

## Weather at Tamil Nadu Agricultural University Coimbatore 1978

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The rainfall during the South-west monsoon period was below normal by 30 per cent. Moreover the onset was also delayed by a month. This prevented the timely sowing of the monsoon crop. Also the dry spell during August and September months affected the crop growth. The onset of North-east monsoon was normal and rainfall received during this season was above normal by 24 per cent with well distributed pattern. This facilitated the good stand of the rainfed crop. The temperature conditions were near normal throughout the year except, unusual night temperature that prevailed for two days (around 10°C) during third week of January 1978. The hours of sunshine during third June, August and October were below normal recording less than 6 hours/day. The wind speed during the August month was higher. The amount of water evaporated and deposited on the surface as dew were normal.

Crop production is mainly determined by the climatic factors such as rainfall, temperature and radiation of a locality. For agricultural development planning and for agricultural technology transfer, availability of climatic data are essential. The agricultural meteorological section of the Department of Agronomy is primarily concerned with the collection, and interpretation of climatic data for the Tamil Nadu Agricultural University Main Campus besides, forecasting pests and diseases in relation to weather conditions received from the research stations of the University. An analysis of weather parameters for the main campus for the year 1978 is reported in this paper. It will be useful to the research workers and post graduate scholars of the various disciplines to deter-

mine the relationships between environmental factors and crop production.

### MATERIAL AND METHODS

The weather data were collected at the Meteorological observatory of Tamil Nadu Agricultural University Coimbatore from January, 1978 to December 1978.

### Rainfall

A total amount of 628 mm of rainfall was received during the year in 44 rainy days. The amount of rainfall and the number of rainy days were normal compared to the averages (638 mm in 45 rainy days).

A comparison of monthly totals of precipitation received from January 1978 to December 1978, with long

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term averages (25 years) is shown in Table I.

October and November received 17 and 57 per cent more rainfall than the average, with more distri-

bution, while March, April, June, July, August and September recorded only about 30, 22, 75, 82, 66 and 54 per cent of the expected amount respectively. The rainfall during the rest of the months was near normal.

TABLE I Monthly rainfall and rainy days

Month	Average rainfall		Rainfall in 1978, (mm)	Rainy days 1978
	mm	Rainy days		
January	8.4	0.7	0.0	—
February	3.3	0.5	20.2	1
March	15.1	0.8	5.0	2
April	48.5	3.4	10.7	2
May	67.7	4.7	71.1	5
June	40.5	3.6	30.4	3
July	65.2	6.2	53.5	2
August	30.1	3.4	20.0	3
September	45.8	3.6	24.8	2
October	142.9	8.9	167.3	12
November	110.5	6.2	173.8	8
December	59.4	3.3	50.9	4

The rainfall is compared season-wise in Table II.

Rainfall during North-east monsoon period was above normal by 24 per cent and also the rainfall was

well distributed (24 days). This facilitated good growth of the rainfed crops. The rainfall during hot weather and south west monsoon periods was below normal by 34 and 39 per cent respectively. This adversely

TABLE II Seasonal rainfall and rainy days

Season	Average rainfall		Rainfall (1978)	
	Amount (mm)	Rainy days	Amount (mm)	Rainy days
Dry weather (Jan & Feb.)	12.0	1.2	20.2	1
Hot weather (March-May)	131.3	8.9	86.3	9
South-west monsoon (June-Sept.)	181.6	16.8	128.7	10
North-east monsoon (Oct.-Dec.)	312.9	18.4	392.0	24

