First calf born following IVF embryo breakthrough

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The approach, called Karyomapping, was originally designed to detect and screen for single gene and chromosome disorders simultaneously in human IVF embryos.

Now the application of the same technique to cattle IVF—involving screening at the embryo stage rather than when a calf is born—will allow decisions on best quality genetic stock to be made earlier.

The latest research, led by Professor Darren Griffin of the University's School of Biosciences, will allow for better quality genetics to be introduced more rapidly into the breeding herd.

Moving genetically screened embryos around the country, and around the world, rather than live animals, is also more biosecure, environmentally friendly and means that they can be delivered to breeding farms in a more efficient manner.

Professor Griffin said: 'In-vitro produced embryos are used widely in the cattle breeding industry but this is the first time they have undergone a whole genomic screen beforehand. We have used Karyomapping to screen for genetic merit, as well as the incidence of chromosome disorders, which could significantly reduce the chances of the embryos developing into live-born calves.'

The researchers report the birth of the calves to be born following use of the technique, including the first named Crossfell Cinder Candy, born on

a farm near Penrith.

More information: Kara J. Turner et al, Karyomapping for simultaneous genomic evaluation and aneuploidy screening of preimplantation bovine embryos: The first live-born calves, *Theriogenology* (2018). DOI: 10.1016/j.theriogenology.2018.11.014