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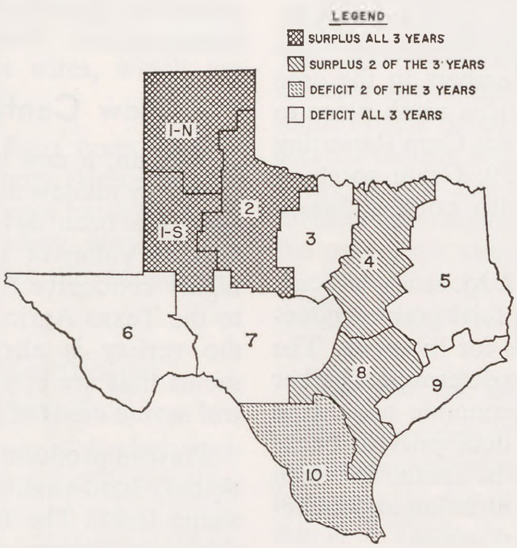
FEED GRAIN REQUIREMENTS OF TEXAS LIVESTOCK

The Texas Agricultural Experiment Station recently published estimates of feed grain requirements for livestock and poultry produced in different areas of the State. These requirements were compared with the quantities of feed grains available for animal consumption from the output in the various regions. The areas used in the study are the Crop Reporting Districts of the Texas Crop and Livestock Reporting Service (see accompanying map). Census data for 1949, 1954, and 1959 were used for the district analyses.

For the purposes of the Texas A. & M. study, the different classes of livestock were converted to animal units. An animal unit is defined as the equivalent in feed consumption of one average milk cow. Total Digestible Nutrients (TDN) feed grain requirements were determined for the total animal units in each district. An area's feed grain production which would be available for livestock feeding was the quantity of feed grain produced less amounts needed for planting seed and human consumption. The feed grain production available for livestock feeding was then converted to TDN. In order to determine the surplus or deficit status of each district, TDN requirements for livestock were compared with TDN available from feed grains.



Districts 1-N and 1-S showed a heavy and increasing feed grain surplus position in all three census periods. Expansion of feeding operations in recent years has been substantially greater in these districts than in others. Data indicate there is a sufficient surplus of feed grain TDN production to support a considerable further increase in livestock feeding. District 2 also yielded a surplus of feed grains in 1949, 1954, and 1959. However, the surplus was relatively small and could support only a moderate expansion in livestock enterprises.

Districts 4 and 8 produced a surplus in two of the three census years — 1954 and 1959. District 8 ranked second and District 4 was third in livestock and poultry production among the Texas Crop Reporting Districts. Although corn contributed substantially more to the TDN available for feed in these areas than in other districts, a considerable increase in grain sorghum output occurred in both regions. The surplus status of these regions indicates some potential for increasing their livestock inventories.

Districts 3, 5, 6, 7, and 9 were deficit feed grain TDN producers in all three census years. District 3 ranked about midway among the districts in animal unit production but rated low in feed grain output. District 5 produced the largest number of animal units of all the areas but had a comparatively low level of feed grain outturn and probably will remain a deficit grain-producing area. District 6 was the lowest among the regions in both animal units and feed grain production, although a large number of sheep are raised in the area. District 7 — the major sheep-raising section of Texas — ranked fourth in both 1949 and 1954 and fifth in 1959 in total animal units produced but was low in feed grain output in all 3 years. According to the report, Districts 6 and 7 are unlikely to improve their deficit feed grain positions to any considerable extent. District 9 — which is devoted mainly to rice production — ranked low in both animal units and feed grain production.

District 10 was a deficit area in both 1949 and 1959 but had a slight surplus in 1954. Even though grain output rose during the three census periods, livestock numbers in the area increased as well, moving from ninth place to seventh place among the Texas Crop Reporting Districts from 1949 to 1959. Grain sorghum was the leading grain, with corn a distant second.

Results of the Texas A. & M. study indicate areas of surplus and deficit feed grain production in terms of local needs for livestock. The research was not designed to determine whether particular areas have an economic advantage in raising livestock, but it does provide background data which would be useful for such studies, as well as for transportation and movement pattern studies of feed grains.

