

# Tank: in a vertical or horizontal position?

A difficult choice to make



A silo tank saves space, which will save on the building costs. But a silo tank is often more expensive. Choosing between a vertical and a horizontal tank depends on the available space and the barn design.

The silo tank is becoming more popular. Such tanks in a vertical position use less space; they are built outside and require no cleaning. It leaves more space inside, and space is something you can never have too much of. According to manufacturer Mueller, the demand for silo tanks is rather stable. Silo tanks make up about 25 to 30 per cent of all newly sold tanks. Belgian manufacturer Packo Inox also estimates a 25 per cent share of silo tanks. DeLaval has noticed a stronger trend: vertical tanks make up 40 per cent of all tanks sold by the company. At the "Rundvee en Mechanisatie Vakdagen" (Dairy Farming Field Days) in Hardenberg, GEA also showed a silo tank for the Dutch market.

Milk tanks should be in a closed space, writes dairy cooperative Royal FrieslandCampina in its conditions for milk cooling tanks and tank rooms. But the dairy cooperative applies other conditions in respect of the silo tanks. The silo tank may be located outside the building, provided that the agitator motor is protected by way of a stainless steel cover. However, the manhole, outlet, inlet, ventilation and sampling valve must be inside the tank room. And that means you cannot quite have a silo tank without also having a tank room. Other than that, maintenance to the silo tank must be carried out in accordance with the rules imposed by OSH. For instance, depending on the height, the fixed ladder must have a cage and the mechanic must be able to secure himself to the tank.



The alcove is the connection between the Silotank and the milking parlour. Through the alcove the manhole, sampling valve, inlet and outlet should be accessible

### Sampling valve

An important point of interest for a silo tank is the way in which the milk tanker collection driver takes the milk sample. The driver does not scoop it from the tank, like in the case of a horizontal tank, but uses a sampling valve instead. "That caused the odd problem in the beginning", says Gijs Goudriaan of manufacturer Mueller. The risk of the driver contaminating the sample from the silo tank through negligence is many times greater because it concerns only a very small amount of milk. After all, the contamination will not end up in the bulk of the product, like in the case of sampling through the manhole.

"For that reason a sampling protocol for silo tanks has been drawn up. It dictates

that the driver first takes half a litre of milk to assess the colour and the smell, before he takes the actual sample", he goes on to say.

### Dependent on the individual farm

The new Mueller PC-18000 is 4.25 m long (incl. steps and cleaning unit), 2.63 m wide and 2.78 m tall. It can hold approximately 18,000 litres. A tank room built in accordance with the recommended specifications should measure 5.95 x 3.63 m = 21.6 sq. m. The foundation, together with the small tank room for a silo tank, measures 17.75 sq. m. That makes 3.85 sq. m. of space saved on the farmyard for an 18,000-litre silo tank compared with a horizontal PC-18000 in a tank room. The space saved under roof is 17.85 sq. m. After all, a silo tank requires a tank room of only 3.75 sq. m. The saved 17.85 sq. m. represents an area of 4.23 x 4.23 m that can be used for other purposes. It all depends on the situation whether the higher price for a silo tank makes it worth. Silo tanks carry a higher price tag in many cases. The break-even point in purchasing from Mueller lies with a 28,000-litre tank. DeLaval assumes a break-even point at 30,000 litres, not counting any attributes such as alcove and steps. "One cannot build a tank room for the extra capital expenditure of a silo tank and at the same time meet the conditions imposed by FrieslandCampina", says DeLaval product specialist Martin Leeuwerik.

### Van der Burg, Woerden (Utrecht)

"At first we bought a 15,000-litre silo tank, which costs only little more than a 12,000-litre silo tank. So we didn't take long to make up our minds. In the first design of the new 0+4+0 barn, we did our milking in a milking parlour. The design did not allow room for an indoor tank, so the tank was to be put against the outside wall. Once we got to sit around the table with the contractor, we found that the costs of extending the feeding passages were not much higher. This would also create room for a tank room holding a 15,000-litre tank. That is more than sufficient for the up to 150 dairy cows this barn could hold."

Margo and Harold van der Burg in Woerden are milking 125 cows with a production of 8,000 kg. In March they started using a new barn containing 144 stalls. The cooling motor, heat recovery and water storage tanks occupy the loft of the tank room.

### Hans Mommersteeg, Herpen (Noord-Brabant)

"We went for a silo tank because of its space-saving properties. When we built our new barn, we did not have to worry about a separate room for a horizontal tank, so we managed to save some money. The DeLaval silo tank has a 15,000-litre capacity; it holds a plate cooler and a pre-cooler, and stands 4.5 metres tall. The silo tank works well for me. The tank is outside, the controls and the technical parts are inside. I did not think about the residual value; that may play a role later on though."

Hans Mommersteeg from Herpen milks 85 dairy cows in his new barn and he has a milk quota of 750,000 kg with lease. Two milking robots help him with milking. The Mommersteeg family replaced the old barn with a 0+6+0 barn containing 139 deep litter stalls.