

Fig.8. Carbon fixation

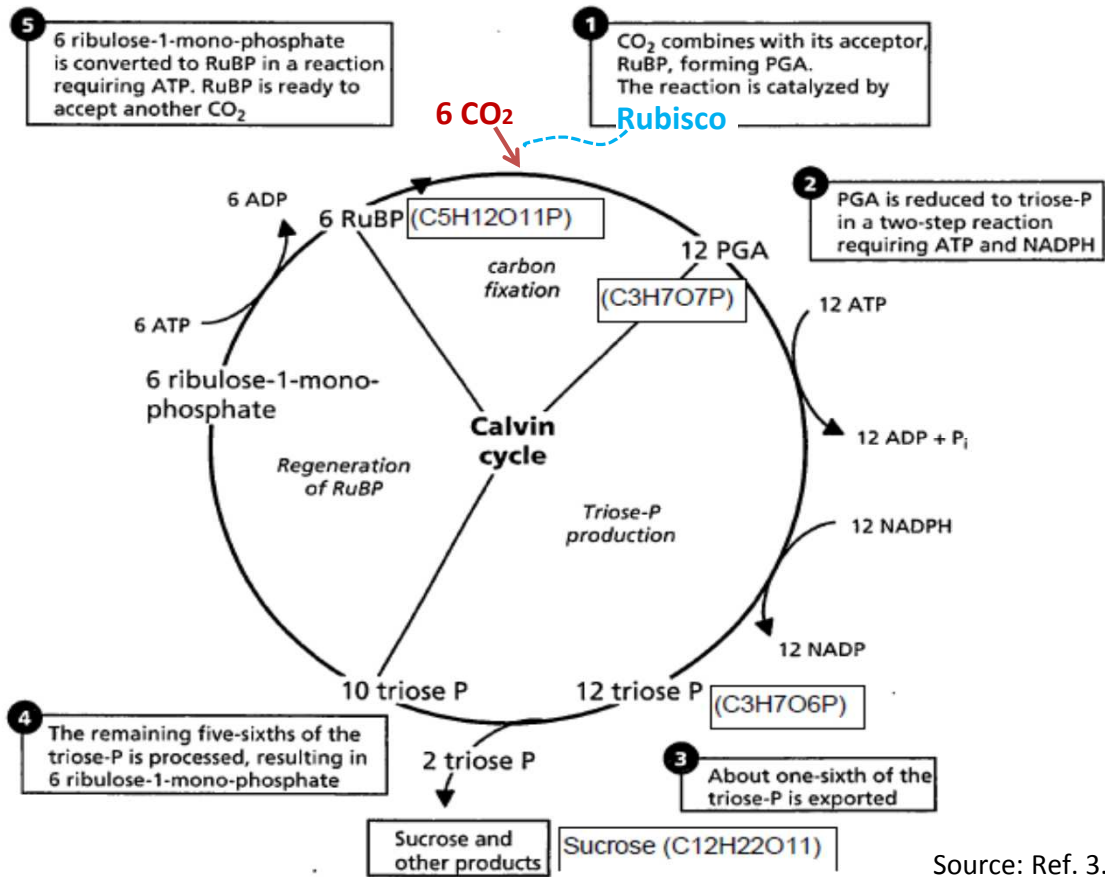
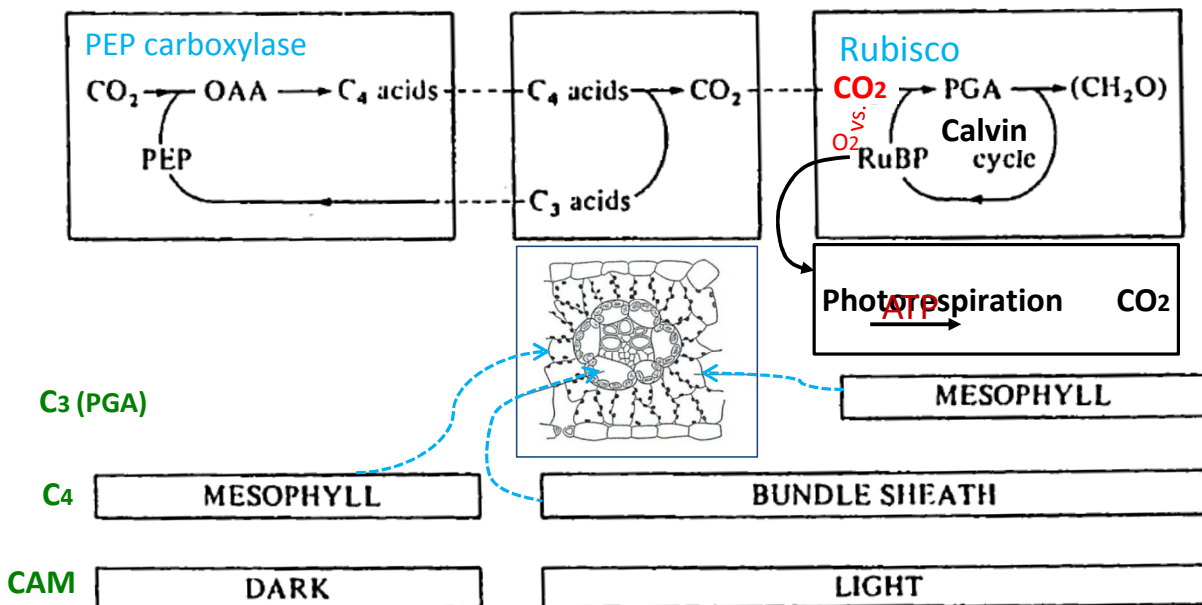