Pink Bollworm Damage to Cotton

The effects of various degrees of pink bollworm infestation on yield and quality of cotton were studied under both dryland and irrigated conditions at College Station, Texas, during 1955-59. The cotton was produced under large plastic cages in order to control pink bollworm infestations and to exclude other pests from the experiment.

The pink bollworm causes reductions in cotton value under both dryland and irrigated conditions, according to the Texas Agricultural Experiment Station. However, the crop can tolerate greater infestations under dry conditions before losses occur than under high-moisture situations. For example, during the dry seasons of 1955 and 1956, sizable losses did not occur until at least 50 percent of the cotton bolls were infested with an average of two or more larvae per boll. Under irrigated conditions, a 40-percent boll infestation resulted in losses amounting to almost $100 per acre, reports the experiment station.

The dollar loss per acre from pink bollworm damage to cotton was caused by reductions in both yield and quality of lint and seed. Under dry conditions, most of the lint losses were attributed to reductions in quality; under wet conditions, losses resulted from decreased yields. When wet weather prevailed, the damaged bolls rotted so severely that the cotton was not harvested. Seed losses tended to mount as the severity of the insect infestation increased.

New Cantaloupe for Texas

Wescan, a new cantaloupe that is resistant to downy mildew and tolerant to powdery mildew, has been developed for the Lower Rio Grande Valley of Texas, where conditions are highly conducive to these diseases. According to the Texas Agricultural Experiment Station, the variety is also tolerant to sulfur treatments that are applied to cantaloupes to control severe cases of mildew.

Wescan produces excellent yields of coarsely netted, hard-rind, medium-size, oblong-oval-shape fruits. The internal flesh is of medium thickness, salmon-colored and very firm and has an excellent flavor. In state-Federal cooperative trials during the past six spring seasons, Wescan was rated very highly for all of the following horticultural characteristics: vine vigor, mildew resistance, earliness, fruit appearance, size, net, cracking, flesh color, thickness, firmness, dryness of seed cavity, and soluble solids.

The new cantaloupe matures in 85 to 90 days from the date of seedling emergence. It matures at least as early as the Imperial 45 and PMR 6 varieties. Ample supplies of Wescan seed are expected to be available to growers this fall.

New Floor Prevents Cracked Turkey Eggs

When a new cage floor developed by U. S. Department of Agriculture scientists is used instead of a conventional floor, egg breakage in the turkey laying cage is reduced from 10 percent to less than 1 percent. The reduction in the number of cracked eggs permits more poults to be hatched per turkey hen. Cracked eggs seldom hatch, because of bacterial contamination and excessive moisture losses.

The new turkey cage floor is constructed of flattened, plastic-coated wire. The wires are three-fourths of an inch apart and run lengthwise (the direction in which the eggs roll when the floor is in place). Beneath the lengthwise wires are supporting cross wires, which are spaced about 4 inches apart.

The new turkey cage floor costs slightly more than conventional floors. However, the increase in the number of eggs hatched, especially when valuable breeding stock is involved, may more than offset this added construction cost.

Well-Adjusted Moldboard More Economical

Despite the many advances of modern agriculture, a good job of plowing is still important for the optimum production of many crops, points out Henry O'Neal, Agricultural Engineer with the Texas Agricultural Extension Service. Many plant diseases and weeds can be controlled through correct plowing.

Properly adjusted moldboard plows are more economical to operate and do a better job of plowing than do plows that are out of adjustment, according to the specialist. Most plows are designed to operate at a depth of about one-half of the plow bottom's cutting width. The plow's design determines how the furrow slice is turned, the amount of soil pulverization, and the scouring or cleaning ability of the plow. Mr. O'Neal says that, generally, moldboards with gentle slopes will pull more easily and will pulverize the soil less than will moldboards with steeper slopes.

Plowshares should be sharp but should not be excessively hooked at the points. When a plowshare is being sharpened, its shape should be kept as nearly like that of a new share as is possible, suggests the specialist. Farmers should not expect to work many acres with a dull share.

Colter rollers and colter bearings should be checked; they should be tightened if they are loose or replaced if excessively worn. Bearings should be lubricated in order to reduce wear, and frogs, or standards, and beams should be checked to make sure that they are not sprung. It is impossible to make adjustments where parts are worn or bolts are not tight.

