SMALL-SCALE FARMERS

The missing link in smallholder farming: Meeting farmers where they are

Recent research funded by the Water Research Commission (WRC) shows that successful support for small-scale farmers lies in rethinking how we define success. Petro Kotzé reports.

Once heralded as the answer to food insecurity, unemployment and rural decline, the development of smallholder farmers into large-scale commercial farmers in South Africa has yielded uneven results. Billions of Rands have been channelled into infrastructure, inputs, irrigation systems, packhouses, and training programmes. Yet across many initiatives, the anticipated transformation into thriving commercial producers has not materialised.

A recently completed WRC-funded study set out to understand why. What the project team uncovered did not point to a need for more funding, land, or training, but instead, asked for something more fundamental. They realised, says project leader and specialist researcher at the Nova Institute, Dr Betsie le Roux, that almost all stakeholders' visions were misaligned with the farmers' lived realities. "We are setting them up for failure." And instead of asking the government to find another novel solution, their results call for a complete change in how current ones are applied.

Welcome to Rooiwal

The research team selected the Rooiwal Agri-Park in Pretoria as a case study. Launched in 2015, South Africa's Agri-Park programme aimed to revitalise rural economies through

integrated farming hubs that combine production, processing, logistics, training and market access. Agri-parks focus on the country's most deprived rural and peri-urban areas. They aim to uplift previously disadvantaged emerging farmers to, among other things, produce food, eradicate poverty, and redress past inequalities.

Their success has largely been measured in income. In the Department of Rural Development and Land Reform's report to Parliament on Agri-Parks progress in 2016/17, successes were reported in the form of auctions held, cattle sold, and income generated.

At Rooiwal, like at many of the Agri-Parks across South Africa, farmers struggled to achieve the commercial momentum they were intended to have. Located in the Apies River catchment and bordered by wastewater works and an old power station, farmers grow predominantly vegetables and keep chickens. Like many Agri-Parks, however, Rooiwal does not function according to its original design model. For one, it is smaller than planned, focusing only on a plot a few hectares in size, rather than covering the originally stipulated 20 km radius around an Agri-hub, which provides financial and technical support.

In earlier work at Rooiwal and Soshanguve Agri-Parks, researchers observed the low uptake of technologies designed to improve efficiency. For example, soil water sensors were vandalised due to contractor misunderstandings and a chameleon irrigation sensor was left disconnected in an abandoned field. Mulching, promoted as a low-cost water-saving measure, proved impractical once fields expanded beyond a manageable size.

In the latest report, both farmers and officials describe deep frustration. Farmers blamed government support when expected profits did not materialise. Officials reported resistance to financial oversight and inconsistent participation in training. Funding failed to achieve its intended purposes. Funds meant for infrastructure were sometimes diverted to personal needs. Equipment was occasionally sold. And, farmers became permanently dependent on government support. Then, seedlings sometimes arrived later than the recommended planting dates due to bureaucratic delays.

Yet, Dr le Roux cautions, these were the symptoms that signalled a larger problem, and not the root causes themselves.

A three-year struggle

The research team followed a co-design approach, a methodology defined as the process of active collaboration between stakeholders in designing solutions to a prespecified problem. But in order to do it well, they also had to let go of aspects common to agricultural research projects.

Initially, they included agricultural experts in discussions with small-scale farmers, but they noticed that, instead of collaborating with them to work towards solutions, the farmers looked to these experts for answers. The problem, she says, is that an agricultural expert is not necessarily familiar with the context in which a small-scale farmer operates.

"The system is immensely complex," she says. "It responds in unexpected ways to interventions. Often, the solutions make sense outside the context, but not inside it."

In comparison, Dr le Roux, with a general background in ecology and agronomy, alongside colleagues including a theologian, a social scientist, a water specialist, and a marketing expert, decided to look to the small-scale farmers themselves for answers to their multitude of questions. "A big part of the answers [lies] in the farmers," she says. "They are the only ones that know what works in their specific contexts."

