horse, Dairy and Stock Feeds—Continued.</i>	
13927	Niagara Dairy Feed. Boston Feed Store, Willimantic	Willimantic: Boston Feed Store
13741	Bufceco Dairy Feed. Buffalo Cereal Co., Buffalo, N. Y.	Guaranty
13800	Lactola Dairy Feed. Chapin & Co., Hammond, Ind.	Shelton: Ansonia Flour & Grain Co.
13799	Triangle Dairy Feed. Chapin & Co., Hammond, Ind.	Guaranty
13801	Unicorn Dairy Ration. Chapin & Co., Hammond, Ind.	Somers: W. C. Everett
13925	Crosby's 1918 Dairy Ration. E. Crosby Co., Brattleboro, Vt.	Guaranty
13767	Eshelman's 20 Dairy Feed. John W. Eshelman & Sons, Lancaster, Pa.	Somers: W. C. Everett
13887	Globe Creamery Feed. Globe Elevator Co., Buffalo, N. Y.	Guaranty
13792	Twin Six Dairy Feed. D. H. Grandin Mill. Co., Jamestown, N. Y.	Torrington: D. L. Talcott ..
13917	Twin Six Dairy Feed. D. H. Grandin Mill. Co., Jamestown, N. Y.	Guaranty
13749	H. O. Algrane Milk Feed. H. O. Co.'s Mills, Buffalo, N. Y.	New Milford: Geo. E. Ackley Co.
13813	Read the Tag Dairy Feed. H. O. Co.'s Mills, Buffalo, N. Y.	Guaranty
13757	Gold Flake Dairy Feed. Hales & Edwards Co., Chicago, Ill.	Guaranty
13922	Haven's Special Dairy Feed. Havens & Son, Jewett City	Granby: E. H. Rollins
13862	Morgan's Balanced Ration. Hubbell Coal & Storage Co., Saugatuck	Guaranty
13863	Morgan's Balanced Ration. Hubbell Coal & Storage Co., Saugatuck	Norwich: Norwich Grain Co.
13798	Larro-Feed. Larro-Milling Co., Detroit, Mich.	Guaranty
13830	Barford's Balanced Dairy Ration, Meech & Stoddard, Inc., Middletown	Ansonia: Ansonia Flour & Grain Co.
13899	Barford's Balanced Dairy Ration. Meech & Stoddard, Inc., Middletown	Guaranty
		Bristol: Goodsell Bros.
		Guaranty
		Thomaston: Thomaston Coal & Grain Co.
		Guaranty
		Jewett City: Havens & Son
		Guaranty
		Saugatuck: Hubbell Coal & Storage Co.
		Guaranty
		Saugatuck: Hubbell Coal & Storage Co.
		Guaranty
		Suffield: Spencer Bros.
		Guaranty
		Hartford: Meech Grain Co.
		Guaranty
		Middletown: Meech & Stoddard, Inc.
		Guaranty

INSPECTION OF 1919—Continued.

Station No.	Pounds per Hundred.						Price per ton.
	Water.	Ash.	Protein. (N. x 6.25)	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Crude Fat)	
13927	7.89	5.15	17.50	15.90	49.46	4.10	\$70.00
.....
13741	8.08	4.50	13.06	11.01	58.93	4.42	68.00
.....	.....	.....	12.00	12.00	.....	3.00	.....
13800	8.18	5.19	17.88	11.37	52.76	4.62	64.00
.....	.....	.....	16.50	.....	.....	3.00	.....
13799	8.17	6.33	21.00	9.20	60.35	4.95	78.00
.....	.....	.....	21.00	.....	.....	4.00	.....
13801	7.38	5.98	26.19	11.02	43.55	5.88	82.00
.....	.....	.....	26.00	.....	.....	4.00	.....
13925	7.10	4.63	25.44	14.43	40.61	7.79	75.00
.....	.....	.....	25.00	15.00	59.00	6.00	.....
13767	9.21	7.86	21.25	13.27	42.87	5.60	66.00
.....	.....	.....	20.00	.....	.....	4.00	.....
13887	8.77	4.90	27.13	11.08	42.77	5.35	74.00
.....	.....	.....	23.00	.....	.....	5.00	.....
13792	8.06	5.75	24.13	11.33	46.40	5.33	76.00
.....	.....	.....	22.00	.....	.....	5.00	.....
13917	8.05	5.90	24.81	11.09	44.69	5.46	76.00
.....	.....	.....	22.00	.....	.....	5.00	.....
13749	8.27	5.38	14.63	10.48	57.73	3.51	64.00
.....	.....	.....	14.00	15.00	.....	4.00	.....
13813	8.16	5.50	22.38	8.93	50.54	4.49	68.00
.....	.....	.....	20.00	9.50	.....	5.00	.....
13757	9.20	6.84	14.50	17.20	49.26	3.00	60.00
.....	.....	.....	16.00	.....	.....	3.50	.....
13922	9.93	4.75	22.75	9.36	48.46	4.75	65.00
.....	.....	.....	18.00	.....	.....	4.00	.....
13862	7.88	5.18	19.56	11.30	46.38	9.70	62.00
.....	.....	.....	18.00	.....	.....	8.00	.....
13863	7.73	5.90	22.44	11.45	44.40	8.08	68.00
.....	.....	.....	22.00	.....	.....	8.00	.....
13798	8.61	5.58	21.56	11.09	48.82	4.34	78.00
.....	.....	.....	20.00	.....	.....	3.00	.....
13830	8.61	5.10	21.31	10.31	49.88	4.79	80.00
.....	.....	.....	19.00	.....	.....	5.50	.....
13899	9.60	5.18	21.25	10.91	47.78	5.28	77.00
.....	.....	.....	19.00	.....	.....	5.50	.....

