

Securing SA's agricultural future with advanced irrigation technology

Despite its challenges as a water-scarce country, prone to droughts and erratic rainfall, South Africa has positioned itself as a leading food exporter and a major player in high-value horticultural markets.

This achievement can largely be credited to the country's farmers' forward-thinking approach, embracing cutting-edge agricultural technologies—particularly advanced irrigation systems integrated into precision agriculture—that optimise farming inputs and drive higher yields and efficiency.



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This commitment to innovation is evident in the scale of South Africa's irrigation infrastructure. Ari Abel, managing director of Agrimark, estimates that the replacement value of the country's irrigation systems—comprising drip systems, microfilters, pumps, and pipes—stands at R34bn, based on current production levels.

Growing market for precision farming

“Assuming an annual replacement rate of 3%, the annual market size is R1bn, based on its current size. Looking to the future, as more farmers are expected to switch to precision farming, the need

this type of technology will increase, and with it the size of the market.”

While historical circumstances have forced South African farmers to become water-wise, there are considerable pressures to double down on this trend. Long-term climate forecasts, including those from the Intergovernmental Panel on Climate Change, envision longer droughts and more erratic rainfall over Southern Africa in coming years, with considerable implications for agriculture and food security across the region.

In addition, while the size of South Africa’s water resource will not grow, its population is expected to grow by 17% in the coming 10 years, effectively reducing per capita water availability.

Sustainable irrigation practices

“Agriculture in South Africa consumes 60% of the available water resource; that is massive in a water-scarce country. Our producers have a responsibility to farm sustainably, and that is not possible without good, sustainable irrigation practices.”

Yet sustainable irrigation practices are highly dependent on the system functioning optimally. Abele likens the upkeep of an irrigation system to that of servicing a car; over time, components wear out

If not replaced timely, they increase strain and consumption throughout the system, reducing efficiency and increasing the risk of breakdowns. He explains that several characteristics of the everyday use of irrigation systems necessitate the periodic replacement of components.

“Over time the peroxide used to clean irrigation systems erodes the thickness of the pipe walls, so eventually the pipes don’t give you the same flow rate. Many farmers fertigate, in other words, they apply liquid fertilisers via their irrigation systems, and these fertilisers can also reduce the lifespan of the dripping lines.

“You may have a dripper installed to give 0.7 litres per hour, but then a grain of sand or a micro-stone gets caught up in the dripline, and suddenly this dripper doesn’t give you 0.7 litres per hour or more, which leads to inefficient production.”

Abele notes that amid the past three years’ difficult economic conditions and steep increases in farming input costs, many farmers may decide to postpone the scheduled replacement of irrigation components by a year or two.

“This is a risky decision because the costs escalate quickly. If you put off replacing 5 hectares of irrigation on a wine farm for two or three years, you suddenly must replace 15 or 20 hectares. In the meantime, the worn components cost you more money due to reduced efficiency.”

Technological innovations in irrigation

Crop production under netting has been one of the biggest game changers in irrigation farming over the past decade, as it reduces evaporation from orchards and also the overall water requirement.

Networked soil moisture probes that can be monitored remotely in real-time help to ensure that crops remain optimally watered, and irrigation systems that can be operated remotely via cell phone, are common features of these precision farming installations.

"Agrimark is committed to helping our farming and retail customers improve water stewardship. For the long-term sustainability of our relatively good food security in SA, it would be advisable that Government and private sector invest in expanding dam and water irrigation systems in SA.

"Recognising the complexity of these systems, we offer tailored irrigation solutions that meet the diverse needs of South Africans," concludes Abeln.

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