

## Reductions in self-reported use of chemical fertilisers by web-samples of mostly small-scale cannabis growers in 18 Countries 2012-2020

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**Introduction:** Recognition of the adverse impacts of the use of potentially harmful chemical pesticides, fertilisers and 'nutrients' by cannabis growers is increasing. Of major concern has been Plant Growth Regulators (PGRs), many which have been banned from food crops for decades. These have been found unlisted in a number of cannabis growing supplements targeted at cannabis growers. These products are manufactured and marketed by a multi-million-dollar legal industry that flies under the regulatory radar. This paper describes the cannabis growing practices used by small-scale recreational cannabis growers and specifically their self-reported use of chemical fertilisers in 18 countries and builds on our 2012 results in 3 countries.

**Method:** Web survey data from 11,479 current and recent cannabis growers collected by our Global Cannabis Cultivation Research Consortium (GCCRC) in 2020 and where possible compared to our 2012 findings.

**Results:** In 2020 26% of growers reported use of chemical fertilisers, down from 44% in 2012. Multivariate analysis indicated that in 2020 the unique predictors of use of chemicals included growers who sold their cannabis, male growers and those growing under artificial light in soil, or non-soil, media.

**Discussion:** There has been a decrease in reported use of chemical fertiliser use among our mostly small-scale grower samples from 2012-2020. Whether this reflects growing recognition of problems of chemical fertiliser use or social desirability responses is unclear.

**Implications for Policy:** Better regulation of this legal cannabis fertiliser market is needed to empower growers to reduce the toxicity of cannabis they grow, distribute and consume.

**Disclosure of Interest Statement:** This project is funded by the time and commitment of the authors as part of their university appointments. No external funds were received to support this study. None of the authors have any conflicts of interest to report. The GCCRC statement on academic independence and industry associations can be found at: <https://worldwideweeds.nl/industry-policy/>