

# METEOROLOGICAL SERVICE



NOVEMBER 1984

## AGROMETEOROLOGICAL BULLETIN

The weather of November

A frontal trough, which affected Ireland on 1st, deepened over the north of England on 2nd and returned accompanied by a northeast airflow on 3rd. A ridge extending from an Icelandic-centred High favourably influenced weather conditions on 4th/5th although air frost was widespread. An easterly airflow set in subsequently as North Atlantic depressions were deflected towards the Bay of Biscay so that some accompanying troughs moved westwards over the country up to 9th.

Low pressure became established to northwest of Ireland on 10th and a strengthening southwesterly airflow set in, dominating conditions to 14th. Conditions were changeable with spells of rain or showers. Subsequently the trough became extensive and a series of depression centres also deepened north of the Azores. These southern centres moved towards France and induced a generally slack northeast to northwest wind pattern over Ireland from 15th-19th. Air frost was widespread in this spell. The south and east regions were greatest affected during this spell by the southern depressions.

The period from 19th was followed by the onset of a strong southwesterly airflow; the accompanying troughs gave frequent spells of rain or showers to the end of the month. Very strong to storm force winds developed on the afternoon of the 26th in western areas, accompanied by very heavy rain, and in all regions early on 27th.

### Precipitation:

Monthly rainfall amounts were generally well above normal except in parts of the west, north and north-midlands. Amounts varied from 192% of normal at Dungarvan (Carriglea) to 93% at Malin Head. Wettest days were 1st, 8th (wettest day of the month in parts of north-midlands), 11th (wettest in south), 13th, 20th to 23rd and 27th (wettest in west-midlands).

### Temperature:

Mean monthly air temperature was below normal varying from 1.2°C below at Belmullet to 0.4°C above at Rosslare. Air frost occurred on 5th/6th, 14th to 17th or 18th and on 26th. Widespread ground frost became severe at many places on 5th/6th, from 14th to 17th and 26th/27th. Soil temperatures (100mm) were below normal in places by some 0.5°C to 2.0°C at times but recovered in the last week to 0.5°C to 1.0°C above.

### Sunshine and Radiation:

Mean duration of bright sunshine was well above normal in the west and generally below normal elsewhere except at Dublin Airport. Duration varied from 142% of normal at Belmullet to 75% at Rosslare. Global radiation was well above average at Dublin Airport and Valentia and well below average at Birr and Kilkenny.

### Wind:

Strong winds with gale gusts occurred on 1st, 11th, 13th, 21st to 24th, and 26th to 28th, the gales in the last spell reaching strong gale to storm force gusts.

### Summary:

Wet except in parts of the west, north and north-midlands, rather cold and generally dull except in parts of the west and east.

