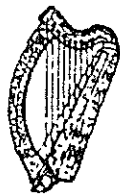


METEOROLOGICAL SERVICE



AGROMETEOROLOGICAL BULLETIN

JULY 1983

The Weather of July

High pressure dominated for most of the month. Up to the 5th the weather was changeable, giving a mixture of cloud and sunny days. Rain occurred in most areas on the 1st and early on the 2nd, associated with a southwesterly airflow, substantial amounts falling in the west and north. A low to the west of Ireland on the 6th drifted to the south and a ridge of high pressure slowly extended over the country from Scotland; some troughs in the developing south to southwest airflow continued to give some showers or short spells of rain in many places from the 10th to the 12th. The weather had already become very warm from the 8th, the period from the 13th to the 15th being particularly hot and sunny.

Weak thermal lows which had already developed over the country on a number of days were augmented on the 12th by a very thundery trough which drifted northwestwards from France. Thundery showers became widespread on the 17th and 18th and there were exceptionally heavy thunderstorms in some districts, especially in the south midlands and south. The showers were localised, however, and many places escaped the rain. The next incursion of thundery troughs from the Continent occurred on the 22nd and localised thunderstorms again developed in most areas on the 23rd and 24th.

A northwest airflow set in on 25th but as pressure continued to be high, passing fronts were weak and conditions were cloudier generally, with patches of drizzle or some showers occurring. The passage of a front from the northwest on the 30th/31st gave significant rainfall amounts in most areas, especially the north and west.

Monthly Amounts of Precipitation were very variable over the country due to the heavy thundery activity which occurred in some areas; otherwise the month was very dry. Amounts varied from 150% of normal at Kilkenny to 6% only at Roches Point. Most stations recorded less than 30% of normal. Thunderstorms occurred frequently and were widespread on 11th/12th, 17th and 23rd. Mildew in cereals was mostly favoured by the weather but the hot humid spell also favoured Brown Rust in a number of areas. Spells of weather conducive to the spread of potato blight occurred at intervals during the month, especially in the south, west and north, the occurrences being less than average except in the north. Large soil moisture deficits had developed by the end of the month at all stations (Table 3). The table suggests that deficits severely limiting growth existed in the south, midlands and east of the country.

Mean Monthly Air Temperature was well above normal everywhere, varying from 3.1°C above at Mullingar to 1.2°C above at Malin Head. The period from 7-15th was particularly hot (maxima of 31.4°C at Kilkenny on 13th/14th). Degree days, threshold 10°C, were 50% to 70% above average.

Mean Duration of Bright Sunshine was well above normal, varying from 146% at Clones to 102% at Belmullet. Global Solar Radiation was 97% of average at Birr and 109% at Dublin Airport.

Strong Winds did not occur after 1st (3rd in extreme north).

Summary Very warm and bright, and very dry despite locally heavy thunderstorms.

