

Meteorological Service



# AGROMETEOROLOGICAL BULLETIN

## The Weather of April 1990

### Summary

1st-3rd : Rainbelts and changeable; 4th-8th : mostly dry and cold nights;  
9th-14th : westerly airflow and frequent troughs; 15th-19th : wintry spell become mild  
20th-end : high pressure but some rain from occasional declining of pressure

### Meteorological Situation

A trough drifting from the west of Spain over Ireland and Scotland to the North Sea caused a southeast airflow over Ireland on 1st and a northwest airflow on 2nd; in this airstream, a front moved southeastward over the country on 3rd. Subsequently high pressure over northern mainland Europe developed across the country to join with high pressure in the Atlantic giving an improved spell. A decline of the European centre allowed frontal troughs in over Ireland in a westerly airflow on 9th and 10th, and there were warm sector conditions on 11th. A later decline of the Atlantic high cell sustained the westerly airflow with further troughs on 12th, 13th and 14th. This was followed by a wintry spell—northwesterly blustery winds, and heavy and frequent hail showers from 14th to 17th. Replaced by mild air on 18th, further cool northwesterly winds occurred on 19th.

In the meantime pressure increased steadily from the Atlantic to Scandinavia over north of Scotland. A northeast airflow (in a westwards moving trough) was induced over Ireland. Subsequently the ridge drifted down over the country and the weather was settled except for fronts affecting northwestern areas. A decline of high pressure from the east permitted a cold front down over the country on 25th/26th. There was a gradual recovery of the high subsequently although some northwestern areas continued to receive drizzle on 28th.

### Precipitation

There was a large range in precipitation across the country—varying from well above (159%) normal at Belmullet to well below (34%) at Roche's Point and Johnstown Castle. Wettest days were 1st, 5th, 9th/10th (northwest), the spell from 12th to 18th/19th, and 25th/26th. Soil moisture deficit at the end of the month varied from 9mm to over 40 mm.

### Sunshine and Radiation

Bright sunshine hours were above normal everywhere, varying from 117% of normal at Shannon Airport and Claremorris to 97% at Casement.

### Temperature

Mean air temperature varied from 0.2°C above normal at Shannon Airport to 0.5°C below at Casement and Valentia. While there was an overall trend for rising temperature during the month, the coldest spells were occurred about the 4th, 16th and 27th. Lowest air and grass minima occurred at Birr on 4th where values of -3.2°C and -11.1°C were recorded. Ground frost was widespread between 3rd and 9th, 13th/14th, 16th to 18th and 27th. Soil temperature was near or below normal until the last decade when it was well above.

### Wind

Strong and blustery winds with gale gusts occurred on 2nd, 10th, 12th, and from 14th to 19th.

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

APRIL 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 <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
Carlow (Oak Park) Co. Carlow	1-10	3.4	-	2	1	11.4	1.2	6.3	-	-3.5	4	3	29	-	4	-	-7.5	4	7	-	-	48.0	-	3.9	-	-
	11-20	15.3	-	6	5	11.4	2.8	7.1	-	0.5	17	0	32	-	4	-	-2.6	14	5	-	-	54.9	-	5.9	-	-
	21-END	1.5	-	2	1	15.5	5.1	10.3	-	1.0	27	0	61	-	19	-	-2.8	27	2	-	-	51.7	-	2.9	-	-
	MONTH	20.2	43	10	7	12.8	3.0	7.9	-	-3.5	4	3	122	-	27	-	-7.5	4	14	-	-	154.6	-	4.3	-	54
Shannon Airport Co. Clare	1-10	23.5	-	6	4	11.5	3.8	7.7	-	-1.2	4	1	36	-	5	-	-6.3	4	6	8.3	-	55.5	-	4.5	3	-
	11-20	29.4	-	9	7	11.3	4.8	8.0	-	2.5	13	0	37	-	4	-	-1.2	14	2	8.4	-	55.4	-	6.6	6	-
	21-END	4.6	-	2	2	16.2	6.9	11.6	-	2.6	27	0	72	-	25	-	-3.9	27	2	12.8	-	66.2	-	2.6	0	-
	MONTH	57.5	101	17	13	13.0	5.1	9.1	+0.2	-1.2	4	1	146	94	34	83	-6.3	4	10	9.8	+0.1	177.1	117	4.6	9	66
Cork Airport Co. Cork	1-10	14.1	-	5	2	10.1	2.3	6.2	-	-2.3	4	1	25	-	2	-	-4.6	4	6	7.7	-	58.6	-	6.0	3	-
	11-20	16.4	-	9	7	10.6	3.3	6.9	-	1.1	13	0	29	-	3	-	-1.9	13	3	7.9	-	64.7	-	7.6	8	-
	21-END	0.7	-	1	0	14.6	6.0	10.3	-	2.1	27	0	60	-	16	-	-1.5	27	1	11.5	-	61.7	-	4.6	0	-
	MONTH	31.2	45	15	9	11.8	3.9	7.8	-0.2	-2.3	4	1	114	90	21	84	-4.6	4	10	9.0	-0.2	185.0	115	6.1	11	66
Fermoy (Coolnakilla) Co. Cork	1-10	12.7	-	3	2	8.4	2.0	5.2	-	-3.0	4	2	20	-	1	-	N/A	N/A	-	-	N/A	-	N/A	-	-	
	11-20	33.3	-	10	10	9.9	2.6	6.3	-	0.7	15	0	24	-	2	-	N/A	N/A	-	-	N/A	-	N/A	-	-	
	21-END	3.2	-	3	1	13.1	5.1	9.1	-	1.0	27	0	48	-	9	-	N/A	N/A	-	-	N/A	-	N/A	-	-	
	MONTH	49.2	-	16	13	10.5	3.2	6.9	-	-3.0	4	2	92	-	12	-	N/A	N/A	-	-	N/A	-	N/A	-	N/A	
Fermoy (Moore Park) Co. Cork	1-10	9.7	-	5	2	10.7	0.6	5.7	-	-3.2	4	5	24	-	3	-	-8.2	9	7	-	-	59.5	-	3.7	-	-
	11-20	31.3	-	9	7	11.2	4.1	7.6	-	-2.0	13	1	36	-	5	-	-8.0	13	6	-	-	59.6	-	5.3	-	-
	21-END	3.0	-	1	1	15.5	4.9	10.2	-	-1.0	27	1	60	-	18	-	-7.9	27	4	-	-	58.1	-	2.6	-	-
	MONTH	44.0	77	15	10	12.4	3.2	7.8	-	-3.2	4	7	120	-	26	-	-8.2	9	17	-	-	117.2	-	3.9	-	46
Roches Point Co. Cork	1-10	6.9	-	3	3	10.7	4.1	7.4	-	0.7	4	0	33	-	4	-	-2.4	9	4	9.0	-	60.0	-	5.8	4	-
	11-20	9.9	-	8	4	11.4	4.7	8.0	-	1.4	13	0	38	-	5	-	-1.0	13	2	9.0	-	55.2	-	7.5	8	-
	21-END	1.4	-	2	0	14.4	7.1	10.8	-	3.1	27	0	64	-	17	-	-1.2	27	1	12.2	-	67.2	-	3.6	0	-
	MONTH	18.2	34	13	7	12.2	5.3	8.7	-0.1	0.7	4	0	135	94	25	100	-2.4	9	7	10.1	+0.2	182.4	112	5.7	12	70
Glencolumbkille Co. Donegal	1-10	58.7	-	7	7	10.1	3.7	6.9	-	-0.5	4	1	31	-	4	-	-2.8	8	4	-	-	N/A	-	3.8	-	-
	11-20	50.1	-	10	10	9.7	3.5	6.6	-	1.5	13	0	25	-	1	-	-3.2	14	6	-	-	N/A	-	5.7	-	-
	21-END	15.5	-	4	3	13.4	5.5	9.4	-	2.5	23	0	51	-	13	-	-2.0	23	2	-	-	N/A	-	2.4	-	-
	MONTH	124.3	-	21	20	11.0	4.2	7.6	-	-0.5	4	1	108	-	18	-	-3.2	14	12	-	-	N/A	-	4.0	-	N/A