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

NOVEMBER 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 <sup>-1</sup> )	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	32.0	-	5	4	10.3	3.3	6.8	-	-1.0	5	3	30	-	3	-	-5.0	5	5	-	-	2.55	-	2.3	-	-
	11-20	49.4	-	5	4	8.1	1.5	4.8	-	-3.4	15	2	17	-	1	-	-7.6	15	6	-	-	0.77	-	2.5	-	-
	21-END	48.0	-	8	5	10.8	3.9	7.3	-	-1.6	26	2	33	-	3	-	-5.8	26	3	-	-	1.62	-	1.2	-	-
	MONTH	129.4	175	18	13	9.7	2.9	6.3	-	-3.4	15	7	79	-	7	-	-7.6	15	14	-	-	1.65	-	2.0	-	1
Shannon Airport Co. Clare	1-10	18.6	-	5	3	10.2	3.7	6.9	-	-1.0	5	1	31	-	3	-	-3.4	5	4	7.2	-	2.25	-	3.2	1	-
	11-20	27.4	-	6	5	8.6	2.5	5.5	-	-1.7	17	2	21	-	2	-	-4.3	17	8	5.4	-	2.12	-	3.6	1	-
	21-END	54.7	-	10	8	10.7	5.6	8.2	-	0.5	26	0	39	-	3	-	-3.4	26	2	6.8	-	1.18	-	6.9	9	-
	MONTH	100.7	103	21	16	9.9	3.9	6.9	-0.6	-1.7	17	3	90	83	7	-	-4.3	17	14	6.4	-1.0	1.85	95	4.6	11	8
Fermoy (Coolnakilla) Co. Cork	1-10	64.0	-	7	5	9.6	3.6	6.6	-	-0.2	5	1	27	-	1	-	-3.0	5	6	-	-	2.84	-	3.0	-	-
	11-20	47.4	-	6	4	7.4	1.7	4.6	-	-0.6	15	1	12	-	0	-	-4.5	15	8	-	-	1.85	-	3.2	-	-
	21-END	104.1	-	9	8	9.4	3.4	6.4	-	1.0	26	0	23	-	0	-	-4.6	26	4	-	-	1.64	-	6.2	-	-
	MONTH	215.5	-	22	17	8.8	2.9	5.8	-	-0.6	15	2	62	-	2	-	-4.6	26	18	-	-	2.11	-	4.1	-	0
Fermoy (Moore Park) Co. Cork	1-10	54.4	-	7	5	10.9	3.0	7.0	-	-2.1	4	2	33	-	4	-	-5.0	5	6	-	-	2.75	-	1.6	-	-
	11-20	32.8	-	6	4	9.1	0.2	4.7	-	-3.9	15	5	18	-	2	-	-6.5	15	9	-	-	1.90	-	1.7	-	-
	21-END	80.9	-	8	7	10.9	3.1	7.0	-	-4.9	26	3	33	-	3	-	N/A	5	-	-	-	1.21	-	4.4	-	-
	MONTH	168.1	177	21	16	10.3	2.1	6.2	-	-4.9	26	10	84	-	9	-	N/A	20	-	-	-	1.95	-	2.5	-	-2
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	-	-	-	N/A	-	-	-	-
	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	-	-	-	1.43	-	-	-	-
	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	32.6	-	6	6	11.1	5.7	8.4	-	2.9	5	0	41	-	4	-	-0.9	4	1	8.8	-	2.94	-	4.8	1	-
	11-20	67.4	-	6	5	9.6	4.0	6.8	-	1.5	17	0	28	-	2	-	-3.0	15	5	7.0	-	2.03	-	5.7	3	-
	21-END	61.2	-	9	6	11.1	6.4	8.8	-	2.5	26	0	44	-	3	-	-0.9	26	2	7.8	-	1.71	-	10.1	9	-
	MONTH	161.2	183	21	17	10.6	5.4	8.0	-0.5	1.5	17	0	113	90	9	-	-3.0	15	8	7.9	-0.4	2.23	95	6.9	13	8
Glencolumbkille Co. Donegal	1-10	26.3	-	7	5	9.9	4.6	7.2	-	-0.5	6	1	32	-	1	-	-8.0	6	5	-	-	1.48	-	2.5	-	-
	11-20	19.2	-	6	6	9.1	3.4	6.3	-	0.0	15	0	23	-	1	-	-8.0	16	8	-	-	2.22	-	2.0	-	-
	21-END	145.4	-	10	10	10.2	5.3	7.7	-	4.3	28	0	33	-	1	-	-4.1	26	1	-	-	0.63	-	5.7	-	-
	MONTH	190.9	-	23	21	9.7	4.4	7.1	-	-0.5	6	1	88	-	4	-	-8.0	6	14	-	-	1.44	-	3.3	-	4

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 1 (CONTINUED)

