

Successful introduction of improved day-old chick transport in Asia

Midland Breeders Ltd in Sri Lanka is one of the hatcheries in Asia who recognises transport as one of the weakest links in the production chain for broiler meat. Quality driven Midland Breeders have now successfully introduced Heering day-old chick trucks, and improved their farm results significantly.

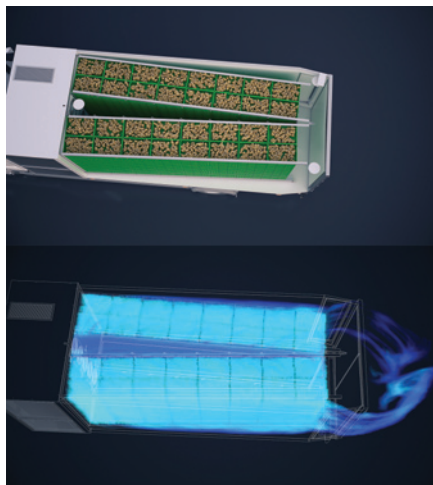
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Only vital day-old chicks can deliver good results on farm and although hatcheries put a lot of effort into improving their performance, by improving hatching egg quality, optimising storage time and incubation performance, they do not always focus on their transport.

Nevertheless, transport is also a critical factor and when it is underestimated it results in losses in chick quality.

The tropical Asian climate is one of the biggest challenges during transportation of poultry in that region. Many hatcheries in Asia use trucks with natural ventilation and therefore limited cooling capacity during evening hours. The extreme mid-day temperatures are avoided, but there is still no control of temperature and ventilation in

Heering V-shape airflow.



External chick delivery with the Heering V-shape truck. The white curtain in the V-shape supports the airflow in the partial load.

these trucks. When truck drivers are forced to stop or reduce speed in traffic, the reduced ventilation causes increased heat stress and high humidity, which results in losses in chick quality. This affects farm performance and also, therefore, the result of the total production chain. Hatcheries pay the price in first week mortality, but this can be avoided by better transport, as Midland Breeders has experienced.

“We have introduced various new technologies in Sri Lanka, like incubators and processing equipment, and many other producers have followed us,” says the founder of Midland Breeders, Mohammed Imtiaz. “We raise day-old chicks on our own farms and supply to other customers as well (about 40% of our hatchery capacity). With our former trucks we realised 0.8% mortality at week one, but always looked for further improvement since our quality standard is high.”

Protecting performance potential

It was not an easy decision for Midland Breeders to invest in a Heering chick truck. The investment was higher than the previous truck, the technology was more advanced, and since they were the first user in Sri Lanka, there were no references. But after

good consultation they were convinced that the Heering V-shape truck was the solution to decrease the mortality rate and protect the performance potential of the chicks during transport.

The former truck contained two rows of chick boxes, along the sides of the truck consisting of half open grill panels. No heating or cooling was installed and ventilation was mainly arranged by natural airflow during driving.

Heering have also observed very similar situations in Asia. There are trucks equipped with small ventilators, while other trucks just have an open loading space, or even trucks with a wire mesh construction to keep the boxes in place and allow maximal air flow. These have either a fixed roof or a tarpaulin on the roof to protect the chicks from rain.

In colder regions the side walls are closed with side doors to open if more ventilation is needed, and ventilators mounted in the roof to extract air.

Even if transport cooling systems are provided, the limited capacity and poor air distribution gives temperature variations in the range of 10-15°C.

Since day old chicks can only keep their optimal body temperature of 39.5°C within a small temperature range (30-33°C), this

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variation will cause cold stress to the birds close to the sides of the truck where ventilation is strong. Even worse, it will cause heat stress to the birds in the parts where ventilation is lacking.

Transport is often organised by the hatchery, or a separate transport department within larger companies. In other cases, it is done by a third party contractor, either contracted by the hatchery or the individual customer.

They are paid per delivered chicken, per travelled distance or per delivery. They are interested in a high capacity at low cost and do not feel the effect of quality losses.

Unless forced by the hatchery or the customer, they will opt for cheap and simple trucks.

The broiler farmers who are affected by the results often have no choice and no power to change the situation. Hatcheries decide on transport of chicks.

Twofold challenge

The challenge for Heering to develop a suitable day-old chick truck for tropical conditions was twofold.

