

PHOTOPERIODISM



-ARCHANA

The term

Effect of Light on Plant Response

Duration of Day time: Photoperiod

Garner & Allard, 1920

Short Day Plant

Long Day Plant

Day Neutral Plant

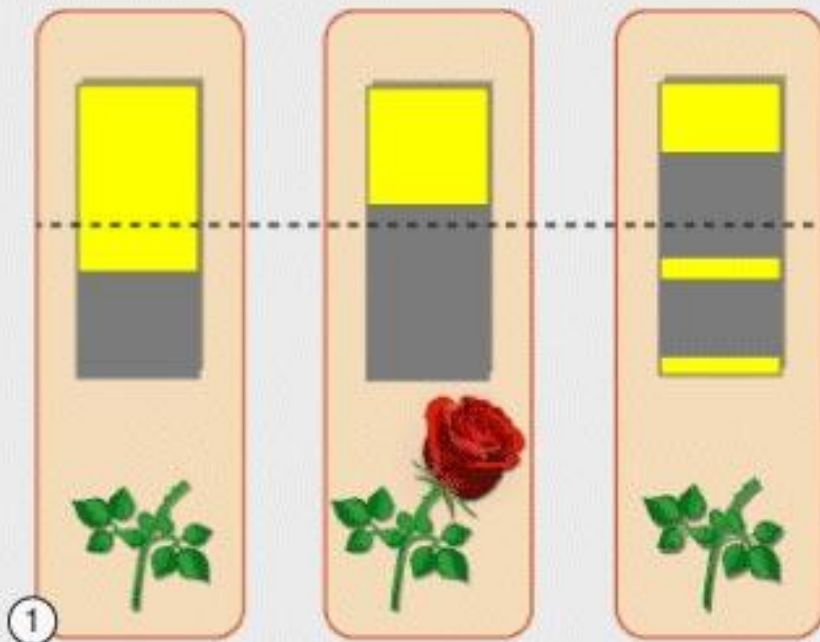
Critical
Photoperiod



Fig: Effect of duration of light on flowering plants

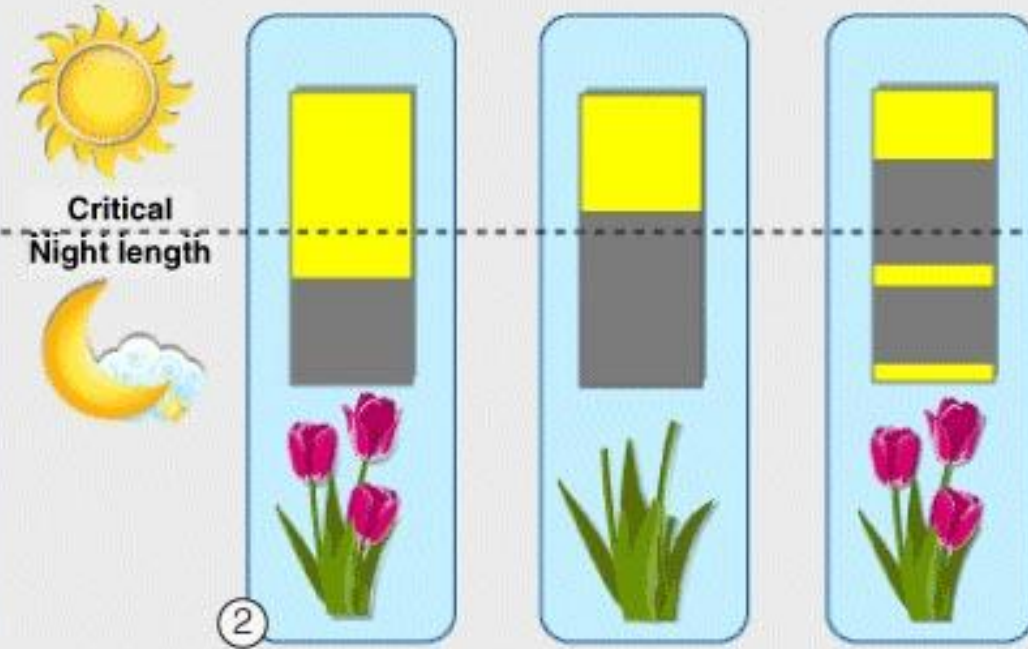
PHOTOPERIODISM

Short-day plants



1

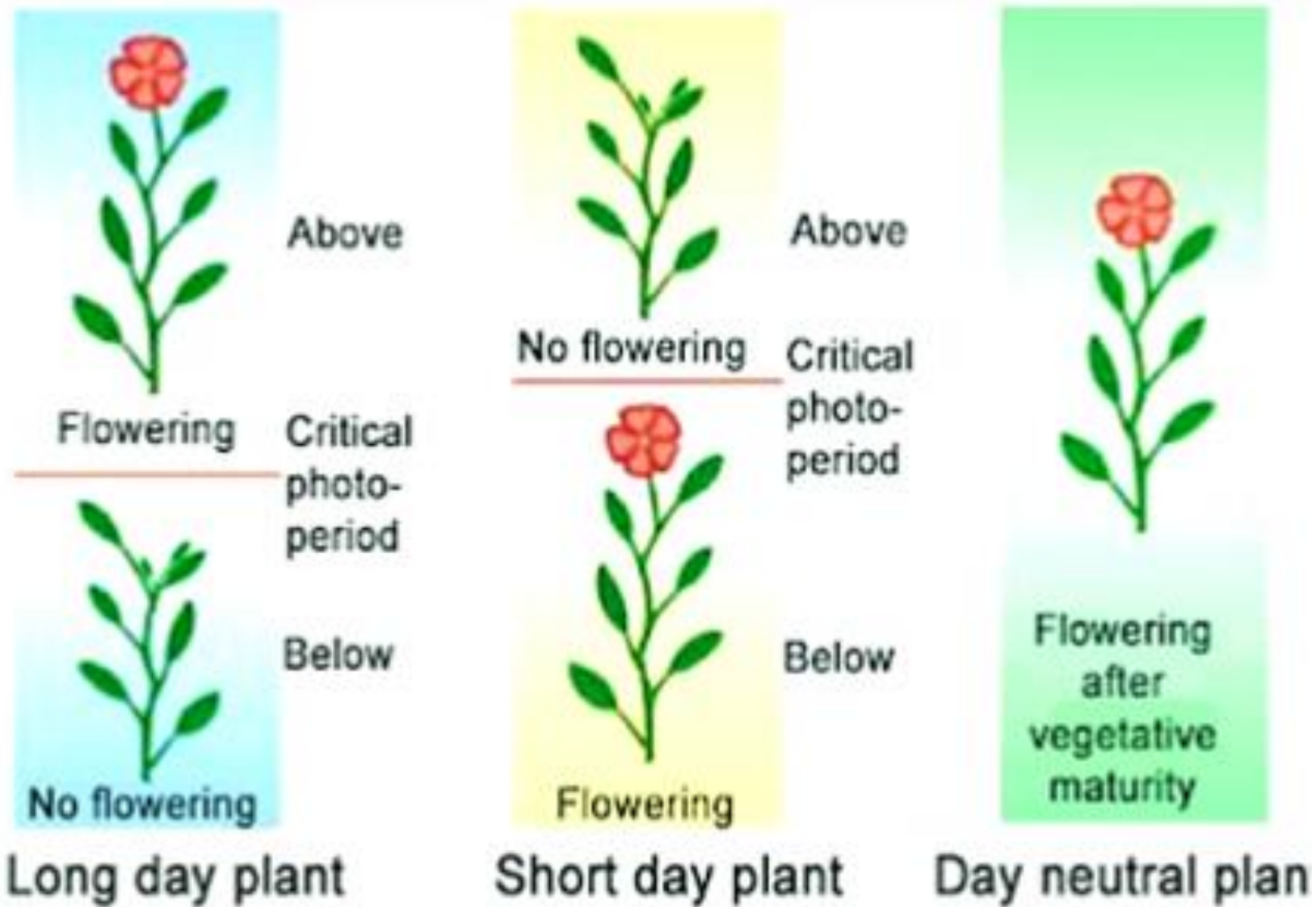
Long-day plants

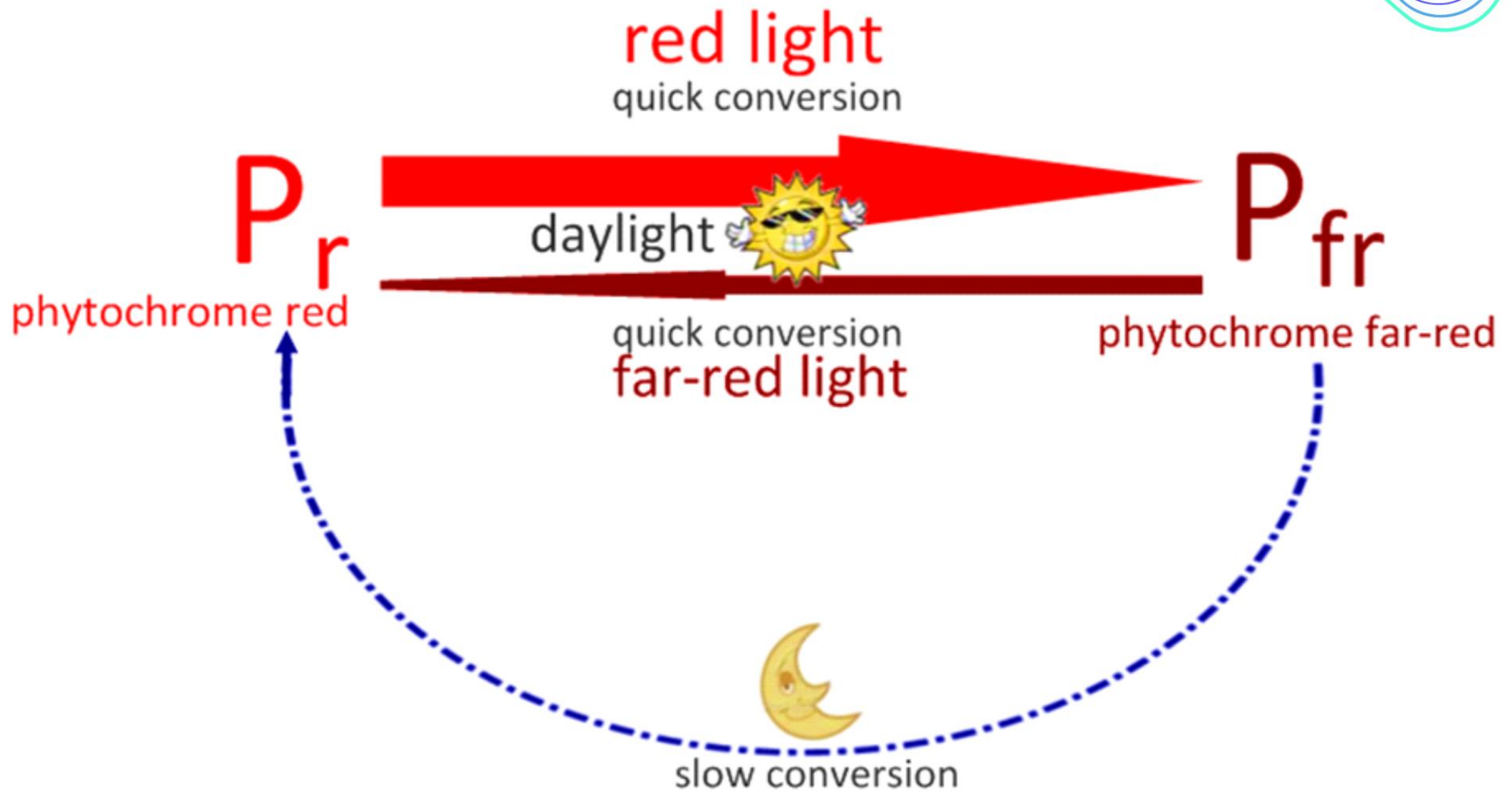


2

