

Fast cooling in a vacuum

Bart van Ruijven pulls out a flower trolley with chrysanthemums from the vacuum cooler. In a little more than 10 minutes the product has been cooled down from 20 to 8°C. The flower trolleys with chrysanthemum are then placed inside the cold storage rooms until transport.

In a cold storage room it takes several hours before the chrysanthemums have lost the warmth absorbed from the greenhouse. The ideal situation is to cool the flowers down to 10 °C as this is the ideal temperature for the best shelf life of the flowers. Tests have shown that condensation occurs during the transport of the chrysanthemums in their boxes which have not been pre-cooled, resulting in yellow stained leaves and other unwanted effects. At Arcadia Chrysanten in De Kwakel they required a solution to pre-cool the flowers rapidly and acceptably. In the past they had already gained experience with pre-coolers in an existing cold storage room. According to co-owner Bart van Ruijven: "With this pre-cooling method cold dry air flows through the product constantly. However, with a vacuum cooler there is hardly any air flow and you rapidly reach the core of the product, keeping the flowers pretty and with no condensation on the flower sleeves."

The cost price of a vacuum cooler is increasingly nearing the investment in cold storage with a capacity for pre-cooling. The system that the company Coldmax brought from China to Arcadia costs € 60,000. The Rabo bank Westland, offered a subsidy from the DIT innovation fund as the horticulturalists have further uses in mind.

Vacuum cooling uses the rapid reduction in pressure to initiate an accelerated evaporation of moisture. The evaporation process very efficiently and quickly extracts heat from the flowers. The result is an extremely rapid decline in temperature. As soon as the temperature reaches its programmed level, air enters the closed 'cooling chamber' again. According to Arcadia this furthermore offers the possibility to combat insects in flowers and their stems by introducing additional products. <

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