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 1983

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	
Carlow (Oak Park) Co. Carlow	1-10	5.0	-	2	2	23.4	10.5	17.0	-	7.2	8	0	126	-	71	-	2.0	4	0	-	-	8.78	-	2.1	-	-	-
	11-20	12.6	-	2	2	25.2	15.0	20.1	-	10.0	19	0	157	-	101	-	8.0	19	0	-	-	5.89	-	1.5	-	-	-
	21-END	3.2	-	4	1	23.4	13.0	18.2	-	9.6	28	0	152	-	91	-	6.8	23	0	-	-	4.44	-	1.9	-	-	-
	MONTH	20.8	38	8	5	24.0	12.9	18.4	-	7.2	8	0	435	-	263	-	2.0	4	0	-	-	6.31	-	1.9	-	-	94
Shannon Airport Co. Clare	1-10	5.7	-	2	1	22.9	13.5	18.2	-	10.0	4	0	138	-	82	-	5.3	4	0	20.0	-	6.33	-	3.5	0	-	-
	11-20	1.5	-	2	1	25.1	15.0	20.1	-	9.3	19	0	157	-	101	-	7.2	19	0	23.0	-	6.02	-	2.4	0	-	-
	21-END	5.6	-	5	3	21.7	14.5	18.1	-	11.2	28	0	151	-	89	-	8.5	28	0	20.7	-	4.16	-	3.3	0	-	-
	MONTH	12.8	18	9	5	23.2	14.3	18.8	+3.3	9.3	19	0	445	129	272	158	5.3	4	0	21.2	+3.8	5.46	117	3.1	0	97	-
Fermoy (Coolnakilla) Co. Cork	1-10	1.9	-	2	1	21.0	9.2	15.1	-	6.7	9	0	107	-	54	-	N/A	N/A	-	-	7.43	-	3.8	-	-	-	-
	11-20	41.1	-	5	4	23.2	14.1	18.6	-	8.5	19	0	142	-	87	-	N/A	N/A	-	-	5.86	-	2.6	-	-	-	-
	21-END	1.3	-	4	0	20.6	12.0	16.3	-	9.0	28	0	131	-	69	-	N/A	N/A	-	-	4.96	-	4.4	-	-	-	-
	MONTH	44.3	-	11	5	21.5	11.8	16.7	-	6.7	9	0	380	-	210	-	N/A	N/A	-	-	6.05	-	3.6	-	-	-	83
Fermoy (Moore Park) Co. Cork	1-10	2.0	-	1	1	22.4	10.6	16.5	-	5.0	4	0	121	-	68	-	-2.4	4	3	-	-	7.79	-	N/A	-	-	-
	11-20	39.9	-	4	3	24.6	14.7	19.6	-	9.2	19	0	152	-	97	-	5.5	19	0	-	-	5.40	-	N/A	-	-	-
	21-END	3.7	-	3	1	21.8	13.6	17.7	-	10.7	23	0	146	-	85	-	5.5	29	0	-	-	4.99	-	N/A	-	-	-
	MONTH	45.6	72	8	5	22.9	13.0	17.9	-	5.0	4	0	420	-	249	-	-2.4	4	3	-	-	6.02	-	N/A	-	-	N/A
Mallow Co. Cork	1-10	0.7	-	2	0	22.3	9.4	15.9	-	3.8	4	0	115	-	63	-	N/A	N/A	-	-	5.83	-	-	-	-	-	-
	11-20	8.4	-	4	2	25.7	14.1	19.9	-	10.0	19	0	155	-	99	-	N/A	N/A	-	-	5.20	-	-	-	-	-	-
	21-END	17.8	-	2	2	22.9	14.0	18.4	-	11.0	23	0	154	-	93	-	N/A	N/A	-	-	3.36	-	-	-	-	-	-
	MONTH	26.9	42	8	4	23.6	12.6	18.1	-	3.8	4	0	424	-	254	-	N/A	N/A	-	-	4.75	-	-	-	-	-	-
Roches Point Co. Cork	1-10	0.3	-	1	0	20.3	13.0	16.6	-	9.6	3	0	122	-	66	-	3.8	4	0	19.0	-	8.89	-	4.0	0	-	-
	11-20	3.3	-	3	2	22.3	15.8	19.1	-	12.0	19	0	147	-	91	-	9.1	19	0	20.3	-	6.27	-	2.2	0	-	-
	21-END	0.6	-	3	0	21.5	14.7	18.1	-	13.1	28	0	151	-	89	-	11.5	22	0	19.9	-	6.37	-	5.1	1	-	-
	MONTH	4.2	6	7	2	21.3	14.5	17.9	+2.7	9.6	3	0	420	128	246	159	3.8	4	0	19.8	+2.7	7.15	127	3.8	1	108	-
Glencolumbkille Co. Donegal	1-10	29.6	-	3	2	20.6	12.6	16.6	-	7.5	1	0	122	-	66	-	2.0	1	0	-	-	N/A	-	2.9	-	-	-
	11-20	4.6	-	3	1	19.6	13.3	16.5	-	9.5	19	0	121	-	65	-	6.1	15	0	-	-	N/A	-	2.1	-	-	-
	21-END	17.7	-	9	7	18.3	12.0	15.2	-	8.5	21	0	118	-	57	-	3.0	21	0	-	-	3.05	-	2.4	-	-	-
	MONTH	51.9	-	15	10	19.5	12.6	16.0	-	7.5	1	0	361	-	188	-	2.0	1	0	-	-	N/A	-	2.5	-	-	N/A

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 1 (CONTINUED)

