EGU2020-796
https://doi.org/10.5194/egusphere-egu2020-796
EGU General Assembly 2020

Effect of conservation agriculture on soil organic carbon sequestration in Mediterranean region. A systematic map.

Tommaso Tadiello and Marco Acutis
University of Milan, Disaa, Landscape, Agroenergy Department, Italy (tommaso.tadiello@unimi.it)

Conservation agriculture (CA) is characterized by minimal soil disturbance, permanent soil cover, and diversification of crop species, as stated by FAO in 2017. Many CA experiments, however, have been carried out so far, by taking into account only one or two of the three principles. Therefore, the meta-analyses recently published may fail in giving correct results about the CA effectiveness on agroecosystem variables, mostly on soil organic carbon (SOC) content or stock.

In preparation of conducting a meta-analysis, the present study was carried out to collect published results about the effect of the concurrent adoption of the three CA principles on SOC under Mediterranean climate with a systematic literature search in Scopus and Web of Science. Initially, a single nested query has been applied to both the database, using the Boolean operators, in order to include all the international literature about CA experiments and SOC variable without climate filter at this step. The resulting raw files were downloaded and merged in a unique dataframe using R software with "Bibliometrix" package[1], which is an open-source tool developed for bibliometric analysis. The use of merged dataframe has mainly two advantages: it allows an easy duplicate removal (847 records in our case) and a more detailed information research both automatic and manual. Bibliometrix indeed provides tools for bibliometric analysis and data matrices building for co-citation, coupling, and co-word analysis highlighting, for example, that in the European continent both Italy and Spain are the most productive countries on these topics.
With these possibilities, as a further step, a new sub dataframe has been extracted by using the Köppen classification for Mediterranean climate (sub-climates, Csa/Csb/Csc), allowing a reduction of 32% of the records.

1) Aria, M., Cuccurullo, C., 2017. Bibliometrix: An R-tool for comprehensive science mapping analysis, Journal of Informetrics, 11(4).