

U. S. DEPARTMENT OF AGRICULTURE.

REPORT FOR APRIL, 1899.

MARYLAND AND DELAWARE SECTION

OF THE

CLIMATE AND CROP SERVICE

OF THE

WEATHER BUREAU.

IN COOPERATION WITH THE

MARYLAND STATE WEATHER SERVICE.

(Prof. Wm. B. Clark, Director; Prof. Milton Whitney, Secretary and Treasurer.)

PREPARED UNDER DIRECTION OF

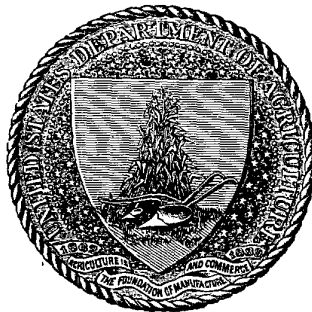
WILLIS L. MOORE,

CHIEF OF WEATHER BUREAU.

BY

F. J. WALZ,

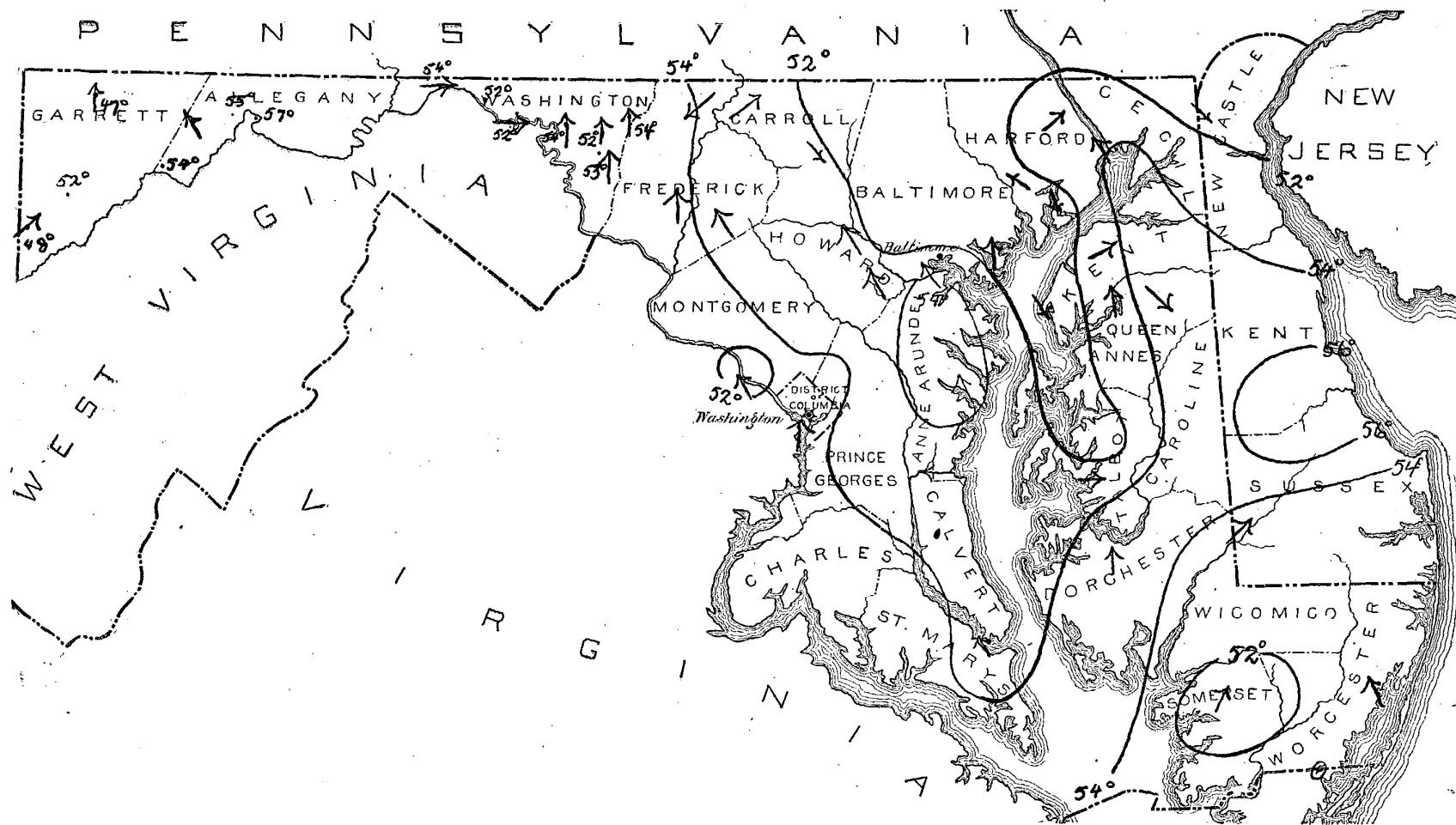
SECTION DIRECTOR.