FIG. 1 DAILY RAINFALL AT COIMBATORE - 1977

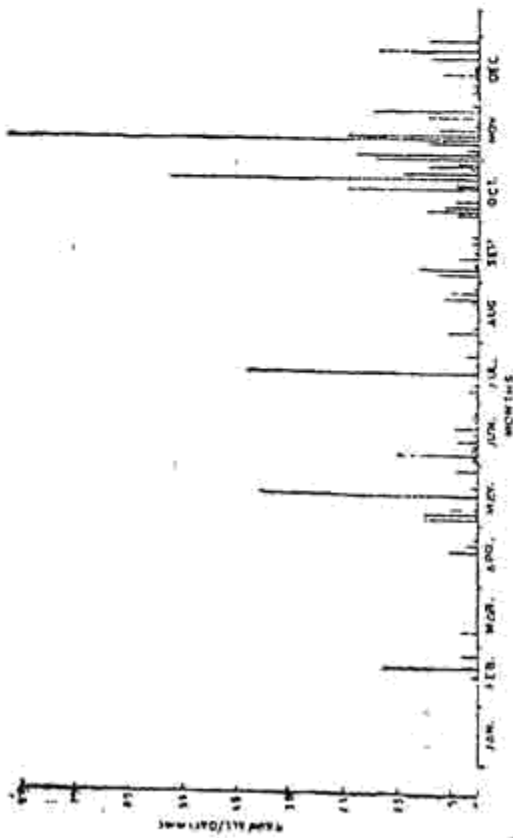


FIG. 2 WEEKLY RAINFALL AT COIMBATORE 1979

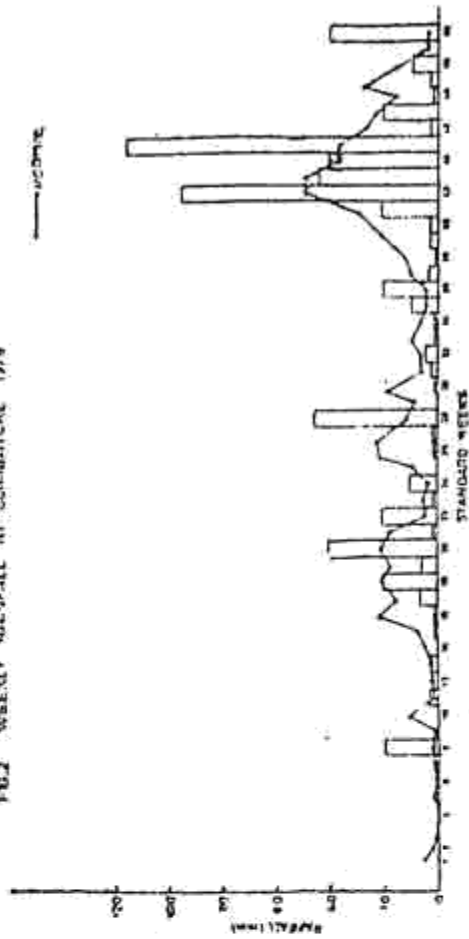


FIG. 3 MONTHLY RAINFALL AT COIMBATORE - 1970

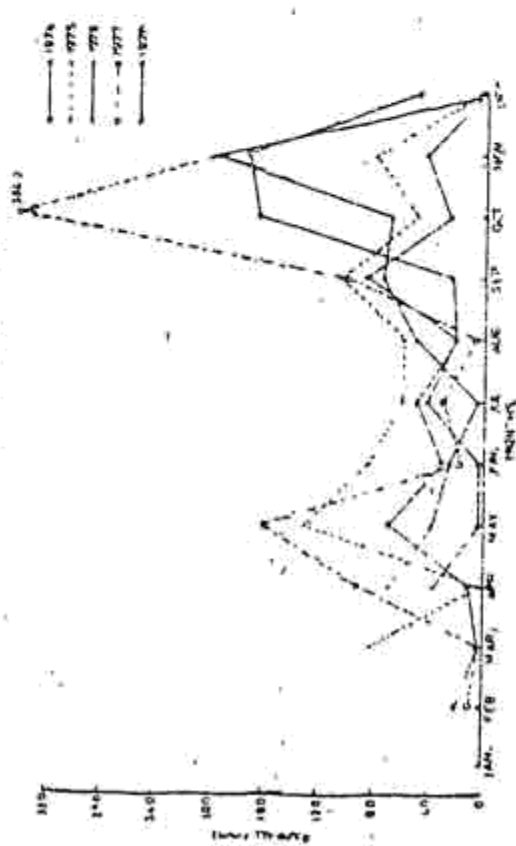
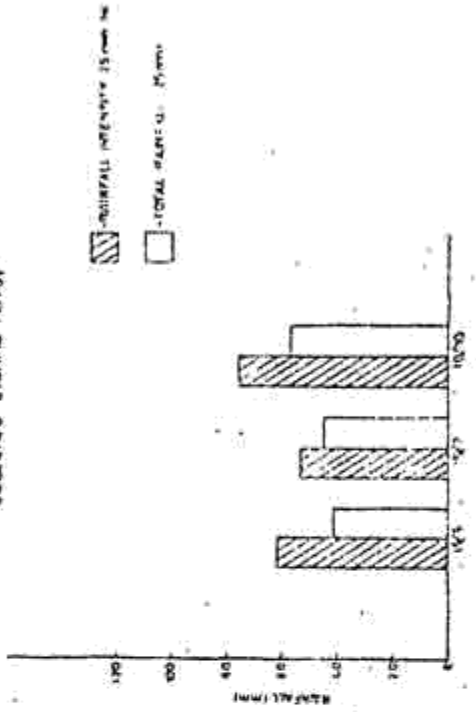


