New technologies applied to enhance growth rate of vegetables by Hydroponic Centre

The Agriculture, Fisheries and Conservation Department (AFCD) and the Controlled Environment Hydroponic Research and Development Centre (Hydroponic Centre) announced to the agricultural industry today (November 22) that two new technologies, namely the Changeable Spectrum Grow Light Technology and the Nano Bubble Technology, can effectively enhance the growth rate of hydroponic vegetables. Four new vegetable varieties which have been successfully grown recently at the Hydroponic Centre using controlled environment hydroponic technology were also introduced.

Since its inauguration in 2013, the Hydroponic Centre has served as a demonstrator of advanced hydroponic technology and facilities for the industry and investors. With a view to enriching the variety of hydroponic vegetables grown locally and offering more options for the market, it has also carried out research and development (R&D) work including the selection and testing of new varieties.

The Agricultural Officer (Horticulture) of the AFCD, Mr Chan Siu-lun, said, "Trials of the Changeable Spectrum Grow Light Technology and the Nano Bubble Technology have been jointly conducted by the Hydroponic Centre and the Nano and Advanced Materials Institute Limited (NAMI). NAMI is a research centre designated by the Innovation and Technology Commission. NAMI makes use of light emitting materials to develop grow light with desirable growth spectrum suitable for planting. The proposed spectrum can be adjusted to fit different growth stages of plants. This can enhance the growth of vegetables. Trial results revealed that with the support of the spectrum, the growth of red oak leaf lettuce sped up 20 per cent, red coral lettuce sped up 30 per cent, and green oak leaf lettuce and green butterhead lettuce sped up at least 50 per cent."

With the Nano Bubble System designed by NAMI, the Nano Bubble Technology can increase the amount of dissolved oxygen in water, which can enable seedlings and plants to grow faster. With the help of this system, the seed germination rates of different vegetables in the Hydroponic Centre are able to increase between 3 per cent and 36 per cent, and the growth of hydroponic vegetables using the system also sped up significantly.

Moreover, the Hydroponic Centre also shared four new varieties, namely 60-day choy sum, hok tau pak choy, spinach and shan kwai choy, with the industry. 60-day choy sum, spinach and shan kwai choy have been introduced from the Mainland, Japan and Taiwan respectively, while hok tau pak choy is a local variety. With their unique tastes and textures, in addition to high nutrition value, these vegetables are ideal for making different types of dishes. Production for these varieties is simple, taking 28 to 48 days to

harvest depending on the individual variety. By using controlled environment hydroponic technology, they can be produced throughout the year. These new varieties have been introduced to hydroponic operators who are encouraged to try growing them. Technical support is provided by the Hydroponic Centre when necessary.

Meanwhile, members of the public can purchase the hydroponic vegetables through the mobile application "Local Fresh" of the VMO.

The Senior Agricultural Officer (Crop Development) of the AFCD, Ms Wendy Ko, said, "In recent years, the AFCD has been proactively exploring different modernised production methods to enhance development of the local agricultural industry. We hope the Changeable Spectrum Grow Light Technology and the Nano Bubble Technology can be widely used in the future to speed up the growth of crops effectively."

Ms Ko noted that under the New Agriculture Policy, the Government will continue to promote the R&D of applied technology for agricultural production and facilitate knowledge transfer so as to achieve diversification in the mode of production for local vegetables. This would be conducive to enhancing competitiveness as well as the modernisation and sustainable development of the industry.