Fig. 9. Extra pathway for high efficiency of carbon fixation by Rubisco

Fig. 8 assumes a 100% efficiency of Rubisco to fix carbon into RuBP. In reality, however, Rubisco *oxygenates* for 2 out of 10 molecules of RuBP, a process called photorespiration. Photorespiration lowers the already low efficiency of carbon fixation by Rubisco and spends extra energy to handle the products. To fix this shortcoming of Rubisco, some plant species have evolved extra pathways to condense CO₂ concentration at Rubisco



Source: Ref. 2.

Fig. 10. Light and leaf photosynthesis.

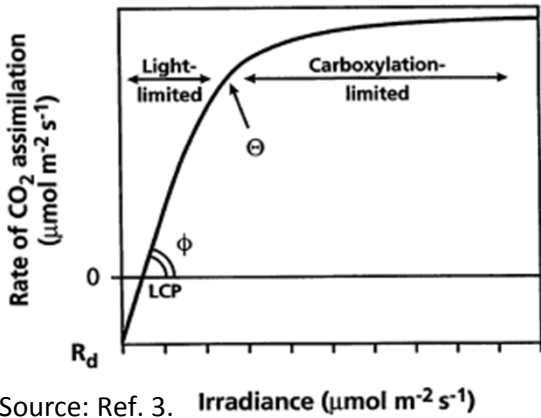


Fig. 11. Light-photosynthesis relationship in various species.

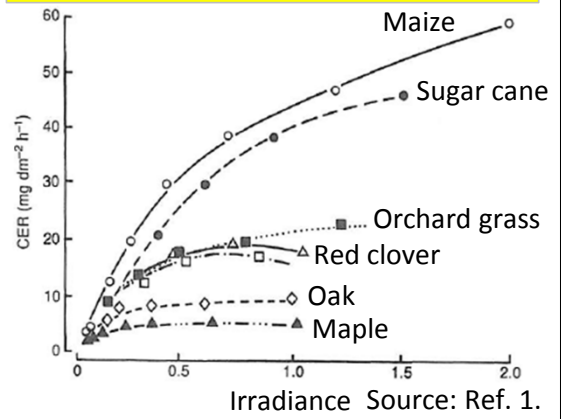


Fig. 12. Light-photosynthesis relationship for leaves developed in various light regimes.