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 1 (CONTINUED)

APRIL

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 <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									
Glenties Co. Donegal	1-10	49.3	-	8	7	10.4	2.6	6.5	-	-2.6	4	2	28	-	3	-	-9.5	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11-20	48.5	-	9	9	10.2	2.8	6.5	-	-0.5	14	1	26	-	3	-	-7.2	14	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	21-END	13.3	-	3	2	14.6	4.6	9.6	-	-0.4	21	1	55	-	17	-	-6.9	21	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MONTH	111.1	137	20	18	11.7	3.3	7.5	-	-2.6	4	4	110	-	22	-	-9.5	4	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malin Head Co. Donegal	1-10	25.1	-	7	6	9.6	4.0	6.8	-	0.5	4	0	28	-	1	-	-1.1	7	2	8.2	-	46.4	-	7.6	5	-	-	-	-	-	-	-	-	-	-
	11-20	33.6	-	9	7	9.5	4.3	6.9	-	2.4	17	0	27	-	1	-	-0.4	14	2	7.6	-	53.5	-	10.8	9	-	-	-	-	-	-	-	-	-	-
	21-END	10.1	-	4	1	12.2	6.7	9.5	-	4.7	22	0	51	-	9	-	-1.8	21	2	11.4	-	63.1	-	5.5	3	-	-	-	-	-	-	-	-	-	-
	MONTH	68.8	121	20	14	10.5	5.0	7.7	-0.1	0.5	4	0	106	89	11	73	-1.8	21	6	9.1	+0.3	163.0	103	8.0	17	64	-	-	-	-	-	-	-	-	
Casement Aerodrome Co. Dublin	1-10	7.4	-	6	2	10.8	0.8	5.8	-	-3.1	8	4	26	-	4	-	-6.0	8	7	7.3	-	51.2	-	5.6	3	-	-	-	-	-	-	-	-	-	-
	11-20	11.0	-	7	4	10.8	2.6	6.7	-	0.6	18	0	28	-	3	-	-1.4	18	4	7.3	-	52.8	-	8.7	9	-	-	-	-	-	-	-	-	-	-
	21-END	7.8	-	2	2	14.5	4.6	9.5	-	0.2	27	0	54	-	15	-	-3.0	27	3	10.5	-	46.2	-	4.0	0	-	-	-	-	-	-	-	-	-	-
	MONTH	26.2	56	15	8	12.0	2.7	7.3	-0.5	-3.1	8	4	108	87	21	68	-6.0	8	14	8.4	-	150.2	97	6.1	12	54	-	-	-	-	-	-	-	-	-
Dublin Airport Co. Dublin	1-10	10.1	-	5	3	11.0	3.1	7.1	-	-2.9	4	1	32	-	4	-	-6.0	4	8	8.6	-	52.4	-	4.9	1	-	-	-	-	-	-	-	-	-	-
	11-20	11.1	-	8	4	11.1	3.3	7.2	-	0.9	18	0	32	-	4	-	-2.8	14	6	8.4	-	62.4	-	7.8	7	-	-	-	-	-	-	-	-	-	-
	21-END	3.0	-	2	1	14.6	6.2	10.4	-	2.5	27	0	61	-	16	-	-1.0	24	3	12.1	-	50.1	-	3.2	0	-	-	-	-	-	-	-	-	-	-
	MONTH	24.2	51	15	8	12.2	4.2	8.2	+0.1	-2.9	4	1	124	96	23	88	-6.0	4	17	9.7	+0.5	164.9	101	5.3	8	65	-	-	-	-	-	-	-	-	
Kinsealy Co. Dublin	1-10	14.5	-	3	2	10.9	3.1	7.0	-	1.0	4	0	30	-	4	-	N/A	N/A	-	-	56.7	-	N/A	-	-	-	-	-	-	-	-	-	-	-	
	11-20	11.5	-	7	5	11.3	3.3	7.3	-	0.6	18	0	33	-	4	-	N/A	0	-	-	59.9	-	N/A	-	-	-	-	-	-	-	-	-	-	-	
	21-END	1.8	-	2	1	14.1	5.5	9.8	-	2.0	27	0	56	-	13	-	N/A	0	-	-	53.2	-	N/A	-	-	-	-	-	-	-	-	-	-	-	
	MONTH	27.8	62	12	8	12.1	4.0	8.0	-	0.6	18	0	119	-	21	-	N/A	N/A	-	-	169.8	-	N/A	-	-	-	-	-	-	-	-	-	-	-	
Galway Co. Galway	1-10		-						-					-		-																			
	11-20		-						-					-		-																			
	21-END		-						-					-		-																			
	MONTH		-						-					-		-																			
Killarney (Muckross House) Co. Kerry	1-10	35.7	-	6	4	10.9	3.3	7.1	-	0.1	8	0	32	-	5	-	-4.2	7	7	-	9.3	-	-	-	-	-	-	-	-	-	-	-	-	-	
	11-20	40.0	-	9	6	10.7	5.2	7.9	-	1.6	13	0	36	-	3	-	-2.0	14	4	-	11.2	-	-	-	-	-	-	-	-	-	-	-	-	-	
	21-END	7.1	-	2	1	15.1	6.2	10.7	-	0.2	27	0	64	-	18	-	-2.5	27	3	-	10.3	-	-	-	-	-	-	-	-	-	-	-	-	-	
	MONTH	82.8	91	17	11	12.2	4.9	8.6	-	0.1	8	0	133	-	26	-	-4.2	7	14	-	10.6	-	-	-	-	-	-	-	-	-	-	-	-	-	