JULY 1983

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°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	14.4	-	2	2	21.6	11.8	16.7	-	6.0	1	0	123	-	68	-	2.5	1	0	-	-	7.31	-	-	-	-
	11-20	3.7	-	3	2	20.7	13.0	16.8	-	6.5	19	0	124	-	69	-	3.9	19	0	-	-	4.85	-	-	-	-
	21-END	17.0	-	7	7	19.4	11.9	15.7	-	7.3	21	0	124	-	63	-	5.5	21	0	-	-	2.95	-	-	-	-
	MONTH	35.1	31	12	11	20.5	12.2	16.4	-	6.0	1	0	371	-	200	-	2.5	1	0	-	-	4.97	-	-	-	-
Malin Head Co. Donegal	1-10	13.6	-	5	3	18.3	12.5	15.4	-	9.9	1	0	110	-	54	-	7.0	9	0	17.9	-	6.72	-	5.9	3	-
	11-20	2.8	-	2	1	17.4	12.2	14.8	-	8.9	17	0	104	-	48	-	5.8	17	0	20.1	-	5.16	-	4.3	0	-
	21-END	12.3	-	6	3	18.2	12.9	15.5	-	10.0	21	0	122	-	61	-	6.2	22	0	18.9	-	3.17	-	5.1	1	-
	MONTH	28.7	28	13	7	17.9	12.5	15.2	+1.2	8.9	17	0	336	115	163	138	5.8	17	0	19.0	+3.4	4.96	108	5.1	4	75
Casement Aerodrome Co. Dublin	1-10	3.8	-	2	2	22.8	11.2	17.0	-	7.6	8	0	126	-	72	-	3.3	8	0	18.7	-	8.32	-	3.8	1	-
	11-20	7.8	-	4	2	23.4	14.5	19.0	-	8.0	19	0	146	-	90	-	5.0	19	0	20.5	-	5.23	-	2.4	0	-
	21-END	4.4	-	4	2	22.4	12.5	17.5	-	9.1	28	0	144	-	82	-	5.0	28	0	19.4	-	4.45	-	2.5	0	-
	MONTH	16.0	30	10	6	22.9	12.7	17.8	+2.6	7.6	8	0	415	127	244	154	3.3	8	0	19.5	-	5.95	122	2.9	1	93
Dublin Airport Co. Dublin	1-10	7.4	-	3	3	21.9	13.0	17.5	-	9.9	4	0	131	-	75	-	6.7	8	0	20.4	-	9.11	-	3.6	1	-
	11-20	6.2	-	2	1	22.1	15.0	18.6	-	9.5	19	0	142	-	86	-	6.0	19	0	21.6	-	5.75	-	2.5	0	-
	21-END	4.5	-	3	1	21.4	13.4	17.4	-	10.6	28	0	143	-	82	-	7.0	22	0	20.5	-	4.77	-	2.8	0	-
	MONTH	18.1	30	8	5	21.8	13.8	17.8	+2.7	9.5	19	0	416	127	242	154	6.0	19	0	20.8	+3.4	6.49	125	2.9	1	101
Kinsealy Co. Dublin	1-10	20.9	-	3	3	21.5	N/A	N/A	-	N/A	N/A	N/A	-	N/A	-	N/A	0	-	-	-	8.68	-	2.7	-	-	
	11-20	6.1	-	2	1	21.8	13.8	17.8	-	9.5	19	0	134	-	78	-	7.4	19	0	-	-	5.63	-	1.9	-	-
	21-END	1.7	-	4	0	N/A	N/A	N/A	-	N/A	N/A	N/A	-	N/A	-	N/A	0	-	-	-	N/A	-	2.4	-	-	
	MONTH	28.7	49	9	4	N/A	N/A	N/A	-	N/A	N/A	N/A	-	N/A	-	N/A	0	-	-	-	N/A	-	2.3	-	N/A	
Galway Co. Galway	1-10	14.7	-	2	1	21.3	13.1	17.2	-	9.9	2	0	128	-	72	-	6.1	1	0	19.2	-	6.32	-	3.9	0	-
	11-20	0.6	-	2	0	23.1	14.8	18.9	-	9.8	19	0	145	-	89	-	8.1	19	0	22.5	-	6.14	-	2.7	0	-
	21-END	23.2	-	5	4	20.7	13.4	17.1	-	10.4	28	0	140	-	78	-	7.5	28	0	20.6	-	4.84	-	3.4	0	-
	MONTH	38.5	43	9	5	21.7	13.7	17.7	+2.5	9.8	19	0	413	-	239	-	6.1	1	0	20.8	-	5.74	124	3.3	0	93
Killarney (Muckross House) Co. Kerry	1-10	1.6	-	1	1	21.2	13.2	17.2	-	7.5	4	0	128	-	74	-	3.0	3	0	-	-	5.08	-	-	-	-
	11-20	7.0	-	1	1	23.8	14.3	19.1	-	9.4	19	0	147	-	91	-	8.0	19	0	-	-	5.75	-	-	-	-
	21-END	7.9	-	5	1	20.8	13.6	17.2	-	12.4	31	0	141	-	79	-	8.0	28	0	-	-	3.05	-	-	-	-
	MONTH	16.5	-	7	3	21.9	13.7	17.8	-	7.5	4	0	416	-	244	-	3.0	3	0	-	-	4.58	-	-	-	-