First, install sufficient cooling capacity to compensate for the heat production of day-old chicks in transit and add cooling for hot incoming air and the condensation of water in the cooling system. Secondly, distribute this climatized air equally and in high volume over the chick boxes.

Heering's patented and award winning V-series (VIV Asia innovation award 2017) realises an optimal climate with a specially designed airflow system which distributes air evenly over the rows of chick boxes.

Heat, water vapour, and CO₂ are removed through air outlets. This design also provides improved energy efficiency and reduces weight. Due to higher ventilation and cooling capacity, this V-shape is the preferred choice for hot and humid climates.

The team of Midland Breeders successfully trained by Gerrit van der Linde, Senior Poultry Specialist at Heering.

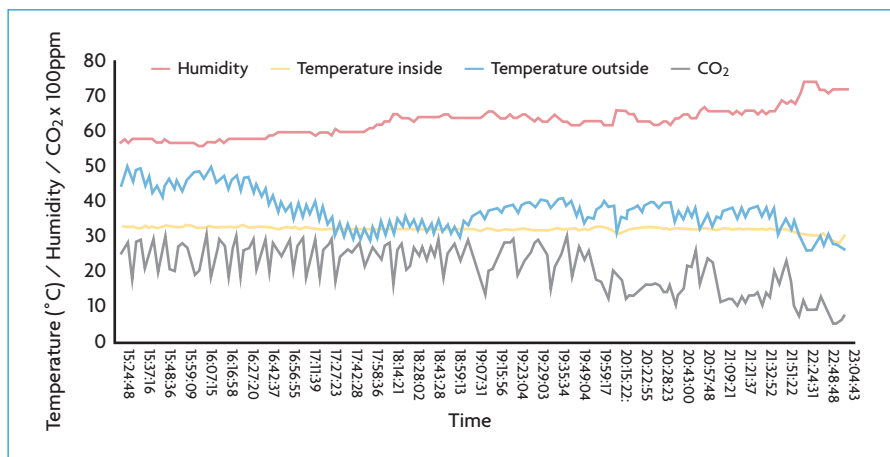


Fig. 1. Transportation results from 8th January 2019.

Since reliability is very important, the power for the 24 volt ventilation system is secured in three ways: by the truck's alternator, by a battery pack and by the diesel generator. The fully automatic climate control ensures worry-free chick transport.

Midland Breeders also decided to equip the truck body with Heering Link, which is a telematics system that enables real-time climate monitoring. In addition to observing temperature, relative humidity, and CO₂, Heering Link provides insights into geographical and technical parameters.

Customers can use the obtained data to optimise their day-old chick transportation, and further improve their supply chain. Furthermore, it is also possible to produce a real-time technical diagnosis of the installation. It gives the customer peace of mind when real-time support is available.

To maximise the capacity, Midland Breeders decided to purchase trolleys and chick boxes from Heering, as well as the truck body. Although the Heering truck body is adapted to fit all kinds of chick boxes, using Heering supplies resulted in a higher capacity of 50,000 day old chicks.

The V-shape truck body was delivered by

ship to Sri Lanka in 2016 and mounted on a local truck. This was carried out jointly by Heering and local personnel. The first chick delivery was accompanied by a Heering instructor.

Professional training

To ensure a committed transport staff Mr Imtiaz asked Heering to provide professional training. The training and chick deliveries were provided by Gerrit van der Linde, who has a wealth of experience.

He trained the staff not only on the new technology but also on the needs and behaviour of day-old chicks. The hygienic aspects of transport, including cleaning and disinfection of the truck, were also an important part of the training.

To make sure that trained drivers were fully confident with the truck, different deliveries to their own farms as well as external farms were accompanied, to optimise settings and the use of the new truck.

With on-site training and support from Heering, Midland Breeders' drivers and staff now fully understand how to operate and maintain the vehicle, and the old, open truck is no longer used.

Mr Imtiaz looks back at his decision in a very positive way. On their own farms, where exact production records are kept, the body weight has improved by an average of 11% and the first week mortality has shown more than a 50% reduction (Table 1).

The Heering truck has significantly contributed to these positive results and therefore proves that the investment has a short pay-back time. ■

Table 1. Improvement in mortality and bodyweight at Midland Breeders.

Truck	Mortality week 1 (%)	Body weight week 1 (g)
Open	0.8	180
Heering	0.35	200