

Cutting losses due to cracking and breaking

Cracks introduced during egg handling cause significant losses in profit. A device that can locate and measure points of impact, travelling alongside real eggs as they move from the barn through to packaging, would be very helpful.

By Treena Hein

One such device, called the CracklessEgg, is made by Masitek Instruments of Moncton, New Brunswick, Canada. It mimics a real egg in size, shape and weight, with wireless sensors providing real-time feedback on impact, temperature, pressure, velocity, location and more, so that equipment problems can be eliminated on the spot. The idea was first conceived by a young Canadian potato farmer who wanted a way to minimising bruising of his family's potatoes as they travelled through the harvester. The company he formed was purchased by Masitek in 2010.

Since then, Masitek has sold the CracklessEgg (egg shape), SmartSpud (potato shape) and ProduceQC (various fruit and vegetable shapes) systems around the world through its ag division, 'aaggrii'. Masitek also offers various beverage and other packaging applications through its industrial division 'MMAAZZ'. CracklessEgg customers include Vencomatic of the Netherlands, Oakland Farms in the UK, and many others.

Benefits

The cost savings of using the device differ for each operation, but Alwyn Havard of Havard & Associates (the UK-based European CrackLessEgg distributor) explains that savings are much greater for fully-integrated egg producers. He says that apart from preventing straightforward profit loss during table egg handling, the CracklessEgg also contributes to the embryo health in hatcheries, especially as hens become older and produce eggs with thinner shells.

"The Crackless Egg is able to monitor lower impacts and if it is recording multiple low level readings, micro-cracks can occur," Mr Havard notes. "Existing candling machines cannot identify



PHOTO: TREENA HEIN

the micro-cracks, but the recorded multiple low level impacts highlight this probability, and this is confirmed when hatching eggs show 'mid and late deads' during the incubation process. The micro-cracks allow bacteria to enter and attack the chick embryo. By using the CracklessEgg and reducing egg contamination, the need for antibiotics can be eliminated." Harvard calls the entire system "an essential tool for maintaining quality, hygiene, traceability, guaranteeing consumer satisfaction and monitoring alternative animal welfare systems."

Customer feedback

To see if the CracklessEgg is all its cracked up to be, *Poultry World* contacted two customers. Global poultry and swine feed producer De Heus Animal Nutrition first purchased two CracklessEggs about five years ago for its operations in Russia and the Netherlands. The company bought replacements two years ago, and De Heus Laying Hens Specialist Dennis Tros says these are much more user-friendly than the first ones. "It's very easy to set up," he says. "You press the power button on the device and then open the programme on your tablet, and give them a moment to starting 'talking' to each other using wifi. Later, you can upload the data and view it on the internet anytime."

De Heus uses the CracklessEgg whenever a customer reports a cracking problem. "There is a lot of competition among feed companies, and providing a high level of customer service is important," Mr Tros explains. "We go out and do an



The measuring device with wireless sensors providing real-time feedback on impact, temperature, pressure, velocity, location and more, can eliminate problems on the spot.

Another customer's story

The Eifrisch Vermarktung Company in Lohne, Germany started using the CracklessEgg in 2012. Eifrisch is an integrated table egg producer with retail, packing stations and farms (1.5 million layers). Eifrisch Production Manager Ingo Harsman says they were interested in using the CracklessEgg when they began transitioning all production from cages to barn and free-range production.

"We had all new equipment and egg collection and we wanted to check for weaknesses," he explains. "It was a very quick cost return. We have very large farms with 100,000 to 200,000 birds each, and if you can reduce cracks by 1%, you will have large savings immediately." Harsman says use of the CracklessEgg is not complicated and that Masitek sent a technician for installation support. Eifrisch uses it these days for calibrating egg collection equipment at new farms or to solve any cracking problems that show up.

Eifrisch also uses the CracklessEgg for its coloured egg products, hard-boiled eggs dyed with food-safe dye in festive marbled or flat colours. They are sold in stores in see-through boxes of six eggs with a salt sachet included. It is a very popular ready-to-eat item with children, university students and blue-collar workers, with production of coloured eggs currently at 60 million a year, double what it was two years ago. Mr Harsman says the use of the CracklessEgg is very important in coloured egg processing, as both the steam cooking and the shell colouring process require that there be no micro-cracks in the eggs.

New upgrades

In late 2016, Masitek completed a total overhaul of the technology, using two years of feedback from customers. Marketing Director Teri Maltais says that overall, the system is now significantly more software-centric. It has Bluetooth tracking, a sampling rate speed twice what it was before, double the battery life, better velocity measurement, and an improved interface with new reporting capabilities.

Tros observes that most cracking happens at the end of egg handling systems where the eggs fall into trays. "These depositing machines have to be calibrated regularly, and all eggs are not equal," he notes.

assessment to see exactly where the problem is originating from. We provide a range of analysis services besides cracking, such as air quality (ammonia and CO₂) and light in the barn." Basically, Mr Tros says De Heus uses the CracklessEgg to prove to customers that their cracking problems are not down to the feed. "Before we had this tool, it was always a discussion whether feed was to blame or maybe a hen health issue," Mr Tros notes. "With the Crackless Egg, we don't have these discussions anymore. We can prove immediately it's not feed, and the customer then has the opportunity to adjust equipment right there or reduce the speed of handling."

Mr Tros notes that within the handling setup of some customers, eggs can travel quite a distance. "You would not believe sometimes how many impacts they are subjected to – 15 is not unusual – and some of them are quite small," he explains. "However, prevention of hairline cracks is very important in some operations and countries. In the Netherlands for example, we have a lot of parentstock operations that provide eggs to hatcheries, and these eggs are very expensive so it's extremely important to reduce cracking." At first, De Heus used the CracklessEgg system about 15 times a year, and now it's about six times.

Mr Tros observes that most cracking happens at the end of egg handling systems where the eggs fall into trays. "These depositing machines have to be calibrated regularly, and all eggs are not equal," he notes. "We use a breaking strength machine regularly to test batches of eggs, and that's important for CracklessEgg comparisons."



PHOTO: TREENA HEIN