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INFORMATION REGARD-
ING THE NEW FEED LAW

BY

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Information Regarding the New Feed Law.

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The Legislature of 1905 passed a law, Senate bill No. 159, governing the sale of concentrated feeding stuffs in Texas. The Legislature of 1907 amended said law, and the new act is known as House bill No. 399. This bulletin sets forth and explains the provisions of the act now regulating the sale of feed stuffs in the State of Texas, and gives the composition of some feeding stuffs on the Texas market, for the information and guidance of those concerned.

THE FEEDING STUFF LAW.

The following is a summary of the chief provisions of the Texas Feeding Stuff Law. (For full text of the law, see pages 20-24.)

The Texas Feeding Stuff Law requires that every package of feeding stuff shall carry a tax tag, and on the tag a plainly printed statement showing clearly the number of net pounds of feeding stuff in the package, and, in case the contents are of a mixed nature, the name or names and percentage of materials of which such weight is composed, the name, brand or trade-mark under which the article is sold, the name and address of the manufacturer or importer, the place of manufacture, and a chemical analysis stating the minimum percentages it contains of crude protein, of crude fat, of nitrogen-free extract, and the maximum percentage it contains of crude fiber.

All concentrated feeding stuffs, including wheat bran, corn chops, cotton seed meal, rice hulls, etc., are subject to the requirements of the law. Hay and straw and the whole seed or grains of wheat, corn or other whole or unground grains or seeds are not included in this law.

Before selling or offering for sale any concentrated feeding stuff in this State, the manufacturer, importer, or party who causes it to be sold or offered for sale, must deposit with the Director of the Experiment Station a sealed glass jar or bottle containing not less than one pound of each kind or brand of such feeding stuff. This sealed package is hereafter referred to in this bulletin and in correspondence as the "deposit sample." The sample must be accompanied by an affidavit that it is a fair average sample of the feeding stuff to be sold or offered for sale, and that it corresponds within reasonable limits to the feeding stuff which it represents in the percentage of protein, fat, crude fiber and nitrogen-free extract which it contains. The sample must also be accompanied by the following information, to wit:

1. The number of net pounds of feeding stuff in the package to be sold or offered for sale.
2. The names and percentages of materials of which the weight is composed where the contents are of a mixed nature.
3. The name, brand, or trademark under which the article is sold.
4. The name and address of the manufacturer or importer.
5. Place of manufacture.
6. A statement of the protein, fat, crude fiber and nitrogen-free extract which it is guaranteed to contain.

This shall not be construed to apply to farmers who grind their own feed stuff and who do not adulterate same.

The above information must be printed or stamped on the reverse side of the inspection tax tag.

Mill products shall have the following standard weights, viz.: Flour, one hundred and ninety-six (196) pounds per barrel, or forty-eight (48) pounds per sack; corn meal, bolted or unbolted, thirty-five (35) pounds per sack; rice bran, one hundred and forty-three (143) pounds per sack; rice polish, two hundred (200) pounds per sack, and other feeds made from cereals of any kind, whether pure, mixed, or adulterated, one hundred (100) pounds per sack. Fractional barrels and sacks shall weigh in the same proportion, and these weights shall be net and exclusive of the barrel or sack in which said product is packed.

On application to the Director blank registration forms are furnished to the manufacturer, importer, or party wishing to register feed stuffs.

The law imposes a tax of 10c per ton on all concentrated feeding stuffs, which must be paid before the tags are issued. This money is paid to the Director of the Experiment Station to be transmitted to the State Treasurer and to be withdrawn for expenses incurred in the enforcement of the law.

The penalty for using any bag, box, barrel, or any other receptacle into which to put a product other than the one bearing the name of the mill manufacturing the product is a fine of from one hundred dollars to one thousand dollars, or confinement in the county jail for a term of thirty days, or both fine and imprisonment.

The penalty for selling or offering for sale any concentrated feeding stuffs without the tax tag and the information required by the law, or with the statement that the feeding stuff contains substantially a larger percentage of protein, fat or nitrogen-free extract, or a smaller quantity of crude fiber than it does contain, is a fine of not less than one hundred dollars nor more than five hundred dollars for the first offense, and not less than five hundred dollars nor more than one thousand dollars for each subsequent offense.

Counterfeiting tax tags or using the same tag a second time may be punished by a fine of not more than five hundred dollars, one-half of which is paid to the informer. This fine may be increased for subsequent offenses.

The penalty for manufacturing, selling or offering for sale any adulterated feeding stuff is a fine of not less than twenty-five dollars, and not more than two hundred dollars, or imprisonment in the county

jail for a term of not less than thirty days and not more than sixty days, or both fine and imprisonment.

An adulterated feed is one that contains any sawdust, dirt, damaged feed, or any foreign matter whatever, any rice hulls or chaff, peanut shells, corn cobs, oat hulls, or if other similar substances of little or no feeding value are admixed, or if it is in any respect not what it is represented to be; provided, that no wholesome mixture of feeding stuff is adulterated if the true percentage of constituents of such a feed are clearly stated on the package and made known to the purchaser at the time of the sale.

The law requires the Director of the Experiment Station to make annually one or more analyses of each feeding stuff sold or offered for sale under this act, and it empowers him to take samples, which shall be drawn from not less than five per cent of the whole lot inspected. The Director has the power to refuse the registration of any feeding stuff under a misleading name or not in conformity with adopted standards and definitions. He shall have a right to cancel the registration ten days after notice if it is discovered to be in violation of any provisions so required.

The results of the analyses and additional information must be published in reports or bulletins.

HOW TO MEET THE REQUIREMENTS OF THE LAW.

The Director of the Experiment Station has instituted a department which is designated as the "Feed Control." All correspondence relating to this subject should be addressed to Feed Control, College Station, Texas.

The Feed Control has prepared certain forms and adopted regulations for carrying out the provisions of the law, which are here briefly outlined for the guidance of those interested. The following forms are used:

1. A "Registration Form" for use in first registering a product with the Feed Control.

2. A "Re-Registration Form."

The Registration Form contains blanks for inserting the information required by law, and a blank form of the affidavit required. When a manufacturer or importer wishes to put a feed stuff on the Texas market, he applies to the Feed Control for a "Registration Form." Receiving this, he fills out the blanks, executes the affidavit, which is a part of the form, sends it to the Feed Control, and at the same time a "deposit sample" of the feed stuff. A separate registration form and separate sample is required for each particular feeding stuff to be registered. For illustration, if one wishes to register corn chops and wheat bran, apply for two registration forms. When the registration form, or forms, properly executed, and the sample of the feeding stuff (properly sealed and otherwise correct) arrive at the Feed Control office, the feeding stuff concerned is registered at once. Tags may be ordered at the time these things are attended to, or as needed.

