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BioBio indicator factsheet

## Length of Linear Habitats (LinHab)

Refers to Chapter 5 'Habitat indicators' of the Guidebook 'Biodiversity Indicators for European Farming Systems'



Schweizerische Eidgenossenschaft  
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Federal Department  
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## Length of Linear Habitats (LinHab)

### Description

Length of hedgerows, tree lines, scrub lines, grassy strips between fields, streams, rivers, stone walls and terrace walls which are on the farm or directly adjacent to fields of the farm (thus affected by farm management) in meters per hectare.

**Sub-indicators** can be calculated which relate to the 'Length of grassy linear features', 'Length of woody linear features', 'Length of water linear features', 'Length of wall linear elements', etc.

### Surveyor skills

The indicator is based on habitat mapping, which requires basic GIS, ecological and botanical skills.

### Data collection method

The habitat mapping method is described in [Deliverable 2.2](#)<sup>1</sup>.

### Calculation method

LinHab is obtained by dividing the total length of linear habitats by the size of the farm:

$$LinHab = \frac{L}{UAA}$$

in which *LinHab* is Linear Habitats (in m/ha), *L* is the sum of the length (m) of different linear habitats on the farm and *UAA* is the farm size (Utilized Agricultural Area in ha).

### Results from BioBio case studies

The graph shows the mean values and their distribution across the 12 BioBio case study regions. LinHab values for most BioBio farms range between a few and 200 m/ha (except Hungary and the Spanish Dehesas). In arable and mixed farming regions (Austria, Germany, France) and in the grassland regions of Bulgaria, Switzerland and Norway about two thirds of the linear elements consist of grassy linear features and the remainder are woody linear features. In the grassland region of Wales, linear elements consist of similar shares of grassy and woody strips as well as of a relatively high share of aquatic elements (which are also important in Norway and in Germany). Stone walls occur mainly on the Spanish olive farms (100 m/ha on average) and – to some extent – on the Dehesas and the farms in Wales, Bulgaria and Norway.

### Estimated effort and costs

#### (labour effort required, analysis)

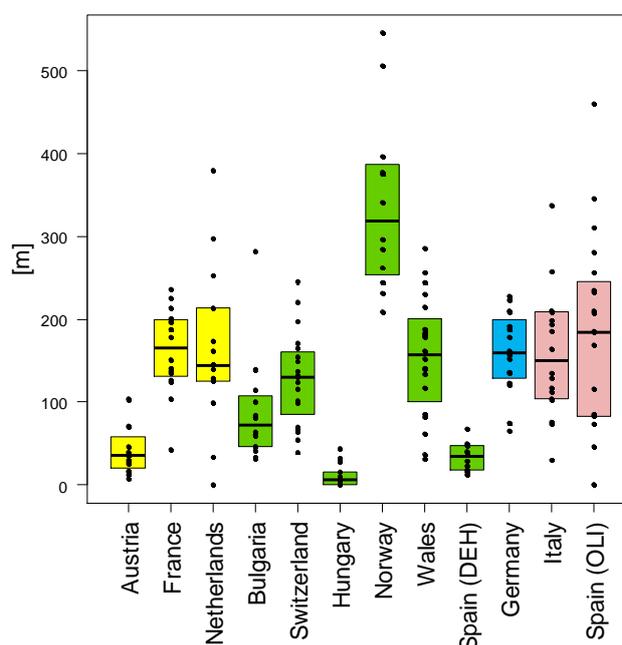
The indicator measurement requires habitat mapping and subsequent GIS analysis. Medium effort.

### Linear Habitat change as an indicator

The total length of linear habitats may decrease with farming intensification that involves the removal of small landscape elements, the promotion of larger fields and/or changes in the farmed area. Such a decrease may indicate a pressure on species diversity.



Herbaceous field border in Switzerland. Photo: Gabriela Brändle, Agroscope



### Distribution of indicator 'Length of Linear Habitats'

Each point displays the indicator value of a farm. Farms are grouped in the respective case studies. Yellow: field crops & horticulture in Austria, France and the Netherlands, green: specialist grazing livestock in Bulgaria, Switzerland, Hungary, Norway, Wales and Dehesa in Spain, blue: mixed crops & livestock in Germany, pink: permanent crops in Italy and Olives in Spain. The colored box contains the values of 50 % of the farms of a case study. The line marks the median.

### Interpretation

All linear habitats are classified as semi-natural because of their proven importance for the maintenance of farmland wildlife.

### Strengths and weaknesses

The indicator is easily computed once the habitat map is available. Indicator values depend strongly on the definition of habitats and on the habitat mapping method (thematic and spatial resolution), so comparisons between farms/countries require standardization (as in BioBio). The indicator will be sensitive to changes on the farm due to the loss or addition of linear habitats.

<sup>1</sup> Dennis P. et al. 2012. *Biodiversity in organic and low-input farming systems*. ALTERRA Report 2308.

This factsheet is part of the Guidelines **Biodiversity Indicators for European Farming Systems**.

More detailed information on the set of indicators developed in the EU FP7 research project BIOBIO (Biodiversity indicators for organic and low input farming systems, KBBE-227161) is given in a printed report, published as ART Publication Series Nr. 17. The report can be downloaded from the [BioBio website](#).

Printed versions can be ordered at [www.agroscope.admin.ch](http://www.agroscope.admin.ch) or at Agroscope, Reckenholzstrasse 191, 8046 Zurich, Switzerland

## BioBio Indicator Factsheets

### Genetic diversity

Breeds:	Number and amount of different breeds
CultDiv:	Number and amount of different varieties
CropOrig:	Origin of crops

### Species diversity

Plants:	Vascular plants
Bees:	Wild bees and bumblebees
Spiders:	Spiders
Earthworms:	Earthworms

### Habitat diversity

HabRich:	Habitat richness
HabDiv:	Habitat diversity
PatchS:	Average size of habitat patches
LinHab:	Length of linear habitats
CropR:	Crop richness
ShrubHab:	Percentage of farmland with shrubs
TreeHab:	Tree habitats
SemiNat:	Percentage of semi-natural habitats

### Indirect management indicators / parameters

EnerIn:	Total direct and indirect energy input
IntExt:	Intensification/Extensification - Expenditure on inputs
MinFert:	Area with use of mineral nitrogen fertiliser
NitroIn:	Total nitrogen input
FieldOp:	Field operations
PestUse:	Pesticide use
AvStock:	Average stocking rate
Graze:	Grazing intensity