NOVEMBER 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 <sup>-1</sup> )	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
Glenties Co. Donegal	1-10	21.1	-	6	5	9.8	2.7	6.3	-	-2.9	5	3	28	-	1	-	-3.7	6	3	-	-	1.54	-	-	-	-
	11-20	36.9	-	5	3	7.9	0.8	4.3	-	-4.5	16	4	14	-	1	-	-4.8	16	5	-	-	1.53	-	-	-	-
	21-END	140.6	-	10	10	9.6	4.6	7.1	-	0.3	26	0	29	-	1	-	-3.5	26	1	-	-	0.26	-	-	-	-
	MONTH	198.6	120	21	18	9.1	2.7	5.9	-	-4.5	16	7	71	-	3	-	-4.8	16	9	-	-	0.98	-	-	-	-
Malin Head Co. Donegal	1-10	20.3	-	7	4	10.2	6.4	8.3	-	2.0	6	0	40	-	3	-	-1.9	6	1	7.7	-	2.21	-	8.2	5	-
	11-20	23.6	-	8	7	8.8	3.6	6.2	-	0.0	15	0	22	-	1	-	-2.6	15	4	5.6	-	1.84	-	5.6	2	-
	21-END	66.5	-	10	10	10.3	5.8	8.0	-	4.9	26	0	36	-	2	-	1.4	26	0	6.6	-	1.20	-	12.5	10	-
	MONTH	110.4	93	25	21	9.7	5.3	7.5	-0.2	0.0	15	0	99	99	5	-	-2.6	15	5	6.6	-0.3	1.75	113	8.7	17	15
Casement Aerodrome Co. Dublin	1-10	44.7	-	4	4	10.8	3.9	7.3	-	-1.1	5	2	34	-	4	-	-6.8	6	3	7.4	-	2.75	-	3.5	1	-
	11-20	23.4	-	6	5	8.4	2.4	5.4	-	-1.7	15	2	19	-	2	-	-7.9	15	6	5.6	-	1.19	-	3.4	3	-
	21-END	29.7	-	7	5	10.5	5.1	7.8	-	1.4	26	0	35	-	3	-	-1.9	26	2	6.3	-	1.77	-	11.1	9	-
	MONTH	97.8	140	17	14	9.9	3.8	6.8	+0.1	-1.7	15	4	88	100	8	-	-7.9	15	11	6.4	-	1.90	89	6.0	13	10
Dublin Airport Co. Dublin	1-10	36.8	-	5	4	11.3	4.9	8.1	-	0.2	6	0	39	-	5	-	-4.4	6	2	8.0	-	2.13	-	3.9	1	-
	11-20	35.2	-	6	5	8.6	3.1	5.8	-	-1.7	17	1	21	-	2	-	-5.9	15	6	5.9	-	1.42	-	3.6	2	-
	21-END	25.2	-	7	5	10.9	5.3	8.1	-	0.1	26	0	38	-	3	-	-1.4	26	2	6.3	-	2.49	-	8.3	8	-
	MONTH	97.2	141	18	14	10.3	4.4	7.3	+0.3	-1.7	17	1	98	102	10	83	-5.9	15	10	6.7	+0.2	2.01	88	5.3	11	11
Kinsealy Co. Dublin	1-10	34.0	-	5	4	11.3	4.6	7.9	-	0.3	6	0	38	-	5	-	-2.9	7	3	-	-	1.92	-	2.9	-	-
	11-20	35.7	-	6	6	8.8	2.2	5.5	-	-2.9	15	4	21	-	1	-	-4.0	15	6	-	-	1.57	-	2.9	-	-
	21-END	21.9	-	7	6	11.5	5.5	8.5	-	0.5	26	0	42	-	5	-	-1.6	26	1	-	-	2.46	-	6.3	-	-
	MONTH	91.6	137	18	16	10.5	4.1	7.3	-	-2.9	15	4	101	-	11	-	-4.0	15	10	-	-	1.92	-	4.0	-	8
Galway Co. Galway	1-10	18.4	-	4	4	9.8	2.8	6.3	-	-1.6	6	3	27	-	2	-	-3.6	5	6	7.0	-	3.28	-	3.1	1	-
	11-20	25.8	-	4	3	8.6	1.3	4.9	-	-3.4	17	4	18	-	1	-	-5.6	17	8	5.4	-	2.81	-	3.8	2	-
	21-END	73.5	-	9	9	10.6	5.4	8.0	-	-0.5	26	1	38	-	2	-	-5.7	26	1	6.8	-	1.23	-	7.6	9	-
	MONTH	117.7	101	17	16	9.6	3.2	6.4	-0.7	-3.4	17	8	83	-	6	-	-5.7	26	15	6.4	-	2.44	113	4.8	12	3
Killarney (Muckross House) Co. Kerry	1-10	33.2	-	7	4	10.2	2.6	6.4	-	-1.4	5	2	27	-	2	-	-6.6	5	8	-	-	2.67	-	-	-	-
	11-20	47.0	-	6	4	9.1	1.5	5.3	-	-1.4	17	5	20	-	2	-	-5.6	15	9	-	-	1.20	-	-	-	-
	21-END	145.8	-	10	10	10.9	4.8	7.9	-	-0.7	26	1	37	-	4	-	-6.0	26	3	-	-	0.59	-	-	-	-
	MONTH	226.0	131	23	18	10.1	3.0	6.5	-	-1.4	5	8	84	-	8	-	-6.6	5	20	-	-	1.49	-	-	-	-

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TABLE 1 (CONTINUED)

