

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.
VIRGINIA SECTION.

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VOL. XXX.

RICHMOND, VA., YEAR 1920.

No. 13.

GENERAL SUMMARY.

Though temperature averaged below normal for eight months of the year, the annual departure of -0.9° is not unusually large. Monthly extremes and averages were mostly well within the record, although May, with an average deficiency of 5.1° was within 0.8° of equaling the former low record for the month. The spring and summer months, with the exception of March, averaged below normal, and as a result the season became backward early in the year and remained so into late fall and early winter. Frosts occurred later in the spring than usual, but killing frosts in autumn were not general until the staple crops were harvested.

Precipitation was slightly below normal in the Great Valley, but there was a moderate excess in other districts. August was an especially wet month and crops were considerably damaged in some sections by excessive moisture. June was also a wet month, but owing to the stage of plant growth and the fact that the previous month had been considerably deficient in rainfall, crops were generally favorably affected. The dry weather of October and early November retarded fall seeding, but gave excellent opportunity for the harvesting of fall crops, most of which turned out satisfactorily in yield and quality.

THE WEATHER BY MONTHS.

JANUARY.—Temperature and precipitation were below normal. Much of the precipitation was in the form of sleet and ice storms. Snowfall was unusually light for January. There was a great deal of cloudy weather and a corresponding deficiency in sunshine. No thunder-storms were reported.

FEBRUARY.—Almost unbroken cold weather prevailed. Rains from the 3d to 6th were heaviest in eastern counties and, together with frequent light or moderate rains thereafter, caused a decided excess of precipitation in Tidewater and Middle Virginia. There was much cloudy, humid weather, and sunshine was far below the average. Sleet was rather general on the 4th and 5th. Farm work was greatly retarded and winter grain crops more or less injured by alternate freezing and thawing of the soil and the frequency of rainfall.

MARCH.—The month, as a whole, was mild, and ample rains were well distributed throughout the month. Snowfall was light. Auroras were observed in all sections on the 22d, and less generally on the 23d, 24th, and 25th. During the early part of the month the weather was too cold for crop growth and too wet for work in the soil. Owing to the lack of adequate snow-cover, the cold was positively harmful to winter grain crops. Conditions began to improve before the middle of the month and the last week was favorable for work and vegetation. At the end of the month, however, the season was still backward.

APRIL.—No very great departures from average April weather conditions occurred. Rainfall was somewhat heavier than average and the number of rainy days was large. The

month was almost without snow, except at a few Great Valley stations. Killing frosts, which were more or less general on the 6th, 11th, 14th, and 15th, caused little damage because of the backward condition of vegetation.

MAY.—Rains occurred with almost the usual frequency, but they were mostly light, and crops suffered for moisture. Cool weather was almost uninterrupted. On the 6th frosts occurred in southeastern counties, and locally they were of killing intensity, resulting in more or less damage to tender fruits and vegetables. On the 15th killing frosts were fairly general in Middle Virginia and the Great Valley. In general, these frosts were from two to four weeks later than the average dates of last killing frosts in spring. Thunder-storms were much less frequent than is usual in May.

JUNE.—Moderately cool, wet weather prevailed. After the cool, dry weather of May, which had retarded the growth of the principal summer crops, the beginning of a period of frequent rains about the 3d of June caused a general improvement which was accentuated by a change to warmer weather about the 10th. During the remainder of the month the weather was decidedly favorable for crop growth and fairly suitable for the prosecution of farm work.

JULY.—Until the 24th temperatures were daily slightly below normal most of the time. Then followed a change to comparatively cool weather, which lasted until near the end of the month. Rainfall was near normal. Cloudiness was below the average for July, permitting an abundance of sunshine. The weather of the entire month was, in general, favorable for farm work; also for growing crops, which advanced rapidly, and, on the whole, improved steadily in condition.

AUGUST.—Temperature averaged below normal, but no unusual extremes were registered. There was much cloudy weather and frequent rains occurred in all districts throughout the month. With plentiful moisture crops made good progress early in the month, but during the latter half continued heavy rains caused considerable damage to tobacco, and to wheat and oats in the shock, and greatly retarded all farm work.