To arrive at percentage of protein, fat, crude fiber, and nitrogen-

free extract which he wishes to guarantee for his product, the manufacturer or importer may adopt either of the following plans, to-wit: (1) He may examine the tables in this bulletin to see how pure products similar to his usually run, and then make a guarantee that he feels he can safely maintain, or (2) he may send a fair average sample to some chemical laboratory for determination of its protein, fat, crude fiber, and nitrogen-free extract content, and base his guarantee on this analysis. It is not usually safe to make a guarantee quite so high as the chemist's analysis shows, especially if such analysis runs high, since a high guarantee is difficult to maintain. The Feed Control makes analyses from time to time of samples taken by its inspectors from stores or from the mills, to ascertain whether the guarantees are maintained.

The "Re-Registration Form" referred to is used when the manufacturer or importer wishes to re-register a feed stuff already duly registered. No samples need be sent when re-registration is desired, unless a change in guarantee or the percentage of materials of a feed is made. If such an alteration occurs a new sample in a sealed glass jar or bottle is required.

In case of a change in the proprietorship of a manufacturing plant or firm where a registration of feeds has been made the new owner should notify the Feed Control of the change and a request be made for re-registration forms. The same guarantee used by the first party may be used by the second party or a new guarantee may be made; however, a new re-registration must always be executed. A sealed sample in a glass jar or bottle in such cases is only required where a change in guarantee or the percentage of materials in a feed is made.

The tax tag is simply a certificate from the Feed Control office, stating that the inspection tax has been paid. The inspection tax imposed by the law upon feeding stuffs is collected by selling these tags at such a price, each, as makes the amount of ten (10) cents per ton. Money for the tags should accompany the order or they will be sent C. O. D. Upon receipt of these tags the party registering the feeding stuff should have printed or stamped on the reverse side the information required by law—the name of the manufacturer, the place of manufacture, the content of protein, fat, crude fiber, and nitrogen-free extract, and the percentage of ingredients, if it is a mixed feed. *The printing of this information is never done by the Feed Control office.*

Deposit samples must be sealed with sealing wax, or they will be rejected by the Feed Control, and new ones called for. To insure safe arrival it will be well to enclose jars in a strong wooden box, protected by excelsior or other material to prevent breakage. *Ship samples of feed stuff to this office in sealed glass jars or bottles only.*

THE COMPOSITION OF CONCENTRATED FEEDING STUFFS OF TEXAS.

The amendments to the Feed Law require a guarantee of the nitrogen-free extract and crude fiber in addition to the guarantee of protein and fat previously required. This fact renders it desirable to publish some information in regard to the composition of the concentrated

feeding stuffs sold in Texas, which is accordingly presented in the following pages.

DEFINITION OF TERMS.

The complete analysis of a feeding stuff gives its content of protein, fat, crude fiber, nitrogen-free extract, and ash, expressed in percentages.

Protein, being the constituent of food which forms flesh, muscle, hair, ligaments, and other portions of the animal body, is of great importance. It replaces the wear and tear of the animal tissue and furnishes material for additional flesh. Besides furnishing material for tissue, protein may be burned in the body to produce heat, or it may serve as a source of fat in case of a deficiency in carbohydrates and fat accompanied by excess or protein. It is, however, a costly source of heat and fat.

Value of Protein.—Protein is the most expensive portion of a food, and feeds rich in protein usually sell for a higher price than feeds low in protein, though the difference is not as great in Texas as in Northern States. *With a given feed, the more protein it contains, the better its quality, compared with other feeds of the same kind.* Thus, cottonseed meal containing 48 per cent protein is of better quality than cottonseed meal containing 45 per cent protein. A low protein content of cottonseed meal, accompanied by a high content of crude fiber, indicates that the meal contains an excessive amount of hulls.

We can not, however, compare the values of different feeds on a protein basis: For example, a cottonseed meal containing 45 per cent protein does not have five times the value of corn chops containing 9 per cent protein. There are other constituents of both feeding stuffs (fat and nitrogen-free extract) which are of value to the animal, and corn chops contains much more nitrogen-free extract than cottonseed meal.

Fat (or ether extract) is composed mainly of fats and oils in the case of concentrated feeding stuffs, but with fodders or hays it is often composed to a considerable extent of waxes, coloring matter, and other substances. Fat is used in the animal body as a source of body fat and to furnish heat and energy. The animal requires heat to keep its body warm and energy to run the animal mechanism or to do outside work. The beating of the heart, chewing, movements of the intestines, and the involuntary muscular movements require energy which is furnished by the oxidation of fats, carbohydrates or protein. One pound of fat is equal to 2.25 pounds carbohydrates.

Value of Fat.—Fat ranks next to protein in its value in a feeding stuff. *The more protein and fat a given feed contains, the better its quality compared with other feeds of the same kind.* Cottonseed meal containing 58 per cent protein and fat is of higher value than cottonseed meal containing 50 per cent protein and fat. Cottonseed meal is indeed often sold on the basis of its protein and fat content, as determined by chemical analysis.

As with protein alone, however, two feeds of *different kinds* can not

be compared on the basis of their content of protein and fat, since other factors enter into consideration, which will be discussed later.

Crude Fiber is the portion of the plant which resists the intense action of acids and alkalies. It consists mostly of the cell walls and woody fiber of the plant, and is the most indigestible part of the feed stuff. By means of fermentation in the intestines, crude fiber is digested to some extent in animals which chew the cud. The operation, however, consumes so much energy that a large portion of the value of the crude fiber is taken up by the process of digestion. Hays and fodders and other roughage generally contain much crude fiber, but concentrated feeding stuffs contain comparatively small quantities of it.