BALTIMORE, MD.:
WEATHER BUREAU OFFICE.
JOHNS HOPKINS UNIVERSITY.

1899.

MONTHLY MEAN ISOTHERMS AND PREVAILING WINDS, APRIL, 1899.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATE AND CROP SERVICE

OF THE
WEATHER BUREAU.
 CENTRAL OFFICE: WASHINGTON, D. C.

BALTIMORE, MD.

VOL. IV.

BALTIMORE, MD.

NO. 4.

WEATHER AND CROP-CONDITIONS DURING APRIL.

FIRST WEEK. Cold northeast to northwest winds with cloudy skies prevailed. Temperatures have been appreciably below the normal, with frequent frosts. Heavy rains were general on the 7th, turning to snow in the western and in some of the north-central counties. Very little spring plowing has yet been done.

Wheat is below the average condition. Rye has suffered from the frosts of the week. Clover and timothy seeding continues. Some oats have been sown. Tobacco beds have been seeded. In nearly all sections peach buds are reported destroyed. In protected places along the Bay some buds are in sound condition. Pears, cherries, and apples promise fair crops. A large acreage is being planted in peas. Some early planted are above ground. Potato planting is general.

SECOND WEEK. Light frosts occurred over the northern and central counties on Tuesday morning. A decidedly warmer period followed, lasting until Saturday. Cloudiness began to increase during Friday, followed on Saturday and Sunday by a cold rain of about half an inch in some localities. On Sunday high westerly winds blew in gusts all day. Light frosts occurred on Monday morning over the northern counties. The temperature throughout the section was from 4° to 6° above normal for the week.

The week was very favorable for crop growth and all farm work. A marked impetus was given to all crops. The foliage of forest trees began to show, and in the southern counties fruit trees started into bloom. Grain and grasses have been greatly improved. Clover seeding is about finished. The sowing of oats still continues, though about finished in the southern counties. Pasture and meadow lands look well. Ground is being prepared for corn. Some tobacco plants are up and present a healthy appearance. The planting of potatoes continues, while in the Southern counties some are coming up. Early garden seed has been put into the ground. In eastern and southern counties cabbage and tomato plants are growing nicely. Sweet potatoes are being bedded. Where there are any peach buds, the varieties seem to be more promising than the yellow. Strawberries are beginning to bloom in some of the southeastern counties.

THIRD WEEK. The week has been fairly warm and without rain. Throughout the Section the temperature was about 3° or 4° above the average for the week. Clear to partly cloudy weather prevailed, and the amount of sunshine has been large. Light frosts occurred on Tuesday and Saturday, but were without injury to crops.

Splendid progress has been made in plowing and seeding. Wheat and rye continue to improve, nearly all fields are more or less spotted however. Meadows and pastures are growing slowly. Plowing of corn land is general; some corn has been planted in the southern and northern counties. In the early sown tobacco beds the plants are up, look well and are making good growth. The greater part of the potato crop has been planted. Work in truck lands and gardens is going on vigorously. Peas are growing nicely and some are receiving their first cultivation. Tomato plants are being placed in the fields, and early cabbages are also being transplanted. Peaches are showing a more general bloom than was expected, although there is no material improvement. Apple, cherry, and pear trees have a great abundance of bloom.

FOURTH WEEK. The past week has been exceptionally favorable for plant growth, and for all farm work. The days were warm with much sunshine and the nights cool with heavy dews. The temperature was from 6° to 8° above the normal for the week. Light showers fell in many portions of the State during Wednesday and Thursday; some sections, however, have been without rain for nearly two weeks, notably Washington County. Rain is much needed in nearly all portions of the State for the best development of the crops; the ground is beginning to get hard and dry. The week was entirely free from injurious frosts in all sections. Farm work is well advanced, much progress having been made since last week.

