

DIVERFARMING

Crop diversification and low-input farming across Europe: from practitioners' engagement and ecosystems services to increased revenues and value chain organisation

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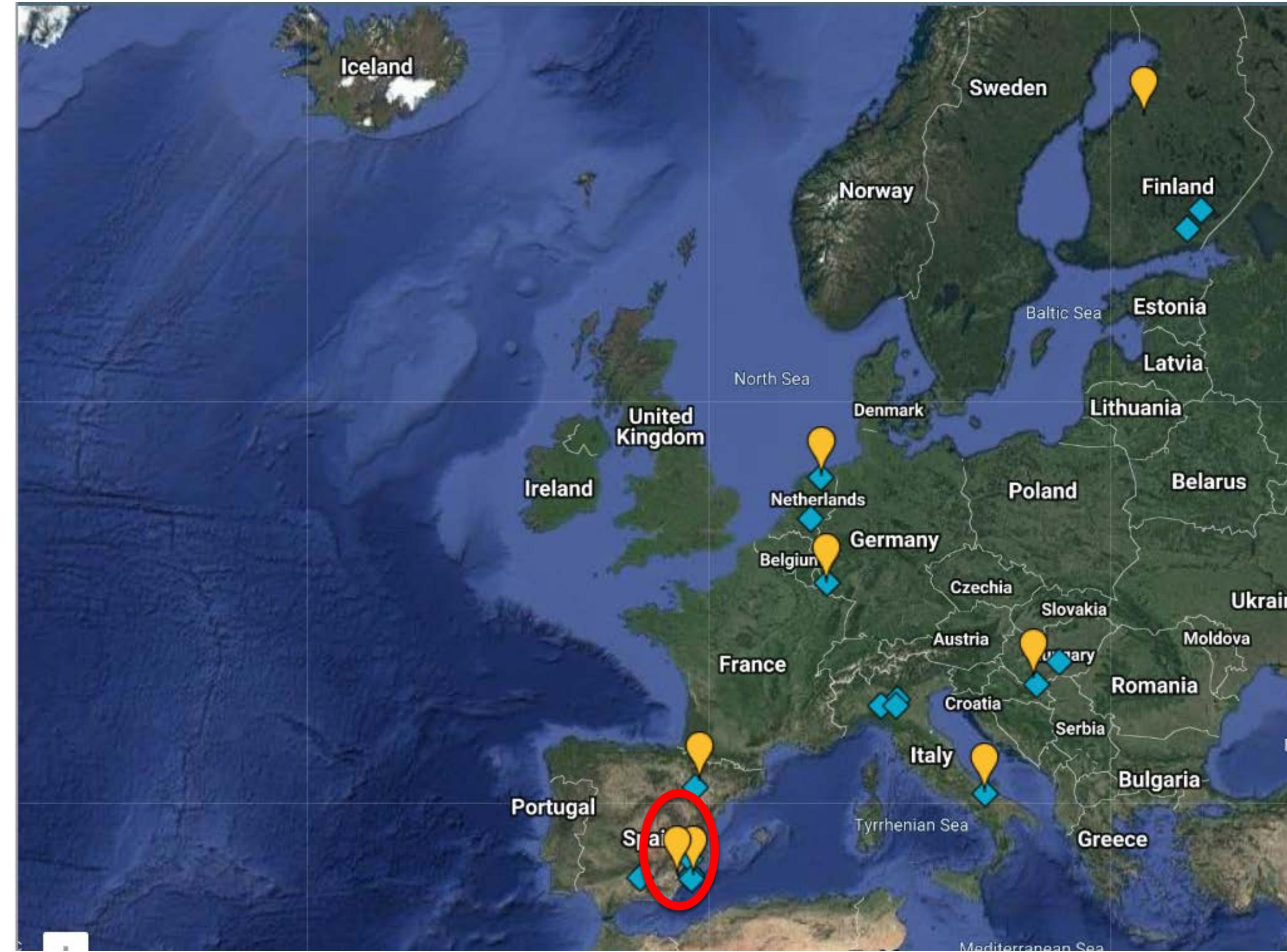
General Scope:

To increase the **long-term resilience, sustainability and economic revenues** of agriculture across the EU by assessing the real benefits and minimising the limitations, barriers and drawbacks of **diversified cropping systems under low-input practices** that are tailor-made to fit the characteristics of six EU pedoclimatic regions, and by adapting and optimising the downstream value chains organization.





25 case studies (annual and perennial)





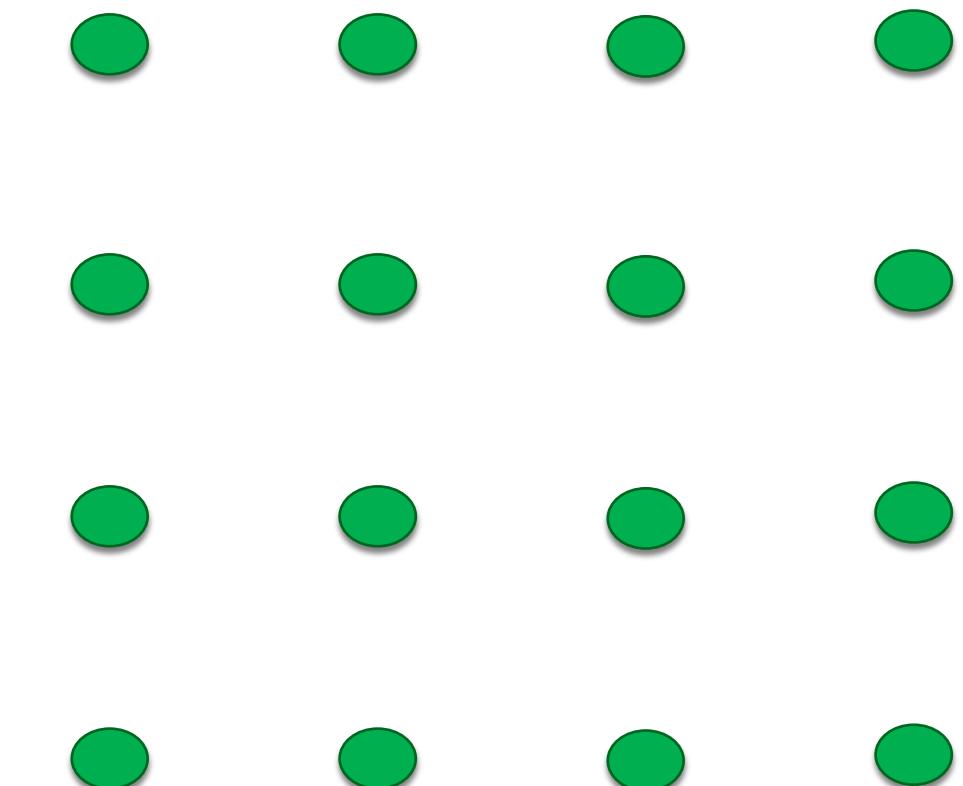
Intercropping systems in vegetables in SE Spain





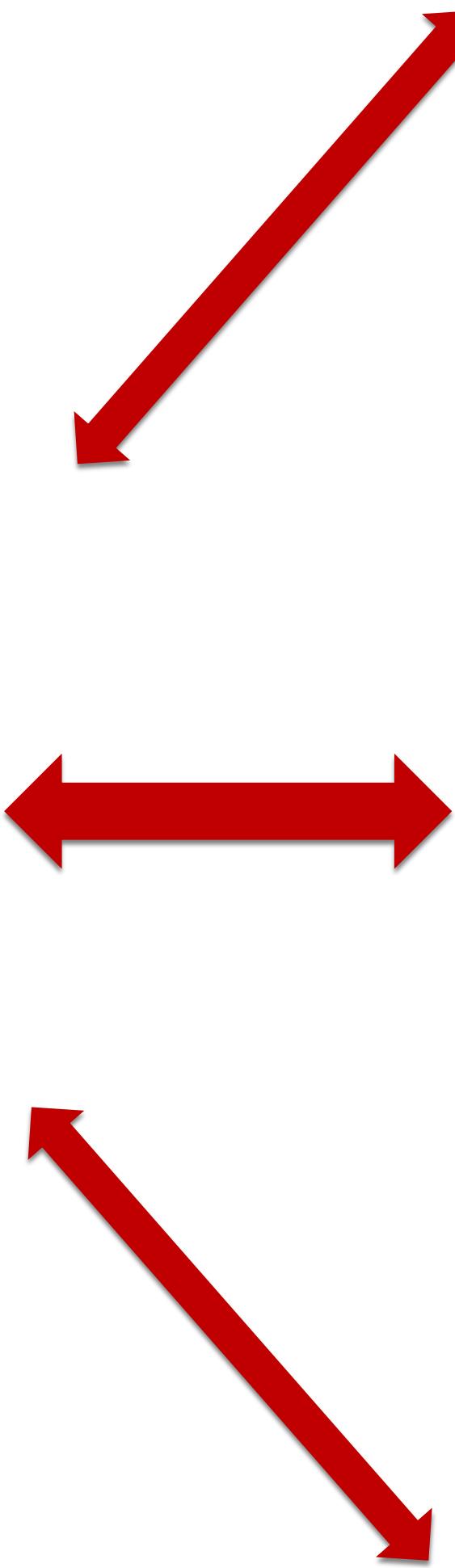
Intercropping systems in vegetables can enhance crop yields, soil health, carbon sequestration and biodiversity

Fertigated
(Intercropping with 30% reduction)

