

AGROMETEOROLOGICAL BULLETIN

The Weather of June 1990

Summary

- 1st-8th : Westerly wind and spells of rain or showers
- 9th-15th : High pressure; settled, cool and cloudy in NW-NE winds
- 16th-23rd : Changeable and Atlantic troughs
- 24th-27th : Warm humid southwesterly airflow
- 28th-30th : Cooler weather and active frontal systems

Meteorological Situation

Frontal rainbelts and showers dominated to 8th; westerly winds veered to northwest following the passage of a trough on 6th. Subsequently, high pressure advanced from the Azores to northwest of Ireland giving settled conditions to 15th. After this Atlantic troughs became more prominent as the high receded eastwards into Europe. The first front, having reached western coastal areas on 15th, slowly advanced over the country on 16th. This was followed by another front on 17th and by a depression centre on 19th/20th. A second depression took a more southeasterly track over southern parts of Ireland into Britain. A west to northwest airflow, induced in its wake on 22nd, was replaced in turn by a weak ridge on 23rd.

Following this a warm and humid airmass approached the country in an extensive southwesterly airflow. The leading warm front reached the country on 24th and while some succeeding frontal waves first remained over southern areas, the final wave system moved up over the country. Conditions were favourable to the spread of potato blight. A cooler, westerly airflow set in on 27th. High pressure from mainland Europe for a time on 28th declined and an active frontal depression from the southwest affected the country later on 28th to 30th.

Temperature

Mean air temperature was below normal in most areas, varying from 0.6°C below at Belmullet/ Claremorris to 0.1°C above at Roslare. Below normal temperatures were mainly due to low daily maximum values as minimum values were above average. There was no air frost and ground values reached down to -3.1°C at Dundrum on 19th. Soil temperature was from 0.5°C to 1.7°C below average except at northern coasts.

Wind

Strong winds with gale gusts occurred from 6th to 8th, 19th, 24th and 30th.

Precipitation

Precipitation was well above normal. Amounts varied from 231% of normal at Dungarvan to 101% at Casement. Apart from a dry spell from 9th to 15th/16th, the remainder of the month was wet. High soil moisture deficits (SMD) from May generally declined in the second half of the month (but SMD at Glenamoy was still above average even at the end of the month).

Sunshine and Radiation

Bright sunshine hours were well below normal and varied from 67% of normal at Casement to 91% at Mullingar. Global radiation varied from 91% to 97%.

NOTE: The data contained in this bulletin are provisional. Some of the material in Table 1 will be published in its final form in the monthly Weather Report; final values of Global Radiation at stations in Table 2 will be published in the annual Solar Radiation Observations

Annual Sub.
£ 20.00

TABLE 1 (CONTINUED)