NOVEMBER 1984

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		AMOUNT	% OF AVERAGE	RAIN DAYS	WET DAYS	AIR							GROUND			SOIL (10cm)				MEAN DAILY (HRS.)	% OF AVERAGE	MEAN SPEED (ms <sup>-1</sup> )	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
Cahirciveen (Valentia Obsy.) Co. Kerry	1-10	35.2	-	5	5	11.6	4.6	8.1	-	1.1	5	0	39	-	5	-	-2.1	5	4	8.0	-	3.59	-	3.4	1	-
	11-20	46.5	-	5	5	10.1	2.8	6.5	-	-1.4	17	2	27	-	3	-	-5.0	17	6	6.3	-	2.19	-	4.4	3	-
	21-END	143.2	-	10	10	11.4	6.1	8.8	-	0.4	26	0	45	-	4	-	-2.5	26	2	7.8	-	0.75	-	8.4	9	-
	MONTH	224.9	149	20	20	11.1	4.5	7.8	-1.0	-1.4	17	2	111	82	12	57	-5.0	17	12	7.4	-0.9	2.18	127	5.4	13	8
Ardfert (Liscahane) Co. Kerry	1-10	37.8	-	6	5	10.8	2.5	6.6	-	-2.1	5	3	30	-	4	-	-9.2	5	9	-	-	3.16	-	-	-	-
	11-20	21.2	-	5	5	9.2	2.1	5.6	-	-3.7	17	2	22	-	2	-	-10.9	17	9	-	-	2.47	-	-	-	-
	21-END	120.0	-	10	10	10.9	5.3	8.1	-	2.4	26	0	38	-	3	-	-5.0	26	4	-	-	0.91	-	-	-	-
	MONTH	179.0	-	21	20	10.3	3.3	6.8	-	-3.7	17	5	89	-	10	-	-10.9	17	22	-	-	2.18	-	-	-	-
Lullymore Co. Kildare	1-10	32.1	-	4	4	10.0	2.0	6.0	-	-3.6	5	3	25	-	2	-	-8.0	5	7	-	-	2.67	-	2.3	-	-
	11-20	28.1	-	4	4	7.7	0.8	4.2	-	-4.0	15	5	14	-	0	-	-8.7	15	7	-	-	1.19	-	2.1	-	-
	21-END	46.6	-	7	7	10.1	3.3	6.7	-	-1.7	26	2	27	-	2	-	-7.5	26	3	-	-	1.48	-	6.1	-	-
	MONTH	106.8	134	15	15	9.3	2.0	5.6	-	-4.0	15	10	66	-	4	-	-8.7	15	17	-	-	1.78	-	3.4	-	1
Kilkenny Co. Kilkenny	1-10	36.0	-	5	4	10.7	3.6	7.2	-	0.9	5	0	32	-	3	-	-5.1	3	5	7.5	-	2.64	-	2.2	1	-
	11-20	34.0	-	4	4	8.6	1.8	5.2	-	-4.5	15	3	19	-	2	-	-9.3	15	7	5.7	-	1.46	-	2.3	2	-
	21-END	47.0	-	7	6	10.9	3.8	7.3	-	-4.5	26	1	34	-	3	-	-9.3	26	4	6.0	-	1.63	-	5.5	6	-
	MONTH	117.0	152	16	14	10.1	3.1	6.6	+0.1	-4.5	15	4	86	95	8	-	-9.3	15	16	6.4	+0.1	1.91	88	3.3	9	4
Mooncoin (Silverspring) Co. Kilkenny	1-10	47.0	-	7	7	11.3	4.3	7.8	-	1.0	4	0	37	-	5	-	-4.5	4	3	-	-	2.36	-	-	-	-
	11-20	65.8	-	6	5	9.1	1.4	5.3	-	-4.2	15	5	20	-	2	-	-8.2	15	8	-	-	1.84	-	-	-	-
	21-END	59.0	-	9	7	11.3	4.3	7.8	-	-3.1	26	2	38	-	4	-	-8.8	26	3	-	-	1.90	-	-	-	-
	MONTH	171.8	185	22	19	10.6	3.3	6.9	-	-4.2	15	7	95	-	11	-	-8.8	26	14	-	-	2.03	-	-	-	-
Ballinamore Co. Leitrim	1-10	26.8	-	5	4	9.9	2.4	6.1	-	-2.9	5	2	26	-	1	-	-8.6	5	8	-	-	2.18	-	2.0	-	-
	11-20	34.7	-	6	3	7.9	0.7	4.3	-	-3.7	17	5	14	-	0	-	-9.5	17	10	-	-	1.73	-	1.4	-	-
	21-END	59.3	-	10	9	10.3	3.0	6.6	-	-2.3	27	2	27	-	2	-	-8.7	26	8	-	-	1.59	-	4.3	-	-
	MONTH	120.8	102	21	16	9.3	2.1	5.7	-	-3.7	17	9	66	-	4	-	-9.5	17	26	-	-	1.93	-	2.5	-	0
Ardee (Bohernamoe) Co. Louth	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	-	-	-	-	-	-	-
	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	N/A	-	-	-	-	-	-	-
	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	-	-	-	-	-	-	-