FIG. 4 RAINFALL INTENSITY AND TOTAL RAINFALL OF SELECTED STORMS (1978)



affected the sowing of dry crops during the months of June and July. The rainfall during the dry weather period was nearly normal.

Daily and weekly cumulative values of precipitation received during the year 1978 are shown in Fig. 1 and 2. The maximum amount of rainfall received during one single day was 84 mm in November; 57.1 mm in October, 45 mm in July and 40.9 mm in May. There were seven occasions when rainfall was in excess of 20 mm/day and 11 occasions when it exceeded 10 mm/day but below 20 mm/day. Set on Standard weeks (Fig. 2) the highest weekly total was 116 mm for the week No. 45 (November 5-11) followed by 94 mm for the week No. 42 (October 15-21). This amount of rainfall is about three and two times the average value based on 25 years data respectively.

The monthly amounts and rainfall have been recorded for the past five years (1974-1978). (Fig 3) The dispersion of curves clearly shows that rainfall during May, October and November months are somewhat more stable compared to other months.

The distribution and the amounts associated with high intensity of rainfall have been recorded during 1978. During the year, there were 44 rainy days recording more than 2.5 mm of rainfall. There were three storms on May 15, July 15 and October 19, with

an intensity of 63 mm/hr., 54 mm/hr and 76 mm/hr respectively.

At Coimbatore, extreme variation in terms of rainfall can be encountered even over a small area. A comparison of the spatial distribution of rainfall in the University Campus (Millet Breeding Station, Eastern Block (Field No. 69), Wetland and Paddy Breeding Station) for the year 1978 revealed wide variations. The annual rainfall varied from 628 to 496 mm.

The annual rainfall data showed a decreasing trend in south-west direction from the campus. The rainfall data for May 15th, 1978 showed a variation from 37.6 to 60.3 mm between Paddy Breeding Station and Wetland. The distance between these two stations is only 1.5 Km. Likewise the rainfall data for July 15th, 1978 also showed such a wide variation between Millet Breeding Station and Eastern Block (45.5 and 18.2 mm). The results emphasize that rainguage should be located close to each experiment if precise information of rainfall is to be obtained.

#### Temperature

The trends of weekly mean maximum - minimum air temperature have been recorded for 1978. (Fig. 5) A maximum of 38°C (97°F) was recorded on April 21 and the minimum temperature recorded was 10.2°C (50°F) on 19th January. The day air

