Fig. 1. Atmospheric CO_2 has been increasing.

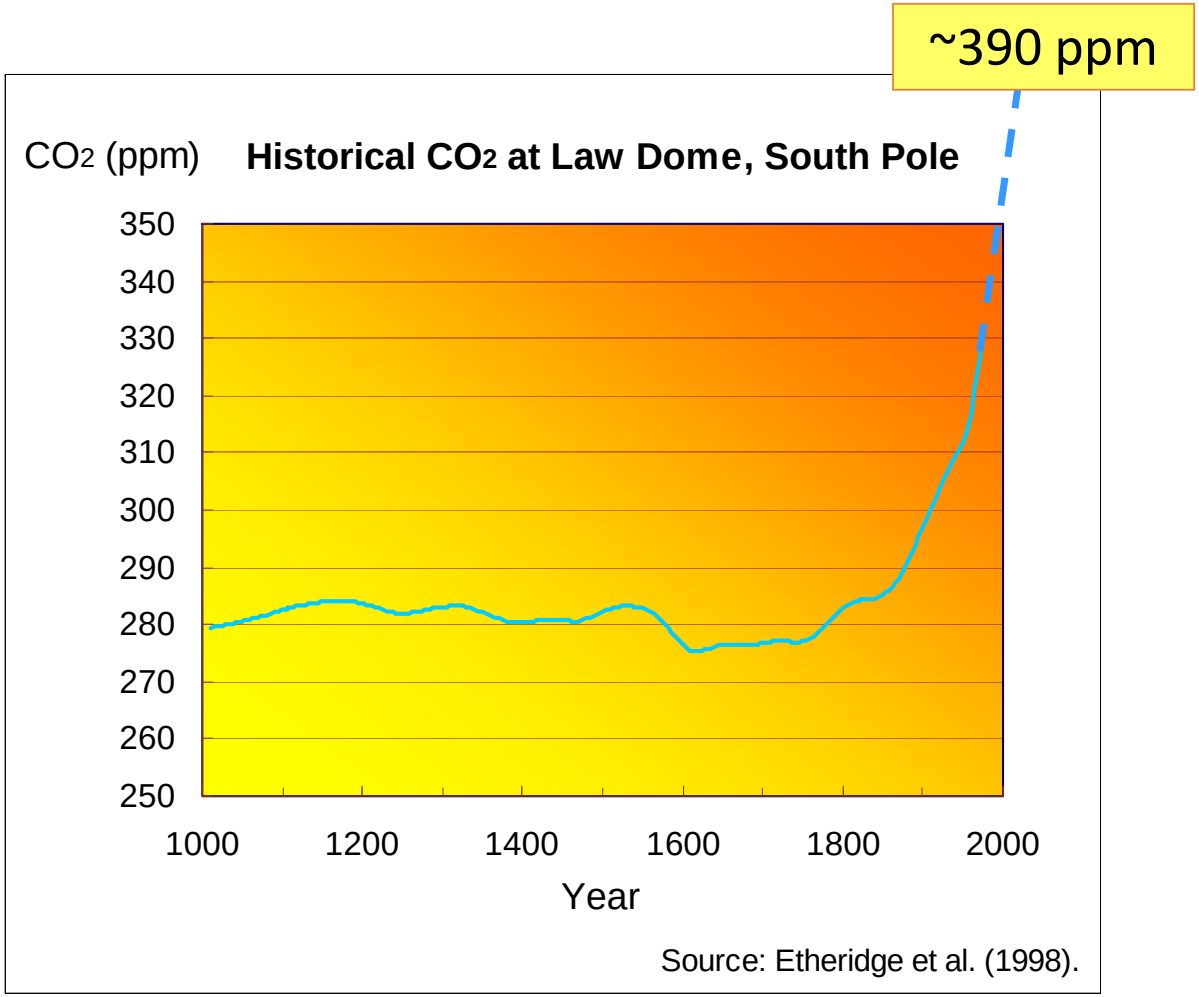
