

## Reaching new heights with high-tech farming

Last month, local farmers went on a technology-sourcing trip organised by the Agri-Food and Veterinary Authority of Singapore to look at indoor vegetable farms in Japan. The Straits Times takes a look at what makes the Japanese one of the pioneers in this field.



### Spread

Located in Kameoka City, Kyoto prefecture, this vertical farm set up in 2007 is the largest indoor plant factory in Japan, producing 21,000 heads of lettuce per day. The indoor farm uses special LEDs to grow its vegetables and controls elements essential for photosynthesis: light, air and water. This includes air circulation and light distribution. The farm hopes to reduce labour costs by half by using a fully automated system to raise seedlings until they are harvested.



### Sakura Green Farm

The dome-shaped indoor farm has no pillars, allowing sunlight to be spread evenly. It is also made of a double-layer special plastic which controls sunlight evenly and allows it to reach every part of the dome. This allows the farm to grow twice the number of crops compared with other greenhouses. Using an automated system, small seedlings are planted inside the inner perimeter. As they grow, they are automatically moved outwards for easy harvesting.



### Mitsubishi Chemical's 'Plant Plant' System

Japanese railway company Hanshin Electric Railway is using Mitsubishi Chemical's "Plant Plant" System to produce salad greens on vacant land beneath railway tracks. The latest system was installed in 2014 beneath elevated railway tracks near Amagasaki Centre Pool-mae station in Hyogo prefecture. The vegetables are grown in racks of six tiers and the system can even be installed in restaurants. The system uses an LED steriliser which kills bacteria and keeps nutrient solutions in good condition.

### Others: Innovatus Inc

Set up in 2014, the farm uses solar panels to keep energy costs down. Some 12,000 heads of lettuce are produced every day.