

Short days trigger tuber formation, reducing vegetative growth, branching and flowering.

Plants propagated under short days and finished at 13.5 hours branched and developed tubers, but flowering was delayed and of poor quality. Short days during propagation are never recommended (Figures 3 & 4).



Figure 3



Figure 4

Blind cuttings, or those that don't branch after pinching, can be caused by poor cutting quality and short daylengths. Always propagate under long days to prevent blind cuttings and tuber formation (Figure 5).



Figure 5

Trial details: Gilroy, California; November 2021–March 2022. Photo taken 12 weeks after transplant. Container: 2.5 qt (1 gal) Average daily temperature: 70F (21C) Daily light integral: 9 mols/day

Hellebore Frostkiss

By April Herring-Murray, Marketing Director—Pacific Plug & Liner

Contrary to popular belief, hellebores are remarkably resilient plants that are actually simple to grow. Through my years working with Hellebore Frostkiss breeder Bart Noordhuis and many visits to growers, I learned that growing hellebores slightly differs from growing traditional perennials. By following the simple tips provided in these culture notes, you'll be well-equipped to grow the best-quality Frostkiss Hellebore crop possible. So fasten your seatbelts and let's embark on a journey to unravel the dos and don'ts of producing these stunning plants.

Crop placement: Key considerations for optimal growth

Selecting the right location for your crops is vital to their success. Poor placement can negatively impact growth and overall quality, such as low spots in a field causing poor drainage. It's also crucial to choose a location that provides protection during winter and shade during summer. Consider utilizing structures like hoophouses, which offer both benefits.

Healthy soil and hellebores: Maximizing crop quality

Proper air circulation is crucial for root health and improving crop quality. Avoid waterlogged and compact soil, which can suffocate hellebores. Use well-drained soil with white peat (Canadian or Baltic) as the main component and limit black peat to ▶



Hellebore Frostkiss Anna's Red.



Proper air circulation is crucial for hellebore root health and improving crop quality.



If you're looking to save time or avoid over-summering a hellebore, fall planting is the way to go with the Fast-Track 32 cell.



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20%. Hellebores thrive in slightly acidic soil with a pH of 5.4 to 5.5. High pH levels above 6 hinder phosphorus uptake and reduce flower production.

Start strong: Timing is everything

When it comes to planting your hellebore crops, timing is everything. For optimal growth and bountiful blooms, it's best to get a head start by potting early in the season. This is especially important for hellebore plants, as they flourish in cooler temperatures. Delaying planting can hinder their growth and reduce the number of flowers they produce.

If you're looking to save time or avoid over-summering a hellebore, fall planting is the way to go with our Fast-Track 32 cell. It can significantly shorten the crop time, cutting it in half.



Do not pinch hellebores, as it hinders flower formation—the leaves are the LUNGS!

When potting, it's important to fill pots to the top with soil to prevent warm roots. Leaving a gap between the top of the pot and the soil can cause pots to heat up, which may damage the hellebore roots. When planting liners, ensure to plant a bit deeper than the surface of the soil to promote better flower bud development.

