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B. YOUNGBLOOD, DIRECTOR
COLLEGE STATION, BRAZOS COUNTY, TEXAS

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ABSTRACTS OF BULLETINS 305 TO 327, INCLUSIVE



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†As of April 1, 1926.

*Dean, School of Veterinary Medicine.

**In cooperation with U. S. Department of Agriculture.

***In cooperation with the School of Agriculture.

ABSTRACTS OF BULLETINS 305 TO 327, INCLUSIVE**A. D. JACKSON**

The general mailing list of the Agricultural Experiment Station has become so large that it is not feasible to publish a sufficient number of copies of every bulletin to send a copy to every name on the list. The following brief abstracts of recent bulletins published have been prepared for circulation to the entire mailing list. It is the purpose to give the reader an abstract of the matter contained in the bulletin and if one receiving this list of abstracts is interested in any particular bulletin shown herein, it will be sent to him on application. In cases where the supply of a bulletin has been so nearly exhausted that only a few reserve copies are on hand, arrangements will be made to lend these reserve copies to those who will agree to return them for further use.

Bulletin No. 305—Swine Feeding Experiments.

This bulletin includes reports of five different experiments, two of which deal mainly with growing pigs and three with fattening mature pigs.

The first experiment was planned to test out the value of tankage and pasture in raising pigs from birth to maturity. At the age of eight months the pigs which had been fed milo when in a dry lot weighed only twenty-one pounds each and had no selling value. Those which had been fed milo and tankage in a dry lot weighed 157 pounds and showed a profit of \$1.54 per pig. Those which had access to pasture weighed 249 pounds and showed a profit of \$4.59 per pig. Those which had been fed only milo in the dry lot until weaning time and had then been given pasture and tankage weighed 202 pounds and showed a profit of \$3.73 per pig.

The second experiment was planned to study the value of dried buttermilk as compared with tankage for pigs after weaning, and also to study the results of adding shorts to a ration of milo chops supplemented with tankage or dried buttermilk. Dried buttermilk proved to have a value superior to that of tankage pound for pound, but on account of its higher price was less profitable. Also some trouble was experienced with the pigs going off feed when large amounts of dried buttermilk were fed. There was no advantage gained by adding shorts to the ration.

The third experiment was planned to compare whole cottonseed, cottonseed meal, and tankage as supplements to milo chops when fed to fattening hogs. Four lots of ten pigs each were used. The lot which received the whole cottonseed refused to eat it and picked out the milo and tankage and left the cottonseed in the trough. This lot was, therefore, discontinued and no definite results with regard to the cottonseed were secured except the fact that it was not palatable. Tankage and milo proved superior to cottonseed meal or to a combination of cottonseed meal and tankage with milo. One pig died of cottonseed meal poisoning in the lot which received the largest amount of cottonseed meal.

The fourth experiment was planned to show the effect of grazing on a peanut pasture on the quality of pork produced after fattening. The effects of using a free choice self-feeder as compared with hand-feeding were studied. Soft pork was produced by the lot which was on peanut pasture the entire feeding period, and some soft and some hard carcasses by the lot which was on peanut pasture only during the first half of the feeding period. The successful use of the free choice self-feeder requires

that only those feeds be used which are palatable to the pigs and with which they are familiar.

The fifth experiment was undertaken to find out the firmness of pork produced by six different rations fed to fattening pigs and also to find out how these rations compared with each other in the amount and economy of the gain which they produced. Milo chops seemed a little superior to corn chops. Cottonseed meal gave good results as a protein supplement. Wheat shorts fed in large amounts was not a very satisfactory feed. Rice bran was only fairly satisfactory and produced softer pork than the other rations, although not soft enough to be penalized at the market.

Bulletin No. 306—Grain Sorghum Versus Corn for Fattening Lambs.

This bulletin summarizes the results of previous work on this question (Bulletins Nos. 269 and 285) and gives the results of the third year's test which was undertaken on a larger scale than the previous work.

No significant difference was found in the feeding value of corn chops, milo chops, and kafir chops, all of which were more valuable than the other seven feeds. Feterita chops, darso chops, sorgo chops and whole milo all proved to have about the same value pound for pound and were only a little less valuable than the three first mentioned. Kafir heads and milo heads and feterita heads were the least valuable of the ten feeds tested; but they proved to have a high feeding value. All lots brought the same price on the Fort Worth market and seemed to be equally well finished. The feeding values of these ten feeds are calculated and given in therms. The values of these ten feeds are so near together that still more work needs to be done to determine accurately the difference between them.

Bulletin No. 307—Texas Root Rot of Cotton and Methods for Its Control.

