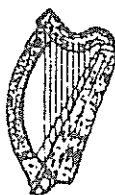


METEOROLOGICAL SERVICE



AGROMETEOROLOGICAL BULLETIN

JULY 1984

The Weather of July

The high pressure, which was established over Ireland on June 27, giving bright and warm conditions, declined on July 7th. A southerly airflow set in on July 8th. Complex frontal troughs to the west of Ireland began to affect the country on 8th/9th and an unsettled spell of weather ensued. Widespread rain or showers occurred in this spell up to 11th. As a depression centre drifted slowly northwards off the west coast a southwest to west airflow set in and further frontal waves drifted slowly across the country with outbreaks of rain or drizzle on 12th/13th.

A return of high pressure on 14th and 15th brought a renewal of the fine spell, although weak frontal troughs affected some places in the west and north on 16th/17th. This high, which was mainly centred to the northwest of the country, dominated weather conditions until 27th. A light to moderate northeasterly airflow prevailed during the period and thundery troughs affected southern coastal counties on 24th/25th.

As the high cell declined weak frontal troughs affected the northwest and northern regions on 28th. A deepening wave to the west of the country on 29th was followed by a slow passage of a cold front over the country from the west on 30th, and extensive rain occurred on 30th and early on 31st.

Monthly Amounts of Precipitation were well below normal in almost all areas. Amounts varied from 92% of normal at Valentia Observatory to 21% at Johnstown Castle, the majority being in the range 40% to 70%. Amounts at Galway were only 26% of normal, reflecting a particularly dry spell in the Clare/Galway region. Wettest spells of the month occurred from 8th to 14th; local thundery showers occurred in southern regions on 24th/25th, and another wet spell began in western areas on 28th and became widespread on 30th/31st. Soil moisture deficits continued to mount during the month in all areas; while still only some 35mm to 45mm at extreme western stations, midland and southeast stations reached some 80-100mm or more, reflecting the great stress caused to plants due to lack of moisture. Weather favourable to the spread of potato blight was well below average, the more significant spells occurring from 10th to 12th, 14th, 16th to 20th in the extreme northwest, 20th to 22nd in extreme southern areas, and 28th/29th in the northwest.

Mean Monthly Air Temperature was well above average generally, ranging from 1.9C° above average at Shannon Airport to 0.6C° above at Rosslare and Malin Head. Degree days, threshold 10C°, were mostly between 25% and 35% above average. Soil temperatures (100mm) varied from 2.8C° above average at Shannon Airport to 0.9C° above at Clones. Sharp ground frost occurred in the midlands and parts of the south on 3rd and again in the midlands on 16th and 22nd.

Mean Duration of Bright Sunshine was well above normal, varying from 153% of normal at Dublin Airport to 97% at Malin Head. Global radiation was about 125% of average at Dublin Airport and Valentia Observatory and over 100% at Birr and Kilkenny.

Strong Winds with Gale Gusts became general on 9th/10th.

Summary Very dry, warm and sunny. Drought conditions were severe in regions away from the northwest, and were particularly severe in the south and southeast.

The data contained in this Bulletin are Provisional. Some of the material in Table 1 will be published in its final form later in the Monthly Weather Report; final values of Solar Radiation at stations in Table 2 will be published in the Annual Summary of Solar Radiation.

