

The average Fonterra milk tanker clocked up 400,000 kilometres last season on the road with the entire fleet driving 98 million kilometres by season's end.

THE PEAK MILK HIGHWAY

Gerald Piddock takes a look at the logistics behind peak milk at Fonterra.

giant's 10,300 farmer-suppliers. For the 524-strong tanker fleet, it's peak milk season and most of the fleet is on the road day and night, picking up a vat of milk every nine seconds around the country.

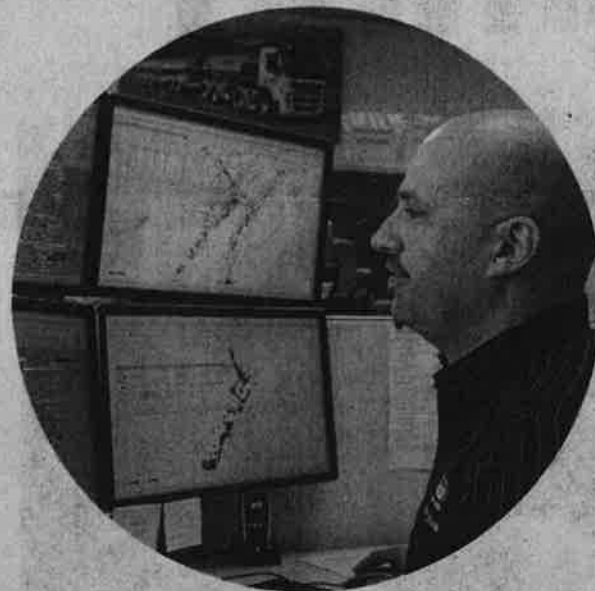
If Fonterra were a trucking company, it would be the country's largest. The combined fleet drove 98 million kilometres last season and the average tanker driver clocked up 400,000km.

Sanford's truck on today's route is a 480-horsepower Scania. Only a year old, it's already done 200,000 kilometres and is clean and sparse apart from the in-cab touch pad computer on his left.

Once he logs in, it tells Sanford everything he needs to know about his shift, including the mapped route around Waikato shown by a blue line. It also shows where the tanker is, where the dairy farms are and an estimated time of how long it should take him to drive to each point.

All milking sheds are mapped, meaning when the tanker pulls into farmer's driveway, the computer's GPS recognises it and automatically switches to display the farm's details.

"Theoretically, in a perfect



Fonterra planning and dispatch manager Malcolm Bailey and his team plot the route for every tanker in its fleet every day.

world, we should never get lost. We have a saying here - follow the blue line," he says.

There was no live map when Sanford started with Fonterra. Back then, map screens would appear only if the cab was going less than 20kmh. That meant you saw lots of drivers parked up on the roadside, checking their maps.

"It's got to the point now where that computer tells us what to do,

and boy, it really does the job. Technology has made it so much easier."

It has helped make milk collection pretty much foolproof, he says.

A typical day for Sanford begins with a quick meeting with other drivers at the Te Rapa site, where any potential issues affecting the shift are highlighted, such as road delays or issues at factories. From there, it's on the road.

The job gives him a privileged window into dairy farming. They are the face of the cooperative to many farmers and Sanford says he enjoys the interaction and is often a sympathetic ear to many of those struggling over the last 18 months with the low payout.

His biggest challenge is the unexpected and dealing with other drivers. Dash cameras are becoming increasingly popular among tanker drivers because they act as an insurance policy if there is an accident, he says.

"If something happens, it's only your word against theirs and these things are worth \$750,000."

Drivers also have to be very conscious of their milk load once the tanker starts to fill.

A push of a button on the touch

pad shows a graphic of the tanker, revealing how full his tanker is. This graphic changes colour when the load is dangerous and when it is stable.

One of the most dangerous driving times is when a tanker is between one- and two-thirds full and on a winding road. The corners cause the milk to slosh in the barrel (tank) from side to side and excessive G-forces can potentially cause the tanker to roll.

"It all comes down to speed and you have got to be conscious. People say that the tanker has rolled, but it hasn't rolled, the trailer has."

Each truck is also fitted with the Tanker Activity Management System (TAMS), which monitors the driver's driving. If he brakes too hard, speeds, or takes a corner too harshly, an alarm goes off and the incident is recorded. This system can also show to management who is at fault if a tanker is involved in an accident.

TAMS is used to create a performance target system for drivers. It has become a source of pride in the office as drivers look to score the least number of red flags possible.

Each driver starts the shift at

100 per cent, but loses points every time an incident is recorded. The drivers' national scores over an entire year in 2009 was just under 93 per cent.

The TAMS downloads are sent to Te Rapa transport team manager Bert Simpson weekly, where he pins printouts of this information up on the wall in the drivers' work room.

"Last week we were sitting third equal in the country, which is very rare for us, because we have got the bigger site. To get up there with three smaller sites is a really big achievement," Simpson says.

TAMS has made a massive improvement in safety. The fleet is tracking at 99.4 per cent over the past two seasons, Fonterra fleet services technical manager Richard Suckling says.

"Our drivers have really stepped up and taken this technology on board and have used it to tune their driving and behaviour."

If something happened beyond the driver's control, such as a dangerous manoeuvre by a car, the incident is quarantined so it does

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not immediately affect the driver's score.

"We now have drivers that have done almost 100,000 kilometres event free. In other words they have done no harsh braking, no harsh cornering and no speeding and they are proud of it," Suckling says.

Sanford's first farm on today's route is near Gordonton and he turns into the driveway and parks up next to the vat.