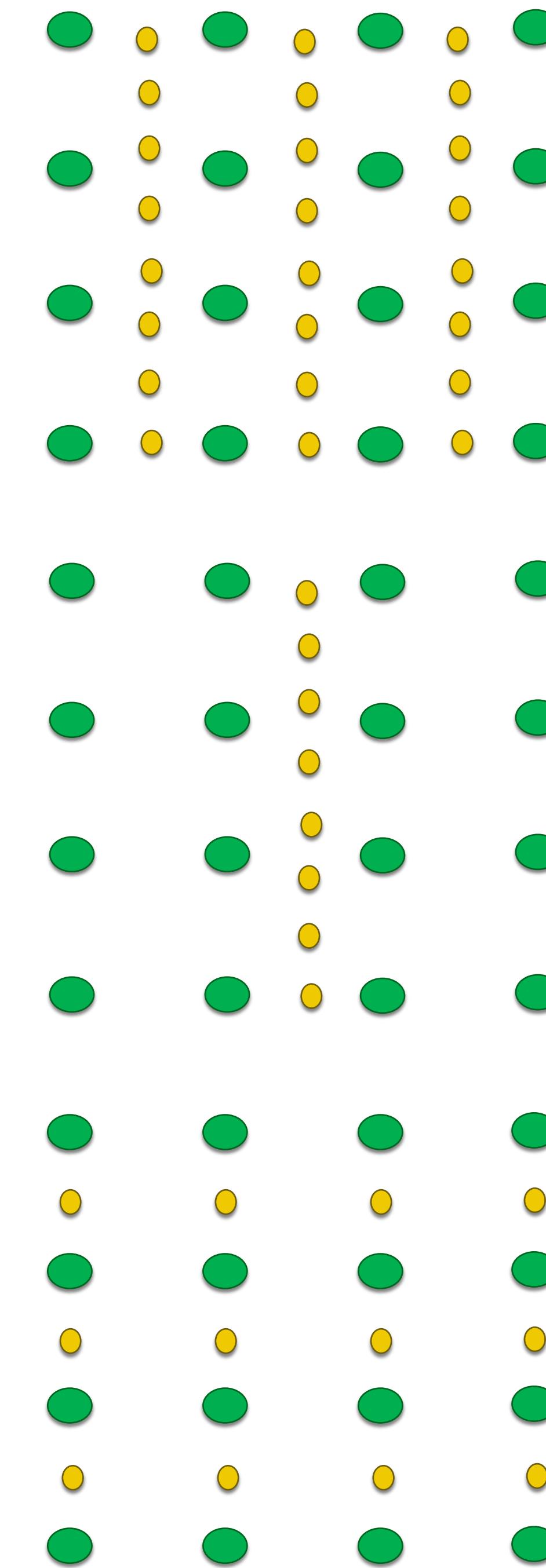


Melon monoculture

- Melon (*Cucumis melo*)
- Cowpea (*Vigna unguiculata*)



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Row intercropping 1:1

Row intercropping 2:1

Mix intercropping



Row intercropping 2:1



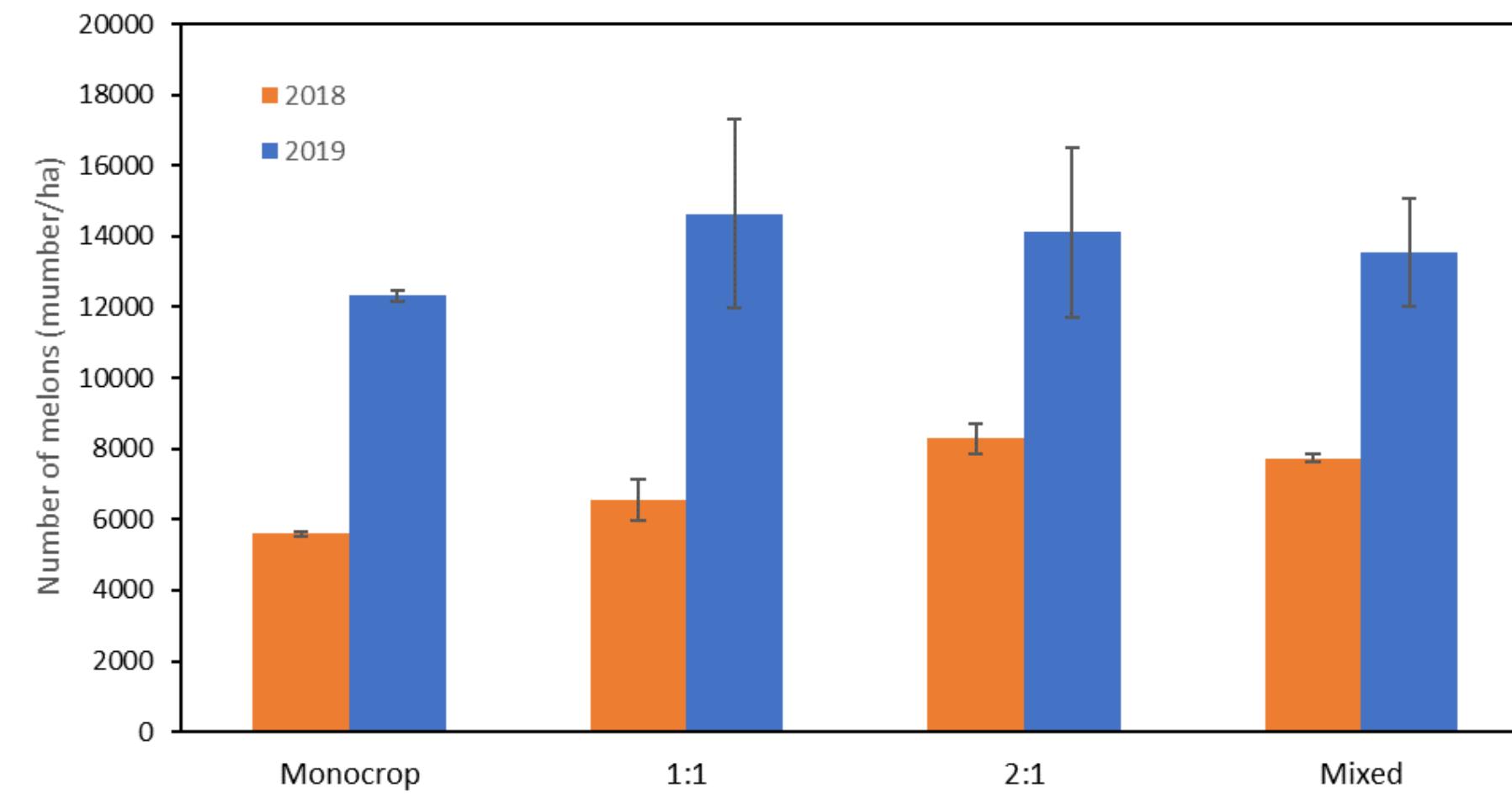
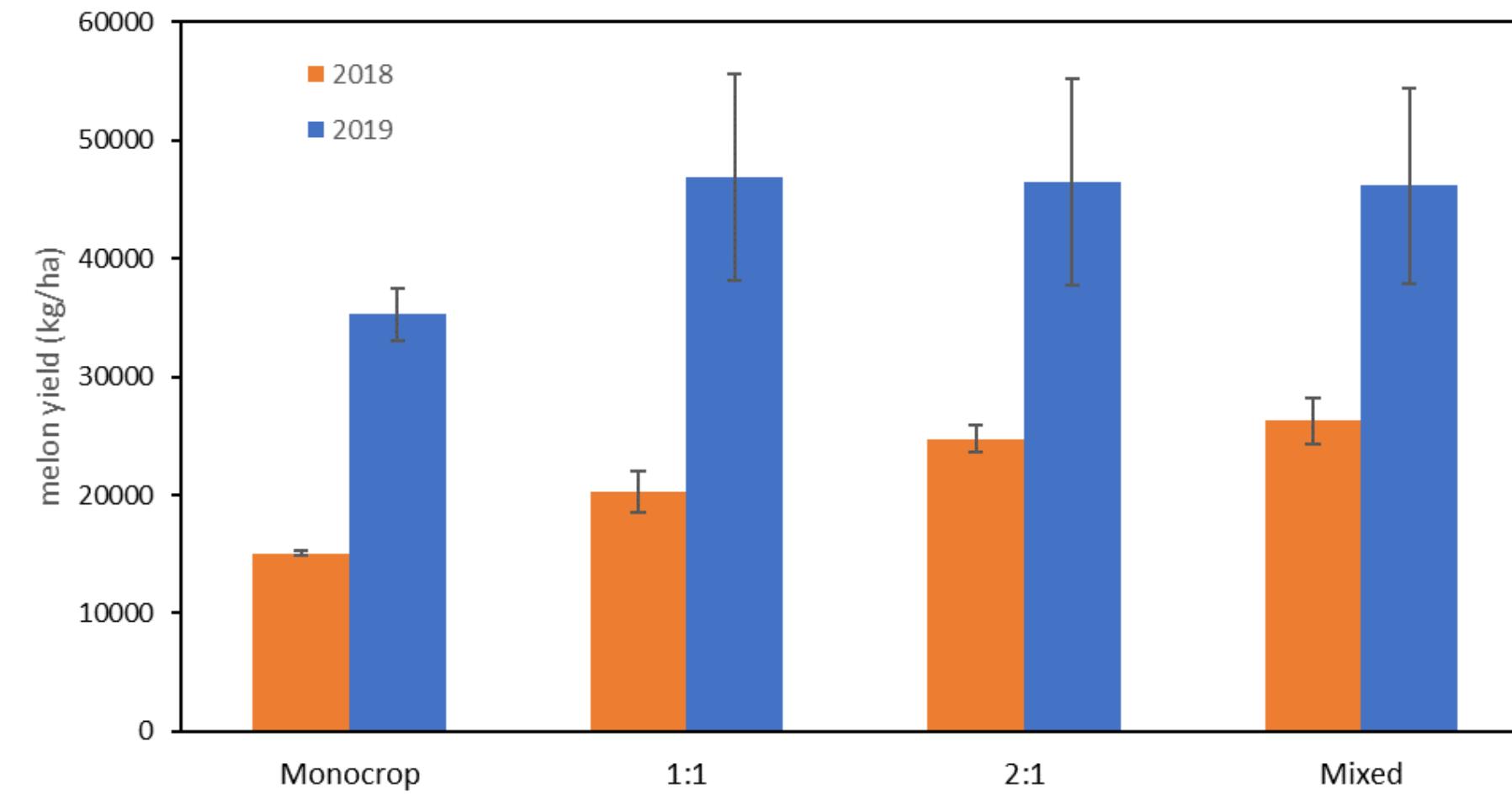
Melon monoculture



