Making assurance recording easier using LoRaWAN Sensors

Farm assurance schemes provide trade buyers and consumers with the certainty their food is being produced to high standards. Read how LoRaWAN sensors can automate some of the manual recording required through various assurance schemes saving time and enhancing accuracy.

A number of voluntary assurance schemes exist within the UK farming and food industries, the aim of which is to establish production standards covering food safety, animal welfare, traceability, and environmental protection. The aim of these schemes is to add value to the sector by providing trade buyers and consumers with the confidence that our food is grown, stored, processed, and transported to the highest standards. Some schemes operate within small niches whilst others cover several sectors and activities.

Common across almost all schemes is the requirement for data to be captured, recorded, and submitted as evidence that a farm or business is complying with the standards set out by that scheme. Often, the recording of data for assurance schemes can be time consuming, relying upon manual checks and paper-based recording.

Cost effective Internet of Things (IoT) sensors offer an opportunity for the recording of data for assurance schemes to be automated – providing benefits for the farmer or producer who can reduce or eliminate manual checks, and for the assurance scheme operator who can access a digital record of measurements that are timely, accurate and verifiable.

One such opportunity for automated recording lies in stored grain temperature monitoring for farm assurance schemes such as that for Scottish Quality Crops (SQC). SQC standards set out that the temperature of stored grain must be regularly monitored and that a level of 12°c must be achieved by the end of December. Each store of bulk grain must be checked weekly until 12°c is achieved and at a regular interval thereafter. Additionally, any rise of more than one degree between inspections must be investigated and detailed records must be kept.

These manual checks are time consuming and can be prone to error yet using battery powered LoRaWAN sensors inserted into the grain pile this process can be completely automated with the results being displayed on a web-based dashboard.

Furthermore, any identified temperature anomaly can be sent as an alert to a farmer's mobile phone, allowing remedial action to be undertaken.

Another example comes from the QMS Pigs Assurance Scheme, where the Standards (Standard 6.4) set out minimum water flow rates for various weight classes of pig to maintain welfare. Assuring a particular flow rate is maintained can be challenging, but the use of a simple LoRaWAN water flow sensor can record that data and present it via a simple dashboard interface to the farmer. This allows the farmer to have an accurate record of water flows and additionally provide an alert should the flow rates drop below the prescribed levels.

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