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## Being the Report on Commercial Feeding Stuffs 1918

By E. M. BAILEY

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### CONTENTS

Feeding Stuffs:	Page
Introduction.....	355
Inspection of 1918.....	355
Interpretation of Analyses and Terms Used.....	356
Remarks on Inspection of 1918.....	360
Miscellaneous Samples.....	369
Condimental Foods and Remedies.....	375

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\* Absent on leave. In service of the United States.

# Commercial Feeding Stuffs.

BY E. M. BAILEY\*

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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."

## INSPECTION OF 1918.

One hundred and thirty-three samples of feeds were collected by the Station Agent, Mr. Churchill, during December, 1918,

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\* With the assistance of Messrs. C. E. Shepard, M. A. D'Esopo and H. D. Edmond.

and January, 1919. Thirteen condimental foods and remedies were also collected. The classification is as follows:

Cottonseed Meal.....	7	Dried Beet Pulp.....	7
Cottonseed Feed.....	2	Velvet Bean Meal.....	2
Linseed Meal.....	2	Peanut Meal.....	1
Wheat Bran.....	5	Copra Cake Meal.....	1
Wheat Mixed Feed.....	8	Proprietary Stock Feeds.....	54
Wheat Middlings.....	6	Poultry Feeds.....	13
Rye Products.....	4	Condimental Foods and Rem- edies.....	13
Barley Products.....	4		
Maize Products.....	13		
Brewers' and Distillers' Grains	4	Total.....	146

Seventy-two miscellaneous feeding stuffs, etc., have been submitted by the Dairy Commissioner and by private individuals.

Partial or complete analyses have been made of fodder and other materials, not a part of our regular inspection. Much of such work has been the result of taking over by this laboratory chemical work formerly done at the Storrs Station.

Three hundred and thirty-six samples of ensilage have been analyzed in connection with field experiments at Storrs.

Eighty-three analyses of field crops have been made in connection with experiments at the Station Farm at Mt. Carmel.

Partial analyses of two hundred and forty-six samples of shelled corn have been made for the Department of Plant Breeding.

The total for the year is eight hundred and seventy-three.

This report is concerned only with the results of the regular inspection of commercial feeding stuffs, condimental foods and samples sent by the Dairy Commissioner and by individuals.

#### INTERPRETATION OF ANALYSES OF FEEDING STUFFS, AND TERMS USED IN CONNECTION THEREWITH.

*Analyses.* The usual analyses of fodder materials show the gross percentage amounts, or pounds per hundred, of the different nutrient chemical groups present.

The *ash* represents all the mineral substances.

The term *protein* in such an analysis signifies all the nitrogenous matter and is estimated from the total content of nitrogen by multiplying the per cent. of nitrogen found by the factor 6.25. This is done on the double assumption that all the nitrogenous material is protein, which may not be entirely correct, and that

all proteins contain 16 per cent. of nitrogen which, again, may not be entirely correct. Although for many proteins more correct factors are known, their use is not advisable or necessary for the purposes which inspection analyses are intended to serve; the more strictly accurate factors are only necessary for the exacting requirements of nutritional and other research.

The groups *crude fiber* and *nitrogen-free extract* include the nutrients called carbohydrates. By crude fiber is meant celluloses which are insoluble, woody tissues of low digestibility, but, nevertheless, an aid to digestion by reason of the bulk they give to concentrated foods. Nitrogen-free extract includes a great number of substances, many unidentified, but consists chiefly of starch and various sugars.

Fat in fodder analyses is always *crude fat*, since the solvent, ether, used to obtain it removes materials such as chlorophyll, waxes, etc., as well as true fat.

*Nutrients.* A nutrient is any food constituent or group of constituents of the same type which can be utilized in the animal body to produce energy, build new tissue or repair waste, or any substance or group of substances which is an essential adjunct to such processes. Proteins, fats and carbohydrates are the more generally recognized groups of nutrients but water, air and the mineral constituents (ash) of feeds may obviously be included.

The role of each of the groups of nutrients has been briefly discussed in a previous bulletin.<sup>1</sup>

*Coefficients of Digestibility.* The gross amount of nutrient material taken into the animal body is probably never completely utilized. That portion of such material which actual feeding tests have indicated is utilized is taken to be the coefficient of digestibility of that material and is expressed in per cent.

Thus, for cottonseed meal it has been found that, on the average, 84 per cent. of the protein, 37 per cent. of the fiber, 75 per cent. of the carbohydrates and 95 per cent. of the fat are digestible; or, in other words, out of each 100 parts of protein, of fiber, of carbohydrates and of fat that an animal eats, 84, 37, 75 and 95 parts, respectively, are retained in the animal body; *i. e.*, not excreted. These figures are taken, therefore, to be the coefficients of digestibility for the several nutrients as they are found in cottonseed meal.

<sup>1</sup> Conn. Agr. Exp. Sta. Bul. 206, Feb., 1918.

The following coefficients of digestibility for some common commercial concentrates are given in Table I.

TABLE I. COEFFICIENTS OF DIGESTIBILITY OF FEEDING STUFFS.<sup>1</sup>

	Protein	Fiber	Carbohy- drates	Fat
Cottonseed Meal.....	84	37	75	95
Cottonseed Feed.....	58	45	61	90
Linseed Meal (old process).....	89	57	78	89
Linseed Meal (new process).....	86	73	87	95
Wheat Bran.....	76	43	74	62
Wheat Feed.....	77	36	76	87
Wheat Middlings.....	77	30	78	88
Red Dog Flour.....	88	36	88	86
Rye Feed.....	80	..	88	90
Barley, ground.....	88	70	93	86
Barley Bran.....	85	20	86	87
Corn Gluten Meal.....	85	55	90	93
Corn Gluten Feed.....	85	76	88	85
Hominy Feed.....	66	76	90	91
Brewers' Grains.....	81	49	57	89
Malt Sprouts.....	77	87	80	85
Distillers' Grains, Corn.....	73	95	81	95
Distillers' Grains, Rye.....	59	..	67	84
Beet Pulp, dried.....	52	83	83	..
Peanut Cake, without shells.....	90	9	84	90
Soybean Meal, fat extracted.....	92	99	100	68
Cocoonut Cake.....	90	23	87	100

*Nutritive Ratio.* The nutritive ratio of a feed means the ratio between the digestible protein and the amount of digestible carbohydrates (nitrogen-free extract and fiber) and crude fat (ether extract) which that feed contains. One part of fat has as much energy producing capacity as 2.25 parts of carbohydrates; hence, the percentage of fat is multiplied by 2.25 before stating the proportion.

Taking as an example, cottonseed meal containing digestible nutrients of 29.8 per cent. protein; 4.5 per cent. fiber, 24.2 per cent. nitrogen-free extract and 6.2 per cent. fat, the nutritive ratio is calculated and expressed as follows:

$6.2 \times 2.25 = 14.0$  energy value of fat on same basis as carbohydrate  
 $24.2 + 4.5 + 14.0 = 42.7$  digestible carbohydrate and fat equivalent

$$\frac{42.7}{29.8} = 1.4$$

1:1.4 = the nutritive ratio of cottonseed meal.

<sup>1</sup> Henry and Morrison, Feeds and Feeding, p. 647, et seq.

\* Conn. Agr. Exp. Sta. Bul. 206, p. 454, first line; 29.8 should read 24.2 and the nutritive ratio accordingly should be 1:1.4.

A ratio having a high proportion of protein as compared with the carbohydrate and fat combined is said to be *narrow*; when the reverse is true it is said to be *wide*.

*Rations.* The term ration signifies the amount of feed which should be sufficient for an animal for 24 hours. If such a ration contains the several nutrients in such proportion and amount as to properly nourish the animal without excess, it constitutes a *balanced* ration. When it contains the several nutrients in such proportion and amount that a resting animal fed thereon neither gains nor loses weight, it is called a *maintenance* ration.

*Compounding Rations.* There is no recipe or formula for calculating rations for animals which the inexperienced can follow with assured success. Coefficients of digestibility, nutritive ratios and balanced rations are useful as guides, but should not be accepted as detailed specifications. As in any other field of endeavor, the methods and practice of those who are successful afford lessons which should not be overlooked. A ration worked out with painstaking care as to theoretical niceties may prove unsatisfactory because it lacks some practical consideration; for example, palatability. Later in this report we shall refer to the promising outlook for velvet bean and copra cake meals, since they both contain proteins of a desirable type, yet we have met with the most practical objection that animals will not eat these feeds. It must be remembered that animals, as well as human beings, acquire tastes, and it is not strange that they should refuse rations containing these new feeds alone or in too great a proportion in mixture.

The economic side of the feeding problem is important to success, and a ration not strictly balanced may yet be the most economical financially, and not necessarily unsatisfactory from a nutritive standpoint. Thus a feeder with an excess of carbohydrate feed on hand may find it to his financial advantage to overbalance his rations with carbohydrate nutrients. If the protein nutrients of the ration are not excessively low, he will reason correctly that, since carbohydrates have the function of reducing the amount of protein required (protein-sparing function) by the animal, the overbalance is justified on theoretical principles.

In compounding rations the gross supply of any group of nutrients is not, properly, of chief importance. Feeding experi-

ments have shown that economy in the use of protein, for example, depends on a proper combination of feeds. Animals will grow faster, consume less protein and less food when cereal grains are combined with milk, meat, cottonseed meal, soybean meal, etc., than when grain alone supplies protein. Thus, the best nutritive ratio for growing stock, milch cows, or laying hens, is not a fixed ratio, but one adjusted on the basis of the nature and quality of the protein supplied.

#### REMARKS ON THE INSPECTION OF 1918.

(The analyses are tabulated on pages 376 to 393.)

*Cottonseed Meal.* This product is recognized by the Association of Feed Control Officials and generally in the trade as 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.

There are three classes of meals, viz., Choice, Prime and Good.

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.

Only seven samples have been analyzed this year. They have averaged 36.01 per cent. of protein, and 6.46 per cent. of fat, while the average guaranty has been 36.00 per cent. of protein and 5.14 per cent. of fat, so that collectively, they have equaled or exceeded their guaranties.

**11877**, *Buckeye*, and **11842**, *Surety*, were deficient in protein to the extent of 2.62 per cent. and 2.81 per cent. respectively.

Only one sample, **11951**, *Goodlow*, could be classed as prime meal.

The use of any metal in affixing tags is illegal in this state. Tags were attached by means of wire to **11857**, *Gilt Edge*, **11842**, *Surety*, and **11890**, *Danish*, brands.



The selling price per ton has averaged \$65.57, which is \$8.02 higher than last year and \$18.62 in advance of the average price two years ago.

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

Of the two samples examined one, **11873**, *Jay* brand, was satisfactorily close to guaranty, but bore illegally attached tags. The other, **11830**, *Hall* brand, failed to meet its guaranty of protein by 4.62 per cent. and of fat by 0.55 per cent.

*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. "Old Process" meal is that from which the oil is removed by hydraulic pressure. In the "New Process" the oil is removed by the use of solvents.

The two samples examined exceeded their guaranties in both protein and fat. **11849** bore illegally attached tags.

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

*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.

The five samples examined have exceeded their guaranties in both protein and fat and the quality has equalled the average of other years.