Wheat and rye continue to improve, though not yet up to the average condition. Oats are reported as growing nicely. Much corn has been planted; in southern and eastern counties it is coming up in fair condition. Clover is growing well. In Southern and Eastern Maryland tobacco plants under cover are in fine condition and there are plenty of them. Early gardens are made and are doing well. In Washington County, owing to failure of peaches, orchards are being planted in small cantaloupes. Strawberries are growing rapidly and the plants are full of blossoms. Large crops of watermelons and cantaloupes are being planted. Peaches are still reported a failure in nearly all sections, though some favorable reports still come from Eastern Maryland. Cherries, pears, plums, and apples are in full and abundant bloom in all sections; the outlook is favorable for large crops of these fruits.

* * *

PROTECTION AGAINST FROST.

After a considerable study of various methods of protecting orchards against frost which have thus far been made public, the writer has become convinced that those which depend for their success upon raising the dew-point are generally the most efficient.

Many methods which involve this principle have been suggested and tried, some of which are here described:

Fires of damp straw and stable manure: Have the fuel, in small piles, distributed throughout the orchard in advance; the more numerous the piles the better. With the same amount of fuel the best protection is obtained from small and frequent fires, since, with small fires, the upward draft is reduced to a minimum, and the more frequent the fires the more uniform will be the distribution of heat.

Sacks of manure: A decidedly preferable method is to pack damp stable manure in common grain or burlap sacks, by which it can be conveniently handled. They should be distributed through the orchards in rows about 100 feet apart, and about 50 feet between sacks in each row. When it is found necessary to protect, a small amount of coaloil is poured upon each sack and ignited. It is usually unnecessary to fire more than every second or fourth sack, the remainder being left for latter occasions. These sacks will burn with a smoldering fire for several hours.

The amount of heat which is set free by burning one sack of manure weighing about 50 pounds, and condensing the the vapor near the surface, would be sufficient to raise the temperature 20° in a space of 75 feet square and 25 feet deep. If one-fourth of this heat remained within the region needing protection, which seems to be a reasonable estimate, ample protection would be obtained for almost any ordinary conditions.

Bales of wet straw: Mr. T. A. Morrison, of Riverside, Cal., suggested the use of a similar plan, in which bales of wet straw were substituted for manure. This plan has been tried with fair success. One-hundred pound bales were cut in four pieces, a tie wire being left about each piece, and, if properly dampened, will burn with but little care, causing a small smoldering fire.

Prunings: The prunings of the trees, which are usually removed shortly before the period when frosts are likely to do their greatest injury, are excellent smudge material, and should always be preserved for this use. They should be piled in open spaces throughout the orchard or vineyard, and burned at times when protection may be needed. The best results will be obtained from as small fires as will result in burning the prunings.

Portable smudge fires: A number of excellent devices have been tried, in which the fires were built upon some vehicle by which they could be moved about the orchard. The advantages of this plan are several:

First. The fire can be moved to the section where most needed, generally along the windward side of the orchard.

Second. The loss of heat by an upward draft is almost entirely prevented, since the fire does not remain in one position long enough to establish such a draft. On this account much larger and, consequently, fewer fires, with equal efficiency, are possible.

Third. There is a much more uniform distribution of heat throughout the orchard.—*W. H. Hammon, in Bulletin No. 23, U. S. Weather Bureau, Washington, D. C., 1899.*

* * *

CLIMATOLOGY OF THE MONTH.

ATMOSPHERIC PRESSURE—IN INCHES AND HUNDREDTHS.

Monthly mean at Washington, D. C., 30.10; at Baltimore, 30.08; average, 30.09; highest, 30.42 at Washington, D. C., on the 6th; lowest, 29.59 at Washington, D. C., on the 7th.

TEMPERATURE—IN DEGREES FAHRENHEIT.

The monthly mean (entire territory), 53.3, is 1.0 above the normal.

The highest monthly mean was 57.4, at Cumberland.

The lowest monthly mean was 47.4, at Grantsville.

The highest temperature recorded during the month was 94, at Boetcherville, on the 30th.

The lowest temperature recorded during the month was 14, at Deer Park and Sunnyside, on the 5th.

The greatest local monthly range was 74, at Boettcherville.

The least local monthly range was 50, at Cambridge and Chestertown.

The greatest daily range was 50, at Deer Park, on the 21st.

The least daily range was 2, at Sunnyside, on the 8th.

PRECIPITATION—IN INCHES AND HUNDREDTHS.

