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COSTS OF PASTURE IMPROVEMENT

Unimproved pastures in east Texas in 1954 provided an average of only 50 days of grazing per acre, while the four highest yielding improved pastures furnished 170 days of grazing per acre, according to results of a study conducted by A. C. Magee and Bob H. Stone of Texas A. & M. College and Ralph H. Rogers of the United States Department of Agriculture.

The study, which included 36 east Texas dairy farms, was conducted to determine the costs incurred and the results obtained from pasture-improvement practices. The farms were classified into three groups, according to the number of days that grazing was provided for one cow.

Soils in the east Texas area are generally sandy. Without pasture improvement, forage usually consists of some Bermuda grass intermingled with needle grass or three-awn, paspalums, and other native grasses and weeds. As the level of soil fertility is raised, the cover of Bermuda and Dallis grasses also contributes considerable grazing.

On farms which had the highest yielding pastures, improvement practices included

applications of lime and fertilizers according to soil tests, use of available manure, seeding of adapted legumes and grasses, growing winter grazing crops, and mowing to control weeds. In addition, some of the land was cleared of underbrush.

At the other extreme, farms with the lowest yielding pastures made limited use of only one or two recommended practices. On the majority of the farms, however, the extent of pasture improvement was between these extremes.

None of the improvement programs included all of the recommended practices. Research has shown that more intensive improvement programs will result in much higher levels of production than were obtained in the east Texas study.

The four highest yielding improved pastures averaged 170 days of grazing per acre in 1954, or more than three times the grazing obtained from unimproved pastures in the area. The cost of the increased grazing resulting from the improvement practices averaged 13 cents a day per cow grazed, based on an annual pasture-improvement expenditure of \$15.81 per acre.

AVERAGE PASTURE IMPROVEMENT COSTS, 1954

East Texas Dairy Farms

Item	Farms where pasture-improvement practices were:		
	Highest yielding	Intermediate-yielding	Lowest yielding
Number of farms.....	4	25	7
Acreage improved per farm.....	41	62	62
Annual per acre cost of materials.....	\$11.29	\$5.28	\$1.60
Annual per acre cost of labor, power, and equipment.....	4.52	3.16	2.49
Total annual per acre cost.....	\$15.81	\$8.44	\$4.09
Days of grazing per acre for one cow.....	170	106	70

Intermediate yields, averaging 106 days of grazing per acre for each cow, were obtained on 25 of the farms. The annual cost of improving intermediate-yielding pastures averaged \$8.44 per acre. During 1954, these pastures provided more than twice the grazing furnished by unimproved pastures. The cost of the increased grazing through pasture improvement was 15 cents a day per cow grazed. The methods employed are representative of the pasture-improvement work on most east Texas dairy farms.

Less intensive methods of improvement were used on seven east Texas farms where permanent improved pastures were classified as lowest yielding. These pastures furnished an average of 70 days of grazing per acre for each cow, or only 20 days per acre more than unimproved pastures. The annual cost of pasture improvement was \$4.09 an acre, and the cost per cow for the extra grazing resulting from the improvement practices was 20 cents a day.

Weathering the Drought

Stockmen faced with the problem of carrying cattle through droughts with short water supplies may find a great deal of help in information compiled by United States Department of Agriculture scientists on water consumption by beef cattle and dairy animals. C. F. Winchester and M. J. Morris, scientists of the Department's Agricultural Research Service, have consolidated published information with data from experiments at Beltsville, Maryland.

The scientists point out that feed consumption and water intake of animals are closely related. If consumption of one is curtailed, the other is limited also. Water intake per unit of dry matter is constant whether cattle are on full feed or on near-starvation rations. For example, water consumption of a herd can be reduced 50 percent by halving the feed allowance. However, this practice should never be used with lactating cows because of the resulting decrease in milk production.

Reducing feed allowances for steers on full fattening rations will decrease water consumption and may help stockmen through a short-time water shortage. However, if feed allowances are cut sharply, considerable time may be required to get the animals back on full feed when the water shortage is relieved.

As the temperature rises, the water intake of animals increases. In addition, water consumption is influenced by the size of the livestock. Messrs. Winchester and Morris found that, with other factors being equal, a 500-pound animal drinks 0.6 as much water as a 1,000-pound animal and a 100-pound animal drinks 0.2 as much as a 1,000-pound one.

By using the data in the Winchester-Morris tables, a stockman can estimate the probable daily water consumption of a large herd of cattle and plan an adequate water system for his farm or ranch. The data are not intended for use in determining requirements of individual animals or small herds because of wide variations in the water intake of individual cattle.

Copies of the Winchester-Morris tables can be obtained from the Information Division, Agricultural Research Service, United States Department of Agriculture, Washington 25, D. C.

New Sorghum and Clover Varieties

Combine Hegari — a high-yielding grain sorghum — and Cogwheel bur clover are new crop varieties developed by the Texas Agricultural Experiment Station at College Station.

The following are characteristics of the new grain sorghum variety.

1. It is adapted to combine harvesting.
2. The stalks are well braced.
3. Growth of the plants is uniform.
4. It produces high yields under good growing conditions.