Value of Crude Fiber.—Crude fiber is the woody and less digestible portion of a feeding stuff. *The more crude fiber a food contains, the poorer its quality compared with other feeds of the same kind.* Feeding materials of low value, both commercially and to the animal, such as straw, cottonseed hulls, rice hulls, oat hulls, corn cobs, rice bran, etc., contain large quantities of crude fiber, and their addition to a concentrated feeding stuff increases its content of crude fiber. Thus, if the crude fiber in cottonseed meal exceeds certain limits, it indicates that the meal is adulterated with cottonseed hulls. In a similar way, crude fiber in excess of a given minimum may indicate corn cob or corn bran in corn chops; rice hulls in rice bran or other feeding stuffs. The amount of crude fiber is a much more sensitive indication of low quality or of adulteration, than the protein and fat, since the adulterants generally contain large quantities of crude fiber.

To repeat, the more crude fiber a feeding stuff contains, the poorer its quality compared with other feeds of the same kind. This also holds to some extent in comparing feeds of different kinds, but not entirely; we must also consider the protein and fat content of the two kinds of feed. Thus wheat bran contains considerably more crude fiber than corn chops, but has a higher feeding value because it contains more protein.

Nitrogen-free extract is composed of starch, sugar, dextrin, and other substances of similar nature. These substances are mostly carbohydrates, that is, they contain carbon, and hydrogen and oxygen in proportions to form water. Crude fiber is also composed largely of carbohydrates.

Value of Nitrogen-Free Extract.—The nitrogen-free extract of most concentrated feeding stuffs, such as corn chops, wheat bran, cottonseed meal, kaffir corn, is composed largely of sugars and starches, which are readily digested and have considerable value to the animal.

The nitrogen-free extract of wheat skins, corn bran, corn cobs, rice hulls, hays and straws, and similar feeds, is composed mostly of other substances than sugar and starch, and has a lower value to animals. The nitrogen-free extract of these two kinds of foods, therefore, can not be compared directly.

In general we may say, that the more protein, fat and nitrogen-free extract, and the less crude fiber and ash a given feed contains, compared with other feeds of the same kind, the better the quality of the feeding stuff, and the reverse is also true.

The same statement also holds in comparing feeding stuffs of different kinds, but not altogether; since, in comparing foods of different kinds we must also consider their digestibility and the productive value of the digested material.

Ash is the residue left when the plant is burned. It represents mostly the mineral portion of the plant and the portion which comes from the soil, although a part of the ingredients withdrawn from the soil are volatilized during combustion. Nitrogen particularly is driven out completely. Ash is valuable to the animal, inasmuch as it furnishes the material for bones, and some constituents of it, particularly phosphoric acid and sulphur, are essential constituents of the animal cell.

Value of Ash.—Ash is necessarily present in feeding stuffs. An excessive amount indicates contamination with dirt, sand, or other matter. The amendment to the feed law does not require a guarantee of ash.

Water (moisture) is always contained in feeding stuffs, but since it is furnished for the most part in liquid form, it can not be considered as having any special nutritive value.

Value of Water.—The more water a feed stuff contains, the less of the other nutrients it contains, and the more liable it is to be injured by heating or mold, etc. The water content of feeds varies, being larger in new grains and gradually drying out.

DIGESTIBILITY OF FEEDING STUFFS.

That portion of a food which disappears in its passage through an animal is termed the *digestible* portion. Since the constituents of different feeds have different digestibilities, it is obvious that the digestible nutrients is a better basis for comparing feeds of *different kinds* than the chemical composition.

There are a number of factors which influence digestibility, such as the kind and condition of the animal, the stage of growth of the plant, the proportion of the nutrients, and cooking, or other treatment. It would take too much space to discuss these factors here.

By the *coefficient of digestion*, we mean the percentage of the nutrient which is digested. Thus, suppose we give 59.7 as the coefficient of digestibility of protein in green corn. That means that 59.7 per cent of all the protein present is digested in the passage of the feeding stuff through the animal.

Table 1 gives the coefficients of digestibility of some feeding stuffs.

TABLE NO. 1.—COEFFICIENTS OF DIGESTIBILITY OF SOME FEEDING STUFFS.

	Organic Matter.	Ash.	Protein.	Crude Fiber.	Nitrogen-Free Extract.	Fat.
	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.
Johnson grass hay	58.3	30.5	41.4	65.7	56.9	38.4
Orchard grass hay	57.8	.....	59.5	60.4	55.4	53.8
Timothy hay.. ..	57.9	32.8	46.9	52.5	62.3	52.2
Corn fodder (mature)	70.7	30.6	56.1	55.8	72.2	73.9
Corn stover	59.1	32.6	35.6	64.2	57.9	70.4
Crimson clover hay	59.1	51.9	68.7	46.7	64.6	43.4
Alfalfa hay.. ..	60.7	39.5	72.0	46.0	69.2	51.0
Peanut vine hay.. ..	63.1	20.4	63.3	51.9	69.5	65.9
Corn meal.....	89.6	.....	67.9	.....	94.6	92.1
Corn and cob meal.....	79.8	.....	55.6	45.7	87.6	84.1
Corn cobs.....	51.4	.....	19.3	57.5	48.3	.....
Wheat bran.....	65.7	.....	77.8	28.6	69.4	68.0
Wheat middlings	78.5	.....	79.8	33.1	81.3	86.3
Cottonseed hulls.....	40.5	23.2	.....	40.0	41.1	85.7
Cottonseed meal	76.1	23.7	88.4	55.5	60.6	93.3
Rice meal	81.6	.....	61.9	.....	92.3	91.1

COMPOSITION OF WHEAT PRODUCTS.

The principal wheat products sold for animal feeds in Texas are wheat bran, wheat shorts, and wheat chops, the amount of the latter being small.

Wheat bran is the outer covering of the wheat grain, containing usually a small quantity of starch.

Wheat shorts consist mostly of the inner portion of the grain, next to the bran, though it often contains some bran. It is much more starchy than wheat bran.

Wheat chops is the entire grain chopped up.

The chemical composition of wheat products is shown in Table 2.

TABLE NO. 2.—COMPOSITION OF WHEAT PRODUCTS.