JUNE 1990

STATION	PERIOD	RAINFALL (mm)				TEMPERATURE (°C)																BRIGHT SUNSHINE		WIND		
		AMOUNT	% OF AVERAGE	RAIN DAYS	WET DAYS	AIR								GROUND				SOIL (10cm)				TOTAL NO. OF HOURS	% 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	14.4	-	4	3	14.9	10.3	12.6	-	8.8	10	0	82	-	27	-	5.5	10	0	15.1	-	60.7	-	5.8	1	-
	11-20	46.6	-	6	6	16.3	9.3	12.8	-	6.7	13	0	84	-	31	-	2.8	17	0	15.7	-	53.0	-	4.2	2	-
	21-END	67.7	-	8	7	15.6	11.2	13.4	-	10.2	28	0	90	-	34	-	7.5	28	0	15.4	-	25.5	-	4.4	3	-
	MONTH	128.7	169	18	16	15.6	10.3	12.9	-0.6	6.7	13	0	256	90	91	81	2.8	17	0	15.4	-0.8	139.2	85	4.8	6	79
Ardfert (Liscahane) Co. Kerry	1-10	17.4	-	6	5	16.0	9.5	12.7	-	7.7	10	0	83	-	29	-	6.4	9	0	-	-	41.9	-	-	-	-
	11-20	24.1	-	5	5	17.2	8.5	12.8	-	4.8	13	0	84	-	33	-	0.7	13	0	-	-	47.4	-	-	-	-
	21-END	48.8	-	8	7	16.4	10.4	13.4	-	9.4	21	0	90	-	34	-	5.8	30	0	-	-	22.7	-	-	-	-
	MONTH	90.3	-	19	17	16.5	9.4	13.0	-	4.8	13	0	258	-	96	-	0.7	13	0	-	-	112.0	-	-	-	-
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	-	-
	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	-	N/A
Kilkenny Co. Kilkenny	1-10	8.7	-	6	4	16.8	8.7	12.8	-	7.1	4	0	84	-	31	-	3.8	8	0	14.7	-	51.3	-	4.8	4	-
	11-20	44.6	-	4	4	17.9	8.6	13.2	-	3.6	19	0	89	-	37	-	-0.4	15	2	15.9	-	35.7	-	3.2	0	-
	21-END	37.8	-	8	5	17.7	10.2	14.0	-	6.0	21	0	96	-	41	-	1.7	21	0	15.3	-	30.7	-	3.4	0	-
	MONTH	91.1	194	18	13	17.5	9.1	13.3	-0.2	3.6	19	0	268	94	109	88	-0.4	15	2	15.3	-1.7	117.7	69	3.8	4	79
Mooncoin (Silverspring) Co. Kilkenny	1-10	14.7	-	6	3	17.0	8.6	12.8	-	4.2	4	0	84	-	32	-	-0.4	8	2	-	-	56.1	-	-	-	-
	11-20	29.9	-	4	4	17.8	8.6	13.2	-	2.8	19	0	88	-	37	-	-0.5	15	2	-	-	41.2	-	-	-	-
	21-END	60.0	-	8	6	17.8	10.5	14.2	-	6.2	21	0	98	-	43	-	0.4	21	0	-	-	28.2	-	-	-	-
	MONTH	104.6	197	18	13	17.5	9.2	13.4	-	2.8	19	0	270	-	111	-	-0.5	15	4	-	-	125.5	-	-	-	-
Ballinamore Co. Leitrim	1-10	43.8	-	8	7	14.9	8.3	11.6	-	5.0	4	0	72	-	20	-	0.9	10	0	-	-	50.7	-	4.2	-	-
	11-20	22.0	-	5	4	17.2	7.9	12.5	-	4.2	15	0	81	-	31	-	-1.4	15	2	-	-	37.3	-	26.1	-	-
	21-END	60.9	-	8	7	16.6	9.0	12.8	-	7.5	21	0	84	-	31	-	0.4	24	0	-	-	31.0	-	29.2	-	-
	MONTH	126.7	165	21	18	16.2	8.4	12.3	-	4.2	15	0	237	-	83	-	-1.4	15	2	-	-	119.0	-	19.5	-	110
Ardee (Boharnamoe) Co. Louth	1-10	29.9	-	7	6	16.1	8.3	12.2	-	5.3	4	0	78	-	26	-	-2.8	4	1	-	-	-	-	-	-	-
	11-20	18.5	-	5	4	17.7	8.7	13.2	-	5.9	19	0	88	-	36	-	-1.2	12	3	-	-	-	-	-	-	-
	21-END	33.8	-	7	6	18.6	7.9	13.3	-	6.4	22	0	89	-	38	-	-0.8	28	2	-	-	-	-	-	-	-
	MONTH	82.2	137	19	16	17.5	8.3	12.9	-	5.3	4	0	255	-	101	-	-2.8	4	6	-	-	-	-	-	-	-

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 1 (CONTINUED)

