

Transporting day old chicks beyond the Arctic Circle

It is a well known fact that transportation of day-old chicks has always been safer in winter than during hot summer months. If the vehicle breaks in summer, drivers must react quickly to prevent high mortality. If the vehicle breaks and there is cold outside, high numbers of chicks usually create enough heat to survive during transportation.

But what if there is -40°C outside? The winter of 2009-2010 was very cold in many countries all over the world. In Norway, one could see temperatures around -30°C on a daily basis with minimum temperatures below -40°C. Can you imagine transporting your chicks in such extreme conditions?

We visited the Nortura Samvirkekylling hatchery in Norway to find out how day-old chicks are transported there and how vehicles from Veit Electronics compete against such extreme temperatures.

Nortura Samvirkekylling

Nortura Samvirkekylling is part of the Nortura SA group, a cooperative owned by approximately 25,000 Norwegian farmers who produce meat and eggs.

Nortura is based on Norwegian traditions, Norwegian culinary culture and Norwegian ownership. The company has an annual turnover of approximately €2.1 billion and has industrial operations in 37 municipalities in 15 counties with approximately 6,100 employees. Nortura SA supplies some of the country's foremost brands – Gilde and Prior – in the meat and egg sectors.

Nortura Samvirkekylling is the biggest broiler hatchery in Norway, located 150km north east of Oslo.

It operates two hatcheries and produces both parents and broilers of Ross 308. The hatchery supplies the whole Norwegian market with parents, which are produced on hatching eggs imported from Lantmännen SweChick in Sweden.

The broiler hatchery will produce approximately 28 million day-old chicks in 2010. The customers are broiler farmers in the eastern and middle part of Norway. Norwegian

broiler farms are small because of legislation; the average farm produces approximately 120,000 broilers per year.

Transport of day old chicks

Nortura Samvirkekylling has sourced out transport of day-old chicks to two different companies. One is Kjernlie AS, which has four trucks specially designed for transport of day-old chicks in Norway.

"It is the long distances and severe climate at winter time, which are the biggest demands for good equipment," Mr Kjernlie from Kjernlie AS told International Hatchery Practice.

"During one transport the weather conditions can change very much since many of the transports go to the mid region of Norway, Trøndelag. Here the temperatures during winter are one of the lowest in Norway. This year it has been extremely cold with lowest temperatures of -42°C."

Chicks are hatched four days a week and their destination is planned many weeks before they hatch. This means that the transport has to be done in all kinds of weather.

The main thing for the driver is to prepare the truck and himself for the trip and be prepared if something unusual should occur.

Loading at the hatchery.



A Veit truck at the Nortura Samvirkekylling hatchery in Norway.

"We kept all this in mind while looking for a new transporting vehicle," Mr Helgesen from Nortura Samvirkekylling hatchery told us.

"Due to extreme conditions, we wanted a powerful and reliable vehicle with simple maintenance and repairs. We also wanted a professional company with good customer support in case of trouble. After closer investigation of all major producers in Europe, our favourite was a solution from Veit Electronics in the Czech Republic.

"We knew that Veit vehicles are widely used in Russian Siberia, which is in many aspects similar to the northern part of Norway. Their vehicles have been on the market

for more than 20 years, so we could rely on perfect quality and good customer support. We knew one truck was delivered to Sweden, not too far from us, and decided to go and take a closer look at it. It looked very satisfactory and the experiences were quite good."

So, back in 2008 they made a trip to the Czech Republic and met Milan Veit, director of Veit Electronics, and his son Petr.

"What we especially liked was that their vehicles are ingenious in every detail and have many advantages over other producers. For instance, common vehicles for day-old chick transport need an additional diesel generator running in order to operate. Veit vehicles use electricity from the truck's main engine, so the additional generator is not needed at all in winter.

"Since we have cold weather most of the year in Norway, we also liked how the heating system is connected to the truck's engine. In other vehicles, the heat from the engine is dissipated into ambient air and wasted. Veit vehicles use the heat from the engine to heat up the body with chicks."

All these features save fuel and wear significantly. Since both Milan Veit and Petr Veit are electrical engineers, it is no surprise that the electronics and software used in their vehicles is at a very high level.

A user friendly control unit, GSM communication and sophisticated

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PC software for transport monitoring are just a few of the features.

In the field

"Once the truck was delivered to our hatchery, it was very nice to work with," Mr Kjernlie told us.

"All units in the vehicle are controlled automatically via a control unit located in the cabin, so it is easily accessible.

"First we were a bit worried about how the truck would perform in cold weather. This year's winter gave us a straight answer, because the truck performed well even at temperatures of nearly -40°C" (see Fig. 1).

"After two years experience, we are very satisfied we chose the truck from Veit Electronics," Mr Kjernlie added.

Veit's vehicles are designed to work in extreme temperatures both under winter and summer conditions. Their unique transport monitoring system provides a printed temperature protocol so you can see what conditions the chicks have been transported under. It is also very easy for the driver to check the conditions of the chicks during transport – and easy to adjust if necessary.

Tips and tricks

Even with the best transporting technology, there are many additional procedures that the driver must follow in order to finish the transportation successfully in extreme cold.

First and most important is the diesel fuel, which, in a standard form, can not be used in winter.

Fortunately, fuel for trucks in Norway can stand -38°C. At this time of the year a special fuel additive must be added to avoid prob-



Unloading on the farm.

lems in the fuel system. The fuel filters have to be changed often and also the fuel pipelines have to be insulated to get the fuel properly to the engine and heating.

It is very important to preheat the body of the truck before the chicks are loaded. The body is pre-heated quite quickly since the truck is equipped with two heating units. Normally the temperature in the body is held at 27°C, but on severe cold days it

is raised to 29°C.

The truck has its own diesel heating to heat the motor before it starts and if there is any problem with fuel due to extreme cold, the motor can also be preheated electrically.

"When the chicks are loaded and the truck starts, that is not the end of it," Mr Kjernlie added. "Snowy and icy roads can stop the truck any time and then the driver must react quickly. All trucks in Norway must have special snow chains for the

wheels in winter time. The truck is also equipped with two boxes of sand, one on each side just in front of the driving wheel. The driver can release some sand by pushing a button in the cab when driving. In most critical situations this will be enough to get the truck moving.

"It is also very important to have good tyres. We do not use studs, but the tyres have special tread pattern. The driver has to take care and be aware of the road conditions. It depends on him and his judgement whether the transport reaches the

farmer or not. The driver has to plan every trip very carefully, bring warm clothes, food and plan where to stop before he is at the farm. The length of the drive can vary from 150-1300km. He usually also knows the farm where the chicks are to be delivered and can prepare especially for that farm. It can be a steep hill with an icy road just before he reaches the farm."

After the truck is back in the hatchery, another problem can arise while cleaning the body with water.

At -40°C, the water will freeze immediately it touches metal. Therefore, the body must be cleaned in a preheated garage and the truck cannot leave the garage until it is completely dry.

When coming from the cold outside to a warm garage, humidity in the air will condensate on any cold surface, so the vehicle is completely wet in a few minutes.

This causes problems for the electronics, so all electronic parts in the vehicle must be well isolated and tailored to operate in wet conditions.

"Even though all these special procedures seem very hard to follow, fortunately we are used to them in Norway," Mr Helgesen told us.

"After all, we have the best transport technology available on the market, which helps us significantly during extreme weather to be successful."

Fig. 1. Record of transport with outside temperature reaching -40°C.