Texas root rot is a disease of cotton caused by a parasitic fungus. It is most commonly found in blackland soils. It attacks the roots not only of cotton plants but also of many other woody plants, including many trees and common weeds. The fungus is transmitted chiefly through root contact. It seldom produces the spore or seed stage except under exceedingly favorable conditions of moisture and temperature. This fungus is carried over winter on live roots of cotton and weeds. It has been found that as long as a single root remains alive in the soil it may carry the fungus through the winter. It has also been found that as soon as the roots of an infected plant die, the fungus likewise dies and becomes ineffective. It would seem in the light of our present knowledge of cotton root rot that the best means of combating the disease is to kill the old cotton plants by uprooting them in the fall and by ridding the land of any weed which carries this disease. The most common weeds which are carriers are tie-vines, cockleburs and rag weeds. Grasses are not attacked by this fungus. Good farm practice that rids the land completely of carriers is the best recommendation at the present time.

Bulletin No. 308—The Sweet Potato Weevil.

This pest is found chiefly in the southeastern one-third of Texas. Elaborate notes are made on the life history of the insect, for aid in developing control measures. No important natural enemies have been discovered. Quarantines and cultural methods offer some relief. Planting weevil-free slips, spraying with arsenical poisons, prompt harvesting, and storage of only weevil-free potatoes are the remedial measures offer-

ing greatest promise. Fumigation with carbon disulphide kills the weevils in all stages but hastens decay of the potatoes.

**Bulletin No. 309— I. Fattening Steers on Cottonseed Meal and Hulls with and without Corn.
II. The Influence of Age on Fattening Steers.**

The ration which included corn was slightly more satisfactory than cottonseed hulls and meal alone. Cottonseed meal and hulls should not be full-fed for more than 90 to 100 days. The average cost of 100 pounds of gain was \$11.81 per steer for the older steers compared with \$9.94 for the younger steers. It is probably cheaper to ship steers to the feed than to pay freight on feed. Cattle feeding should be regarded as a method of marketing the surplus feed of the community.

Bulletin No. 310—The Interpretation of Correlation Data.

The uses and limitations of correlation tables in the interpretation of biological data are discussed and illustrated. This bulletin is of interest chiefly to students and investigators.

Bulletin No. 311—The Influence of Individuality, Age and Season Upon the Weights of Fleeces Produced by Range Sheep.

Culling the animals of low production from the flock will increase the average weight of fleece for the flock and will increase the wool-producing qualities of the next generation. In general, it may be said, "Once a good sheep, always a good sheep; once a poor sheep, always a poor sheep." In the interest of economy sheep should be culled as young as possible. Culling is not so reliable after a drouth. The fleeces are the heaviest at two and three years. Wethers produce heavier fleeces than ewes at every age excepting as yearlings. No decided decrease in wool production due to age was noted among eight-year-old ewes in the Experiment Station flock. Practical methods of culling according to the weight of the fleece are discussed.

Bulletin No. 312—Commercial Fertilizers in 1922-23.

The year showed a great increase in fertilizers sold in Texas, there being 73,300 tons sold as against 33,000 tons the year previous. Eleven standard formulas designed to meet practically all needs for mixed fertilizers in Texas are shown and their general adoption recommended. The formula to be selected and the amount and the method of use for various crops and on various soils is suggested. General fertilizer information is given, also a table showing the analyses of all commercial fertilizers placed on the market during the season.

Bulletin No. 313—Rice Bran and Rice Polish for Growing and Fattening Pigs.

This bulletin summarizes briefly the results of two experiments conducted at this Station during 1922-23. Rice polish seemed to have about the same feed value as corn chops, but when fed in large quantities caused digestive disturbances. Pigs would not eat as large an amount of the ration containing rice polish as they did of the ration which contained only corn chops and tankage. One of the twenty pigs which received the rice polish killed out slightly soft. Eleven of the twenty pigs which received rice bran in the same experiment killed out slightly soft. The use of rice bran in the ration lowered the rate of gain and increased the

amount of feed required for 100 pounds of gain as compared to rations consisting of corn and tankage alone. Rice bran seemed to be less valuable during the growing period than during the fattening period for swine. Rice bran produced soft pork when fed in large quantities for a long time. It seems fairly certain from these experiments that rice bran must be purchased at a considerably lower price than corn before it can be fed profitably in large amounts to pigs and that it cannot be fed for a very long time without some danger of producing soft pork.

Bulletin No. 314—Commercial Feeding Stuffs.

This bulletin reports the examination of feeding stuffs found in the markets of Texas during the year ended August 31, 1923. It presents a summary of the Texas feed law and gives sundry information for feed manufacturers and consumers. It contains a complete table of results of the inspection work for the year.

Bulletin No. 315—Digestion Experiments with Oat By-Products and other Feeds.