Mix intercropping

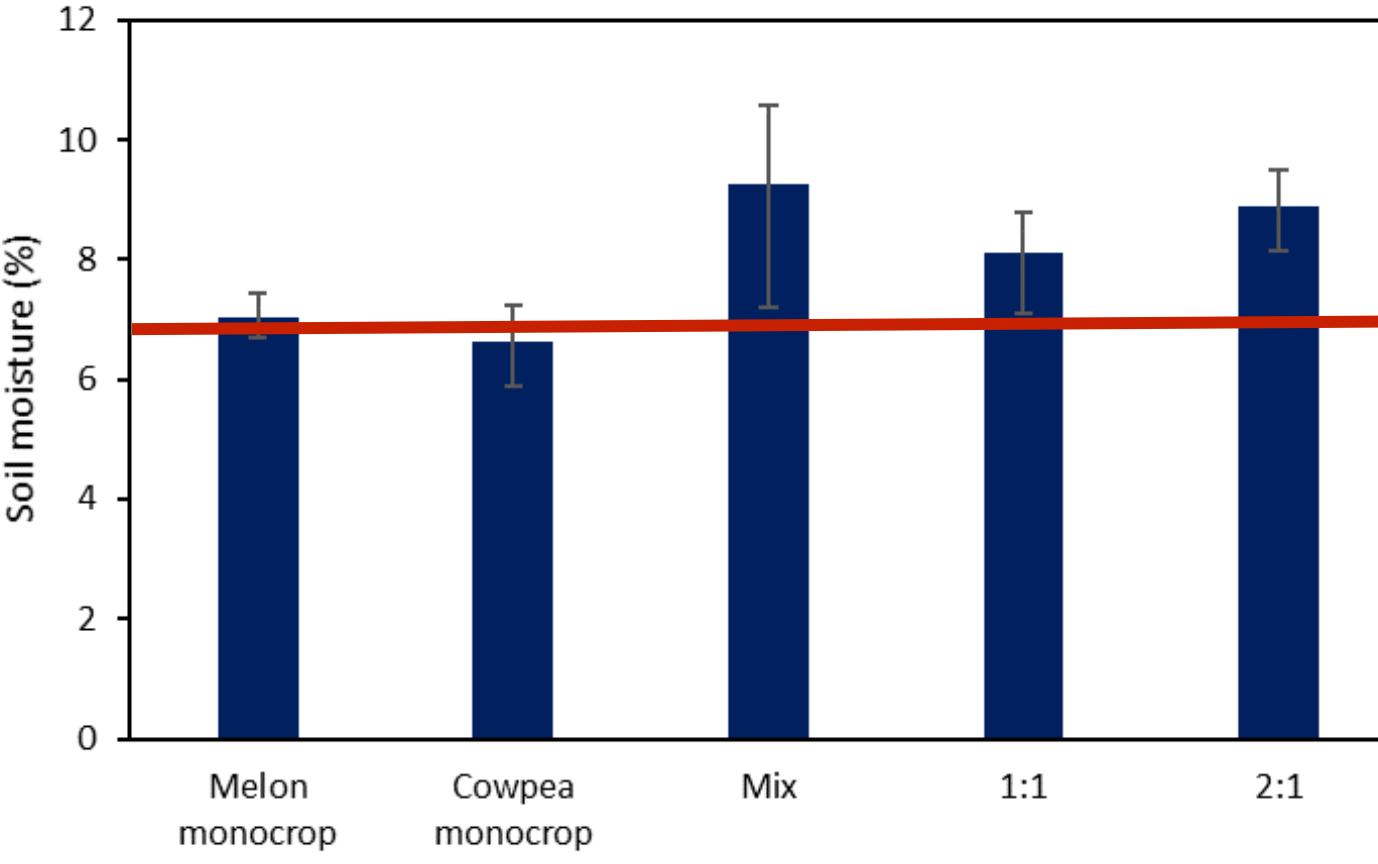
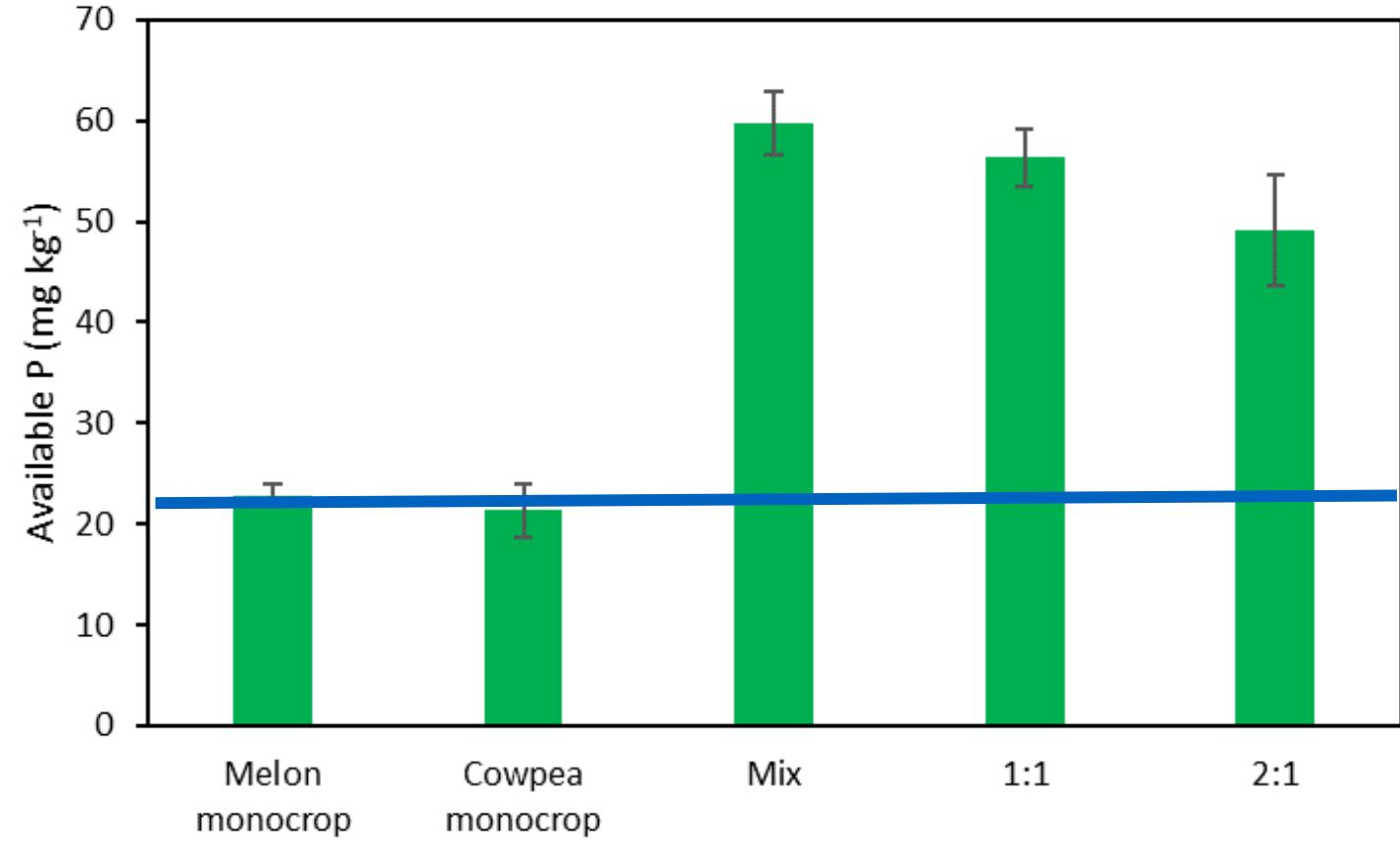
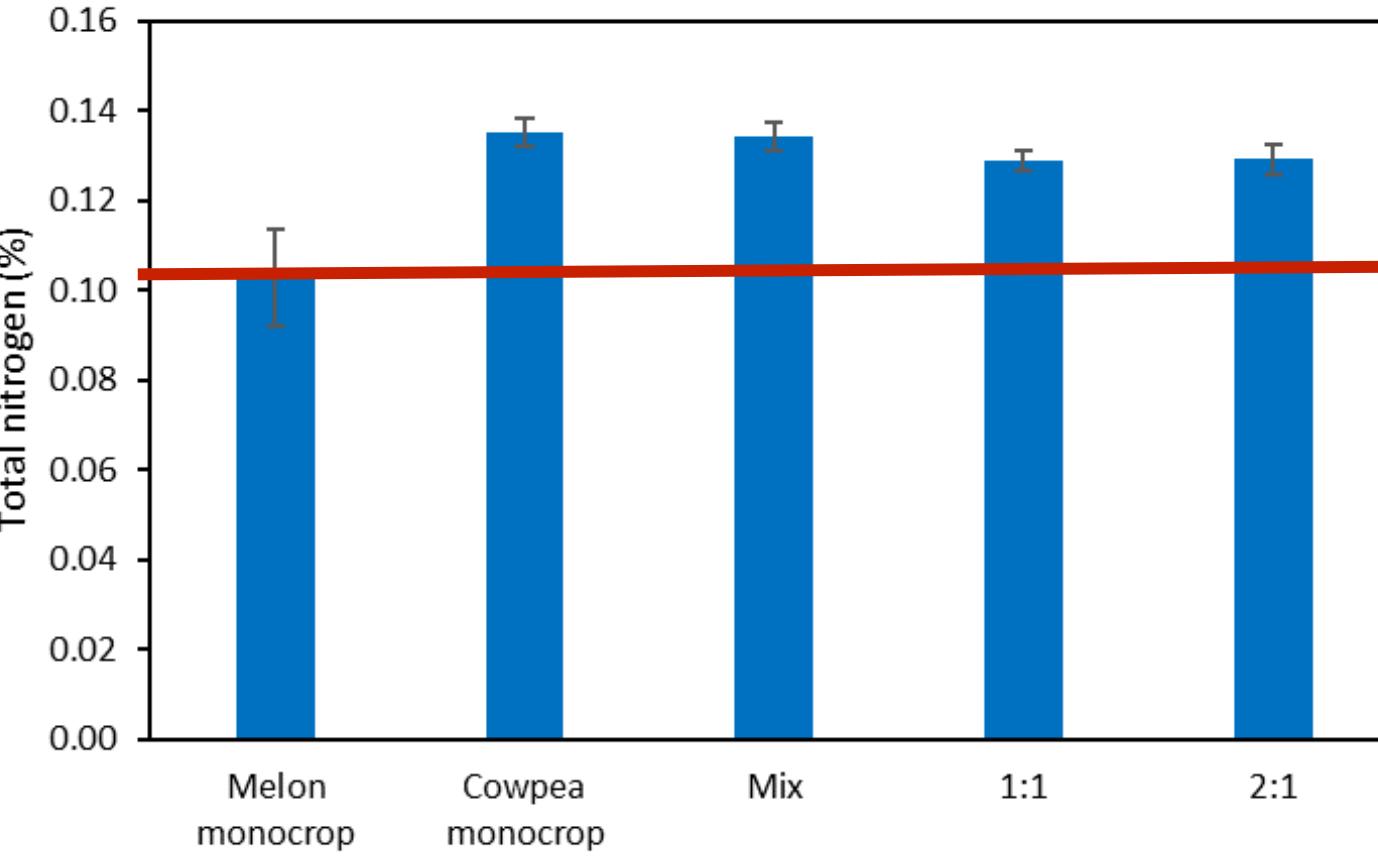
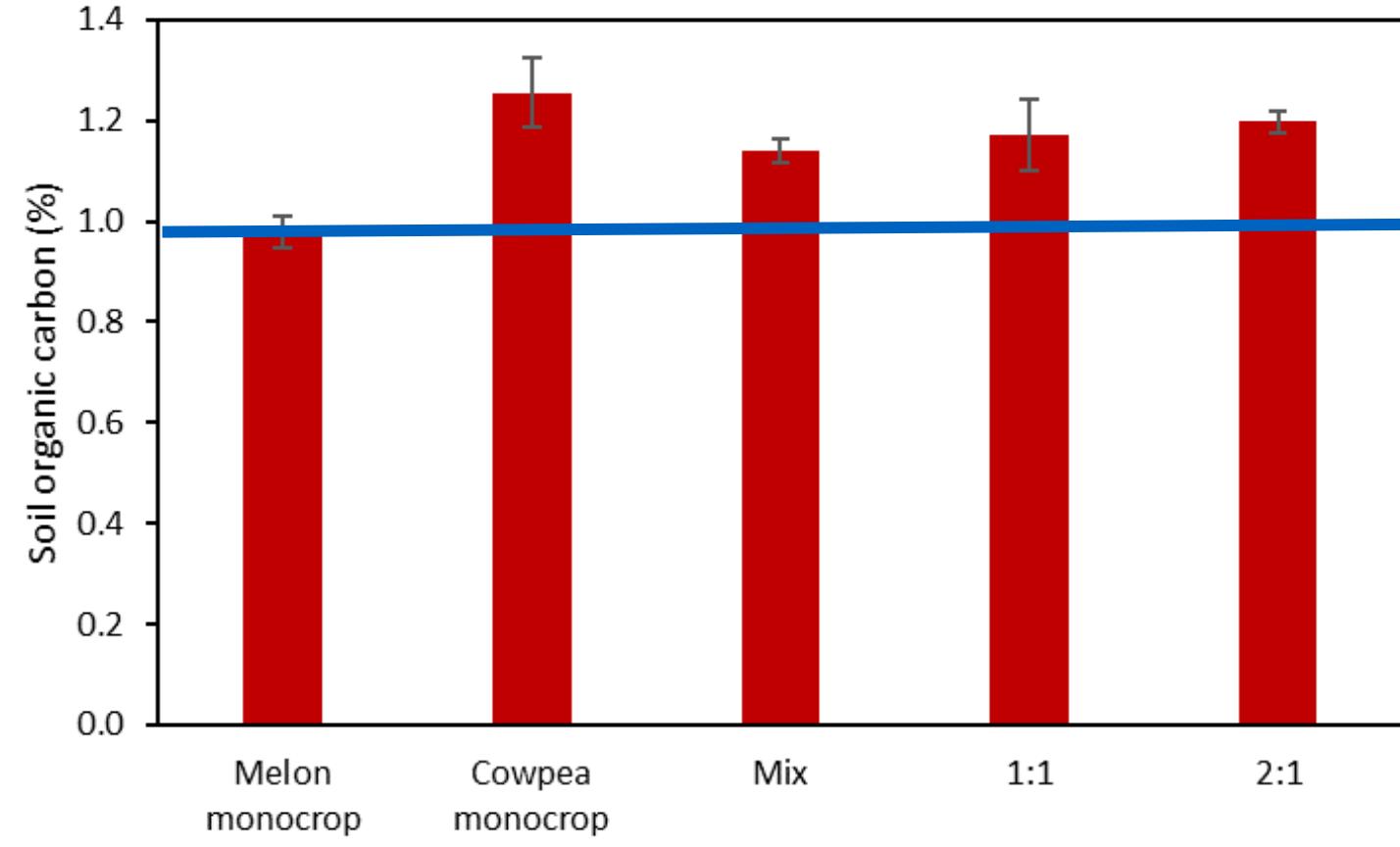