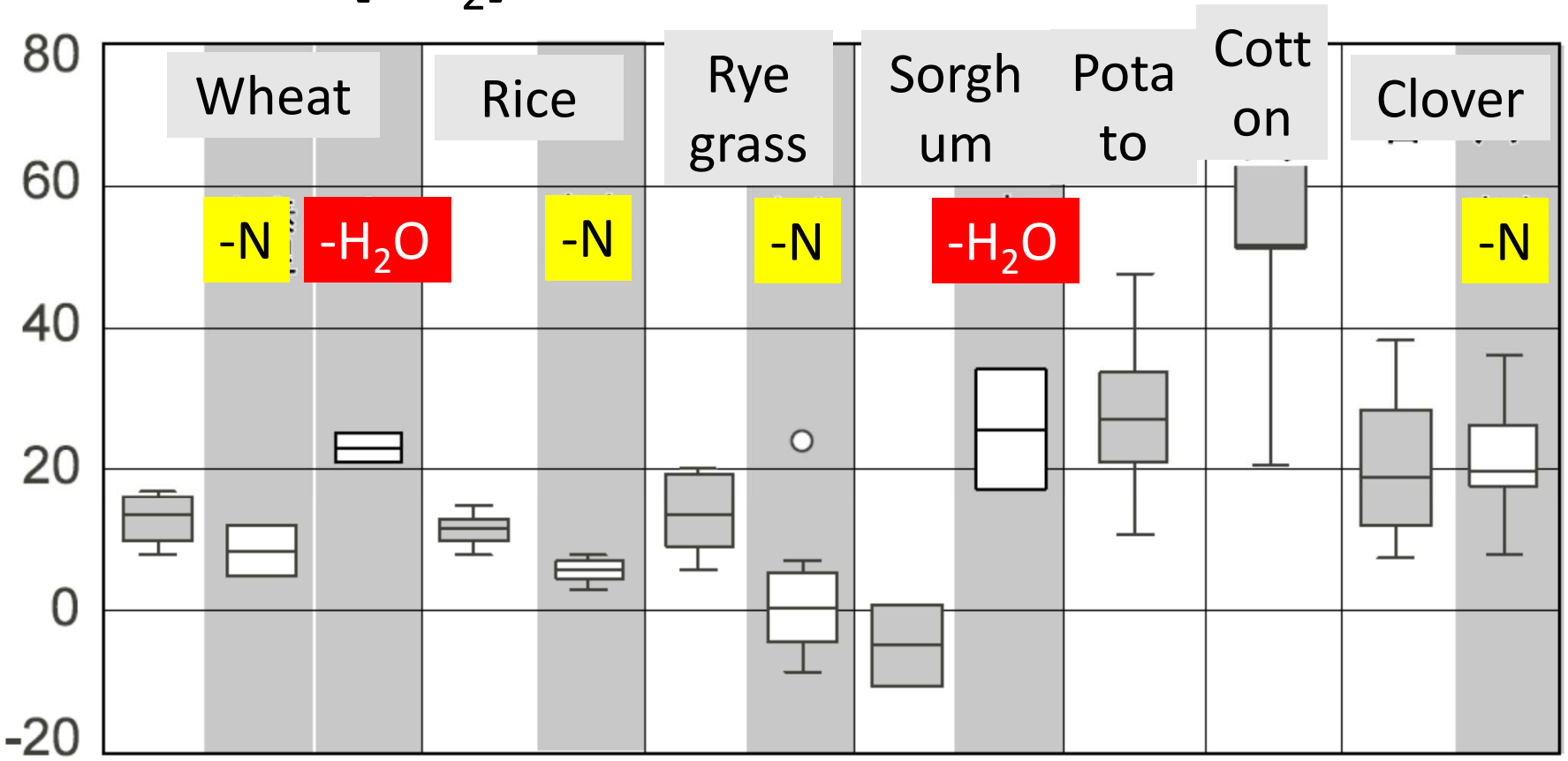
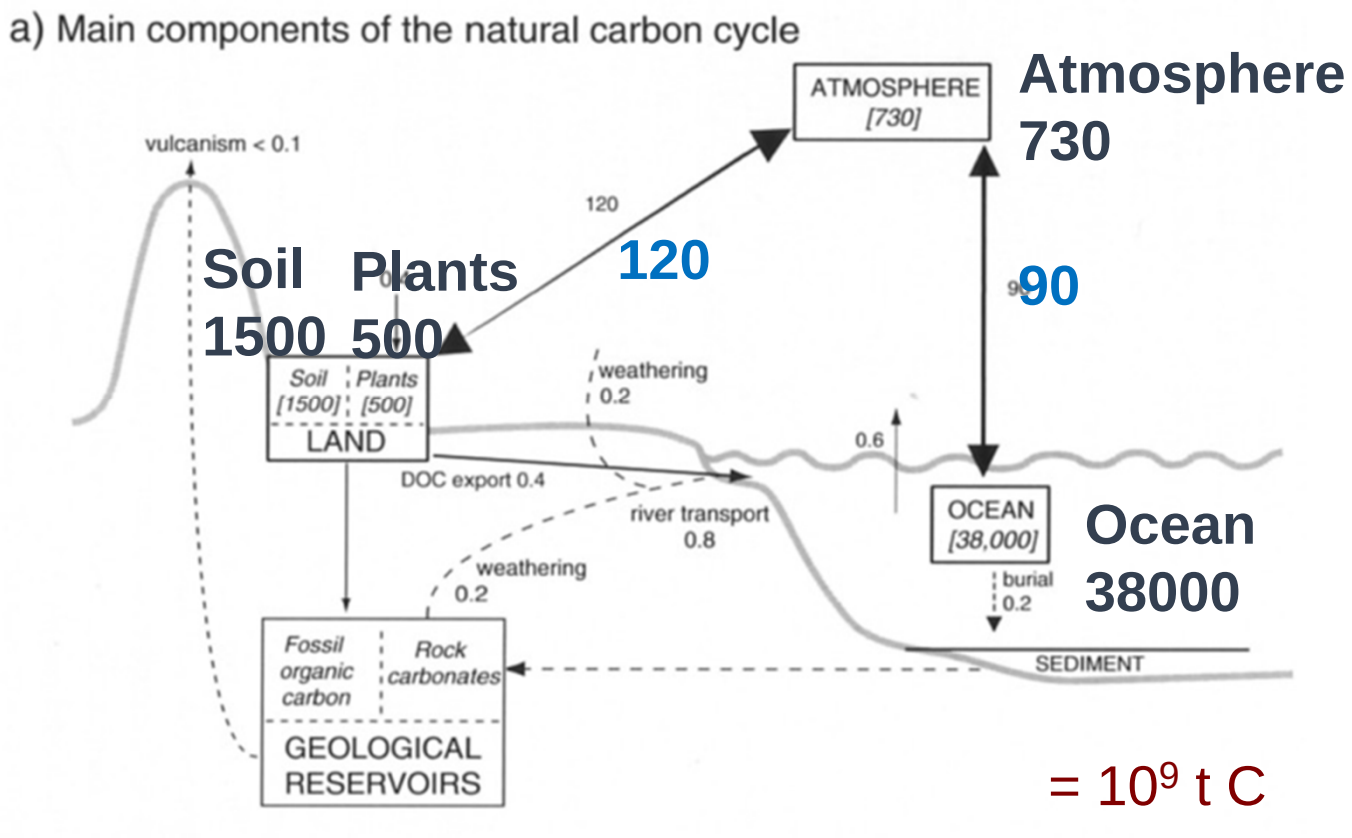