TABLE VI.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Manufacturer and Brand.	Retail Dealer.
PROPRIETARY MIXED FEEDS—Concluded.		
<i>Horse, Dairy and Stock Feeds—Concluded.</i>		
13900	Barford's Balanced Dairy Ration. Meech & Stoddard, Inc., Middletown	Middletown: Meech & Stoddard, Inc. Guaranty
13897	M. & S. Dairy Feed. Meech & Stoddard, Inc., Middletown	Middletown: Meech & Stoddard, Inc. Guaranty
13753	Stevens' 44 Dairy Ration. Park & Pollard, Boston, Mass.	Waterbury: Spencer Grain Co. Guaranty
13868	Purina Cow Chow Feed. Purina Mills, St. Louis, Mo.	Norwalk: C. E. Slauson Co. Guaranty
13869	Protana Dairy Feed. Purina Mills, St. Louis, Mo.	Norwalk: C. E. Slauson Co. Guaranty
13760	Big Q. Dairy Ration. Quaker Oats Co., Chicago, Ill.	Litchfield: The Wadhams Co. Guaranty
13808	Vitality Dairy Feed. Rosenbaum Bros., Chicago, Ill.	Plainville: Eaton Bros. Guaranty
13921	Will-Pay Dairy Feed. Rosenbaum Bros., Chicago, Ill.	Jewett City: Havens & Son Guaranty
13884	True Value Dairy Feed. Stratton Ladish Milling Co., Milwaukee, Wis.	New Milford: Geo. T. Soule Guaranty
13780	Syragold Dairy Feed. Syracuse Milling Co., Syracuse, N. Y.	Norfolk: August Curtiss ... Guaranty
13789	Syragold Milk Ration. Syracuse Milling Co., Syracuse, N. Y.	Simsbury: Woods-Chandler Co. Guaranty
13821	Ti-O-Ga Red Brand Dairy Feed. Tioga Mill & Elev. Co., Waverly, N. Y.	West Cheshire: G. W. Thorpe Guaranty
13781	Biles Ready Dairy Ration. Ubiko Milling Co., Cincinnati, Ohio	Canaan: Ives & Pierce Guaranty
POULTRY FEEDS.		
13851	Bufceco Poultry Mash. Buffalo Cereal Co., Buffalo, N. Y.	Meriden: Meriden Grain & Feed Co. Guaranty
13766	Laying Mash. John W. Eshelman & Sons, Lancaster, Pa.	Torrington: D. L. Talcott .. Guaranty
13881	Buffalo Laying Mash. Globe Elevator Co., Buffalo, N. Y.	Brookfield: C. R. Dubia Guaranty
13786	Red Comb Mash Feed (with dried buttermilk). Hales & Edwards Co., Chicago, Ill.	New Hartford: Case & Schwab Guaranty
13814	H. O. Co.'s Laying Mash. H. O. Co.'s Mills, Buffalo, N. Y.	Bristol: Goodsell Bros. Guaranty

INSPECTION OF 1919—Continued.