TABLE 1

JULY 1984

STATION	PERIOD	RAINFALL (mm)				TEMPERATURE (°C)														BRIGHT SUNSHINE		WIND		P.E. (PENMAN) (mm)		
		AMOUNT	% OF AVERAGE	RAIN DAYS	WET DAYS	AIR							GROUND				SOIL (10cm)			MEAN DAILY (HRS.)	% OF AVERAGE	MEAN SPEED (ms ⁻¹)	DAYS WITH GALE GUSTS			
						MEAN MAX.	MEAN MIN.	MEAN DAILY	DIFFERENCE FROM AVERAGE	LOWEST MIN.	DATE	DAYS WITH AIR FROST	DEGREE DAYS ABOVE 4.4°C	% OF AVERAGE	DEGREE DAYS ABOVE 10.0°C	% OF AVERAGE	LOWEST "GRASS-MIN"	DATE	DAYS WITH GROUND FROST						MEAN DAILY	DIFFERENCE FROM AVERAGE
Carlow (Oak Park) Co. Carlow	1-10	15.2	-	1	1	21.7	9.2	15.4	-	4.8	3	0	110	-	59	-	0.0	3	0	-	-	7.30	-	4.0	-	-
	11-20	10.3	-	4	2	20.7	11.6	16.1	-	7.8	16	0	117	-	62	-	2.8	16	0	-	-	3.03	-	0.4	-	-
	21-END	3.0	-	1	1	24.1	10.7	17.4	-	8.4	22	0	143	-	82	-	6.0	29	0	-	-	8.18	-	2.9	-	-
	MONTH	28.5	53	6	4	22.2	10.5	16.3	-	4.8	3	0	370	-	203	-	0.0	3	0	-	-	6.24	-	2.4	-	94
Shannon Airport Co. Clare	1-10	13.2	-	3	3	22.1	12.1	17.1	-	7.7	3	0	127	-	72	-	5.3	3	0	20.2	-	5.86	-	4.5	1	-
	11-20	9.5	-	4	3	20.5	13.2	16.9	-	11.4	19	0	125	-	69	-	8.2	15	0	18.1	-	4.14	-	4.4	0	-
	21-END	12.5	-	3	3	23.6	12.5	18.1	-	9.0	31	0	150	-	89	-	4.8	31	0	22.0	-	9.45	-	3.9	0	-
	MONTH	35.2	53	10	9	22.1	12.6	17.4	+1.9	7.7	3	0	402	117	229	133	4.8	31	0	20.2	+2.8	6.58	142	4.3	1	114
Fermoy (Coolinakilla) Co. Cork	1-10	21.8	-	3	3	18.9	9.6	14.3	-	7.2	2	0	99	-	46	-	1.1	7	0	-	-	7.05	-	4.5	-	-
	11-20	3.5	-	5	2	18.9	11.0	15.0	-	8.0	15	0	106	-	50	-	5.7	15	0	-	-	4.30	-	4.2	-	-
	21-END	6.6	-	3	2	22.4	11.3	16.9	-	9.0	31	0	137	-	76	-	3.0	29	0	-	-	8.97	-	2.8	-	-
	MONTH	31.9	-	11	7	20.2	10.6	15.4	-	7.2	2	0	341	-	171	-	1.1	7	0	-	-	6.85	-	3.9	-	87
Fermoy (Moore Park) Co. Cork	1-10	17.7	-	3	3	20.7	9.1	14.9	-	3.5	3	0	105	-	55	-	-2.4	3	4	-	-	7.26	-	2.7	-	-
	11-20	2.2	-	4	0	20.5	11.1	15.8	-	7.8	15	0	114	-	59	-	3.0	16	0	-	-	4.20	-	2.8	-	-
	21-END	1.1	-	4	0	23.9	10.1	17.0	-	7.0	31	0	139	-	80	-	-0.7	31	1	-	-	9.28	-	2.3	-	-
	MONTH	21.0	35	11	3	21.8	10.1	15.9	-	3.5	3	0	358	-	194	-	-2.4	3	5	-	-	6.99	-	2.6	-	94
Mallow Co. Cork	1-10	N/A	-	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	-	N/A	-	N/A	N/A	N/A	-	-	5.87	-	-	-	-	-
	11-20	N/A	-	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	-	N/A	-	N/A	N/A	N/A	-	-	3.27	-	-	-	-	-
	21-END	N/A	-	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	-	N/A	-	N/A	N/A	N/A	-	-	N/A	-	-	-	-	-
	MONTH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	-	N/A	-	N/A	N/A	N/A	-	-	N/A	-	-	-	-	-
Roches Point Co. Cork	1-10	23.4	-	3	3	18.5	12.1	15.3	-	9.5	1	0	109	-	53	-	3.4	1	0	18.5	-	8.07	-	5.7	2	-
	11-20	5.8	-	3	2	18.5	12.5	15.5	-	10.2	15	0	111	-	55	-	8.2	15	0	16.8	-	4.48	-	5.5	0	-
	21-END	2.3	-	1	1	20.8	12.9	16.9	-	10.7	31	0	137	-	75	-	5.9	23	0	19.2	-	9.54	-	4.7	1	-
	MONTH	31.5	53	7	6	19.3	12.5	15.9	+0.8	9.5	1	0	357	109	184	119	3.4	1	0	18.2	+1.1	7.43	132	5.3	3	105
Glencolumbkille Co. Donegal	1-10	23.9	-	4	4	18.7	10.8	14.8	-	8.2	4	0	104	-	49	-	2.3	4	0	-	-	6.07	-	2.8	-	-
	11-20	26.5	-	7	5	16.8	10.8	13.8	-	8.0	16	0	94	-	39	-	2.5	16	0	-	-	3.77	-	3.0	-	-
	21-END	35.9	-	4	3	17.7	10.2	14.0	-	7.0	22	0	105	-	46	-	1.6	22	0	-	-	N/A	-	2.8	-	-
	MONTH	86.3	-	15	12	17.7	10.6	14.2	-	7.0	22	0	303	-	133	-	1.6	22	0	-	-	N/A	-	2.9	-	N/A

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NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 1 (CONTINUED)

