The Southern Great Plains

THE REGION AND ITS NEEDS

D. A. SAVAGE, D. F. COSTELLO

THE Southern Great Plains is a big expanse of range country, dry-land farms, and some irrigated areas. Unintentional but widespread misuse of its soils in the past and a cataclysmic drought depleted the ranges, destroyed land and property, upset community stability, and brought a need for subsidies, relief, and other outside aid. People then called a part of it the Dust Bowl.

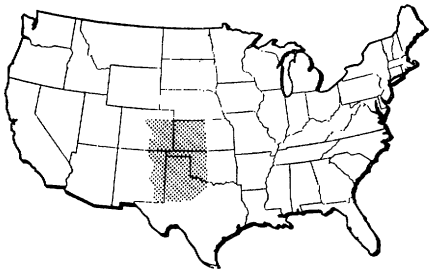
It has now regained some of its prominence as a leading cattle-producing and livestock-farming area; to maintain and improve this position requires a grassland agriculture geared to climate and the nature of the soil.

This hopeful trend is still in its infancy. Much remains to be done. Millions of acres of the erosive, less fertile areas need to be returned to grass; farming needs to be restricted to the better lands. Extremely alarming is the tendency in some sections to repeat the serious mistake made in the First World War by plowing up the native pasture land and placing it under cultivation. The great drought of the 1930's emphasized the fallacy of straight wheat production in the region, pointed up the importance of a more diversified grassland agriculture, and focused public attention upon the critical need for expanding, improving, and conserving the acreage of good range grasses. The lesson was a costly one. It must be remembered. Severe droughts are certain to recur. We must be ready for them.

The Southern Great Plains includes about 130 million acres south of the Nebraska-Kansas and Wyoming-Colorado borders. It extends from the eastern slope of the Rocky Mountains in Colorado and New Mexico to about the 98th meridian in Kansas and Oklahoma. The boundary swings southwest in Texas to the southern border of New Mexico and includes the Texas Panhandle and adjacent areas of western Texas and eastern New Mexico. The region represents about a third of the total area of the five States.

Wide variations occur in surface features, soils, and plant cover. The general aspect is a fairly level plain with shallow drainage channels often interspersed with rolling lands or steep broken areas. The principal rivers flow eastward. Only two of them, the South Platte and the Arkansas, furnish much water for irrigation. Most of the region slopes gently from elevations of 5,000 to 6,000 feet on the west to 2,000 feet or less on the east and south.

The climate is highly variable from month to month and year to year. Rainfall is comparatively light and infrequent; humidity is low; there are high winds and quick evaporation.



The yearly precipitation ranges from 10 to 17 inches in the west to 20 inches or more in the east; about two-thirds of it falls during the active growing season, April to September. Much of the rainfall occurs as torrents or light, ineffective showers; often hot weather and high winds further reduce its effectiveness. Drought periods, which occur nearly every year and occasionally last for several seasons or years, make dry-land farming hazardous.

The winters here are generally mild, open, and fairly dry, with an infrequent shower or severe snowstorm and sharp fluctuations in temperature. Wind velocities reach a peak late in winter or early in the spring and are usually higher throughout the year than elsewhere in the United States.

Plants to be fully adapted to the entire region must be able to withstand these conditions and temperature extremes from 118° to −30° F. The average yearly temperature ranges from about 50° in the north to 65° in the south, with a summer mean usually above 70°. The daily range is high. The frost-free season varies from 125 days on the higher slopes of Colorado to 200 days at the lower elevations in the southeastern part.

The soils range in texture from dune sand to heavy clay. Most of them are well supplied with minerals and other essential elements in available form. They were developed mainly from materials originally washed from the Rocky Mountains, and contain a variety of minerals that have not been leached below the depth of plant roots, except in some sandy soils.

Farmers recognize two broad classes of soils in the region: The hard lands, that can grow wheat and cotton, and the sandy lands, where sorghums or corn are best suited.

Two other broad distinctions are made in considering proper land use: The heavy, semiheavy, and sandy soils adapted to cultivation; and the loose sandy soils, heavy clays, and rough broken lands suitable for range. The heavier and more fertile soils consist of a fine-grained layer of topsoil composed of silt or clay loam and underlain with a clay or clay loam subsoil. These soils absorb water slowly but retain it well.

On January 1, 1947, the five States that include the Southern Great Plains had about 18 million cattle, 13 million sheep, and 1½ million horses and mules. The five States had 22 percent of the Nation's cattle, 35 percent of the sheep, and 16 percent of the horses and mules—or 25 percent of the total animal population and 17 percent of the valuation of these classes of grass-eating livestock. Sheep numbers in the five States were 75 percent of the cattle numbers in the area, but the valuation of sheep was a tenth of that of cattle.

Texas led the United States in number and valuation of cattle and sheep and in number of horses. Kansas ranked second in the region and fifth in the country in number of cattle; Colorado ranked correspondingly in number of sheep. New Mexico had fewer cattle than any State within the region but more than 11 other States. The importance of the region as a cattle-producing area is much greater than the figures indicate; they were recorded after millions of feeder cattle had left the region for finishing in the Corn Belt.

The cattle population in the region on January 1, 1947, was 4 percent below that for the same date in 1946 but 8 percent above the previous 10-year average. This large population is certain to result in damage to range resources in the event of another severe drought unless adequate supplies of extra forage and other supplements are provided.

The Southern Great Plains is outstanding in the production of feeder cattle, most of which are fed on native grass alone or with a limited supply of protein concentrates. The comparatively high feed value of the native grasses at all stages of growth accounts for the reputation of the region for yearlong grazing.

