

Title Commercial development of STORECHECK, fully integrated PC-based aeration monitor, controller and decision support for UK grain stores.

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Abstract

Laboratory and field experiments demonstrated the feasibility of accurately controlling low-volume aeration and monitoring physical conditions, integrated with decision support. The system under development comprises sensors networked to PC software that can be operated remotely, with feedback for fan relays. Logged temperatures in CSV format allowed detailed record keeping and analysis using Microsoft Excel software. Automatic fan control based on grain/ambient differentials achieved the fastest cooling profile, falling well within the cooling rate recommended for UK grain stores. Alternative methods for avoidance of condensation were evaluated. Accurate online moisture content measurement was achieved by psychrometry. Sample decision-support modules to provide an encyclopaedia and risk assessment were constructed and evaluated. The developing system is commercially available from Robydome Electronics Ltd., UK under the brand name of STORECHECK.