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 1 (CONTINUED)

APRIL 1990

STATION	PERIOD	RAINFALL (mm)				TEMPERATURE (°C)														BRIGHT SUNSHINE		WIND		P.E. (PENMAN) (mm)		
		AMOUNT	% OF AVERAGE	RAIN DAYS	WET DAYS	AIR							GROUND			SOIL (10cm)				TOTAL NO. OF HOURS	% 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	29.6	-	6	5	11.3	4.0	7.7	-	-1.6	4	1	37	-	5	-	-4.9	4	4	8.8	-	46.8	-	4.8	3	-
	11-20	26.2	-	9	8	10.9	5.6	8.2	-	3.6	16	0	38	-	3	-	0.5	14	0	8.8	-	41.7	-	7.4	9	-
	21-END	5.1	-	3	3	14.6	6.1	10.3	-	1.8	27	0	60	-	16	-	-2.0	27	1	12.1	-	68.0	-	3.6	1	-
	MONTH	60.9	77	18	16	12.3	5.2	8.7	-0.5	-1.6	4	1	135	87	24	71	-4.9	4	5	9.9	-0.4	156.5	101	5.3	13	64
Ardfert (Liscahane) Co. Kerry	1-10	26.8	-	7	5	11.0	2.7	6.8	-	-2.7	4	2	31	-	4	-	-6.1	4	5	-	56.2	-	-	-	-	
	11-20	36.5	-	9	6	11.3	4.8	8.1	-	2.0	13	0	38	-	4	-	-2.1	14	2	-	55.1	-	-	-	-	
	21-END	5.1	-	2	1	15.5	6.7	11.1	-	0.2	27	0	68	-	21	-	-3.1	21	3	-	71.5	-	-	-	-	
	MONTH	68.4	-	18	12	12.6	4.7	8.7	-	-2.7	4	2	138	-	28	-	-6.1	4	10	-	-	-	-	-	-	
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	-	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	-	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	-	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
Kilkenny Co. Kilkenny	1-10	4.1	-	3	1	11.4	1.7	6.5	-	-3.0	9	2	30	-	5	-	-8.9	9	8	8.4	-	56.3	-	3.4	2	-
	11-20	17.2	-	6	6	11.4	2.9	7.1	-	-1.0	13	1	32	-	4	-	-6.0	13	5	8.1	-	57.0	-	5.2	7	-
	21-END	13.5	-	2	2	15.4	4.7	10.0	-	1.3	27	0	58	-	17	-	-1.9	27	4	11.3	-	50.2	-	1.9	0	-
	MONTH	34.8	67	11	9	12.8	3.1	7.9	-0.3	-3.0	9	3	121	87	26	67	-8.9	9	17	9.2	-0.1	163.5	107	3.5	9	56
Mooncoin (Silverspring) Co. Kilkenny	1-10	3.9	-	3	2	11.2	0.6	5.9	-	-5.1	9	5	27	-	4	-	-9.5	4	8	-	54.4	-	-	-	-	
	11-20	11.9	-	8	5	11.9	2.9	7.4	-	-1.9	13	2	35	-	5	-	-6.6	13	6	-	63.7	-	-	-	-	
	21-END	10.1	-	3	2	15.9	4.6	10.2	-	-0.7	27	1	61	-	19	-	-5.5	27	7	-	50.8	-	-	-	-	
	MONTH	25.9	43	14	9	13.0	2.7	7.8	-	-5.1	9	8	122	-	28	-	-9.5	4	21	-	-	811.7	-	-	-	-
Ballinamore Co. Leitrim	1-10	22.5	-	8	6	10.6	2.2	6.4	-	-2.4	4	2	28	-	4	-	-8.5	4	7	-	49.8	-	2.6	-	-	
	11-20	40.0	-	9	8	10.2	2.3	6.3	-	-0.7	13	1	25	-	3	-	-6.7	14	7	-	58.1	-	5.1	-	-	
	21-END	7.7	-	3	2	15.1	5.3	10.2	-	2.4	24	0	60	-	17	-	-4.1	23	5	-	53.8	-	2.5	-	-	
	MONTH	70.2	108	20	16	12.0	3.3	7.6	-	-2.4	4	3	113	-	23	-	-8.5	4	19	-	-	161.7	-	3.4	-	50
Ardee (Boharnamoe) Co. Louth	1-10	10.1	-	2	1	10.9	1.0	6.0	-	-3.9	4	3	26	-	3	-	-10.0	4	7	-	-	-	-	-	-	
	11-20	15.4	-	9	8	11.1	2.3	6.7	-	-1.4	14	2	29	-	4	-	-8.2	14	5	-	-	-	-	-	-	
	21-END	3.6	-	2	2	15.3	3.1	9.2	-	0.7	24	0	53	-	16	-	-4.5	26	7	-	-	-	-	-	-	
	MONTH	29.1	55	13	11	12.4	2.1	7.3	-	-3.9	4	5	108	-	23	-	-10.0	4	19	-	-	-	-	-	-	