Laboratory Number.		Water.	Fat.	Protein.	Crude Fiber.	Nitrogen-free Extract.	Ash.
3030	Wheat bran.....	10.58	4.07	17.33	9.31	53.62	5.09
3022	Wheat bran.....	11.20	3.73	16.75	10.42	51.63	6.27
3038	Wheat bran.....	10.03	4.49	17.50	8.82	52.96	6.20
3037	Wheat bran.....	10.53	3.81	19.00	11.30	48.45	3.81
3059	Wheat bran.....	11.88	3.94	17.25	7.02	55.20	4.71
3047	Wheat bran.....	11.25	3.26	17.00	7.98	55.59	4.92
3041	Wheat bran.....	10.71	3.96	17.58	8.22	56.99	2.54
3043	Wheat bran.....	11.12	3.81	17.95	5.18	57.00	4.94
3044	Wheat bran.....	11.13	3.52	19.32	7.48	53.50	5.05
3046	Wheat bran.....	11.00	4.05	15.95	8.47	55.53	5.00
	Average.....	10.94	3.86	17.56	8.42	54.05	4.85
	Average 488 analyses (Bulletin 90).....		4.42	14.75			
3039	Wheat shorts.....	9.42	4.06	14.75	9.60	55.99	6.18
3023	Wheat shorts.....	10.81	4.59	18.13	3.45	60.12	2.90
2985	Wheat shorts.....	10.58	2.15	15.31	1.30	69.39	1.27
2938	Wheat shorts.....	11.13	3.09	15.25	4.13	63.13	3.27
2983	Wheat shorts.....	10.83	2.29	17.38	2.32	64.87	2.31
2946	Wheat shorts.....	10.23	2.86	15.63	2.69	66.41	2.18
2973	Wheat shorts.....	9.48	2.57	17.18	2.05	67.21	1.51
2916	Wheat shorts.....	10.43	4.43	16.00	3.12	63.16	2.86
3074	Wheat shorts.....	12.83	3.27	17.00	3.73	60.32	2.85
2689	Wheat shorts.....	11.85	4.52	16.12	3.90	60.48	3.13
	Average.....	10.76	3.38	15.28	3.63	63.11	2.85
	Average 97 analyses (Bulletin 90).....		4.28	16.90			
2941	Wheat chops.....	11.07	2.01	16.50	3.54	64.71	2.17
2987	Wheat chops.....	11.10	1.90	16.81	2.93	65.70	1.56
	Average.....	11.09	1.96	16.66	3.19	65.21	1.87
	Average 13 analyses (Bulletin 90).....		2.52	16.01			

CORN PRODUCTS.

The principal corn products are corn chops, corn bran, and corn and cob meal.

Corn chops is the entire grain of corn chopped up for feeding purposes.

Corn bran is the outer covering of the corn grain. It is a by-product in the manufacture of corn meal.

Corn and cob meal is the ground grain of corn, with more or less cob therein.

The composition of some corn products is shown in Table 3.

TABLE NO. 3.—COMPOSITION OF CORN PRODUCTS.

Laboratory Number.		Water.	Fat.	Protein.	Crude Fiber.	Nitrogen-Free Extract.	Ash.
3049	Corn chops.....	14.12	3.63	9.50	2.44	69.18	1.13
3050	Corn chops.....	12.34	3.83	10.13	3.77	68.79	1.14
3051	Corn chops*.....	13.34	3.80	9.13	8.61	63.90	1.22
3080	Corn chops.....	11.71	3.81	8.88	2.26	72.21	1.13
3081	Corn chops.....	11.23	4.10	9.90	2.15	71.48	1.14
3064	Corn chops*.....	11.78	3.83	9.88	6.13	66.43	1.95
3067	Corn chops.....	10.98	4.31	9.82	2.51	71.16	1.22
3068	Corn chops.....	12.29	3.98	9.00	2.47	71.18	1.08
3069	Corn chops.....	13.15	4.59	10.06	1.93	69.11	1.16
3070	Corn chops.....	12.77	4.15	10.25	2.31	69.50	1.02
2300	Corn chops.....	10.48	3.75	9.81	2.80	87.88	1.64
	Average except 3051 and 3064....	11.81	3.90	9.60	2.52	71.71	1.19
	Average of 475 analyses (Bulletin 90).....		4.10	9.30			
424	Corn and cob meal.....	9.45	3.04	7.83	10.48	68.05	1.15
425	Corn and cob meal.....	11.48	3.65	8.25	7.48	67.95	1.22
426	Crushed ears of corn.....	7.54	4.26	9.37	5.82	71.69	1.42
427	Corn and cob meal.....	8.40	3.98	17.12	6.20	62.90	1.40
750	Corn and cob meal.....	10.78	4.29	10.00	3.44	70.40	1.09
754	Corn and cob meal.....	9.81	3.89	10.25	6.87	67.78	1.40
758	Corn and cob meal.....	9.38	3.04	10.85	10.25	65.14	1.38
802	Corn and cob meal.....	10.18	3.58	7.35	7.27	70.32	1.30
2928	Corn and cob meal.....	12.45	3.45	10.75	5.21	67.00	1.14
3078	Corn and cob meal.....	10.63	3.74	9.64	7.98	76.63	1.38
	Average.....	10.01	3.69	10.14	7.10	68.78	1.28
	Average of 10 analyses† (Bulletin 90).....		3.49	8.51	7.98		2.01
1903	Corn bran.....	10.22	5.71	8.25	13.30	60.73	1.79
666	Corn bran.....	11.63	7.84	8.69	13.03	57.07	1.74
848	Corn bran.....	12.03	4.53	9.50	7.03	65.51	1.40
638	Corn bran.....	9.40	3.18	9.13	7.75	69.25	1.29
636	Corn bran.....	9.40	2.31	8.00	12.52	65.74	2.03
1010	Corn bran.....	9.26	5.66	8.69	9.44	65.30	1.65
351	Corn bran.....	8.12	8.33	10.07	9.99	61.18	2.31
499	Corn bran.....	7.42	11.22	11.00	10.49	56.91	3.01
749	Corn bran.....	9.16	2.66	5.48	16.13	65.33	1.24
753	Corn bran.....	8.02	9.09	10.41	8.57	61.15	2.76
756	Corn bran.....	6.84	6.03	8.28	9.44	60.44	8.97
761	Corn bran.....	9.18	8.70	10.72	8.81	59.73	2.68
751	Corn bran.....	7.92	5.85	8.12	13.81	62.47	1.83
	Average.....	9.12	6.24	8.95	10.79	62.35	2.51
	Average of 18 analyses (Bulletin 90).....		6.23	8.86			

*Not pure. †Texas.