Station No.	Pounds per Hundred.						Price per ton.
	Water.	Ash.	Protein. (N. x 6.25)	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Crude Fat)	
13900	8.67	5.20	22.00	11.93	46.81	5.39	\$77.00
....	....	....	19.00	....	....	5.50	....
13897	9.68	3.90	20.81	9.05	51.07	5.49	76.00
....	....	....	18.00	....	....	4.00	....
13753	7.75	5.94	24.50	11.87	43.39	6.55	78.00
....	....	....	24.00	....	....	5.00	....
13868	9.55	6.25	24.25	12.42	43.22	4.31	85.00
....	....	....	24.00	12.00	....	4.80	....
13869	8.35	7.10	18.00	13.59	49.43	3.53	70.00
....	....	....	16.50	....	....	3.50	....
13760	9.00	5.93	21.13	10.33	48.83	4.78	78.00
....	....	....	21.00	11.00	50.00	5.00	....
13808	8.78	4.16	22.13	9.60	49.28	5.05	80.00
....	....	....	20.00	....	....	4.00	....
13921	10.34	7.19	18.50	9.87	50.61	3.49	64.00
....	....	....	16.00	....	....	3.50	....
13884	8.55	6.59	24.63	9.64	44.50	6.09	80.00
....	....	....	24.00	....	....	5.00	....
13780	9.77	3.95	18.81	7.34	55.54	4.59	78.00
....	....	....	18.00	....	....	5.00	....
13789	8.35	5.60	23.13	15.66	42.63	4.63	70.00
....	....	....	20.00	....	....	4.50	....
13821	8.69	6.50	26.63	9.35	42.84	5.99	76.00
....	....	....	23.50	....	....	3.50	....
13781	8.95	5.68	23.50	9.57	47.31	4.99	81.00
....	....	....	24.00	10.00	50.00	5.00	....
13851	8.97	3.83	16.69	4.88	60.65	4.98	81.00
....	....	....	15.00	5.00	....	4.00	....
13766	9.71	7.78	22.06	5.38	49.10	5.97	78.00
....	....	....	20.00	....	....	5.00	....
13881	10.11	8.25	22.13	8.88	46.21	4.42	78.00
....	....	....	20.00	....	....	8.00	....
13786	9.95	12.45	16.50	6.86	50.66	3.58	80.00
....	....	....	15.00	....	....	4.00	....
13814	8.01	9.83	20.44	5.32	51.14	5.26	78.00
....	....	....	17.00	6.00	....	4.50	....

TABLE VI.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Manufacturer and Brand.	Retail Dealer.
<i>POULTRY FEEDS—Concluded.</i>		
13901	M. & S. Dry Mash. Meech & Stoddard, Inc., Middletown	Middletown: Meech & Stoddard, Inc.
13818	Lay or Bust Poultry Mash. Park & Pollard Co., Boston, Mass.	Guaranty
13784	Park & Pollard Growing Feed. Park & Pollard Co., Boston, Mass.	Plantsville: C. A. Cowles ...
13922	Purina Chicken Chowder. Purina Mills, St. Louis, Mo.	Guaranty
13847	Ful-O-Pep Dry Mash. Quaker Oats Co., Chicago, Ill.	New Haven: Crittenden-Benham Co.
13810	Vitality Egg Mash (with milk albumen). Ros-enbaum Bros., Chicago, Ill.	Guaranty
13928	Chic Chuck. Russia Cement Co., Gloucester, Mass.	Rockville: Rockville Milling Co.
13853	Wirthmore Mash Feed. C. M. Cox & Co., Boston, Mass.	Guaranty
13866	Ti-O-Ga Growing Mash. Tioga Mill. & Elev. Co., Waverly, N. Y.	Meriden: Meriden Grain & Feed Co.
		Guaranty
		Norwalk: C. E. Slauson Co. Guaranty

INSPECTION OF 1919—*Concluded.*

Station No.	Pounds per Hundred.						Price per ton.
	Water.	Ash.	Protein. (N. x 6.25)	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Crude Fat)	
13901	9.32	7.88	21.75	6.26	49.42	5.37	\$76.00
....	....	....	12.00	....	....	3.00	....
13818	8.13	11.98	21.56	8.16	46.79	3.38	82.00
....	....	....	18.00	....	....	1.50	....
13784	9.84	7.92	16.31	4.70	55.59	4.64	84.00
....	....	....	10.00	....	....	1.50	....
13932	9.38	7.68	20.38	8.76	49.24	4.56	90.00
....	....	....	19.00	....	....	4.00	....
13847	8.47	9.73	22.25	8.40	45.07	6.08	84.00
....	....	....	20.00	....	....	4.00	....
13810	8.06	13.48	18.69	8.35	46.99	4.43	80.00
....	....	....	18.00	....	....	4.00	....
13928	6.04	35.78	55.50	....	0.43	2.25	95.00
....	....	....	50.00	....	....	2.00	....
13853	8.96	9.00	22.31	6.58	48.11	5.04	81.00
....	....	....	20.00	....	....	4.00	....
13866	8.60	1.61	15.69	5.10	65.04	3.96	85.00
....	....	....	12.00	6.00	....	2.00	....