

Further Information:

<http://www.umwelt.uni-hannover.de/manuela.html>

Contact:

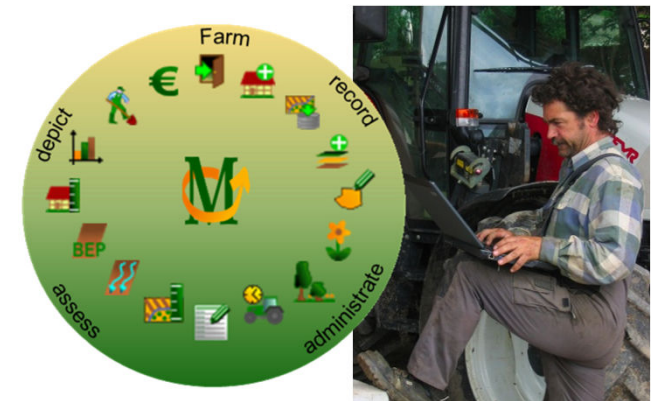
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If you are interested in the software or in additional information, please direct your email to:

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**GIS-based Management System
for Nature Conservation on Farms**

MANUELA



Impressum

Leibniz Universität Hannover
Institute of Environmental Planning
Herrenhäuser Straße 2, 30419 Hannover

Developed
by:



Funding
by:



Background



EU's and national agri-environmental objectives constitute challenges for farmers and advisory services. The implementation of biodiversity conservation, one of the key objectives of the future agri-environmental policy, increases the demands on environmental management of farms. In order to maintain standards of good farming practice and Cross Compliance as well as to benefit from environmental payments and to successfully "produce" biodiversity, farmers need support and advice.

To meet future challenges of farm management, the software MANUELA was developed by the Institute of Environmental Planning at Leibniz University Hannover. It provides documentation, assessment and decision support on environmental and nature conservation measures.

Publications:

von Haaren, C.; Hülsbergen, K.-J.; Hachmann, R. (Hrsg.) (2008): Naturschutz im landwirtschaftlichen Betriebsmanagement. EDV-Systeme zur Unterstützung der Erfassung, Bewertung und Konzeption von Naturschutzleistungen landwirtschaftlicher Betriebe. ibidem-Verlag. (ISBN 978-3-89821-876-4)

von Haaren, C.; Hachmann, R.; Blumentrath, S.; Lipski, A.; Vogel, K.; Weller, M.; Hülsbergen, K.-J.; Siebrecht, N. (2008): Softwaregestütztes Naturschutzmanagement auf landwirtschaftlichen Betrieben. Naturschutz und Landschaftsplanung 02/08.

Kempa, D. (2009): Standards in der GIS-gestützten Naturschutzberatung für landwirtschaftliche Betriebe In: Heiß, M.; Hachmann, R. (Hrsg.): Technische Standardisierung in Naturschutz und Umweltplanung. Points Verlag, Norden, Halmstad: 55–61.

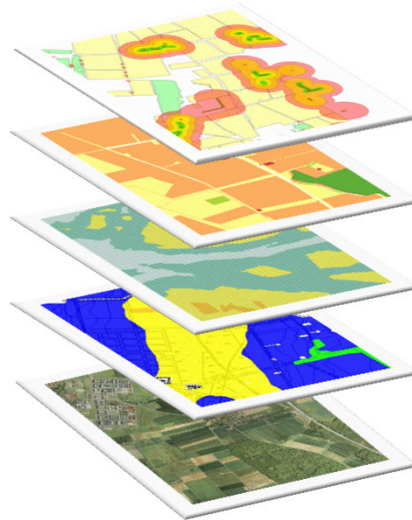
von Haaren, C.; Kempa, D.; Vogel, K.; Rüter, S. (2012): Assessing Biodiversity on the Farm Scale as Basis for Ecosystem Service Payments. In: Journal of Environmental Management, submitted.

Application

MANUELA supports farmers in terms of:

- Compliance with legal requirements (Good Farming Practice, Cross Compliance),
- Assessment and depiction of farm achievements with respect to biodiversity and landscape appearance,
- Analysis of cultivation impacts and biotope development potential,
- Identification of potential risks of soil erosion through water,
- Planning and calculation of the costs of conservation measures in order to optimise sustainable farm management.

Overlay of assessment results provide decision support for management priorities



Biotope connectivity

Assessment for biotopes and species

Potential risk of water erosion

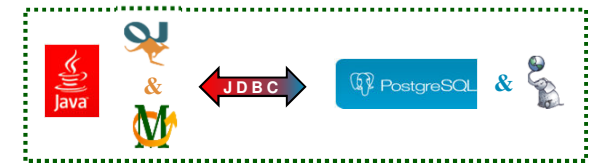
Biotope development potential

Test farms:

Prototypes of MANUELA have been tested on farms in Lower Saxony, Brandenburg, Saxony-Anhalt, Baden-Württemberg, Bavaria, Mecklenburg-Western Pomerania and Hesse.

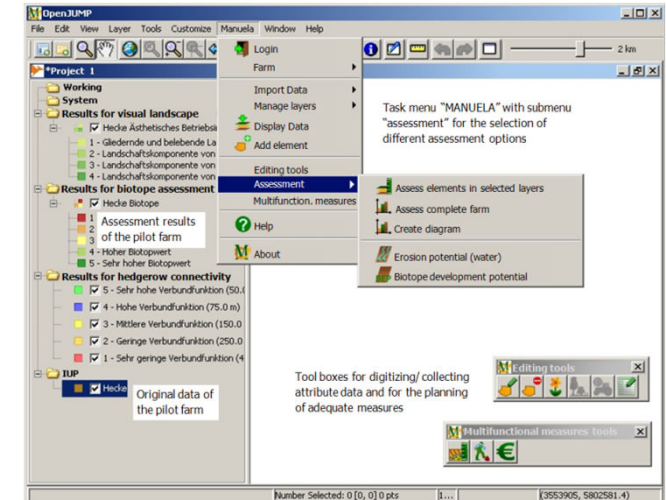
Technical Features

For the implementation of MANUELA a plug-in for the open source-GIS Open Jump was created. Within a PostgreSQL-database master data as well as attribute and geodata are stored and managed. The access from OpenJump to the database is realised by the interface JDBC (Java Database Connectivity).



User interface

MANUELA is a spatially explicit application based on a geographic information system (GIS). The user interface is divided into sections for recording, administration, assessment and depiction of environmental achievements.



Current developments:

- Assessment of land use dependent greenhouse gas emissions
- Improved assessment of economic consequences of conservation measures