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 1 (CONTINUED)

APRIL 1990

STATION	PERIOD	RAINFALL (mm)				TEMPERATURE (°C)														BRIGHT SUNSHINE		WIND		P.E. (PENMAN) (mm)		
		AMOUNT	% OF AVERAGE	RAIN DAYS	WET DAYS	AIR							GROUND				SOIL (10cm)			TOTAL NO. OF HOURS	% 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
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		
Beimullet Co. Mayo	1-10	28.5	-	7	7	10.7	4.0	7.4	-	0.9	3	0	33	-	3	-	-2.8	4	4	8.9	-	54.6	-	6.8	4	-
	11-20	52.9	-	9	9	10.5	4.6	7.5	-	2.6	17	0	33	-	2	-	0.3	14	0	8.5	-	55.8	-	9.5	10	-
	21-END	9.1	-	3	1	13.5	6.6	10.1	-	4.1	22	0	57	-	13	-	-1.0	21	1	11.8	-	61.9	-	5.2	1	-
	MONTH	90.5	159	19	17	11.6	5.1	8.3	-0.4	0.9	3	0	123	88	18	69	-2.8	4	5	9.7	+0.1	172.3	105	7.2	15	63
Claremorris Co. Mayo	1-10	24.2	-	7	5	11.0	2.0	6.5	-	-2.9	4	2	29	-	3	-	-8.1	4	5	7.9	-	47.9	-	4.9	2	-
	11-20	47.6	-	9	9	11.0	2.5	6.8	-	0.2	13	0	29	-	3	-	-4.0	13	4	7.8	-	57.9	-	6.8	7	-
	21-END	9.2	-	2	2	14.9	5.4	10.2	-	1.8	27	0	59	-	17	-	-2.2	27	2	11.3	-	57.6	-	3.7	0	-
	MONTH	81.0	131	18	16	12.3	3.3	7.8	-0.1	-2.9	4	2	116	91	24	77	-8.1	4	11	9.0	+0.3	163.4	117	5.1	9	56
Glenamoy Co. Mayo	1-10	34.7	-	8	8	10.9	2.8	6.8	-	-2.2	4	3	31	-	4	-	-4.7	4	4	-	-	48.6	-	1.1	-	-
	11-20	59.4	-	8	8	11.1	4.3	7.7	-	0.6	15	0	36	-	3	-	-2.4	15	3	-	-	50.7	-	0.5	-	-
	21-END	3.3	-	2	1	14.9	4.8	9.9	-	-0.6	21	2	58	-	19	-	-1.9	21	2	-	-	60.7	-	0.1	-	-
	MONTH	97.4	130	18	17	12.3	4.0	8.1	-	-2.2	4	5	126	-	26	-	-4.7	4	9	-	-	160.0	-	0.6	-	40
Dunsany (Grange) Co. Meath	1-10	17.3	-	4	3	10.4	1.2	5.8	-	-5.7	4	3	25	-	2	-	-7.5	6	6	-	-	50.4	-	-	-	-
	11-20	18.5	-	8	7	9.1	0.5	4.8	-	-1.0	18	2	17	-	2	-	-6.6	14	5	-	-	57.3	-	-	-	-
	21-END	3.3	-	3	1	15.5	3.9	9.7	-	1.0	27	0	56	-	17	-	-4.0	23	5	-	-	41.3	-	-	-	-
	MONTH	39.1	74	15	11	11.7	1.9	6.8	-	-5.7	4	5	99	-	21	-	-7.5	6	16	-	-	149.0	-	-	-	-
Clones Co. Monaghan	1-10	15.5	-	6	3	10.8	2.2	6.5	-	-3.0	4	1	29	-	4	-	-7.6	4	5	7.2	-	49.8	-	3.5	2	-
	11-20	42.8	-	8	7	10.4	2.6	6.5	-	0.1	13	0	26	-	3	-	-3.0	14	5	7.0	-	57.0	-	5.3	7	-
	21-END	4.6	-	2	2	15.0	5.5	10.3	-	1.2	23	0	60	-	17	-	-4.3	23	3	10.4	-	42.2	-	2.3	0	-
	MONTH	62.9	119	16	12	12.0	3.4	7.7	+0.0	-3.0	4	1	115	93	23	77	-7.6	4	13	8.2	-0.4	149.0	106	3.7	9	53
Birr Co. Offaly	1-10	18.8	-	5	2	11.2	1.7	6.4	-	-4.6	4	2	29	-	4	-	-11.1	4	7	7.8	-	46.4	-	2.8	1	-
	11-20	26.7	-	9	8	10.7	2.8	6.7	-	0.8	14	0	28	-	3	-	-1.6	14	5	7.6	-	50.7	-	4.2	6	-
	21-END	2.8	-	2	1	15.4	5.1	10.3	-	-0.6	27	1	61	-	19	-	-4.8	27	4	11.6	-	53.9	-	1.5	0	-
	MONTH	48.3	88	16	11	12.4	3.2	7.8	-0.3	-4.6	4	3	118	87	26	74	-11.1	4	16	9.0	-0.4	151.0	103	2.8	7	50