JULY 1984

STATION	PERIOD	RAINFALL (mm)				TEMPERATURE (°C)														BRIGHT SUNSHINE		WIND					
		AMOUNT	% OF AVERAGE	RAIN DAYS	WET DAYS	AIR							GROUND			SOIL (10cm)				MEAN DAILY (HRS.)	% OF AVERAGE	MEAN SPEED (ms ⁻¹)	DAYS WITH GALE GUSTS	P.E. (PENMAN) (mm)			
						MEAN MAX.	MEAN MIN.	MEAN DAILY	DIFFERENCE FROM AVERAGE	LOWEST MIN.	DATE	DAYS WITH AIR FROST	DEGREE DAYS ABOVE 4.4°C	% OF AVERAGE	DEGREE DAYS ABOVE 10.0°C	% OF AVERAGE	LOWEST *GRASS-MIN*	DATE	DAYS WITH GROUND FROST						MEAN DAILY	DIFFERENCE FROM AVERAGE	
Glenties Co. Donegal	1-10	18.4	-	3	3	19.8	10.7	15.3	-	6.6	3	0	109	-	55	-	1.5	3	0	-	-	5.36	-	-	-	-	-
	11-20	30.6	-	7	7	17.4	11.8	14.6	-	7.5	20	0	102	-	47	-	4.2	20	0	-	-	3.28	-	-	-	-	-
	21-END	22.7	-	5	3	19.2	10.7	15.0	-	5.2	31	0	116	-	56	-	3.4	31	0	-	-	5.76	-	-	-	-	-
	MONTH	71.7	66	15	13	18.8	11.0	14.9	-	5.2	31	0	327	-	158	-	1.5	3	0	-	-	4.83	-	-	-	-	-
Malin Head Co. Donegal	1-10	12.5	-	3	2	17.1	11.4	14.3	-	6.5	4	0	99	-	44	-	3.8	4	0	17.6	-	5.53	-	5.0	0	-	-
	11-20	15.2	-	9	5	16.0	12.5	14.2	-	11.5	13	0	98	-	42	-	9.9	16	0	16.8	-	2.17	-	6.1	1	-	-
	21-END	17.1	-	5	4	16.8	12.8	14.8	-	11.4	31	0	114	-	53	-	7.1	25	0	18.0	-	4.98	-	5.7	1	-	-
	MONTH	44.8	56	17	11	16.6	12.3	14.4	+0.6	6.5	4	0	311	107	139	118	3.8	4	0	17.5	+1.9	4.25	97	5.6	2	76	-
Casement Aerodrome Co. Dublin	1-10	4.2	-	2	2	21.8	9.4	15.6	-	4.6	1	0	112	-	61	-	0.6	1	0	18.1	-	8.04	-	4.2	1	-	-
	11-20	16.1	-	4	4	20.4	11.4	15.9	-	8.0	19	0	115	-	60	-	5.5	19	0	17.6	-	4.26	-	4.1	1	-	-
	21-END	2.5	-	2	1	22.9	10.8	16.9	-	8.2	21	0	137	-	77	-	3.5	22	0	20.0	-	9.83	-	4.3	1	-	-
	MONTH	22.8	42	8	7	21.7	10.5	16.1	+1.2	4.6	1	0	364	112	198	125	0.6	1	0	18.6	-	7.45	152	4.2	3	114	-
Dublin Airport Co. Dublin	1-10	9.7	-	3	2	20.7	11.7	16.2	-	7.5	2	0	118	-	63	-	3.4	3	0	20.2	-	8.66	-	3.6	0	-	-
	11-20	17.6	-	4	4	19.9	12.0	16.0	-	9.7	16	0	116	-	60	-	8.0	19	0	18.6	-	5.04	-	3.3	0	-	-
	21-END	3.5	-	2	1	21.3	11.5	16.4	-	8.7	22	0	132	-	71	-	5.5	22	0	21.5	-	10.24	-	3.8	0	-	-
	MONTH	30.8	52	9	7	20.7	11.7	16.2	+1.2	7.5	2	0	365	112	194	124	3.4	3	0	20.1	+2.7	8.05	153	3.6	0	115	-
Kinsealy Co. Dublin	1-10	7.0	-	2	2	20.1	10.5	15.3	-	5.1	1	0	109	-	56	-	0.9	3	0	-	-	8.15	-	3.7	-	-	-
	11-20	13.9	-	5	3	20.1	11.6	15.8	-	9.0	16	0	114	-	59	-	4.5	19	0	-	-	4.94	-	2.7	-	-	-
	21-END	4.5	-	2	2	20.8	10.8	15.8	-	7.5	22	0	125	-	66	-	2.0	23	0	-	-	10.00	-	3.2	-	-	-
	MONTH	25.4	45	9	7	20.4	10.9	15.6	-	5.1	1	0	349	-	181	-	0.9	3	0	-	-	7.77	-	3.2	-	105	-
Galway Co. Galway	1-10	8.9	-	4	2	21.0	11.9	16.4	-	5.6	3	0	120	-	66	-	2.0	3	0	19.2	-	5.01	-	4.3	1	-	-
	11-20	3.3	-	3	1	20.4	12.9	16.7	-	11.0	13	0	123	-	67	-	8.1	13	0	19.2	-	4.68	-	4.6	0	-	-
	21-END	8.6	-	2	2	21.9	11.5	16.7	-	9.0	31	0	136	-	74	-	5.2	31	0	20.9	-	8.53	-	4.4	0	-	-
	MONTH	20.8	26	9	5	21.1	12.1	16.6	+1.8	5.6	3	0	379	-	207	-	2.0	3	0	19.8	-	6.15	131	4.4	1	103	-
Killarney (Muckross House) Co. Kerry	1-10	33.2	-	3	3	20.8	12.2	16.5	-	7.4	1	0	121	-	66	-	3.0	4	0	-	-	6.11	-	-	-	-	-
	11-20	8.0	-	6	4	19.3	12.7	16.0	-	11.0	20	0	116	-	60	-	4.6	20	0	-	-	2.35	-	-	-	-	-
	21-END	16.4	-	4	3	22.8	11.6	17.2	-	7.8	31	0	141	-	80	-	2.4	31	0	-	-	8.75	-	-	-	-	-
	MONTH	57.6	65	13	10	21.0	12.2	16.6	-	7.4	1	0	378	-	206	-	2.4	31	0	-	-	5.84	-	-	-	-	-

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE-1 (CONTINUED)

