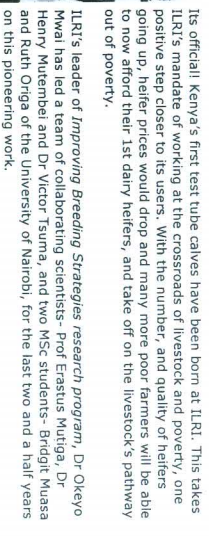


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Its official Kenya's first test tube calves have been born at ILRI. This takes ILRI's mandate of working at the crossroads of livestock and poverty, one positive step closer to its users. With the number, and quality of heifers going up, heifer prices would drop and many more poor farmers will be able to now afford their 1st dairy heifers, and take off on the livestock's pathway out of poverty.

ILRI's leader of *Improving Breeding Strategies* research program, Dr Okeyo Mwai has led a team of collaborating scientists - Prof Erasmus Mtiga, Dr Henry Murembe and Dr Victor Tsuma, and two MSc students - Bridgit Mwasia and Ruth Origa of the University of Nairobi, for the last two and a half years on this pioneering work.

It was an investment of time and labour on their part and thousands of dollars by the donor (Helfer, Project International), that has yielded the two calves: one at the University of Nairobi, the other at ILRI's Kapiti Farm and many more on the way. The calves are siblings not twins, says Prof Okoyo Mwai, who is both an alumni and faculty of the University of Nairobi, where he continues to supervise MSU and PhD students. They collected ovaries from cows slaughtered at the abattoirs, harvested the eggs from the ovaries, mated them over night, and then fertilised them with a sperm from a specific bull in the laboratory. They then cultured them for 7 days and once the embryos were formed and certified, they were transferred to ready surrogate mothers. Both mothers and babies are doing just fine three weeks later.

"We now know how to make test tube calves," says Okeyo. "Our next step is to make the process more ethically acceptable and biologically efficient by getting the eggs from live cows instead of slaughtered ones. From the abattoirs, only two to three out ten cows fit our donor cow criteria and has worthwhile ovaries for eggs harvesting, because locally, most people sell cows for slaughter when they are at the end of their productive lives."

A live cow on the other hand, can provide up to 140 useful eggs every month, which translated to up to more than 300 calves in a year. Assuming only 50% of the eggs are transferable and only 40 % conception rate can be achieved. Under natural system, in a lifetime, a barren cow produces a maximum of 11 calves, of which half are usually males.

This delivery is a great milestone in many ways. First, the technology will allow small-scale farmers to own and multiply top quality cattle genotypes, breeds and individual animals at relatively low cost. Farmers can also decide to use their currently, less-valued, indigenous cows as “wombs-for-hire” and make money that way. Finally, because it is now possible to pre-determine the sex of the calf with an accuracy of about 95 per cent, beef cattle keepers can now mostly opt for bull calves, and dairy cattle farmers, heifers. The same technology can be used for re-stocking deer or to rescue a threatened species like some of Kenya’s wildlife now at risk.

"Will this technology ever be affordable to the mwanaanchi farmer, away from the posh science labs at ILRI and the UoN?" I asked Dr Mwai.

"Yes", he responds, "the preliminary economic assessments that we have made so far, show that the technology is economically feasible and in fact, its delivery could be cheaper than artificial insemination".



However, for this technology to be widely adopted there is need for governments to create an enabling policy and infrastructural environment that is attractive enough to the private sector to join away with while smoothly working with research institutes. For example, production of embryos requires regular, affordable electricity supply because the embryo must be grown in regulated and uninterrupted temperature range that mimics the cows' womb.

The Agricultural Development Corporation of Kenya (ADC), which is the key custodian of Kenya's livestock genetic resources, is keen to roll out this technology in Kenya, by contributing some of their Boran cows as donors as well as surrogates. Discussions are also on with other private ranchers, such as the Olpateia ranch and with relevant Ethiopian and Ugandan institutions.

"I am humbled that the team, under my leadership, has made a historic contribution that, if backed by appropriate national policies and infrastructure, would benefit many in Kenya and East Africa region at large", says the calm unassuming soft spoken Okeyo.

Indeed, Okoku who strictly believes in team work and getting things done is self-sacrificing and fairly humorous. Take for instance the time when while on a field research trip to northern Tanzania one of the team members - Prof John (Hans) Solinger from Austria, BOKU University, fell into a 15 feet deep pit in a remote village, and knowing that any minutes mattered, the only way to get him out was one - some one had to go into that hole and carry the almost 100kg heavy professor. So they gathered all the ropes they could get in the village and made one long rope, tied it firmly under Okoku's arms and he went down on a rickety makeshift wooden ladder. When he got hold of the motionless man, he held him strongly on his back, and in turn the villagers pulled them both up the 15 feet deep pit. With ITRI's Director General's assistance, he then arranged for an immediate air-lift to Nairobi, and the professor's life was saved.

"That's how I got the fancy looking chair on which I now sit to support my weak back", he says. "I cared less for such chairs before, and unfortunately, by saving my friend, I bid goodbye to playing soccer and volleyball, my most favourite past-time sports".

He has rubbed shoulders with the high and mighty including Rtd President Daniel arap Moi and Uganda's Yoweri Museveni as they seek to understand livestock issues more.

One of Okeyo's pet projects focuses on conservation of indigenous breeds because they are more hardy and resilient to some diseases and environmental catastrophes, and if genetically better managed, can be more productive than they currently are.

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