

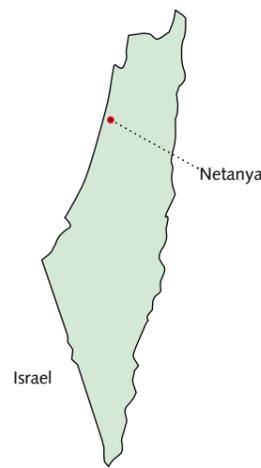
How do you get 14,000kg of milk out of a cow each year? Ask Israeli Gull Ben-Yosef. He knows the answer. He cools his cows, keeps them in a compost stall and, above all, he milks cows that have just come into milk five times a day for the first three weeks of their lactation.

“Udders have memories, just like the brains – if you demand a lot of milk at once, the cow will remain full for as long as the lactation lasts.”

Winters are wet and frosty in the UK, but winter in Israel can be anything up to 25°C. The cow-house fans are switched on all day and there is a thin mist of water vapour in the parlour. “It gets to 40°C in the summer,” says Gull Ben-Yosef who manages the Hbonim dairy business in Netanya, half an hour or so from the Israeli capital, Tel Aviv. “Then the cows come inside six times a day – three times to be milked

and three times just to keep cool.” He and his staff of four pay a lot of attention to keeping cows comfortable. They keep their 250 dairy cows cool, but what really stands out is the compost stall. Built two years ago, it’s 13m long and 40cm deep, making an ideal bed for the cows. Once a day (twice a day in winter), a cultivator is used to ensure the bed is pulled properly apart. “At our temperatures it composts very quickly,

and by cultivating it we ensure air can get through the top layer and this keeps the bed dry.” Once it’s been cultivated, the bed is like peat – soft, weatherproof and a place where cows can stretch out to their hearts’ content. You can see this by looking at the herd – they don’t have any injuries or thick heels, and they run happily through the stall. Gull also points to the domed shape of



Gull Ben-Yosef: “The cows will have to complete another lactation as a matter of course”

even the operator’s pit. “It’s good for the staff too and puts much less strain on their backs.” The high level of management involved bears fruit. Output per day is 42.4 litres per cow and annual average milk yield is 14,000kg – the highest in Israel for the past three years. The herd’s average fat content is 3.70% and protein is 3.35%. The secret? “Everything must work,” says Gull. It sounds ordinary, but then

Israel: cows average 12,000kg per year

The 100,000 cows in Israel produce an average of 12,000kg of milk. This high production level has been the trademark of this small Middle Eastern country for many years. The average cow lasts 2.5 lactations

and there are around 900 dairy farms in Israel, including a number of smaller family businesses milking about 80 cows and a growing number of large cooperatively managed operations each milking an average of 350 cows.

he mentions a number of remarkable factors. “We milk cows that have just come into milk five times a day for the first three weeks of their lactation. We start milking with this group, and they go through the parlour again at the end,” is how he explains his strategy. Gull says that udders are like brains. “Udders have a kind of memory, like brains. By stimulating the milk yield when lactation starts, the udder keeps producing more throughout the lactation.” The herd’s ration is also worth a closer

look. The TMR comprises chopped maize, grain silage and grain hay. “You need top-quality ingredients, with the right dry matter content,” says Gull. Maize has between 34 and 40% dry matter, the whole grain plants fluctuate between 33 and 38% dry matter. Then the grain hay, at 90% dry matter, stimulates the rumen and yeast and sodium bicarbonate stabilise it. The cows are fed the 17% protein and high energy ration three times a day. “That keeps it tasty,” adds Gull.

Crossing experiment

He’s looking to increase production even further. “It could definitely get towards an average of 15,000kg,” he says. “That means the cows would usually have to complete one more lactation. They’re now averaging 2.5 lactations. We need at least one more and then milk production will increase automatically. A third of the herd are currently heifers,” he says, analysing his business results critically. “In fact, output per lifetime is much more important than output per day. It’ll be a revolution if you can get cows to lactate three or four times, then you’ve got 25% more cows.”

To achieve this aim, Gull is experimenting with crossbreeding. He now has 16 Montbeliarde crosses in milk, which are in their second and third lactations and producing extraordinarily well. However, there are two major drawbacks, according to Gull. “You can’t use Montbeliarde on yearling heifers and the cows are large and they struggle to fit into the milking parlour.”