Fig. 2. Increase (%) of crop yields by a 200 ppm increase of [CO_2].



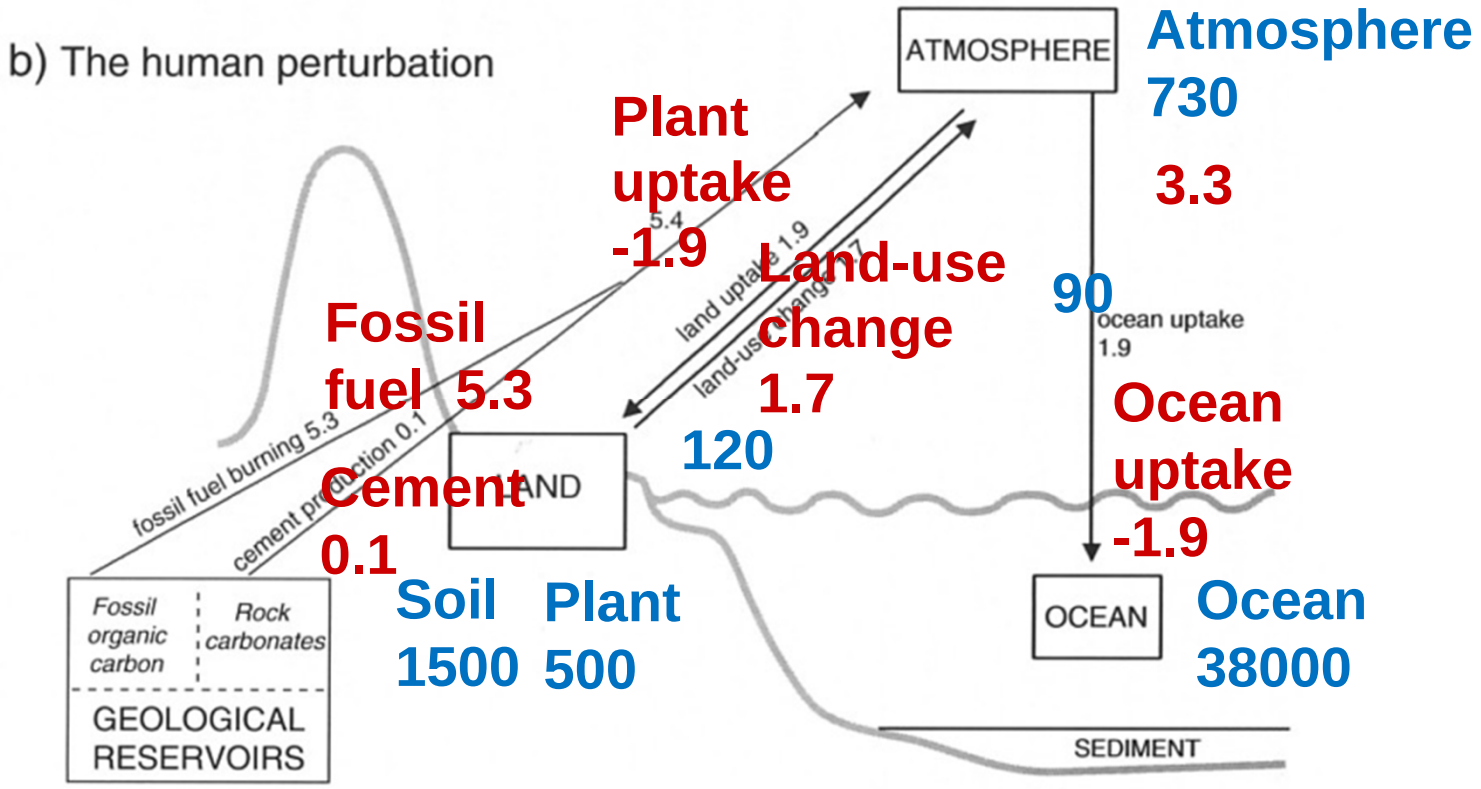
Source: B.A. Kimball et al. (2002) Advances in Agronomy 77, 293-368 and H.Y. Kim et al. (2003) Field Crops Research 83, 261-270.

