

# Semi-natural grassland as a source of biodiversity improvement - SALVERE

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## 1. Programme Interreg Central Europe 2007-2013

The project SALVERE has been funded within the first call of the INTERREG Central Europe Programme 2007-2013, whose **General aims**, as described in the Application manual, are:

1. strengthening the territorial cohesion;
2. promoting and intensifying the integration process;
3. enhancing the competitiveness of Central Europe.

Concerning its **geography**, the Programme comes from the former CADSES (Interreg IIC and INTERREG IIIB) area, which interested 18 EU countries (eastern Central Europe from the coast of the Baltic Sea, Eastern Mediterranean area and Balkan regions). In INTERREG 2007-2013, the former CADSES has been divided in two areas, Central Europe and South East Europe, where Central Europe includes 8 EU countries (whole or parts) (Czech Republic, parts of Germany, parts of Italy, Hungary, Austria, Poland, Slovenia, Slovak Republic) and 1 Permanent observer (Ukraine).

The Central Europe Programme **priorities** has 5, related to the specific needs of the region are:

1. Facilitating Innovation across Central Europe
2. Improving Accessibility of and within Central Europe
3. Using our Environment Responsibly
  - 3.1 Developing a high quality environment by managing and protecting natural resources and heritage
  - 3.2 Reducing risks and impacts of natural and man-made hazards
  - 3.3 Use of renewable energy sources and increase energy efficiency
  - 3.4 Use of environmentally friendly technologies and activities
4. Regions
5. Technical Assistance

*For project funding, the Central Europe programme requires six main characteristics:*

1. Transnational thematic focus
2. Coherent approach
3. Transnational partnership (at least three financing partners from at least three countries at least two of which are Member States)

4. Effective management
5. Effective knowledge creation and transfer
6. Concrete outputs and results

## 2. The project SALVERE within Central Europe

### *General traits of SALVERE*

Within Central Europe, the project SALVERE has been funded for the period 2009-2011 and includes eight partners from 6 EU countries (see *Table 1* and *Figure 1*): Austria, Czech Republic, Germany, Italy, Poland and Slovak Republic. The project refers mainly to the programme third Priority, Using our Environment Responsibly, and, particularly to the Area of intervention 3.1 Developing a high quality environment by managing and protecting natural resources and heritage.

### *Background and general aims of the project*

Background of the project is the agriculture development of the last decades in Central Europe, where the agricultural intensification and the abandonment of the land more difficult to cultivate have led to a strong biodiversity decrease of extensively or less intensively managed agri-ecosystems, mainly grasslands, with a High Nature Value (HNV).

As a consequence of this development and of the 1992 Rio de Janeiro Convention on Biological Conservation, the recent EU regulations promote the protection of the biodiversity.

To implement this goal, the involved public and private institutions need the availability of native plant material. In the case of the High Nature Value (HNV) Farmland, this requirement is not sufficiently met in Central Europe as seeds of local provenance are seldom available on the market in larger quantities.

In this context, general aim of the project is to contribute to the practical realisation of the EU regulations regarding biodiversity by utilising the semi-natural grasslands as potential donor sites of seed to be used directly for the establishment of HNV Areas.

### *Principles and methods for the production and the use of seeds and plants of native species*

According to the aim of biodiversity protection, within in the scientific community and the public institutions involved

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Table 1: Institutions involved in SALVERE as project partners

| Institution name   | Country         | Town                   | Contact person      | Role              | N. associated institutions |
|--|-----------------|------------------------|---------------------|-------------------|----------------------------|
| University of Padova - Department of Environmental Agronomy and Crop Production          | Italy           | Legnaro                | Michele Scotton     | Lead partner      | 6                          |
| Research and Education Centre for Agriculture Raumberg-Gumpenstein                       | Austria         | Irdning                | Bernhard Krautzer   | Project partner 2 | 7                          |
| Kärntner Saatbau reg. Gen.m.b.H  | Austria         | Klagenfurt             | Christian Tamegger  | Project partner 3 |                            |
| OSEVA PRO Ltd., Grassland Research Station Roznov – Zubri                                | Czech Republic  | Zubri                  | Magdalena Sevcikova | Project partner 4 | 3                          |
| Hochschule Anhalt (University of Applied Science)  | German          | Bernburg               | Sabine Tischew      | Project partner 5 | 6                          |
| Rieger-Hofmann GmbH  | Germany         | Blaufeld-Raboldshausen | Birgit Feucht       | Project partner 6 | 7                          |
| Plant Production Research Centre - Grassland and Mountain Agriculture Research Institute | Slovak Republic | Banska Bystrica        | Miriám Kizekova     | Project partner 7 | 1                          |
| Poznan University of Life Science  | Poland          | Poznan                 | Piotr Golinski      | Project partner 8 | 5                          |



