

LONDON WEATHER CENTRE MEMORANDUM No.2

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1. Complaint

On 29th June, 1962 a letter was received at the London Weather Centre from the Kent Branch of the National Farmer's Union regarding inaccurately forecast night minimum temperatures for mid-Kent. Some time during the period 31st May to 4th June, 1962 two fruit farmers near Marden (a village south of Maidstone) had been assured by the L.W.C. that the temperatures would not fall below 39 - 41 degrees F. (4-5 degrees C.); yet in fact the fall was to 28 degrees F. (minus 2 degrees C), and as a result there was frost damage over a wide area. On receipt of the complaint the S.Met.O. 'phoned the County Secretary of the N.F.U. to express his concern and in a written interim reply promised to investigate the matter fully. This was done and a full report was sent on 10th July, 1962. In this report the S.Met.O suggested that a talk by a forecaster be given at a N.F.U. Branch Meeting.

2. Investigation.

Table I shows the night minimum temperatures forecast by the L.W.C. compared with the actual minimum temperatures recorded at West Malling (only 7 miles to the northwest of Marden).

TABLE I. (deg.s.C.)

NIGHT	F/C Minimum Temperature.	Actual Minimum temperature at West Malling.
31.5-1.6	4.4	1.7
1.6- 2.6	3.3 amended to 2.2 at 8 p.m.	3.3
2.6- 3.6	4.4	3.3
3.6- 4.6	2.2 - 2.8	3.3

It is seen that apart from the first night, when the expected wind speed was over-estimated, the forecasts were reasonably accurate. However, at no time during this period did the temperature at West Malling fall as low as minus 2°C., which was reported from Marden. But West Malling is 304 ft. above M.S.L. and Marden only 50 - 100 ft. and inspection of a 1 inch Ordnance Survey Map shows the area to be in a hollow with scarp (steep) slopes to the North and South. A casual drive through the district left one in no doubt that it was a frost hollow of no mean proportions. Topography clearly had a marked influence on its climate. It should be mentioned here that the persons who made the enquiry were partly at fault.

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The residents in the Marden area, (for an unknown reason), refer to it as the Weald; yet it is really in the Vale of Kent. The enquirers when asked, said they were in the Weald thus it was inferred that they were not in a low-lying area.

### 3. Action

The N.F.U. asked for a talk to be given by a forecaster at their Branch Meeting on the 8th April, 1963 (an earlier date was not convenient to them). The farmers present at the meeting were very angry: perhaps with reason since, where apple growing is concerned more than 6 degrees(F) of frost can result in a total loss of £500 per acre and 4 degs.(F) of frost a 25% loss of £125 per acre. Some of those present had lost about £1000. This was no occasion for a chat on the work of the Meteorological Office; their only concern was frost. The farmers were familiar with the term "frost-hollow" but were obviously unaware of the extent to which topography can modify the known climate of an area. The result of Hawkes investigation into the famous frost - hollow at Rickmansworth was mentioned(Q.J.,R.M.S., Vol.70, 1944). It was pointed out with emphasis that single values of night minimum temperatures contained in blanket forecasts broadcast on the radio etc. were useless for their purposes. The meeting accepted this but looked to the Meteorological Office to suggest a solution. Thus representatives of the Kent Branch of the N.F.U. were invited to the L.W.C. to discuss the matter with the S.Met.O. and some of his forecasters.

The visit to the L.W.C. took place on 22nd April, 1963, when it was arranged for the minimum and maximum temperatures to be read daily by one of the farmers at the lowest point of the valley and passed to the L.W.C. at 1700 hours; these temperatures to be used when forecasting the night's minimum. Instruments were provided by the Meteorological Office and their exposure inspected by a forecaster. The forecast was to be 'phoned to the Branch Secretary of the N.F.U. at 1730 hours and he was to be responsible for notifying the individual farmers. Amendments could be passed at 2100 hours and as late as midnight. The scheme was in operation between 23rd April and 8th June, 1963. The N.F.U. played their part well.

### 4. Conclusion.

The farmers were very satisfied and their letter of appreciation was in marked contrast to the complaint received the previous year. From the meteorological point of view there is nothing new in the above. It is offered as an example of the value of close co-operation between Weather Centres and their customers. By getting to know one another's problems we were able to arrange a mutually advantageous service.

It is hoped to survey this area by car taking temperatures continuously. If this were done during the dawn period, perhaps a pattern of surface isotherms could be established (for radiation nights) from which night minimum temperatures up the sides of the valley could be assessed, enabling those farmers not on the valley floor to be given a correction which they could apply to the forecast valley floor temperature.