HYDROPONICS

Food sustainability is of major concern for a country that experiences harsh weather conditions, limited water access and poor growing soil, especially in townships and rural areas. According to StatsSA, in 2017 around 12% of the South African population experienced hunger. During lockdown this number increased substantially with a purported estimate as high as 36%.

Seeing this opportunity to develop something that will work under such tough conditions to grown one's own fresh produce, the *African Grower* is a dream realized for Fresh Life Produce that began in 2016 for Louis-Gillis Janse van Rensburg. It is a vertical hybrid hydroponic plant growing system. Easy to set up, it uses a small space and requires little maintenance and the growing medium retains water for much longer.

Click here https://www.youtube.com/watch?v=zEcsCchGHLY&t=17s for an introduction to the operation of the *African Grower*.

Louis-Gillis Janse van Rensburg comments: "With this technology we strive to lead the way in showing that it is possible for every single person – or company with a rooftop! – to have the capability to grow their own food and become part of this new method of farming, referred to by us as 'decentralised home farming'. We are also proud to be associated with the Sakhulwazi Women's Hub that empowers women to be self-sustainable – learning skills to earn an income and grow their own produce."
Enjoy an interview of Mama Rose (founder of the Sakhulwazi Women's Hub) by clicking on this link:
https://www.youtube.com/watch?v=SIIbT-k6L5M

Innovating on the Hydroponic Plant System two young Mechanical Engineering graduates, Mogale Maleka and Tumelo Pule, under the auspices of AB Farms (an agricultural tech company), looked at a way to upscale the system for small scale and commercial farming and approached UJ-PEETS for assistance to improve the irrigation system.

Vertical pipe systems for small scale commercial farming on the market generally do not have a water storage capacity incorporated in their designs. Irrigating systems therefore have to run continuously to prevent the plant roots from becoming dry and hindering plant growth or killing the plant. Electricity in South Africa is becoming more and more expensive and more unreliable due to power failures making it economically unsustainable to operate hydroponic systems continuously over extended periods of time.

With the assistance of funding from UJ-PEETS, Maleka and Pule designed the prototype that allows culinary plants to be irrigated periodically, thereby reducing energy use and allowing mineral solution to flow through to individual plants.

Says Mogale Maleka: "Given its ability to store water within the design, it will reduce the amount of energy required to grow produce while simultaneously increasing the planting density per square meter, thus reducing costs and increasing production capacity. The system allows plants to have access to water continuously even when the irrigation system is off (due to power failures, pump failure etc). It also allows for the reuse/recycling of the irrigating water thereby saving water, fertilizers and electricity."

Click here for some tips on using hydroponics from this dynamic duo:
https://www.tips.org.za/research-archive/sustainable-growth/green-economy-2/item/3620-case-study-mogale-maleka-and-tumelo-pule-using-hydrophonics-to-enhance-food-security

AB Farms has successfully tested the prototype and ready to commercialize the irrigation product. These inspirational youngsters are now working with UJ-PEETS on the second phase to develop an all energy-efficient solution and a more sustainable system with minimal cost and value for money during production.

For more information on AB Farms, click here: https://abfarms.co.za/

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