**11853**, *Pure* brand, bore tags illegally attached.

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

Eight samples of this class of feeds averaged 16.42 per cent. of protein and 5.18 per cent. of fat. All exceeded their guaranties except in two cases where deficiencies in protein of less than 1 per cent. were found.

*Wheat Middlings* may be *Standard Middlings* (Shorts), which are the fine particles of the outer and inner bran separated from bran and white middlings or they may be *White Middlings* which are that part of the offal of wheat intermediate between shorts or standard middlings and red dog.

The six samples examined exceeded their guaranties, averaging 16.85 per cent. of protein and 5.35 per cent. of fat. The average price per ton, \$50.92, is slightly lower than a year ago.

*Rye Feed* and *Rye Middlings* are by-products from the rye grain corresponding to those defined under similar terms for wheat by-products.<sup>1</sup>

Two rye feeds and two rye middlings were examined and found to meet their guaranties. The price of these products has advanced about \$8.00 per ton during the year.

*Barley Feed* and *Barley Middlings* are products of the barley grain and correspond to those defined under similar terms for wheat and rye.<sup>1</sup>

Four barley products were examined. Two were above their guaranties. One, **11901**, was deficient in fat, and another, **11848**, bore no guaranty.

*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 process employed in the manufacture of corn starch and glucose.

Five samples of this class of feeds were analyzed. **11922** was 1.12 per cent. under guaranty in protein, but the guaranties of the other samples were satisfactorily met. The feeds averaged 23.73 per cent. of protein and 4.01 per cent. of fat. The average selling price was \$62.20 per ton.

*Hominy Feed* (Hominy Chop, Hominy Meal) is a mixture of the bran coating, the germ and a part of the starchy portion of the corn kernel obtained in the manufacture of hominy grit for human consumption.

The seven samples examined averaged 10.61 per cent. of protein and 6.50 per cent. of fat, all satisfying their guaranties except **11937** which was 0.45 per cent. low in fat. The average selling price was \$66.86 per ton which is \$2.86 higher than last year.

*Corn Feed Meal* is the sifting obtained in the manufacture of cracked corn and table meal made from the whole grain.

The one sample examined contained 10.25 per cent. of protein and 7.23 per cent. of fat and considerably exceeded its guaranty in both respects. It sold for \$68.00 per ton.

*Brewers' Grains* are the properly dried residue from cereals obtained in the manufacture of beer. They consist chiefly of barley,

<sup>1</sup> Not an A. F. C. O. definition.

but may contain whatever other cereals were used in conjunction therewith.

Three samples examined satisfied their guaranties within reasonable limits except **11867** which was 1.57 per cent. low in protein.

Tags were illegally attached in case of **11845**.

*Distillers' 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.

The one sample analyzed contained 19.63 per cent. of protein and 7.21 per cent. of fat. It bore no statement of guaranty.

*Dried Beet Pulp* is the dried residue obtained in the manufacture of beet sugar.<sup>1</sup>

Seven products of this class were examined, all of which satisfied their guaranties or did so within a reasonable margin. They contained an average of 8.86 per cent. of protein and 0.91 per cent. of fat and the average selling price was \$52.28 per ton.

*Velvet Bean Feed*. The velvet bean<sup>2</sup> has been grown in the South for the past 30 years. It was first grown as a forage and fertilizing crop, but quite recently its possibilities as a concentrated feeding stuff have been recognized. The development of new varieties which are adapted to varied conditions of soil and climate has extended its cultivation from Florida to states as far north as Virginia and Pennsylvania.

The unsatisfactory condition of the cotton industry has turned the attention of many cotton planters to velvet bean production. The 1917 crop was estimated at 5,000,000 acres. The average yield of beans in the pod is from one-half to one ton per acre.

The beans grow on long tangled vines and must be harvested by hand. The crushing of the beans for feed requires especially constructed mills on account of the toughness of the pods.

The bean and pod meal makes excellent feed for cattle and hogs, the best practice being to use it mixed with other feeds; apparently its exclusive use for any considerable time is undesirable.<sup>3</sup> Feeding experiments show that from two to two and one-half pounds of velvet beans in the food are equal to one pound of high grade cottonseed meal.

<sup>1</sup> Not an A. F. C. O. definition.

<sup>2</sup> U. S. Dept. Agr., Farmers' Bul. 962, 1918. Miss. Agr. Exp. Sta. Bul. 179, 1917.

<sup>3</sup> Henry and Morrison. Feeds and Feeding, pp. 237-238.

A study<sup>1</sup> of the protein of one variety of velvet bean, viz., *Chinese*, has shown that it contains all the necessary amino-acids to make it completely nutritious to animals.

Two samples of velvet bean feed have been analyzed this year. They contained between 16.00 and 17.00 per cent. of protein, about 13.00 per cent. of crude fiber and 3.3 to 4.3 per cent. of crude fat. The feeds sold for \$43 and \$45 per ton, respectively, making the cost per pound of protein about 13.3 cents. The average cost per pound of protein in cottonseed meal, as shown by the figures obtained this year, is 9.1 cents.

*Peanut Oil Meal* is the ground residue obtained in the preparation of peanut oil.<sup>2</sup> Like the velvet bean it is grown as a forage and soil improvement crop, but the increasing demand for peanut oil for human consumption has brought the oil cake into prominence as a concentrated stock feed. It is highly nutritious and being rich in protein and relatively so in fat it can be used to advantage to balance rations containing corn and other grains rich in starch.

The one sample examined contained 25.25 per cent. of protein and 12.55 per cent. of fat. It was 4.75 per cent. below guaranty in protein but exceeded its guaranty of fat by 5.55 per cent. It sold for \$58.00 per ton, making the cost per pound of protein 11.5 cents.

*Copra Cake Meal, Cocoanut Meal, Cocoanut Oil Meal* is the ground residue obtained in the preparation of Cocoanut Oil.<sup>2</sup> The copra-crushing industry is becoming of rapidly increasing importance in the United States, due to the demand for cocoanut oil in the manufacture of nut margarines and cooking fats. Globulin, the chief protein of the cocoanut, has been shown<sup>1</sup> to be of the type called "complete" and feeding experiments indicate that it is adequate for normal growth. As a dairy feed it is said to produce butter of considerable firmness, which recommends it as a summer ration.<sup>3</sup> Its tendency to become rancid affects both its keeping qualities and its palatability.

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<sup>1</sup> U. S. Dept. Agr., An. Rpt., Bu. of Chem., 1918.

<sup>2</sup> Not an A. F. C. O. definition.

<sup>3</sup> Henry and Morrison. Feeds and Feeding, p. 157.

The one sample contained 19.44 per cent. of protein and 11.01 per cent. of fat. It was 1.56 per cent. below guaranty in protein but exceeded the guaranty of fat by 5.01 per cent. The selling price was \$55.00 per ton, making the cost per pound of protein 14.1 cents.

*Proprietary Mixed Feeds.* To this class belong a great number of so-called "balanced" feed mixtures. Some of these represent the result of careful compounding on the basis of the best information regarding feeding values, and contain high grade ingredients. Others contain considerable amounts of such low grade materials as oat hulls, screenings, corn-cob and other by-products. These give bulk to the feed but have little to recommend them from a nutritive standpoint. Owing to the high cost of such rations, the feeder should use only standard brands or those of demonstrated worth. Analyses will detect deficiencies of gross nutrient materials, but only actual feeding tests will demonstrate the quality of the nutrients.

Many brands bear on the tag, in addition to the chemical guaranty, a statement of the ingredients which enter into their composition. Information of this kind, not required by law in this state, is given by the manufacturers of the following feeds:

*Barford's Ready Ration for Horses.* Hominy feed, oat feed, brewers' grain, cocoanut oil meal, linseed oil meal, alfalfa meal, sugar cane molasses, salt.

*Barford's Ready Ration for Growing Pigs.* Hominy feed, peanut meal, old process linseed oil meal, gluten feed, cocoanut oil meal, alfalfa meal, sugar cane molasses, 1½ per cent. charcoal, 1 per cent. salt.

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

*Bufceco Creamery Feed.* Ground corn, wheat bran and middlings, hominy feed, corn gluten feed, cottonseed meal, oat shorts, oat middlings, oat hulls, ½ of 1 per cent. salt.

*Bufceco Horse Feed.* Ground oats, corn and barley, wheat middlings, hominy feed, oat shorts, oat middlings, oat hulls, linseed meal, corn gluten feed.

*Bufceco Steam Cooked Feed.* Ground corn and oats, hominy feed, oat shorts, oat middlings, oat hulls and ½ of 1 per cent. salt.

*Bufceco Stock Feed.* Ground corn, oats and barley, wheat middlings, corn gluten feed, hominy feed, oat shorts, oat middlings and oat hulls,  $\frac{1}{2}$  of 1 per cent. salt.

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

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

*Larowe's Big Six.* Linseed oil meal, cotton seed meal, corn gluten feed, hominy feed, corn feed meal, rye middlings, wheat bran, wheat middlings and  $\frac{3}{4}$  of 1 per cent. salt. Bran and middlings may contain "ground screenings not exceeding mill run."

*Larro-feed.* Cotton seed meal, corn gluten feed, corn feed meal, old process linseed oil meal, dried beet pulp, standard wheat bran, standard wheat middlings and  $\frac{3}{4}$  of 1 per cent. salt. Wheat bran and wheat middlings may contain "ground screenings not exceeding mill run."

*Pennant Stock Feed.* Fine white hominy and oat by-products,  $\frac{1}{2}$  of 1 per cent. salt.

*Purina Cow Chow Feed.* Cotton seed meal, linseed oil meal (old process), gluten feed from corn, hominy feed, ground alfalfa, molasses and one per cent. salt.

*Purina Pig Chow.* Hominy feed, corn feed meal, molasses, alfalfa, digester tankage, charcoal and 1 per cent. salt.

*Union Grains.* Fourex Corn Distillers' Dried Grains, choice cottonseed meal, old process linseed meal, white wheat middlings, winter wheat bran, hominy meal, corn germ meal, corn gluten feed, brewers' dried grains, barley malt sprouts,  $\frac{1}{2}$  of 1 per cent. fine table salt.

Fifty-four feeds of this class have been examined this year. Eleven of these have failed to meet their guaranties in protein, fat, or both, by one per cent. or more of protein and one quarter of one per cent. or more of fat.

Guaranties of fiber are not required by law in this state, but, if made, they should be correct. In addition to the above deficiencies two other brands contained fiber exceeding the guaranteed maximum by one per cent. or more.

The deficient brands are as follows:

TABLE II. PROPRIETARY BRANDS VARYING FROM GUARANTY.

No.	Brand	Protein Deficiency %	Fat Deficiency %	Fiber Excess %
11887	Red Horn Calf Meal.....	2.50	0.81	....
11924	Purina Calf Chow.....	2.50	....	....
11941	Alfalfa Strong Horse Feed.....	....	1.07	....
11917	Bufceco Steam Cooked Horse Feed..	....	0.28	....
11900	Barford's Ready Ration for Horses..	....	....	1.64
11945	Emerald Horse Feed.....	....	0.28	4.87
11919	Purina Pig Chow.....	....	....	3.21
11921	Purina Cow Chow.....	....	0.35	....
11908	Pennant Stock Feed.....	1.25	1.77	....
11909	Crosby's 1918 Dairy Ration.....	4.62	....	3.48
11915	Economic Special Dairy Feed.....	1.87	....	....
11889	Red Horn Dairy Feed.....	1.06	....	....
11911	Haskell's Stock Feed.....	....	2.40	....