FIG. 5 WEEKLY AVERAGE AIR MAXIMUM AND MINIMUM TEMPERATURE AT COIMBATORE - 1978

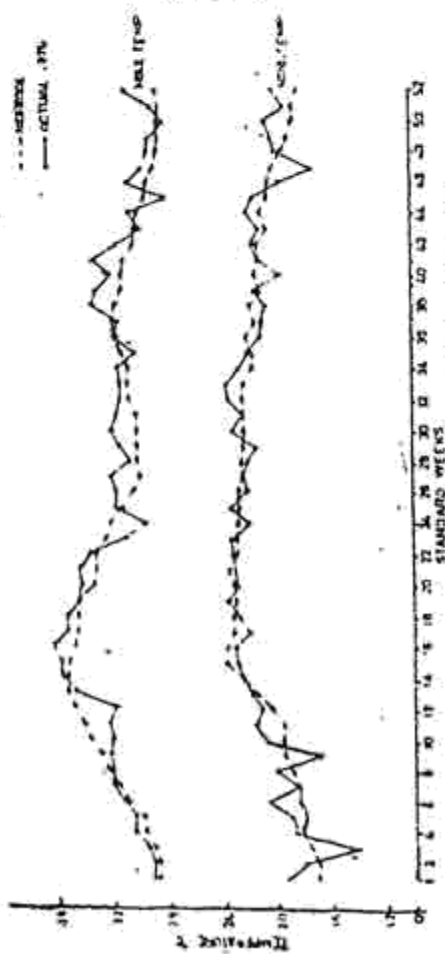


FIG. 6 WEEKLY AVERAGE RELATIVE HUMIDITY AT COIMBATORE - 1978

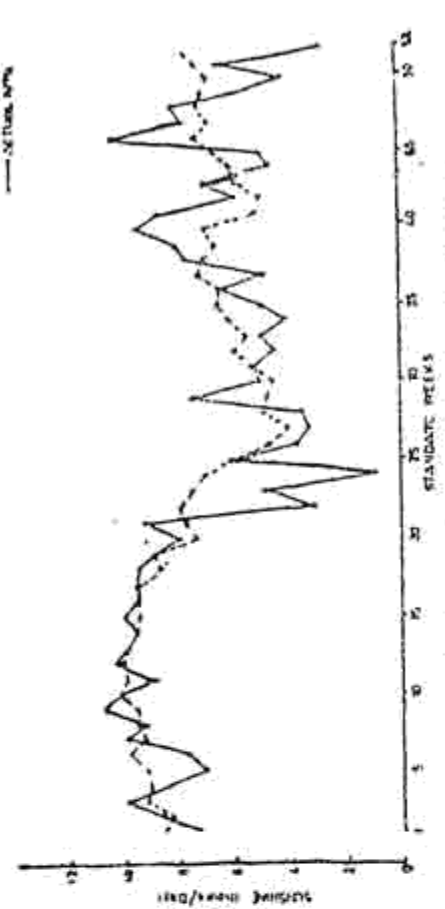


FIG. 7 WEEKLY AVERAGE EVAPORATION AT COIMBATORE - 1978

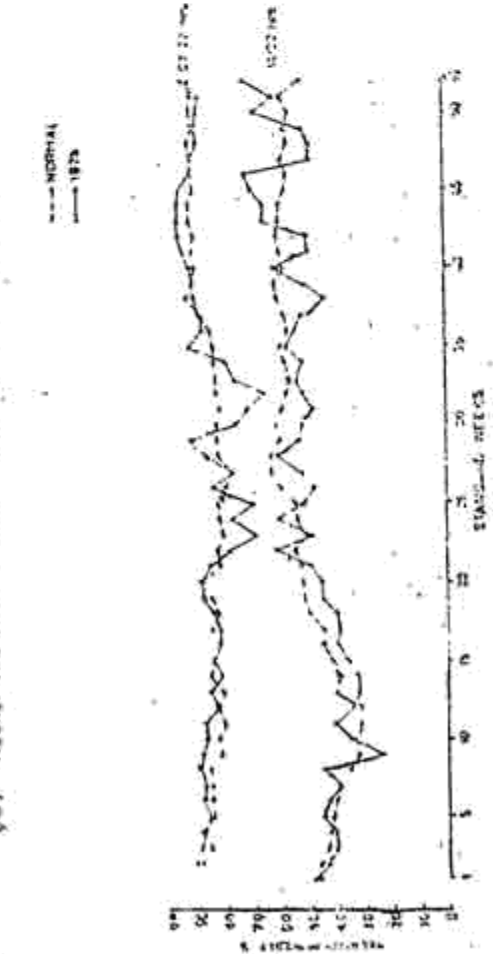
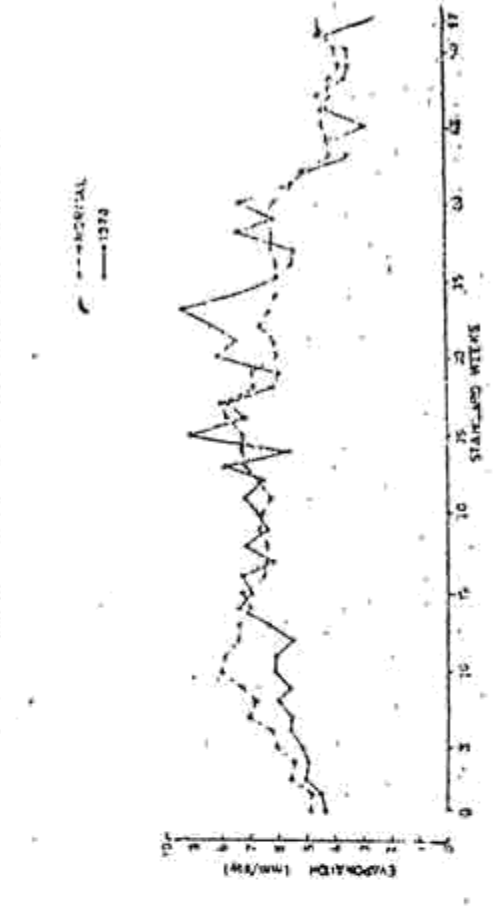


FIG. 8 WEEKLY AVERAGE SUNSHINE AT COIMBATORE - 1978



temperature generally ranged between 34 and 36°C during hot weather period (March-May) and 29 and 32°C during rest of the period.

The night air temperature ranged between 14°-21°C for winter period (January, February, November and December) and between 21° and 24°C during the rest of the months.

### Sunshine

The average weekly hours of sunshine at the Agricultural Meteorology observatory, Coimbatore in 1978 have been recorded. (Fig 6) During June-August and October relatively few hours of bright sunshine (on an average six hours) were recorded, while nine hours were observed during middle of January to May except on some days which were cloudy.

### Wind

The period between June and September was quite windy when average daily wind speeds in excess of 10 kmph was daily observed. The prevailing wind direction was south west during this period. A maximum daily average wind speed of 27 km/hour was recorded on August 14, 1978. The maximum daily wind speed at 1-10 hours was 51 KM/hour on August 14, 1978. During October to December

the prevailing wind was in the North-east direction.

### Relative Humidity

The weekly means of the relative humidity have been recorded at 0722 and 1422 hours. (Fig-7) The relative humidity values were above 70 per cent in the morning (0722 hr) in all the period except 2nd week of June and first week of August. However, in November and December the value exceeded 70 per cent at 1422 hrs. during four weeks. From 3rd week of May onwards (22nd week) the 1422 hrs reading exceeded 50 percent till the end of December.

### Evaporation

The class 'A' pan evaporation data have been recorded daily at 0830 hours (Fig. 8) Four to six mm rates were observed during the period January to February and September-December. Evaporation rates above 10 mm / day were frequently observed during July and August, with a maximum daily evaporation of 13 mm recorded on 23rd June.

### Dew

A total of 9.0 mm dew was recorded during 1978. The major amount of dew fall was recorded during October and November i.e 2.12 and 2.48 mm respectively.