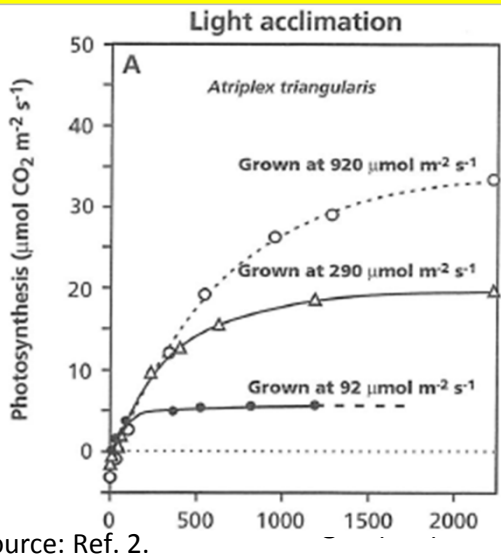


Fig. 13. Spectral absorptivity in species adapted to various moisture regimes.

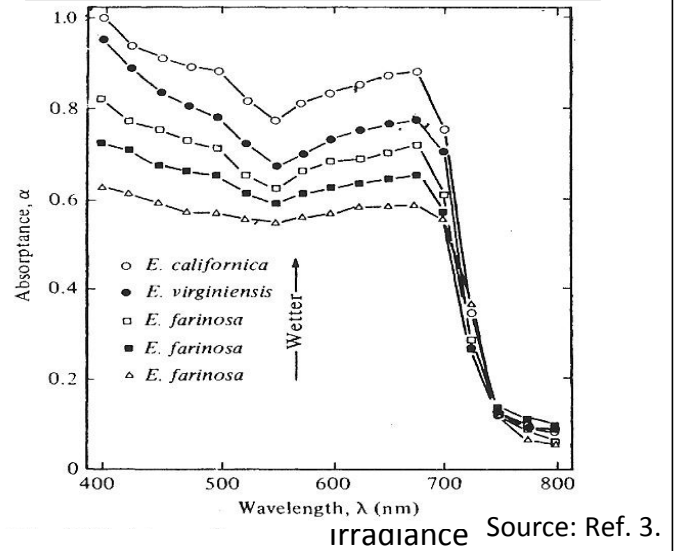


Fig. 14. Diurnal course of leaf irradiance for theoretical leaves of various angles (a), and actual leaves of well-watered and water-stressed bean plants (b).