The five calf meals examined have sold uniformly for \$100.00 per ton. *Red Horn* contained the least protein; viz., 15.50 per cent., and the purchaser paid 32.3 cents per pound for protein in this ration. *Purina* contained the highest amount of protein; viz., 30.50 per cent., and the cost of protein in this feed was 16.4 cents.

Among horse feeds the lowest protein content, 8.50 per cent., was found in *Bufceco Steam Cooked Feed* which sold for \$65.00 per ton, making the cost of protein per pound 38.2 cents. *Green Velvet*, highest in protein of those of which we have knowledge of the selling price, and highest but one of all, sold for \$57.50 per ton, making the cost of protein per pound 15.0 cents.

Among stock and dairy feeds the lowest protein content, 8.31 per cent., was found in *Haskell's* which sold for \$61.00 per ton. The highest, 27.31 per cent., was in *Unicorn*, which sold for \$70.00. The cost of protein per pound was 36.1 and 12.8 cents, respectively.

These comparisons show that in the low-protein rations the purchaser has paid the highest price per unit of protein, and that the cheapest way to buy protein is not necessarily in the feed with the lowest selling price per ton. However, it must be recognized that comparisons of this kind do not furnish a means of final judgment as to the merits of the several feeds, since they are based upon the assumption that all proteins are of

equal feeding value, an assumption which recent experiments have shown is not at all justified.

*Poultry Feeds.* Information regarding the ingredients used in compounding some of the mixtures of this group of feeds has been given by the manufacturers of the following brands:

*Bufceco Poultry Mash.* Ground corn, wheat bran, middlings, hominy feed, corn gluten feed, oat middlings and rolled oats.

*H-O Co.'s Poultry Feed.* Ground corn, corn gluten feed, wheat middlings, wheat bran, hominy feed, rolled oats, ground peas, ground grain screenings, molasses, linseed oil meal.

*Lay or Bust.* Corn, wheat, oats, barley, Kafir corn, buckwheat, alfalfa, fish, meat, bone, wheat bran with mill run screenings, wheat middlings, calcium carbonate and salt.

*M and S Dry Mash.* Bran, middlings, gluten, corn meal, beef scraps, alfalfa meal, hominy and salt.

*Tom Boy Poultry Mash.* Ground meat, wheat, oat meal, wheat middlings, milo maize, buckwheat, corn meal, barley, oat middlings, millet, gluten feed, Kafir corn, alfalfa meal, hominy feed, wheat bran, oat germ meal, rock phosphate, salt, calcium carbonate and charcoal.

Of these feeds *Bufceco* contained the lowest amount of protein; viz., 14.00 per cent, and sold for \$75.00 per ton. Protein in this ration cost 26.8 cents per pound. *Chic-Chuck* contained the highest amount; viz., 52.13 per cent, and sold for \$88.00, making the cost per pound of protein in this feed 8.4 cents.

**11826**, *Bufceco*, **11912**, *Mystic*, and **11927** *Platt's*, failed to meet their guaranties by 1.17, 4.06 and 1.06 per cent. respectively.

**11833**, *Chic Chuck* was deficient in fat by 0.67 per cent.

#### STOCK AND POULTRY FEEDS CONTAINING MOLASSES.

Six of these feeds contained molasses, according to the declaration of their ingredients. These were accordingly re-examined for crude fat by first washing out saccharine materials with water, drying and finally extracting for sixteen hours with anhydrous ether.

The results are given in the following tabulation:



TABLE III—FAT IN MOLASSES FEEDS.

No.	Brand	Official Method %	Modified Method %	Guaranty %
11900	Barford's Ready Ration for Horses . . . .	4.09	3.54	3.00
11899	Barford's Ready Rations for Pigs . . . . .	6.24	5.10	5.00
11945	Emerald Horse Feed . . . . .	1.72	1.49	2.00
11921	Purina Cow Chow Feed . . . . .	4.45	3.97	4.80
11919	Purina Pig Chow Feed . . . . .	3.56	3.38	3.20
11874	H-O Co's Poultry Feed . . . . .	5.89	4.95	4.50

In past years it has been found in some cases that feeds containing molasses did not receive credit for the guaranteed amount of fat, when the regular method of extraction was followed. The modified method has not, however, given uniformly higher results and the figures this year are in all cases lower.

## MISCELLANEOUS SAMPLES.

Partial or complete analyses of the following miscellaneous materials have been made:

SAMPLES SUBMITTED BY THE DAIRY AND FOOD  
COMMISSIONER.

The numbers of the following samples are of the Dairy and Food Commissioner's series.

*Cottonseed Meal.* **13750** contained 36.94 per cent. of protein. **12311** contained 35.44 per cent. of protein.

*Stock Feeds.* **13935**, **13936** and **13937** were suspected of containing ground rock.

None of the feeds contained excessive amounts of total ash or of acid-insoluble ash and macroscopic examination revealed nothing suspicious.

## SAMPLES SUBMITTED BY INDIVIDUALS.

*Barley Feed.* **11440**, Pillsbury's Barley Mill Feed, sent by B. Willett, Uncasville.

**11112**, composed of barley hulls, middlings and screenings, sent by C. A. Stone, Waterbury. Analyses of these samples were made as follows:

	11440		11112	
	Found %	Guaranty %	Found %	Guaranty %
Water.....	9.54	.....	.....	.....
Ash.....	5.35	.....	.....	.....
Protein.....	11.88	8.00	10.63	6.00
Nitrogen-free extract.....	69.84	50.00	.....	.....
Fat.....	3.38	2.00	3.19	1.00
Price per ton.....	\$50.00	.....	.....	.....

*Bran*, **10672**, Washburn-Crosby Co., **10673**, manufacturer unknown, both sent by Walter C. Cook, Litchfield, were found to contain 15.31 and 15.81 per cent. of protein, respectively, and were of average quality.

*Corn*. **10674** was corn that had heated in the car and moulded somewhat. It was removed, kiln-dried and used as feed for pigs. The sample was submitted by A. N. Farnham, Hamden, and found to contain 10.50 per cent. of moisture, 1.38 per cent. of ash, 9.38 per cent. of protein, 2.16 per cent of fiber, 73.38 per cent. of carbohydrates and 3.20 per cent. of fat.

**11221**, **11222** and **11223** were varieties of corn, analyses of which were made for the Department of Plant Breeding.

	11221	11222	11223
	(Sweet) %	(Pseudo- starchy) %	(Starchy) %
Moisture.....	10.60	11.09	11.41
Ash.....	2.07	1.65	1.46
Protein.....	14.51	12.69	11.60
Fiber.....	1.89	1.73	1.31
Fat.....	7.52	5.94	4.07
Soluble carbohydrates, calculated as dex- trose.....	26.15	7.19	4.45
Insoluble carbohydrates, starch.....	29.00	51.50	58.73
Undetermined nitrogen-free extract.....	8.26	8.21	6.97

*Cottonseed Meal*. **10582**, **10631**, **11255**, **11674**, manufacturer or jobber not known; **10849**, Puritan brand, J. E. Soper Co., Boston; **10853**, Surety brand, **10888**, **12133**, The American Cotton Oil Co., New York; **11734**, **11774**, **11816**, **11817**, **12103**, Humphreys Godwin Co., Memphis, Tenn, all sent by the Coles Co., Middletown.

**10583**, H. L. Buss & Co., Boston, sent by Geo. S. Phelps, Thompsonville.

**10685**, T. L. Smith, Birmingham, Ala., sent by R. N. Dean, Sharon.

**11016** and **11017**, Dixie Brand, Chas. M. Cox Co., Boston, sent by Samuel J. Orr, West Suffield.

**11045**, H. L. Buss & Co., Boston, sampled by Station Agent from stock of Laden Bros., Wallingford.

**11256** and **11257**, sent by the C. W. Campbell Co., Westerly, R. I.

**11271**, Farmers Cotton Oil and Fertilizer Co., Huntsville, Ala., sent by B. W. Ellis, County Agent, Putnam.

**11995**, sent by E. A. Brown, County Agent, Hartford.

**12144** and **12145**, sent by A. W. Manchester, County Agent, Litchfield.

**11442**, sent by R. M. Fenn, Middlebury.

TABLE IV. ANALYSES OF COTTONSEED MEALS.

No.	Found %	Protein	Guaranteed %	Price per ton \$
10582	37.06		.....	.....
10631	37.63		.....	.....
11255	32.38		.....	.....
11674	34.25		.....	.....
10849	36.37		36.00	60.00
10853	35.00		36.00	60.00
10888	34.06		.....	60.00
12133	37.00		36.00	63.02
11734	29.50		36.00	56.85
11774	34.81		36.00	56.85
11816	35.19		36.00	62.50
11817	35.31		36.00	62.50
12103*	32.31		36.00	56.85
10583	34.75		36.00	57.00
10685	31.25		36.00	.....
11016	41.06		41.00	57.00
11017	40.88		41.00	57.00
11045	37.00		.....	.....
11256	33.44		.....	.....
11257	35.63		.....	.....
11271	36.81		36.00	.....
11995	43.31		41.00	.....
12144	38.31		43.00	.....
12145	43.00		41.00	.....
11442	31.88		.....	.....

\*New sample from same lot as 11734.

*Ensilage.* **11361**, sent by C. M. Jarvis, Berlin, was found to contain 63.75 per cent. of water, 2.68 per cent. of ash, 3.43 per cent. of protein, 10.71 per cent. of fiber, 18.46 per cent. of carbohydrates, and 0.97 per cent. of fat.

*Gluten Feed.* **11271**, sent by B. W. Ellis, County Agent, Putnam, guaranteed to contain 23.00 per cent of protein, was found to contain 18.69 per cent.

**12143**, sent by B. W. Ellis, County Agent, Putnam, contained 23.56 per cent. of protein.

*Hominy Feed.* **10983**, sent by Chas. M. Cox Co., Boston, for an opinion as to its genuineness. The sample was of course texture and contained 8.94 per cent. of protein and 7.42 per cent. of fiber.

The average of 304 analyses of hominy meal was found to be 10.7 per cent. of protein and 4.6 per cent. of fiber; also the average of 19 analyses of hominy and corn cob was 8.9 per cent. of protein and 9.4 per cent. of fiber.<sup>1</sup> This sample is low in protein and high in fiber for hominy meal or feed and appears to contain an excess of material of high fiber content like corn cob.

**10842**, sent by A. D. MacDowell, Washington, contained 10.31 per cent. of protein.

*Poultry and Hog Feeds.* **11165**, Mash, sent by the Frank S. Platt Co., New Haven, contained 20.19 per cent of protein.

**12148**, Beef Scrap, said to have come from South America and advertised to contain 48 per cent. of protein, sent by T. F. Dexter, Kent, contained 26.50 per cent. protein.

**12162** and **12163**, Digester Tankage, manufactured by Robt. A. Reichard, Allentown, Pa., sent by Curtis Hull, Wallingford. The samples were guaranteed to contain 40 and 60 per cent. of protein, respectively; **12162** contained 50.38 and **12163** contained 64.81 per cent. of protein.