JULY 1984

STATION	PERIOD	RAINFALL (mm)				TEMPERATURE (°C)														BRIGHT SUNSHINE		WIND				
		AMOUNT	% OF AVERAGE	RAIN DAYS	WET DAYS	AIR							GROUND				SOIL (10cm)			MEAN DAILY (HRS.)	% OF AVERAGE	MEAN SPEED (ms ⁻¹)	DAYS WITH GALE GUSTS	P.E. (PENMAN) (mm)		
						MEAN MAX.	MEAN MIN.	MEAN DAILY	DIFFERENCE FROM AVERAGE	LOWEST MIN.	DATE	DAYS WITH AIR FROST	DEGREE DAYS ABOVE 4.4°C	% OF AVERAGE	DEGREE DAYS ABOVE 10.0°C	% OF AVERAGE	LOWEST *GRASS-MIN*	DATE	DAYS WITH GROUND FROST						MEAN DAILY	DIFFERENCE FROM AVERAGE
Cahirciveen (Valentia Obsy.) Co. Kerry	1-10	23.1	-	3	3	19.5	11.5	15.5	-	7.1	1	0	111	-	57	-	4.1	1	0	19.7	-	6.60	-	5.1	2	-
	11-20	15.2	-	7	3	19.5	12.0	15.8	-	10.0	20	0	114	-	58	-	7.0	20	0	18.3	-	5.07	-	4.0	0	-
	21-END	41.0	-	4	2	20.9	12.0	16.5	-	7.7	31	0	133	-	72	-	4.6	31	0	20.6	-	8.57	-	2.6	0	-
	MONTH	79.3	92	14	8	20.0	11.8	15.9	+1.1	7.1	1	0	357	112	186	126	4.1	1	0	19.5	+2.4	6.81	146	3.8	2	90
Ardfert (Liscahane) Co. Kerry	1-10	14.1	-	3	3	21.0	11.4	16.2	-	6.1	1	0	118	-	64	-	3.0	2	0	-	-	6.11	-	-	-	-
	11-20	13.8	-	5	3	19.5	12.2	15.9	-	10.3	15	0	115	-	59	-	6.5	20	0	-	-	4.07	-	-	-	-
	21-END	35.0	-	3	2	22.3	11.0	16.7	-	8.2	31	0	135	-	74	-	4.6	31	0	-	-	9.31	-	-	-	-
	MONTH	62.9	-	11	8	21.0	11.5	16.3	-	6.1	1	0	367	-	197	-	3.0	2	0	-	-	6.59	-	-	-	-
Lullymore Co. Kildare	1-10	N/A	-	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	N/A	-	N/A	-	N/A	N/A	-	-	-	N/A	-	3.5	-	-
	11-20	23.7	-	5	3	20.0	10.7	15.3	-	6.0	16	0	109	-	55	-	-3.0	16	1	-	-	3.61	-	3.3	-	-
	21-END	7.4	-	1	1	N/A	8.9	N/A	-	4.8	26	0	N/A	-	N/A	-	-2.8	22	4	-	-	N/A	-	3.3	-	-
	MONTH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	N/A	-	N/A	-	N/A	N/A	N/A	-	-	N/A	-	3.4	-	N/A
Kilkenny Co. Kilkenny	1-10	16.0	-	4	3	22.2	8.2	15.2	-	3.6	3	0	108	-	59	-	-2.3	3	3	20.0	-	7.49	-	3.0	0	-
	11-20	3.7	-	4	2	21.5	12.0	16.8	-	9.3	16	0	124	-	68	-	3.1	16	0	18.9	-	4.66	-	2.7	0	-
	21-END	2.6	-	1	1	24.6	10.9	17.8	-	9.2	29	0	147	-	86	-	3.9	27	0	21.6	-	9.08	-	2.4	0	-
	MONTH	22.3	38	9	6	22.8	10.4	16.6	+1.4	3.6	3	0	379	115	212	130	-2.3	3	3	20.2	+2.2	7.14	152	2.7	0	106
Mooncoin (Silverspring) Co. Kilkenny	1-10	28.4	-	4	3	20.9	8.3	14.6	-	3.6	5	0	102	-	53	-	-3.9	3	5	-	-	7.43	-	-	-	-
	11-20	12.0	-	3	3	20.7	11.9	16.3	-	9.5	16	0	119	-	63	-	0.4	16	0	-	-	4.96	-	-	-	-
	21-END	0.6	-	1	0	24.2	10.2	17.2	-	6.6	23	0	141	-	82	-	-0.3	23	1	-	-	9.07	-	-	-	-
	MONTH	41.0	67	8	6	22.0	10.2	16.1	-	3.6	5	0	362	-	198	-	-3.9	3	6	-	-	7.22	-	-	-	-
Ballinamore Co. Leitrim	1-10	25.5	-	3	2	21.3	9.9	15.6	-	5.4	3	0	112	-	59	-	-2.2	3	1	-	-	4.44	-	1.9	-	-
	11-20	19.6	-	4	2	19.6	12.1	15.8	-	10.2	15	0	114	-	58	-	6.0	17	0	-	-	4.32	-	2.7	-	-
	21-END	11.5	-	4	3	20.8	10.7	15.7	-	7.7	26	0	125	-	64	-	0.9	26	0	-	-	7.11	-	2.4	-	-
	MONTH	56.6	69	11	7	20.6	10.9	15.7	-	5.4	3	0	351	-	182	-	-2.2	3	1	-	-	5.35	-	2.3	-	81
Ardee (Boharnamoe) Co. Louth	1-10	2.6	-	2	1	22.3	7.6	14.9	-	2.0	3	0	106	-	57	-	0.7	3	0	-	-	-	-	-	-	-
	11-20	16.4	-	6	4	21.5	10.8	16.2	-	8.1	16	0	118	-	63	-	6.9	16	0	-	-	-	-	-	-	-
	21-END	5.4	-	1	1	22.9	9.4	16.2	-	6.9	22	0	129	-	71	-	4.6	22	0	-	-	-	-	-	-	-
	MONTH	24.4	37	9	6	22.3	9.3	15.8	-	2.0	3	0	353	-	191	-	0.7	3	0	-	-	-	-	-	-	-

