

'Resurrection plants' expert wins award

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A WORLD expert on what are known as "resurrection plants" was awarded the €100 000 Harry Oppenheimer Fellowship Award on Friday, to continue her work on how these plants can be used to ensure future food security.

Prof Jill Farrant, who holds the research chair in the molecular physiology of plant desiccation tolerance at the University of Cape Town, was the 10th recipient of the fellowship, which encouraged high-end research, said Oppenheimer Memorial Trust trustee Bobby Godsell.

Resurrection plants, mostly endemic to southern Africa, tolerate near total water loss for prolonged periods. If the way in which their genetic make-up works to do this could be better understood, it could be used to increase crops' drought resistance without resorting to genetic modification, Farrant said, after receiving the award in Johannesburg.

The United Nations' (UN's) Food and Agriculture Organisation has warned that if water use is not reduced and plants' drought resistance is not improved, many countries would have abandoned crop farming by 2050, she said.

Last year, the UN announced that Africa's population had passed the 1-billion mark, and was estimated to reach 1.9-billion by 2050. The world's population is projected to peak at 9.22-billion in 2075, with concomitant pressures on resources, including food and water.

Resurrection plants — one of the most common examples of which is the "bobbejaanstert" (*Xerophyta retinervis*) — can survive up to 15 years in a "dead state" and lose up to 95% of their water content, but will "green up" within 24 to 76 hours after being watered, said Farrant.

She will fly to Switzerland in two weeks' time to work with Prof Felix Keller, of the University of Zurich's Institute of Plant Biology, in the identification of the sugars made by these plants, how the



Jill Farrant

plants make them, where they go in the plants and how they protect the plant in its "dead state".

She will also use the award money to work with Dr Francesco Loreto of Italy's Consiglio Nazionale delle Ricerche (National Research Council), who investigates minuscule lipid "volatiles" (chemical signals). Lipids are a broad group of naturally occurring molecules that include fats, waxes, sterols and fat-soluble vitamins.

Loreto has equipment that will allow Farrant to detect and identify these chemicals and then return to SA to test lipid levels in the chemical signals given off by resurrection plants, understand what they do and how they make the plants so successfully drought-resistant.

—Farrant's interest in resurrection plants is a personal one. As a young Limpopo farmer's daughter she went into the veld one day and noticed a bobbejaanstert in its dead state. The next day, after overnight rain, she noticed the plant had rejuvenated.

"I told my dad. He was a farmer and he ridiculed me because, 'Dead plants don't come back to life.' Then I did my PhD in something totally different and it was only after that that I thought I would test if what I saw as a child was true," she said.

The Oppenheimer Memorial Trust this year had put about R13m into education, including R4m for individuals in post-graduate study, said Godsell.

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