**11259**, Bean Mash, sent by A. B. Hall, Wallingford; **11275** and **11343**, Pig Feeds, sent by Meech & Stoddard, Inc., Middletown. **11275** is stated to be composed of gluten feed, hominy feed, cocoa-nut oil meal, brewers' grains, linseed meal, molasses, charcoal and salt. **11343** has the same ingredients except that peanut meal is substituted for brewers' grains.

<sup>1</sup> Rpt. Conn. Agr. Expt. Sta., Commercial Feeding stuffs, 1913, p.344

	11259	11275	11343
	%	%	%
Water.....	11.70	10.93	11.30
Ash.....	4.37	5.91	6.08
Protein.....	19.38	13.88	19.38
Fiber.....	11.15	10.90	9.51
Nitrogen-free extract	51.93	54.26	48.15
Fat.....	1.47	4.12	5.58

*Proprietary Mixed Feeds.* **11268**, Copra Cake Meal, **11269**, Barford's Ready Ration for Horses, and **11728**, were all sent by Meech and Stoddard, Inc., Middletown. **11269** is stated to contain hominy feed, oat feed, brewers' grains, cocoanut oil meal, linseed meal, alfalfa meal, sugar cane molasses and salt. It is guaranteed to contain 10 per cent. of crude protein and 3 per cent. of crude fat. **11728** is stated to contain ground barley, peanut meal, hominy feed, gluten feed, cocoanut oil and meal, linseed oil meal, corn meal, charcoal and salt.

	11268	11269	11728
	%	%	%
Water.....	11.32	12.53	9.84
Ash.....	5.72	6.02	4.50
Protein.....	19.56	11.00	17.88
Fiber.....	9.97	14.55	8.64
Nitrogen-free extract	44.40	52.36	53.32
Fat.....	9.03	3.54	5.82

**11439**, *Marathon Stock Feed*, manufactured by Fred L. Cressey, Boston, was sent by B. Willett, Uncasville. The feed is said to be a mixture of hominy, oat feed, velvet bean meal and salt, and is guaranteed to contain 9 per cent. of protein and 4 per cent. of fat.

It contained 8.82 per cent. of moisture, 4.82 per cent. of ash, 10.63 per cent. of protein, 72.07 per cent. of carbohydrates and 3.66 per cent. of fat.

*Miscellaneous Feeds.* **12192**, Wheat Flour, low grade, and **12193**, a mixture containing 5 per cent. of wheat flour, sent by H. W. Hovey, New Haven, contained 15.19 and 16.06 per cent. of protein, respectively.

**10604**, Meal made from cull Brazilian Beans, sent by A. W. Manchester, Litchfield, contained 23.31 per cent. of protein.

**10611**, **10612**, **10613** and **10614** were feeds sent by L. R. Michels, Southport. The analyses are as follows:

	10611	10612	10613	10614
	%	%	%	%
Water.....	6.87	6.69	6.91	6.53
Ash.....	11.70	7.40	7.40	7.06
Protein.....	15.31	13.50	14.13	11.63
Fiber.....	19.23	19.38	19.39	21.25
Nitrogen-free extract	44.97	51.09	50.23	51.94
Fat.....	1.92	1.94	1.94	1.59

**10626**, Brewery Grains, **10627**, Burnt Corn Meal, **10628**, Malt Sprouts, and **10629**, Linseed Screenings, all sent by Lawrence A. Beyan, County Agent, Danbury, contained, in the order named, 7.50, 9.25, 22.13 and 10.44 per cent. of protein.

Low prices had been obtained on all the above feeds. **10626** appeared to be sweepings and contained only about one-third as much protein as the average of brewers' grains.

*Feeds or other materials suspected of containing injurious substances.* Four complaints have come to us regarding feeds which animals would not eat, or which were thought to have caused illness or death of animals fed with them. Unless arsenic or other poisonous metals, or certain alkaloidal poisons such as strychnine, can be detected in such cases, a satisfactory explanation to the person making the complaint seldom can be given.

A mixture containing feeds that are new or to which animals are unaccustomed will be rejected until a relish for them has been gradually acquired. This has seemed to be the most reasonable explanation in some cases.

In the case of chicks, suffocation from over-eating has sometimes appeared to have been the source of trouble; in other instances where large numbers of chicks have died the circumstances have pointed to a probable epidemic disease rather than to the particular feed being given at the time.

Weed seeds, as, for example, certain varieties of mustard, produce poisonous effects in cattle, and more particularly in hogs, but no cases have come to our attention in which this could be offered as a probable cause.

**11973**, Stock Salt, thought to have caused injury to horses, was sent to us at the suggestion of the Deputy Commissioner of Domestic Animals. The sample was free from arsenic and toxic heavy metals, and contained 98 per cent. of pure sodium chloride, showing it to be a high grade of salt.

## CONDIMENTAL FOODS AND REMEDIES.

To this class belong preparations variously called stock foods, stock remedies, tonics, regulators or conditioners. The base of such mixtures is generally some common feeding stuff reinforced with cathartics or appetizers or both. The cathartics may be sodium sulphate (Glauber's salt), magnesium sulphate (Epsom salt), or a vegetable laxative. Bitter and other vegetable principles and mineral substances serve as appetizers and may include gentian, fenugreek, quassia, anise, worm seed, pepper, ginger, iron oxide, iron sulphate, sulphur, common salt and saltpeter. Poultry foods may contain also Venetian red, bone, grit, carbonates and mustard.

These remedies may serve to correct mild disorders and produce indirect benefit in other ways, but their high cost will overbalance their actual worth in continued practice. Henry and Morrison<sup>1</sup> suggest three formulas, the ingredients for which are readily obtained, which may be home mixed at considerably reduced cost and which will supply medicament of as great value as the majority of the commercial mixtures. Their suggestions are worthy of the notice of any large feeders who have occasion to use considerable amounts of remedies of this sort. As a rule the appetites of animals properly fed and kept require but little attention.

Thirteen preparations of this class, and one remedy sent by Karl B. Musser, Storrs, have been examined.

The results of the inspection appear on pages 394 and 395.

<sup>1</sup> Feeds and Feeding, p. 192.

TABLE V. ANALYSES OF COMMERCIAL FEEDS,

Station No.	Brand.	Retail Dealer.
<b>OIL SEED PRODUCTS.</b>		
<i>Cottonseed Meal.</i>		
11951	Goodlow. M. F. Baringer, Philadelphia, Pa. . . .	<i>Stamford:</i> W. L. Crabb . . . Guaranty . . . . .
11877	Buckeye. Buckeye Cotton Oil Co., Cincinnati, O.	<i>Unionville:</i> F. D. Lawton & Son . . . . . Guaranty . . . . .
11857†	Gilt Edge. Empire Cotton Oil Co., Atlanta, Ga.	<i>Middletown:</i> Meech & Stod- dard, Inc. . . . . Guaranty . . . . .
11890†	Danish. Humphreys, Godwin Co., Memphis, Tenn. . . . .	<i>Rockville:</i> Edward White . . . Guaranty . . . . .
11864	Danish. Humphreys, Godwin Co., Memphis, Tenn. . . . .	<i>New Britain:</i> C. W. Lines Co. . . . . Guaranty . . . . .
11930	Puritan. J. E. Soper Co., Boston, Mass. . . . .	<i>Winsted:</i> E. Manchester & Sons . . . . . Guaranty . . . . .
11842†	Surety. Union Seed & Fert'z'r Co., Memphis, Tenn. . . . .	<i>Guilford:</i> Morse & Landon . . Guaranty . . . . . Average guaranty . . . . . Average of analyses . . . . . Average digestible . . . . .
<i>Cottonseed Feed.</i>		
11873†	Jay. F. W. Brode & Co., Memphis, Tenn. . . . .	<i>Bristol:</i> Goodsell Bros . . . . . Guaranty . . . . .
11830	Hall. W. D. Hall Co., Atlanta, Ga. . . . .	<i>Wallingford:</i> A. E. Hall . . . Guaranty . . . . . Average guaranty . . . . . Average of analyses . . . . . Average digestible . . . . .
<i>Linseed Meal, Old Process.</i>		
11866	Oil Meal. Spencer Kellogg Co., Buffalo, N. Y. . . .	<i>Plantsville:</i> C. A. Cowles . . . Guaranty . . . . .
11849†	Oil Meal. American Linseed Co., N. Y. . . . .	<i>West Cheshire:</i> G. W. Thorpe Guaranty . . . . . Average guaranty . . . . . Average of analyses . . . . . Average digestible . . . . .
<b>WHEAT PRODUCTS.</b>		
<i>Wheat Bran.</i>		
11844	Bernet, Craft & Kauffman Milling Co., St. Louis, Mo. . . . .	<i>Guilford:</i> Morse & Landon . . Guaranty . . . . .
11883	Choice. Niagara Falls Milling Co., Niagara Falls, N. Y. . . . .	<i>Thompsonville:</i> Geo. S. Phelps & Co. . . . . Guaranty . . . . .

† Wired tags.



## INSPECTION OF 1918.

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)	
11951	7.73	5.45	38.94	12.36	28.32	7.20	\$70.00
.....	.....	.....	36.00	.....	.....	5.00	.....
11877	8.30	5.50	33.38	14.74	32.94	5.14	60.00
.....	.....	.....	36.00	14.00	30.00	5.00	.....
11857	8.68	5.80	36.44	12.21	30.43	6.44	66.00
.....	.....	.....	36.00	14.00	30.00	5.50	.....
11890	8.17	5.65	36.00	12.82	31.00	6.36	66.00
.....	.....	.....	36.00	15.00	25.00	5.00	.....
11864	7.43	5.14	37.38	11.72	30.12	8.21	65.00
.....	.....	.....	36.00	15.00	25.00	5.00	.....
11930	8.88	5.35	36.75	13.04	48.98	6.00	66.00
.....	.....	.....	36.00	15.00	30.00	5.00	.....
11842	7.89	5.40	33.19	14.67	33.01	5.84	66.00
.....	.....	.....	36.00	14.00	27.00	5.50	.....
.....	.....	.....	36.00	.....	.....	5.14	.....
.....	8.15	5.47	36.01	13.08	33.54	6.46	65.57
.....	.....	.....	30.2	4.8	25.2	6.1	.....
11873	8.01	6.38	35.38	12.55	31.93	5.75	67.00
.....	.....	.....	36.00	14.00	30.00	5.00	.....
11830	8.14	5.15	31.38	15.45	34.93	4.95	64.00
.....	.....	.....	36.00	14.00	27.00	5.50	.....
.....	.....	.....	36.00	.....	.....	5.25	.....
.....	8.08	5.77	33.38	14.00	33.43	5.35	65.50
.....	.....	.....	19.4	6.3	20.4	4.8	.....
11866	8.42	5.26	35.69	7.23	36.47	6.93	65.00
.....	.....	.....	33.00	.....	.....	5.00	.....
11849	7.41	5.53	35.81	7.41	37.95	5.89	65.00
.....	.....	.....	34.00	8.00	.....	5.00	.....
.....	.....	.....	33.50	.....	.....	5.00	.....
.....	7.92	5.40	35.75	7.32	37.21	6.41	65.00
.....	.....	.....	31.8	4.2	29.0	5.7	.....
11844	8.60	6.70	16.25	9.75	54.30	4.40	44.00
.....	.....	.....	14.00	9.50	55.20	4.00	.....
11883	8.33	6.20	15.63	10.07	54.18	5.59	50.00
.....	.....	.....	12.00	.....	.....	3.00	.....