Intercropping systems in vegetables can enhance crop yields



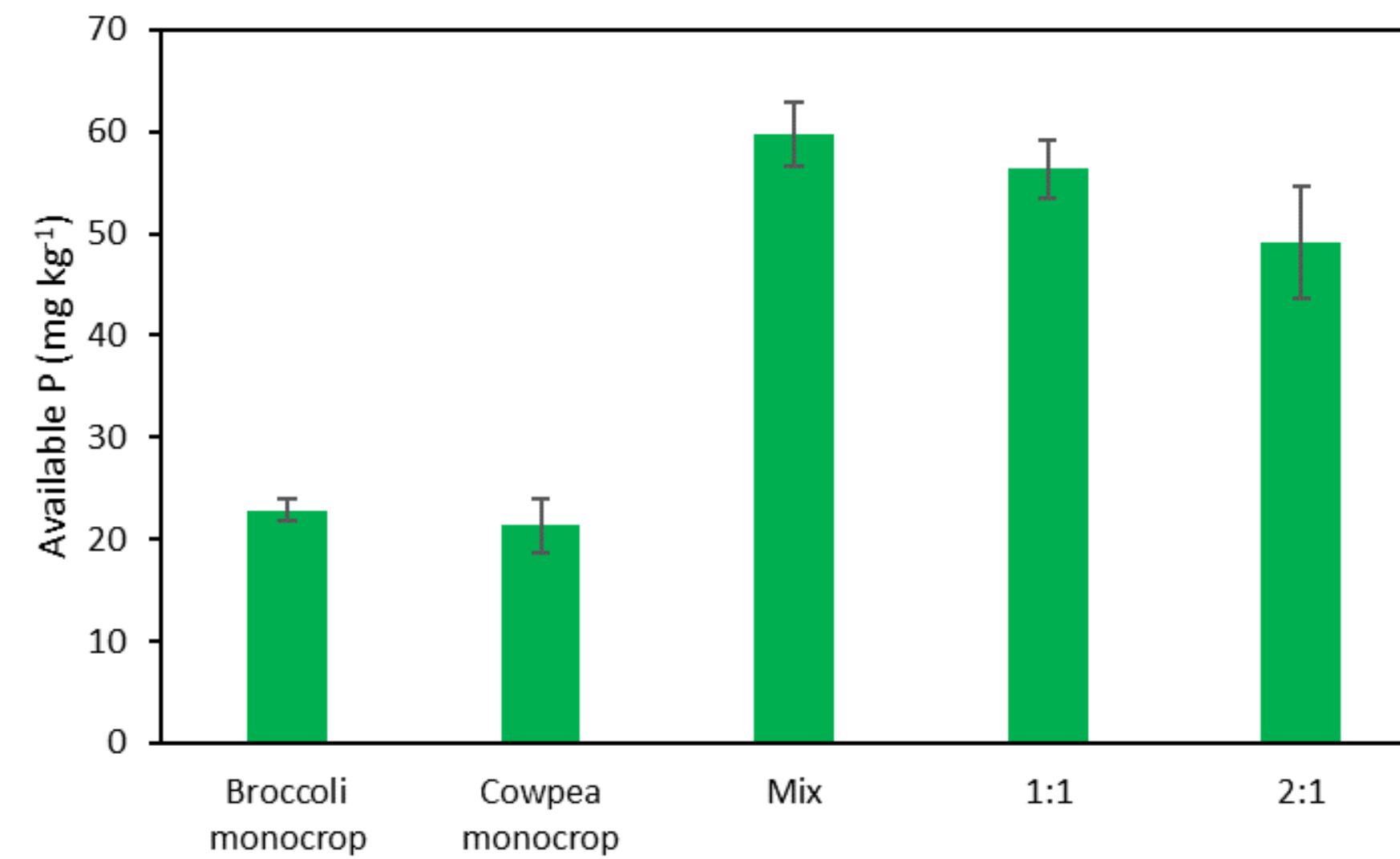


Intercropping systems in vegetables can enhance soil health

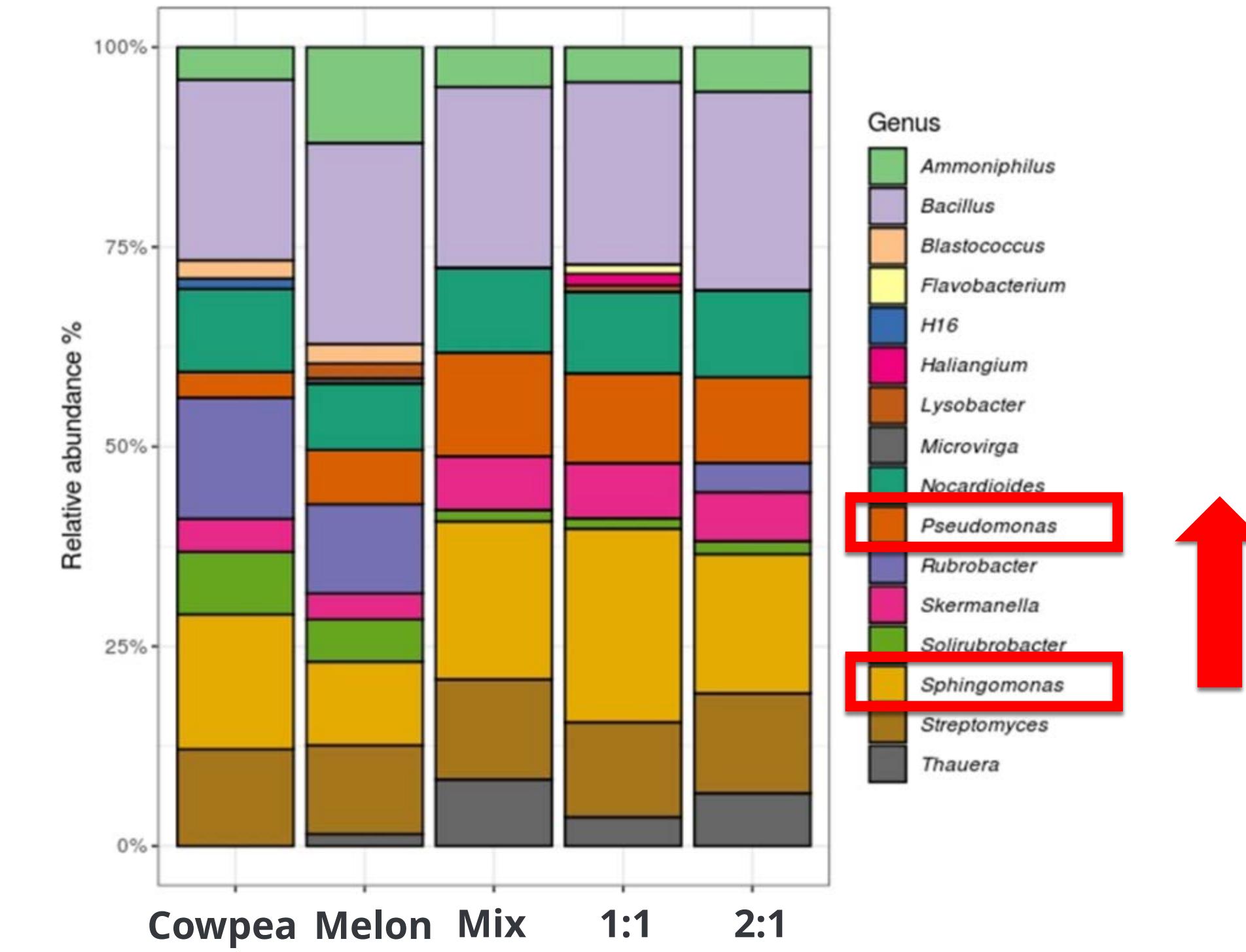




Intercropping systems in vegetables can enhance soil biodiversity



Relative abundance of bacterial genera





Agroforestry systems in rainfed orchards in SE Spain





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Alley cropping can enhance land productivity and ecosystem services in almond orchards



