SINGLE-IMPACT FICHE
FALLOWING

IMPACT: CROP YIELD

Data extracted in April 2021

Note to the reader: This fiche summarises the impact of fallowing on CROP YIELD. It is based on 1 peer-reviewed synthesis research paper[1], including 94 individual studies.

1.WEIGHT OF THE EVIDENCE

- CONSISTENCY OF THE IMPACT:
  Fallowing has a differing effects on crop yield compared to cultivated arable lands, depending on the type of fallow land (see **Table 1**):
  - In the case of natural fallow[2], the only synthesis paper reviewed reported one positive and one no effect in maize yield grown after fallowing, depending on whether crops were fertilised and no fertilised, respectively.
  - In the case of green fallow[3], the synthesis paper reported a positive effect on maize crop yield after fallowing.

The reviewed synthesis paper does not include 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. The synthesis paper reported for both natural and green fallow and more than one effect for natural fallow.

Impact	Intervention	Comparator	Positive	Negative	No effect	Uncertain
Increase crop yield	Natural fallow	Cultivated arable land	1 (1)	0	1 (1)	0
	Green fallow		1 (1)	0	0	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.*

[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.

[3] Green fallows are fallows of land sown exclusively for the production of green manure.

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 crop yield.

Reference	Population	Scale	Num. papers	Intervention	Comparator	Metric	Conclusion	Quality score
Sileshi, G; Akinnifesi, FK; Ajayi, OC; Place, F 2008	Maize crops in Africa	Africa	94	1) Natural fallow; 2) Improved fallow (legume herbaceous species); 3) Improved fallow (legume coppicing species); 4) Improved fallow (legume non-coppicing species)	Continuously cropped unfertilized maize monoculture	Crop yield	The global maize yield response to improved fallows with legume species is significantly positive and higher than unfertilized maize and natural vegetation fallows	75%

3. KNOWLEDGE GAPS

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