TABLE 1 (CONTINUED)

JULY 1983

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	13.6	-	5	4	20.8	13.3	17.1	-	8.5	3	0	127	-	72	-	6.1	4	0	18.5	-	5.43	-	4.1	1	-
	11-20	0.6	-	1	0	21.6	13.9	17.8	-	10.9	19	0	134	-	78	-	5.6	19	0	21.0	-	7.07	-	2.1	0	-
	21-END	6.3	-	2	2	19.7	13.6	16.7	-	11.9	31	0	135	-	73	-	8.4	31	0	19.7	-	4.13	-	3.2	0	-
	MONTH	20.5	22	8	6	20.7	13.6	17.2	+2.2	8.5	3	0	395	124	223	151	5.6	19	0	19.7	+2.6	5.50	117	3.1	1	84
Ardfert (Liscahane) Co. Kerry	1-10	5.3	-	1	1	21.6	12.3	17.0	-	6.5	3	0	126	-	72	-	2.0	4	0	-	-	N/A	-	-	-	-
	11-20	0.3	-	1	0	22.2	13.4	17.8	-	9.0	19	0	134	-	78	-	6.0	19	0	-	-	5.57	-	-	-	-
	21-END	6.6	-	4	2	20.5	12.4	16.5	-	9.4	21	0	133	-	71	-	4.5	28	0	-	-	N/A	-	-	-	-
	MONTH	12.2	-	6	3	21.4	12.7	17.1	-	6.5	3	0	393	-	222	-	2.0	4	0	-	-	N/A	-	-	-	-
Lullymore Co. Kildare	1-10	3.6	-	1	1	22.9	8.9	15.9	-	5.6	7	0	115	-	64	-	-2.0	4	1	-	-	8.02	-	3.1	-	-
	11-20	6.5	-	1	1	23.8	13.7	18.7	-	9.1	19	0	143	-	88	-	5.0	19	0	-	-	5.46	-	2.2	-	-
	21-END	11.8	-	4	4	21.8	11.1	16.5	-	7.0	28	0	133	-	73	-	2.0	28	0	-	-	2.99	-	2.2	-	-
	MONTH	21.9	30	6	6	22.8	11.2	17.0	-	5.6	7	0	391	-	224	-	-2.0	4	1	-	-	5.41	-	2.5	-	70
Kilkenny Co. Kilkenny	1-10	2.0	-	2	1	23.4	9.4	16.4	-	5.2	4	0	120	-	68	-	0.4	4	0	22.1	-	8.82	-	2.0	0	-
	11-20	67.2	-	3	1	25.4	15.1	20.2	-	10.7	19	0	158	-	102	-	9.4	19	0	23.9	-	5.84	-	1.5	0	-
	21-END	25.0	-	6	3	22.5	13.4	18.0	-	9.3	28	0	149	-	88	-	6.7	28	0	20.4	-	4.33	-	1.9	0	-
	MONTH	94.2	150	11	5	23.7	12.6	18.2	+2.9	5.2	4	0	427	129	258	158	0.4	4	0	22.1	+4.1	6.26	126	1.8	0	92
Mooncoin (Silverspring) Co. Kilkenny	1-10	2.2	-	2	1	22.7	9.4	16.0	-	5.3	8	0	116	-	64	-	0.3	7	0	-	-	8.82	-	-	-	-
	11-20	3.2	-	4	1	24.7	13.9	19.3	-	6.2	17	0	149	-	94	-	4.0	17	0	-	-	5.59	-	-	-	-
	21-END	2.7	-	5	1	23.1	12.8	18.0	-	8.0	31	0	149	-	88	-	6.1	23	0	-	-	5.37	-	-	-	-
	MONTH	8.1	12	11	3	23.5	12.1	17.8	-	5.3	8	0	415	-	247	-	0.3	7	0	-	-	6.55	-	-	-	-
Ballinamore Co. Leitrim	1-10	15.6	-	4	2	22.5	9.9	16.2	-	6.8	1	0	118	-	65	-	2.0	1	0	-	-	6.84	-	2.0	-	-
	11-20	0.1	-	0	0	23.6	13.4	18.5	-	6.3	19	0	141	-	86	-	1.9	19	0	-	-	5.55	-	1.5	-	-
	21-END	4.1	-	3	1	22.0	12.1	17.0	-	8.8	22	0	139	-	78	-	3.7	21	0	-	-	4.19	-	2.0	-	-
	MONTH	19.8	22	7	3	22.7	11.8	17.2	-	6.3	19	0	398	-	228	-	1.9	19	0	-	-	5.48	-	1.8	-	81
Ardee (Boharnamoe) Co. Louth	1-10	4.2	-	2	1	23.2	9.9	16.6	-	7.9	8	0	122	-	67	-	7.2	8	0	-	-	-	-	-	-	-
	11-20	0.6	-	1	0	24.4	12.3	18.4	-	5.4	19	0	140	-	85	-	5.3	19	0	-	-	-	-	-	-	-
	21-END	5.1	-	2	2	22.8	12.0	17.4	-	8.9	30	0	143	-	82	-	4.0	30	0	-	-	-	-	-	-	-
	MONTH	9.9	-	5	3	23.5	11.5	17.5	-	5.4	19	0	405	-	234	-	4.0	30	0	-	-	-	-	-	-	-

