2 ZERO HUNGER

17 citations per paper in 2019.

Above the average (4.2) in Taiwan.

In 2019, NCTU offered

63 related courses.

Eliminating hunger, improving agricultural productivity and quality through smart agriculture

In recent years, due to the aging agricultural population and food safety crisis, Taiwan' s agriculture faces challenges in sustainable development. "New Agriculture", based on the principles of "innovation, employment, distribution and sustainability", has been one of the Taiwan government' s industrial policy visions since 2016.

Wen-Liang Chen, Associate Professor of Department of Biological Science and Technology, and Yi-Bing Lin, Professor of Department of Computer Science, led the students to develop "AgriTalk" intelligent agricultural system through cross-disciplinary collaboration. This intelligent system can implement non-toxic intelligent agriculture by monitoring the growth of crops with technology.

The system uses the field monitoring technology of Internet of Things, which can sense temperature, humidity, and soil construction. Besides, the use of agricultural artificial intelligence will predict plant diseases and insect pests. It can automatically decide irrigation time and irrigation quantity, and customize allocation of agricultural fertilizer and pesticide dosage to improve agricultural products' quality and produce safe and traceable agricultural products.

AgriTalk has participated in the Consumer Electronics Show (CES) for two consecutive years with the subsidy of the Value Creation Project of the Ministry of Science and Technology. AgriTalk won the CES 2020 New Innovation Award. Hopefully, this technology will also be applied to countries with food shortages to end hunger in the future.

Ending hunger by achieving food self-sufficiency through circular agriculture

After the outbreak of COVID-19 around the world, the fragility and hidden crises in the global food chain have become apparent. The shock of a ban on agricultural exports by big exporters has made food self-sufficiency crucial that countries and even families have to pay attention to it. Professor Jehng-Jung Kao, from the Institute of Environmental Engineering, and his team developed "DIY Green" , which adopts an environmentally friendly way to plant crops. It uses recycled bottles to store water on the base. The water is brought to the soil through diversion strips, and the plant does not need frequent watering. Vegetables can be harvested in about 20-35 days, depending on the season, making it easy for people to taste fresh vegetables without pesticides at home. Professor Kao has also developed a "low-maintenance gardening method" that uses earthworm waste as fertilizer. Earthworm fertilizer is a natural organic fertilizer that is rich in microorganisms. It will make plants grow better. In this way, people can grow fruits and vegetables at home. The distance between food and the dining table will be shortened, and the carbon emissions from transportation can be reduced.

Promoting sustainable agriculture in Indonesia

NCTU I Do Volunteer Group has been in Indonesia regularly to promote sustainable agriculture for eight years. The group shared the situation of Taiwan's agriculture nowadays and the sales experience of agricultural products. Besides, the group also taught the practice of replacing chemical fertilizer with environmentally friendly agriculture to save cost under limited resource conditions. They introduced the concept of fair trade to the local area to achieve the goal of "sustainability and cooperation between people and the environment". In the future, the economy, environmental protection and sustainability can coexist.