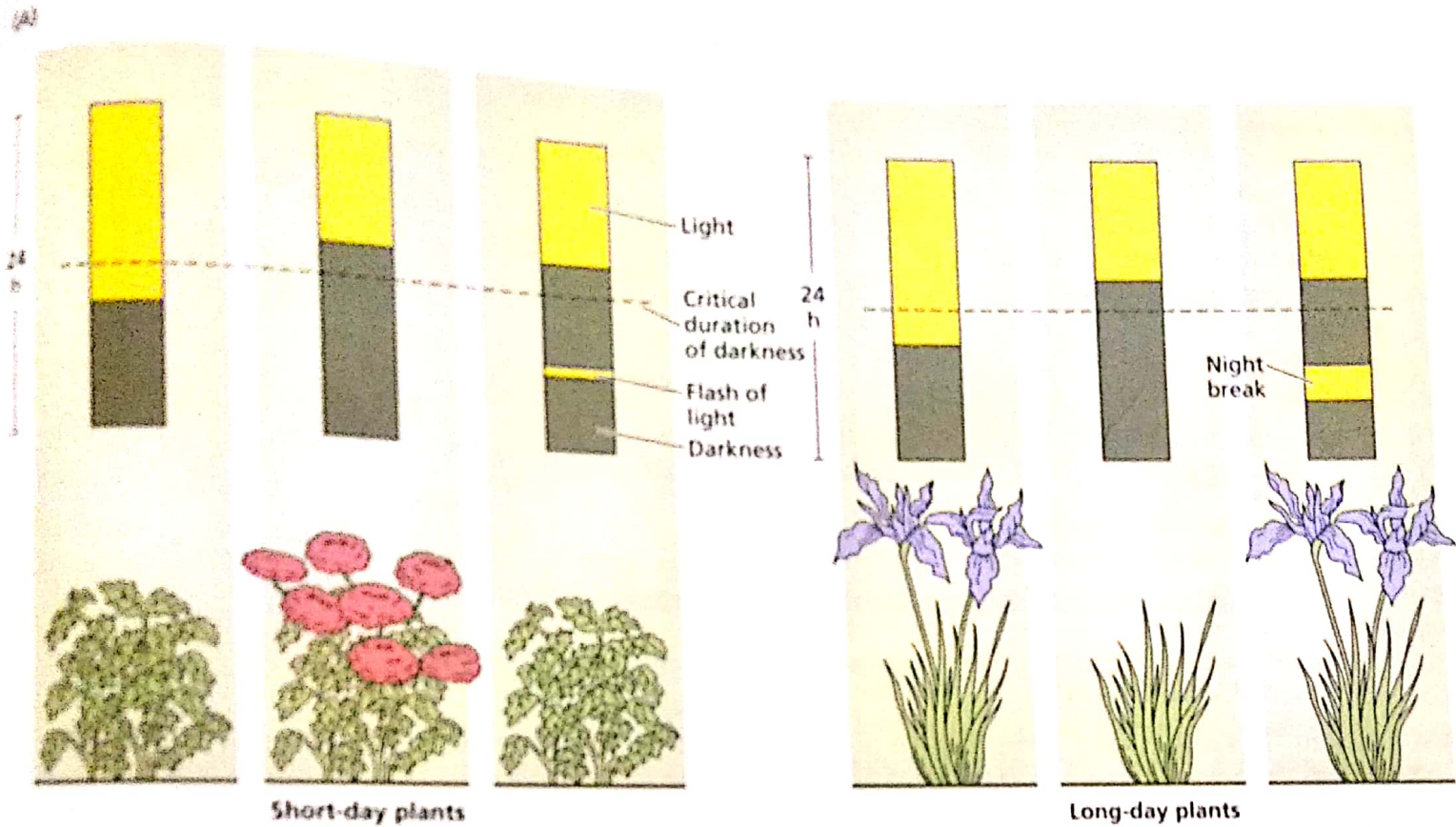


- Night Break expts. were carried out as an evidence to (un)importance of night length in photoperiodism.
- In these experiments we break the length or continuity of night period by giving a flash of light (Red/FR)
- In case we give this break, let us say to SDP eg (8.5 hrs) Xanthium whose CDL is ^{more than} 8 hrs. Now observe (will send pics) that if the entire length is 16 hrs of night & we give break at immediately 8 hrs that is middle of 16 hrs & follow by short day.
 - It will not flower coz you have shortened daylength which will not matter.
 - But you have given it just = or < 8 hrs which is not its CDL] NO FLOWERING.
 - But if you give this flash after 8.5 hrs of night it will flower coz CDL is according to its need.
- * Also note that for LDPs breaking night helps them flower more.

So we define Photoperiodism as:
a response to the length of dark period which is defined by timing between daylengths.

- ** Remember day length is imp. as plant has to make food reserves before it is put in flowering.

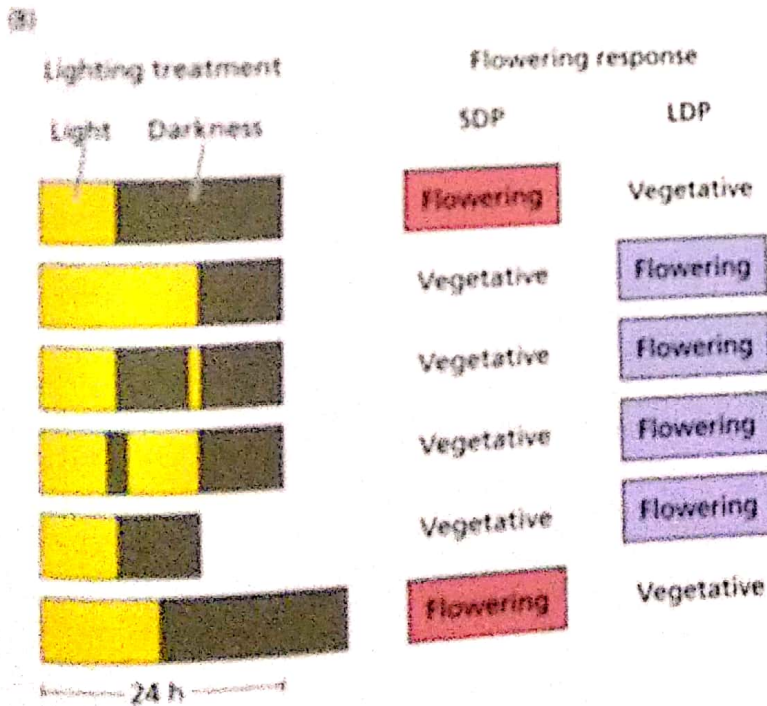
Study the pic sent along with this write up



Short-day (long-night) plants flower when night length exceeds a critical dark period. Interruption of the dark period by a brief light treatment (a night break) prevents flowering.

Long-day (short-night) plants flower if the night length is shorter than a critical period. In some long-day plants, shortening the night with a night break induces flowering.

FIGURE 25.19 The photoperiodic regulation of flowering. (A) Effects on SDPs and LDPs. (B) Effects of the duration of the dark period on flowering. Treating short- and long-day plants with different photoperiods clearly show that the critical variable is the length of the dark period.



SDPs did not flower when short days were followed by short nights.

More detailed experiments demonstrated that photoperiodic timekeeping in SDPs is a matter of measuring the duration of darkness. For example, flowering occurred only when the dark period exceeded 8.5 hours in cocklebur (*Xanthium strumarium*) or 10 hours in soybean (*Glycine max*). The duration of darkness was also shown to be important in LDPs (see Figure 25.19). These plants were found to flower in short days, provided that the accompanying night length was also short; however, a regime of long days followed by long nights was ineffective.

Night breaks can cancel the effect of the dark period

A feature that underscores the importance of the dark period is that it can be made ineffective by interrupting it with a short exposure to light, called a **night break**.

either light or darkness. Much experimental work in the early studies of photoperiodism was devoted to establishing which part of the light-dark cycle is the controlling factor in flowering. For SDPs, the duration of the dark period is determined