COTTONSEED PRODUCTS.

We have not considered it necessary to make analyses of cottonseed hulls. The composition of hulls and meal is exhibited in Table 4.

Bulletin No. 70 of the Texas Experiment Station contains a discussion of the composition of cottonseed meal. The samples received from various mills were subjected to analysis and plotted upon the map of Texas. It was clearly shown that the richest meal comes from the central portion of the State, and meal from the eastern part of the State is lower in nitrogen. This East Texas meal is, however, equal to, or superior to, the American average.

TABLE NO. 4.—COMPOSITION OF COTTONSEED PRODUCTS.

Laboratory Number.		Water.	Fat.	Protein.	Crude Fiber.	Nitrogen-Free Extract.	Ashr.
3008	Cottonseed meal.	8.00	12.17	48.25	5.07	12.17	13.59
3003	Cottonseed meal.	7.27	9.19	45.75	2.80	20.11	6.88
3007	Cottonseed meal.	7.64	9.20	45.00	2.80	28.56	6.80
3084	Cottonseed meal.	6.85	10.26	49.57	5.55	26.71	5.06
3079	Cottonseed meal.	6.73	8.28	47.63	6.28	25.69	5.39
3073	Cottonseed meal.	6.96	9.38	46.06	6.19	25.17	6.24
3007	Cottonseed meal.	7.61	9.20	45.00	7.41	24.66	6.12
3071	Cottonseed meal.	7.82	6.92	44.63	6.22	28.77	5.64
3006	Cottonseed meal.	7.82	6.92	44.63	6.22	28.61	5.80
3005	Cottonseed meal.	7.20	11.18	46.06	4.29	25.27	6.00
3004	Cottonseed meal.	6.87	8.05	50.65	4.02	24.33	6.08
3008	Cottonseed meal.	7.00	8.57	47.13	4.43	27.29	5.58
	Average.	7.31	9.11	46.70	5.11	24.78	6.60
	Average of 321 analyses. ....	.....	9.69	47.06	.....	.....	.....
	Cottonseed hulls, average of 22 analyses. (The Cotton Plant).	11.36	2.22	4.18	45.32	34.19	2.73

RICE BY-PRODUCTS.

The by-products of rice milling are rice hulls, rice bran, and rice polish.

Rice hulls is the husk which encloses the grain of rice. It is composed largely of fiber, and has little feeding value.

Rice bran is the cuticle of the rice grain, together with some broken rice, and a small percentage of rice hulls.

Rice polish is the finely powdered material obtained by polishing the grain. It contains a small quantity of broken rice.

Table 5 gives data in regard to the composition of rice by-products.

TABLE NO. 5.—COMPOSITION OF RICE BY-PRODUCTS.

Laboratory Number.		Water.	Fat.	Protein.	Crude Fiber.	Nitrogen-Free Extract.	Ash.
763	Rice bran.....	10.23	7.35	11.50	18.25	41.60	11.07
765	Rice bran.....	10.27	11.03	12.25	10.50	46.48	9.47
797	Rice meal.....	12.41	9.32	13.88	2.98	56.38	5.03
801	Rice bran.....	10.59	7.36	10.19	19.43	39.46	12.97
803	Rice meal.....	10.69	10.71	12.62	5.52	54.08	6.38
805	Rice bran.....	10.70	10.38	13.80	10.70	46.64	7.78
3045	Rice bran.....	9.51	8.56	10.88	17.37	42.50	11.18
3042	Rice bran.....	8.72	8.62	12.50	10.06	51.22	8.88
3075	Rice bran.....	9.80	11.64	14.88	10.55	43.04	10.09
3072	Rice bran.....	12.78	12.95	14.19	6.45	47.50	6.13
2911	Rice bran.....	10.70	10.38	13.80	10.70	46.64	7.78
2909	Rice meal.....	10.69	10.71	12.62	5.52	54.08	6.38
2966	Rice bran.....	9.76	11.82	12.38	7.56	47.19	11.29
	Average.....	10.53	9.29	12.73	10.43	47.45	8.80
	Average of 18 analyses (Bulletin 73).....	9.77	10.48	11.85	12.19	45.76	9.95
	Average of 10 analyses (Bulletin 90).....		9.96	10.91			
	Rice Hulls, Average 9 analyses (Bulletin 73).....	8.62	1.12	3.07	36.17	34.66	15.38
	Rice Hulls, Average 6 analyses (Bulletin 90).....		1.44	2.59			
805	Rice polish.....	10.70	10.38	13.80	10.70	46.64	7.78
764	Rice polish.....	10.89	6.06	11.63	.77	66.97	3.68
796	Rice polish.....	13.30	7.28	12.63	.40	61.89	4.50
800	Rice polish.....	11.42	5.43	11.00	.36	68.46	3.33
2732	Rice polish.....	10.89	6.06	11.63	.77	66.97	3.68
2734	Rice polish.....	13.30	7.28	12.63	.40	61.89	4.50
2736	Rice polish.....	11.42	5.43	11.00	.36	68.46	3.33
	Average.....	11.70	6.85	12.05	1.97	63.04	4.40

KAFFIR CORN AND MILO MAIZE.

Kaffir corn comes on the market in two ways:

Kaffir corn chops, which is composed of the grain, removed from the head and chopped up.

Kaffir head chops, which is composed of the grain and head chopped up. This feed naturally contains more crude fiber and is less valuable, pound for pound, than the Kaffir corn chops.

Milo maize is also placed on the market in these two forms, the chops and the head chops, and should be finely ground.

The composition of these products is presented in Tables 6 and 7.

TABLE NO. 6.—COMPOSITION OF KAFFIR CORN PRODUCTS.