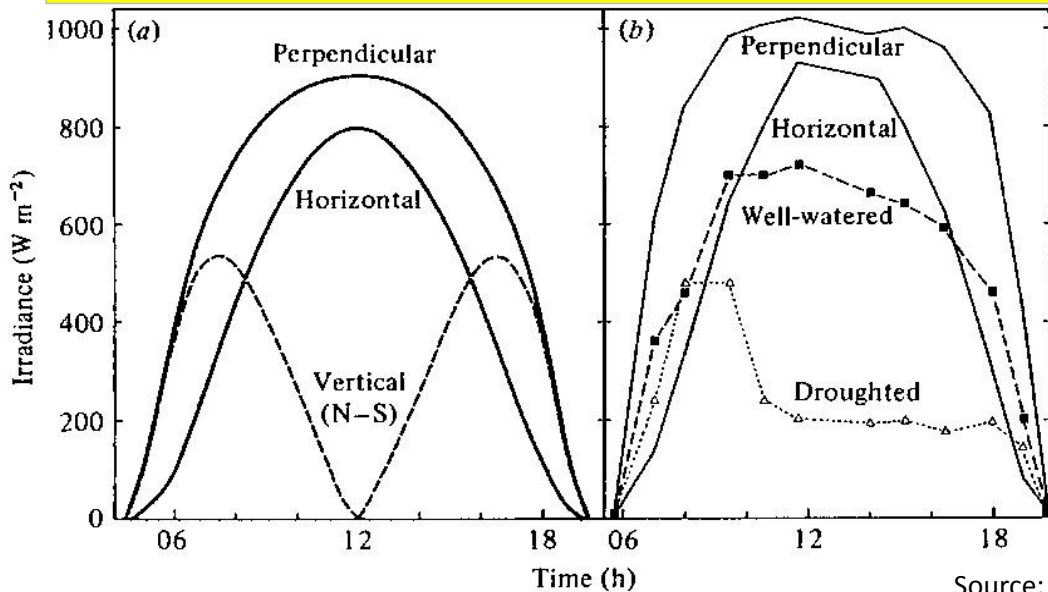
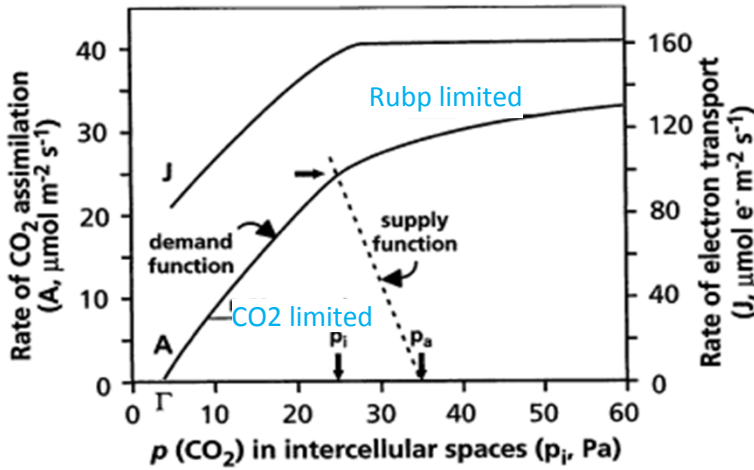


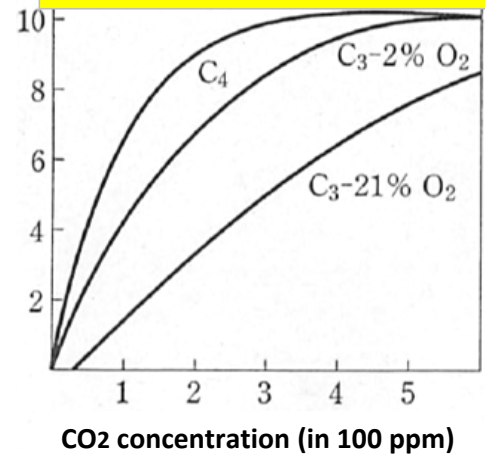
Fig. 15. CO₂ in intercellular space and leaf photosynthesis rate.



Ci in Fig. 1

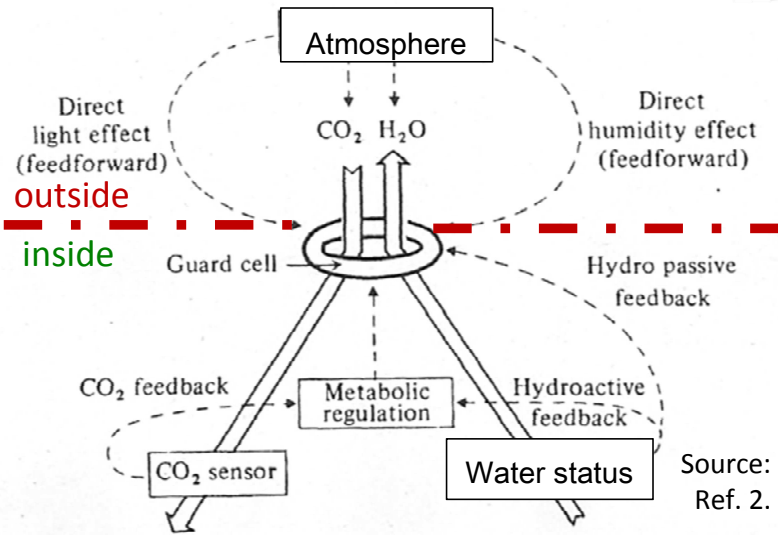
Source: Ref. 3.