This is a progress report on digestion experiments to secure information regarding the feeding values of various feeds as shown by their productive value and digestible protein. The feeds reported on are alfalfa meal, corn cobs, cottonseed hulls, kafir head stems, live-oak leaves, mesquite beans, oats, oat hull clippings, oatmeal by-products, rice bran, and rice polish.

Bulletin No. 316—The Soils of Brazos, Camp, Ellis, and Washington Counties.

The chemical composition of samples of typical soils from these four Texas counties is presented and discussed. Means of increasing and maintaining soil fertility of the various types of soils found in these counties are discussed. Soil survey descriptions of the various types of soils of the four counties are presented.

Bulletin No. 317—Comparative Influence of Various Protein Feeds on Laying Hens.

Cottonseed meal may be used as a substitute for meat scrap and tankage in a ration for laying hens when the cottonseed meal is fresh. The cottonseed meal gave the best results in a ration composed of wheat bran 125 pounds, gray wheat shorts 75 pounds, cornmeal 75 pounds, and cottonseed meal 120 pounds. When only limited quantities of fat-soluble A vitamin were present in the ration the mortality of the hens was high and the egg production low.

Bulletin No. 318—The Relations Between Rents and Agricultural Values in Theory and in Practice.

This bulletin is intended to point out some of the basic factors that are influencing land values and shows the relation that exists between the financial returns from land, or its rent, and the value of the land.

Land values are first shown theoretically to be the summation of all future rents discounted at a rate of interest that reflects our preference for the present over the future. The difficulty of accurately forecasting what rents and discount rates are going to be is noted. Other factors besides prospective rents are suggested as partial determinants of land values, thus still further complicating the problem of scientific land appraisal.

The major portion of the bulletin is given over to a statistical study

of the relation of rents to agricultural land values in Brazos, Williamson, and Dallas Counties, Texas. In the absence of cash rentals in these counties it was necessary to devise a means of obtaining the cash equivalent of the share rent. The method used as well as the results obtained are shown in full in the text of the paper and in the tables appended. For purposes of comparison, data from other states are either shown or references given.

Bulletin No. 319—Field and Laboratory Notes on a Fatal Disease of Cattle Occurring on the Coastal Plains of Texas. (Loin Disease.)

The outbreaks of the disease simulate an infectious disease, but in repeated experiments pathogenic organisms could not be isolated. The cause of the disease is tentatively ascribed to toxins produced by bacterial action in carcass material on the prairie and the consumption of such putrid material by cattle. It is tentatively recommended to feed fresh feeding bone meal to cattle, also to thoroughly clean all pastures of all animal carcasses. Further investigations are being made.

Bulletin No. 320—Influence of Individuality, Age and Season Upon the Weights of Fleeces Produced by Angora Goats under Range Conditions.

Weights of fleeces of nearly 1200 Angora goats kept under range conditions on the Ranch Experiment Station near Sonora were studied to note the influence of individuality, age and season and to determine successful methods of culling for increased fleece weight. At the fall shearing when the goat is a year and a half old is thought to be the most reliable time to cull for improvement in the average weight of fleece produced by the flock. The female goat, like the female sheep, produces its maximum weight of fleece in the second year of its life. Wether goats may produce still heavier fleeces at later ages. Seasonal conditions influence the weight of mohair fleeces more than that of wool. Fall fleeces of mohair are heavier than spring fleeces. Detailed instructions for culling are given. Culling is more effective, of course, in non-uniform flocks than in standard bred flocks. Age does not seem to reduce fleece weights much until after the goats are six or more years old.

Bulletin No. 321—Cotton Variety Experiments at the Main Station, 1912-1922.

Yield of lint per acre is much more important than the percentage of lint. Length of lint, while not as important as yield of lint, is more important than percentage of lint in seven-eighths-inch staple or longer. The farmer in choosing a variety to plant should consider first its yield of lint per acre; second, length of staple; third, quality or grade of lint; and fourth, percentage of lint. The bulletin reports on about 150 varieties of upland cotton grown during the eleven years from 1912 to 1922, and shows the yield of each variety for each year and ranks the leading varieties for various groups of years during the period.

Bulletin No. 322—Commercial Fertilizers in 1923-24.

Sales were 126,180 tons in 1923-24 against 73,300 tons for the previous year and 77,400 tons in 1913-14, the record season until this year. Use is recommended of the eleven standard formulas agreed on in June, 1923, and adopted by the Station. Potash is shown to be much cheaper in muriate or sulphate than in kainit. A table is given showing the relation of the guaranteed valuation to the valuation delivered by various

manufacturers. A table is given containing an analysis of the samples of fertilizers collected by inspectors. Sales of fertilizers having the eleven standard formulas were 12,145 tons.

Bulletin No. 323—The Price of Feed Utilities.

