

China's Institute of Urban Agriculture unveils plant factory technology at Qatar

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Chinese plant factory technology was unveiled on the global stage, with the 2022 FIFA World Cup kicked off at Al Bayt Stadium in Qatar. Plant factory technology is one of the Chinese elements marching massively in the feast of football competition. The technology, developed by the Institute of Urban Agriculture (IUA) of the Chinese Academy of Agricultural Sciences, ensures the vegetable supply for the players.

Doha, the capital of Qatar, is located on the Qatar Peninsula in the southwestern Persian Gulf. With a tropical desert climate, the country severely lacks fresh water and arable land. Thus, it relies mainly on imports of vegetables, fruit, and even fresh water. To ensure the vegetable supply for participating teams during the World Cup, Al Fardan Farm, with the support of IUA, set up plant factories with LED lighting for vegetable production. In 2019, IUA built a team dedicated to the development of a vegetable factory together with relevant research institutes and enterprises, at the request of Qatar. Innovatively, the team made the best use of abandoned containers of ocean-going freighters at the deep-water port of Doha as the structure for the plant factories. Its vegetable cultivation features LED lighting, substrate cultivation, temperature and humidity control, and hydroponics using a nutrient solution containing strontium and selenium. In particular, the team developed a unique "dual cultivation technology" by combining hydroponics and substrate cultivation technology, thus enabling high-quality

vegetable production all year round in the deserts of the Middle East.Â