TABLE V.—ANALYSES OF COMMERCIAL FEEDS,

Station No	Brand.	Retail Dealer.
<i>WHEAT PRODUCTS—Continued.</i>		
<i>Wheat Bran—Concluded.</i>		
11822	Angelus. Thompson Milling Co., Lockport, N. Y.	<i>Ansonia:</i> Ansonia Flour & Grain Co. . . . . Guaranty. . . . .
11880*	Washburn-Crosby Co., Minneapolis, Minn. . . . .	<i>Unionville:</i> F. D. Lawton & Son . . . . . Guaranty. . . . .
11853†	Pure. Wells-Abbott Nieman Co., Schuyler, Neb.	<i>West Cheshire:</i> G. W. Thorpe Guaranty. . . . . Average guaranty . . . . . Average of analyses. . . . . Average digestible. . . . .
<i>Wheat Feed (Mixed Feed).</i>		
11895	Boston. Duluth Superior Mill. Co., Duluth, Minn. . . . .	<i>Manchester:</i> Little & McKinney. . . . . Guaranty. . . . .
11882*	Kehlors. Kehlors Flour Mills Co., St. Louis, Mo.	<i>Thompsonville:</i> Geo. S. Phelps & Co. . . . . Guaranty. . . . .
11910	Occident. Russell Miller Milling Co., Minneapolis, Minn. . . . .	<i>Yantic:</i> A. R. Manning. . . . . Guaranty. . . . .
11925*	Omar. Omaha Flour Mills Co., Omaha, Neb. . . . .	<i>New Haven:</i> Crittenden-Benham Co. . . . . Guaranty. . . . .
11893	Stott's Honest. David Stott Flour Mills, Detroit, Mich. . . . .	<i>Rockville:</i> Edward White. . . . . Guaranty. . . . .
11914	T. & C. Thornton & Chester Milling Co., Buffalo, N. Y. . . . .	<i>Norwich:</i> Chas. Slosberg & Son . . . . . Guaranty. . . . .
11885‡	Wagoner-Gates Milling Co., Independence, Ind.	<i>Hazardville:</i> A. D. Bridges' Sons. . . . . Guaranty. . . . .
11939	Kent. The Williams Bros. Co., Kent, O. . . . .	<i>Thomaston:</i> L. E. Blackman Guaranty. . . . . Average guaranty . . . . . Average of analyses. . . . . Average digestible. . . . .
<i>Wheat Middlings.</i>		
11875*	Bay State. Bay State Milling Co., Winona, Minn.	<i>Bristol:</i> Eaton Bros. . . . . Guaranty. . . . .
11879	Faylor's. Northwestern Elevator & Mill Co., Toledo, O. . . . .	<i>Unionville:</i> F. D. Lawton & Son . . . . . Guaranty. . . . .
11953	Hecker-Jones-Jewell Milling Co., New York. . . . .	<i>Stamford:</i> W. L. Crabb. . . . . Guaranty. . . . .
11918*	Omar. Omaha Flour Mills, Omaha, Neb. . . . .	<i>New London:</i> P. Swartz Co. Guaranty. . . . .

\* With screenings. † Wired tags. ‡ Soft wheat with mill run bran.

## INSPECTION OF 1918—Continued.

Station No.	Price per Hundred.						Price per ton.
	Water.	Ash.	Protein (N. x 6.25)	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Crude Fat)	
11822	9.72	6.96	16.06	10.13	52.23	4.90	\$46.00
.....	.....	.....	13.00	8.00	55.00	4.00	.....
11880	9.87	6.16	14.69	10.49	53.62	5.17	47.00
.....	.....	.....	13.00	.....	.....	4.00	.....
11853	9.88	7.40	16.63	10.00	51.62	4.47	43.00
.....	.....	.....	14.00	10.00	.....	3.00	.....
.....	.....	.....	13.20	.....	.....	3.60	.....
.....	9.28	6.68	15.85	10.09	53.19	4.91	46.00
.....	.....	.....	12.0	4.3	39.4	3.0	.....
11895	10.18	4.80	15.38	8.29	55.49	5.86	55.00
.....	.....	.....	16.00	.....	.....	4.00	.....
11882	10.79	5.98	18.50	7.99	52.26	4.48	55.00
.....	.....	.....	15.00	.....	.....	4.00	.....
11910	9.71	4.85	16.75	8.47	54.10	6.12	44.00
.....	.....	.....	15.00	.....	.....	4.50	.....
11925	9.94	5.95	18.00	8.98	52.17	4.96	57.00
.....	.....	.....	15.00	.....	.....	3.50	.....
11893	11.85	5.12	14.94	7.27	55.77	5.05	57.00
.....	.....	.....	15.00	.....	.....	4.00	.....
11914	10.59	4.50	16.13	8.12	55.36	5.30	56.00
.....	.....	.....	14.50	.....	.....	4.50	.....
11885	9.40	6.43	17.63	7.61	53.85	5.08	54.00
.....	.....	.....	15.00	.....	.....	4.00	.....
11939	10.64	5.23	14.00	7.23	58.28	4.62	65.00
.....	.....	.....	10.00	.....	.....	2.00	65.00
.....	.....	.....	14.44	.....	.....	3.81	.....
.....	10.39	5.36	16.42	7.80	54.66	5.18	63.50
.....	.....	.....	12.6	2.8	41.5	4.5	.....
11875	11.01	4.41	18.31	7.28	53.16	5.83	57.50
.....	.....	.....	16.50	.....	.....	5.00	.....
11879	9.90	4.17	15.44	6.08	59.57	4.84	47.00
.....	.....	.....	15.00	.....	.....	4.00	.....
11953	10.34	4.65	16.94	8.31	54.05	5.71	54.00
.....	.....	.....	15.50	.....	.....	4.75	.....
11918	10.12	5.43	17.81	7.91	54.02	4.71	55.00
.....	.....	.....	15.00	8.00	52.00	3.50	.....

TABLE V.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Brand.	Retail Dealer.
	WHEAT PRODUCTS— <i>Concluded.</i> <i>Wheat Middlings—Concluded.</i>	
11824	Winter. Thompson Milling Co., Lockport, N. Y.	<i>Ansonia:</i> Ansonia Flour & Grain Co. .... Guaranty .....
11856*	Standard. Washburn-Crosby Co., Minneapolis, Minn. ....	<i>Middletown:</i> Meech & Stoddard, Inc. .... Guaranty .....
		Average guaranty .....
		Average of analyses .....
		Average digestible .....
	RYE PRODUCTS.	
11858	Feed. Boutwell Milling & Grain Co., Troy, N. Y.	<i>Middletown:</i> Meech & Stoddard, Inc. .... Guaranty .....
11920	Feed. Hecker-Jones-Jewell Milling Co., New York .....	<i>New Haven:</i> Crittenden-Benham Co. .... Guaranty .....
11823	Bay State Middlings. Bay State Milling Co., Winona, Minn. ....	<i>Ansonia:</i> Ansonia Flour & Grain Co. .... Guaranty .....
11847	Middlings. Washburn-Crosby Co., Minneapolis, Minn. ....	<i>Branford:</i> S. V. Osborne... Guaranty .....
	BARLEY PRODUCTS.	
11891*	Mixed Feed. Ewart & Lake, Groveland, N. Y.	<i>Rockville:</i> Edward White... Guaranty .....
11901	Feed. Shane Bros. & Wilson Co., Minneapolis, Minn. ....	<i>Willimantic:</i> Willimantic Grain Co. .... Guaranty .....
11848	Ground Barley. Simpson Hendee Co., New York City .....	<i>Branford:</i> S. V. Osborne... Guaranty .....
11821	Feed, Pillsbury's. Pillsbury Flour Mills Co., Minneapolis, Minn. ....	<i>Ansonia:</i> Ansonia Flour & Grain Co. .... Guaranty .....
	MAIZE PRODUCTS. <i>Corn Gluten Feed.</i>	
11829	Buffalo. Corn Products Refining Co., New York.	<i>North Haven:</i> Co-operative Feed Co. .... Guaranty .....
11931	Buffalo. Corn Products Refining Co., New York.	<i>Torrington:</i> F. L. Wadhams. Guaranty .....
11876	Globe. Corn Products Refining Co., New York.	<i>Unionville:</i> F. D. Lawton & Son. .... Guaranty .....
11922	K. K. K. J. C. Hubinger Bros. Co., Keokuk, Iowa	<i>New Haven:</i> Crittenden-Benham Co. .... Guaranty .....

\* With screenings.

## INSPECTION OF 1918—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)	
11824	10.03	4.45	15.63	6.23	58.72	4.94	\$48.00
.....	.....	.....	13.00	.....	.....	4.00	.....
11856	11.03	4.43	16.94	6.97	54.59	6.04	44.00
.....	.....	.....	14.00	.....	.....	4.00	.....
.....	.....	.....	14.83	.....	.....	4.21	.....
.....	10.41	4.59	16.85	7.13	55.69	5.35	50.92
.....	.....	.....	13.0	2.1	43.4	4.7	.....
11858	11.06	3.60	15.75	4.33	62.15	3.11	56.00
.....	.....	.....	13.50	.....	.....	3.00	.....
11920	9.88	3.78	15.44	4.56	63.35	2.99	60.00
.....	.....	.....	15.00	5.50	62.90	2.50	.....
11823	8.82	4.33	16.25	5.32	61.55	3.73	58.00
.....	.....	.....	16.00	.....	.....	3.40	.....
11847	8.98	4.00	17.31	5.30	60.79	3.62	58.00
.....	.....	.....	14.00	.....	.....	3.00	.....
11891	10.63	3.93	12.69	8.49	61.21	3.05	57.00
.....	.....	.....	12.00	10.00	.....	2.00	.....
11901	9.01	5.70	10.19	15.43	56.59	3.08	51.00
.....	.....	.....	9.50	20.30	.....	4.20	.....
11848	10.85	2.50	11.69	5.01	67.26	2.69	58.00
.....	.....	.....	.....	.....	.....	.....	.....
11821	8.21	5.93	11.69	15.63	55.17	3.37	54.00
.....	.....	.....	9.00	.....	.....	3.00	.....
11829	9.37	3.80	24.19	7.14	50.26	5.24	56.00
.....	.....	.....	23.00	.....	.....	1.00	.....
11931	8.58	5.65	26.38	6.43	49.95	3.01	66.00
.....	.....	.....	23.00	.....	.....	1.00	.....
11876	9.16	2.97	22.44	7.33	52.44	5.66	60.00
.....	.....	.....	23.00	.....	.....	1.00	.....
11922	8.80	1.45	21.88	5.71	57.97	4.19	62.00
.....	.....	.....	23.00	7.50	.....	2.40	.....

