

# SINGLE-IMPACT FICHE

## FALLOWING

### IMPACT: BIODIVERSITY

Data extracted in April 2021

**Note to the reader:** This fiche summarises the impact of fallowing on BIODIVERSITY. It is based on 2 peer-reviewed synthesis research papers<sup>1</sup>, including 35 and 127 individual studies.

#### 1. WEIGHT OF THE EVIDENCE

- CONSISTENCY OF THE IMPACT:

Natural fallows<sup>2</sup> have a positive effect on biodiversity (i.e. increase of biodiversity) compared to cultivated arable land, according to 1 synthesis paper reviewed that included data from Europe, while another synthesis paper reported no net effect on biodiversity after rice fields abandonment in Japan because some species benefit while others, particularly wetland species, are prone to be negatively affected (see **Table 1**).

From the 2 reviewed synthesis papers, 1 includes data collected in Europe (see **Table 2**).

**Table 1.** Summary of effects. The numbers between parenthesis 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 Biodiversity	Natural fallow	Cultivated arable land	1 (1)	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 papers 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.

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<sup>1</sup> 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.

<sup>2</sup> 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.

**Table 2.** Main characteristics of the synthesis papers reporting impacts of fallowing on biodiversity. The references are ordered chronologically with the most recent publication date first.

Reference	Population	Scale	Num. papers	Intervention	Comparator	Metric	Conclusion	Quality score
Koshida, C; Katayama, N 2018	Fallow or recently abandoned rice fields in Japan	Japan	35	Fallow or recently abandoned field	Cultivated field (tilled, flood irrigated, rice planted, and harvested every year)	Species richness and abundance (plants, invertebrates, amphibians, fishes birds and mammals)	Fallow fields supported an equal level of biodiversity than cultivated rice fields. These results suggest rewilding will not necessarily be achieved by rice-field abandonment. Moreover, wetland species are particularly prone to being negatively affected by abandonment.	100%
Van Buskirk, J; Willi, Y 2004	Set-aside lands in Europe and North America	Europe and North America	127	Set-aside land (<6yrs)	Conventional agriculture	Bird species richness; birds population density; plants population density; spiders population density	Land withdrawn from conventional production unequivocally enhances biodiversity in North America and Europe.	56%

### 3. KNOWLEDGE GAPS

The synthesis papers did not indicate relevant knowledge gaps.