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 1 (CONTINUED)

JULY 1983

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
Ballinrobe (Creagh) Co. Mayo	1-10	6.4	-	5	2	21.4	11.6	16.5	-	7.0	8	0	121	-	66	-	1.0	8	0	-	-	5.61	-	2.8	-	-
	11-20	1.8	-	1	1	23.5	13.2	18.3	-	6.9	19	0	139	-	84	-	-1.7	19	1	-	-	5.66	-	1.8	-	-
	21-END	7.8	-	4	2	21.4	12.6	17.0	-	8.7	21	0	139	-	77	-	2.8	28	0	-	-	4.55	-	2.2	-	-
	MONTH	16.0	18	10	5	22.1	12.5	17.3	-	6.9	19	0	399	-	227	-	-1.7	19	1	-	-	5.25	-	2.2	-	80
Belmullet Co. Mayo	1-10	31.7	-	6	4	20.2	12.7	16.5	-	10.4	1	0	121	-	65	-	7.8	1	0	17.3	-	5.86	-	6.0	1	-
	11-20	1.5	-	1	1	19.7	13.0	16.4	-	8.1	19	0	120	-	64	-	4.7	19	0	19.6	-	5.96	-	3.6	0	-
	21-END	8.2	-	3	3	18.4	12.6	15.5	-	8.6	21	0	122	-	61	-	5.0	21	0	18.4	-	3.05	-	4.1	0	-
	MONTH	41.4	53	10	8	19.4	12.8	16.1	+1.7	8.1	19	0	362	122	190	152	4.7	19	0	18.5	+2.1	4.90	102	4.5	1	76
Claremorris Co. Mayo	1-10	3.9	-	2	1	21.6	11.5	16.6	-	8.1	2	0	122	-	67	-	5.0	2	0	18.1	-	5.31	-	4.9	0	-
	11-20	1.8	-	1	1	23.2	13.2	18.2	-	6.7	19	0	138	-	83	-	1.7	19	0	21.5	-	5.49	-	3.0	0	-
	21-END	3.4	-	1	1	20.9	12.4	16.6	-	7.9	21	0	135	-	74	-	4.5	21	0	19.7	-	3.66	-	3.9	0	-
	MONTH	9.1	11	4	3	21.9	12.4	17.1	+2.7	6.7	19	0	395	130	223	164	1.7	19	0	19.8	+3.7	4.78	117	3.9	0	83
Glenamoy Co. Mayo	1-10	32.4	-	4	4	21.0	12.3	16.6	-	8.0	8	0	122	-	67	-	5.5	8	0	-	-	5.64	-	3.8	-	-
	11-20	1.3	-	1	1	20.7	12.8	16.7	-	6.9	19	0	123	-	68	-	4.7	19	0	-	-	5.76	-	1.1	-	-
	21-END	17.2	-	6	5	19.0	12.2	15.6	-	5.9	21	0	123	-	63	-	4.9	21	0	-	-	2.39	-	1.8	-	-
	MONTH	50.9	54	11	10	20.2	12.4	16.3	-	5.9	21	0	369	-	198	-	4.7	19	0	-	-	4.53	-	2.2	-	71
Dunsany (Grange) Co. Meath	1-10	4.4	-	2	2	22.3	10.0	16.1	-	7.1	8	0	117	-	64	-	1.5	1	0	-	-	7.44	-	-	-	-
	11-20	0.1	-	0	0	23.0	13.4	18.2	-	5.3	19	0	138	-	83	-	-0.1	19	1	-	-	5.33	-	-	-	-
	21-END	6.0	-	4	2	21.7	11.3	16.5	-	8.0	30	0	133	-	73	-	3.5	30	0	-	-	3.65	-	-	-	-
	MONTH	10.5	15	6	4	22.3	11.6	16.9	-	5.3	19	0	388	-	220	-	-0.1	19	1	-	-	5.41	-	-	-	-
Clones Co. Monaghan	1-10	16.9	-	4	2	22.4	11.7	17.0	-	8.1	1	0	126	-	71	-	3.1	1	0	17.4	-	7.54	-	2.6	1	-
	11-20	1.4	-	2	1	23.3	13.3	18.3	-	7.1	19	0	139	-	84	-	1.2	19	0	19.4	-	5.19	-	1.7	0	-
	21-END	8.0	-	4	2	21.8	12.5	17.2	-	8.9	21	0	141	-	80	-	3.7	21	0	17.9	-	4.48	-	2.3	0	-
	MONTH	26.3	33	10	5	22.5	12.5	17.5	+3.1	7.1	19	0	406	132	234	168	1.2	19	0	18.2	+1.8	5.70	146	2.2	1	89
Birr Co. Offaly	1-10	3.9	-	2	1	23.4	11.1	17.2	-	6.4	8	0	128	-	74	-	0.8	8	0	20.5	-	7.12	-	1.8	0	-
	11-20	7.5	-	2	1	24.4	15.1	19.7	-	9.1	19	0	153	-	98	-	4.5	19	0	23.6	-	5.05	-	1.0	0	-
	21-END	40.6	-	4	1	22.1	12.9	17.5	-	9.2	28	0	144	-	83	-	6.4	28	0	20.4	-	3.28	-	2.2	0	-
	MONTH	52.0	70	8	3	23.2	13.0	18.1	+3.0	6.4	8	0	426	132	254	164	0.8	8	0	21.5	+4.1	5.09	112	1.7	0	83

