

## **Success stories in landscape management for functional biodiversity: an assessment from 5 west-European countries**

**Geert de Snoo<sup>1</sup>, Giovanni Burgio<sup>2</sup>, Lisa Eggenschwiler<sup>3</sup>, Bärbel Gerowitt<sup>4</sup>, Juliane Mante<sup>4</sup>, Wilf Powell<sup>5</sup>, Frans van Alebeek<sup>6</sup>, Steven Kragten<sup>1</sup>, Walter Rossing<sup>7</sup>**

<sup>1</sup>*Leiden University, Institute of Environmental Sciences, P.O. Box 9518, 2300 RA Leiden, The Netherlands (snoo@cml.leidenuniv.nl);* <sup>2</sup>*Alma Mater Studiorum University of Bologna, Department of Agroenvironmental Sciences and Technologies, Bologna, Italy;* <sup>3</sup>*Agroscope FAL Reckenholz, Swiss Federal Research Station for Agroecology and Agriculture, Zurich, Switzerland;* <sup>4</sup>*Institute for Land Use - Crop Health, University of Rostock, Rostock, Germany;* <sup>5</sup>*Rothamsted Research, Harpenden, Hertfordshire, England;* <sup>6</sup>*Applied Plant Research, Plant Sciences Group, Lelystad, The Netherlands;* <sup>7</sup>*Biological Farming Systems Group, Wageningen University, Wageningen, The Netherlands*

**Abstract:** Within IOBC, a small scale inventory was made to collect success stories in landscape management for functional biodiversity. Five projects from different European countries were analysed to define the indicators in the people, planet and profit domains being seen as important for success. Projects primarily related to functional biodiversity focused on indicators relevant for farmers, with direct pest/natural enemies assessments and pest management costs and savings considerations at the field and farm level. Projects with a broader emphasis on biological conservation in the countryside often took into account functional biodiversity aspects, but related mostly to a wider range of actors and at a landscape level. Since landscape management for conservation reasons is quite successful it is argued to bring functional biodiversity in line with biodiversity conservation strategies.

**Key words:** functional biodiversity projects, pest control, sustainable agriculture, biodiversity conservation, criteria for success

### **Introduction**

Agriculture can be regarded as the most important determinant of the landscapes of the European countryside. Local physical conditions and human traditions resulted in a variety of landscapes and created a wide range of conditions for biodiversity. Only plant and animal species adapted to dynamics of agriculture can survive or will even be enhanced. However, since agriculture production has been boosted for world markets, using high quantities of inputs, we have a de-linking of food production and biodiversity. The intensive land use had a dramatic impact on landscape quality and biodiversity. Today, in countries like the Netherlands only 2-3% of the area of an arable farm can be regarded as a semi-natural habitat, such as ditches and hedgerows (Manhoudt & de Snoo, 2003).

Over the last decades, many attempts have been made to enhance the quantity and quality of semi-natural elements left in the countryside. Most mentioned reasons for the improvement of such habitats are: 1) to contribute to nature conservation (food, shelter, migration habitats of plants and animals, including rare species); 2) to improve environmental quality (buffer strips to prevent pesticides and nutrients contamination) and 3) to promote the aesthetic values of the countryside. Finally, such landscape features can also enhance functional biodiversity for farmers, for example related to pest control.