

Carbon sequestration practices in eastern Netherlands

Grass and arable fields case study



Introduction

With climate change accelerating, the imperative for carbon sequestration becomes more pressing. Sustainable practices, such as cover cropping and reduced tillage, transform the agricultural landscape into a carbon sink.

Carbon sequestration also touches upon the emerging market of carbon credits, aligning economic interests with environmental stewardship. Frequent analysis on carbon sequestration helps farmers to exploit this new economic opportunity.

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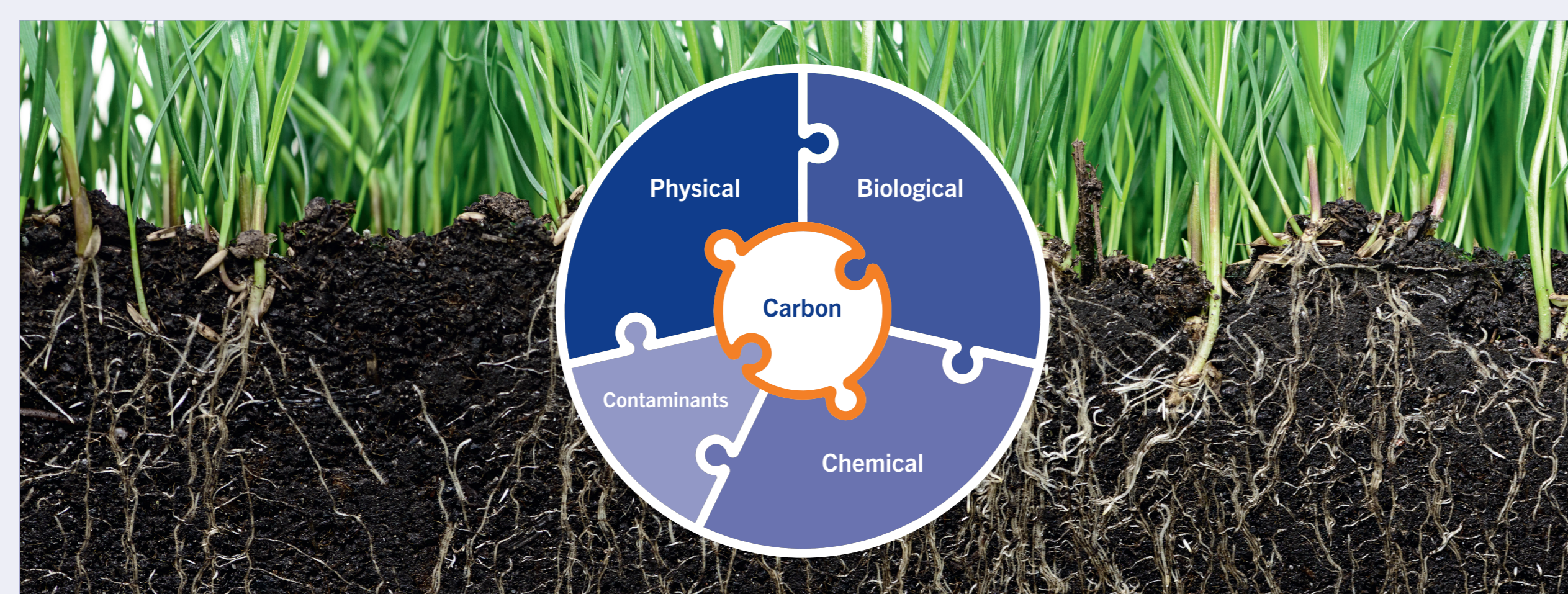
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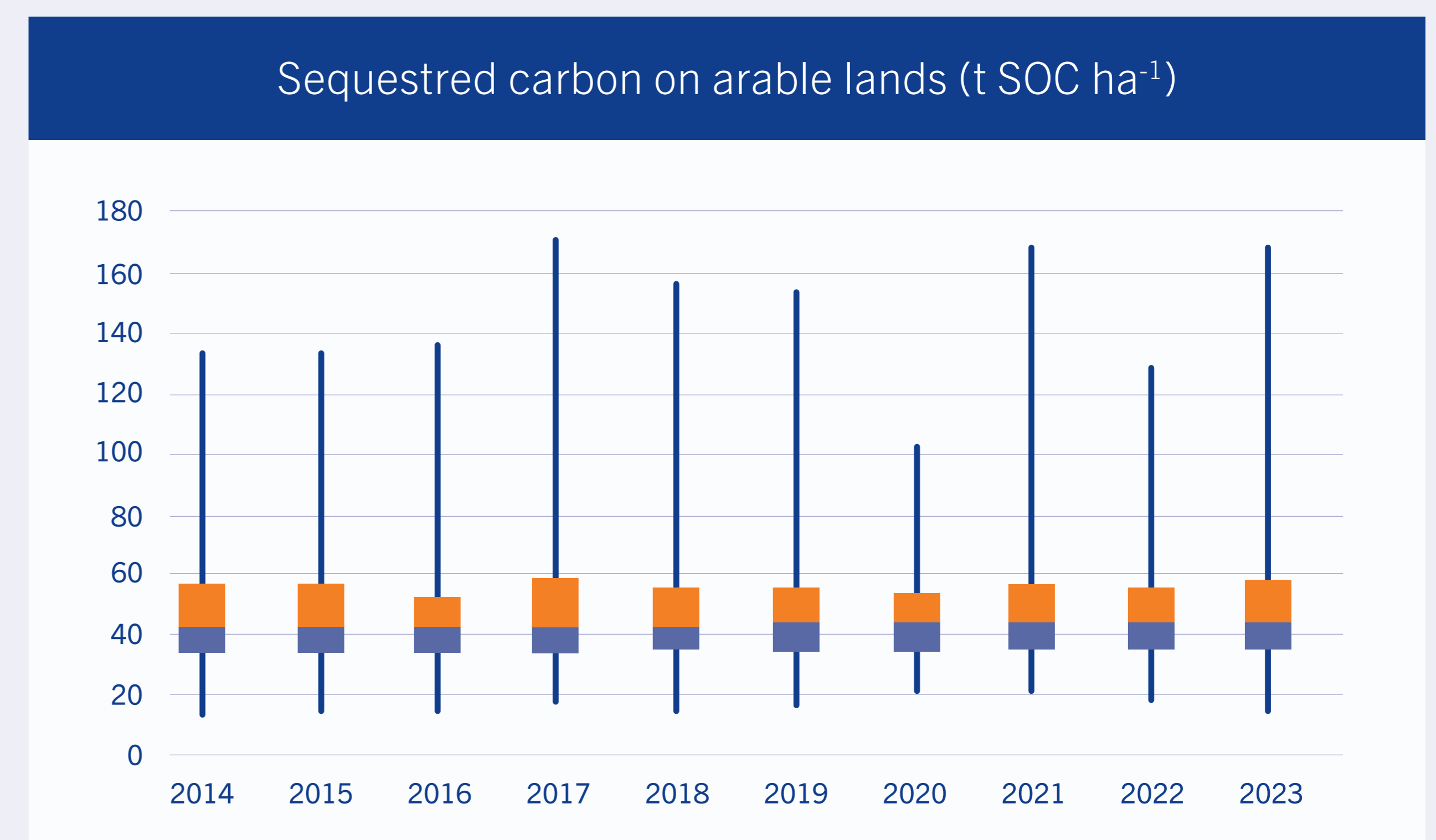