JUNE 1990

STATION	PERIOD	RAINFALL (mm)				TEMPERATURE (°C)														BRIGHT SUNSHINE		WIND				
		AMOUNT	% OF AVERAGE	RAIN DAYS	WET DAYS	AIR							GROUND			SOIL (10cm)				TOTAL NO. OF HOURS	% 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	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	-	N/A	-	N/A
Belmullet Co. Mayo	1-10	40.5	-	7	5	14.5	9.9	12.2	-	8.6	4	0	78	-	23	-	5.7	4	0	14.8	-	56.0	-	7.5	3	-
	11-20	27.5	-	5	5	15.2	9.4	12.3	-	5.0	17	0	79	-	26	-	2.1	17	0	15.3	-	38.9	-	5.7	0	-
	21-END	45.6	-	7	5	15.6	10.0	12.8	-	6.5	21	0	84	-	29	-	3.4	21	0	15.7	-	37.8	-	6.2	2	-
	MONTH	113.6	162	19	15	15.1	9.7	12.4	-0.6	5.0	17	0	240	90	78	80	2.1	17	0	15.2	-0.5	132.7	74	6.4	5	84
Claremorris Co. Mayo	1-10	24.6	-	8	7	15.5	8.1	11.8	-	5.3	10	0	74	-	23	-	1.3	10	0	14.2	-	42.8	-	5.9	5	-
	11-20	18.2	-	4	4	16.6	7.6	12.1	-	4.5	17	0	77	-	28	-	0.5	19	0	15.1	-	46.8	-	3.7	1	-
	21-END	45.8	-	8	6	16.7	8.8	12.8	-	5.4	21	0	84	-	31	-	1.8	21	0	15.0	-	36.4	-	4.3	1	-
	MONTH	88.6	120	20	17	16.2	8.2	12.2	-0.6	4.5	17	0	234	88	81	77	0.5	19	0	14.8	-0.4	126.0	82	4.6	7	72
Glenamoy Co. Mayo	1-10	39.5	-	5	5	14.2	9.5	11.9	-	7.5	4	0	75	-	21	-	5.0	4	4	-	-	50.3	-	0.6	-	-
	11-20	22.8	-	5	5	15.6	7.9	11.7	-	3.2	13	0	74	-	24	-	0.0	17	4	-	-	34.9	-	1.7	-	-
	21-END	11.6	-	5	5	15.9	9.0	12.5	-	5.6	22	0	81	-	28	-	1.8	22	1	-	-	31.9	-	0.5	-	-
	MONTH	73.9	83	15	15	15.2	8.8	12.0	-	3.2	13	0	229	-	73	-	0.0	17	9	-	-	117.1	-	1.0	-	53
Dunsany (Grange) Co. Meath	1-10	17.8	-	8	7	15.6	8.3	12.0	-	4.0	4	0	76	-	24	-	1.0	4	0	-	-	46.3	-	-	-	-
	11-20	41.3	-	4	4	16.9	9.4	13.1	-	6.8	19	0	87	-	34	-	2.7	12	0	-	-	33.5	-	-	-	-
	21-END	34.1	-	8	8	16.7	9.4	13.0	-	6.8	21	0	86	-	33	-	1.7	24	0	-	-	36.2	-	-	-	-
	MONTH	93.2	161	20	19	16.4	9.0	12.7	-	4.0	4	0	249	-	91	-	1.0	4	0	-	-	116.0	-	-	-	-
Clones Co. Monaghan	1-10	38.0	-	8	7	15.1	8.6	11.9	-	5.5	4	0	75	-	23	-	0.2	4	0	13.0	-	49.9	-	4.1	3	-
	11-20	37.2	-	4	4	17.5	8.3	12.9	-	5.4	14	0	85	-	34	-	0.2	14	0	14.3	-	39.5	-	1.8	1	-
	21-END	49.7	-	8	8	16.8	9.4	13.1	-	8.1	21	0	87	-	33	-	1.5	21	0	14.8	-	43.0	-	2.2	1	-
	MONTH	124.9	181	20	19	16.5	8.8	12.6	-0.4	5.4	14	0	247	91	90	83	0.2	14	0	14.1	-1.7	132.4	85	2.7	5	74
Birr Co. Offaly	1-10	13.5	-	7	5	15.8	8.2	12.0	-	5.4	10	0	76	-	25	-	0.3	10	0	14.5	-	43.0	-	3.2	3	-
	11-20	15.9	-	4	4	17.4	9.2	13.3	-	6.1	19	0	89	-	36	-	1.2	19	0	16.5	-	39.7	-	1.9	0	-
	21-END	32.8	-	8	6	17.2	9.9	13.5	-	6.9	21	0	91	-	36	-	3.4	21	0	15.3	-	33.1	-	2.3	0	-
	MONTH	62.2	120	19	15	16.8	9.1	12.9	-0.5	5.4	10	0	256	90	97	82	0.3	10	0	15.4	-1.2	115.8	71	2.5	3	72