Almond Monocrop



Almond diversified with Thyme (*Thymus vulgaris*)



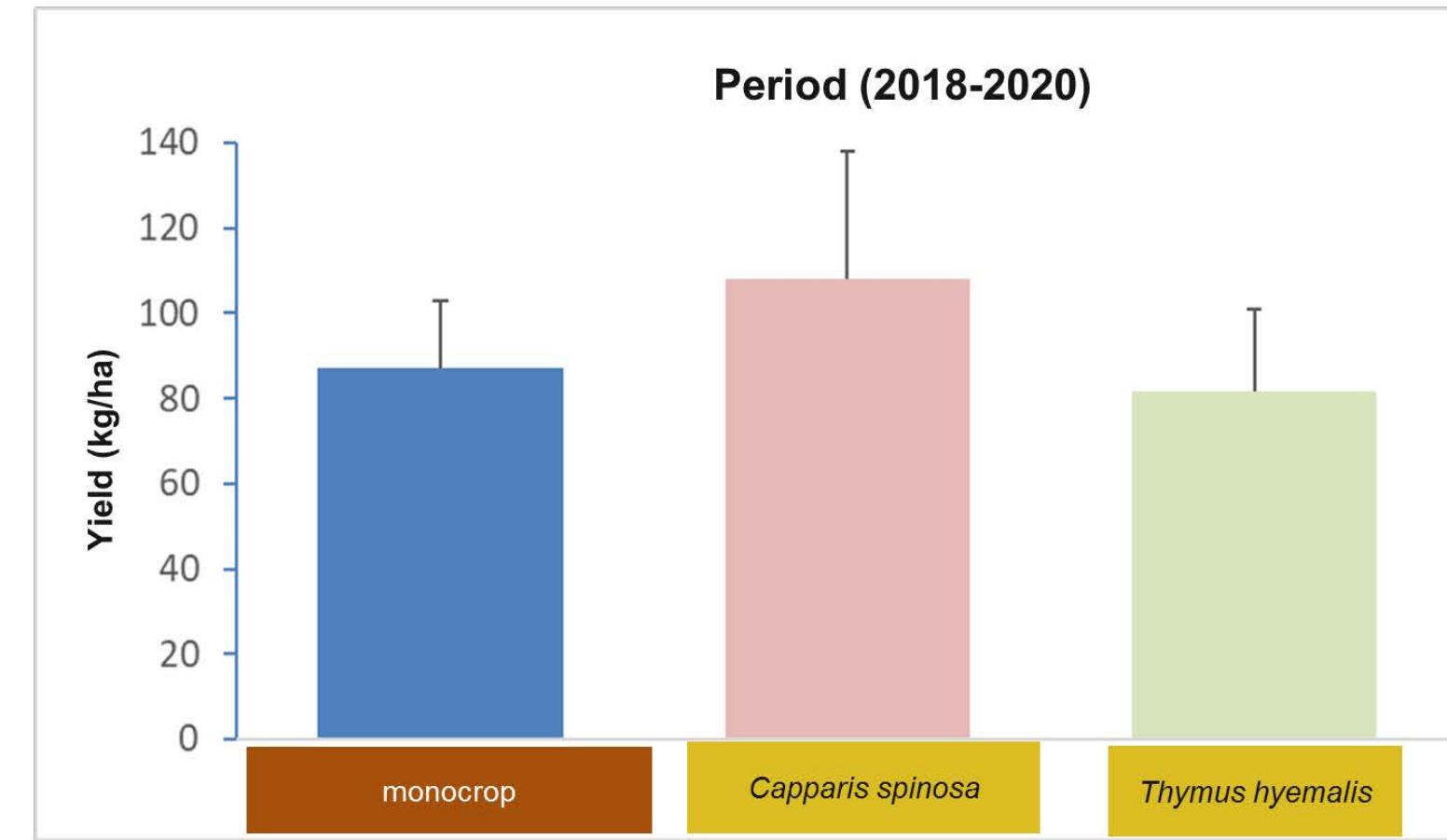
Almond diversified with Caper (*Capparis spinosa*)





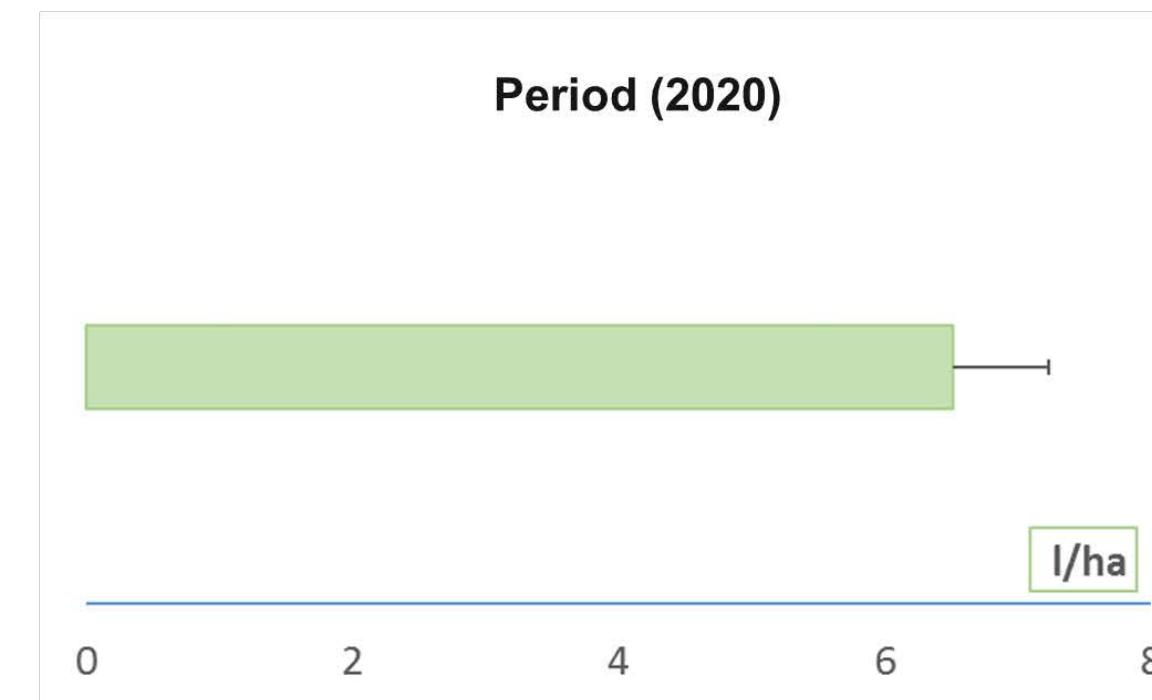
Alley cropping can enhance land productivity and ecosystem services in almond orchards