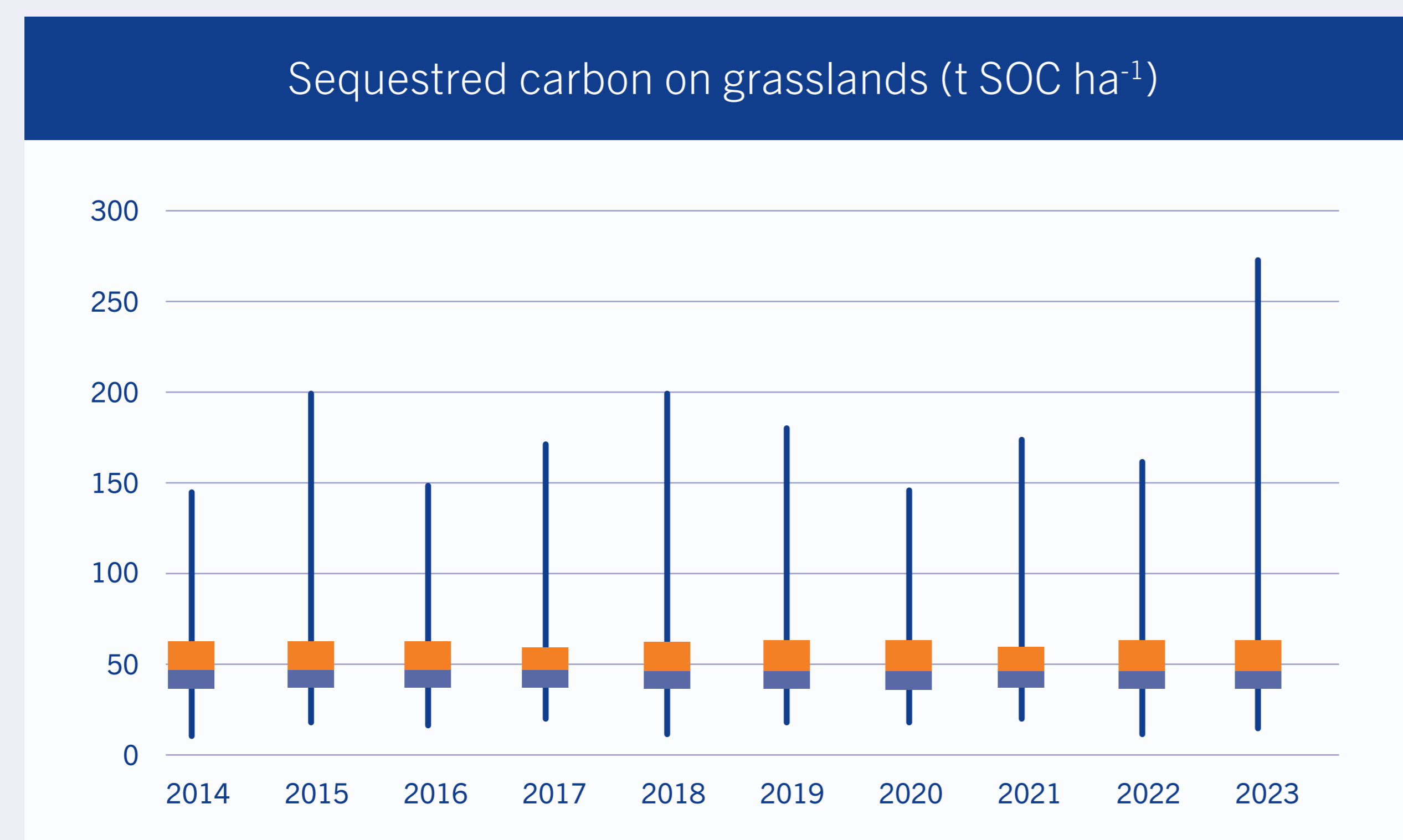
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Methods

The study utilized an extensive dataset of 15,220 production soil samples collected over a decade in collaboration with 311 farmers. In total 11,372 grassland and 3,848 arable soil samples were used, grassland samples were sampled at 10 centimeters, arable fields were sampled at 25 centimeters. NIRS analysis was conducted on the soil samples for a rapid assessment of multiple soil properties.

Results



Carbon sequestration across arable lands and grasslands revealed substantial changes over the study period. On arable lands, a positive shift from an initial average of 47.95 to 50.0 tons per hectare was observed. However, a breakdown among 300 farmers with more than one year of data showcased mixed outcomes, with 130 farms experiencing an increase in sequestration and 170 facing a decline.



Conclusions

The observed increases in carbon sequestration on both arable lands and grasslands signify a positive trajectory, indicating the potential of sustainable practices to contribute to environmental objectives. However, the variations among individual farmers underscore the complexity of factors influencing carbon sequestration and highlight the need for targeted interventions.

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References

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