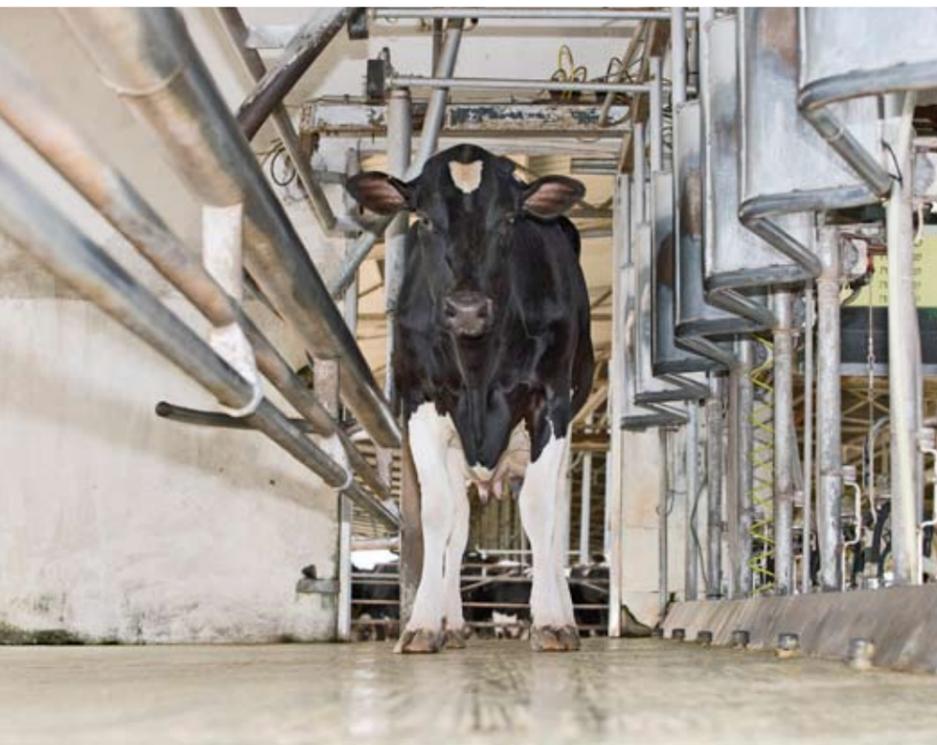
So he switched to using the Norwegian red and white. “Norwegian red and whites calve easily, so the cows are more fertile. They also have good legs, and that in turn is important to how they work as a whole.”

All yearling heifers are inseminated with Norwegian red and white semen, and

The compost stalls are not suited to the UK’s damp climate

Mammary ‘memory’ makes milk

Udders are like brains, according to one Israel-based dairy manager



the stall as a whole. The highest point is in the centre, with a small slope running off on both sides. So the slurry runs off to the outsides, he says. “We clean the stall out daily with a shovel or a manure slide.” He knows this kind of housing is not suitable for European units, however. “It only works in a hot, dry climate. In the UK it would be too humid.”

Rubber mats

Cow comfort is also important at the feed barrier. In the centre of the three-metre wide space is a rubber mat held in by concrete. “That’s mainly to support the back legs – they carry 75% of a cow’s weight. Cows’ feet are not made for concrete and I believe that you should actually provide rubber matting for all walkways.”

And so he’s clad the whole milking parlour with the soft, springy material,

There’s rubber matting in the milking stall and in the pit where the operator stands



Automation is high on Israeli farms

Automation levels on Israeli farms are particularly high. Cow recognition, separation gates and automatic milk recording are standard. Producers monitor their cows in terms of health and fertility via computer too. Arik Klein puts sensors – an activity meter and a rumination meter – on his cows' collars, for example, just behind the cow's jaw. "I never look into the cow house to see if cows are in heat," the owner and manager of 140 dairy cows says. "The computer knows when a



Arik Klein: "I let automation work for me"

cow has been extremely active, even if it was only for half an hour." The herd's

calving interval was 390 days in 2007 and 410 days in 2006.

Using a pedometer to measure ruminating activity shows him how healthy the animals are. The computer compares the number of ruminations with other cows and other days. "If a cow is 'different', that means that it's sick, it has metabolism problems, its legs are deficient or it may be in heat," says Arik. "I can monitor exactly what the cows are doing remotely. I let automation work for me."

also some of the dairy cows. "The yearling heifers from these sires calve much more easily and the number of still births has been halved."

Initial results from the eight lactating heifers look good. "Production is on target – that's what I was most doubtful about. They're strong and have a lower cell count. We breed the top end of the herd to Holstein Friesian sires, but we believe in crossing. It's more likely to work well than not."

Gull also expects to increase fertility considerably through the heterosis effect, although the calving interval is good at the moment, at 402 days. "We weigh all the cows once a day as they

leave the milking parlour and we only start inseminating once cows are putting on weight again and the chances of them holding to service are the greatest."

Milk quota

Milk production in Israel has become interesting in terms of price during the past year. The price of milk is fluctuating at around 30ppl, compared to 23ppl in 2007 and 20ppl in 2003. "The milk price hasn't been this good for years," says Gull, adding that his land also has a quota governing milk production. "In times of surplus, you only received 40% of the milk price if you exceed your quota. But now it's 90%." Gull expects to

exceed his milk quota, of around 2.9 million, this year and says production will easily hit the three-million-litres mark. "We're currently building housing for 50 cows, but we aren't planning to grow any bigger."

Gull is the dairy manager, but the village actually owns the business. "We employ four people and we take products from small and medium-sized businesses. It would cost £68,300 a year if the business moved. So we're staying here, as part of the village, as well as the landscape and the whole community."

Alice Booij

Open stalls, with many fans and sprinkler systems, help to keep the cows cool