5. The stalks are highly palatable to livestock.

6. It is good livestock feed.

Combine Hegari is unsatisfactory for starch manufacturing, as the undercoat of the kernels imparts an off color to the starch.

Adequate seed supplies of the new grain sorghum variety should be available to farmers in 1957.

Cogwheel bur clover, which is named for the characteristic "cogwheel" appearance of the bur, is adapted to an area extending from the Red River on the north through central Texas and to the gulf coast area from Orange southward to Refugio County.

The variety — a close relative of California bur clover — produces a spineless seed pod, or bur, which is less of a problem in areas where sheep are raised. Cogwheel yields an abundance of seed and volunteers readily, but it is not as easy to establish the first year as California bur. The seed pods of the new clover variety usually remain on the plant long enough for harvesting. In experimental tests at College Station, Cogwheel produced larger yields of forage than button or any other bur clover variety.

Limited quantities of Cogwheel bur clover seed may be obtained from seed stores this fall; larger amounts should be available in the fall of 1957.

Meat from Stilbestrol-fed Steers Safe



Extensive tissue tests by the Food and Drug Administration have confirmed previous findings by state experiment stations that no detectable amount of stilbestrol — a hormone-like chemical — is present in meat from steers fed the substance in fattening rations, according to reports of the United States Department of Agriculture.

The results of the tests contradict claims that meat from stilbestrol-fed steers contains enough of the chemical to make it unsafe for human consumption.

Previous studies by the state experiment stations and the Agricultural Research Service at Beltsville, Maryland, show that use of stilbestrol can increase the rate and economy of gain in beef cattle without adverse effect on meat quality.

Micronutrients — Too Much?

Research by the United States Department of Agriculture shows that a man-made overabundance of micronutrients is harming orange trees and reducing yields. To overcome soil deficiencies, citrus growers have been adding the micronutrients copper, zinc, and manganese as fertilizers for many years. In addition, copper fungicides sprayed on the trees accumulate in the soil.

Normal citrus development requires very little of these elements — less than 20 parts of any one of them per 1,000,000 parts of soil. Growers have been supplying more than a sufficient quantity, and toxic effects of copper have been observed in many orchards for the last several years.

During 1951-55, tests were conducted in Florida by the Department of Agriculture to determine the relative toxicity of copper, zinc, and manganese. The orange trees used in the tests were well rooted in the normal soil, but examination showed that root formation had been retarded greatly when any of the three minerals was at a high concentration. Copper was the most toxic of the metals; an equal quantity of copper was 15 times more toxic than zinc and 50 times more toxic than manganese. The combination of two elements in excessive amounts was more depressive to root development than a single metal. Where all three were in high concentration, root growth was reduced more than 90 percent.

Limited evidence from the experiments indicates that excessive amounts of copper,

Keep Cotton Clean!

A few simple precautions in picking cotton and handling it on the way to the gin can mean more dollars per bale for southwestern farmers.

On the basis of 1956 loan values on 1-inch cotton, if the presence of trash in the cotton causes a loss of one grade below Middling, the grower loses about \$11 on a 500-pound bale. A decline of two grades below Middling will result in a loss of \$24 a bale.

*Cotton containing grass, bark, and vines is **not** eligible for the Government loan.*

zinc, or manganese affected the yields of the fruit, but not the quality. The crop of fruit borne during the last year of the experiment showed that the yields of orange trees receiving high copper treatment were lowered; however, the oranges appeared normal in composition.

Feed Conversion Rate High for Broilers



Broiler growers have earned a reputation among meat producers of obtaining efficient feed conversion — that is, conversion of feed into meat.

According to Ben Wormeli, Extension poultry husbandman of Texas A. & M. College, this development has made possible some of the rapid increase in broiler production during recent years and has made broiler meat available to consumers at prices which are competitive with those of other protein foods.

The specialist points out that research has rapidly increased knowledge of broiler nutrition, and growers have been quick to use

the information in their operations. Among the developments are high-energy rations and many supplements used in broiler feeds.

The first function of the feed is to maintain the body weight of the broiler. Results of research reported by G. S. Fraps of Texas A. & M. College in 1946 showed that about 58 percent of the feed consumed by full-fed growing chickens was used for maintaining body weight and the remainder was for gain.

The broiler flock should be provided with conditions which will encourage the maximum consumption of feed. According to Mr. Wormeli, "It's the extra feed eaten which produces the extra gain in weight and makes the profit."

Young Beef Calves Make Economical Gains after Early Weight Losses

Heifers and steers which are 3 to 4 months old can be kept temporarily on rations that barely maintain their weight—or even result in some weight loss — and will recover later on full feed to make economical gains and high-quality beef, according to a report of the United States Department of Agriculture.

Studies at the Department's Agricultural Research Service at Beltsville, Maryland, show that there need be no loss in the growth potential of the animals as a result of low-calorie intake for 3 to 6 months if the limited forage is supplemented with sufficient protein, minerals, and carotene to maintain their health.

Many animal husbandmen formerly believed that unless calves gained steadily at the rate of at least one-half pound daily, their ability to make profitable gains would be impaired permanently.

The *Agricultural News Letter* is prepared in the Research Department under the direction of J. Z. ROWE, Agricultural Economist.