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 2 GLOBAL RADIATION

STATION	PERIOD	AMOUNT MJ/m ²
Malin Head Co. Donegal	1-10	184.67
	11-20	195.85
	21-end	172.40
	Month	552.92
Dublin Airport Co. Dublin	1-10	159.58
	11-20	175.34
	21-end	161.60
	Month	496.52
Cahirciveen (Valentia Obs.) Co. Kerry	1-10	195.61
	11-20	177.52
	21-end	152.73
	Month	525.86
Kilkenny Co. Kilkenny	1-10	184.66
	11-20	176.39
	21-end	148.81
	Month	509.86
Belmullet Co. Mayo	1-10	168.59
	11-20	140.10
	21-end	152.74
	Month	461.43
Clones Co. Monaghan	1-10	164.24
	11-20	162.92
	21-end	162.33
	Month	489.49
Birr Co. Offaly	1-10	163.82
	11-20	175.53
	21-end	146.52
	Month	485.87

Notes on the tables in January issue

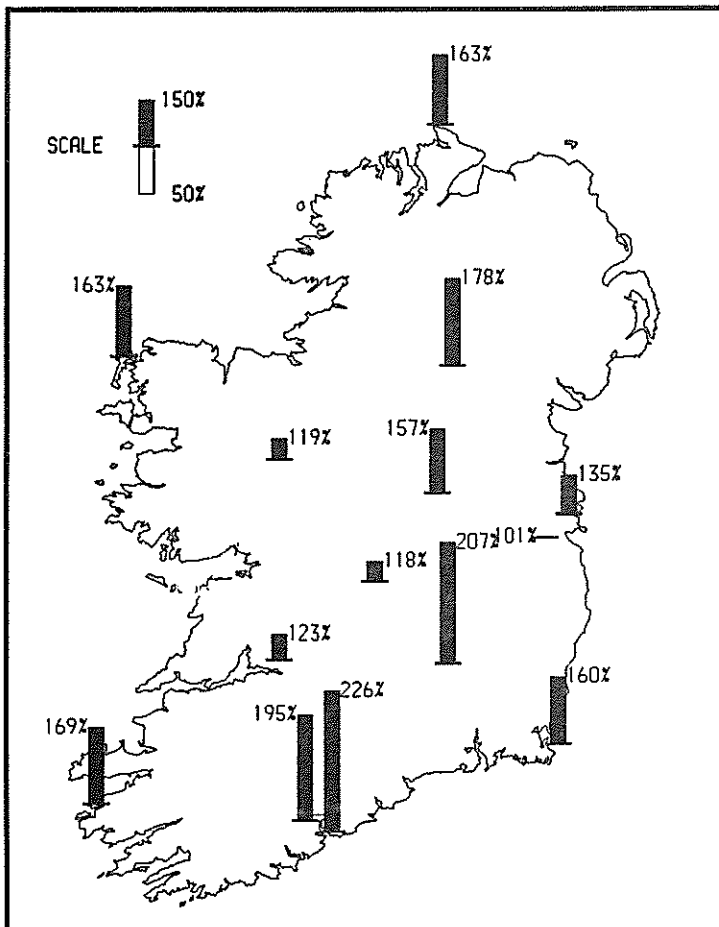
TABLE 3 POTENTIAL EVAPOTRANSPIRATION (P.E.) AND SOIL MOISTURE

