# Grassland field margins are able to maximise plant diversity at field scale

Etienne Gaujour, Bernard Amiaud, Catherine C. Mignolet, Sylvain Plantureux

**Title:** (upper case)

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**Authors & affiliations:**

Gaujour E., Amiaud B., Mignolet C., Plantureux S.
UMR 1121 INPL(ENSAIA)-INRA, Laboratoire Agronomie-Environnement,
2 avenue de la forêt de Haye, F-54505 Vandoeuvre-les-Nancy
etienne.gaujour@ensaia.inpl-nancy.fr

**Abstract:** (Your abstract must use **Normal style** and must fit in this box. Your abstract should be no longer than 400 words. The box will 'expand' over 2 pages as you add text/diagrams into it.)

In Europe, the rapid increase of intensification of farming practices which occurs since 1970's, is partly responsible of decline of farmland biodiversity. The Rio de Janeiro Declaration on Environment and Development in 1992 confirmed this fact and urged governments to encourage sustainable development, and especially sustainable agriculture. Organic farming is seen as a farming production system to satisfy this sustainability, by for example extensification of farming practices. This potential of organic farming had largely confirmed for animal taxa and weed species, but less for permanent grassland vegetation.

We want to describe and explain dynamics of permanent grassland vegetation after the conversion to organic farming, in the case of a dairy farm in conversion since October of 2004. The aims of the present study is to highlight the influence of changes in farming practices on permanent grassland vegetation, and to know if organic farming practices favor certain grassland plant species according to their dissemination traits. We clustered 63 permanent grassland fields in 4 groups according to farming practices applied (amounts of inorganic and organic nitrogen sprayed, number of mowing by year and grazing intensity). The herbaceous vegetation of centre and margin was sampling in 23 fields during the spring of 2006. This work shows that farming practices which decrease plant diversity in the centre of the fields, have the same influence on vegetation of field margins. Plant species richness and diversity are greater in field margins than in centre of the fields, broadly and for quasi each distinguished class. Thus, permanent grassland margins acts as refugia for plant species which are absent in the centre and which will be able to establish them in field centre after extensification of farming practices.

The main interest of our work is to explain the differences observed in our study between centres and margins with the awareness of plant strategies particularly the plant functional traits implied in the plant spreading. This analysis is in progress and it is completed by the use of spatial statistical methodologies in order to highlight the spatial patterns of plant spreading at field scale.