

*The specialized lights that Vietnamese scientists have developed save up to 60 percent of electricity consumption and ensure the flowering of plants.*



Bulbs are not simply used for lighting but also used to control the growth of crops. In tissue culture, the use of dedicated lights is critical to the success of the plant.

Each light has a specific wavelength and light spectrum that is appropriate to the growth conditions and biological characteristics of each species.

In order to prevent chrysanthemums from flowering early in winter, farmers have to use artificial light. Daisy gardens are illuminated with 40-60W incandescent bulbs for 4-10 hours per night, depending on the varieties, location and crops. With the large cultivation scale, a great amount of electricity is wasted.

For dragon fruit growers, the most difficult time is between September and March-April of the next year. Since the number of daytime lighting hours is low, the plant which likes long days and short nights cannot flower.

To help the plants flower during these months, farmers have to provide artificial light to them at night. They mostly use 75-100W light bulbs, from 18 to 22 hrs for 15-20 nights.

As in daisy cultivation, the long use of light bulbs leads to a sharp increase in demand for electricity in dragon fruit production areas.

Realizing the problem, the Ministry of Science & Technology assigned Rang Dong light source and vacuum flask company to work on a specialized lighting system for use in the breeding industry and plant flowering control.

The company's R&D Center joined forces with the Hanoi University of Science & Technology, the Vietnam Agriculture Academy, Nguyen Tat Thanh University and farms in Hanoi, Quang Ninh, Da Lat, HCMC, Tay Ninh and Tien Giang to implement the plan.

According to Nguyen Doan Thang from Rang Dong, the research team created more than 20 types of fluorescent powder to produce specialized lamps for chrysanthemum and dragon fruit tissue culture. The manufacturing processes are highly reliable, meeting the requirements for industrial production.

The lighting system applied to a 1.5 hectare dragon fruit gardens in Tay Ninh, Binh Thuan and Tien Giang showed encouraging results. The electricity consumption was 60 percent lower than using 60W incandescent bulbs, while the proportion of flowering plants was similar.

Thang said the electricity saving efficiency is similar to the application for daisy cultivation. "The specialized bulbs improved the quality of chrysanthemums, while saving 60 percent of electricity consumption," he said.

The dedicated light bulbs to control flowering can also be used in growing dragon fruits out of season.

## **Vietnamese scientists invent light to control plant flowering**

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