

SINGLE-IMPACT FICHE

FALLOWING

IMPACT: CARBON SEQUESTRATION

Data extracted in April 2021

Note to the reader: This fiche summarises the impact of fallowing on CARBON SEQUESTRATION; in particular, soil organic carbon. It is based on 1 peer-reviewed synthesis research paper¹, including 65 individual studies.

1. WEIGHT OF THE EVIDENCE

- **CONSISTENCY OF THE IMPACT:**
Natural fallow² has no effect on soil organic carbon compared to cultivated arable land, according to the only synthesis paper reviewed (see **Table 1**).

The reviewed synthesis paper includes data collected in Europe (see **Table 2**).

Table 1. Summary of effects. The numbers between parentheses indicate the number of synthesis papers with a quality score of at least 50%. Details on quality criteria can be found in the next section.

Impact	Intervention	Comparator	Positive	Negative	No effect	Uncertain
Increase soil organic carbon	Natural fallow	Cultivated arable land	0	0	1 (1)	0

- **QUALITY OF THE SYNTHESIS PAPERS:** *The quality score summarises 16 criteria assessing the quality of three main aspects of the synthesis papers: 1) the literature search strategy and studies selection; 2) the statistical analysis; 3) the potential bias. Details on quality criteria can be found in the methodology section of this WIKI.*

2. IMPACTS

The main characteristics and results of the synthesis paper are summarized in **Table 2**. Summaries of the meta-analyses provide fuller information about the results reported in each synthesis paper, in particular about the modulation of effects by factors related to soil, climate and management practices.

Table 2. Main characteristics of the synthesis paper reporting impacts of fallowing on soil organic carbon.

¹ Research synthesis papers include a formal meta-analysis or systematic reviews with some quantitative results. Details can be found in the methodology section of the WIKI.

² Natural fallows are fallows with bare land bearing no crops at all or land with spontaneous natural growth, which may be used as feed or ploughed in.

Reference	Population	Scale	Num. papers	Intervention	Comparator	Metric	Conclusion	Quality score
Kaempf, I; Hoelzel, N; Stoerrle, M; Broll, G; Kiehl, K 2016	Mineral soils from the temperate zone	Global	65	Arable land recently abandoned (0-4 years)	Arable land	Soil organic carbon (SOC) sequestration	SOC sequestration in recently (0-4 years) abandoned arable lands was not significantly higher than in arable lands.	56%

3. KNOWLEDGE GAPS

The authors did not report knowledge gaps in the reviewed synthesis papers.