Laboratory Number.	Kaffir Corn.	Water.	Fat.	Protein.	Crude Fiber.	Nitrogen-Free Extract.	Ash.
1933	Chops	9.28	3.13	12.94	2.89	70.08	1.68
1945	Ground	9.75	3.15	10.82	1.90	73.06	1.32
1965	.....	8.33	3.91	12.94	3.08	70.18	1.56
1977	Chops.....	9.87	3.45	10.75	2.70	71.89	1.34
1979	Chops.....	9.34	3.09	10.56	3.05	72.48	1.48
1817	Chops.....	10.24	3.20	12.18	1.99	70.83	1.56
1818	Chops.....	8.97	3.29	13.06	2.86	69.85	1.97
1819	Chops.....	8.95	3.41	12.68	2.84	70.32	1.80
1709	Chops.....	9.80	3.32	10.85	2.97	71.59	1.47
1710	Meal, unbolted	8.62	3.28	11.50	2.15	72.65	1.80
1863	Chops.....	10.70	3.14	9.62	3.03	72.06	1.45
1743	Chops.....	8.99	2.70	9.12	2.99	74.65	1.55
1728	Chops.....	12.57	1.46	11.81	3.22	69.59	1.35
1698	Chops.....	12.51	2.94	9.94	3.09	69.92	1.60
762	Chops.....	9.47	4.12	8.82	2.68	73.13	1.78
1403	Meal.....	9.59	2.63	11.75	1.52	73.14	1.37
2 Mar.	Chops.....	8.42	3.05	9.32	1.95	75.78	1.48
1410	Chops.....	9.49	3.37	10.00	2.08	73.56	1.50
3013	Chops.....	12.33	2.64	8.88	5.27	67.91	2.97
	Average.....	9.86	3.12	10.98	2.75	71.18	1.63
	Kaffir Corn in head.						
1983	Heads chopped	11.67	2.74	9.68	10.73	62.04	3.14
1723	Heads chopped	7.55	2.74	9.68	7.25	69.83	2.95
	Heads.....	21.63	2.38	8.40	6.92	58.26	2.38
	Average.....	13.62	2.62	9.25	8.03	63.38	2.82

TABLE NO. 7.—COMPOSITION OF MILO MAIZE PRODUCTS.

Laboratory Number.	Milo Maize.	Water.	Fat.	Protein.	Crude Fiber.	Nitrogen-Free Extract.	Ash.
1911	Meal.....	9.21	2.69	10.07	2.72	73.97	1.34
1912	Chops.....	9.50	2.77	12.19	2.37	71.81	1.36
1934	Chops.....	8.86	2.75	12.32	3.98	68.65	3.44
1978	Chops.....	9.05	2.91	10.50	2.52	73.55	1.47
1814	Chops.....	9.26	2.78	11.18	2.92	71.18	2.68
1815	Chops.....	10.91	3.73	11.62	2.03	70.06	1.65
1816	Chops.....	10.88	2.72	11.19	3.05	68.70	3.46
1707	Chops.....	11.65	2.54	12.25	3.05	67.17	3.34
1716	Chops.....	8.48	2.75	10.81	2.05	74.55	1.36
1658	Chops.....	8.95	2.91	11.75	3.52	71.00	1.87
718	Chops.....	11.13	3.03	9.50	2.45	72.12	1.77
462	Chops.....	8.97	2.21	9.75	3.09	74.04	1.94
2314	.....	11.33	2.50	9.63	7.06	77.82	3.79
2306	.....	6.96	2.57	10.42	1.91	76.45	1.69
	Average.....	9.66	2.78	10.73	3.05	72.22	2.30
	Milo Maize in Head.						
1980	Chops.....	8.48	2.51	8.93	6.46	69.72	3.28
1708	Chops.....	10.15	2.29	8.51	9.45	67.99	1.61
338	Chops.....	8.58	2.25	10.19	5.23	71.09	2.66
798	.....	10.47	2.70	9.25	4.88	69.40	3.30
	Average.....	9.42	2.44	9.22	6.51	69.55	2.71

MISCELLANEOUS ANALYSES.

Under this heading we report a number of analyses of miscellaneous feeding stuffs made at this Station.

TABLE NO. 8.—COMPOSITION OF MILO FODDER.

Laboratory Number.		Water.	Fat.	Protein.	Crude Fiber.	Nitrogen-Free Extract.	Ash.
588	Milo fodder, dough stage	8.88	5.09	12.87	19.54	41.96	11.66
592	Milo fodder, milk stage.....	7.01	6.46	11.50	20.31	45.05	9.67
595	Milo fodder, just heading.....	7.09	4.44	17.50	19.79	38.99	11.19
603	Milo fodder, 10 days ripe.....	12.74	3.97	10.25	18.27	41.46	13.31
<i>Composition of Kaffir Fodder.</i>							
594	Black Hulled Wg. Kaffir, milk stage	8.41	4.76	15.87	19.65	39.48	11.90
597	Black Hulled Wh. Kaffir, fodder just ripe (flour stage).....	7.13	5.03	14.25	18.93	40.79	13.87
598	Black Hulled Wh. Kaffir, just heading	7.07	4.19	17.50	22.59	39.80	8.85
601	Black Hulled Wh. Kaffir, dough stage	7.23	4.88	14.75	21.58	34.40	17.16
602	Red Kaffir, dough stage.....	9.26	5.55	16.12	19.66	35.07	14.34
2913	Ground Oats.....	9.50	5.28	12.00	11.84	57.59	3.79
2915	Ground Oats.....	9.97	4.74	12.88	13.45	55.16	3.80
<i>Composition of Alfalfa.</i>							
604	Alfalfa, fourth cutting.....	12.75	18.85	20.50	26.69	28.49	11.18
606	Alfalfa	7.92	.....	16.50	29.62	.....	6.58
611	Alfalfa	11.62	.....	.....	26.50	.....	7.49
739	Alfalfa hay	8.92	1.62	10.37	31.01	40.03	8.05
759	Alfalfa meal	9.17	1.93	13.25	33.22	25.67	16.76
460	Alfalfa meal.....	8.83	1.76	15.75	26.43	38.15	9.08
<i>Composition of Sorghum Fodder.</i>							
589	Amber Sorghum, dough stage....	6.34	5.19	15.87	.....	.....	8.60
590	Orange Sorghum, dough stage....	7.81	3.77	13.75	20.01	46.23	8.43
593	Orange Sorghum, ripe.....	8.11	4.14	14.37	20.46	40.29	12.63
596	Sumac Sorghum, dough stage. . .	7.13	4.25	11.62	19.67	47.88	9.45
599	Amber Sorghum, ripe.....	10.78	4.18	13.50	18.23	36.06	17.25
600	Samless Sorghum, dough stage....	8.87	4.22	8.87	23.05	42.11	12.88
738	Sorghum fodder	8.66	1.62	10.37	22.62	48.13	8.60
<i>Miscellaneous.</i>							
587	Meng Bean.....	8.68	1.81	14.37	22.20	43.73	9.21
591	Cow Peas, early and late	9.02	2.10	10.87	27.28	40.07	10.66
605	Star Grass, legume.....	11.89	1.13	16.00	22.82	37.03	11.13
607	Prairie Hay	9.88	2.19	4.75	27.88	47.26	8.04
608	Johnson Grass Hay.....	9.58	1.63	4.50	27.90	47.36	9.03
609	Forney Hay	7.96	2.27	4.00	24.40	52.84	8.53
610	Hay.....	7.28	2.66	4.62	33.45	43.99	8.00
2310	Nutriline.....	9.82	1.36	11.75	7.60	74.32	8.26
790	Plantago Purshii (tallow weed) . .	6.38	1.80	8.25	22.46	32.29	28.82
794	Palmetto seed.....	1.38	3.19	7.13	14.41	71.02	2.87