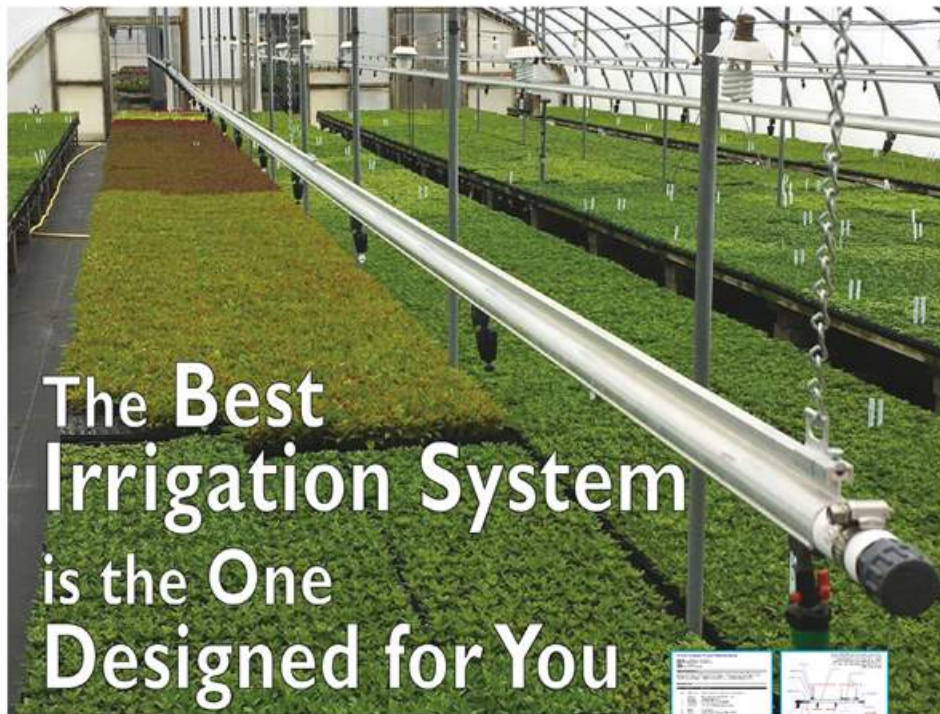
Spacing: Hellebore like to keep it cozy

Frostkiss Hellebore varieties are bred for efficiency. They thrive when grown in a triangular pattern, minimizing root exposure to sunlight. Close proximity shades the pot, protecting roots and ensuring cool conditions. This helps plants grow larger and to produce more flowers. Once plants start flowering in spring, they can be spaced out to allow their flowers to fully develop, while still ensuring adequate shade for the pots.

Fertilization & irrigation guidelines

Keep hellebore growing year-round by never stopping fertilization. Aim for a steady feed with an EC of 1.2 to 1.5, measured directly in the soil. Use a slow-release eight-to-nine month fertilizer for spring planting.

During fall, when days shorten and temperatures cool, hellebore need extra nitrogen (N) and iron (FE) for flower initiation. Maintain EC levels at 1.2 to 1.5 with a liquid drench. ▶



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Phosphorus is crucial for hellebore. Aim for a P:K ratio of 1:3 with 150 ppm P and 450 ppm K. Perform soil tests throughout the crop's life to keep P:K levels balanced.

Proper watering is essential to avoid stress. Drip irrigation is preferred, but overhead irrigation with feed is possible. Avoid watering during the hottest hours of the day to prevent temperature shock and stress. Water using overhead irrigation only in the early morning or late evening.

Exposure

Helleborus prefers cool roots and benefits from sun protection. To prevent direct sunlight on the pots, place them close together and ensure the leaves create shade. Use 30% to 35% shade cloth during warmer months. When overwintering under plastic, opt for white poly to avoid sunburn.

Temperature

In fall, hellebores grow best between 40 to 50F (4 to 10C), triggering flower initiation. This occurs between September and December, depending on the climate. In winter, keep helleborus inside a frost-free structure with temperatures of 32 to 40F (0 to 4C). Frost delays flowering, so plants will naturally flower when there's no frost. Provide 30% to 35% shade in summer when temperatures exceed 80F (26C).

Insects & diseases

Hellebores are generally disease-resistant, but may occasionally be affected by Botrytis. Prevent this by keeping plants dry with good air circulation. Watch for aphids and spider mites, particularly in drier climates, as they can transmit viruses. In wet conditions, snails can be a problem, so it's important to keep the crop dry and choose a well-drained location.

What not to do

Do not pinch hellebores, as it hinders flower formation—the leaves are the LUNGS! The leaves provide energy for bud development, even when damaged. Damaged leaves can be removed once the plants are ready to ship. Avoid using growth regulators, as they can delay or halt flowering. Hellebores grow pretty slow already, so no need to stall them further.

We can create a customized hellebore program for your operation, taking into account the various climates, growing operations and other variables. Contact us at PP&L with any questions or to arrange a visit for optimizing your Hellebore Frostkiss crop.

Want to learn more about how to delay bloom of your hellebore crop? Scan the QR code to watch our hellebore webinar, where we talk about this and much more, hosted by Chris Beytes of GrowerTalks.





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