But beginning with what WRC assistant research manager, Dr Samkelisiwe Hlophe-Ginindza, calls "a blank page" was not easy. Dr Le Roux recalls the difficulty they experienced over the three of the project after years in making sense of the problem and in offering support to farmers. Good Agricultural Practice (GAP) training sessions were well attended, but farmers indicated that the administrative requirements were too much. Only a single farmer undertook the process through the project and recently obtained her SA GAP certificate. Engagement was inconsistent, and adoption remained low. At the same time, the farmers continued to struggle. Farmers purchased centre pivots that were not suitable for the land, water and skills they had and their crops failed during drought.

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"Every time we thought we had identified the problem," she says, "another layer appeared."

Like diagnosing a limp, she explains, one may first notice the wound. In policy terms, the wound is hunger and food inequality. The immediate response is to provide inputs: electricity, seedlings, compost. When that fails, we add packhouses, training, and capital. Yet still, commercially successful farmers do not emerge. The team realised that they were still not at the core of the problem.

Photo supplied

One of the farms in Lefatlheng, Hammanskraal, that the researchers visited for answers to their questions.

Photo supplied

A farmer shows off his crops at Lefatlheng, Hammanskraal.

The breakthrough: Levels

Eventually, toward the end of the project, the researchers began to make sense of the complex circumstances they were studying. They realised there was a pattern in the farming operations of successful smallholder farmers they observed. Farmers were operating at different but distinct levels that defined how they should grow and what kind of support they needed.

Based on this insight, the team produced the Sukuma Transformation Tool. It determines at which level a vegetable farmer currently operates, assesses a farmer's efficiency at that level, and identifies constraints that must be addressed before moving to the next level. The tool combines key factors, such as land area, water availability, the available market, the required technology (e.g., solar pump, truck), labour requirements, input costs, and weather.

The team identified five broad levels of irrigated vegetable operation that can broadly be described as follows:

- At level 1, the farmer is cultivating a small food garden and grows crops for their own survival. Farms are typically 20–100 m^2, and crops are irrigated with buckets or a hosepipe. They typically use 100 –150 litres of water a day and can potentially plant, on average, 200 cabbages every 4 months (the crop used as a measure in the report). The operation requires minimal time investment and no resources, such as transport. The farmer is not in need of any employees, nor do they gain an income from their crops.
- Level 2 is an 'early livelihood' farmer. The cultivated area is 200 – 400 m^2, and at least 600 litres of water is needed per day. The farmer typically relies on a family member for labour. The crops are primarily for sustenance, but this farmer also sells some crops to neighbours, and as such, there is a casual form of marketing involved. Farmers can produce 800 cabbages every 4 months.
- A Level 3 farmer has access to 400 to 600 m^2 of land for crops. This level is called 'livelihood expansion.' At this point, more time is necessary for marketing and sales, and seasonal workers are employed. The farmer spends a full day farming – either in the field or on activities like marketing and sales – and crops are sold at the local, informal market. Profit increases, but so do necessary resources like seasonal workers and transport, even if it is a wheelbarrow. These farmers typically need access to 1 200 litres of water per day to plant around 1 600 cabbages every 4 months.
- Level 4 is the 'early commercial' stage. The farm is 1 200 to 1 500 m^2 large and uses 3 600 litres of water per day, and the farmer employs permanent and seasonal workers. The farmers work full-time, half a day in the garden, and the rest of the time on planning, marketing, managing the farm workers, and selling. The farmer uses a tractor and a plough, and employs a contractor to transport crops to a local commercial market.
- At Level 5, a farmer is seen as 'emerging commercial,' and farms are sized 5 000 m^2 and above. The operation entails irrigation systems, scheduling programmes, and permanent and seasonal workers. Most of the time is spent on planning, compliance, labour management and selling crops at a formal market. They typically require 15 000 litres of water a day to potentially plant 20 000 every 4 months.

It is important to note that at these small scales, profitable farmers are making full use of available resources such as compost, producing their own seedlings and buying only low-cost equipment. It is also important to note that an efficient level 4 farmer can make more profit than a less efficient level 5 farmer, because of the increasing input costs required at level 5. To get to level 5 from level 1, le Roux explains, a farmer must move through all the stages in between – there are no short-cuts. "The mistake," says Dr Hlophe-Ginindza, "is moving a farmer from stage one to stage three without them achieving at least 75% of what is required at stage one and then stage two."