1 Short-day plants flower when a period of darkness (Uninterrupted) exceeds a critical night length

2 Long-day plants flower when a period of darkness is less than a critical night length

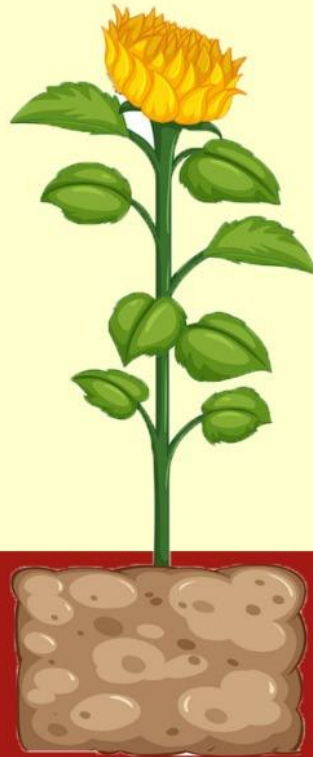




Vernalization Process



No Cold
Exposure



After 1-2 Weeks
Cold Exposure



After 3-6 Weeks
Cold Exposure

IMPORTANCE OF VERNALIZATION

- Induces early flowering there by shortening the vegetative period of the plants (production of more than one crop in a year).
- The winter variety crops can be converted to spring variety (Protection from freezing injury).
- It helps in increasing the yield of the plants.
- It helps in **inducing the resistance** to number of disease.
- Tropical plants (requiring long summer) can be grown in temperate areas (short summer).



Winter-annual *Arabidopsis*
without vernalization



Winter-annual *Arabidopsis*
with vernalization

27.11: Courtesy of Richard Amasino and Colleen Bizzell.



Thank You