Fig. 4a. The earth's carbon cycle:
without human disturbances



Source: Climate Change 2001: The Scientific Basis. John Houghton et al. eds. CUP, Cambridge, UK. 2001.

Fig. 4b. The earth's carbon cycle:
with human disturbances



Source: Climate Change 2001: The Scientific Basis. John Houghton et al. eds. CUP, Cambridge, UK. 2001.

Fig. 3. Predicted effects of temperature rise and CO_2 increase on rice yield: model estimates

TABLE 2

Mean Predicted Changes (%) in Potential Yields Under the 'Fixed' Temperature and CO_2 Scenarios. Temperature Increments are Above the Current Mean Temperatures at Each Site. Changes are Averaged Across all Sites and all Available Years

	Temperature increments			
	+0°C	*+1°C*	*+2°C*	*+4°C*
ORYZA1				
340 ppm	0.0	−7.3	−14.2	−31.0
1.5 × CO_2	23.3	14.3	5.6	−15.7
2 × CO_2	36.4	26.4	16.8	−7.0
SIMRIW				
340 ppm	0.0	−4.6	−9.8	−26.2
1.5 × CO_2	13.0	7.8	1.9	−16.6
2 × CO_2	23.9	18.2	11.7	−8.5

Present

Matthews et al. (1997)