TABLE V.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Brand.	Retail Dealer.
	<i>MAIZE PRODUCTS—Concluded.</i>	
	<i>Corn Gluten Feed—Concluded.</i>	
11935	Piel Bros. Starch Co., Indianapolis, Ind.....	Thomaston: L. E. Blackman Guaranty..... Average guaranty..... Average of analyses..... Average digestible.....
	<i>Hominy Feed.</i>	
11851	Spring Garden. Baltimore Pearl Hominy Co., Baltimore, Md.....	West Cheshire: G. W. Thorpe Guaranty.....
11952	M. F. Baringer, Philadelphia, Pa.....	Stamford: W. L. Crabb.... Guaranty.....
11839	Bufceco. Buffalo Cereal Co., Buffalo, N. Y....	Meriden: Meriden Grain & Feed Co..... Guaranty.....
11937	Yellow. Buffalo Cereal Co., Buffalo, N. Y....	Thomaston: L. E. Blackman Guaranty.....
11869	Badger. Chas. A. Krause Milling Co., Milwau- kee, Wis.....	Plantsville: C. A. Cowles... Guaranty.....
11828	Patent Cereals Co., Geneva, N. Y.....	North Haven: Co-operative Feed Co..... Guaranty.....
11907	Logan. The Standard Cereal Co., Chillicothe, O.	Yantic: A. R. Manning.... Guaranty..... Average guaranty..... Average of analyses..... Average digestible.....
	<i>Corn Feed Meal.</i>	
11929	Washburn-Crosby Co., Minneapolis, Minn.....	Winsted: E. Manchester & Sons..... Guaranty.....
	<b>BREWERY AND DISTILLERY PRODUCTS.</b>	
	<i>Brewers' Grains.</i>	
11867	Bull. Farmers Feed Co., Buffalo, N. Y.....	Plantsville: C. A. Cowles... Guaranty.....
11845†	Dried grains. James Hawley Brewing Co., Provi- dence, R. I.....	Branford: S. V. Osborne... Guaranty.....
11846	Dried grains. Providence Brewing Co., Provi- dence, R. I.....	Branford: S. V. Osborne... Guaranty..... Average of analyses..... Average digestible.....
	<i>Distillers' Grains.</i>	
11903	Dried Grains. Fleishman Co., Chicago, Ill.....	Willimantic: Willimantic Grain Co..... Guaranty.....

† Wired tags.



TABLE V.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Brand.	Retail Dealer.
MISCELLANEOUS FEEDS.		
11865‡	Dried Beet Pulp. Continental Sugar Co., Blissfield, Mich.	<i>New Britain:</i> C. W. Lines Co. Guaranty.....
11894	Dried Beet Pulp. Max Hottetlet, Milwaukee, Wis.	<i>Manchester:</i> Little & McKinney Guaranty.....
11949	Dried Beet Pulp. Larrowe Milling Co., Detroit, Mich.	<i>South Norwalk:</i> Samuel Roodner Guaranty.....
11863‡	Dried Beet Pulp. Mich. Sugar Co., Sebewaing, Mich.	<i>Middletown:</i> Meech & Stoddard, Inc. Guaranty.....
11831‡	Dried Beet Pulp. Mich. Sugar Co., Bay City, Mich.	<i>Wallingford:</i> A. E. Hall... Guaranty.....
11923‡	Dried Beet Pulp. Mich. Sugar Co., Alma, Mich.	<i>New Haven:</i> Crittenden-Benham Co. Guaranty.....
11916	Dried Beet Pulp. Owasso Sugar Co., Owasso, Mich.	<i>New London:</i> P. Schwartz Co. Guaranty..... Average guaranty..... Average of analyses..... Average digestible.....
11827	Velvet Bean Feed. C. M. Cox Co., Boston, Mass.	<i>North Haven:</i> Co-operative Feed Co. Guaranty.....
11859	Pioneer Velvet Bean Feed. Lyle & Lyle, Huntsville, Ala.	<i>Middletown:</i> Meech & Stoddard, Inc. Guaranty.....
11854	Beta Peanut Oil Meal. Oil Seeds Co., Bayonne, N. J.	<i>Middletown:</i> Meech & Stoddard, Inc. Guaranty.....
11942	Copra Cake Meal. M. F. Baringer, Philadelphia, Pa.	<i>East Haven:</i> F. A. Forbes.. Guaranty.....
PROPRIETARY MIXED FEEDS. <i>Horse, Dairy and Stock Feeds.</i>		
11855	Calf Meal. Blatchford Calf Meal Factory, Waukegan, Ill.	<i>Middletown:</i> Meech & Stoddard, Inc. Guaranty.....
11887	Red Horn Calf Meal. Hales & Edwards Co., Chicago, Ill.	<i>Rockville:</i> Edward White... Guaranty.....
11924	Purina Calf Chow. Purina Mills, St. Louis, Mo.	<i>New Haven:</i> Crittenden-Benham Co. Guaranty.....
11896	Schumacher's Calf Meal. Quaker Oats Co., Chicago, Ill.	<i>Manchester:</i> Little & McKinney Guaranty.....

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



## INSPECTION OF 1918—Continued.

Station No.	Price per Hundred.						Price per ton.
	Water.	Ash.	Protein (N. x 6.25)	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Crude Fat)	
11865	8.98	2.94	8.75	19.77	58.23	1.33	\$50.50
.....	.....	.....	8.00	20.00	58.00	0.50	.....
11894	7.39	2.33	8.00	18.76	62.75	0.77	53.00
.....	.....	.....	8.00	20.00	60.00	0.50	.....
11949	6.74	2.88	9.44	18.53	61.78	0.63	60.00
.....	.....	.....	8.00	.....	.....	0.50	.....
11863	7.46	2.41	8.69	17.28	63.19	0.97	49.50
.....	.....	.....	8.00	20.00	58.00	0.50	.....
11831	7.65	3.18	8.88	18.48	61.33	0.48	50.00
.....	.....	.....	8.00	20.00	58.00	0.50	.....
11923	7.40	2.70	9.00	19.20	61.12	0.58	51.00
.....	.....	.....	8.00	20.00	58.00	0.50	.....
11916	3.84	3.04	9.25	19.61	62.68	1.58	52.00
.....	.....	.....	8.00	20.00	58.00	0.50	.....
.....	.....	.....	8.00	.....	.....	0.50	.....
.....	7.07	2.78	8.86	18.80	61.58	0.91	52.28
.....	.....	.....	4.6	15.6	51.1	.....	.....
11827	10.07	5.48	16.88	12.98	50.28	4.31	45.00
.....	.....	.....	17.00	.....	.....	.....	.....
11859	9.65	4.60	16.56	13.42	52.43	3.34	43.00
.....	.....	.....	16.00	17.00	45.00	4.00	.....
11854	8.28	4.47	25.25	9.01	40.44	12.55	58.00
.....	.....	.....	30.00	8.00	.....	7.00	.....
11942	8.98	5.40	19.44	8.93	46.24	11.01	55.00
.....	.....	.....	21.00	.....	.....	6.00	.....
11855	10.75	5.71	26.25	6.75	44.65	5.89	100.00
.....	.....	.....	24.00	.....	.....	5.00	.....
11887	11.03	4.00	15.50	2.19	63.09	4.19	100.00
.....	.....	.....	18.00	.....	.....	5.00	.....
11924	10.37	3.01	30.50	3.08	49.14	3.90	100.00
.....	.....	.....	33.00	.....	.....	4.00	.....
11896	9.22	4.20	18.38	2.36	57.67	8.17	100.00
.....	.....	.....	18.00	.....	.....	8.00	.....

TABLE V.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Brand.	Retail Dealer.
	PROPRIETARY MIXED FEEDS—Continued. <i>Horse, Dairy and Stock Feeds—Continued.</i>	
11905	Ryde's Cream Calf Meal. Ryde & Co., Chicago, Ill.	<i>Willimantic:</i> Willimantic Grain Co.
11941	Alfalfa Strong Horse Feed. Alfalfa Milling Co., Ft. Calhoun, Neb.	<i>Waterbury:</i> Spencer Grain Co.
11938	Bufecco Horse Feed. Buffalo Cereal Co., Buffalo, N. Y.	<i>Guaranty:</i> Thomaston: L. E. Blackman Guaranty.
11917	Bufecco Steam Cooked Horse Feed. Buffalo Cereal Co., Buffalo, N. Y.	<i>New London:</i> P. Schwartz Co.
11900	Barford's Ready Ration for Horses. Meech & Stoddard Inc., Middletown, Conn.	<i>Guaranty:</i> Hartford: The Meech Northam Grain Co.
11861	Green Velvet Horse Feed. Metropolitan Mills, New York.	<i>Guaranty:</i> Middletown: Meech & Stoddard, Inc.
11948	Peerless Horse Feed. Omaha Alfalfa Milling Co., Omaha, Neb.	<i>Guaranty:</i> South Norwalk: Samuel Roodner.
11945†	Emerald Horse Feed. Prairie State Milling Co., Chicago, Ill.	<i>Guaranty:</i> Norwalk: C. E. Slauson Co.
11926	Purina Horse Feed with Molasses. Purina Mills, St. Louis, Mo.	<i>Guaranty:</i> New Haven: Crittenden-Benham Co.
11899	Barford's Ready Ration for Growing Pigs. R. G. Davis & Sons, New Haven.	<i>Guaranty:</i> Hartford: The Meech Northam Grain Co.
11946	Go Tu It Hog Ration. Park & Pollard Co., Boston, Mass.	<i>Guaranty:</i> Norwalk: C. E. Slauson Co.
11919	Purina Pig Chow. Purina Mills, St. Louis, Mo.	<i>Guaranty:</i> New Haven: Crittenden-Benham Co.
11940	H. & S. Horse, Mule & Dairy Feed. Dwight Hamlin, Pittsburgh, Pa.	<i>Guaranty:</i> Waterbury: Spencer Grain Co.
11884	Acme Stock Feed. Acme Evans Co., Indianapolis, Ind.	<i>Guaranty:</i> Hazardville: A. D. Bridges' Sons.
11913	Sucrene Dairy Feed. American Milling Co., Peoria, Ill.	<i>Guaranty:</i> Norwich: Chas. Slosberg & Son.
11902	Armour's Dairy Feed. Armour & Co., Chicago, Ill.	<i>Guaranty:</i> Willimantic: Willimantic Grain Co.
11908	Pennaut Stock Feed. E. W. Bailey & Co., Swanton, Vt.	<i>Guaranty:</i> Yantic: A. R. Manning.

† Wired tags.

