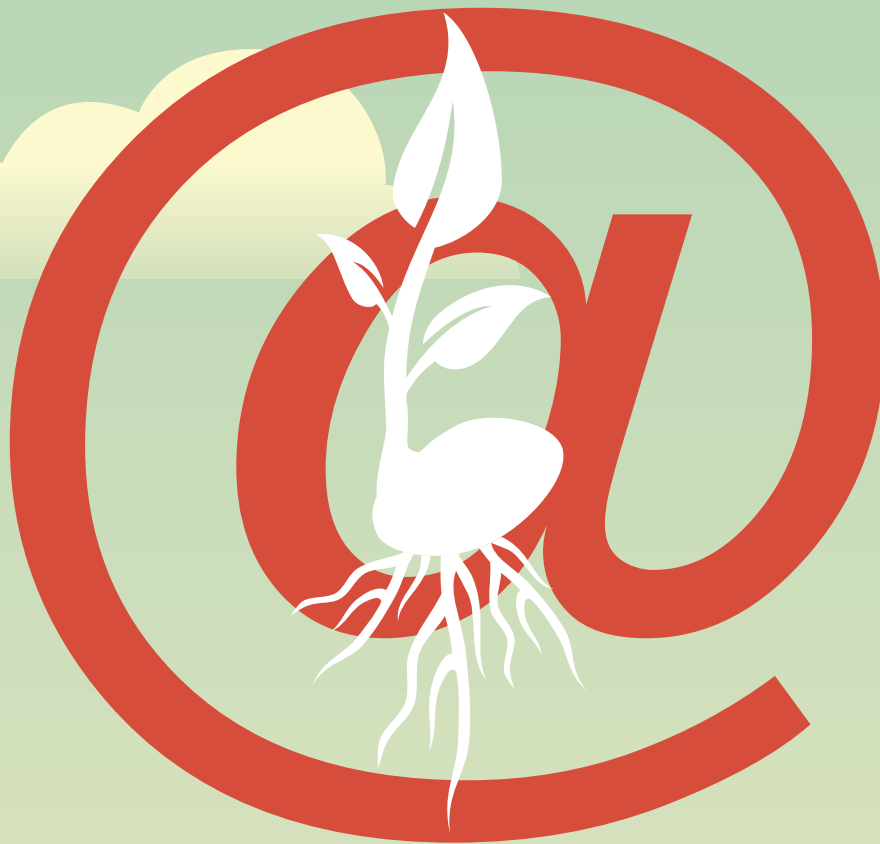


One small

# SEED

AFRICAN FARMERS HAVE BEEN SIDESTEPED BY THE MARCH OF IT DEVELOPMENT. BUT PROGRESS MUST BENEFIT EVERYONE IF IT IS TO CONTRIBUTE MEANINGFULLY TO THE FUTURE, WRITES LESLEY STONES



On

a continent where vast swathes of the population still have no access to a telephone or the internet, the average rural farmer is untouched by technology.

That's hardly surprising when many areas still lack a telecoms backbone to deliver even the most basic ICTs. Satellite connectivity is prevalent but notoriously expensive, and down on the ground, farmers often can't afford to buy a phone, let alone a computer. The lack of profit to be made from delivering technologies to sparsely populated areas also deters many companies from venturing there.

Such obstacles hamper the introduction of technologies that could boost Africa's agricultural sector by giving farmers tips on disease control, advance weather warnings, and price information so they know what to charge for their produce.

This clear social need coupled with a lack of potential profit means that most agricultural ICT initiatives are being championed by not-for-profit organisations. Among the most active is the International Institute for Communication and Development (IICD), a foundation from the Netherlands that supports sustainable development through technology. Its agricultural projects improve the income and efficiency of small-scale farmers and reach them through a combination of information centres with internet access, mobile phones, radio and television.

IICD says improving the yields of small producers has never been effectively targeted by the private sector or development agencies. Yet higher productivity is crucial for tackling local economic problems and global food shortages. Its services include information about production techniques, seeds and fertilisers, diversification strategies, crop protection, market prices and business support software for planning, administration and marketing.

One project saw IICD launch Rural Information System centres in Uganda to give farmers access to market information so they can make better pricing decisions. So far, 19 centres have been established with a total of 30 planned, to benefit 90 000 households.

Kenya is fairly advanced in using ICT to uplift rural communities. One scheme offers livestock insurance to herders, using satellite imagery of the land to determine when payouts are triggered. The scheme, backed by the International Livestock Research Institute, was launched in the arid Marsabit district where there are more than two million cows, camels, goats and sheep worth an estimated US\$67 million.

The difficulty of confirming the death of an animal in such a remote area made insuring them almost impossible. But this system pays out when satellite imagery shows that grasses and shrubs are so scarce that animals will probably starve, rather than waiting for proof of their deaths. The administrators Equity Bank and UAP Insurance expect about a thousand households to pay up to 5.5% of the value of their herds to insure them for a year.