Fig. 5. Photosynthesis: energy capture and CO_2 fixation

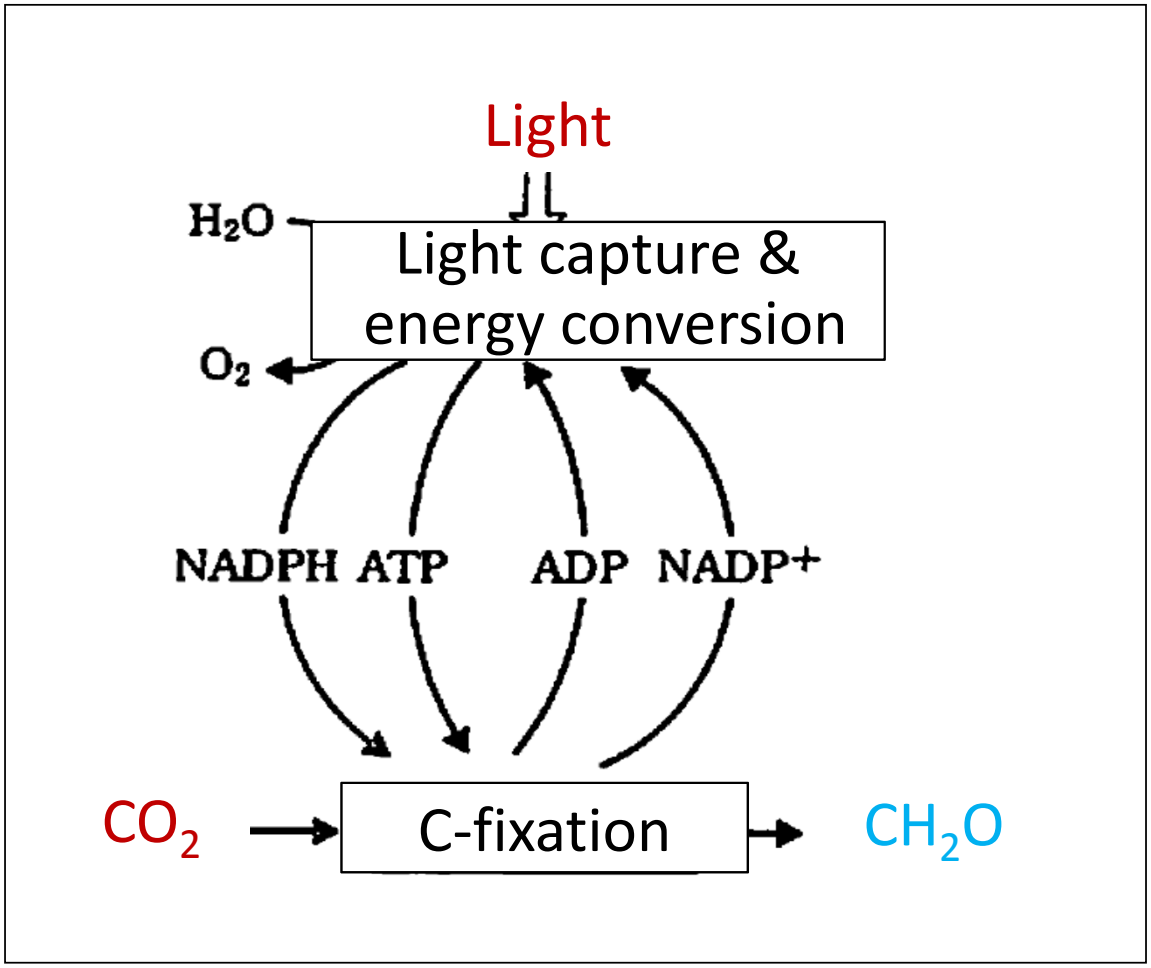
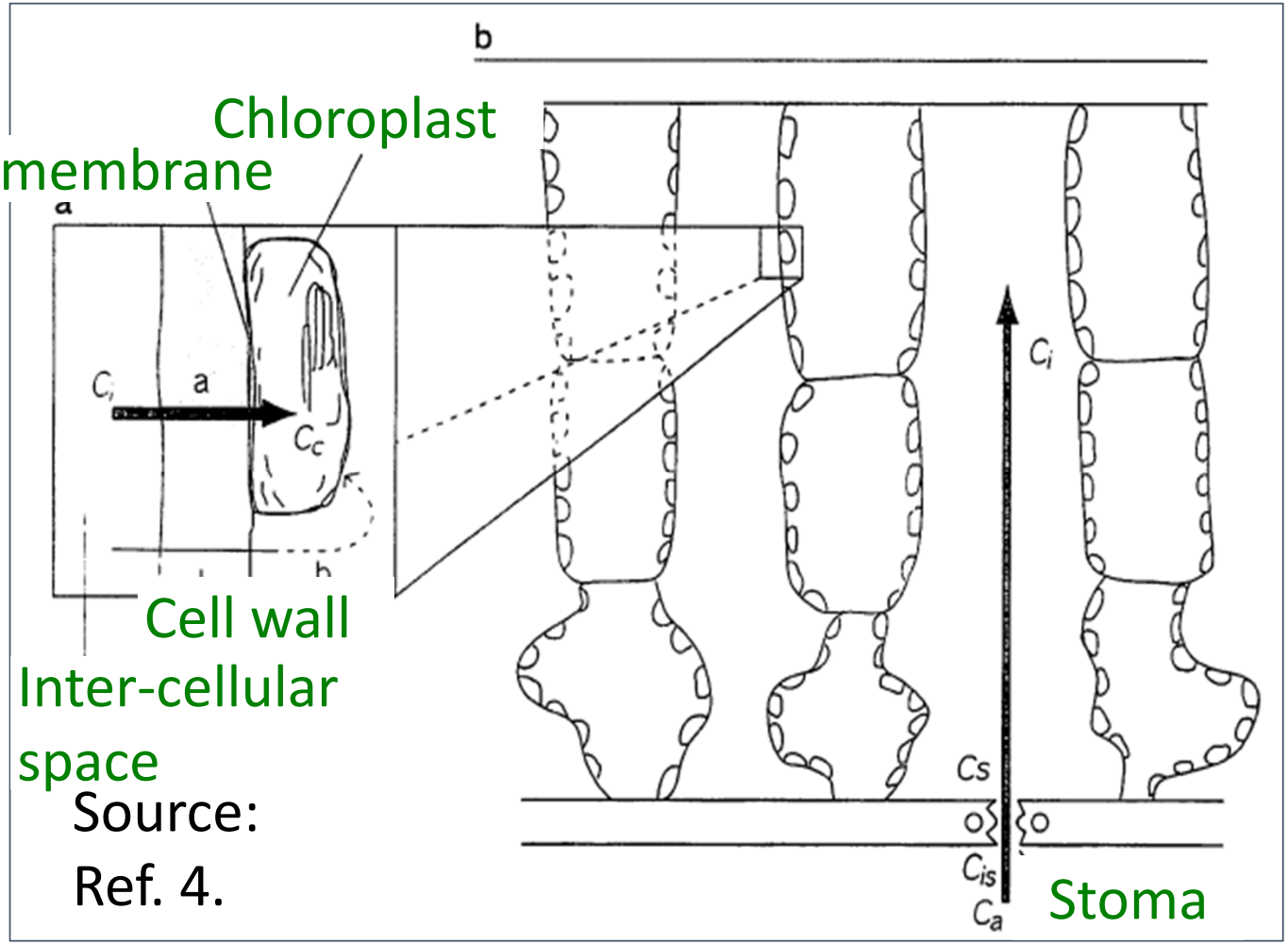


