

Storage case study: small improvements render big energy savings



Figure 1. Store with newly installed air dividers (A) and newly applied spray foam insulation (B)

This case study summarises the benefits of using StoreCheck, an audit service provided by the AHDB and designed to help understand the true cost of running a store.

Knowing where to start

Evidence from levy-funded research shows that running costs of some stores can be three times higher when compared with best performing stores in the country. Knowing how much energy and money you are spending in storage is, therefore, crucial to identify what kind of changes are needed to improve your store. Audit services such as AHDB's StoreCheck, are a good starting point for this.

Greenvale AP, a leading potato supplier with significant potato storage and packing capabilities in the Scottish Borders, recently used StoreCheck to find out how one of its stores was performing. AP50 leakage measurements highlighted an air leakage rate of 34% an hour, meaning that a third of the air in the store was leaking out of the building every hour.

Table 1. Overview of costings for storage upgrades on a 1,600 tonne store (approx. 25 m x 30 m).

Store upgrades	Cost	Days' work
Spray foam insulation	£15,300	3
Air divider curtain	£3,500 (+ £1,500 installation)	1.5
	£20,300 (total)	

With the results from the leakage test, a plan was put together in collaboration with JD Cooling and Websters Insulation Ltd. to go for a 30 mm overspray. That alone had the effect of reducing the air leakage to <5%. The air divider (Figure 1A) was installed before the spray foam (Figure 1B) was applied, to reduce leakage around its perimeter and to make the store CIPC compliant.

The data arising from the StoreCheck test was robust evidence of poor store performance and enabled Greenvale to secure £12.5K of capital investment from the company's board of directors. The total cost of store improvement was £20,300, translating to £12 per tonne.



After improvements

The £20,300 investment significantly improved energy costs and plant running times (Figure 2). Fan and compressor run times decreased, directly resulting in 42% electricity savings over a 72-day period, including pull-down, from 38,115 kWh to 15,976 kWh.

The store improvements represent potential energy savings of £3,600/year (£15/day), on an eight month storage season. Greenvale was able to make a return on investment within the five-year margin.



Figure 2. Monitoring of plant running times and energy costs following improvements. A. Fan run times, B. Compressor run times, C. Energy (kWh) savings over time

“ This store is now ready to deliver cost-effective potato storage to 2020 and beyond. Is yours? ”

About Greenvale

Greenvale AP is a leading supplier of fresh potatoes in the UK, with a storage capacity of 28,000 tonnes in the Scottish Borders, with stores of 400 to 4,000 tonnes, spread across eight sites.

“The Store Check service provided by AHDB was a valuable tool that was used to great effect, to justify a capital spend on our existing storage systems. The one surprise that came out of the Store Check Survey was that new composite panel stores are not as airtight as you would imagine. Have a look at your storage systems, think about StoreCheck and talk with the team. You then will have definitive proof of how well your store is performing. When you have all the information at hand, you can then make decisions that best suit your needs going forward.”

About StoreCheck

StoreCheck is part of AHDB’s Storage 2020 Initiative and is being offered by Sutton Bridge Crop Storage Research to assess potato storage performance. A StoreCheck visit by one of our specialists will give a comprehensive analysis and report on your store’s performance and will provide recommendations for improvements. To find out more and book a visit, please call 01406 359414 or email us at sbcsr@ahdb.org.uk.



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