

## Helleborus

### Description

**Name:** Helleborus niger, orientalis, Hybrids.

**Familie:** Ranunculaceae

### Product Use

**Use:** Perennial, Production for Christmas Sales and Early Spring Sales

**Exposure:** partly shadowed, sunny areas



### Technical recommendations

#### Potting and Spacing:

Recommended Pot Size	Potting weeks	Plants/m <sup>2</sup>
12 - 14 cm	50 - 18	27-30/m <sup>2</sup>
15 – 18 cm	50 - 18	18-20/ m <sup>2</sup>

**Substrate:** Use only sterile substrate of pH 5,8-6,2. The substrate should partly contain clay of about 15–20 %, and must be permeable and of permanently stable structure. As basic nitrification do not use more than 1kg/cbm of a balanced fertilizer.

**Fertilization:** As Helleborus is sensitive to high salinity it should not exceed 1,0 EC. Respecting this, during the main growth phase from June to September a weekly extra gift of Nitrogene is required. Bdue to the high pH value it is mainly given as nitrate. For the generative phase, after induction of flowers, more Potassium should be given from late September/early October on.

**Spacing:** Final spacing should be made with 27-30 plants/m<sup>2</sup> (12-14 cm pot), best time late July, early August, don't space when temperature are above 25 °C and direct sun in order to prevent burnt roots and heat diseases. In such cases, cover the plants with shadow tissue.

**Temperature:** During the first two weeks after potting keep temperature at 16°C. Than night temperature can become decreased to 10 bis 12°C , daily temperature to 12 to 14°C. Cultivation outdoors can get realized as soon as frost is not expected anymore. Young plants must prudently get adapted to outdoors conditions. If potting should be done directly outdoors, the potted crop must be covered carefully using tissue. To avoid, that flying tissue might tear off the young plants from the soil as long as they are not well rooted, put an additional Agricover to burden the tissue. During the summer months shadowing is recommended to reduce any risk of burned leaves. Attention: In cold areas low temperature during some days after potting might provoke induction.

From early october on, according to local frost expectation, enter the plants to a greenhouse or tunnel.

## Technical recommendation

**Water:** Helleborus is reacting very sensitive to water excess, e.g. by infest of Fusarium, Pythium or Phytophthora – especially in periods of heat. Nevertheless, don't let substrate drying entirely to avoid quality losses. Outdoors crop must be misted regularly to keep moist microclimate, even during heat periods, and to cool down leaf- temperature! Take care of a very good drainage which is mandatory to save root quality!

**Light:** Cultivate during the winter months under maximum light conditions to avoid stretched and soft plants.

**Flower induction:** From the end of the vegetative phase, about late August, early September on the induction of flower period starts when temperature decreases. A cooling phase of 5 to 10 days at 4°C is leading to blooming plants 8 to 12 weeks later. After this cooling phase continued cultivation at cool temperature level about 10-13°C is recommended to achieve strong and sturdy plants. The elongation of the pedicels is generally enhanced by cool nights or an overall decrease in temperature.

**Growth regulation:** Helleborus is reacting to Daminozide. This should only be used in early crop stage to avoid stretching leaves. It is not recommended to treat Helleborus in later stage, as flowers might stay below the leaves, which would destroy any product value.

**Pests and Diseases:** Helleborus might easily get infested by Aphids, Thrips and Spider mites, which could cause irreversible damages at young buds. Frequent monitoring is therefore mandatory! Also snails may occur.

Leaf Nematodes (Aphelenchoides) can cause damaged leaves.

Root Nematodes (Pratylenchus) are leading to stunted growth.

Fungus Gnats infesting roots.

Helleborus might react sensitive to Fusarium, Pythium und Phytophthora, Botrytis might become a challenge when density of plants increase due to growing buds. Strong aeration is recommended especially as the plants are kept indoors during this phase !

Disease management should be realized by sanitation strategies, environmental conditions control, biological and chemical control.

For the chemical control, follow the registration uses of each product in each country.

**NOTE:** Growers should use the information presented here as guidelines only. Selecta One recommends that growers conduct a trial of products under their own conditions. Crop times will vary depending on the climate, location, time of year, and greenhouse environmental conditions. It is the responsibility of the grower to read and follow all the current label directions relating to the products. Nothing herein shall be deemed a warranty or guaranty by Selecta One of any products listed herein