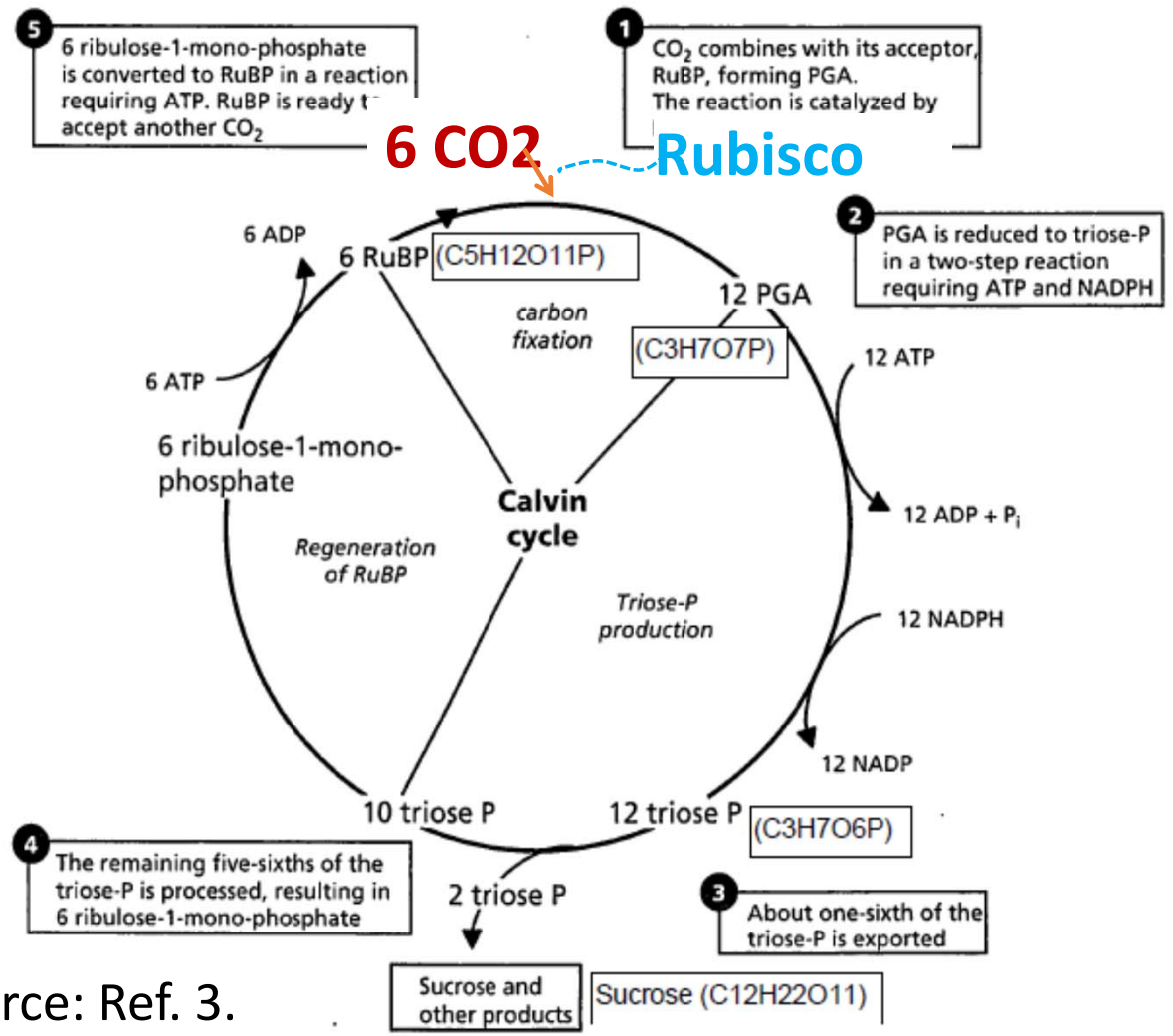
Fig. 6. Transport of CO_2 into plant interior and chloroplasts