COPY OF LAW REGULATING SALE OF MIXED FEED
IN THE STATE OF TEXAS.

(Effective July 11, 1907.)

An Act to amend Sections 1, 4, 5, 6 and 11 of Chapter 108, Acts of the Twenty-ninth Legislature, being an Act entitled "An Act regulating the sale of concentrated commercial feeding stuffs and the materials from which they are manufactured, defining concentrated feeding stuffs, prohibiting their adulteration, providing for their correct weighing and marking, and providing for the collection of samples, the expenses of the enforcement of the law, and fixing penalties for its violation," and to add thereto Section 11a, empowering the Director of the Experiment Station to adopt standards and definitions for concentrated feeding stuffs and to refuse the registration of feeding stuff under certain circumstances, and to cancel registration under certain circumstances after notice, and to empower said Director to adopt rules and regulations for the enforcement of all of the provisions of this Act.

Be it enacted by the Legislature of the State of Texas:

SECTION 1. That Sections 1, 4, 5, 6 and 11, of Chapter 108, Acts of the Twenty-ninth Legislature, entitled "An Act regulating the sale of concentrated commercial feeding stuffs and the materials from which they are manufactured, defining concentrated feeding stuffs, prohibiting their adulteration, providing for their correct weighing and marking, and providing for the collection of samples, the expenses of the enforcement of the law, and fixing penalties for its violation," be so amended as to hereafter read as follows, and that Section 11a, empowering the Director of the Experiment Station to adopt standards and definitions for concentrated feeding stuffs and to refuse the registration of feeding stuffs under certain circumstances and to cancel registration under certain circumstances after notice, and to empower said director to adopt rules and regulations for the enforcement of all the provisions of this Act, be enacted so as to read as follows:

Section 1. Every lot or parcel of concentrated feeding stuffs, as defined in Section 3 of this Act, used for feeding farm live stock, sold, offered or exposed for sale in the State of Texas for use within this State, shall have printed on a tax tag, described in Section 5 of this Act, a plainly printed statement clearly and truly certifying the number of net pounds of feeding stuff in the package, stating the name or names of materials of which such weight is composed where the contents are of a mixed nature, the name, brand, or trademark under which the article is sold, the name and address of the manufacturer or importer, the place of manufacture, such information as is required by Section 11, if any, and a chemical analysis stating the minimum percentages it contains of crude protein, allowing one per cent of nitrogen to equal $6\frac{1}{4}$ per cent of protein, of crude fat, of nitrogen-free extract, and the maximum percentage it contains of crude fiber; these constituents to be determined by the methods adopted at the time by

the Association of Official Agricultural Chemists of the United States. Mill products hereinafter mentioned shall have the following standard weights, viz.: Flour, one hundred and ninety-six (196) pounds per barrel, or forty-eight (48) pounds per sack; corn meal, bolted or unbolted, thirty-five (35) pounds per sack; rice bran, one hundred and forty-three (143) pounds per sack; rice polish, two hundred (200) pounds per sack; and other feeds made from cereals of any kind, whether pure, mixed, or adulterated, one hundred (100) pounds per sack. Fractional barrels and sacks shall weigh in the same proportion, and these weights shall be net and exclusive of the barrel or sack in which said product is packed. Any person, firm, or association or persons, engaged in the manufacture of mill products of any character whatsoever, who shall use any bag, box, barrel, or any other receptacle into which to put such product other than the one bearing the name of such mill manufacturing the same, shall be guilty of a misdemeanor, and upon conviction therefor shall be fined in any sum from from one hundred dollars to one thousand dollars, or in addition thereto be confined in the county jail for a term of thirty days, or both such fine and imprisonment.

Sec. 2. The term concentrated commercial feeding stuffs, as herein used, shall not include hay and straw, the whole seed or grains of wheat, barley, rye, oats, Indian corn, rice, buckwheat or broomcorn, or any other whole or unground grains or seeds.

Sec. 3. The term concentrated feeding stuffs, as herein used, shall include wheat bran, wheat shorts, linseed meals, cottonseed meals, pea meals, coconut meals, gluten meals, gluten feeds, maize feeds, starch feeds, sugar feeds, dried brewer's grains, malt sprouts, hominy feeds, cerealine feeds, rice meals, rice bran, rice polish, rice hulls, oat feeds, corn and oat chops, corn chops, ground beef, or mixed fish feeds, and all other materials of similar nature not included in Section 3 of this Act.

Sec. 4. Before any concentrated feeding stuff, as defined in Section 3 of this Act, is so offered or exposed for sale, the importer, manufacturer, and party who causes it to be sold or offered for sale within the State of Texas for use within this State shall for each and every feed stuff bearing a distinguishing name and trademark, file with the Director of the Texas Agricultural Experiment Station a certified copy of the statement named in Section 1 of this Act, and shall also deposit with said Director a sealed glass jar or bottle containing not less than one pound of the feeding stuff to be sold or offered for sale, accompanied by an affidavit that it is a fair average sample thereof and corresponds within reasonable limits to the feeding stuff which it represents in the percentage of protein, fat and crude fiber, and nitrogen-free extract which it contains. This shall not be construed to apply to farmers who grind their own feed stuff and who do not adulterate same.