SEPTEMBER.—Temperatures were generally below normal from the 15th to 23d; a shorter cool period occurred from the 2d to the 5th. The minimum readings for the month were comparatively high for this period of the year. Local rains fell in Tidewater and Middle Virginia from the 5th to 10th, and in the Great Valley from the 5th to 15th. Frequent showers occurred in all districts from the 23d to 30th, but the amounts were usually light to moderate, except on the 30th, when generally heavy rains fell. Except during the early portion of the month, when it was too cool and wet locally, the weather was favorable for the maturing and harvesting of fall crops and for other farm work.

OCTOBER.—Light precipitation and an unusually large number of clear days were noteworthy features of the month. On the 2d and 3d killing frosts occurred at some stations in the mountains, and light to heavy frosts formed at a number of stations in other districts. On the 29th and 30th killing frosts were rather general in the Great Valley and in favorable localities in Middle Virginia, while in Tidewater Virginia

the deposit was mostly heavy, though killing was recorded at scattered stations. The dry weather and abundant sunshine caused late corn and truck to mature rapidly. Seeding and germination of winter grains were retarded to some extent by dry soil.

NOVEMBER.—Temperature averaged below normal. The first generally killing frost of the season occurred in Middle and Tidewater Virginia on the 13th. A severe sleet-storm on the 15th and 16th caused heavy damage in several north-western counties. While the first half of the month was unfavorable for sowing and germination of wheat and winter oats, the latter half was favorable. Corn husking progressed rapidly early in the month, but was later somewhat retarded by heavy rains.

DECEMBER.—Temperature was unusually mild and equable throughout the month. Precipitation was ample in all sections, but snowfall was unusually light for the season. Early in the month, with moderate temperature and sufficient moisture, wheat and oats made rapid progress; later, however, these crops were somewhat unfavorably affected by freezing and thawing weather.—*W. F. F.*

KILLING FROSTS, 1920.

Stations.	Last in spring.	First in autumn.	Stations.	Last in spring.	First in autumn.
TIDEWATER VIRGINIA.			MIDDLE VIRGINIA—CON.		
Ashland	May 16	Nov. 12	Lincoln	Apr. 11	Nov. 13
Cape Henry	Mar. 9	Dec. 16	Lynchburg	Apr. 11	Nov. 4
Dahlgren		Nov. 13	Mayhurst	May 15	Nov. 29
Diamond Springs	Apr. 11	Nov. 14	Mineral	May 16	Oct. 30
Franklin	Apr. 11	Oct. 30	Mount Weather	Apr. 15	Nov. 13
Hopewell	Apr. 14	Nov. 13	New Canton	May 16	Oct. 29
Langley Field	Mar. 9	Nov. 13	Randolph	Apr. 15	Oct. 29
Newport News	Apr. 14	Nov. 13	Rocky Mount	Apr. 15	Nov. 4
Norfolk	Mar. 9	Nov. 14	Washington, D. C.	Apr. 14	Nov. 4
Onley	May 6	Nov. 12			
Richmond	Mar. 22	Nov. 13	THE GREAT VALLEY.		
Runnymede	May 6	Oct. 30	Blacksburg	May 15	Oct. 3
Warsaw	May 5	Oct. 30	Buchanan	May 15	Oct. 29
West Point		Nov. 13	Burkes Garden	May 15	Oct. 3
Williamsburg	Apr. 15	Oct. 30	Catawaba Sanatorium	Apr. 15	Nov. 4
			Dale Enterprise	May 16	Oct. 30
MIDDLE VIRGINIA.			Dante	Apr. 15	Oct. 30
Arcola	Apr. 11	Nov. 4	Hot Springs	May 16	Oct. 3
Callaville	Apr. 15	Nov. 4	Lexington	May 15	Oct. 29
Charlottesville	Apr. 14	Nov. 13	Pulaski	May 16	Oct. 3
Clarksville	Apr. 6	Oct. 30	Roanoke	Apr. 15	Oct. 29
Columbia	Apr. 15	Oct. 30	Staunton	May 15	Oct. 29
Culpeper	Apr. 15	Oct. 30	Winchester	Apr. 11	Nov. 13
Danville	Apr. 14	Oct. 30	Wise		Oct. 2
Fredericksburg	Apr. 15	Oct. 30	Woodstock		Nov. 4
Lawrenceville	May 15	Oct. 30	Wytheville	Apr. 15	Oct. 3
Leeds Manor	Apr. 15	Nov. 13			

