

Effect of Vernalization Treatments on the Timing and Quality of Flowering in *Ranunculus*

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Abstract

Geophytes production in Israel has increased over the past several years, thanks to a relative marketing advantage during periods in which competing nations have not been active in this market. Following tests of a number of corms and bulbs of flower crops conducted by R&D Central and North Arava, it became clear that taking advantage of and adopting sophisticated cropping infrastructure for geophyte crops, such as the use of greenhouses, growing the plants in trays instead of in the ground, and supplemental heating and lighting, makes it possible to move up the flowering and harvest seasons, relative to other parts of the country, to produce positive results. These results have transformed geophytes in the Arava into an additional crop in the portfolio of local flower crops and a worthwhile alternative to least profitable large-scale crops. When *Ranunculus* crops, specifically Elegance cultivars, were first brought into commercial production, they were thought to hold great economic potential, despite their late-ripening flowers. In work that was conducted at the Yair Research Station in the Arava over three growing seasons (2005/6, 2006/7, 2007/8), we tested the effects of different vernalization treatments on the timing of flowering. These treatments were: standard vernalization (4°C for 4 weeks and 9°C for 1 week), Italian vernalization (gradual cooling of the corms to 13°C for 1 week, 9°C for an additional week, followed by 4°C for one week and gradual warming) and transplanting into seed trays. Despite the fact that we had anticipated that transplanting into trays might be advantageous, this treatment was no better than regular transplanting. Standard vernalization led to early flowering, as well as the production of a larger quantity of flowers. Transplanting into trays could be advantageous in situations in which the planting area could not be prepared in time, or when the goal is to transplant earlier than is customary. In this situation, it is important that the young plants be sufficiently hardy before they are taken from the ground, and it is also important to take into account the likelihood of establishment problems among a portion of the transplanted plants.