



# GrowerFacts Extra

## Echinacea – Spring Forcing

Additional Culture Research

from

PanAmerican Seed®

# Echinacea

Spring Forcing, published 2021

PanAmericanSeed.

## OBJECTIVE

To illustrate how to use long days to produce uniformly flowering Echinacea plants for early Spring and Mother's Day, targeting week 18.

## MATERIALS

- F1- hybrid Echinacea Artisan™ Collection
- Echinacea PowWow® Wild Berry
- Echinacea 'Cheyenne Spirit'



Artisan Red Ombre



PowWow Wild Berry



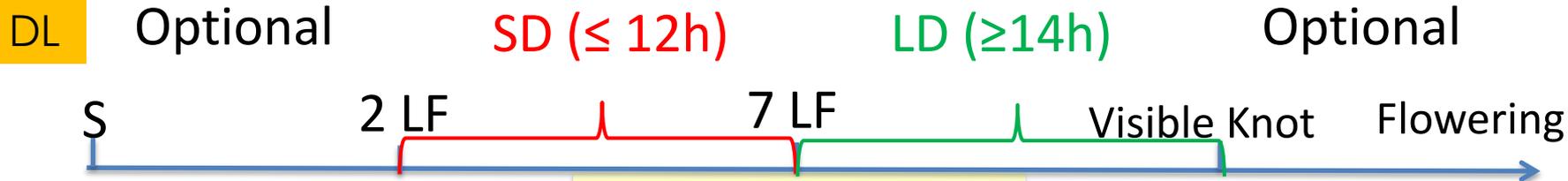
'Cheyenne Spirit'

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KieftSeed™

## Daylength (DL) Manipulation



Any DL from sowing to 2 true leaves due to juvenility.



At 2 true leaves, start SD ( $\leq 12h$ ) until  $\geq 7$  true leaves develop.



At 7 true leaves, start LD lighting (14h or NI).



Once visible knot appears on the stem, LD lighting can be turned off.



Growing under natural daylength until flowering.

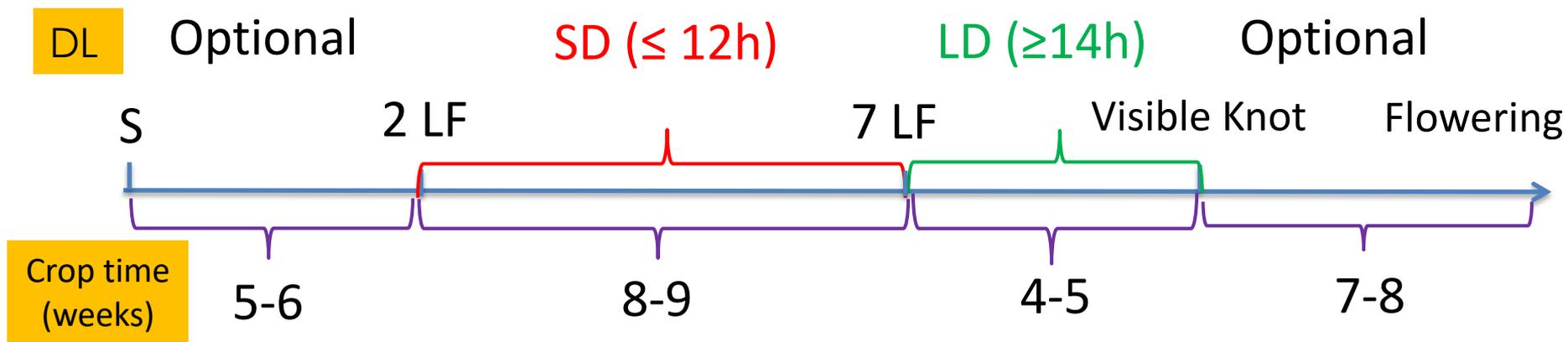
Note: Under higher DLs ( $\geq 15$  mole), LD lighting may not be necessary for less daylength sensitive varieties, such as Artisan Red Ombre, as higher DLI could substitute for LD to some degree and improve uniformity.

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Crop time based on ADT 68°F/20°C



Total crop time is ~25-26 weeks at ~68°F/20°C ADT and ~9.5 mol·m<sup>-2</sup>·d<sup>-1</sup> DLI.

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## Spring Forcing for Mother's Day, Target Week 18

### SPRING FORCING PROGRAM

- Week 44
  - Sow in 288-cell or larger-sized plug tray
- Week 50
  - Transplant to 128-cell plug tray or final container
  - Start SD (2 true leaf stage)
- Week 6
  - Transplant to final container if needed
  - Start LD lighting ( $\geq 7$  true leaves)
- Weeks 11
  - Stop LD Lighting (visible knot stage) and then grow under natural daylength
- Week 18
  - Finish
- Total crop time is ~25 to 26 weeks at ~68°F/20°C ADT and DLI of ~9.5 mol·m<sup>-2</sup>·d<sup>-1</sup>



Without Long Day

With 4 weeks of LD Lighting

Photo taken on 5/10/2019, Elburn, IL

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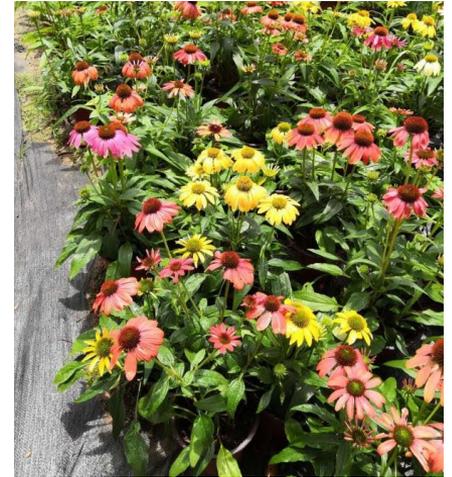
## KEY POINTS FOR SUCCESS:

- Grow plants under natural short days ( $\leq 12$  h) between 2 to min. 7 true leaf stage.
- LD lighting from min. 7 true leaves to visible knot.
- LD treatment can be DL extension to 14 hours or NI from 10 pm to 2 am.

## Successful Spring Forcing by a Grower



Early May without LD  
(SZ, South of China)



Early May with LD (14h)  
(SZ, South of China)