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 1 (CONTINUED)

APRIL 1990

STATION	PERIOD	RAINFALL (mm)				TEMPERATURE (°C)																BRIGHT SUNSHINE		WIND		P.E. (PENMAN) (mm)		
		AMOUNT	% OF AVERAGE	RAIN DAYS	WET DAYS	AIR								GROUND				SOIL (10cm)				TOTAL NO. OF HOURS	% 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							
Dundrum (Knockavilla) Co. Tipperary	1-10	14.2	-	4	2	11.1	1.1	6.1	-	-4.2	4	5	27	-	4	-	-7.6	4	8	-	-	-	-	-	-	-	-	-
	11-20	36.7	-	10	7	10.9	2.7	6.8	-	0.1	14	0	29	-	3	-	-5.1	13	7	-	-	-	-	-	-	-	-	-
	21-END	3.0	-	2	2	15.6	4.2	9.9	-	-0.5	27	1	59	-	18	-	-4.5	27	4	-	-	-	-	-	-	-	-	-
	MONTH	53.9	-	16	11	12.5	2.7	7.6	-	-4.2	4	6	115	-	24	-	-7.6	4	19	-	-	-	-	-	-	-	-	-
Dungarvan (Carriglea) Co. Waterford	1-10	5.5	-	3	2	11.7	1.6	6.7	-	-3.1	4	3	32	-	5	-	-13.6	4	10	-	-	-	-	-	2.8	-	-	
	11-20	20.5	-	9	8	12.3	3.1	7.7	-	0.2	13	0	38	-	7	-	-9.6	14	10	-	-	-	-	-	3.5	-	-	
	21-END	2.9	-	3	1	16.2	5.1	10.6	-	0.3	27	0	65	-	21	-	-9.4	27	8	-	-	-	-	-	1.9	-	-	
	MONTH	28.9	41	15	11	13.4	3.3	8.3	-	-3.1	4	3	135	-	33	-	-13.6	4	28	-	-	-	-	-	2.8	-	-	
Mullingar Co. Westmeath	1-10	16.4	-	5	2	10.6	1.6	6.1	-	-3.1	4	3	27	-	4	-	-6.1	8	6	7.3	-	55.6	-	3.9	2	-	-	
	11-20	20.8	-	9	6	10.5	2.3	6.4	-	-0.3	18	1	26	-	2	-	-4.8	14	5	7.0	-	62.4	-	5.7	7	-	-	
	21-END	6.0	-	4	3	14.7	4.9	9.8	-	2.0	24	0	55	-	16	-	-1.6	27	2	10.9	-	51.9	-	2.6	0	-	-	
	MONTH	43.2	73	18	11	12.0	2.9	7.4	-0.3	-3.1	4	4	108	84	22	67	-6.1	8	13	8.4	-0.4	169.9	114	4.0	9	53	-	
J.F.K. Park Co. Wexford	1-10	4.7	-	2	2	10.7	2.7	6.7	-	-2.1	4	3	29	-	3	-	-6.8	4	5	-	-	N/A	-	4.7	-	-	-	
	11-20	15.5	-	7	7	11.9	3.0	7.4	-	-0.2	13	1	35	-	5	-	-4.9	13	5	-	-	N/A	-	5.8	-	-	-	
	21-END	19.2	-	3	2	14.8	6.1	10.4	-	2.6	27	0	61	-	17	-	-2.1	27	2	-	-	N/A	-	2.8	-	-	-	
	MONTH	39.4	65	12	11	12.4	3.9	8.2	-	-2.1	4	4	125	-	25	-	-6.8	4	12	-	-	N/A	-	4.5	-	N/A	-	
Clonroche Co. Wexford	1-10	6.5	-	3	3	10.4	0.8	5.6	-	-3.4	4	5	23	-	3	-	-10.1	4	7	-	-	-	-	2.3	-	-		
	11-20	13.7	-	8	5	11.4	2.7	7.1	-	-0.5	13	1	31	-	4	-	-8.1	13	6	-	-	-	-	3.1	-	-		
	21-END	8.5	-	3	2	15.1	5.3	10.2	-	0.3	27	0	59	-	17	-	-6.5	27	6	-	-	-	-	1.3	-	-		
	MONTH	28.7	42	14	10	12.3	3.0	7.6	-	-3.4	4	6	114	-	23	-	-10.1	4	19	-	-	-	-	2.3	-	-		
Johnstown Castle Co. wexford	1-10	2.6	-	4	1	10.7	3.0	6.9	-	-1.5	4	2	31	-	4	-	-3.9	6	6	-	-	51.8	-	****	-	-		
	11-20	14.6	-	8	8	11.6	3.2	7.4	-	0.6	13	0	35	-	5	-	-1.6	16	6	-	-	60.1	-	2.3	-	-		
	21-END	4.3	-	2	2	14.0	6.0	10.0	-	2.6	27	0	57	-	13	-	-2.5	27	4	-	-	60.6	-	1.3	-	-		
	MONTH	21.5	34	14	11	12.1	4.1	8.1	-	-1.5	4	2	122	-	21	-	-3.9	6	16	-	-	-	-	-	-	-		
Rosslare Co. Wexford	1-10	2.6	-	1	1	10.3	4.4	7.4	-	0.5	3	0	33	-	4	-	-1.5	9	4	9.2	-	54.6	-	6.7	5	-		
	11-20	15.3	-	8	5	11.4	4.0	7.7	-	1.5	18	0	36	-	4	-	-0.8	13	2	8.6	-	66.8	-	7.2	7	-		
	21-END	3.6	-	2	2	12.4	7.2	9.8	-	4.9	27	0	54	-	8	-	2.1	24	0	12.0	-	71.2	-	5.4	1	-		
	MONTH	21.5	40	11	8	11.4	5.2	8.3	-0.2	0.5	3	0	122	89	16	76	-1.5	9	6	10.0	-0.0	192.6	108	6.5	13	74		