TABLE 1 (CONTINUED)

JULY 1984

STATION	PERIOD	RAINFALL (mm)				TEMPERATURE (°C)														BRIGHT SUNSHINE		WIND		P.E. (PENMAN) (mm)		
		AMOUNT	% OF AVERAGE	RAIN DAYS	WET DAYS	AIR							GROUND			SOIL (10cm)				MEAN DAILY (HRS.)	% OF AVERAGE	MEAN SPEED (ms ⁻¹)	DAYS WITH GALE GUSTS			
						MEAN MAX.	MEAN MIN.	MEAN DAILY	DIFFERENCE FROM AVERAGE	LOWEST MIN.	DATE	DAYS WITH AIR FROST	DEGREE DAYS ABOVE 4.4°C	% OF AVERAGE	DEGREE DAYS ABOVE 10.0°C	% OF AVERAGE	LOWEST *GRASS-MIN*	DATE	DAYS WITH GROUND FROST						MEAN DAILY	DIFFERENCE FROM AVERAGE
Ballinrobe (Creagh) Co. Mayo	1-10	16.0	-	5	3	20.3	10.8	15.5	-	4.5	3	0	111	-	58	-	-0.7	3	1	-	4.50	-	2.9	-	-	
	11-20	8.0	-	4	2	19.4	12.4	15.9	-	10.6	16	0	115	-	59	-	5.3	16	0	-	3.92	-	2.5	-	-	
	21-END	6.0	-	2	2	21.4	10.7	16.0	-	6.2	31	0	128	-	69	-	0.5	31	N/A	-	7.47	-	2.5	-	-	
	MONTH	30.0	41	11	7	20.4	11.3	15.8	-	4.5	3	0	354	-	186	-	-0.7	3	N/A	-	5.37	-	2.6	-	81	
Belmullet Co. Mayo	1-10	18.1	-	5	3	18.5	11.7	15.1	-	6.6	3	0	107	-	52	-	3.8	3	0	17.4	-	4.46	-	5.4	0	-
	11-20	8.0	-	5	1	17.0	12.6	14.8	-	10.7	15	0	104	-	48	-	9.1	13	0	17.5	-	2.44	-	4.7	0	-
	21-END	23.2	-	3	2	17.9	11.9	14.9	-	6.3	31	0	116	-	55	-	2.5	31	0	18.3	-	7.04	-	5.4	0	-
	MONTH	49.3	68	13	6	17.8	12.1	14.9	+0.8	6.3	31	0	327	110	155	124	2.5	31	0	17.7	+1.3	4.72	105	5.2	0	78
Claremorris Co. Mayo	1-10	21.7	-	4	2	20.4	11.0	15.7	-	5.1	3	0	113	-	59	-	0.0	3	0	18.0	-	4.16	-	4.0	1	-
	11-20	5.8	-	3	2	20.1	11.9	16.0	-	9.4	16	0	116	-	60	-	4.2	16	0	17.7	-	3.21	-	4.0	0	-
	21-END	7.4	-	3	2	21.4	10.0	15.7	-	6.0	31	0	125	-	66	-	1.8	31	0	19.4	-	7.11	-	3.6	0	-
	MONTH	34.9	47	10	6	20.7	10.9	15.8	+1.5	5.1	3	0	353	117	185	136	0.0	3	0	18.4	+2.3	4.90	125	3.9	1	83
Glenamoy Co. Mayo	1-10	30.0	-	4	4	19.0	11.0	15.0	-	5.0	3	0	106	-	53	-	0.9	3	0	-	-	4.22	-	3.2	-	-
	11-20	8.5	-	6	4	17.2	12.6	14.9	-	10.2	13	0	105	-	49	-	8.4	13	0	-	-	2.02	-	2.2	-	-
	21-END	20.0	-	3	2	18.5	11.4	15.0	-	5.7	31	0	116	-	56	-	2.9	31	0	-	-	6.75	-	3.2	-	-
	MONTH	58.5	65	13	10	18.2	11.7	15.0	-	5.0	3	0	327	-	157	-	0.9	3	0	-	-	4.41	-	2.9	-	68
Dunsany (Grange) Co. Meath	1-10	6.2	-	3	2	21.3	9.0	15.1	-	2.7	3	0	108	-	57	-	N/A	N/A	-	-	-	6.77	-	-	-	-
	11-20	N/A	-	N/A	N/A	20.2	N/A	N/A	-	N/A	N/A	N/A	N/A	-	N/A	-	N/A	N/A	-	-	-	3.47	-	-	-	-
	21-END	N/A	-	N/A	N/A	22.4	9.0	15.7	-	4.4	22	0	124	-	67	-	N/A	N/A	-	-	-	9.25	-	-	-	-
	MONTH	N/A	N/A	N/A	N/A	21.3	N/A	N/A	-	N/A	N/A	N/A	N/A	-	N/A	-	N/A	N/A	-	-	-	6.59	-	-	-	-
Clones Co. Monaghan	1-10	16.6	-	2	2	21.7	10.5	16.1	-	4.6	3	0	117	-	64	-	-3.4	3	1	17.4	-	6.43	-	2.5	0	-
	11-20	22.5	-	6	3	19.9	11.9	15.9	-	10.3	16	0	115	-	59	-	5.4	17	0	16.6	-	4.01	-	2.6	0	-
	21-END	18.1	-	4	4	21.3	10.7	16.0	-	7.5	23	0	128	-	68	-	0.5	26	0	17.9	-	6.96	-	2.2	0	-
	MONTH	57.2	79	12	9	21.0	11.0	16.0	+1.6	4.6	3	0	359	117	190	137	-3.4	3	1	17.3	+0.9	5.84	145	2.4	0	89
Birr Co. Offaly	1-10	9.6	-	4	4	22.5	10.3	16.4	-	6.1	3	0	120	-	67	-	1.7	3	0	21.1	-	6.82	-	3.9	1	-
	11-20	12.0	-	5	3	20.5	12.1	16.3	-	9.1	16	0	119	-	63	-	4.4	16	0	19.2	-	3.65	-	3.6	0	-
	21-END	14.7	-	2	2	23.3	10.7	17.0	-	8.1	31	0	139	-	78	-	5.3	23	0	22.2	-	7.99	-	3.8	0	-
	MONTH	36.3	53	11	9	22.1	11.0	16.6	+1.8	6.1	3	0	378	117	209	135	1.7	3	0	20.9	+3.5	6.21	143	3.8	1	102