Fig. 16. Leaf photosynthesis rate in response to CO₂ and O₂.



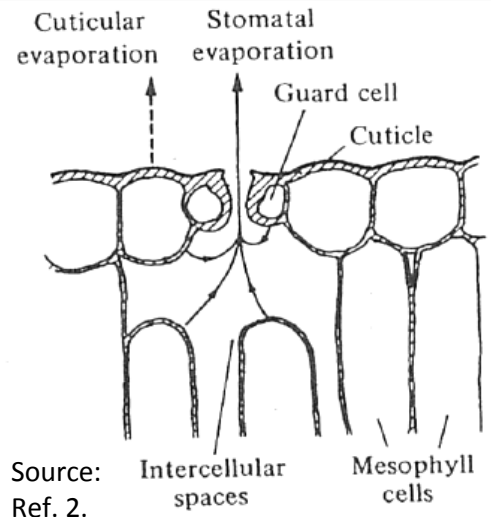
Source: Ref. 5.

Fig. 17. Stomatal control of CO₂ and water vapor transfer.



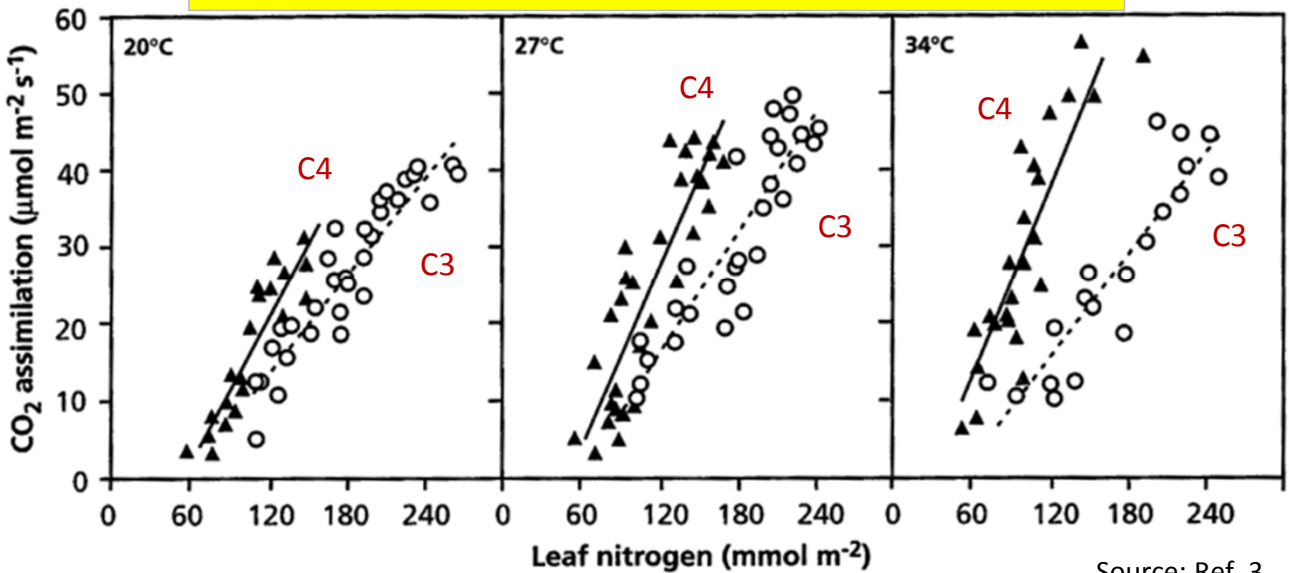
Source: Ref. 2.

Fig. 18. Water vapor diffusion via a stoma.



Source: Ref. 2.

Fig. 19. Leaf photosynthesis at light-saturation in response to leaf N content under various temperature for C₃ and C₄ species.



Source: Ref. 3.