NOTES ON THE TABLES IN JANUARY ISSUE

TABLE 2 GLOBAL RADIATION

STATION	PERIOD	AMOUNT MJ/m <sup>2</sup>
Malin Head Co. Donegal	1-10	130.97
	11-20	137.60
	21-end	164.13
	Month	432.70
Dublin Airport Co. Dublin	1-10	130.45
	11-20	143.29
	21-end	144.54
	Month	418.28
Cahirciveen (Valentia Obs.) Co. Kerry	1-10	119.14
	11-20	122.13
	21-end	170.90
	Month	412.22
Kilkenny Co. Kilkenny	1-10	138.97
	11-20	142.27
	21-end	148.82
	Month	430.06
Belmullet Co. Mayo	1-10	120.99
	11-20	129.99
	21-end	154.27
	Month	405.25
Clones Co. Monaghan	1-10	105.82
	11-20	123.28
	21-end	140.97
	Month	370.07
Birr Co. Offaly	1-10	125.41
	11-20	132.30
	21-end	151.87
	Month	409.58

Notes on the tables in January issue

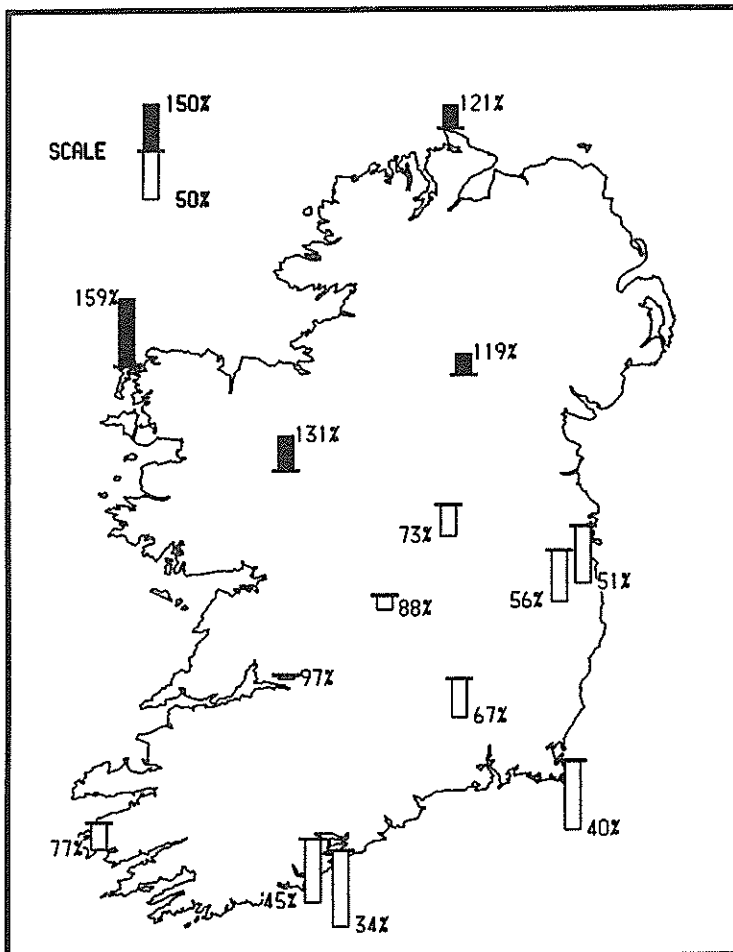
TABLE 3 POTENTIAL EVAPOTRANSPIRATION (P.E.) AND SOIL MOISTURE <sup>April</sup>

STATION	PERIOD	P.E. (mm)		SOIL MOISTURE (mm)	
		Amount	Deficit	Accumulated Deficit	Surplus
Carlow (Oak Park) Co. Carlow	1-10	14.8	11	11	0
	11-20	18.3	3	14	0
	21-end	16.7	15	29	0
	Month	49.8	-	-	-
Kinsealy Co. Dublin	1-10	6.7	7	14	0
	11-20	19.2	8	22	0
	21-end	20.9	19	41	0
	Month	46.8	-	-	-
Cahirciveen (Valentia Obs.) Co. Kerry	1-10	18.4	0	0	11
	11-20	9.2	0	0	20
	21-end	13.6	9	9	--
	Month	41.2	-	-	--
Ballinamore Co. Leitrim	1-10	15.6	0	0	7
	11-20	9.7	0	0	30
	21-end	23.2	15	15	0
	Month	48.5	-	-	--
Glenamoy Co. Mayo	1-10	21.2	0	0	13
	11-20	1.3	0	0	58
	21-end	12.5	9	9	0
	Month	35.0	-	-	--
Johnstown Castle Co. Wexford	③-10	1.5 ?	0	0	0
	11-20	14.6	1	1	0
	21-end	12.7	8	9	0
	Month	-----	-	-	--