A farmer should not expand hectares before mastering year-round production, for example. One cannot leap from livelihood farming to formal market supply without satisfying the intermediate administrative, labour, and compliance requirements, le Roux says. The same applies to the support provided to small-scale farmers. A level one or two farmer, for example, should not be given a pivot irrigation system meant for commercial farmers, no matter their aspirations.

"It's like giving a primary school student the handbook for a third-year university course," le Roux explains. "They cannot use it until they have completed the grades in between."

The project concluded that failures in Agri-parks often stem from attempts to push farmers from lower levels directly into large-scale commercial farming.

Not every farmer wants to be commercial

Perhaps the most uncomfortable insight emerged from conversations in Rooiwal. Very few small-scale farmers expressed a desire to become large commercial operators, le Roux says.

Some aspired to feed their neighbours. Others wanted to empower women locally. Some sought community cohesion.

Farmers mostly cultivate vegetables at Rooiwal.

Few were chasing large-scale profit – a prerequisite for surviving in highly competitive commercial markets. Most did not want to deal with the administration required to obtain compliance to sell their produce at formal markets (such as GAP Training).

"The vision to create a commercial farmer out of every small-scale farmer is a problem," says le Roux. "We must stop trying to commercialise everyone."

Only a small percentage, she argues, have both the desire and the capacity to move into formal commercial agriculture. Identifying and supporting that small percentage makes sense. For others, sustainability may lie in remaining at earlier levels and being supported accordingly to optimise effectiveness on each level.

This misalignment of visions has profound consequences. Providing sophisticated irrigation systems to a level-one farmer does not build capacity. It produces demotivation and wastes resources that could have helped another beneficiary.

And importantly, all levels, the researchers stress, are necessary in a decentralised food system. None is inferior.

A mindset shift

The implications extend beyond agriculture. Dr Hlophe-Ginindza argues that technical solutions alone cannot address adoption barriers. Social scientists must form part of research teams from the outset. "You cannot arrive with a solution and expect people to accept it," she says. "People must embrace it. They must want to participate, not because they receive funding, but because the idea resonates."

Without full participation and contextual relevance, technologies are easily disregarded.

With the help of the Sukuma Transformation Tool, the farmers could also assess their current level and identify realistic next steps. For some, it proved an eye-opener to the needs and responsibilities of a commercial farmer. For others, it offered reassurance that remaining at their current level is not failure. "It's not a box to keep someone small," Dr Hlophe-Ginindza says. "It's a roadmap to prevent failure."

A different future

The broader question is whether South Africa is attempting to solve hunger through the wrong model, Dr le Roux asks. Commercial agriculture functions effectively within urbanised, centralised food distribution systems, she explains. It does not necessarily reach remote rural communities where hunger persists. Decentralised small-scale production may be more appropriate in such contexts, but only if supported according to its own logic.

"If the vision is to make everyone commercial, we will not succeed," she says. "We must decide if we are trying to solve hunger, or trying to create commercial farmers. They are not the same goal."

The hope emerging from this research is not dramatic reform, but disciplined progression. Meeting farmers where they are. Supporting each level fully before moving to the next. Aligning vision with reality.

Blue Zones: a visionary experience

During a visit to Hammanskraal, close to the Rooiwal Agri-park, the research team identified what they came to call a Blue Zone homestead. Blue Zones are regions known for exceptional longevity and strong community networks, often centred around small-scale farming and local food systems. Dr Le Roux describes it as a healthy and whole household. "It was beautiful," Dr le Roux says, "with a lush garden abundant with corn, beetroot, and other vegetables." The homestead also had clean and functioning sanitation facilities. The homestead is operating at level 1 according to the Sukuma Transformation Tool, and is managed by a mother and daughter. They told the researchers they enjoyed a good, healthy relationship, and that working together in the food garden helped facilitate it. "They said they were in a good and happy place in their lives," Dr le Roux explains, and they offer a tempting example of how small-scale farming can look like in South Africa.