Almond yield



Diversification does not reduce the yield of the main crop

Thyme essential oil yield

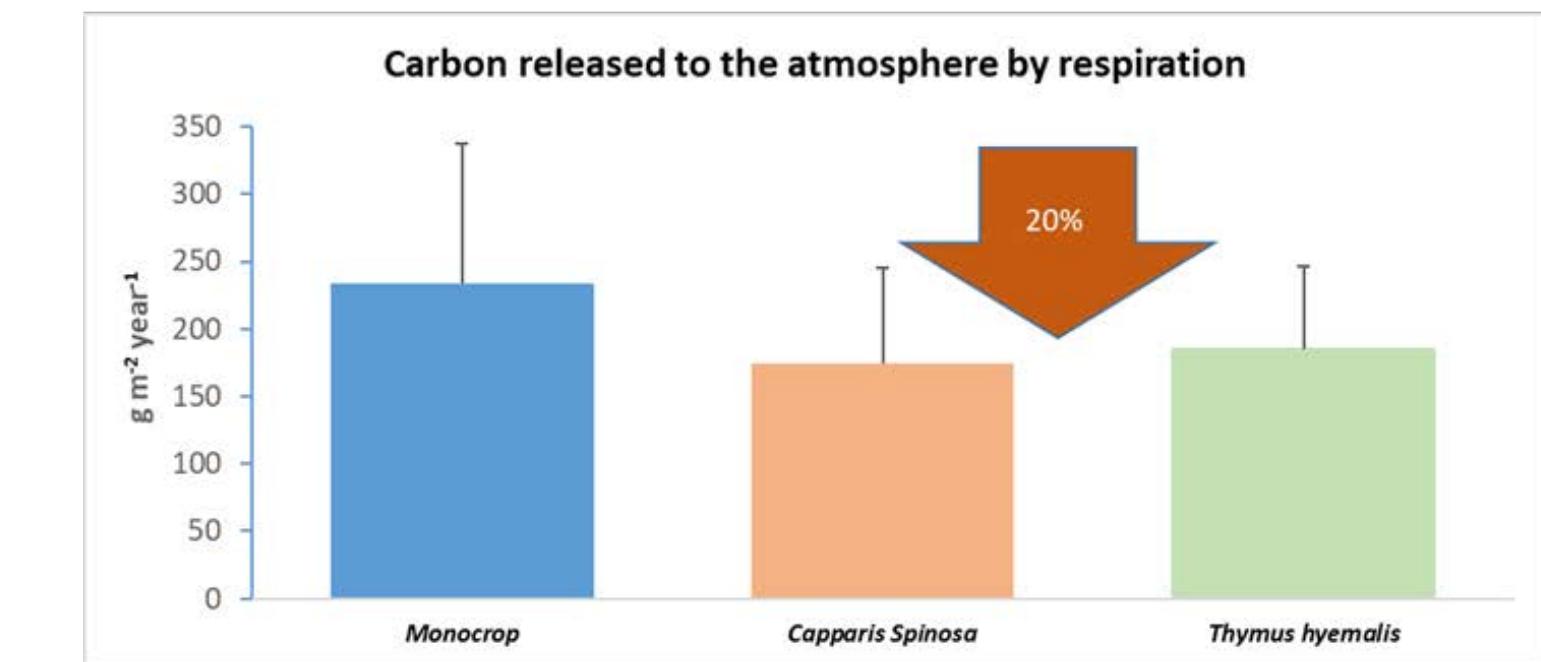
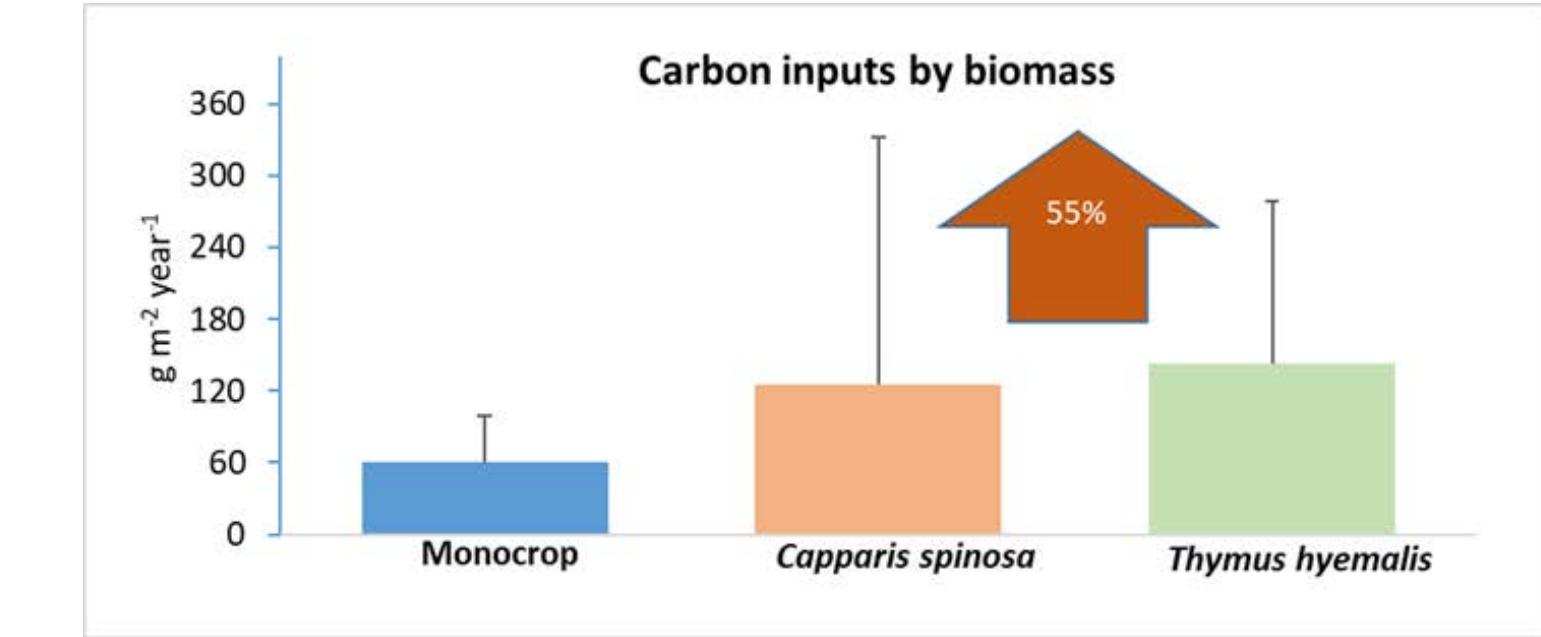
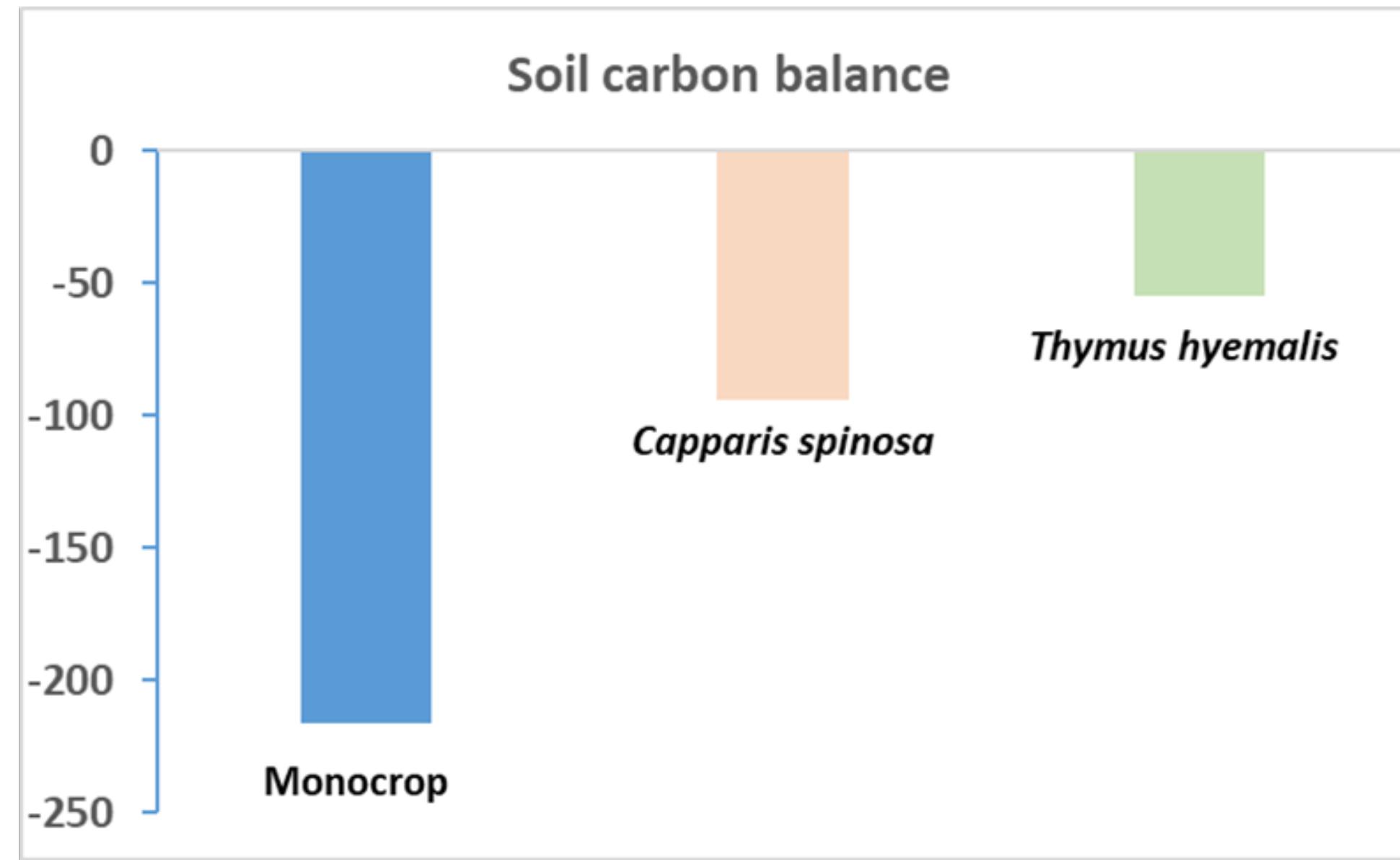




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Alley cropping can enhance land productivity and ecosystem services in almond orchards

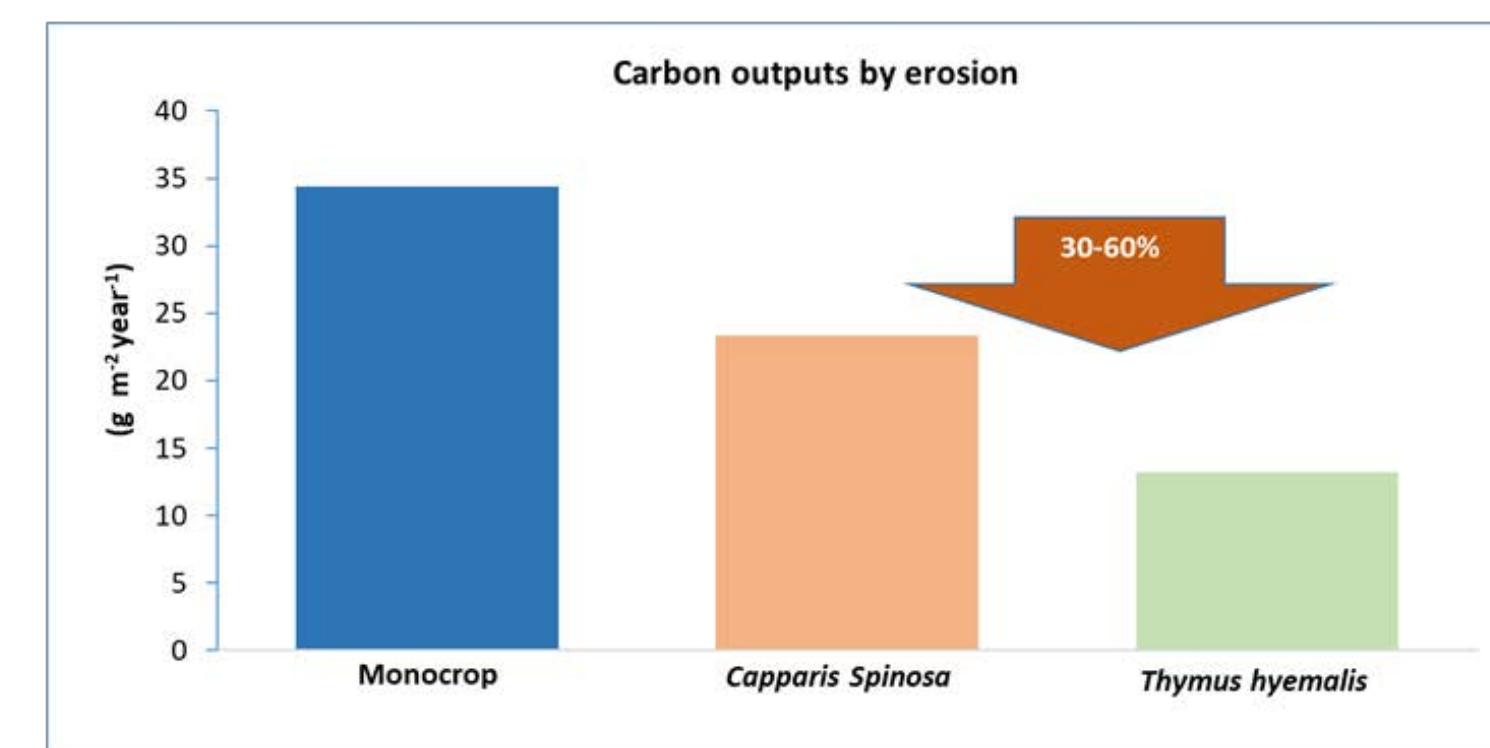
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*adapted conservation mass approach proposed by Yoo et al. (2005):

$$\frac{dSOC}{dt} = NPP - Rs - \varepsilon$$

ε : carbon exported or deposited by water erosion





Agroforestry systems in irrigated orchards in SE Spain





Alley cropping can enhance land productivity and ecosystem services in mandarin orchards