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 1 (CONTINUED)

JULY 1984

STATION	PERIOD	RAINFALL (mm)				TEMPERATURE (°C)															BRIGHT SUNSHINE		WIND														
		AMOUNT	% OF AVERAGE	RAIN DAYS	WET DAYS	AIR										GROUND		SOIL (10cm)			MEAN DAILY (HRS.)	% OF AVERAGE	MEAN SPEED (ms ⁻¹)	DAYS WITH GALE GUSTS	P.E. (PENMAN) (mm)												
						MEAN MAX.	MEAN MIN.	MEAN DAILY	DIFFERENCE FROM AVERAGE	LOWEST MIN.	DATE	DAYS WITH AIR FROST	DEGREE DAYS ABOVE 4.4°C	% OF AVERAGE	DEGREE DAYS ABOVE 10.0°C	% OF AVERAGE	LOWEST "GRASS-MIN"	DATE	DAYS WITH GROUND FROST	MEAN DAILY						DIFFERENCE FROM AVERAGE	MEAN DAILY (HRS.)	% OF AVERAGE	MEAN SPEED (ms ⁻¹)	DAYS WITH GALE GUSTS	P.E. (PENMAN) (mm)						
																																MEAN MAX.	MEAN MIN.	MEAN DAILY	DIFFERENCE FROM AVERAGE	LOWEST MIN.	DATE
Dundrum (Knockavilla) Co. Tipperary	1-10	15.8	-	4	3	21.5	8.8	15.1	-	4.4	3	0	107	-	57	-	-1.0	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11-20	6.6	-	3	2	20.5	11.6	16.0	-	9.0	16	0	116	-	61	-	2.6	16	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21-END	2.1	-	3	1	23.5	10.7	17.1	-	7.0	31	0	140	-	80	-	2.5	23	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MONTH	24.5	-	10	6	21.9	10.4	16.1	-	4.4	3	0	364	-	197	-	-1.0	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dungarvan (Carriglea) Co. Waterford	1-10	43.9	-	4	4	20.9	9.5	15.2	-	4.5	4	0	108	-	57	-	4.2	4	0	-	-	8.63	-	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-
	11-20	4.2	-	2	1	20.2	11.9	16.0	-	9.3	19	0	116	-	61	-	8.6	15	0	-	-	5.18	-	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-
	21-END	3.1	-	2	2	23.5	10.3	16.9	-	6.1	23	0	137	-	78	-	6.4	23	0	-	-	8.65	-	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-
	MONTH	51.2	76	8	7	21.6	10.6	16.1	-	4.5	4	0	362	-	195	-	4.2	4	0	-	-	7.52	-	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-
Mullingar Co. Westmeath	1-10	6.8	-	3	3	21.3	9.4	15.3	-	6.2	4	0	109	-	57	-	3.1	4	0	18.4	-	6.71	-	3.4	1	-	-	-	-	-	-	-	-	-	-	-	-
	11-20	22.3	-	4	2	19.7	11.6	15.7	-	9.6	16	0	113	-	57	-	7.3	16	0	17.5	-	3.92	-	3.1	0	-	-	-	-	-	-	-	-	-	-	-	-
	21-END	13.5	-	2	2	21.7	10.4	16.1	-	7.6	22	0	128	-	68	-	4.7	22	0	19.7	-	9.25	-	3.1	0	-	-	-	-	-	-	-	-	-	-	-	-
	MONTH	42.6	59	9	7	20.9	10.5	15.7	+1.4	6.2	4	0	350	110	182	121	3.1	4	0	18.6	+1.9	6.71	151	3.2	1	96	-	-	-	-	-	-	-	-	-	-	-
J.F.K. Park Co. Wexford	1-10	25.8	-	4	3	20.1	10.3	15.2	-	6.2	1	0	108	-	55	-	-1.2	2	2	-	-	8.11	-	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-
