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## Historical simulation of crop water and land footprints

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Crop production puts substantial pressure on planetary water and land resources. One way to decrease it is to reduce crop water (WF,  $\text{m}^3 \text{t}^{-1}$ ) and land footprints (LF,  $\text{m}^2 \text{t}^{-1}$ ), i.e. have *more crop per drop and hectare*. In this study, we simulate WFs and LFs of major crops with a process-based global gridded crop model ACEA during 1990-2019 at 5 x 5 arc minute resolution. Our results reveal regional differences and historical changes in both footprints. Most regions have successfully managed to reduce their WFs and LFs, which drives the global averages down for many crops since 1990. Despite this good news, the total water and land appropriation for crop production have increased worldwide due to the greater crop demand needed to sustain the growing human population. As this may endanger ecosystems and human livelihoods in some regions, it is vital to assess the potential ways of further WF and LF reductions in the future.