

## by Charlie Morgan

Last spring, I worked on a BRP project using soil temperature probes. From early January to mid-February, eight beef/sheep farms were visited across England, where three temperature data loggers had been planted at a depth of 10cm.

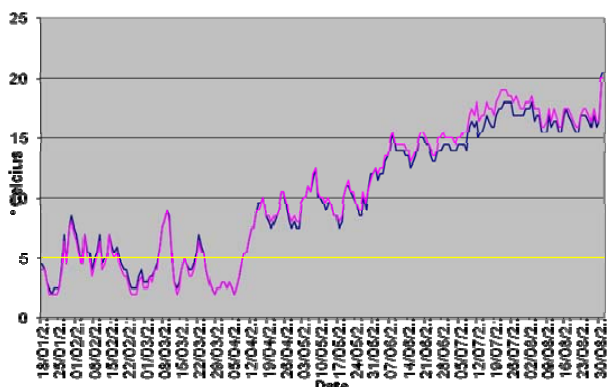
The idea was to gather accurate data to see if this could help farmers make better decisions about fertiliser applications in the spring.

Records taken over a 25-year period at Bronydd Mawr in Mid Wales for the Met Office, showed that if 5°C was recorded for five consecutive days, it was a good indicator that temperatures would continue to rise. So applying fertiliser at that stage would optimise nitrogen efficiency.

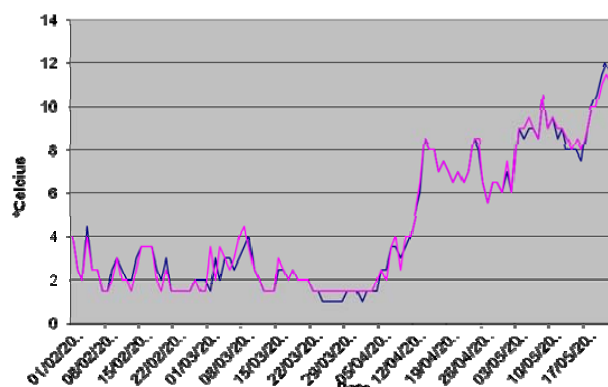


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### The results



Soil temperature data - Cornwall, 2013



Soil temperature data - Cumbria, 2013

The pink line is from the temperature probe buried in compacted soils. The blue line is from the probe buried in uncompacted soils. The key findings were:

- Spring of 2013 was not an average spring and the data collected certainly demonstrated this
- Despite being cold, the southern part of England did record some days above 5°C during February and March. However, there were not five days in succession, which is when grass really starts to grow
- Further north, temperatures flat-lined between a 2 and 3°C average
- When the temperature did start to rise, it worked its way across the country. As expected, Cornwall hit the target on April 15, followed by West Sussex on April 16. Northumberland was last to achieve target on April 19
- All farms hit the target within the same week. The south of England probably suffered more than the north, as the prolonged cold spell was so untypical
- Temperatures continued to rise steadily and 8°C was reached in all areas by the first week in May
- Clover grows at 8°C. When temperatures rise quickly and competition from the grass is weak due to hard grazing, clover will do well. This proved the case last year, with exceptional clover contents seen in some swards. This was accurately predicted in May.

### Is compaction a factor?

Interestingly the temperature in the compacted wet soils did not fluctuate as much as those in the uncompacted soil. There was a slight lag in temperature rise, which lessened as the recording continued. However, this is believed to be due to disturbing the soil when the loggers were dug up each time to collect the readings.

The wet compacted soils did not get as cold as the looser soils, as it appears that water has an insulating effect. When the compacted soils did reach temperatures where grass would start growing, they were still too wet to take machinery on or even cattle in many cases.

The North Wyke Research Platform, near Okehampton, now has live data, including soil temperatures, on their [website](#).

A library of technical information for beef and sheep producers can be found at [www.eblex.org.uk/returns](http://www.eblex.org.uk/returns)