## INSPECTION OF 1918—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)	
11905	10.18	5.53	24.56	7.29	46.67	5.77	\$100.00
.....	.....	.....	25.00	.....	.....	5.00	.....
11941	6.39	9.12	12.06	15.72	54.78	1.93	63.00
.....	.....	.....	8.00	.....	.....	3.00	.....
11938	9.23	3.60	10.44	10.27	62.45	4.01	68.00
.....	.....	.....	10.00	10.00	.....	4.00	.....
11917	8.59	2.75	8.50	8.18	68.26	3.72	65.00
.....	.....	.....	9.00	9.00	.....	4.00	.....
11900	6.05	5.65	11.13	17.64	55.44	4.09	60.00
.....	.....	.....	10.00	16.00	50.00	3.00	.....
11861	6.98	7.18	9.00	19.11	56.78	0.95	57.50
.....	.....	.....	9.00	.....	.....	0.50	.....
11948	7.33	6.25	10.56	12.27	61.31	2.28	58.00
.....	.....	.....	9.00	.....	.....	1.50	.....
11945	7.12	8.67	11.63	16.87	53.99	1.72	.....
.....	.....	.....	10.00	12.00	50.00	2.00	.....
11926	6.41	5.15	11.00	14.40	60.38	2.66	66.00
.....	.....	.....	9.30	.....	.....	1.70	.....
11899	10.06	4.03	18.00	7.84	53.83	6.24	.....
.....	.....	.....	18.00	10.50	45.00	5.00	.....
11946	9.90	8.50	19.13	8.87	44.83	8.77	.....
.....	.....	.....	15.00	.....	.....	6.00	.....
11919	9.19	6.93	13.25	12.21	54.86	3.56	77.00
.....	.....	.....	14.00	9.00	.....	3.20	.....
11940	6.38	9.01	12.94	19.28	50.82	1.57	63.00
.....	.....	.....	.....	.....	.....	.....	.....
11884	8.80	4.40	9.69	12.65	60.47	3.99	58.00
.....	.....	.....	10.00	.....	.....	4.00	.....
11913	9.99	6.00	23.38	7.34	48.44	4.85	56.00
.....	.....	.....	16.50	.....	.....	3.50	.....
11902	7.38	6.00	22.50	13.61	44.66	5.85	68.00
.....	.....	.....	22.00	.....	.....	5.00	.....
11908	9.49	3.45	8.75	8.33	65.25	4.73	60.00
.....	.....	.....	10.00	10.00	.....	6.50	.....

TABLE V.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Brand.	Retail Dealer.
	PROPRIETARY MIXED FEEDS—Continued. Horse, Dairy and Stock Feeds—Continued.	
11936	Bufceco Stock Feed. Buffalo Cereal Co., Buffalo, N. Y.	Thomaston: L. E. Blackman Guaranty.
11934	Bufceco Creamery Feed. Buffalo Cereal Co., Buffalo, N. Y.	Thomaston: L. E. Blackman Guaranty.
11825	Bufceco Chop Feed. Buffalo Cereal Co., Buffalo, N. Y.	Shelton: Ansonia Flour & Grain Co. Guaranty.
11843	Triangle Dairy Feed. Chapin & Co., Hammond, Ind.	Guilford: Morse & Landon. Guaranty.
11904	Unicorn Dairy Ration. Chapin & Co., Hammond, Ind.	Willimantic: Willimantic Grain Co. Guaranty.
11881	Clover Leaf Stock Feed. Clover Leaf Milling Co., Buffalo, N. Y.	Thompsonville: Geo. S. Phelps & Co. Guaranty.
11897	Clover Leaf Dairy Feed. Clover Leaf Milling Co., Buffalo, N. Y.	Hartford: The Meech Northam Grain Co. Guaranty.
11909	Crosby's 1918 Dairy Ration. E. Crosby & Co., Brattleboro, Vt.	Yantic: A. R. Manning. Guaranty.
11915	Economic Special Dairy Feed. Economic Feed Co., New York.	New London: P. Schwartz Co. Guaranty.
11852	Eshelman's Stock Feed. John W. Eshelman, Lancaster, Pa.	West Cheshire: G. W. Thorpe Guaranty.
11906	Grandin's Stock Feed. D. H. Grandin Milling Co., Jamestown, N. Y.	Willimantic: Willimantic Grain Co. Guaranty.
11832	Gwinn's Dairy Feed. The Gwinn Milling Co., Columbus, O.	Wallingford: A. E. Hall. Guaranty.
11889	Red Horn Dairy Feed. Hales & Edwards, Chicago, Ill.	Rockville: Edward White. Guaranty.
11911	Haskell's Stock Feed. W. H. Haskell & Co., Toledo, O.	Norwich: Chas. Slosberg & Son. Guaranty.
11838	Algrane Milk Feed. H. O. Co., Buffalo, N. Y.	Meriden: Meriden Grain & Feed Co. Guaranty.
11840	Climax Dairy Feed. International Sugar Feed Co., Minneapolis, Minn.	Guilford: Morse & Landon. Guaranty.
11841	Ready Ration Dairy Feed. International Sugar Feed Co., Minneapolis, Minn.	Guilford: Morse & Landon. Guaranty.
11892	Special Dairy Feed. International Sugar Feed Co., Minneapolis, Minn.	Rockville: Edward White. Guaranty.
11834	Cream City Dairy Feed. Chas. A. Krause Milling Co., Milwaukee, Wis.	Meriden: August Grulich Est. Guaranty.

## INSPECTION OF 1918—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)	
11936	9.48	3.47	10.63	9.23	63.21	3.98	\$65.00
.....	.....	.....	10.00	12.00	.....	4.00	.....
11934	9.20	4.30	17.75	10.58	53.59	4.58	67.00
.....	.....	.....	18.00	12.00	.....	4.00	.....
11825	9.40	3.63	8.44	10.04	64.21	4.28	66.00
.....	.....	.....	8.00	11.00	.....	4.00	.....
11843	7.24	6.62	23.00	10.81	46.44	5.89	65.00
.....	.....	.....	21.00	.....	.....	4.00	.....
11904	8.48	6.02	27.31	9.26	42.70	6.23	70.00
.....	.....	.....	26.00	.....	.....	5.00	.....
11881	7.50	5.20	12.13	16.17	53.90	5.10	67.00
.....	.....	.....	10.00	.....	.....	4.00	.....
11897	10.69	7.83	16.88	15.68	44.23	4.69	51.00
.....	.....	.....	13.50	.....	.....	3.50	.....
11909	8.73	3.68	20.38	18.48	42.58	6.15	65.00
.....	.....	.....	25.00	15.00	59.00	6.00	.....
11915	7.71	4.36	16.13	18.01	47.62	6.17	60.00
.....	.....	.....	18.00	.....	.....	4.00	.....
11852	9.36	4.30	11.50	11.37	59.53	3.94	67.00
.....	.....	.....	10.00	.....	.....	3.00	.....
11906	7.23	3.63	10.38	9.24	62.16	7.36	61.00
.....	.....	.....	9.00	.....	.....	5.00	.....
11832	9.81	5.98	18.69	8.09	52.41	5.02	45.00
.....	.....	.....	15.00	.....	.....	4.00	.....
11889	9.07	4.70	23.94	9.65	47.56	5.08	66.00
.....	.....	.....	25.00	.....	.....	4.00	.....
11911	9.81	2.50	8.31	6.49	69.29	3.60	61.00
.....	.....	.....	9.00	.....	.....	6.00	.....
11838	7.74	5.84	16.88	14.53	51.00	4.01	50.00
.....	.....	.....	14.00	.....	.....	4.00	.....
11840	7.79	8.68	13.38	15.51	49.61	5.03	50.00
.....	.....	.....	12.00	.....	.....	4.00	.....
11841	7.35	8.55	21.19	11.81	45.19	5.91	65.00
.....	.....	.....	20.00	.....	.....	5.00	.....
11892	10.75	8.71	14.56	14.04	46.29	5.65	59.00
.....	.....	.....	15.00	.....	.....	4.50	.....
11834	8.47	5.60	18.94	13.74	48.08	5.17	65.00
.....	.....	.....	19.00	.....	.....	4.50	.....

TABLE V.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Brand.	Retail Dealer.
	PROPRIETARY MIXED FEEDS— <i>Concluded.</i> <i>Horse, Dairy and Stock Feeds—Concluded.</i>	
11835	Krause Stock Feed. Chas. A. Krause Milling Co., Milwaukee, Wis.....	<i>Meriden:</i> August Grulich Est..... Guaranty.....
11836	Badger Stock Feed. Chas. A. Krause Milling Co., Milwaukee, Wis.....	<i>Meriden:</i> August Grulich Est..... Guaranty.....
11944	Nu Life Dairy Feed. Kresse & Co., Boston, Mass.	<i>Bridgeport:</i> Standard Feed Co..... Guaranty.....
11862	Larro Feed. The Larrowe Milling Co., Detroit, Mich.....	<i>Middletown:</i> Meech & Stoddard, Inc..... Guaranty.....
11870	Big Six. The Larrowe Milling Co., Detroit, Mich.	<i>Plainville:</i> Eaton Bros..... Guaranty.....
11850	M. & S. Stock Feed. Meech & Stoddard, Inc., Middletown, Conn.....	<i>West Cheshire:</i> G. W. Thorpe Guaranty.....
11932	Domino, formerly Justice, Creamery Feed. Norwalk Milling Corp., Buffalo, N. Y.....	<i>Torrington:</i> D. L. Talcott.. Guaranty.....
11886	Green Meadow Dairy Feed. Omaha Alfalfa Milling Co., Omaha, Neb.....	<i>Hazardville:</i> A. D. Bridges' Sons..... Guaranty.....
11872	Stevens 44 Dairy Ration. Park & Pollard Co., Boston, Mass.....	<i>Bristol:</i> Goodsell Bros..... Guaranty.....
11921†	Purina Cow Chow Feed. Purina Mills, St. Louis, Mo.....	<i>New Haven:</i> Crittenden-Benham Co..... Guaranty.....
11878	Big Q Dairy Ration. Quaker Oats Co., Chicago, Ill.....	<i>Thompsonville:</i> G. S. Phelps & Co..... Guaranty.....
11871	Schumacher's Feed. Quaker Oats Co., Chicago, Ill.....	<i>Plainville:</i> Eaton Bros..... Guaranty.....
11868	Union Grains, Biles Ready Ration. The Ubiko Milling Co., Cincinnati, O.....	<i>Plantsville:</i> C. A. Cowles... Guaranty.....
11943	Diamond Dairy Feed No. 2. Viehman Grain Co., Minneapolis, Minn.....	<i>East Haven:</i> F. A. Forbes.. Guaranty.....
	POULTRY FEEDS.	
11826	Bufceco Poultry Mash. Buffalo Cereal Co., Buffalo, N. Y.....	<i>Shelton:</i> Ansonia Flour & Grain Co..... Guaranty.....
11874	H-O Co.'s Poultry Feed. H. O. Co., Buffalo, N. Y.....	<i>Bristol:</i> Goodsell Bros..... Guaranty.....
11933	Laying Mash. John W. Eshelman, Lancaster, Pa.	<i>Torrington:</i> D. L. Talcott.. Guaranty.....
11888	Red Comb Crate Fattener with Dried Butter-milk. Hales & Edwards, Chicago, Ill.....	<i>Rockville:</i> Edward White... Guaranty.....

† Wired tags.

