

## **Effects of Different Lighting Regimens on Flowering in Ranunculus**

Maayan Plaves Kitron, Avi Osherovitz, Keren Elbaz and Dorit Hashmonai – R&D Central and Northern Arava

Iris Yedidya – Department of Floriculture, Volcani Center, ARO

Gidon Luria – Division of Floriculture, Extension Service, Ministry of Agriculture

Amnon Navon and Yair Nishri – Negev Extension Service, Ministry of Agriculture

Address for correspondence: [Maayank@arava.co.il](mailto:Maayank@arava.co.il)

### **Abstract**

The production of geophyte crops in Israel has increased in recent years and benefits from a seasonal marketing advantage. Following a survey of a number of bulb and corm cut-flower crops, which was conducted by Central and North Arava R&D, it became clear that it is possible to move up the flowering and harvest season relative to that in other regions of the country, yielding positive results that have transformed geophytes into an additional crop in the portfolio of flower crops produced in the Arava. Taking advantage of, and adapting existing cropping infrastructure, such as greenhouses, soil-less culture, and supplemental heating and lighting, has allowed geophytes to become a worthwhile alternative to declining large-scale crops. In work we performed in ranunculus, we found that increasing day-length led to slightly earlier flowering and encouraged the production of longer stems, but adversely affected flower quality and quantity. The ‘Elegance’ cultivars were brought into commercial production as cultivars possessing economical potential, despite their late-ripening flowers. In work that was conducted at the Yair Research Station in the Arava over a period of three growing seasons (2005/6 through 2007/8), we examined the effect of 16 hours of daylight (achieved through the use of supplemental lighting during night-time hours) on the flowering of ranunculus, specifically ‘Elegance’ cultivars. Ranunculus was planted in the ground and in tuff at the end of October, with a planting density of 20 corms per m<sup>2</sup>. Supplemental lighting was first supplied approximately one month after planting. We found that the cyclical lighting regimen of two weeks of supplemental lighting and two weeks without supplemental lighting, under natural (winter) day-length conditions, caused earlier flowering with minimal damage to flower quantity or quality. Additionally, we found that supplemental lighting with fluorescent bulbs was not as effective as supplemental lighting with incandescent bulbs.