FOOD WASTE

How to fight food loss on South Africa's farms

Study pinpoints various ways to decrease food loss on farms, and potentially putting it on the plates of thousands of South Africans instead. Article by Petro Kotzé.

It remains a perplexing fact that millions of SouthAfricans are hungry every day, while millions of tonnes of edible food are being discarded or left to rot. Food loss and waste are a global scourge, and the impact is felt intimately and plays out in the health and development of the poorest of the poor.

In South Africa, out of almost 17,9 million households surveyed in 2021, 2,6 million had inadequate access to food and 1,1 million households experienced a severe lack of food. More than half a million (683 221) households with children aged five years or younger experience hunger. A large part of the reason is rising living costs, making food inaccessibly expensive to those who need it most.

Yet, a staggering 45% of the total food supply (production plus imports less exports) is said to be wasted and lost across the food value chain. Every year about 10.3 million tonnes of edible food in South Africa is being discarded or left to spoil, the cost of which is enough to feed 16 192 children two nutritious meals every day for a year.

The most wasted food types are seeds and pulses, followed by fresh fruits and vegetables, which make up an estimated 44%. The bulk of this (49%) takes place at the processing and packaging stage in the value chain, and a further 18% at consumption. Though those stages have been relatively well-researched, there is a near-complete lack of data on food loss at the very first stage, although an estimated 34% of food is lost there, on farms.

The link between food waste and water

According to the World Resources Institute, 1.3 billion tons of food is wasted every year, wasting 45 trillion gallons of water in the process, representing 24% of the estimated water used for agriculture globally. The sector is the largest water user in the world, accounting for roughly 70% of freshwater use globally. In semi-arid South Africa agriculture accounts for roughly 60% of water consumption.

A recent study by the Cape Town-based Behaviour Change Agency (BCA), commissioned by WWF South Africa, the WWF Nedbank Green Trust and Food Forward, aimed to start closing that gap. The project investigated the root causes of food wastage at primary production.

Though the primary drivers for fruit and vegetable wastage are environmental factors mostly beyond our control, such as the weather, pests and diseases, there's also a component to loss that we can manage, says project leader and neuroscientist, Jorique Fourie. "Identifying what we can change is a big step in the right direction. Behaviour is one of those, she says, so we wanted to see what kinds of behaviour lead to food wastage, so we can start to address them."

To understand farming, speak to the farmers

Fourie conducted 15 semi-structured interviews with farmers in person or over the telephone. Four manage fruit farms, five vegetable farms and six a mixture of both in the Western Cape, Eastern Cape, KwaZulu-Natal, and Limpopo. The questions probed farmers' awareness, attitudes and behaviours around food waste, including the value they place on reducing it, and what their food waste management practices are. Their findings delivered a handful of surprises, as well as numerous opportunities for improvement, served up straight from the farms.

Fourie says, unexpectedly, most farmers viewed food loss in a positive light. They saw it as a chance to improve, or a potential source of food for communities that don't have enough, she says. To dig into how that attitude could be used to decrease food loss, the researchers first had to investigate how it happens, and found that food loss is rooted in numerous components of the farming process.

Over and above the mentioned environmental causes, the farmers pointed out several causes classified as 'behavioural' by the researchers. These relate to the actions of the actors in the supply chain, including farmers, farm workers, retailers, suppliers and consumers. A surprising one, Fourie says, was the incorrect use of pesticides, identified as a major contributor to food wastage by the farmers they spoke to. Chemical mismanagement can include a lack of knowledge and training on the use of specific products, unintentional and uninformed mistakes, and generally risky behaviour that leads to crop damage and eventually, waste.

Further waste is caused when buyers or consumers reject produce that does not meet aesthetic requirements. According to the project report, "farmers sounded quite frustrated at the often unrealistic aesthetic standards required for a fruit or vegetable to be accepted into the food supply chain." Though most farmers' frustration was focused on middlemen such as retailers and promoters, consumers are influenced by the media and marketing to want perfect fruits and vegetables, even when quality, taste and nutrients are not compromised by blemishes.