CLIMATOLOGICAL DATA, 1920.

Month.	Temperature.			Precipitation.			Number of days.			
	Mean.	Highest.	Lowest.	Average.	Greatest 24-hour rain.	Average snow-fall.	Rainy.	Clear.	Partly cloudy.	Cloudy.
January	33.6	75	-9	2.46	1.81	1.3	8	11	6	14
February	34.0	65	-4	4.67	4.00	4.4	10	8	8	13
March	45.6	87	-8	3.51	2.70	0.3	8	16	8	8
April	53.6	96	17	3.84	3.00	0.2	13	12	8	10
May	59.9	92	23	1.87	1.76	T.	16	16	6	9
June	70.3	99	35	5.37	3.15	0.0	10	14	9	7
July	73.0	98	39	4.74	4.50	0.0	9	16	10	5
August	73.1	97	41	7.12	4.92	0.0	15	8	10	13
September	68.9	96	32	3.21	2.55	0.0	17	15	8	7
October	60.3	90	20	0.60	0.00	T.	22	22	8	4
November	45.8	80	3	5.27	3.30	0.3	19	11	9	13
December	39.4	73	9	3.25	1.87	0.3	7	12	8	11

COMPARATIVE ANNUAL DATA.

Year.	Mean temperature.	Highest.	Lowest.	Average precipitation.	Average snow-fall.	No. of rainy days.	No. of clear days.	No. of partly cloudy days.	No. of cloudy days.
1892	54.8	106	-8	40.01	95	163	101	102
1893	55.1	104	-26	46.83	23.1	103	156	100	109
1894	57.0	106	-11	35.97	17.0	88	166	104	95
1895	54.6	107	-18	38.09	38.8	94	174	103	88
1896	56.4	105	-10	42.89	12.3	93	163	106	97
1897	56.0	103	-15	40.81	11.8	92	171	99	95
1898	56.5	105	-9	44.80	8.7	108	162	101	102
1899	56.4	106	-29	43.18	36.7	98	176	95	94
1900	57.0	107	-8	39.33	18.6	86	181	91	93
1901	55.3	106	-14	50.17	9.5	100	167	94	104
1902	55.6	108	0	51.42	14.9	95	170	97	98
1903	55.1	105	-13	44.85	8.4	95	172	89	104
1904	53.8	100	-14	36.18	24.9	96	170	101	95
1905	54.8	98	-15	43.58	18.5	111	155	112	98
1906	56.3	102	-2	49.56	15.2	124	143	120	102
1907	54.3	97	-16	44.19	17.4	115	159	115	91
1908	55.4	102	-20	45.21	30.0	110	162	108	96
1909	55.5	102	-5	39.81	12.9	101	171	104	90
1910	54.7	102	-9	41.37	20.3	112	151	116	98
1911	56.8	104	0	41.50	9.2	115	149	110	106
1912	54.5	100	-25	39.19	24.6	103	165	106	96
1913	57.2	102	-3	42.75	4.0	100	178	98	89
1914	55.0	103	-17	37.17	39.8	101	168	100	97
1915	55.8	101	-5	39.12	13.5	97	160	116	89
1916	55.5	102	-11	39.35	18.6	103	165	106	95
1917	55.3	103	-27	40.82	23.7	114	158	107	100
1918	55.3	108	-22	44.43	24.7	105	159	97	109
1919	56.8	103	-16	41.66	7.4	102	161	99	105
1920	54.8	99	-9	46.30	7.1	106	162	89	115