	11-20	4.8	-	4	1	20.3	12.6	16.4	-	9.8	16	0	120	-	64	-	1.6	16	0	-	-	5.43	-	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-
	21-END	0.4	-	1	0	23.1	11.6	17.3	-	9.4	31	0	142	-	81	-	1.6	31	0	-	-	8.65	-	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-
	MONTH	31.0	46	9	4	21.2	11.5	16.4	-	6.2	1	0	371	-	201	-	-1.2	2	2	-	-	7.44	-	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-
Clonroche Co. Wexford	1-10	25.7	-	3	3	20.3	8.1	14.2	-	4.6	3	0	98	-	48	-	-0.4	3	2	-	-	8.19	-	1.9	-	-	-	-	-	-	-	-	-	-	-	-	
	11-20	7.3	-	3	2	19.9	11.3	15.6	-	7.6	16	0	112	-	57	-	1.4	16	0	-	-	5.75	-	1.8	-	-	-	-	-	-	-	-	-	-	-	-	
	21-END	1.1	-	2	0	23.0	10.3	16.7	-	8.1	22	0	135	-	75	-	0.8	22	0	-	-	9.04	-	1.9	-	-	-	-	-	-	-	-	-	-	-	-	
	MONTH	34.1	44	8	5	21.1	9.9	15.5	-	4.6	3	0	345	-	180	-	-0.4	3	2	-	-	7.70	-	1.9	-	-	-	-	-	-	-	-	-	-	-	-	89
Johnstown Castle Co. Wexford	1-10	9.1	-	3	3	19.2	10.7	15.0	-	7.7	3	0	106	-	51	-	1.9	3	0	-	-	8.44	-	4.1	-	-	-	-	-	-	-	-	-	-	-	-	
	11-20	2.2	-	2	2	18.7	12.7	15.7	-	10.4	16	0	113	-	57	-	6.5	19	0	-	-	4.67	-	3.4	-	-	-	-	-	-	-	-	-	-	-	-	
	21-END	3.6	-	3	1	20.3	N/A	N/A	-	N/A	N/A	N/A	N/A	-	N/A	-	5.4	27	0	-	-	10.08	-	3.6	-	-	-	-	-	-	-	-	-	-	-	-	
	MONTH	14.9	21	8	6	19.4	N/A	N/A	-	N/A	N/A	N/A	N/A	-	N/A	-	1.9	3	0	-	-	7.81	-	3.7	-	-	-	-	-	-	-	-	-	-	-	-	
Rosslare Co. Wexford	1-10	2.8	-	3	1	18.8	11.9	15.4	-	9.6	1	0	110	-	54	-	6.4	1	0	20.3	-	9.84	-	4.8	1	-	-	-	-	-	-	-	-	-	-	-	
	11-20	2.9	-	3	1	18.4	13.2	15.8	-	10.9	13	0	114	-	58	-	9.0	19	0	19.3	-	4.40	-	4.8	1	-	-	-	-	-	-	-	-	-	-	-	
	21-END	7.5	-	4	2	19.0	13.2	16.1	-	10.8	31	0	128	-	67	-	8.5	29	0	20.3	-	10.49	-	6.0	0	-	-	-	-	-	-	-	-	-	-	-	
	MONTH	13.2	22	10	4	18.7	12.8	15.7	+0.6	9.6	1	0	352	108	178	116	6.4	1	0	20.0	+1.8	8.32	133	5.2	2	114	-	-	-	-	-	-	-	-	-	-	

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 2 GLOBAL SOLAR RADIATION

STATION	PERIOD	AMOUNT
		Joule/cm ²
Malin Head Co. Donegal	1-10	17440
	11-20	15262
	21-end	18430
	Month	51132
Dublin Airport Co. Dublin	1-10	20173
	11-20	16820
	21-end	23814
	Month	60807
Cahirciveen (Valentia Obs.) Co. Kerry	1-10	20268
	11-20	18711
	21-end	23885
	Month	62864
Kilkenny Co. Kilkenny	1-10	20432
	11-20	15789
	21-end	23492
	Month	59713
Belmullet Co. Mayo	1-10	17131
	11-20	15346
	21-end	21269
	Month	53746
Clones Co. Monaghan	1-10	20363
	11-20	15623
	21-end	20744
	Month	56730
Birr Co. Offaly	1-10	19053
	11-20	14438
	21-end	19917
	Month	53408