TABLE 1 (CONTINUED)

NOVEMBER 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 <sup>-1</sup> )	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 4.2°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	26.9	-	4	3	10.1	1.3	5.7	-	-2.8	6	5	25	-	2	-	-9.7	5	8	-	-	2.79	-	1.9	-	-
	11-20	27.9	-	6	4	8.7	-0.6	4.1	-	-5.2	15	5	16	-	1	-	-10.9	15	8	-	-	2.09	-	1.8	-	-
	21-END	144.4	-	10	10	10.3	4.5	7.4	-	0.6	26	0	32	-	2	-	-7.1	26	2	-	-	1.00	-	5.2	-	-
	MONTH	199.2	143	20	17	9.7	1.7	5.7	-	-5.2	15	10	73	-	5	-	-10.9	15	18	-	-	1.96	-	2.9	-	2
Belmullet Co. Mayo	1-10	32.5	-	7	4	10.4	3.8	7.1	-	-2.0	6	1	33	-	2	-	-5.5	6	5	8.6	-	2.90	-	3.2	1	-
	11-20	54.5	-	6	6	9.7	2.1	5.9	-	-1.5	17	2	22	-	1	-	-5.1	17	7	7.0	-	3.24	-	3.7	2	-
	21-END	149.8	-	10	10	10.2	5.3	7.7	-	4.0	30	0	34	-	1	-	0.7	26	0	7.3	-	1.21	-	9.1	8	-
	MONTH	236.8	186	23	20	10.1	3.8	6.9	-1.2	-2.0	6	3	89	82	5	-	-5.5	6	12	7.6	+0.0	2.45	142	5.3	11	7
Claremorris Co. Mayo	1-10	19.5	-	4	4	9.4	1.3	5.3	-	-2.7	6	2	21	-	1	-	-6.6	5	7	6.3	-	2.76	-	3.6	1	-
	11-20	30.3	-	4	4	7.9	-0.3	3.8	-	-5.1	17	7	13	-	1	-	-8.2	15	9	4.4	-	2.93	-	3.7	2	-
	21-END	99.8	-	10	9	9.7	4.1	6.9	-	-2.0	26	1	28	-	1	-	-7.7	26	3	5.9	-	0.97	-	7.1	8	-
	MONTH	149.6	128	18	17	9.0	1.7	5.4	-1.0	-5.1	17	10	63	77	3	-	-8.2	15	19	5.5	-0.8	2.22	121	4.8	11	0
Glenamoy Co. Mayo	1-10	44.5	-	7	7	10.1	3.6	6.8	-	-2.2	6	2	31	-	2	-	-6.6	6	5	-	-	2.90	-	1.6	-	-
	11-20	44.8	-	8	7	9.0	1.0	5.0	-	-2.8	16	3	17	-	1	-	-6.2	16	9	-	-	2.82	-	1.5	-	-
	21-END	156.3	-	10	10	9.9	3.9	6.9	-	0.6	26	0	27	-	1	-	-1.5	26	2	-	-	0.93	-	6.1	-	-
	MONTH	245.6	154	25	24	9.7	2.8	6.3	-	-2.8	16	5	75	-	4	-	-6.6	6	16	-	-	2.22	-	2.9	-	2
Dunsany (Grange) Co. Meath	1-10	39.9	-	6	4	10.4	2.0	6.2	-	-4.5	6	4	28	-	3	-	-8.0	6	5	-	-	2.76	-	-	-	-
	11-20	27.7	-	5	4	7.5	0.0	3.8	-	-6.0	15	4	13	-	0	-	-9.0	15	7	-	-	1.15	-	-	-	-
	21-END	41.0	-	9	7	9.6	3.0	6.3	-	-3.0	26	2	26	-	2	-	-7.5	26	2	-	-	1.90	-	-	-	-
	MONTH	108.6	139	20	15	9.2	1.7	5.4	-	-6.0	15	10	67	-	6	-	-9.0	15	14	-	-	1.94	-	-	-	-
Clones Co. Monaghan	1-10	28.5	-	4	3	9.9	3.2	6.6	-	-2.2	5	2	28	-	3	-	-7.0	5	4	7.5	-	2.59	-	2.3	1	-
	11-20	25.9	-	4	4	7.1	1.2	4.2	-	-3.0	16	4	13	-	1	-	-5.8	17	8	6.2	-	1.22	-	2.3	1	-
	21-END	39.7	-	8	7	10.1	4.1	7.1	-	-1.0	26	1	29	-	2	-	-5.4	26	2	6.3	-	1.59	-	7.7	8	-
	MONTH	94.1	107	16	14	9.0	2.8	5.9	-0.1	-3.0	16	7	71	95	5	-	-7.0	5	14	6.7	+0.7	1.80	101	4.1	10	2
Blirr Co. Offaly	1-10	24.1	-	5	4	9.9	2.1	6.0	-	-5.0	5	3	26	-	3	-	-8.1	5	6	7.1	-	3.09	-	2.8	1	-
	11-20	23.9	-	5	3	8.0	0.9	4.5	-	-2.9	15	5	17	-	1	-	-8.1	15	9	5.3	-	1.68	-	2.9	2	-
	21-END	46.4	-	9	9	10.4	4.4	7.4	-	-1.2	26	1	33	-	2	-	-6.6	26	2	6.3	-	1.09	-	6.8	9	-
	MONTH	94.4	123	19	16	9.4	2.5	6.0	-0.5	-5.0	5	9	75	83	6	-	-8.1	5	17	6.3	-0.1	1.95	95	4.2	12	4