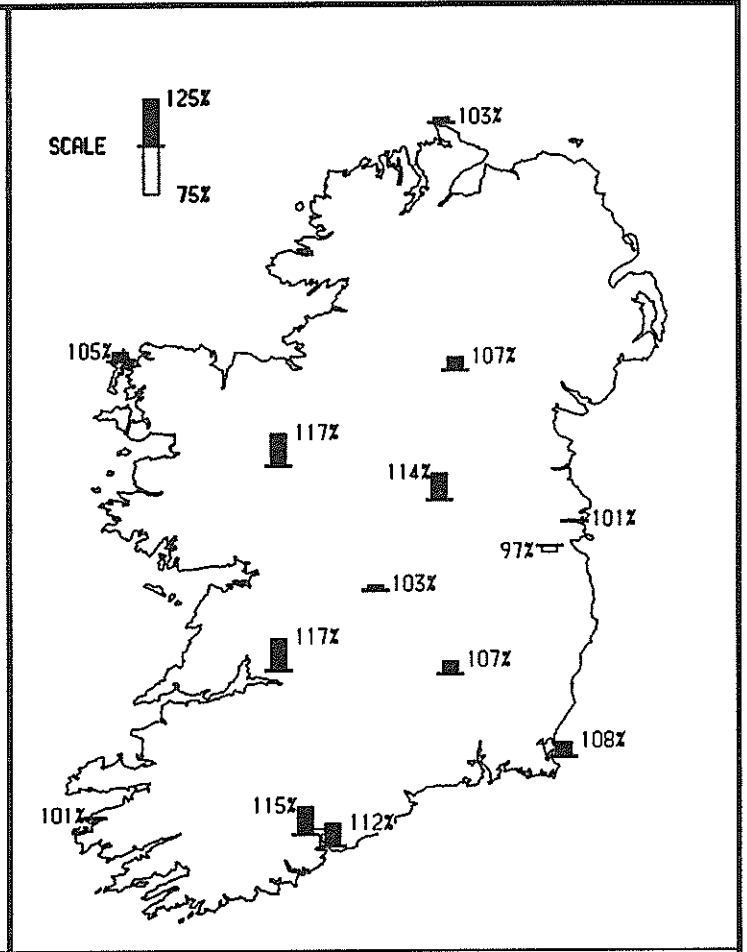
- 7 -

TABLE 4 SOIL CLIMATE (MULLINGAR)

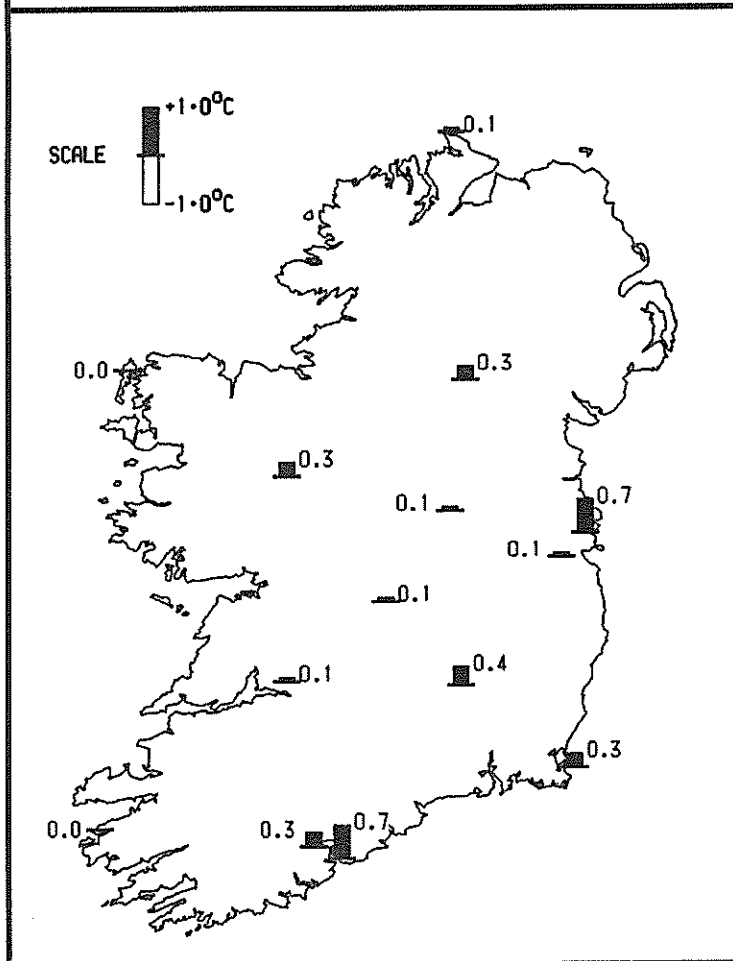
BARE SOIL TYPE	PERIOD	MEAN TEMPERATURE (°C at 100mm)			TEMPERATURE GRADIENT (to 200mm)	SOIL WATER POTENTIAL (hPa) (at depths)	
		Max.	Daily	Min.		75mm	200mm
		Peat	1-10	8.8	7.3	5.6	0.9
	11-20	8.8	7.4	5.6	0.6	91.4	104.5
	21-end	11.8	10.5	8.0	-0.5	112.0	115.7
Mineral	1-10	11.0	7.1	4.4	0.3	79.8	76.9
	11-20	10.0	6.9	4.5	0.2	86.5	85.9
	21-end	13.7	10.6	7.3	-0.7	112.1	105.2