## Weather at Coimbatore - 1978

Sul. week	Date		Temperature C <sup>o</sup>		RH%		Rainfall (mm)		Evapo-ration (mm)	SS.hrs
			Max.	Min.	0722 hrs.	1422 hrs.	Annual	RD		
1.	1-7	Jan.	29.3	19.5	89	47	—	—	4.3	7.3
2.	8-14		29.0	18.0	90	42	—	—	4.6	8.5
3.	15-21		29.3	14.1	89	40	—	—	5.0	9.5
4.	22-28		30.6	18.8	88	41	—	—	4.9	8.3
5.	29-4	Feb.	30.3	19.0	85	46	—	—	5.2	7.0
6.	4-11		30.9	20.7	87	43	—	—	5.6	7.7
7.	12-18		32.0	18.4	86	39	—	—	5.5	9.8
8.	19-25		32.1	20.2	89	46	20.2	1	5.9	9.2
9.	26-4	Mar	32.2	16.8	88	23	—	—	5.6	10.8
10.	5-11		32.1	20.9	86	36	—	—	6.1	10.1
11.	12-18		32.5	21.8	37	40	2.5	1	6.0	8.8
12.	19-25		31.9	21.6	82	33	—	—	5.4	10.2
13.	26-1	Apr.	35.1	21.9	86	32	2.5	1	6.3	9.8
14.	2-8		35.8	22.4	82	32	—	—	7.4	9.6
15.	9-15		35.6	22.7	85	36	0.8	—	6.8	10.0
16.	16-22		36.4	22.9	83	40	3.3	1	7.3	9.0
17.	23-29		35.4	22.1	82	39	1.2	—	6.1	9.0
18.	30-6	May	35.5	22.7	85	40	20.1	2	7.2	9.4
19.	7-13		34.6	23.4	87	45	5.3	1	6.3	8.8
20.	14-20		34.2	22.9	87	46	40.9	1	6.6	7.9
21.	21-27		34.5	22.7	85	51	0.8	—	7.2	9.2
22.	28-3	June	31.7	22.9	78	62	21.0	2	6.4	3.1
23.	4-10		30.7	23.1	69	49	1.4	—	7.9	4.8
24.	11-17		29.5	21.9	77	62	10.9	2	5.6	0.8
25.	18-24		31.6	23.4	69	51	—	—	9.2	5.8
26.	25-1	July	31.6	22.0	84	48	1.1	—	7.2	3.7
27.	2-8		31.9	22.2	78	53	0.8	—	7.8	3.3
28.	9-15		30.5	22.0	86	61	50.0	2	6.3	3.6
29.	16-22		31.2	21.5	91	53	—	—	6.0	7.5
30.	23-29		31.9	23.2	76	52	0.5	—	8.1	5.0
31.	30-5	Aug.	31.6	22.2	72	49	2.2	—	7.6	5.4
32.	6-12		31.3	23.3	75	52	5.6	1	8.5	4.5
33.	13-19		30.9	22.5	66	54	0.6	—	9.5	4.9
34.	20-26		31.4	22.5	77	52	1.0	—	7.6	4.2
35.	27-2	Sep.	29.8	21.8	79	58	12.8	2	6.1	5.1
36.	3-9		31.7	21.0	93	55	18.9	2	5.5	6.4
37.	10-16		31.2	21.1	88	53	2.4	—	5.6	4.9
38.	17-23		33.2	20.5	88	41	0.4	—	7.5	7.7
39.	24-30		32.6	21.6	91	62	3.1	—	6.2	8.1
40.	1-7	Oct.	31.7	19.2	90	49	3.8	1	7.4	9.5
41.	8-14		33.1	21.6	91	50	21.5	3	5.7	8.6
42.	15-21		31.4	21.8	93	66	94.3	4	4.9	5.8
43.	22-28		29.6	21.3	94	65	44.2	3	3.5	7.0
44.	29-4	Nov.	30.5	21.9	94	70	38.3	4	3.9	4.6
45.	5-11		27.5	21.5	95	72	115.7	3	2.7	4.9
46.	12-18		30.5	19.3	93	48	2.7	1	4.2	10.4
47.	19-25		29.7	17.1	90	48	28.8	1	4.5	7.8
48.	26-2	Dec.	29.0	19.9	90	51	1.3	—	3.7	8.1
49.	3-9		28.6	19.9	87	69	3.4	—	3.5	5.9
50.	10-16		27.9	20.7	89	62	8.4	1	3.5	4.2
51.	17-23		28.8	19.4	88	50	—	—	4.3	6.5
52.	24-31		30.6	20.1	54	71	39.1	3	2.5	2.7