Source:

Ref. 4.

Fig. 7. Calvin-Benson Cycle.



Source: Ref. 3.

Fig. 8. A ‘cartoon’ of photosynthesis.

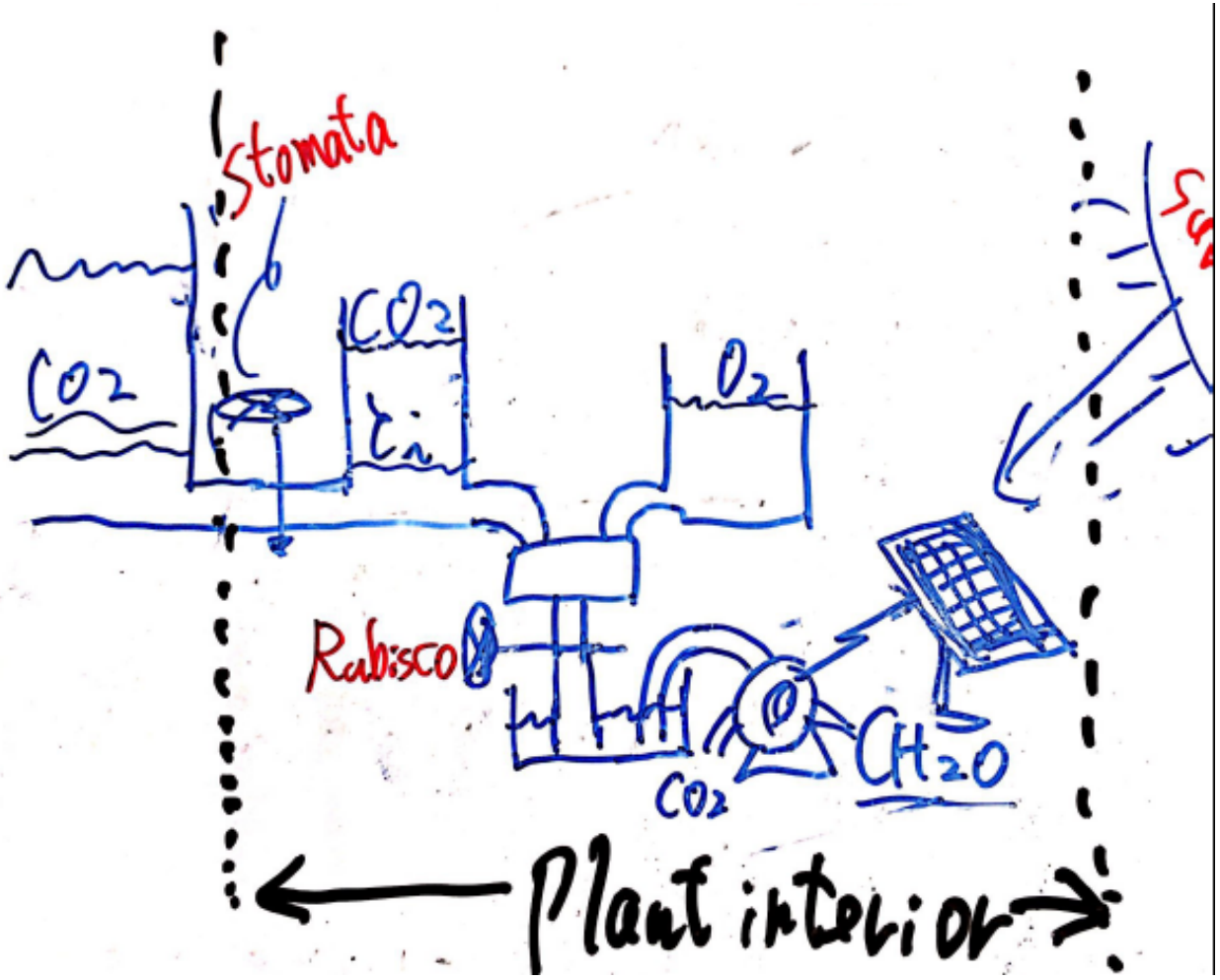