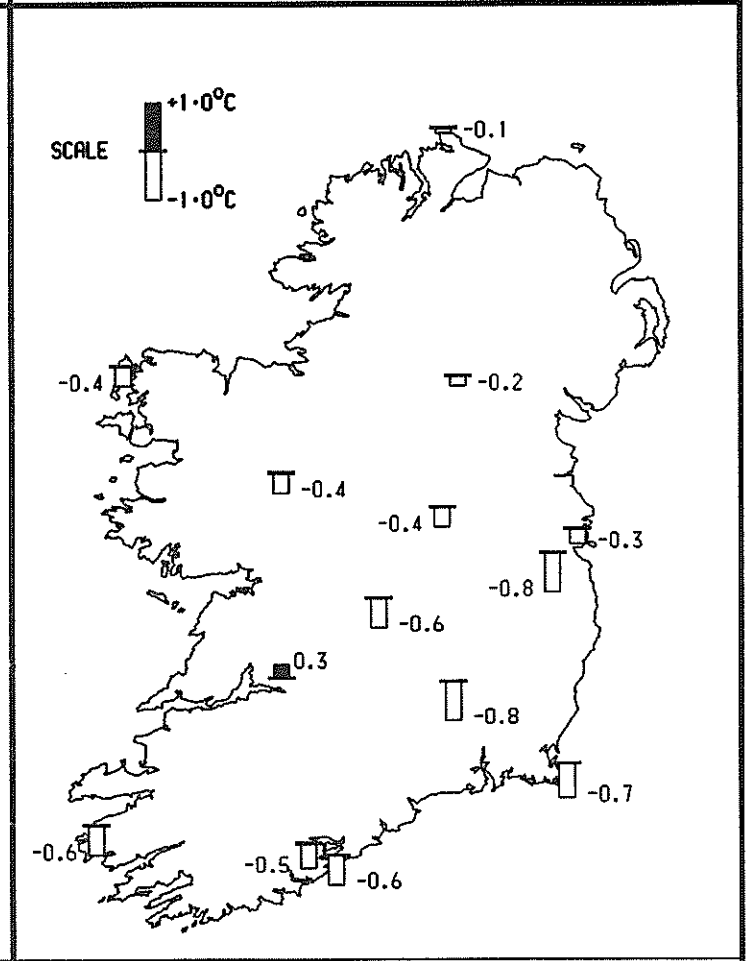
RAINFALL (Percentage of 1951-1980 normals)



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

T Keane, Meteorological Service

There is much evidence to suggest that climate change will have important effects on agriculture, yet there is no certainty as to what these effects will be. Increases in production and the possible introduction of new crops may follow warming at mid to high latitudes of the world but decreased production is likely in the warmer core production regions of the US and southern Europe. Problems for agriculture in Ireland due to the onset of climate change may concern the growing season, land trafficability, poaching, pollution, erosion. Other impacts relate to crop yield and yield quality. Changes in farm management may also have to be met due to small but important changes in timing of farm operations. Table 1 shows some climate changes that may affect Ireland over the next 60 years based on data for temperate latitudes of western Europe.

## Changes in CO<sub>2</sub> and Temperature

A doubling of CO<sub>2</sub> in the atmosphere can potentially increase growth of cereals by 35 per cent, maize by 16 per cent, tomato by 13 per cent and clover by 4 per cent. The next possibility is for an annual increase in temperature of over 2°C in the latitudes 30°N to 60°N, highest in winter, least in summer. There should be a lengthening of the growing and frost-free seasons and a reduction in cold temperature spells for winter chilling. Higher temperature also accelerates development and shortens the required growing period of the plants. There will be an effective shift of the growing season northwards by 150 to 200 km per 1°C of warming and a shift to arable agriculture of about 150 to 200 m in altitude. In the maritime areas of northwest Europe, yields of grass and potatoes could increase (+10% and +50% resp.) under higher growing season temperature assuming sufficient increases in

precipitation to counter higher rates of evaporation.

Table 1 Possible Climate Changes in Ireland by 2050 deduced from Changes Postulated for Western Europe

Parameter	Winter	Summer	Confidence ranking	Comments
CO <sub>2</sub>	—	—	1	Pre-industrial doubling
Temperature	+(2.0-3.0)°C	+(1.0-2.0)°C	2	Highest increase in winter
Evapo(transpir)ation	+(10-15)%	+(5-10)%	3	Increase of 5% per 1°C
Precipitation	+15%	+5%	4	Less certain; intense rainstorms esp. in summer
Soil Moisture	Longer duration of field capacity	Increase in drought spells	5	Depends on rain /Evap. balance
Wind	Reduction of westerlies		6	Fairly likely
Radiation	No change or less	+0% West +5% East	7	Uncertain
Humidity	High	More humid spells	8	Uncertain

## Maize and Outdoor Tomatoes

Maize is a crop of particular concern in the event of climate warming. In the context of the present climate maize may only be grown successfully to a stage suitable for silage in the southern half of the country 9 years out of 10 — it does not compete with grass. Grain maize may be grown successfully in a better than average year in the southeast only. But in a warmer climate the crop could be capable of competing with both.

Another crop near the limits of outdoor production in this country is the tomato, requiring an annual heat energy input comparable to that of maize—it too should benefit from climate warming.

(to be continued next month)