Citrus monoculture (MC)



Citrus diversified with fava and barley/vetch

3 years field experiment



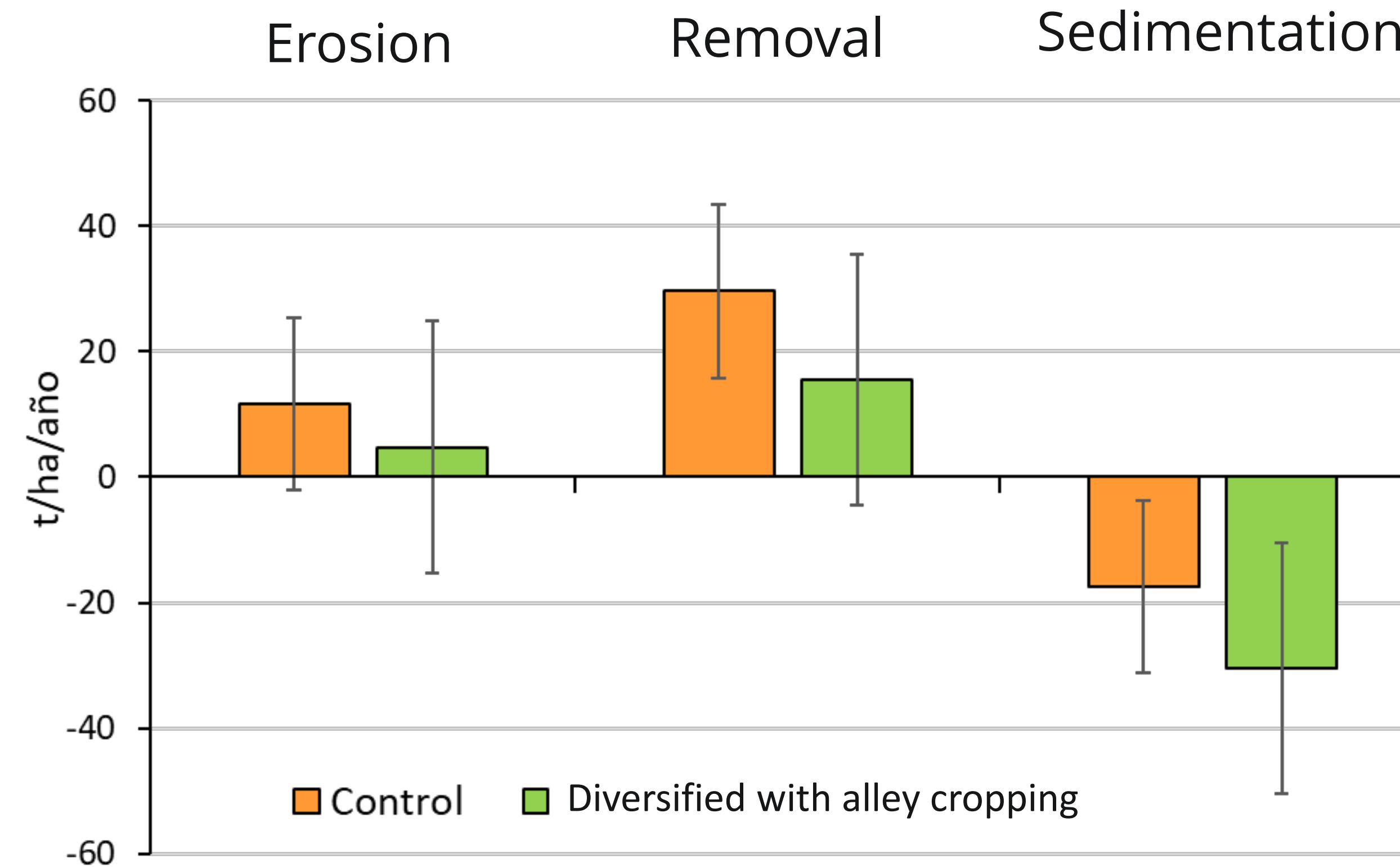
Water consumption (3 years):

Monoculture: 11,460 m³/ha

Diversified: 11,069 m³/ha (including mandarin, fava and barley/vetch)