## INSPECTION OF 1918—Continued.

Station No.	Price per Hundred.						Price per ton.
	Water.	Ash.	Protein (N. x 6.25)	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract. (Crude Fat)	
11835	8.36	3.65	9.44	10.06	63.49	5.00	\$65.00
.....	.....	.....	10.00	.....	.....	4.50	.....
11836	7.20	5.38	11.25	15.08	56.81	4.28	60.00
.....	.....	.....	10.00	.....	.....	4.50	.....
11944	8.52	7.35	22.19	11.53	46.06	4.35	60.00
.....	.....	.....	.....	.....	.....	.....	.....
11862	9.63	4.38	20.50	11.08	49.41	5.00	64.00
.....	.....	.....	20.00	14.00	50.00	3.00	.....
11870	8.45	5.17	21.13	7.45	51.94	5.86	67.00
.....	.....	.....	21.00	12.00	48.00	4.00	.....
11850	8.67	4.59	9.56	9.16	63.80	4.22	57.00
.....	.....	.....	9.00	.....	.....	3.00	.....
11932	8.84	5.75	23.31	10.78	45.95	5.37	65.00
.....	.....	.....	24.00	.....	.....	4.00	.....
11886	6.47	10.13	12.38	19.95	50.14	0.93	55.00
.....	.....	.....	10.00	.....	.....	.....	.....
11872	7.60	5.40	24.81	13.06	43.29	5.84	71.00
.....	.....	.....	24.00	.....	.....	5.00	.....
11921	8.20	6.45	24.44	10.89	45.57	4.45	76.00
.....	.....	.....	24.00	12.00	42.00	4.80	.....
11878	8.77	6.63	20.19	10.38	48.78	5.25	67.00
.....	.....	.....	21.00	.....	.....	5.00	.....
11871	8.34	4.73	11.75	10.42	61.04	3.72	58.00
.....	.....	.....	10.00	.....	.....	3.25	.....
11868	8.02	4.90	23.94	9.48	47.07	6.59	70.00
.....	.....	.....	24.00	10.00	50.00	5.00	.....
11943	8.83	8.62	11.63	21.71	42.76	6.45	48.00
.....	.....	.....	8.00	.....	.....	4.00	.....
11826	8.86	2.40	14.00	3.80	65.23	5.71	75.00
.....	.....	.....	15.00	5.60	.....	4.00	.....
11874	9.10	3.70	19.38	6.25	55.68	5.89	64.00
.....	.....	.....	17.00	9.00	.....	4.50	.....
11933	9.88	9.19	19.50	6.41	49.29	5.73	80.00
.....	.....	.....	20.00	.....	.....	5.00	.....
11888	11.18	4.78	15.44	5.55	58.50	4.55	80.00
.....	.....	.....	15.00	.....	.....	4.00	.....

TABLE V.—ANALYSES OF COMMERCIAL FEEDS,

Station No.	Brand.	Retail Dealer.
<i>POULTRY FEEDS—Concluded.</i>		
11860	M. & S. Dry Mash. Meech & Stoddard, Inc., Middletown, Conn.....	<i>Middletown:</i> Meech & Stoddard, Inc..... Guaranty.....
11912	Mystic Laying Mash. Mystic Milling & Feed Co., Rochester, N. Y.....	<i>Norwich:</i> Chas. Slosberg & Son..... Guaranty.....
11928	Growing Feed. Park & Pollard Co., Boston, Mass.....	<i>New Haven:</i> F. S. Platt Co. Guaranty.....
11898	Lay or Bust Feed (Dry Mash). Park & Pollard Co., Boston, Mass.....	<i>Hartford:</i> The Meech North- am Grain Co..... Guaranty.....
11927	Platt's Laying Mash. F. S. Platt Co., New Haven, Conn.....	<i>New Haven:</i> F. S. Platt Co. Guaranty.....
11837	Tom Boy Poultry Mash. Purity Oats Co., Davenport, Iowa.....	<i>Meriden:</i> Meriden Grain & Feed Co..... Guaranty.....
11947	Ful-O-Pep Dry Mash. Quaker Oats Co., Chica- go, Ill.....	<i>Norwalk:</i> C. E. Slauson Co. Guaranty.....
11833	Chic Chuck Poultry Feed. Russia Cement Co., Gloucester, Mass.....	<i>Wallingford:</i> A. E. Hall.... Guaranty.....
11950	Ti-O-Ga Laying Food. Tioga Mill & Elev. Co., Waverly, N. Y.....	<i>Stamford:</i> W. L. Crabb.... Guaranty.....



INSPECTION OF 1918—*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)	
11860	10.23	6.60	19.25	5.69	53.70	4.53	\$75.00
.....	.....	.....	<b>12.00</b>	<b>8.00</b>	.....	<b>3.00</b>	.....
11912	9.31	7.80	18.94	12.68	45.82	5.45	79.00
.....	.....	.....	<b>23.00</b>	.....	.....	<b>4.00</b>	.....
11928	11.10	4.30	12.56	5.12	63.25	3.67	86.00
.....	.....	.....	<b>10.00</b>	.....	.....	<b>1.50</b>	.....
11898	10.40	8.22	19.38	7.03	51.72	3.25	83.00
.....	.....	.....	<b>18.00</b>	<b>12.00</b>	<b>40.00</b>	<b>1.50</b>	.....
11927	10.36	11.20	18.94	5.13	48.99	5.38	84.00
.....	.....	.....	<b>20.00</b>	.....	.....	<b>5.50</b>	.....
11837	7.69	5.05	16.19	8.98	57.22	4.87	82.00
.....	.....	.....	<b>15.00</b>	<b>10.00</b>	.....	<b>4.00</b>	.....
11947	9.03	9.00	21.00	8.35	46.82	5.80	.....
.....	.....	.....	<b>20.00</b>	.....	.....	<b>4.00</b>	.....
11833	6.87	37.13	52.13	1.81	0.73	1.33	88.00
.....	.....	.....	<b>50.00</b>	.....	.....	<b>2.00</b>	.....
11950	8.57	16.79	20.19	5.53	44.27	4.65	66.00
.....	.....	.....	<b>16.00</b>	.....	.....	<b>2.50</b>	.....

TABLE VI.—INSPECTION OF

No.	Brand.	Net weight of package.			Chemical Analysis.						
		lbs.	cts.	cts.	Water.	Ash.	Nitrogen.	Nitrogen as nitrate.	Crude fiber.	Ether extract.	
11495	Dr. Hess Stock Tonic..... Dr. Hess & Clark, Ashland, Ohio.	2.0	25	13	7.58	36.32	0.67	present	22.61	0.25	
11497	Dr. Hess Worm Powder..... Dr. Hess & Clark, Ashland, Ohio.	1.5	50	33	12.17	27.83	0.44	none	24.71	0.71	
11500	O H Calves' Cordial..... Our Husbands Mfg. Co., Lyndon, Vt.	1.0	35	35	6.83	65.30	0.17	none	9.65	0.45	
11506	Pratt's Animal Regulator..... Pratt Food Co., Philadel- phia, Pa.	1.3	25	19	7.16	18.55	0.96	none	39.43	7.20	
11507	Pratt's Conditioner..... Pratt Food Co., Philadel- phia, Pa.	7.0	50	7	7.25	17.12	0.92	trace	41.58	7.20	
11505	Pratt's Worm Powder..... Pratt Food Co., Philadel- phia, Pa.	0.8	50	66	6.67	14.58	1.05	trace	38.68	1.63	
11508	Pratt's Baby Chick Food..... Pratt Food Co., Philadel- phia, Pa.	2.5	30	12	10.41	9.54	2.14	present	3.12	5.69	
11504	Chicure Egg Producer..... King Remedy Co., Roches- ter, N. Y.	1.5	25	17	4.25	51.50	2.60	present	3.91	11.34	
11503	Salovet Poultry Tonic..... The S. R. Feil Co., Cleve- land, Ohio.	1.5	25	17	4.72	56.25	0.65	trace	23.92	3.44	
11502	Conkey's Laying Tonic..... G. E. Conkey Co., Cleve- land, Ohio.	...	25	..	5.60	27.50	1.26	present	39.13	11.13	
11498	Rust's Egg Producer..... William Rust & Sons, New Brunswick, N. J.	2.5	50	20	5.83	58.53	3.13	present	4.88	3.32	
11496	Pratt's Poultry Regulator.... Pratt Food Co., Philadel- phia, Pa.	1.5	25	17	5.26	23.38	1.02	trace	37.40	7.29	
11494	Dr. Hess Poultry Panacea.... Dr. Hess & Clark, Ashland, Ohio.	1.5	25	17	8.52	28.65	0.46	present	23.88	0.44	
10550	Scour Cure..... Manufacturer unknown.	...	..	..	95.19*	0.09	.....	.....	.....	.....	

\* Water and volatile.

## CONDIMENTAL FOODS AND REMEDIES.

No.	Ingredients Declared or Claims Made.	Vegetable and Mineral Ingredients Found.
11495	Contains blood-builders, tonics, laxatives and worm expellers . . . . .	Charcoal; fenugreek; quassia; nux vomica; aconite(?); gentian indicated; ground cotton hulls; Epsom salt; Glauber's salt(?); common salt; saltpeter.
11497	For horses, cattle, hogs, sheep and poultry . . . . .	Quassia; cinchona; cotton hulls; weed seeds; salt; sulphates; iron and magnesium.
11500	Mixture of four ingredients that make a corrective for any unnatural condition of stomach and bowels . . . . .	Charcoal; ginger; alkaloids not found; bitter principles none; bicarbonate of soda; sulphates; calcium; magnesium; iron and aluminum.
11506	Free from all poisons and injurious drugs. Acts on the blood, bowels and digestive organs . . . . .	Fenugreek; charcoal; nux vomica; quassia; ginger indicated; Epsom salt; common salt; iron.
11507	Tonic for horses, cattle and sheep . . . . .	Gentian; quassia; nux vomica; ground hulls resembling buckwheat hulls; Epsom salt; common salt; saltpeter probably; iron and calcium.
11505	Kills and expels worms. Strong tonic. Sure remedy . . . . .	Cinchona; quassia; nux vomica; charcoal; red pepper indicated; weed seeds; Venetian red; phosphates.
11508	Protein 11.50 per cent.; fat 3.50; crude fiber 3.80. Corn meal, wheat and oat middlings, cooked wheat, bone meal, shell meal, millet, pepper, rape . . . . .	Fenugreek; pepper; bitter principle none; wheat; corn; bran; rape; millet; ground shells; Epsom salt; nitrates.
11504	Guaranteed to produce eggs . . . . .	Pepper; sulphur; Venetian red; ground shells; salt; saltpeter; sulphates; magnesium.
11503	Charcoal, cayenne pepper, copperas, Glauber's salt, Epsom salt, fenugreek, salt, anise, quassia, sulphur, bicarbonate of soda, saltpeter, iron oxide, carbonate of lime . . . . .	Pepper; sulphur; fenugreek; bitter principle; charcoal; Epsom salt; nitrates; ferrous sulphate; ground shells.
11502	Medicine, contains no filler, should be used in small quantities only . . . . .	Pepper; sulphur; bitter principle; charcoal; rape seed; bicarbonate of soda; sulphates; sulphites; chlorides; nitrates.
11498	Non-nutritive, not a feeding stuff . . . . .	Pepper; sulphur; bitter principle; ginger indicated; ground shells; phosphates (bone); sulphates; nitrates; iron; magnesium.
11496	A medicinal tonic, no nutritive properties . . . . .	Pepper; sulphur, small amount; fenugreek; bitter principle; ginger; ground shells.
11494	Potassium nitrate, quassia, sulphate of iron, calcium carbonate, nux vomica, sodium hyposulphite, sodium chloride, Venetian red . . . . .	Venetian red; sulphur(?); quassia; nux vomica; ground cotton hulls; saltpeter; ferrous sulphate; salt; sodium hyposulphite; ground limestone.
10550	. . . . .	Capsicum; ginger(?); phenolic compounds; opium alkaloids; mineral medicaments, none or trace.