A method is given for calculating the prices of digestible protein and productive energy in feeds. The relative prices of digestible protein and productive energy vary considerably from time to time. The value of various concentrates calculated from the digestible protein and productive energy can be used to aid in deciding the most economical feed under given market conditions. Fair agreement was found between the calculated values and current selling prices of most feeds. Bulk or volume is an important factor in the price of purchased hay, fodder or other roughage, although the farm price of the protein and productive energy is probably much lower in roughage than in concentrates. There is a considerable margin between the feed cost of milk and its selling price; the similar margin for pork is much smaller and with beef it is very small, showing the importance of low priced roughage for the profitable production of beef under present conditions.

Bulletin No. 324—Commercial Feeding Stuff.

This is the report of the Feed Control Service for the fiscal year September 1, 1923, to August 31, 1924. It contains a table of results of the inspection work for the year and explanations of the purposes of the Texas feed law together with a brief history of the Feed Control Service and also definitions of terms. The methods of measuring the commercial value of feeding stuffs are discussed.

Bulletin No. 325—Effect of Cropping upon the Active Potash of the Soil.

A close relation was found between the potash removed by crops and the active potash lost by the soil. The amount of active potash lost from the soil in 409 experiments averaged 40.9 per cent of the potash removed by the crop. Considering that successive extractions of the soil with the solvents removed active potash, and that the soil also had a fixing power for potash, the conclusion is that the active potash lost by cropping must be less than the potash removed by the crops.

Bulletin No. 326—Breeding Experiments with Blackberries and Raspberries.

This is an account of sixteen years of breeding experiments with blackberries and raspberries. This bulletin contains descriptions of the behavior of seedlings, hybrids, and compound hybrids of various berries; experiments leading to the development of the Nessberry, an outgrowth of a cross between a raspberry and dewberry, are described; and the horticultural characters of the Nessberry are discussed and methods are given for its successful propagation.

Bulletin No. 327—An Agricultural Economic Survey of Rockwall County, Texas.

The information secured from five hundred farm operators is considered representative of the blackland farming belt of Texas. Specific treatment is given such questions as land classification and land utilization, land tenure, size of farm, capital investment in farms, farm labor, farm income, farm credit, and the marketing of farm products. The influence of the geographic features of the area and the historical setting are discussed. Of the farms studied 90 per cent of the land was improved and

of this 93 per cent was devoted to crops of which cotton made up 67 per cent. Lack of gardens, orchards and pastures and absence of any general use of legumes are noted. The farms averaged 106 acres in size, though the typical group was found between 50 and 100 acres. The yield per acre of farms of less than 50 acres was not enough greater to bring the net income per farm to that of the larger farms. Only 6 per cent of the investment in farm capital was devoted to machinery and live stock, the remainder being in land and permanent improvements. About 9 per cent of the total investment in farms was borrowed. Yield of lint cotton per acre was the most important factor in the net income per acre.

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BULLETINS

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67. *Commercial Fertilizers and Commercial Poisonous Insecticides (1903).
70. *The Composition of Texas Cottonseed Meal (1904).
79. *Cotton Breeding (1905).
88. *Horticulture Section (1906).
91. *Food Adulteration in Texas (1906).
92. *A Test of the Producing Power of Some Texas Seed Corn (1906).
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113. *Spray Calendar (1908).
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121. *Report of Progress at the Troup Substation (1909).
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126. *Active Phosphoric Acid and Its Relation to the Needs of the Soil for Phosphoric Acid in Pot Experiments (1909).
128. Cottonseed Meal as Human Food (1910).
129. *Studies of the Ammonia-Soluble Organic Matter of the Soil (1910).
132. *Report of the Cooperative Forage Crop Work by the U. S. Department of Agriculture and Texas State Experiment Station at Chillicothe, 1909.
134. *Report of the Director on the Establishment of the New State Stations (1910).
137. *Alfalfa in Northwest Texas (1911).
139. *Electrolysis of Humus Solutions (1911).
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144. *Culture of Cigar Leaf Tobacco in Texas (1912).
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147. *Digestion Experiments with Texas Hays and Fodders (1912).
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151. *Relation of the Total Nitrogen of the Soil to Its Needs as Shown in Pot Experiments (1912).
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155. The Ether-Extract and the Chloroform-Extract of Soils (1913).
156. *The Phosphorus Compounds of Cottonseed Meal and Wheat Bran (1913).
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163. Digestion Experiments on Men with Cottonseed Meal (1913).
164. *Commercial Feeding Stuffs (1914).
165. Ammonia-Soluble Inorganic Soil Colloids (1914).

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 167. Commercial Fertilizers and Their Use (1914).
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 170. Texas Feeding Stuffs: Their Composition and Utilization (1914).
 171. Losses of Moisture and Plant Food by Percolation (1914).
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