The monthly average (entire territory) 1.56, was 1.77 below the normal.

The greatest amount was 3.40, at Frostburg.

The least amount was 0.67, at Smithsburg (1).

The greatest amount in twenty-four hours was 2.10, at Bachman's Valley, on the 7th.

The average number of rainy days, 4.

WIND.

The prevailing direction was from the southeast.

The total movement was 4,077 miles, at Baltimore, and 5,266 miles, at Washington, D. C.

The maximum wind velocity was 34 miles per hour from the northwest, at Washington, D. C., on the 16th.

MISCELLANEOUS.

The following are dates on which various miscellaneous phenomena occurred:

Thunderstorms.—Baltimore, 16, 26; Boettcherville, 24, 25, 26; Boonsboro, 16; Cambridge, 16, 26; Chase, 26; Chestertown, 16, 26; Chewsville, 16; Coleman, 16, 26; Cumberland, 26; Denton, 16, 26; Easton, 26; Fallston, 16, 26; Frederick, 16; Frostburg, 24; Grantsville, 14, 24, 25, 26, 30; Green Spring Furnace, 26; Harney, 26; Hancock, 26; Laurel, 16, 26; Millsboro, Del., 16; Mt. St. Mary's, 26; Newark, Del., 15; Princess Anne, 26; Rock Hall a, 15, 16; Sandy Point, 15, 16; Seaford, Del., 26; Smithsburg, 16; Solomons, 16, 26; St. Charles College, 26; Sudlersville, 26; Sunnyside, 24, 25, 26; Van Bibber, 26; Washington, 16, 26; Woodstock, 26; Wyoming, Del., 15, 26.

Frost, light.—Boonsboro a, 10, 11; Cambridge, 4; Chestertown, 22; Chewsville, 17; Coleman, 1, 2, 3, 4, 5, 6, 10, 11; Easton, 10, 11, 22, 28; Fallston, 22; Hagerstown, 26; Laurel, 17; Millsboro, Del., 17, 22, 23; Mt. St. Mary's, 10; Princess Anne, 5, 17, 21, 22, 23; Rock Hall b, 10; Smithsburg b, 10; Solomons, 4, 10, 11; St. Charles College, 4, 10, 11; Sunnyside, 6, 7, 8, 9, 13, 14; Western Md. College, 1, 2, 17; Woodstock, 2, 3, 5, 6, 10; Wyoming, Del., 9, 10.

Frost, heavy.—Boonsboro a, 2, 3, 4; Boonsboro b, 10, 11, 17; Chestertown, 10, 11; Chewsville, 10, 11; Clear Spring, 10; Easton, 4, 6; Fallston, 17; Mardela Springs, 9, 10, 11; Millsboro, Del., 2, 3, 4, 5, 6; Newark, Del., 10, 11; Princess Anne, 3, 4, 6, 11; Rock Hall b, 4, 6, 11; Sharpsburg, 4; Smithsburg a, 4, 5, 10, 11, 17; Smithsburg b, 11; Sunnyside, 1, 2, 3, 5, 10, 11; Washington, 17; Woodstock, 4.

LATE REPORT.

Darlington, Harford Co., March 1899: Mean temperature, 40.5°; maximum, 63° on the 18th and 30th; minimum, 23° on the 20th; greatest daily range, 31° on the 18th; total rainfall, 5.31 inches; greatest rainfall in 24 hours, 1.24 inches on the 5th; total snowfall, 3 inches; number of clear days, 8; partly cloudy, 8; cloudy, 14; number of rainy days, 9; prevailing wind direction, southwest.

Climatological data for Maryland and Delaware, April, 1899.

Table with columns: Stations, Counties, Elevation, Length of record, Temperature (Mean, Departure from normal, Highest, Date, Lowest, Date, Greatest daily range), Precipitation (Total, Departure from normal, Greatest in 24 hours, Total snowfall, Number rainy days, Number clear days, Number partly cloudy days, Number cloudy days), Sky, Prevailing direction of wind, Observers. The table is divided into sections for Western Maryland, Northern-Central MD., Southern Maryland, Eastern Maryland, and Delaware.

Note—All records are used in determining State or district means, but State and district departures are determined by comparison of current data of only such stations as have normals.

* Mean of 8 a. m. + 8 p. m. ÷ 2.

† Mean of 7 a. m. + 2 p. m. ÷ 2.

TOTAL PRECIPITATION, APRIL, 1899.