Sec. 5. The manufacturer, importer, agent or seller of each concentrated commercial feeding stuff, as defined in Section 3 of this Act, shall, before the article is offered for sale, pay to the Director of the Texas Agricultural Experiment Station an inspection tax of ten cents per ton for each ton of such concentrated feeding stuff sold or offered for sale in the State of Texas for use within this State, and shall affix

to each lot shipped in bulk, and to each bag, barrel or other package of such concentrated feeding stuffs a tag to be furnished by said Director, stating that all charges specified in said section have been paid. The Director of said Texas Agricultural Experiment Station is hereby empowered to prescribe the form of such tags and adopt such regulations as may be necessary for the enforcement of this law. Whenever the manufacturer, or importer, or shipper of a concentrated feeding stuff shall have filed a statement made in Section 1 of this Act, and have paid the inspection tax, no agent or seller of said manufacturer, importer or shipper shall be required to file such statement or pay such tax. The amount of the inspection tax and penalties received by said Director shall be paid into the State Treasury. So much of the inspection tax and penalties collected under this Act shall be paid by the State Treasurer to the Treasurer of the Texas Agricultural and Mechanical College as the Director of the Texas Agricultural Experiment Station may show by his bills has been expended in performing the duties required by this Act, but in no case to exceed the amount of the inspection tax and penalties received by the State Treasurer under this Act. Provided, the excess, if any, for the next two years may be used as it accrues by the Board of Directors of the Agricultural and Mechanical College for the purpose of putting up a station administration building to provide the necessary offices and laboratory space, in order that the purposes of this Act may be carried out.

Sec. 6. Any manufacturer, importer, or agent selling, offering or exposing for sale any concentrated commercial feeding stuff as defined in Section 3 of this Act, without the statement required by Section 1 and the tax tag required by Section 5 of this Act, or with a label stating that said feeding stuff contains substantially a larger percentage of protein, fat or nitrogen-free extract, or a smaller quantity of crude fiber than is contained therein, and any person violating any other provisions of this Act shall, on conviction in a court of competent jurisdiction, be fined not less than one hundred dollars, nor more than five hundred dollars for the first conviction, and not less than five hundred dollars nor more than one thousand dollars for each subsequent conviction.

Sec. 7. Any person who shall counterfeit or use a counterfeit of the tag or tags prescribed by this Act, knowing the same to be counterfeited, or who shall use them a second time after the said tags shall have once been attached, shall be guilty of a misdemeanor, and on conviction thereof shall be fined in a sum not exceeding five hundred dollars, one-half of which shall be paid to the informer; which fine may be doubled or tripled at each second or third conviction, and so on progressively for subsequent convictions.

Sec. 8. All manufacturers and importers of concentrated commercial feeding stuffs, or dealers in same, shall, when requested, furnish the Director of the Texas Experiment Station with a complete list of names or trademarks of such feeding stuffs.

Sec. 9. The Director of the Texas Agricultural Experiment Station shall cause one analysis or more to be made annually of each concentrated commercial feeding stuff sold or offered for sale under the provisions of this Act. Said Director is hereby authorized in person,

or by deputy, to take a sample not exceeding two pounds in weight for analysis from any lot or packages of concentrated commercial feeding stuffs which may be in the possession of any manufacturer, importer, agent, dealer or buyer in this State; but said sample shall be drawn or taken in the presence of said party or parties at interest or their representative, and shall be taken from a parcel, lot or number of parcels which shall not be less than five per cent of the whole lot inspected, and shall be thoroughly mixed and divided into two samples and placed in glass or metal vessels carefully sealed and label placed on each stating the name or brand of the feeding stuff or material sampled, the name of the party from whose stock the sample is drawn, and the date and place of taking such sample, and said label shall be signed by the Director or his deputy and the party or parties at interest, or their representatives present at the taking and sealing of said sample; provided, that where the party or parties at interest refuse to be present and take part in the sampling of the said feed stuffs, the Director or his deputies may take said samples in the presence of two disinterested witnesses, one of said duplicate samples shall be retained by the Director and the other shall be left with the party whose stock was sampled, and the sample or samples retained by the Director shall be for comparison with the certified statements made in Sections 1 and 4 of this Act. The result of the analysis of the sample or samples so prescribed, together with such additional information as circumstances advise, shall be published in reports or bulletins by the Texas Agricultural and Mechanical College from time to time.

Sec. 10. The term importer for all the purposes of this Act shall be taken to mean all such persons as shall bring into or offer for sale within this State concentrated commercial feeding stuffs manufactured without this State.

Sec. 11. Any person manufacturing, selling or offering for sale any adulterated feeding stuff within this State, shall upon conviction therefor, be punished by a fine of not less than twenty-five dollars, and not more than two hundred dollars, or be imprisoned in the county jail for a term of not less than thirty days and not more than sixty days, or by both such fine and imprisonment. For the purpose of this Act a feeding stuff shall be deemed to be adulterated if it contains any sawdust, dirt, damaged feed, or any foreign matter whatever, or if it is in any respect not what it is represented to be, or if any rice hulls or chaff, peanut shells, corn cobs, oat hulls, or other similar substances of little or no feeding value are admixed therewith; provided, that no wholesome mixture of feeding stuff shall be deemed to be adulterated if the true percentage of constituents thereof is plainly and clearly stated on the package and made known to the purchaser at the time of the sale. It shall be the duty of the Director of the Experiment Station to examine, or have examined for adulteration, all suspicious samples of feeding stuffs and such other samples as may be desirable.

Sec. 11a. The Director of the Experiment Station is hereby empowered to adopt standards or definitions for concentrated feeding stuffs and such regulations as may be necessary for the enforcement of the law. The said Director shall have the power to refuse the registration of any feeding stuff under a name which would be misleading

as to the materials of which it is made up, or which does not conform to the standards and definitions aforesaid. Should any of said materials be registered and it is afterwards discovered that they are in violation of the above provisions, the said Director shall have the power to cancel the registration ten days after notice. The Director of the *Texas Experiment Station* is hereby empowered to adopt such regulations as may be necessary for the enforcement of all the provisions of this Act.

SEC. 12. The fact that the present feed stuff law imposes a greater tax than is necessary for the enforcement of the provisions thereof and is indefinite and uncertain in some of its provisions, creates an emergency and an imperative public necessity that the constitutional rule requiring bills to be read on three several days be suspended and that this Act take effect from and after its passage, and it is so enacted.