TABLE 1 (CONTINUED)

JULY 1983

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		
Dundrum (Knockavilla) Co. Tipperary	1-10	5.5	-	2	1	22.5	9.7	16.1	-	5.8	4	0	117	-	64	-	N/A	N/A	-	-	-	-	-	-	-	-	-	-
	11-20	3.0	-	3	2	24.6	14.5	19.6	-	10.6	19	0	152	-	96	-	N/A	N/A	-	-	-	-	-	-	-	-	-	-
	21-END	12.4	-	4	2	22.0	12.9	17.4	-	9.4	28	0	143	-	82	-	N/A	N/A	-	-	-	-	-	-	-	-	-	-
	MONTH	20.9	-	9	5	23.0	12.4	17.7	-	5.8	4	0	411	-	241	-	N/A	N/A	-	-	-	-	-	-	-	-	-	-
Dungarvan (Carriglea) Co. Waterford	1-10	1.8	-	2	1	22.4	10.8	16.6	-	6.3	4	0	122	-	69	-	6.3	4	0	-	-	8.89	-	1.9	-	-	-	-
	11-20	5.0	-	2	1	24.9	15.0	20.0	-	11.2	19	0	156	-	100	-	10.3	19	0	-	-	5.81	-	1.3	-	-	-	-
	21-END	8.0	-	3	1	23.2	13.3	18.3	-	10.8	28	0	153	-	91	-	10.0	24	0	-	-	6.18	-	1.9	-	-	-	-
	MONTH	14.8	22	7	3	23.5	13.1	18.3	-	6.3	4	0	430	-	259	-	6.3	4	0	-	-	6.94	-	1.7	-	92	-	-
Mullingar Co. Westmeath	1-10	8.0	-	2	1	22.1	10.4	16.2	-	7.3	1	0	118	-	65	-	4.9	7	0	18.4	-	7.62	-	3.0	0	-	-	-
	11-20	3.8	-	2	1	23.0	14.1	18.6	-	7.2	19	0	142	-	86	-	4.9	19	0	21.3	-	5.61	-	1.5	0	-	-	-
	21-END	3.0	-	3	1	21.5	12.6	17.0	-	8.3	30	0	139	-	78	-	6.2	30	0	19.8	-	3.98	-	2.2	0	-	-	-
	MONTH	14.8	18	7	3	22.2	12.4	17.3	+3.1	7.2	19	0	399	125	229	153	4.9	7	0	19.8	+3.1	5.68	127	2.2	0	85	-	-
J.F.K. Park Co. Wexford	1-10	5.4	-	2	2	21.8	11.4	16.6	-	7.6	3	0	122	-	67	-	1.0	3	0	-	-	9.51	-	3.2	-	-	-	-