Poor decision-making before the harvest was identified as a third behavioural contributor and the reason for "major" food losses. Poor decisions on water management, planting practices and timing, planning and timing of harvesting and crop monitoring can all cause crop loss. The respondents said that good management necessitated farmers to be "intricately involved in and present at every step of the process, from planting to harvesting and packing, along with their team."

Many farmers also cited labour practices, meaning the way crops are harvested and handled during production. Labourers that lack skills and training as well as personal work ethic, can damage crops.

Over and above environmental and behavioural causes, crops are also wasted because of market-related causes, for example, when there is an oversupply of crops. There is often a cycle, the farmers explained, in which a successful crop fetches a high market value in one year, floods the market in subsequent years and is then followed by "dry seasons" where its supply decreases again. This inevitably leads to a supply-and-demand issue, creating favourable circumstances for oversupply during the subsequent year. One farmer said, "I know it probably won't be good for competitive reasons, but if we could just somehow be warned that a lot of farmers plan on planting the same crop, we can make other plans." Other interviewees suggested creating district-based commodity associations or study groups that can preplan and share information to determine the number and

The way crops are harvested and handled during production play an important role in food waste. Labourers that lack skills and training as well as personal work ethic, can damage crops.

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Various factors, such as weather or the oversupply of crops can lead to food being left to rot in the field.

type of crops farmers intend to plant.

Low market values also contribute to loss. If a surplus of certain crops is supplied, demand and market values decrease, leaving farmers under pressure to achieve profit margins. Farmers said it was not economically viable to even harvest the produce when there was a lack of demand – it makes more financial sense to let it rot in the field.

Farmers are placed under even more pressure due to skyrocketing input costs. The price of fertilizer, for example, has increased by 134.6%, from R6 821 per tonne to R16 001 per tonne between March 2021 and March 2022 (according to the National Agricultural Marketing Council). Farmers now face a situation where, one explained, "The cost of harvesting, storing and sending food into the supply chain no longer justifies the cost required to grow that food in the first place." The result can be, again, crops that are left unharvested.

More causes stem from the supply chain. These include high transport costs, delays at ports and the high costs of packhouses. Political causes include unrest, riots and loadshedding.

Challenges to managing food loss and waste

Fourie says that though all the farmers they spoke to were eager to address food waste, they reported that they experienced several barriers in their way. The biggest were the logistical challenges of redistributing surplus food, the high transport costs and the prohibitive time necessary to organise this. Increasingly expensive input costs have already emptied coffers of any surplus funds to manage waste.

Another major challenge identified is the cost and time required to train staff to prevent or manage waste. Farmers said that easy access to training, especially on correct pesticide use, was a problem. There are also regulatory hurdles such as unjustified legislation to benefit certain countries' produce and EuroGap2 restrictions on the use of organic, affordable pesticides and substances that are available in South Africa.

Another barrier is worker behaviour, though some of these, the report states, refer to deep, systemic, societal issues. One farmer said that they now mark staff pay days as unviable for harvesting, as no workers will show up because they are out spending their money. This results in the harvest being postponed, with an immediate effect on end-product shelf-life and quality.

