NIAB Plant Science into Practice

INCREASING CARBON CAPTURE IN GRASSLANDS

Increasing carbon storage in soils can be achieved through higher organic matter inputs and/or slower turnover of soil carbon.

Opportunities to increase carbon capture in grasslands include:

- Appropriate reseeding to optimise grassland productivity
- Integration of legumes coupled with reduced N fertiliser use
- Use of deep rooting species (also increasing drought tolerance)
- Careful management of grazing to optimise sward growth and avoid poaching

Swards including legumes need less N fertiliser reducing the C footprint

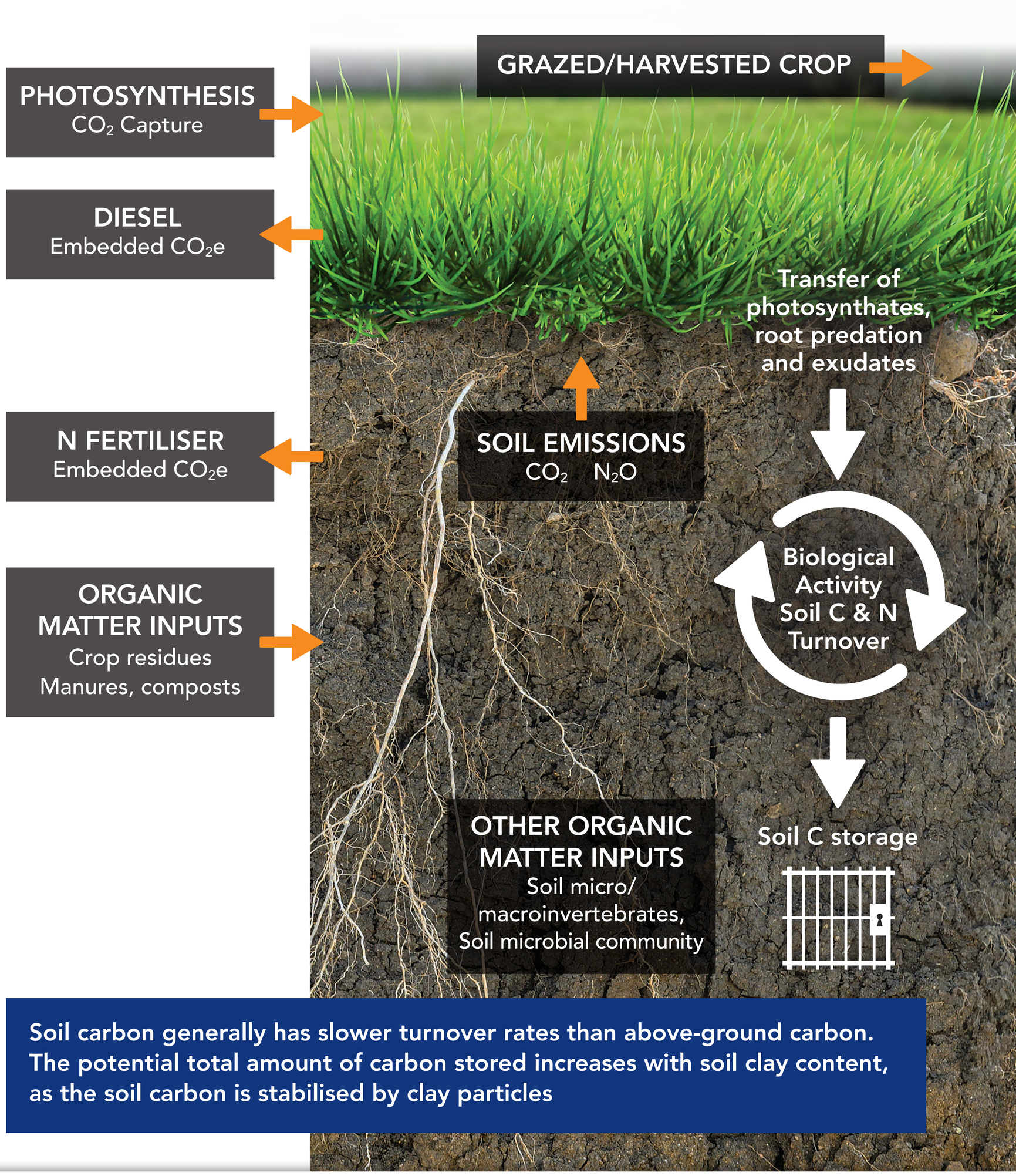
More diverse swards have a wider variety of rooting types and depths; this can increase carbon as organic matter into all soil horizons

About two-thirds of terrestrial carbon is found below ground. UK grassland soils often contain more than 70 tonnes of carbon per hectare

Most carbon is captured by removing CO_2 from the atmosphere through photosynthesis as the sward grows

Excessive defoliation frequency can result in severe root dieback, while under-grazed swards will have reduced biological activity

CROP-SOIL CARBON BALANCE SHOWING THE MAIN INPUTS, OUTPUTS AND TRANSFERS



Soil carbon generally has slower turnover rates than above-ground carbon. The potential total amount of carbon stored increases with soil clay content, as the soil carbon is stabilised by clay particles

The CHCx3 project, led by NIAB, is investigating opportunities to improve economic returns, environmental outcomes and carbon capture through grassland management, species integration, and incorporating herbal leys into cropping systems

CENTRE FOR HIGH CARBON CAPTURE CROPPING

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