STOCKING RATES FOR TEXAS RANGES

In areas where the vegetation is suitable, mixed classes of livestock should be grazed for the most desirable use of range forage, according to results obtained at the Texas Agricultural Experiment Station in the Edwards Plateau area. Range management studies carried on since 1949 show that pastures stocked at moderate rates with a combination of types of livestock are utilized more uniformly than when grazed by a single type of livestock.

The pastures were stocked with livestock in various combinations: Sheep alone; cattle alone; goats alone; a combination of cattle, sheep, and goats; and a combination of cattle and goats. Also, stocking rates were set at three different grazing levels — 16, 32, and 48 animal units per section. The levels were set up on the basis of one steer, six sheep, or six goats equal to one animal unit.

Determination of appropriate forage utilization was made for each pasture by the amount of accumulated litter left as cover, use of browse, plant vigor, trend in range conditions, present carrying capacity, and pasture conditions.

The results indicate that pastures grazed with sheep alone rate below those stocked only with cattle or with cattle and goats. At a heavy stocking rate of 48 animal units per section, the trend in range conditions was downward for all combinations of livestock. The trend was most pronounced in cases where pastures were grazed by sheep alone.

Under moderate stocking rates (32 animal units per section), pasture conditions remained relatively unchanged for those pastures grazed by cattle or by cattle and goats, but pastures deteriorated when utilized by sheep alone.

Forage utilization was more uniform when the proportion of sheep to cattle was not excessive. Sheep characteristically “spot graze” in certain localities, depending on wind and soil conditions. This “spot grazing” leads to serious reductions in ground cover and may create an erosion hazard.

Experimental studies, as well as field observations, indicate that sheep, stocked in balance with forage production and adjusted as rainfall and other conditions change, are no more harmful to ranges than any other class of livestock. The tests indicate that, in both the heavily and moderately grazed pastures, a ratio of five sheep to one steer is more desirable than a higher ratio.

Under a heavy rate of grazing, there was little difference between the pastures utilized by cattle alone and those with cattle and goats. Under moderate grazing conditions, the pastures with cattle and goats were in somewhat better condition than those grazed only with cattle. Under both heavy and moderate stocking rates, browse was utilized more fully in pastures where goats were present.

Observations of the experimental pastures, and of other range areas where palatable browse species are available, indicate that six goats to one steer is the most appropriate ratio for a cattle and goat combination. Texas agricultural specialists have noted that pastures stocked with female goats make faster vegeta-
tive recovery than do pastures stocked with an equal number of ewes. Large mutton goats, 2 years old or over, apparently are about equal to ewes in their over-all effect on range conditions.

Irrigated Coastal Bermuda as Hay Crop

Irrigated Coastal Bermuda grass averaged 13.2 tons of forage per acre when fertilized annually with 1,200 pounds of nitrogen per acre in experiments near College Station, Texas, during 1954-57. The protein content of the hay rose as the amounts of nitrogen were increased.

 Flake L. Fisher and A. G. Caldwell, Instructor and Associate Professor, respectively, at the Texas Agricultural Experiment Station, conducted studies on Coastal Bermuda grass grown under different nitrogen levels and with supplemental sprinkler irrigation. The experiments were made on Lufkin fine sandy loam soil which has a shallow sandy surface layer with a slowly permeable subsoil. These soils are characteristic of large areas of east Texas and the southern states. At the time the experiments were started, the soil was medium in organic matter, very low in phosphorus, and medium to low in available potassium.

In order to improve its efficiency, the nitrogen fertilizer was applied in March and after each of the first four harvests. The grass was harvested every 4 to 8 weeks, or at a height of approximately 15 inches.

Using the above management practices, the protein content of the hay was increased from 8 percent when no nitrogen was used to 14 percent when 1,200 pounds were applied. Without nitrogen, only 420 pounds of protein were produced per acre; with the use of 1,400 pounds of nitrogen per acre, 3,630 pounds of protein were produced.

Results of the experiments indicate that the annual use of a 5-1-2 ratio of nitrogen, phosphoric acid, and potash, respectively, will maintain a good forage output, which is high in protein, if at least 400 pounds of nitrogen are used. On sandy soils which are low in organic matter, nitrogen should be applied after each cutting of the grass; and phosphorus and potassium should be used at least twice each year. Continued high applications of nitrogen will cause the soil to become very acid unless a sound liming program is practiced.

Fertilizer Tests on Oat Forage

Studies made at the Blackland Experiment Station at Temple, Texas, indicate that the most profitable fertilizer treatment for the production of oat forage in this area is a combination of 30 pounds each of nitrogen and phosphoric acid per acre, according to E. D. Cook, Agronomist, and W. R. Parmer, Technician, at the Experiment Station.

The tests were conducted during 1953-56 on Houston Black clay soil to determine the amount of oat forage that could be produced by different fertilizer treatments. Inadequate moisture during the growing season limited forage yields each year.

In most cases, the application of nitrogen significantly increased forage yields in all 4 years of the tests. Phosphorus alone resulted in higher yields in 1954, but not in the other 3 years. Forage yields were greatly increased by a combination of nitrogen and phosphorus for almost every treatment and in every year. The addition of 60 pounds of potash to 60 pounds each of nitrogen and phosphoric acid did not result in a further gain in forage yields.