Many of the large ranches depend on range forage for most of their livestock feed. But most of the farmer-stockmen and increasing numbers of the ranchmen, particularly in the northwestern and southern parts, are making considerable progress in using a combination of range, pastures, and harvested crops for producing and fattening feeder-cattle and other classes of livestock.

This desirable practice could be expanded to advantage throughout the area and should include the increased use of reseeded pastures. For wintering and fattening their livestock, Colorado stockmen make excellent use of harvested crops, among them sugar-beet byproducts and alfalfa from irrigated farms, and sorghums, corn, and small grains from dry-land areas. Grain sorghums, supplemented with concentrates, are being extensively used for wintering and fattening cattle in the southern part of the Texas Panhandle. Wheat pasture also is important in the livestock economy of the region.

Grassland agriculture in the Southern Great Plains is represented by all gradations of land use, ranging from complete livestock grazing to strict crop production. Individual holdings vary in size from farms of a half section or less to large ranches of several thousand acres. The majority are small operating units of less than 2,000 acres, although the trend is toward a larger and more permanently self-sustaining unit in which livestock and crop production are conducted as well-balanced enterprises. Cash grain and feed crop production receive more emphasis than livestock on the smaller units.

The dry-land ranching units are used mainly to produce breeding herds and feeder cattle. Most of the livestock are finished in the Corn Belt, although some fattening is done in irrigated sections, on dry-land farms, and in the subhumid bluestem areas east of the Plains. Only a few livestock are moved in from other areas for summer grazing. Some sheep are shipped in from mountain areas for winter grazing.

Yearlong grazing of range land is a common practice in most of the region, especially with breeding herds. Cultivated forage crops are used to replace or supplement the winter range in the northern part of the region and on some smaller units elsewhere. Cropland aftermath, wheat pasture, and other supplements are common winter feeds. Most native ranges are used from April to October or November in Colorado and Kansas and on a yearlong basis farther south. Some ranges are retained for exclusive winter use, although most of them are grazed continuously. Most operators use protein concentrates to supplement their winter range. Only a few supplement their summer range with a light feeding of protein concentrates in late summer.

Approximately 20 percent of the heifers are saved for annual replacements in the breeding herd. Prices and feed supplies affect the number retained. The general practice is to have the heifers calve at 2 years of age, although the better stockmen prefer calving at 3. A crop of 2- and 3-year-old heifers and dry cows is usually culled from the herd to add to the livestock sales.

Purebred bulls are used generally. The individual merit of the bulls varies greatly from ranch to ranch. Some effort toward the improvement of herds through cooperative purchase of better bulls is evident.

Feeder yearlings and feeder calves represent the principal sales from farms and ranches. Some grass-fat yearlings and 2-year-olds are sold. More feeder calves are sold in years when prices are relatively high and winter feed supplies are short.

In the few places where sheep are

grazed on the range, the general practice is to use a herder and to provide night corrals and some shelter. Supplemental feeding in winter is the common practice. A few small operators cater to the spring lamb market, but the bulk of production goes to the fall slaughter and feeder lamb markets. Range sheep production is of minor importance in the region. This accounts for the fact that range lands of the Southern Great Plains have suffered somewhat less from overgrazing than many other ranges in the West.

The beef cattle industry in the Southern Great Plains can be placed and maintained on a much more stable basis through the adoption of improved practices for the care and management of both the range and the cattle. These possibilities are indicated by the results of range studies and grazing tests conducted in the region.

Stockmen are urged to make annual appraisals of the condition of their range lands and determine the trend for better or worse. Accurate inventories of this kind are dependent upon a thorough knowledge of, and ability to recognize, the desirable and undesirable plants. Every stockman needs a practical working knowledge of the production capacity of his grasslands. He needs to know what degree of forage utilization will result in optimum returns from his livestock and at the same time allow sustained maximum production of grass.

If this knowledge were generally available, the evil effects of "grass inflation" and "grass depression" could be diminished. In good years, a large volume of vegetation, much of which consists of low-value weeds, springs up and gives false hopes of prosperity. The tendency under such conditions is to graze more livestock than is proper or profitable. The result is overgrazing in dry years and enforced sale of a portion of the breeding herd laboriously built up over a period of time. This lowers the herd quality and frequently causes the operator to conclude that purchase of high-grade animals is hazardous and uneconomical. Stockmen need guides for judging condition of the range, yearly forage production, and current use of the grass.

An occasional overhaul job of the ranch is just as important as a motor tune-up on the family automobile. There are very few farms and ranches where the efficiency of operation cannot be improved. Higher income can usually be obtained after a little trouble-shooting, usually without an expansion of facilities. This can be accomplished by giving proper attention to forage, livestock, and equipment.

The forage should receive attention at all times. It is the crop which the livestock operator has for sale; the animals are merely a means of harvesting and processing it. In the long run, conservative use of the grass pays the best dividends in grass and livestock production. It provides assurance of a sustained forage supply and results in optimum weight gains. An understanding of range conditions is necessary before correct use can be attained. An examination of different ranges in any locality will show that the forage is better on some than others. An exchange of ideas among stockmen frequently reveals the cause.

DRY-LAND PASTURES ON THE PLAINS

D. A. SAVAGE, JAMES E. SMITH, D. F. COSTELLO

IN THE Southern Great Plains a steadily increasing acreage of pastures is being established by seeding native or introduced grasses on cultivated and abandoned farm land. Other grazing lands include small areas of irrigated pasture and extensive native range.

Millions of acres of the more erosive