STATION	PERIOD	SOIL MOISTURE (mm)			
		P.E. (mm)	Deficit	Accumulated Deficit	Surplus
Carlow (Oak Park) Co. Carlow	1-10	21.6	-	65	1
	11-20	30.2	-	52	13
	21-end	19.5	-	33	19
	Month	71.3	-	-	-
Kinsealy Co. Dublin	1-10	27.5	-	57	9
	11-20	23.5	-	56	1
	21-end	26.5	-	54	2
	Month	77.5	-	-	-
Cahirciveen (Valentia Obs.) Co. Kerry	1-10	21.6	6	28	-
	11-20	31.8	-	16	12
	21-end	9.5	-	0	59
	Month	62.9	-	-	-
Ballinamore Co. Leitrim	1-10	14.6	-	17	32
	11-20	29.9	8	25	-
	21-end	26.0	-	0	35
	Month	70.5	-	-	-
Glenamoy Co. Mayo	1-10	21.2	-	34	25
	11-20	20.1	-	30	4
	21-end*	4.7*	-	23	7
	Month	46.0	-	-	-
Johnstown Castle Co. Wexford	1-10	21.1	-	42	8
	11-20	29.9	11	53	-
	21-end	19.6	-	17	36
	Month	70.6	-	-	-

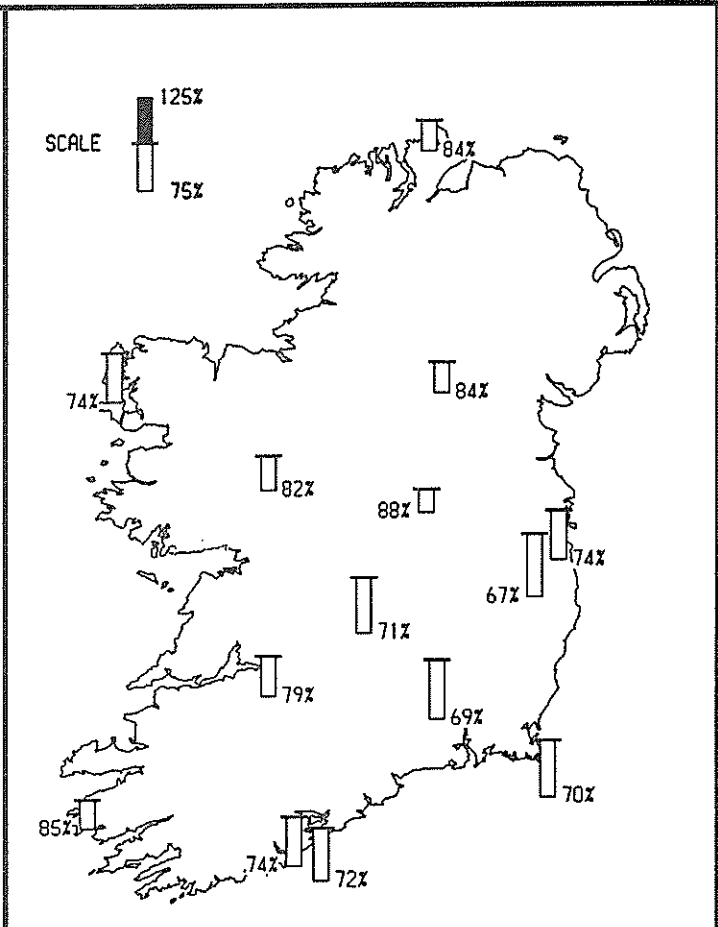
* 21-28 only

TABLE 4 SOIL CLIMATE (MULLINGAR)