TABLE 1 (CONTINUED)

NOVEMBER 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 <sup>-1</sup> )	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			
Dundrum (Knockavilla) Co. Tipperary	1-10	37.3	-	5	4	10.3	2.7	6.5	-	-3.3	5	2	28	-	3	-	-8.9	5	9	-	-	-	-	-	-	-	-	-	-
	11-20	16.9	-	3	2	8.4	0.3	4.3	-	-4.4	15	6	15	-	1	-	-8.0	15	8	-	-	-	-	-	-	-	-	-	-
	21-END	43.8	-	10	8	10.8	4.1	7.4	-	-1.5	26	2	34	-	3	-	-8.0	26	4	-	-	-	-	-	-	-	-	-	-
	MONTH	98.0	-	18	14	9.8	2.4	6.1	-	-4.4	15	10	77	-	7	-	-8.9	5	21	-	-	-	-	-	-	-	-	-	-
Dungarvan (Carriglea) Co. Waterford	1-10	69.8	-	6	6	11.6	4.1	7.9	-	-1.0	4	1	38	-	6	-	-1.6	4	3	-	-	2.28	-	1.6	-	-	-	-	
	11-20	74.1	-	8	6	9.7	1.2	5.5	-	-3.2	15	4	22	-	3	-	-4.0	15	5	-	-	1.66	-	1.8	-	-	-	-	
	21-END	60.1	-	8	8	11.3	3.9	7.6	-	-3.0	26	3	38	-	4	-	-5.9	26	3	-	-	1.68	-	4.6	-	-	-	-	
	MONTH	204.0	192	22	20	10.9	3.1	7.0	-	-3.2	15	8	97	-	12	-	-5.9	26	11	-	-	1.87	-	2.6	-	-	-	1	
Mullingar Co. Westmeath	1-10	29.5	-	5	3	9.8	2.7	6.2	-	-1.6	6	2	26	-	2	-	-5.6	6	3	6.8	-	2.56	-	2.7	1	-	-	-	
	11-20	30.4	-	4	3	7.8	1.1	4.4	-	-4.4	15	3	15	-	0	-	-6.6	15	6	5.2	-	2.30	-	2.5	1	-	-	-	
	21-END	58.0	-	9	7	9.9	3.7	6.8	-	-2.9	26	1	28	-	2	-	-5.7	26	2	5.9	-	1.99	-	6.6	6	-	-	-	
	MONTH	117.9	130	18	13	9.1	2.5	5.8	-0.3	-4.4	15	6	68	88	4	-	-6.6	15	11	6.0	-0.0	2.28	108	3.9	8	1	-	-	
J.F.K. Park Co. Wexford	1-10	42.6	-	4	4	11.0	2.8	6.9	-	-2.0	4	2	30	-	3	-	-7.5	4	6	-	-	2.11	-	3.0	-	-	-	-	
	11-20	73.5	-	6	5	9.3	0.4	4.9	-	-3.1	15	6	18	-	1	-	-9.0	15	8	-	-	1.63	-	3.3	-	-	-	-	
	21-END	52.2	-	8	8	11.0	2.2	6.6	-	-3.6	26	3	29	-	3	-	-10.0	26	6	-	-	2.03	-	9.4	-	-	-	-	
	MONTH	168.3	167	18	17	10.4	1.8	6.1	-	-3.6	26	11	77	-	7	-	-10.0	26	20	-	-	1.92	-	5.1	-	-	0	-	
Clonroche Co. Wexford	1-10	48.0	-	4	4	10.9	4.2	7.6	-	1.0	4	0	34	-	4	-	-1.1	4	3	-	-	1.89	-	1.3	-	-	-	-	
	11-20	94.6	-	8	6	8.6	1.8	5.2	-	-3.0	15	2	19	-	1	-	-6.6	15	6	-	-	1.14	-	1.2	-	-	-	-	
	21-END	49.5	-	7	6	10.5	3.6	7.1	-	-2.1	26	2	31	-	2	-	-5.1	26	4	-	-	1.76	-	3.6	-	-	-	-	
	MONTH	192.1	167	19	16	10.0	3.2	6.6	-	-3.0	15	4	84	-	7	-	-6.6	15	13	-	-	1.60	-	2.0	-	-	-1	-	
Johnstown Castle Co. Wexford	1-10	36.3	-	7	5	11.1	6.0	8.6	-	1.6	4	0	43	-	5	-	-3.7	4	3	-	-	1.92	-	3.2	-	-	-	-	
	11-20	92.6	-	6	6	9.6	4.0	6.8	-	0.2	15	0	27	-	1	-	-5.1	15	4	-	-	1.50	-	3.3	-	-	-	-	
	21-END	50.1	-	8	7	11.1	5.9	8.5	-	0.6	26	0	42	-	4	-	-5.1	26	2	-	-	2.24	-	7.1	-	-	-	-	
	MONTH	179.0	163	21	18	10.6	5.3	7.9	-	0.2	15	0	112	-	10	-	-5.1	15	9	-	-	1.89	-	4.5	-	-	3	-	
Rosslare Co. Wexford	1-10	29.2	-	6	4	11.5	7.1	9.3	-	2.3	3	0	50	-	7	-	1.0	3	0	9.0	-	1.66	-	5.3	1	-	-	-	
	11-20	86.0	-	7	6	10.2	5.4	7.8	-	3.3	15	0	35	-	3	-	-3.0	15	1	7.2	-	1.46	-	4.9	2	-	-	-	
	21-END	49.2	-	8	7	11.4	6.7	9.1	-	1.9	26	0	48	-	4	-	-1.5	26	2	7.7	-	2.45	-	8.3	8	-	-	-	
	MONTH	164.4	166	21	17	11.1	6.4	8.7	+0.4	1.9	26	0	132	107	14	88	-3.0	15	3	8.0	+0.2	1.86	75	6.1	11	14	-	-	

