So far, I found 41 studies that may be suitable for doing a meta analysis. I found these studies through references cited by two recent review papers on repeated droughts and references citing these two review papers (Jacques et al. 2021; Müller & Bahn 2022). I also added some paper through a standard search on web of science (see search terms below).

Still, there are around 17 papers cited by (de Vries et al. 2023), another recent review paper on plant-soil response to repeated droughts and floods, may be suitable for this meta-analysis. It seems these papers were not included in the list I assembled so far (processed references\_2023-10-11).

20-09-2023

Title:

repeated drought\* OR repeated flood\* OR repeated climate extreme\* OR recurrent climate extreme\* OR Sequential drought\* OR subsequent drought\* OR sustained drought\* OR Extreme weather event\* OR recurrent climate extreme\* OR Prolonged Drought\* OR Sequential High Rain\*

web of science categories:

environmental sciences;

plant sciences;

ecology;

environmental studies;

agronomy;

forestry;

biodiversity conservation;

soil science,

agriculture multidisciplinary;

remote sensing;

biology;

horticulture;

evolutionary biology;

microbiology;

agriculture engineering;

My selection criteria are: an experiment much have 1) control (reference) ; 2) a treatment with 2 or more climate extremes (e.g. droughts or floods); 3) a similar treatment to 2) but differ in duration (either shorter or longer).

For the 41 papers I assembled (processed references\_2023-10-11), majority of the studies investigate crop plants (19), they investigate aboveground response (20), as well as above and belowground together (16). Also, majority of them focus on population and lower levels (26), 11 of them focus on community level. Furthermore, majority of the studies did controled greenhouse, 12 field experiments, experimental duration ranges from days to 10 years. Importantly, majority of the studies found positive legacy effects (22).

references

Jacques, C., Salon, C., Barnard, R.L., Vernoud, V. & Prudent, M. (2021). Drought Stress Memory at the Plant Cycle Level: A Review. Plants, 10, 1873.

Müller, L.M. & Bahn, M. (2022). Drought legacies and ecosystem responses to subsequent drought. Global Change Biology, 28, 5086–5103.

de Vries, F., Lau, J., Hawkes, C. & Semchenko, M. (2023). Plant–soil feedback under drought: does history shape the future? Trends in Ecology & Evolution, 38, 708–718.