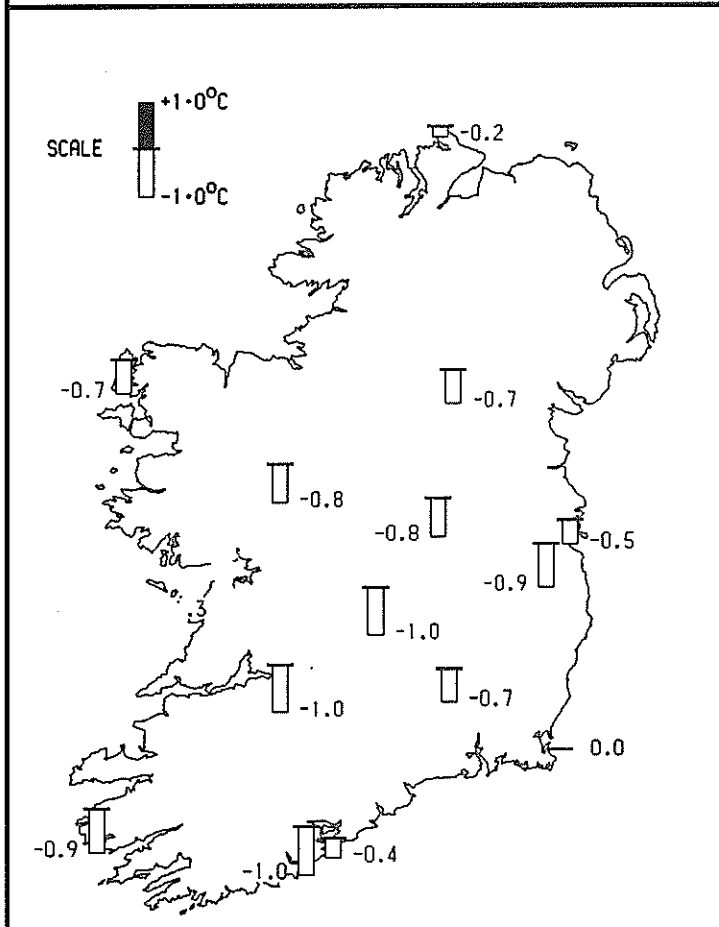
BARE SOIL TYPE	PERIOD	MEAN TEMPERATURE (°C at 100mm)			TEMPERATURE GRADIENT (to 200mm)	SOIL WATER POTENTIAL (hPa) (at depths)	
		Max.	Daily	Min.		75mm	200mm
		Peat	1-10	15.6	13.9	12.3	0.2
	11-20	16.8	15.4	13.7	-0.5	176.8	162.6
	21-end	16.0	14.8	12.7	-0.2	81.3	68.2
Mineral	1-10	17.2	13.4	10.9	0.2	417.8	369.5
	11-20	18.5	15.4	12.8	-0.6	364.3	333.5
	21-end	17.5	14.5	12.2	-0.3	94.2	89.5



