

Rethinking farmer custodianship of nature's resources

Consumers increasingly want to know how their food is produced and governments are moving to replace conventional fossil-fueled energy with renewable energy sources. So too, the agriculture industry has to rethink its custodianship of natural resources through sustainability.



Nico Groenewald

The ecological intensification of agriculture

"New research is showing sustainable farming requires us to understand how nature functions so as to exploit its resources without destroying it. This may very well mean that we can actually produce more by breaking with practices based on excessive, mass use of pesticides, chemical fertilisers, water, and fossil fuels," says Head of Agribusiness at Standard Bank, Nico Groenewald.

The Food and Agriculture Organisation (FAO) of the United Nations, the Royal Society, and other authoritative organisations tackling the issues of food sovereignty and food security alongside environmental concerns call this approach ecological intensification of agriculture.

There is, as yet, no precise definition of ecological intensification of agriculture. But there is general consensus that, while the last 50 years have seen extraordinary increases in global food production through the intensive use of inputs, such practice have the potential to deplete natural resources and impair the ability of agro-ecosystems to sustain long-term production.

The new approach to food production, therefore, focuses on using land, water, biodiversity, and nutrients efficiently and in ways that are regenerative, minimising negative impacts. The objective is to enhance productivity by optimising ecosystem services rather than by increasing agricultural inputs. "Before the industrialisation of agriculture, many farmers instinctively operated this way," Groenewald says. "Today, however, what the farmer does on his land has global significance - and has to be based on generally acceptable ecological principles.

Energy use on farms

"This extends to energy use on the farm. In South Africa, we're being forced to confront this reality rather sooner than in Europe and North America because of the shortage of electricity supply. At the same time, our farmers have to increase production in order to feed a rapidly growing population that is not only becoming more urbanised but is also moving up the LSM scale and, therefore, using far more discretion in the food it buys. Producers are becoming publicly answerable for their actions on the farm as well as in the value chain."

One of the most obvious areas in which agriculture will be called to account is its almost complete dependency on fossil energy, which is high in greenhouse gases. Increased agricultural production has also resulted in high volumes of bio-waste, a significant cause of greenhouse gas emissions. "The industry has a responsibility to the nation to move to renewable energy sources and to also reduce, reuse or recycle its bio-waste output," Groenewald says.



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Saving costs, creating new revenue streams in a new industry

"Ecological intensification will help address the bio-waste challenge, through conversion of bio-waste to energy. This represents an opportunity for farmers to get involved in energy production, and subsequently providing them with an additional revenue stream. In fact, ecological intensification as a whole is an entirely new industry and offers enormous potential for new revenue streams, should agricultural players opt to exploit synergies."

Significant energy savings can be achieved in a very short space of time in the processing and packaging part of the agricultural value chain, where lighting and refrigeration can all be made more energy efficient. Carbon offsets are also a realistic option for processors, who make up 11% of South Africa's overall manufacturing sector. In addition to the use of wind and solar energy to run equipment, producers can also adjust their production to load shedding schedules.

Developing sustainable energy practices

"Standard Bank has been involved for some time in funding renewable energy production in South Africa as well as making it affordable for businesses to participate in carbon offsetting initiatives," Groenewald says. "We also fund individual enterprises that are suppliers to the renewable or energy efficiency sectors. Because most farms are in rural areas, where connecting to the national grid could sometimes be more complicated than generating your own electricity, we are now taking proactive steps to help farmers develop sustainable energy practices, including investing in their own energy generation plants, whether with solar, wind, or biomass - or all three."

The trend, globally, is to work with and not against the environment by making careful use of resources, introducing sets of management practices that build on the strengths of each, and facilitating the natural generation of ecosystem services on the farm and in the value chain.

"If we can create multifunctional agro-ecosystems that are sustained by nature, then they will inherently be sustainable in their nature," concludes Groenewald.

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