Machine- Versus Hand-Harvested Cotton

In studies made in the Upper Gulf Coast and the Brazos Valley areas of Texas during 1957, machine-picked cotton was superior to hand-harvested lint in several quality factors. After allowance for the difference in the spinning waste, the hand-harvested cottons apparently are overvalued in comparison with the machine-picked fiber, according to J. M. Ward, Assistant Professor of Agricultural Economics with the Texas Agricultural Experiment Station.
Machine-picked cotton grown in the Upper Gulf Coast area in 1957 sold at substantial discounts to hand-picked cotton harvested on the same date. When harvested under similar conditions, the significant differences usually are lower grade, duller color, and higher percentage of picker and card waste in the machine-picked cotton. Fiber properties and yarn quality may not be affected by the type of harvesting.

In the Brazos Valley of Texas, machine-picked and hand-pulled cottons were harvested under similar conditions in 1957. When ginned without lint cleaners, there was no significant difference in the spinning waste or strength and appearance of the yarn processed from the two methods of harvest.

**Milk Low in Radioactivity**

During a year-long study, all milk examined in five widely separated milksheds showed levels of radiation well below permissible levels, according to a recent report of the United States Public Health Service. Milk was chosen for the pilot study in an investigation of radioactivity in food because (1) it is one of the more important foods and (2) it is produced throughout the year.

Milk samples were analyzed for specific radioisotopes, including Strontium 90. This substance, which is similar to calcium, is taken up by the bones when it enters the body. The volumes of Strontium 90 in the milk samples ranged from only 5 percent to less than 10 percent of the maximum permissible concentration for regular consumption. Percentages of other radioisotopes were even lower.

The Public Health Service is continuing the analysis of milk and is expanding the work to include six additional geographical areas.

High-Moisture Corn Cuts Feed Costs

Corn containing 30 to 32 percent moisture can be worth 10 cents per bushel more as feed for fattening cattle than low-moisture corn harvested from the same field, according to Iowa State College studies on 72 yearling steers. The high-moisture corn saves about 8 percent in feed costs, or 1.3 cents per pound of beef produced.

When a stilbestrol supplement was added to rations of steers fed the high-moisture corn, the combined savings amounted to 16 percent. Wise Burroughs, Animal Husbandman at Iowa State College, says this indicates that the benefits from high-moisture corn and from stilbestrol are distinct from each other. When used together, each will contribute to the other in lowering feed costs.

Lifesavers for "Barnyard Babies"

A program for saving lives of "barnyard babies" will prove profitable to livestock producers, states A. D. Fitzgerald, Animal Husbandman with the Louisiana Agricultural Extension Service. The program includes the following seven points.

1. Make sure that the mother animals receive balanced rations, including proteins, vitamins, and minerals. If symptoms of nutritional deficiencies appear, a veterinarian should be called.

2. Provide clean, dry, draft-free quarters for brood sows, cows, and ewes; and keep the animals free of filth, lice, and mites.

3. Assist in births of barnyard babies, if necessary. The navels of newborn animals should be disinfected.

4. Make certain young animals are nursing properly. All baby animals need plenty of their mothers' first milk (colostrum).

5. Be especially alert for signs of scouring, as this condition may indicate disease or improper feeding.

6. Have pigs vaccinated against cholera about weaning time, and check to determine whether other types of vaccination are needed.

7. At the first sign of illness, obtain a prompt diagnosis and take corrective measures.

Practically all Texas turkey producers face the possibility of loss due to chiggers during the summer and fall months, points out Joe Wakefield at Texas A. & M. College. These pests cause abscessed and inflamed areas which may make birds worthless or cause them to sell at greatly reduced prices.

Lifesavers for "Barnyard Babies"
Small Grain Varieties Recommended for Central Texas

Small grain variety tests were conducted on Grand Prairie soils near McGregor, Texas, during 1953-57 and on Blackland Prairie soils near Temple during 1950-57. Only commercial varieties for which seed are available are considered in the report on these tests made by the Texas Agricultural Experiment Station.

The following oat varieties, listed in the order of their preference, are recommended for central Texas.

1. For grain production: New Nortex, Bronco, Mustang, and Alamo.
2. For winter grazing and grain output: Mustang, New Nortex, and Alamo.
3. For hay production: Bronco, Mustang, Alamo, and New Nortex.
4. For spring-sown grain or forage: Alamo, Mustang, and New Nortex.

Recommended wheat varieties are Quanah and Crockett. Quanah is preferred because of its higher rust resistance. Both varieties have excellent milling qualities.

Cordova is the only barley variety recommended for the central Texas area. This variety is a smooth awned, early-maturing barley with an outstanding yield record.

The optimum planting date for fall-sown small grains is November 1, but these crops may be seeded from October 1 to December 1. Oats also may be spring-sown from January 15 to February 15. All small grain seed should be cleaned for uniform seeding. Treat seed with Ceresan M, Panogen, or other fungicide to control smuts, blights, and other seed-borne disease.

The small tree farmer makes up a dominant part of the total number of farm and other private ownerships of commercial forest lands. According to the United States Forest Service, holdings of less than 100 acres account for 86 percent of all private holdings.

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Publications

Oklahoma Agricultural Experiment Station, Stillwater:


The Effects of Level of Grain Feeding upon the Efficiency of Milk Production, Bulletin No. B-483, by Eddie L. Thompson, Magnar Ronning, and E. R. Berousek.

Nitrogen Fertilization of Winter Oats, Bulletin No. B-491, by Harold V. Eck and Bobby A. Stewart.


Copies of these bulletins may be obtained by request to the experiment station.