

# UMS leads in sustainable food production

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KOTA KINABALU: Universiti Malaysia Sabah's (UMS) Sustainable Agriculture Faculty (FSA) is leading the way in sustainable food production through several innovations.

FSA Deputy Dean Dr Januarius Gobilik said FSA has also been providing real world training to students in sustainable agriculture via academic programmes and has also produced 720 graduates over 10 years.

"The faculty has developed several innovations in hydroponics, aquaponics, rice production and compost production by leveraging specific principles in plant production and microbial composting," he said in a statement.

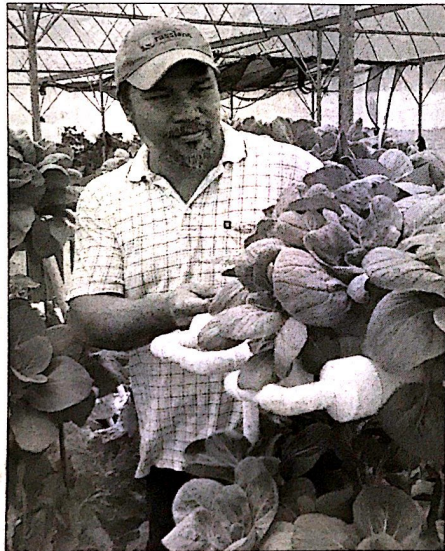
The innovations, he said, can improve plant productivity and contribute to long-term food security at the State and national level.

Hydroponics is a farming system which relies on the application of precise amounts of nutrients directly to the roots of the plant without the use of soil.

"Culture of plants without the use of soil, or soilless culture as it is technically referred to can boost the growth of plants and minimise the cost of plant production as a direct consequence of high efficiency.

"Hydroponic systems can be combined with the production of fresh-water fish (or aquaponics) such as Tilapia as the waste products of the fish provide readily available nutrients to the plants in the form of nitrates, phosphates and potassium as well as micronutrients.

"The closed system also obviates the



Dr Januarius checking 'pak choy' on layered hydroponics.

need for toxic chemicals such as pesticides and herbicides, thus making the crops pesticide free."

Januarius has also designed and devel-

oped an innovative hydroponic and soon aquaponic systems which he has optimised for the growth of leafy vegetables such as 'pak choy' in collaboration with a



Upland rice production trial in FSA.

private company and extended this precise nutrient application practices to the production of grapes as well as figs in collaboration with another company.

"The success of this work can be seen in the towers of leafy vegetables which he produced as well as the training provided to both postgraduate and undergraduate students over the years," he said.

Recycling agricultural wastes is another important contribution by the treatment of dairy and livestock farm wastes.

"Sustainable food production depends on the localised production of bio-fertilisers as the cost of fertiliser constitutes a major cost of food production.

"Recycling of dairy wastes which are rich in macro and micronutrients as well as beneficial microbes can reduce the cost of chemical fertilizers or eliminate it completely."

The group of researchers at FSA have also been working actively on the production of upland, or what is locally known as hill rice (padi bukit).

"This is a hardy variety of rice which is rich in fibre and nutrients and has been sustaining humanity for centuries.

"The rice can serve as a local substitute for the polished imported varieties of hybrid rice owing to its rich nutritive value," he said.

Livestock production is also another area which the group under Januarius has been working on over the years.

"Our ongoing collaboration with a company has resulted in the development of Pakchong napier production technology and a locally manufactured feed for the production of livestock for human consumption," he said.