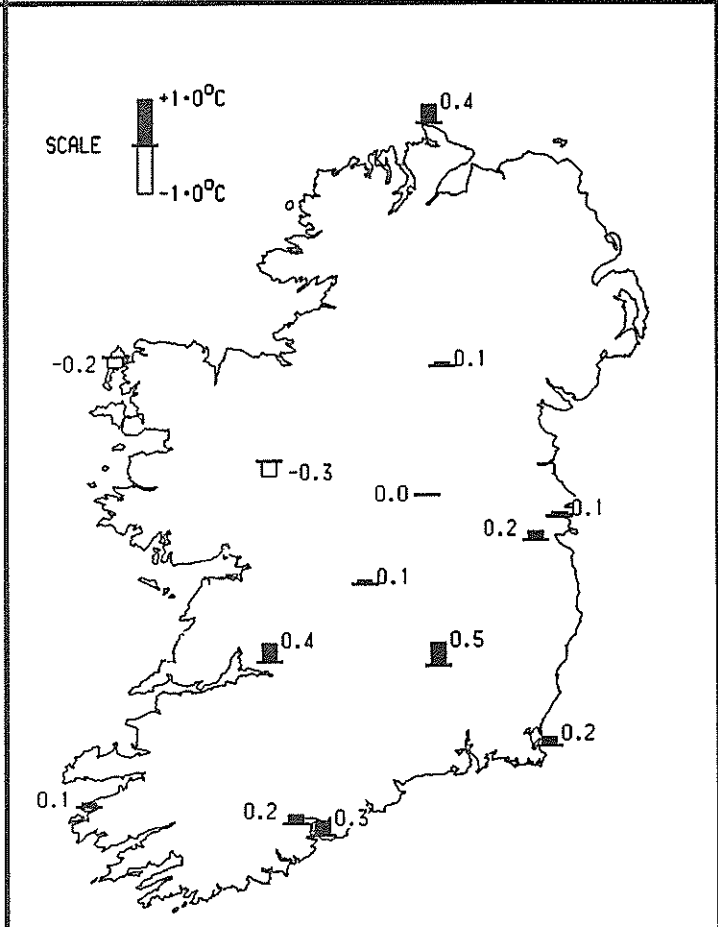
RAINFALL (Percentage of 1951-1980 normals)



SUNSHINE (Percentage of 1951-1980 normals)



MEAN MAX. TEMPERATURE (Deviation from 1951-1980 normals)



MEAN MIN. TEMPERATURE (Deviation from 1951-1980 normals)

IMPLICATIONS OF CLIMATE CHANGE FOR AGRICULTURE

(continued from April and May Bulletins)

Potential for Pollution

There is considerable potential for pollution in present-day intensive farming due to the use higher concentration of nutrients and chemicals, and from silage effluent and farm waste. Runoff depends on soil type, being greatest from heavy soil, while infiltration risks are greater in the lighter soils.

Rainfall is one of the important meteorological considerations in assessing pollution risk to the environment. Runoff from land is likely if, for example, heavy rain storms follow the spreading of slurry on land. If climate change results in more frequent heavy rainfall occurrences during the growing season, the periods for the safe spreading of slurry may be diminished. Also if drought inhibits summer growth the fraction of fertilizer to be leached in the lighter soils over the following winter is greater.

Flooding and Runoff

There will be increased risk of flooding in low lying areas and areas of high water table. The heavier rainfall events lead to water spill-over from rivers to adjoining areas, or from higher lands with impervious soils. Runoff risks are greatest from areas of climatic peat and soil of low hydraulic conductivity (<10 mm/day in the subsoil) especially on slopes. Seasonal runoff during extreme wet periods may occur from basin and cutover peats and areas of high water table which are flat or gently undulating. In sandy soils or areas that are well drained the risk of runoff will be low.

Forestry

The effects of changes of climate on forestry have not been greatly evaluated. Improved growth would result from increased CO₂ and increased temperature. Boundaries would shift particularly in respect to the altitude at which sowing would be possible. While the west may have increased rainfall throughout the year, the south and east may receive less than the present. Therefore sitka spruce (our most important commercial species) might become stressed on certain eastern and southern area sites from drought.

Forest fires may also become a hazard with increased frequency of drought in early summer. As it is uncertain as to what the future climate may hold as regards wind it is difficult to predict windthrow damage. However if the climate becomes more unstable, then the incidences in autumn of intense concentrated storms from the lower latitudes of the Atlantic may increase thus accentuating the negative impact of climate change.

Diseases

The mild winters would favour increased aphid populations leading to crop defoliation and thus reduced growth of most plants, e.g. cereals, root crops, forestry. The wetter winters and springs would lead to more eyespot and Septoria and other wet season diseases. The greater frequency in southerly winds may increase the number of arrivals of moist airmasses to this country during summer, particularly in southern and western areas, thus enhancing the risks of potato blight. Increase in hot humid spells in summer would favour brown rust in cereals. Some continental diseases especially animal diseases may also spread to Ireland.

(concluded)