We take a look inside of the world's leading breeding centres

CRV centre opens its doors

CRV's new Dairy Breeding Center, based at Wirdum in the Netherlands, is home to the country's best female animals who produce embryos for the organisation's world-leading breeding programme.

text **Inge van Drie**

To increase embryo production from today's 10,000 per year to 20,000 in the future. That's the driver behind the investment in CRV's Dairy Breeding Center, based just outside Leeuwarden. And it's an ambitious but achievable target shared by all the staff who work at the complex, including head of embryo production Jakomien Noordman.

"We have chosen to concentrate all our embryo-production-related activities in a central location here," she says, adding that CRV has closed its other ET-work sites, including one at Terwispel.

CRV can accommodate between 300 and 400 genetically high value animals – the Delta nucleus – at the new centre, ranging in age from just a few weeks to 27 months old. And they're looked after by 20 staff.

Disease control: concrete walls prevent contact between groups

User friendly: adjustable plates ensure optimal working heights for ET technicians

New centre: centre has accommodation for 400 breeding animals

Low stress: the facilities help to create a calm environment

As well as providing office space, the main building also houses a spacious laboratory and a reception area. "We can welcome groups of visitors here and give them a look behind the scenes." The exterior of the building was designed with great thought. Wood cladding on the gables and wide use of glass gives the building an open and transparent feel. The building is heated and cooled using geothermal energy and equipped with LED lighting.

Breeding programme

But it's what goes on inside the building that visitors are most interested in. They want to know how CRV achieves its breeding goal – to produce healthy cows with great lifetime production – and how its breeding programme works.

"It begins with quarantine," explains Mrs Noordman. "All the animals that arrive at the centre are placed in quarantine. And we have three separate quarantine holding zones that are mechanically ventilated to minimise the risk of introducing animal diseases.

"Two quarantine zones have also been provided for animals leaving the complex. These animals are destined for our nine test farms, including two in Flanders. As the health status in Flanders is higher than in the Netherlands, the animals must be placed in quarantine before they leave the site.'

Once they've 'done their time', cattle are moved to one of two barns: one for animals less than 15 months and the other for older stock. These have rubber slatted flooring, cow brushes and comfortable cow mattresses, which all contribute to producing a high animal welfare environment.

Strict hygiene protocols remain in place to prevent the introduction of animal diseases. For example, employees hose down their boots each time they leave a pen and shower before entering the barns.

Visitors are denied access to the barns, but they can look at the animals from behind a window in a viewing sky box.

The new barns are divided into compartments, again depending on the age of the animals, and each one houses up to 16 cattle. Concrete walls, which are 1.5m thick, ensure that there is no contact between the individual groups. "Many viruses are transmitted through the air," says Mrs Noordman. "So even a wall like this won't stop them. But it does make it more difficult for certain bacteria to spread from one group to another."

Large fans, the insulated roof and a weather station that controls the ventilation curtains, all work together to ensure that the barn climate is as cool as possible. "A cool climate is important for all animals, but particularly for this group. If heat stress occurs, we notice a dip in embryo production after a couple of months. Light is also an important factor in good embryo production."

Low-stress environment

To further reduce stress – for both cattle and staff – the facilities have been designed so that halters are no longer required. Clever use of gates and narrow driving passageways means that stockmen can easily guide animals into the flushing area.

A weighing system installed in the passageways monitors the donors' weights. In the two flushing areas, the animals are held in specially designed individual cubicles. An adjustable plate, which young animals place all four legs on and older animals just their front legs, ensures an optimal working height for the ET technicians.

State-of-the-art facilities aside, CRV's selection index remains the same and focuses on breeding healthy and efficient cows. Balance is key, so weighting is: 40% for production (milk, fat, protein, feed intake); 40% for health and longevity, which include udder health, female fertility, longevity, hoof health, milking speed, calving traits and ketosis; and 20% type, which incorporates udder, feet and legs, body condition and rump angle.

Donor heifers

Using the Delta nucleus herd's 10,000 embryos and 1,500 embryos purchased from other high-genetic cattle in Europe, the programme aims to produce 2,500 heifer calves and 2,500 bull calves, as well as 1,000 breeder bull calves. And from these, 150 Delta donor heifers and 2,350 'satellite' heifer calves are selected, as well as 50 elite 'InSire' bulls.

The Delta nucleus programme selects, out of 2,500 ET heifer calves, 150 of the best following genomic testing. It also purchases 20 breeder-owned heifers each year. These 170 donor heifers enter the ET programme and produce around 60 embyros, before moving to CRV test herds. Between 15 and 20 – the very best – will remain at CRV as donor cows for further ET work.

"We're working with the best genetics and trying to improve their breeding potential even further. So excellent housing, feeding, handling and overall management facilities are vital," says Mrs Noordman. "Any factors that prevent an animal from achieving and diplaying her potential will undermine what we're trying to do here. So cow comfort, nutrition and health have to be maximised and stress has to be kept to a minimum. These new facilities help us to do all that – and more." |