lows: They can add to the nation's food supply a great variety of fishes; they may produce a natural ice supply and grasses and other growths useful for forage and for making bedding, rugs, and baskets; in maintaining the underground water level they promote forest growth, insure the flow for springs and wells, and hold back the run-off of floods, thereby more evenly distributing the water over a longer period and preventing excessive erosion and other flood damage; furthermore, populated with interesting wild life, such areas can furnish millions of people with natural playgrounds, thus encouraging the beneficial study of nature and the greater enjoyment of outdoor life.

TALBOTT DENMEAD.

DROUGHT and Its Effects in United States

On account of the widely diversified climate of the United States, the great variety of agricultural products, and the different requirements of these in the matter of moisture, the term drought, as applied to a lack of moisture in the soil for proper plant growth, embraces a multitude of conditions differing with each particular type of agriculture; hence no certain deficiency in precipation can be defined as constituting a drought.

In the more eastern districts, where precipitation is usually well distributed and mainly sufficient for agricultural needs, a period of 30 days without beneficial precipitation constitutes a drought, and damage might be serious and even disastrous if the subsoil were not well supplied with moisture at the beginning of the drought period.

In our central valleys and Great Plains, where the bulk of the precipitation comes in the warmer months, drought during the early spring months will greatly diminish the wheat yield, and drought in midsummer will spell disaster to the corn crop.

Over the Pacific Coast States possible drought is confined mainly to the colder half of the year. Here precipitation may be decidedly scanty for a month or even a considerably longer period during the rainy season without serious inconvenience, but a generally dry winter season may be disastrous to nonirrigated crops through lack of sufficient soil moisture for crops that mature after the cessation of the winter rains.

A short period of drought in the eastern part of the country during the early spring months will frequently greatly curtail the hay crop, but it may not seriously injure wheat; in fact it may be beneficial in preventing excessive straw growth.

As to corn in its early growth, a period of drought may even be beneficial, forcing the roots to greater depths, a result which may prove beneficial later in the season if the surface soil becomes depleted of moisture.

Drought of short duration may be quite disastrous to corn when it follows a wet period immediately preceding the early formation of the ear, when abundant moisture is required, and if previous wet weather has caused the root system to develop near the surface the supply of moisture still available in the subsoil may not be reached in time to prevent loss.

Moderate drought is not always associated with scanty production. It may even prove beneficial to cotton by hindering activity of insect pests which do not multiply in dry weather. Further, the cotton plant remains somewhat dormant during drought, only to resume growth promptly when moisture is finally supplied, thereby at times enabling the development of a crop after the season of worst insect infestation.

Early droughts are particularly detrimental to most truck and small-fruit crops, as growth and development of these are usually rapid, and any material interruption is decidedly harmful.

Losses by Drought

Probably no part of the country is free from occasional heavy losses in agricultural products from deficient moisture, but improved methods of tillage and increase in the amount of vegetable matter in the soil tend to retain considerable moisture that would otherwise be evaporated or lost through seepage, thus affording a partial source of supply when rainfall is deficient. The amount of moisture conservable in this way is limited, and extended drought periods finally exhaust the whole supply and agricultural losses are in proportion to the time drought continues or to the actual possibilities of damage, this depending largely on the stage of crop development.

During the period of crop growth there is seldom a time when more or less drought does not exist in some portion of the country. In the Atlantic coast districts droughts more or less severe for a period of 30 days or more from March to September occur in nearly half the years, while in the lower Ohio and middle and lower Mississippi Valleys drought is liable during the same period in more than half the years. Over much of Texas and the western Great Plains drought is liable in 70 to 90 per cent of the years or even more.

This does not indicate that all crops necessarily suffer, as the drought may occur too late to injure winter wheat or too early to harm spring wheat; it may come before the corn is susceptible to severe injury or after it has largely matured, and it may happen during the various stages of cotton growth, when lack of moisture, though retarding growth, encourages fruiting and lessens insect depredations.

In portions of the eastern plains and upper Mississippi Valley, notably in much of Missouri and Iowa and portions of near-by States, on account of the preponderance of the yearly precipitation in the late spring and early summer months, the percentage of years with drought during the crop-growing season is the lowest in the entire country, being only from 30 to 40 per cent.

Dates of the Greatest Droughts

In 1901 lack of precipitation during the latter part of June and the greater part of July over the principal corn-producing States, associated with intense heat, threatened an almost total loss of the corn crop in some States. Fortunately, good rains near the end of July partly revived the crop, but the average yield of corn that year

for the entire country was reduced to 16.7 bushels per acre. In Kansas the average yield was 7.8 bushels per acre; Arkansas had 8 bushels; Oklahoma and Missouri, 10; Texas, 12; Nebraska, 14; and in other near-by States yields were reduced to a less extent.

A severe drought, affecting corn particularly, centered over Kansas in 1913. Intense heat persisted for long periods, and conditions were worse than in 1901, reducing the average yield of corn in the State to slightly more than 3 bushels per acre, but in this instance drought was not so extensive in area as in 1901.

A notable drought occurred over the southeastern part of the country in 1925. Precipitation was greatly deficient during the entire growing season, most late crops were practically failures over the southern Appalachian region, and more or less loss was sustained in all near-by localities and over much of the eastern and central Cotton Belt as well.

With increasing hydroelectric development, drought losses are not so fully confined to agriculture as formerly. Now great interests are associated with water-power plants, and any lessening of the stream flow through drought is reflected in reduction of output and consequent loss.

With the development of large irrigation systems in the far West, the occurrence of drought in the winter months is of much greater concern than formerly. A deficiency in the winter's snow in the mountains now means a reduced flow of water into the irrigation ditches during the summer, and serious loss to crops depending on water from melting snow may result.

At present no basis for foretelling the occurrence of drought exists, but the damaging effects on crops of all kinds may be greatly ameliorated by recognizing the possibility of its occurrence and planning such a system of soil preparation and cultivation as will minimize its damaging effects.

Much information on soil preparation and types of cultivation most effective in conserving soil moisture is available in the publications of the Department of Agriculture.

P. C. Day.

EATING to Keep Body in Health

The idea of selecting food primarily to build and maintain a standard of health belongs to the present day. It is beginning to supplement materially in the popular mind the age-old idea of eating simply to appease the pangs of hunger and gratify the appetite. The causes that are contributing to the popular acceptance of this idea are the high cost of living, the growing scarcity of household labor, advances made in the science of human nutrition, and the many avenues afforded to-day for popular education along this and other lines.

The principles of eating for health have been outlined in a food-habits score card, which has proved to be one of the most effective devices for the modern teaching of food habits that make for health. This score card was first developed at conferences of the nutrition specialists of the cooperative extension service of the United States Department of Agriculture and the State agricultural colleges and