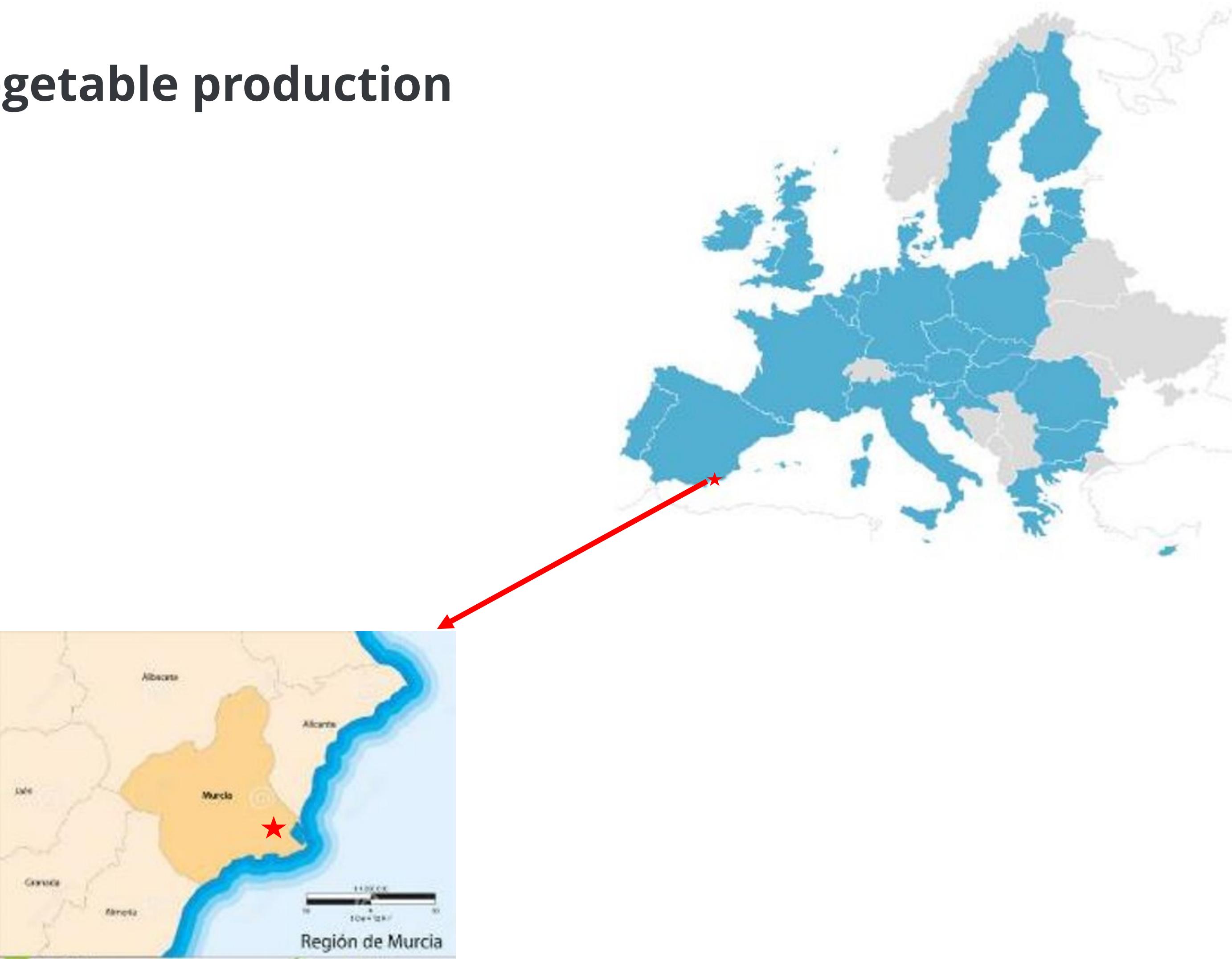


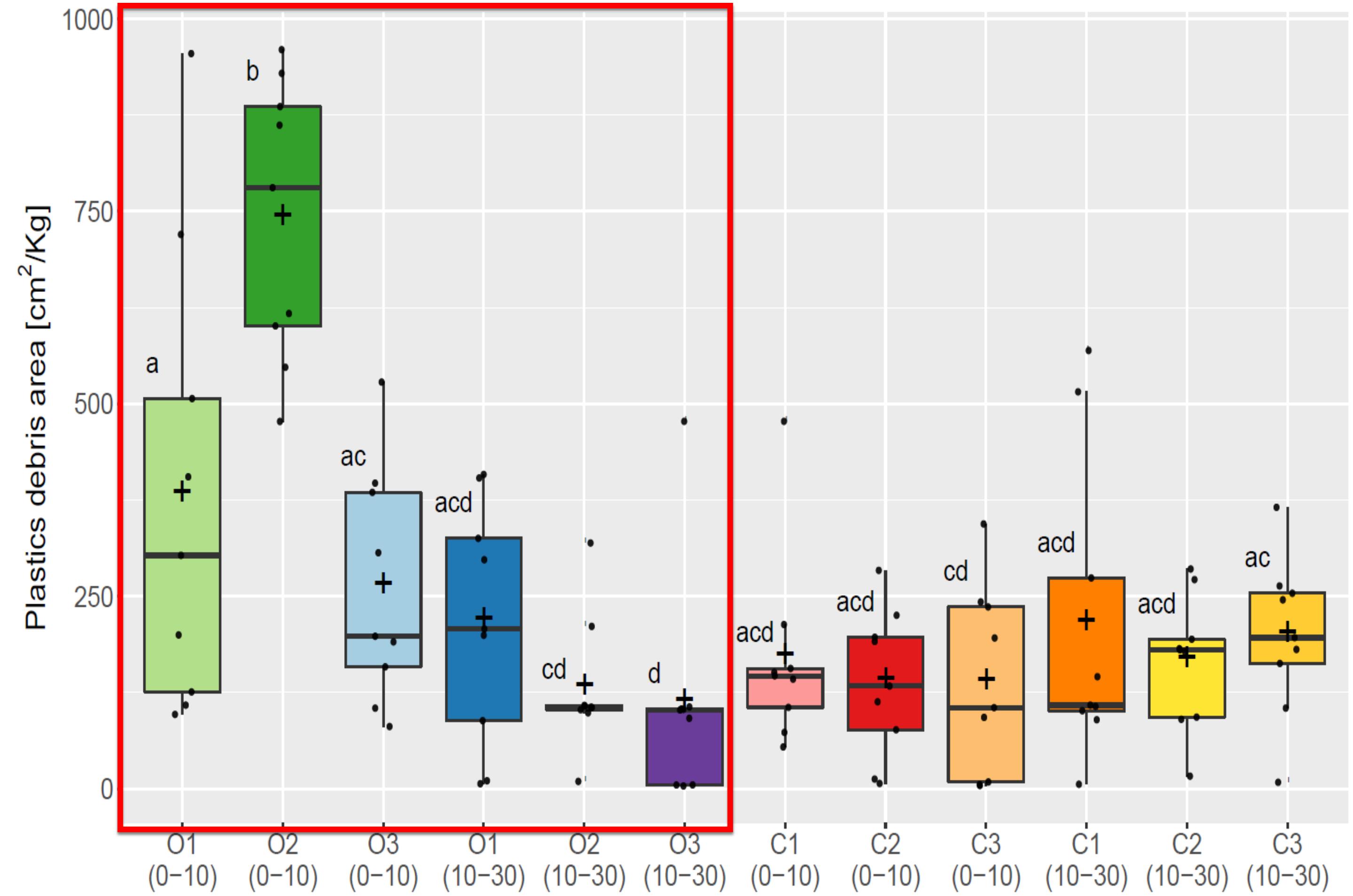
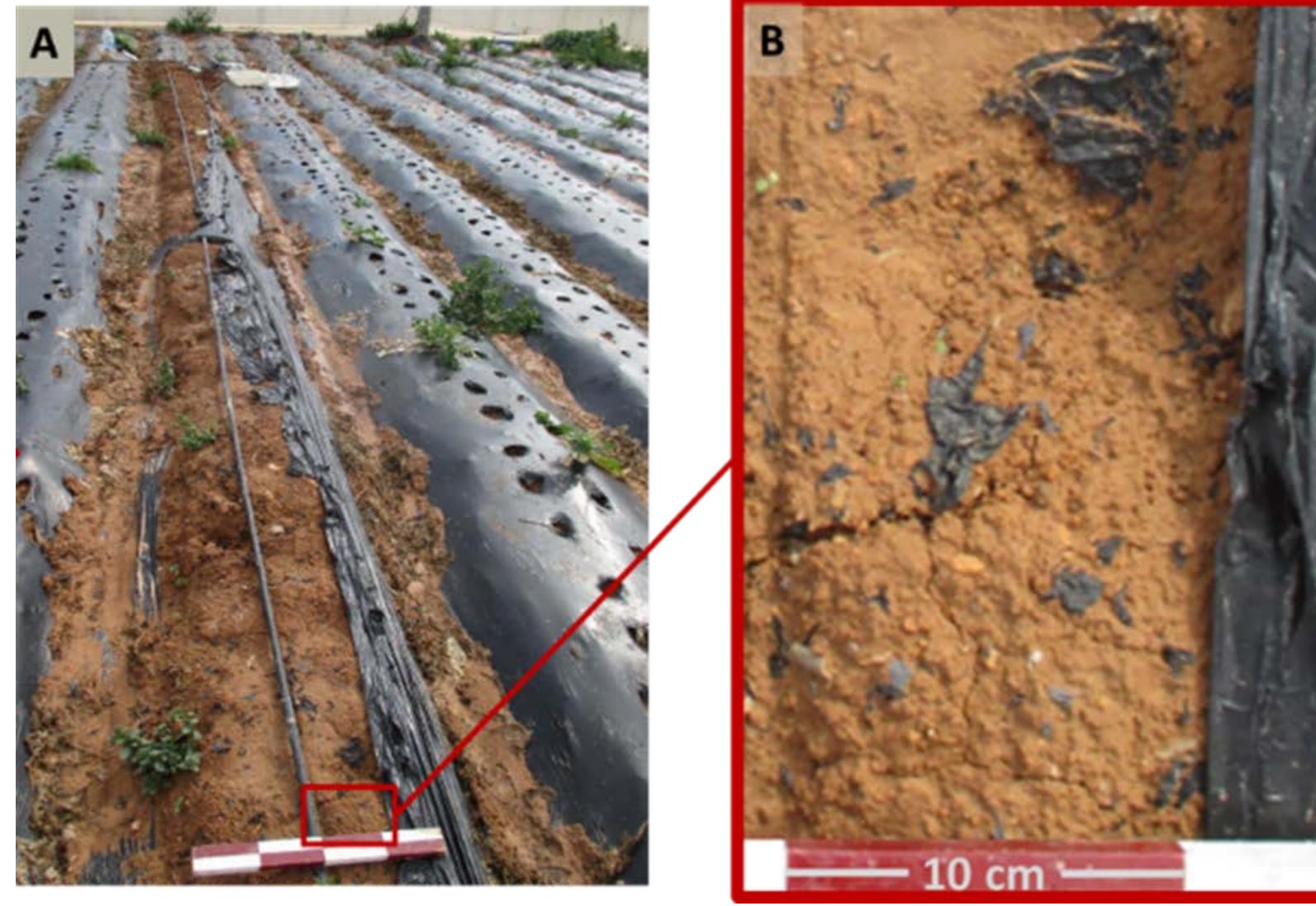
Alley cropping can reduce erosion by 60% in mandarin orchards





Plastic pollution in vegetable production





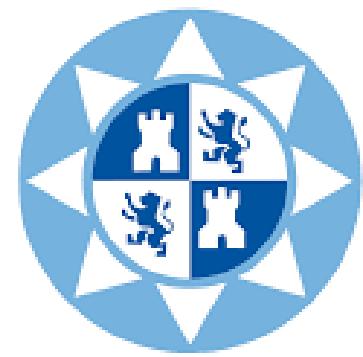
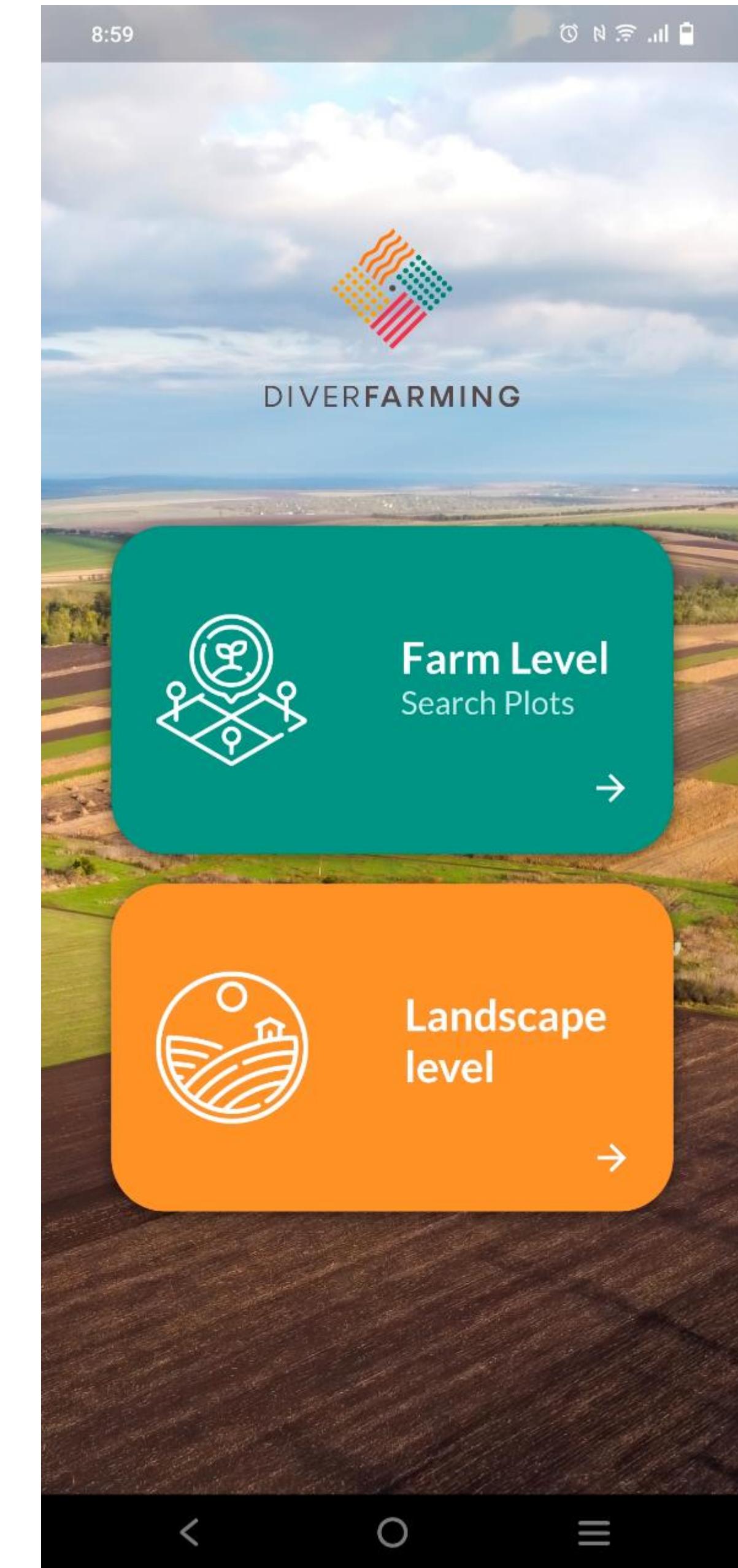




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