TABLE 3 POTENTIAL EVAPOTRANSPIRATION (P.E.) AND SOIL MOISTURE

STATION	PERIOD	P.E. (mm)	SOIL MOISTURE (mm)		
		Amount	Deficit	Accumulated Deficit	Surplus
Carlow (Oak Park) Co. Carlow	1-10	50.3	-	95	3
	11-20	24.0	-	91	4
	21-end	58.0	16	107	-
	Month	132.3	-	-	-
Kinsealy Co. Dublin	1-10	43.1	8	55	-
	11-20	27.0	-	56	7
	21-end	40.6	10	58	-
	Month	100.7	-	-	-
Cahirciveen (Valentia Obs.) Co. Kerry	1-10	33.7	10	53	-
	11-20	9.5	-	41	12
	21-end	38.2	-	32	9
	Month	81.4	-	-	-
Ballinamore Co. Leitrim	1-10	40.1	-	70	6
	11-20	21.7	-	62	8
	21-end	46.9	19	81	-
	Month	108.7	-	-	-
Glenamoy Co. Mayo	1-10	28.6	-	14	1
	11-20	16.3	8	22	-
	21-end	43.3	23	45	-
	Month	88.2	-	-	-
Johnstown Castle Co. Wexford	1-10	45.7	1	105	-
	11-20	37.6	4	109	-
	21-end	53.1	3	112	-
	Month	136.4	-	-	-

TABLE 4 SOIL CLIMATE (MULLINGAR)

BARE SOIL TYPE	PERIOD	MEAN TEMPERATURE (°C at 100mm)			TEMPERATURE GRADIENT (to 200mm)	SOIL WATER POTENTIAL (hPa) (at depths)	
		Max.	Daily	Min.		75mm	200mm
		Peat	1-10	21.5	19.4	17.4	-1.3
	11-20	19.8	18.6	16.7	-0.8	123	127
	21-end	22.8	20.8	18.4	-0.7	228	183
Mineral	1-10	21.9	17.7	14.8	-0.9	819	600
	11-20	18.9	16.8	14.6	-1.1	301	339
	21-end	22.9	19.0	16.2	-1.5	643	570

Notes on the tables in January issue

special topic

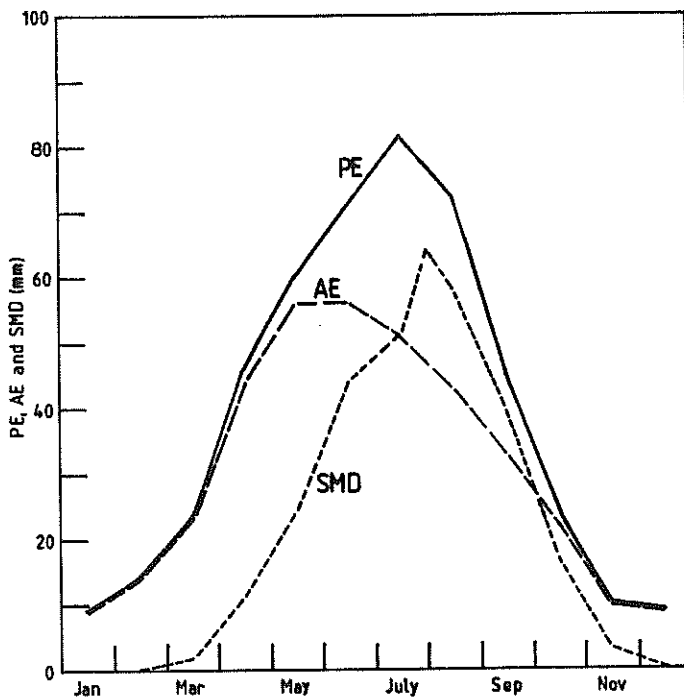
Evaporation and Soil Moisture (Continued from June)

Soil moisture deficits reach their maximum in July and August and may be sufficiently great to restrict growth. Eastern and midland regions are normally affected most where there are relatively low rainfall amounts and greater sunshine values as compared to western and northern areas, where least restriction to growth occurs. The moisture deficits decline in early autumn and a return to field capacity occurs later in the season. By early winter, the ground may become saturated or even water-logged bringing the sowing of winter cereals and other field work to a standstill.

In a particular year, however, conditions will differ markedly from the average year. The spring may be cold and wet at certain critical times. The summer may be broken and damp or excessively dry on other occasions, causing stress to crops. Small soil moisture deficits are beneficial and many growing crops can adapt to fairly large deficits without any disadvantage. Indeed, some root crops adapt to moderate deficits to good effect, being induced to penetrate deeper and extend their roots in search of water. Grass is little affected by a deficit of 50 mm, mature cereals will overcome a deficit of 75 mm without any adverse affect whereas such a high value would cause severe stress to grass.

An instrument, which gives a measure of potential evapotranspiration from a grass surface, is the Thorntwaite lysimeter. The purpose of the instrument is the measurement of the amount of water disposed of by a growing crop (grass in our case) by the process of evaporation and transpiration. A necessary condition for these measurements is that the soil in which the plants are growing has an adequate supply of water.

This lysimeter consists of a sunken tank filled with soil and having a short grass sward, and provided with a run-off tube in the bottom. Once per day a known quantity of water is applied to the soil, enough to ensure some run-off. The amount of water disposed by evaporation is the difference between the amount supplied and the run-off. In practice four such tanks are maintained and an average is obtained over ten-day periods.



There are six such instruments in operation throughout the country representing each of the regions. From the values of potential evapotranspiration, actual evapotranspiration and moisture surpluses or cumulative soil moisture deficits, as appropriate, can be calculated from theoretical considerations.

The annual course of monthly values of potential evapotranspiration (PE), actual evapotranspiration (AE) and end of month soil moisture deficits (SMD) at Oak Park, Co. Carlow, averaged of the ten-years, 1971 to 1980, are shown in the figure over.

T. Keane