Another system helps farmers cope with Kenya's regular droughts by offering cheap insurance to protect their investments in higher yielding seeds and fertilisers. Many farmers will not invest in better – but more expensive – seeds in case harsh weather destroys their crops. Now, if they buy higher yielding seed or fertiliser the dealer scans the bar code with a camera phone. That registers a policy with UAP Insurance via

**Matere is printing out useful online information and posting it up on notice boards for other farmers to read**

Safaricom's mobile data network. The system is linked to 30 weather stations that monitor the sun, wind and rain conditions. When the data indicates that drought or excessive rains may cripple the crops, the farmers registered with that station receive payouts via Safaricom's M-Pesa mobile money transfer.

'Last year, when I took out the insurance policy, we had a total crop failure. The crop didn't even reach the flowering state, it dried up,' maize farmer Jane Gathoni Simon told a local news service. 'But at the end of the year we were compensated. I managed to get replacement seeds in time and planted.'

Kenya is so clued up on ICT that some of its farmers have Facebook pages. Among them is Zack Matere, who used the internet to discover a cure for his dying potato crop. He cycled 10 km to an internet cafe, Googled 'potato disease' and realised that ants were eating the stems. He followed the suggestion of sprinkling ash on the crop, and a few weeks later returned to the internet to find a buyer for his healthy crop.

Matere believes he is the only farmer in the area to use the internet, as most cannot afford it. Even if they understood how to use it, very little online information is in their native language. So Matere is now printing out useful online information and then using the old-fashioned method of posting it up on notice boards for other farmers to read.

The lack of physical telecoms cables, high prices and the complexity of computers means most advances so far have been through mobile phone applications, which are quicker and cheaper to deploy.

Francois Laureys, who heads the IICD's agricultural projects in Mali and Burkina Faso, says the internet, computers and mobile phones are not yet widely applied to help agriculture in Africa, and the scale and success of the existing projects varies.

Mobile phones are the most favoured way to access information, as they are cheaper and easier to use than PCs. There are very few satellite-based initiatives, with satellite generally only used as a back-up to solve a connectivity problem.

ICT has enormous potential to help Africa's agricultural sector, says Laureys, but several obstacles must be overcome first. Infrastructure needs to be improved, the cost of hardware and software must fall, and devices must be developed to meet local needs by becoming more energy-efficient and easier to use. Much training will also be required.

Even if all these hurdles are resolved, other factors can make or break the success of ICT initiatives. Farmers may have access to market price information and know when to sell, but if they cannot afford a truck to take their produce to the market, then the information is useless. 'ICTs are often part of a solution, not the solution in itself,' says Laureys.

Most African governments are aware of the value of ICT initiatives, but they cannot do it alone. Private sector investments are needed, and expertise from development organisations on how best to apply ICT to improve human development.

Dobek Pater of Africa Analysis says mobile applications are proliferating faster than satellite or internet-based applications because mobile networks have become the most widespread and accessible, are cheaper than satellite, and mobile text-based applications are easy to use. 'You can access communications anywhere by satellite, but not many can afford



The lack of physical telecoms cables, high prices and the complexity of computers means most advances so far have been through mobile phone applications, which are quicker and cheaper to deploy

US\$1 500 to US\$5 000 to put up a VSAT dish, and several hundred dollars a month for the service, or a satellite phone at US\$1 a minute,' he says.

Satellite will remain a peripheral technology while mobile communications remain the primary vehicle for internet access, particularly with the advent of 3G. 'Naturally this is still very limited in agricultural communities as they tend to be more peripheral and have less disposable income. That's why for now, the mobile phone with text-based applications is probably ideal: it's convenient, ubiquitous and allows users to pay per use or in small denominations,' says Pater.

'They may not have an earth-shattering impact, but they are definitely a step forward and are certainly contributing to more efficient and effective business management and transactions.'

Yet internet applications that allow more extensive transactions and functionality are needed for larger businesses or agricultural communes, and that demands broadband access. Larger operators are now exploring the profitability of delivering mobile internet and broadband into underserved areas as their top- and middle-end markets become saturated. But it could take five to seven years before the networks provide sufficient bandwidth for reasonable internet connectivity to agricultural communities, Pater believes.

The slow pace of progress must be stepped up, however, to prevent African agriculture moving backwards rather than forward. South Africa's Council for Scientific and Industrial Research (CSIR) predicts Southern Africa will be severely affected by climate change over the next 70 years, with temperatures rising by up to six degrees and rainfall dropping by up to 40% in some areas. In a region where 70% of the population are smallholder farmers, livelihoods are under threat from more frequent and longer droughts, higher risk of crop failure, and shrinking cropland due to water shortages, the CSIR warns. Help from modern technologies cannot come soon enough. ☹