	11-20	2.8	-	2	1	24.3	15.4	19.9	-	11.3	19	0	155	-	99	-	7.0	19	0	-	-	6.15	-	2.4	-	-	-	-
	21-END	9.9	-	2	1	22.7	13.8	18.2	-	10.8	28	0	152	-	91	-	4.9	28	0	-	-	6.41	-	2.4	-	-	-	-
	MONTH	18.1	27	6	4	22.9	13.5	18.2	-	7.6	3	0	429	-	256	-	1.0	3	0	-	-	7.33	-	2.7	-	95	-	-
Clonroche Co. Wexford	1-10	22.0	-	2	2	22.9	11.5	17.2	-	8.1	4	0	128	-	72	-	0.5	7	0	-	-	9.56	-	1.9	-	-	-	-
	11-20	7.9	-	5	3	24.5	15.3	19.9	-	10.3	19	0	155	-	99	-	3.8	19	0	-	-	6.27	-	1.2	-	-	-	-
	21-END	15.6	-	4	3	22.6	12.8	17.7	-	10.4	28	0	147	-	85	-	2.2	28	0	-	-	6.51	-	1.2	-	-	-	-
	MONTH	45.5	62	11	8	23.3	13.2	18.3	-	8.1	4	0	429	-	257	-	0.5	7	0	-	-	7.42	-	1.5	-	94	-	-
Johnstown Castle Co. Wexford	1-10	5.1	-	2	2	21.1	12.1	16.6	-	9.7	7	0	122	-	66	-	4.9	7	0	-	-	9.80	-	3.1	-	-	-	-
	11-20	6.4	-	3	1	22.1	15.2	18.7	-	10.5	19	0	143	-	87	-	7.0	19	0	-	-	6.04	-	2.5	-	-	-	-
	21-END	4.4	-	2	2	21.2	13.4	17.3	-	10.8	28	0	142	-	80	-	N/A	0	-	-	-	6.99	-	2.7	-	-	-	-
	MONTH	15.9	22	7	5	21.5	13.6	17.5	-	9.7	7	0	407	-	233	-	N/A	0	-	-	-	7.59	-	2.7	-	101	-	-
Rosslare Co. Wexford	1-10	7.4	-	2	2	19.2	12.5	15.9	-	10.1	3	0	115	-	59	-	5.2	8	0	20.5	-	9.88	-	4.3	0	-	-	-
	11-20	2.7	-	1	1	20.2	15.0	17.6	-	13.0	19	0	132	-	76	-	10.6	19	0	21.1	-	5.67	-	4.2	0	-	-	-
	21-END	5.3	-	2	2	19.5	13.8	16.6	-	12.6	28	0	134	-	73	-	7.8	23	0	21.2	-	7.78	-	3.8	0	-	-	-
	MONTH	15.4	28	5	5	19.6	13.8	16.7	+1.5	10.1	3	0	381	117	207	135	5.2	8	0	20.9	+2.7	7.78	121	4.1	0	103	-	-

