

Silalâ??Square Roots partnership uses AI to boost sustainable food production

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Silalâ??s Innovation Oasis (iO), the state-of-the-art research and development hub in Al Ain designed to transform agricultural technology, has signed a landmark collaboration agreement with Square Roots, a global agritech company specialising in modular controlled-climate farming and AI-powered cultivation systems, to advance climate-smart agriculture and accelerate breakthrough solutions for desert farming.

The partnership represents a major step forward in the UAEâ??s efforts to strengthen food security, enhance water efficiency and build a next-generation agricultural innovation ecosystem. The agreement combines Innovation Oasisâ??s desert agriculture expertise with Square Rootsâ?? global leadership in controlled-climate farming, indoor crop science and AI-enabled agricultural applications.

Under the agreement, Square Roots will deploy a multi-zone, fully cloud-connected, artificial intelligence-powered research facility on the iO site. The facility will serve as a national testbed for fast-tracking innovation in indoor and desert farming by enabling parallel trials on desert-adapted crops, low-light genetics, modular indoor farming systems and generative AI technologies tailored for agriculture. The collaboration also aims to accelerate the commercialisation of resource-efficient farming solutions for adoption across the UAE.

The initiative will advance several core innovation tracks, including the development of low-light crop genetics to support indoor farming with up to 40% lower energy consumption, building on Square Roots internationally recognised research supported by the Gates Foundation. The collaboration will also identify and test new strategic crops suited to desert environments, expand the diversity of locally grown produce, and develop a suite of AI-powered tools to enhance productivity and optimise resource use. In addition, Square Rootsâ?? globally renowned â??Next-Gen Farmer Training Programâ? will be localised to equip Emirati scientists, agronomists and growers with advanced technical expertise.

To further support the UAE farming community, Square Roots will adapt its modular indoor farming platform into a resource-efficient configuration tailored for smallholder farmers, including scalable systems capable of operating on solar power. A research and development farm based on Square Roots's technology will be deployed at the Innovation Oasis site to serve as a platform for the full ecosystem of programs under the collaboration, as well as additional Silal-led research initiatives.