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 2 GLOBAL (SOLAR) RADIATION

STATION	PERIOD	AMOUNT
		Joule/cm <sup>2</sup>
Malin Head Co. Donegal	1-10	2944
	11-20	2125
	21-end	1888
	Month	6957
Dublin Airport Co. Dublin	1-10	3370
	11-20	2362
	21-end	5732
	Month	11464
Cahirciveen (Valentia Obs.) Co. Kerry	1-10	4891
	11-20	3444
	21-end	1917
	Month	10252
Kilkenny Co. Kilkenny	1-10	3699
	11-20	2385
	21-end	2071
	Month	8155
Belmullet Co. Mayo	1-10	3680
	11-20	3163
	21-end	1928
	Month	8771
Clones Co. Monaghan	1-10	3667
	11-20	2323
	21-end	2179
	Month	8169
Birr Co. Offaly	1-10	3294
	11-20	2176
	21-end	1729
	Month	7199

Notes on the tables in January issue

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	N/A	N/A	N/A	N/A
	11-20				
	21-end				
	Month				
Kinsealy Co. Dublin	1-10	4.6	-	0	29
	11-19	1.6	-	0	23
	20-end	6.3	-	0	27
	Month	12.5	-	-	-
Cahirciveen (Valentia Obs.) Co. Kerry	1-10	15.2	-	0	26
	11-19	13.3	-	0	30
	20-28	0.4	-	0	67
	Month	28.9	-	-	-
Ballinamore Co. Leitrim	1-10	4.8	-	0	22
	11-19	-6.8	-	0	25
	20-29	0.4	-	0	68
	Month	-1.6	-	-	-
Glenamoy Co. Mayo	1-10	1.7	-	0	43
	11-20	3.0	-	0	42
	21-end	2.5	-	0	154
	Month	7.2	-	-	-
Johnstown Castle Co. Wexford	1-10	4.6	-	0	32
	11-20	-2.4	-	0	95
	21-end	10.0	-	0	49
	Month	12.2	-	-	-