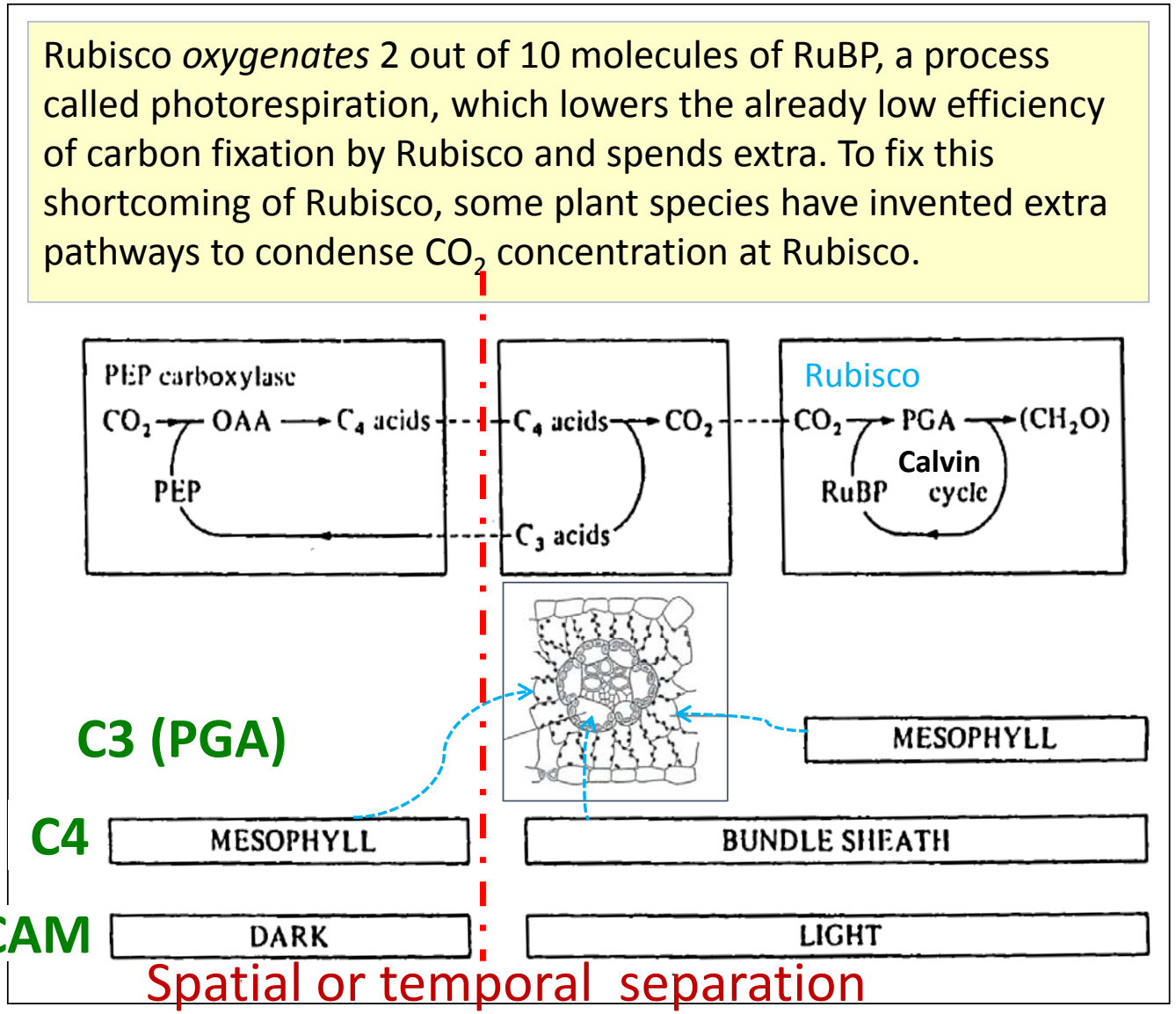


Fig. 9. Extra pathways for higher efficiency of carbon fixation by Rubisco.



Source: Ref. 2.

Fig. 10. A ‘cartoon’ of C_4 photosynthesis.