The wheels should be set at the tread width desired before any other adjustments are begun. The plow should be kept level while the share is being set at the desired depth. The plow's hitch should be adjusted vertically so that the rear of the plow's landside is about a finger's width above the furrow bottom, says Mr. O'Neal. He recommends that the farmer read the operator's manual and that he make sure the plow is in good condition before starting the plowing job.

Control of Galls on Ornamentals

The formation of abnormal growths, or galls, on ornamental plants and shade trees is caused by many species of insects and mites, according to a Texas A. & M. College publication entitled *Texas Guide for Controlling Insects on Ornamental Plants.* Mites, plant lice, midges, cynipids, and psyllids cause the galls by laying eggs in the tissues of leaves, stems, and twigs before the leaves are fully developed. The plants are stimulated by the laying and hatching of the eggs and form abnormal growths, inside of which the immature pests develop. The pests cannot be controlled at this point, since the insecticides cannot reach them inside the galls.

Although most plants can tolerate a large number of galls without apparent damage, the maintenance of good plant health helps to prevent serious infestations. The Texas A. & M. publication recommends insecticides for the control of galls but points out that the chemicals will only help to check the spread of the insects. The guide also contains recommendations for the control of lawn pests, foliage-eating insects, sucking pests, and bark and wood-boring insects.

Insecticides can be obtained in the forms of dusts, wettable powders, granules, and emulsifiable concentrates. They should be mixed according to directions on the containers and applied only as recommended. All insecticides are poisonous and should be handled with care.

Copies of L-199, *Texas Guide for Controlling Insects on Ornamental Plants,* may be obtained from county agricultural agents or from the Agricultural Information Office, College Station, Texas.

Poultry Management Skills

The chicken farmer of the past would not recognize the poultry producer of today, says C. B. Ryan of the Department of Poultry Science at Texas A. & M. College. The poultry industry has experienced a great change since the days when raising chickens and gathering eggs was the extent of the poultryman's job.

Today's poultry producer is often a college graduate, or he has at least received some scientific training in poultry science. In the future, more and more education will be necessary for the poultryman who is to compete successfully in the business.

Nitrate Poisoning — Dangerous to Cattle

Nitrate poisoning is a danger to all livestock, but it presents a particular problem when cattle are grazing plants recently fertilized with high levels of nitrates, points out Dr. C. M. Patterson, Veterinarian with the Texas Agricultural Extension Service. If growth of the plants has been stunted by low levels of moisture following fertilization, nitrate poisoning is more likely to occur.

Nontoxic forms of nitrates are reduced to toxic nitrites in the animal's system and enter the bloodstream, where they tie up the blood hemoglobin. As a result, the oxygen-carrying capacity of the blood is reduced substantially and the animal may suffocate, according to Dr. Patterson.

Signs of poisoning in the animals are a bluish skin color, a staggering gait, rapid pulse, evidence of abdominal pain, bloat, excessive salivation, and labored breathing. Quantities of nitrate that are too small to kill an animal may lower milk production or cause a cow to abort.

Cattle may be poisoned by eating weeds and forage crops that contain high levels of nitrates or preformed toxic quantities of nitrites. Of the cereal grains, oat hay is the most likely to cause nitrate poisoning, and the young plants usually are more dangerous than the older ones.

Among the inorganic sources of excess nitrates are fertilizer bags or fertilizer spreaders left where cattle have access to them, according to the veterinarian. Another means of poisoning is contaminated water draining from barnyards or bunker-type silos. Sometimes animals obtain nitrites from two or more sources. Animals with nitrate poisoning symptoms should be removed from the suspected pastures, and a veterinarian should be consulted.

Soybeans are the fifth most important cash crop in this country and are the chief source of vegetable oil, according to the U. S. Department of Agriculture.

Although it is the cheapest item in milk production, water often is a limiting factor because dairy cows do not get enough of the right kind, says A. M. Meekma, Dairy Specialist with the Texas Agricultural Extension Service. The average dairy cow in production will drink 12 to 15 gallons of water daily, but some very high-producing cows will consume 35 gallons or more.