After climbing down from the truck, he connects up the hose to the vat and opens a panel on the side of the tanker, revealing a second computer and a milk-testing system.

A loud hiss from the hose signals that the milk is being pumped and once this starts, the computer shows Sanford the farm's supply number, the vat milk temperature, estimated volume, how much litre space is available on the tanker and truck and how much milk is being pumped.

While the milk is collected, Sanford takes milk samples for testing.

He collects three sample vials and places them in a holder under the computer. A red vial takes a sample of milk from every farm on the route while the other two are tested back at the laboratory for quality and fat and protein composition.

When the vat is empty, he disconnects the hose and pushes a lever, rinsing the vat for the farmer. A docket is then printed, summarising the vat load, and given to the farmer. The sample vials are stored away in a tray and the panel is closed. The whole exercise takes 10 to 15 minutes.

It is then back into the truck and following the blue line.

At the last pick-up, Sanford completes another critical job. Using a pipette, he takes a small amount of milk from the red vial and squirts it on to a testing strip. This is incubated on the return trip to the factory.

After parking at a loading bay at the Te Rapa factory, Sanford inserts the incubation strip into a testing machine. If the strip reads negative, the milk can be unloaded into a silo, but if it is positive, the milk is then retested to determine the milk's origin and whether it is in the truck and trailer or just the truck.

Today's load reads negative and the milk can be safely be unloaded.

"That's one of the most important jobs we do. If there is any discrepancy, I can't unload it," Sanford says.

If both truck and trailer are positive after retesting, the entire load is dumped and further testing of the collected farm samples over



Testing the milk that comes from the farmer's vat plays a critical part of Fonterra tanker driver Rick Sanford's job.

PHOTO: CHRISTEL YARDLEY/FAIRFAX.NZ

the next 48 hours will reveal which farm the milk came from.

It is cheaper for Fonterra to dump the milk then allow it to contaminate a milk silo, he says.

A positive test means something has been found in the milk, such as drug residue or other medicine a farmer has used to treat a sick cow.

Sanford stores away the milk sample tray collected over from today's route, where it is later tested in Fonterra's labs.

It takes about six minutes to unload a full tanker, giving Sanford enough time to give the tanker a quick hose down. He then has a scheduled break, before heading back out on the road again, following the blue line once more.

Fonterra's drivers at Te Rapa range from some in their early 20s to two who are in their 70s. Another recently passed the 40-year mark as a driver.

Simpson has employed several female drivers over the past five years. Currently there are only three based at Te Rapa and he says they are always on the lookout for more, despite difficulties in recruiting them.

They are very good drivers, too, Te Rapa driver trainer Jason Porter says.

"They don't drive it like they stole it, they drive it like they own it and they will show up a lot of the

The teams are overseen by Fonterra planning and dispatch manager Malcolm Bailey.

He describes peak as being "literally flat-out all day. There is no respite." Every factory is working and every truck possible is on the road.

"People just think you go to a farm and pick it up. Unfortunately, it's not that simple. There is no hey, we can't get a plan. We have to find a way to get that milk as the farmers aren't going to allow us to keep the milk in the vats. There is no backstop."

Three schedulers decide how the milk will be picked up every day across the country. One coordinates the entire South Island, another works on Waikato and the third looks at the rest of the North Island.

"We're doing everything within a 12-hour basis and it's as close to real time as possible," Bailey says.

That process starts every shift with a blank canvas.

In determining the tanker routes, Bailey's team members are factoring in changing customer demand and predicted off-farm milk volumes. Bailey's logistics team members forecast up to two weeks out how much milk will be available for collection and who is able to collect it.

That information is then used by the next shift to predict what the next milking volume will be.

"We're producing about 6 million litres at the moment and we have to pick all of that up within 24 hours, but down on the individual farm level, there's going to be variability and that's the biggest variable for us. And in terms of absolute accuracy ... we're around 96 percent, which is pretty good."

Also factored in are whether the farm is organic or is a once-a-day milker. Seasonal timing also plays a role, because farms are prone to skip days if it is the shoulder of the season, when milk volume are increasing or winding down. There are also individualised collection windows, where the farmer tells Fonterra when is the best time for the tanker to pick up the milk. Other farms carry certain restrictions caused by geographical location and road safety considerations.

Certain properties of milk are also sought after as Fonterra tries to shift to more value-added products, such as UHT milk. Some farms also feed their cows certain supplementary feeds which "taint" the milk, making it unsuitable for fresh milk products.

This all amounts to a giant mathematical equation that is fed into a computer programme.

The result is a colour-coded graphic displayed on the computer screen, dividing the driver's work into timed allotments for driving milk pickup, breaks and unloading at the factory. This predictive bit is sent through to the driver's in-cab computer and forms the basis of the blue line seen on Sanford's computer.

Directly below the predictive bar is the actual, showing the real time progress of the driver. On another screen, a geographic map shows the tanker location and the farms for pickup.

A green dot shows a farm that has had its milk collected, a yellow or pink dot shows a farm that the tanker has yet to visit.

Every two minutes, the tanker sends a message to dispatch alerting it of its location, its destination and speed.

Things can also change. Drive can call in sick, road accidents or mean routes have to change at factories can break down. What occurs, the schedule has to be updated.

Dispatchers also have to work with exceptions. These are the daily occurrences, ranging from traffic delays, tankers breaking down, power outages in dairies and milk volumes mismatching up. At the end of the hours, the next shift comes in and the process starts afresh.

New blue lines are created for Sanford and the rest of Fonterra drivers to collect milk from the dairy farmers.