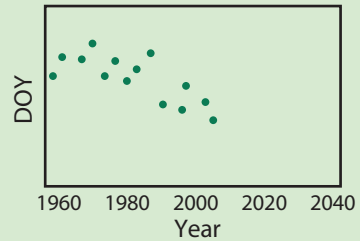


Accounting for photoperiod to improve forecasts of biological responses to climate change

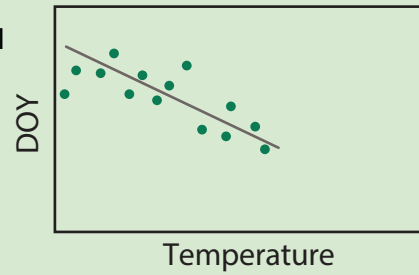
standard approach

a) Data

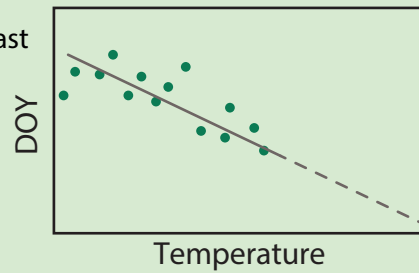
| year | temperature | day of year |
|------|-------------|-------------|
| 1901 | 12 | 90 |
| 1902 | 13.5 | 95 |
| 1903 | 11.8 | 88 |
| 1904 | 14 | 100 |
| ... | ... | ... |



b) Model



c) Forecast

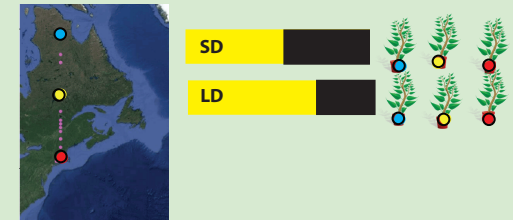


+ experimental data on photoperiod

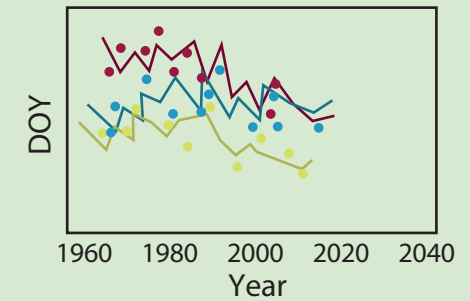


alternative, hierarchical, non-linear approach

a) Data



b) Model



c) Forecast