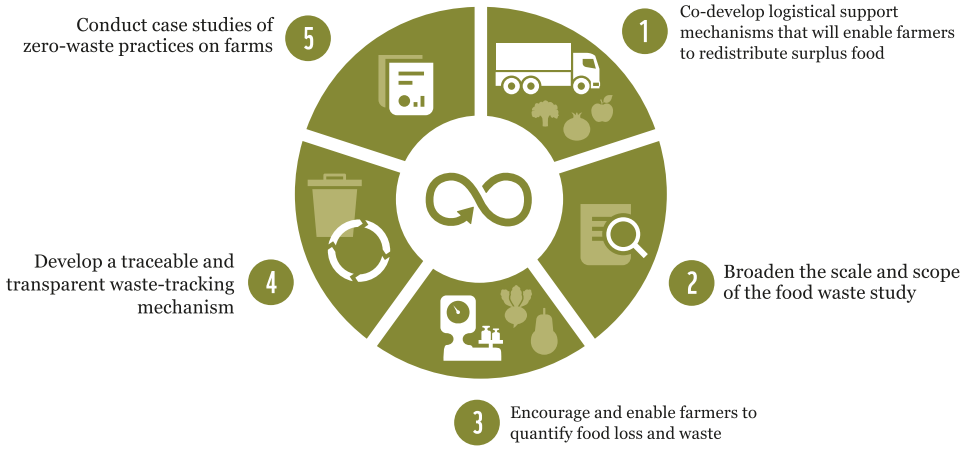
Where there's a farmer, there's a way

All farmers said they wanted to address food loss and waste on their farms and believed other farmers do too. However, policy changes will not motivate them to do so, Fourie says. "Not one mentioned policy," she says, when they were questioned about their motivations to address food loss. Instead, she says, they found the farmers were driven by intrinsic incentives. "It is important to have policies in place, but that is not necessarily going to change the behaviour of the farmers."

Most had a financial imperative, saying that profit margins were already so tight, that all potential sources of income should be made use of. Secondly, the farmers felt they had a moral obligation to feed people and to improve the country's food security. "Their responsibility towards their communities and the people they provide food to daily encourages them to limit any waste that could have been a meal," the report states.

In conclusion, enforcing stricter laws on the control of food wastage on farms would not be a recommended strategy for bringing about change. The inherent motivation of farmers – be it financial or moral – is enough to drive meaningful change.

The study suggested various opportunities to reduce the scourge of wasted food. Most prominently, is the provision of logistical support to redistribute surplus food. Another is to quantify food loss on farms. Less than half the farmers could



Five improvement opportunities for reducing waste as identified by the report.

estimate the amount of food lost on their farms, Fourie says.

Of those interviewed, two farmers reported zero waste on their farms. One did so by focusing on changing the behaviour of farm workers, and constantly educating and involving staff in the farming process. This farmer reported a drop in wastage from 35% to 0% as a result. Valuable follow-up research would be case studies to document their methods and successes for possible future training and education of other farmers.

Changing behaviour to change food loss

A final behaviour change strategy would probably be segmented into different target audiences, including farmers, farm managers, farm workers, and so forth, but requires a follow-up project, Fourie says. She adds that their findings, however, are already inspiring. Intrinsic motivation is integral to any successful behaviour change strategy, she says, and this is exactly what they found on farms. The interviewees felt that there was hope and opportunity, and they could facilitate change. "They were excited about it."

The farmers she spoke to had a lot going against them, Fourie says, mentioning political issues, climate extremes and droughts and rising costs to name a few. Regardless, they say they will keep on doing it and giving their best. "We have an extremely resilient farming community," Fourie says. That was an important indicator that we have such a big opportunity to implement behaviour change programs."

Any follow-up work will depend on funding, but Fourie says this is a good start and, she would advise any other roleplayers to start at the same place. "There is a tremendous amount of knowledge in our farming communities," she says, adding that there also seems to be a disconnect between what happens at farms and at policymakers or other players involved in the sector.

Reducing food wastage should be considered of critical importance in South Africa, in order to make more nutritious, safe and affordable food available, in particular to children, the report states. A large part of that solution, Fourie says, is within relatively easy reach right on our doorsteps.

For more information: Fourie J, Engelbrecht K, Govender P, Pillay P and W Engel. 2023. ***Food loss and waste in farming: Insights from South African farmers***. WWF South Africa, Cape Town, South Africa. (https://wwfafrica.awsassets.panda.org/downloads/food_loss_and_waste_report.pdf)

Additional source: Increasing reliable, scientific data and information on food losses and waste in South Africa, a Technical Report written by SHH Oelofse, T Polasi, L Haywood L and C Musvoto for the CSIR and the DST

The high expectation for aesthetically pleasing fruit and vegetables is given as a reason for food waste.