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	7.3	6.4	5.5	+1.5
11-20	5.8		5.0	4.3	+1.4	61	64
21-end	6.1		5.5	4.6	+0.7	57	58
Mineral	1-10	8.5	7.0	5.5	+0.9	60	62
	11-20	6.5	5.5	4.4	+0.8	59	57
	21-end	7.0	6.1	5.0	+0.5	44	43

# special topic

## CROP PHENOLOGY AND DRY MATTER DISTRIBUTION ( continued from October )

The actual proportion of leaves, stems, roots and storage organs in the total biomass at a certain moment depends on the preceding growth rates, which are governed by the weather and the leaf area index in the past and on the partitioning of the dry matter increase over the various plant parts. A fixed distribution pattern, for instance partitioning factors defined as a function of development stage, does not necessarily lead to a constant ratio in different organs. A simple example will illustrate this.

Suppose we have a crop in the field, with 1000 Kg/Ha leaves and 400 Kg/Ha stems. During the following 10 days, the growth rate is 200 Kg/Ha/D, of which 60% is partitioned to the leaves and 40% to the stems. In the subsequent period of 10 days the growth rate is only 100 Kg/Ha/D because of a much lower energy availability, of which 30% is partitioned to the leaves and 70% to the stems. At the end of the second period the weight of leaves is

$$1000 + (0.60 \times 200 \times 10) + (3.00 \times 100 \times 10) = 2500 \text{ Kg/Ha}$$

and the weight of stems is

$$400 + (0.40 \times 200 \times 10) + (0.70 \times 100 \times 10) = 1900 \text{ Kg/Ha.}$$

This results in a leaf/stem ratio of 1.32. Now suppose the growth rate in the first period to be 100 Kg/Ha/D and in the second period 200 Kg/Ha/D, with an identical distribution pattern. Then the weight of leaves at the end of the second period is

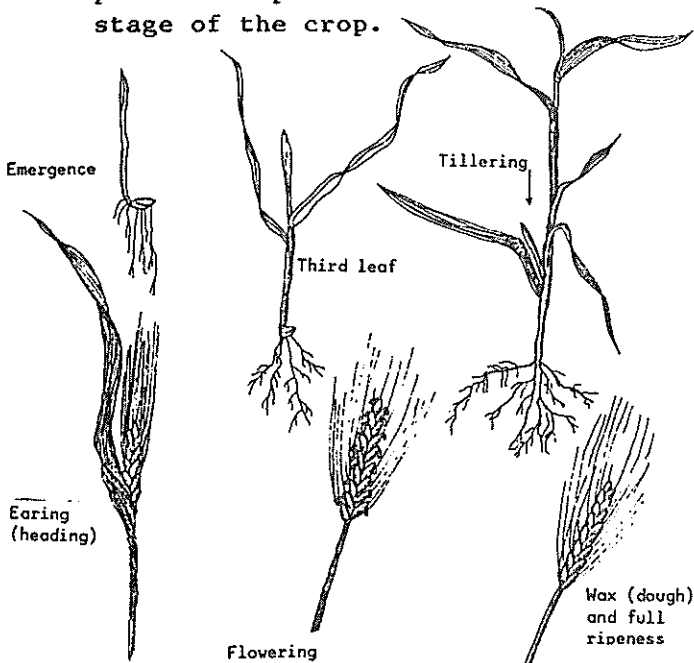
$$1000 + (0.60 \times 100 \times 10) + (0.30 \times 200 \times 10) = 2200 \text{ Kg/Ha}$$

and the weight of stems

$$400 + (0.40 \times 100 \times 10) + (0.70 \times 200 \times 10) = 2200 \text{ Kg/Ha}$$

giving a leaf/stem ratio of 1.00.

In this example we assumed identical development and thus identical partitioning factors with time. However development is not identical each year, but responds to differences in environmental conditions. It is therefore not possible to relate distribution pattern to crop age. Usually the partitioning of the current assimilate supply over the various plant parts is expressed in a distribution pattern independent of the development stage of the crop.



Modelling of plant growth enables the integration of the behaviour of the system i.e. the calculation of the course of processes, and consequently the increase of a quantity such as biomass. However, evaluation of a model is a continuing process and takes many forms. Obtaining data for the purpose of evaluation, about the real behaviour of the modelled system, independent of the data with which the model was produced is therefore often difficult and can pose a serious problem.

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