- 9 -

TABLE 2 GLOBAL SOLAR RADIATION

STATION	PERIOD	AMOUNT
		Joule/cm ²
Malin Head Co. Donegal	1-10	18225
	11-20	17906
	21-end	16914
	Month	53045
Dublin Airport Co. Dublin	1-10	21443
	11-20	16415
	21-end	16335
	Month	54193
Cahiriveen (Valentia Obs.) Co. Kerry	1-10	17602
	11-20	19284
	21-end	17846
	Month	54732
Kilkenny Co. Kilkenny	1-10	20886
	11-20	17304
	21-end	16844
	Month	55034
Belmullet Co. Mayo	1-10	16638
	11-20	16193*
	21-end	14887
	Month	47718+
Clones Co. Monaghan	1-10	20308
	11-20	17655
	21-end	17716
	Month	55679
Birr Co. Offaly	1-10	17511
	11-20	15454
	21-end	13997
	Month	46962

TABLE 3 POTENTIAL EVAPOTRANSPIRATION (P.E.) AND SOIL MOISTURE JULY 1983

STATION	PERIOD	SOIL MOISTURE (mm)			
		P. E. (mm) Amount	Deficit	Accumulated Deficit	Surplus
Carlow (Oak Park) Co. Carlow	1-10	45.7	31	81	-
	11-20	34.4	2	83	-
	21-end	36.1	12	95	-
	Month	116.2	-	-	-
Kinsealy Co. Dublin	1-10	45.1	23	56	-
	11-20	34.1	18	74	-
	21-end	32.5	15	89	-
	Month	111.7	-	-	-
Cahiriveen (Valentia Obs.) Co. Kerry	1-10	22.5	11	23	-
	11-20	22.7	21	44	-
	21-end	36.0	24	68	-
	Month	81.2	-	-	-
Ballinamore Co. Leitrim	1-10	30.4	15	35	-
	11-20	36.8	35	70	-
	21-end	34.6	15	85	-
	Month	101.8	-	-	-
Glenamoy Co. Mayo	1-10	39.2	6	38	-
	11-20	29.8	26	64	-
	21-end	18.7	-	58	6
	Month	87.7	-	-	-
Johnstown Castle Co. Wexford	1-10	45.9	21	89	-
	11-20	21.2	1	90	-
	21-end	36.7	8	98	-
	Month	103.8	-	-	-

* 9-day total, 12th not available

+ 30-day total

Notes on the tables in January issue

special topic

USE OF METEOROLOGICAL DATA IN LIVER

FLUKE CONTROL IN IRELAND

Fascioliasis, or Liver Fluke disease, in livestock is caused by a flat parasitic worm, *Fasciola hepatica* (Liver Fluke) which, when ingested by a grazing animal, makes its way to the liver where it feeds and lays eggs. When large numbers of fluke are ingested over a short period of time, they may cause acute disease and death within six weeks. The life cycle of *F. hepatica* is shown in Fig. 1. The development of both the fluke, and of its intermediate host, the mud-snail *Lymnaea trunculata*, is governed largely by weather conditions - specifically by temperature and ground wetness. In general terms, significant development of fluke and snail only occur when the ground is wet for lengthy periods during which the mean air temperature exceeds 10°C.

As the lower critical temperature for development of the parasite within the snail is 10°C, development is normally impossible under Irish conditions in winter. Once the temperature requirement has been met moisture conditions become the dominant factor in the critical state after the fluke quits the host, i.e. from deposition to hatching of the fluke parasite, and when it is necessary to have a wet habitat to promote snail activity and growth. In general two overlapping cycles are completed each year giving rise to corresponding peak levels of infection in animals; one related to 'over-winter infection', the other to 'summer infection'.

OVER-WINTER INFECTION. The fluke eggs which are deposited during the summer and autumn, hatch and infect snails during the autumn. Because of low temperatures in winter, the fluke does not complete its development until the next May or early June - a dry period at that time of year will therefore markedly influence the level of infection because it decreases the activity and numbers of snails. Losses in animals from overwintering infection start late in July, achieve a maximum about September and decrease to a minimum in November.

SUMMER INFECTION. Fluke eggs deposited in late April or May take some 5 to 6 weeks to hatch. It is crucial that eggs must be moist during this period; the young fluke should be available to infect snails in early June. It will then spend about 3 months in the snail before passing onto herbage in early (late) September. Losses to animals occur about two months later, i.e. early (late) November, well after the critical summer weather.

The wetness of the first three months of 'summer', May to July, affects the number of snails, the number of fluke eggs hatching and the number of snails which become infected. This part of the cycle is of critical importance. The wetness of the period August to October determines how much of the infection in the snail becomes mature and passes onto herbage. Eggs put out in late July infect snails during September but are too late to develop and to leave the snails.

(to be continued)

