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## How would irrigation enhance the global BECCS potential in view of sustainable water use?

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Bioenergy with carbon capture and storage (BECCS) plays a critical role in many stringent scenarios targeting the 2°C goal. Although irrigation is considered a promising way to enhance BECCS potential while reducing the land requirement, it is still unknown where and to what extent it can enhance the global BECCS potential in view of sustainable water use. Based on integrated hydrological simulations, we found that sustainable irrigation without intervention in water usage for other sectors and refrain from exploiting nonrenewable water sources enhanced BECCS potential by only 5–6% (much smaller than 60–71% for unlimited irrigation) above the rainfed potential by the end of this century. Nonetheless, it adds limited additional water withdrawal (166–298 km<sup>3</sup> yr<sup>-1</sup>, corresponding to only 4–7% of the current total withdrawal) compared to that with unlimited irrigation (1392–3929 km<sup>3</sup> yr<sup>-1</sup>, corresponding to 35–98% of the current total withdrawal).