Figure 1: Geographical distribution of the SALVERE project partners

in ecological restoration, it is nowadays accepted that the seed and the plants to be used to restore a plant community should come from the native vegetations present in the geographically and ecologically nearest sites. For example, the Swiss Commission for Wild Plants Conservation (2001) specifies that the seed has to come from the same biogeographical region as the surface to be restored and that plants and seed have to be get from sites with similar characteristics as regards altitude (same elevation belt: hill/mountain, subalpine and alpine) and soil (humidity, nutrients contents and reaction).

The methods available to obtain propagation material of herbaceous native species are:

1. cultivations specialising in production of seed of native ecotypes. This approach needs availability of companies specialising in seed production and is easier for regions

with low environmental variability (possible use of the produced seed on larger areas).

2. harvesting of seed from semi-natural grassland and its direct use for the establishment of HNV Areas. This approach doesn't need availability of companies specialising in seed production, is easily adoptable by companies working in ecological restoration in regions with high environmental variability and good availability of HNV semi-natural grassland.

The project chose to study this second approach as:

- it is a less studied approach;
- it can be adopted in every technical and environmental situation;
- it is particularly useful for environments with high species and vegetation diversity.

### *The project SALVERE: knowledge acquisition*

Within SALVERE, knowledge concerning harvesting and direct using of the seed from semi-natural grassland will be both acquired and transferred.

With regard to knowledge acquisition the main focus of the project is to study the different methods available to harvest seed from species rich semi-natural grassland (WP5).

In connection with this main aim, also two other connected aspects are considered:

- the efficacy of the seed obtained with different methods in establishing HNV areas of different types (WP6)
- the seed amounts produced in semi-natural grassland (WP4)
- the role and the future of species rich semi-natural grassland in Central Europe (WP3)

In the project, the activities foreseen for the study of the harvesting (WP5) and restoration (WP6) methods will be

inter-connected. According to the principle of geographical and ecological consistency, the establishment of new HNV areas will be done on sites (receptor sites) ecologically coherent with those, where the seed production and harvesting will be studied (donor sites).

The considered donor sites are referable to some types of semi-natural grassland important for Central Europe. According to the regional presence of the different types, some communities will be common to all partners, some others will be considered by only one or two of them.

The considered communities are:

- *Arrhenatherion elaius* communities (*Arrhenatherion elatioris*): this type, in its less fertilised and species rich forms, will be considered by all involved partners;
- *Bromus erectus*, *Molinia coerulea* and *Cnidium dubium* communities (*Mesobromion*, *Molinion* and *Cnidion dubii*); these types will be considered by only one or two partners.

In the studies performed on the donor sites, the central point is the experimentation of the efficiency of different harvesting methods (WP5). The techniques considered by all partners are the harvesting as Green hay and with Thresher, i.e. those which need the lowest and the greatest cost of harvesting equipment. Other considered techniques, which require middle equipment investments, are Seed stripping and the harvesting as Dry hay.

The programmed trials and analyses are organised to check the differences among the considered techniques as regards:

- the amount of the harvested seed;
- the quality of the harvested seed, and, in particular, the average seed weight and its botanical composition as compared to the donor site.

Of each harvesting technique a comparison will be done also with regard to:

- the possible effects on the donor site and, particularly, on its botanical composition;
- the harvesting costs.

Connected with the harvesting trials the following aspects will be considered:

- the methods of analyses suitable for the evaluation of the quality of the seed mixtures obtained from species rich semi-natural grassland. The standard methods used to test the seed of single species (normally germinability tests at germination conditions suitable for each species) are not necessarily suitable for all species present in a seed mixture. The aim is to identify germination conditions suitable for more or less all species of the mixture;
- the procedures, which can be used to separate seed of single species within a seed mixture obtained from semi-natural grasslands. The separation could be useful to compose mixtures different than those obtained from the grassland and to use the separated seed for the propagation of single species.

The studies on the seed production of the species rich semi-natural grassland (WP4) are carried out for two reasons:

- to obtain some basis knowledge on an aspect of the semi-natural grassland, which has only seldom been studied;
- to obtain the information necessary to evaluate the results of the harvesting trials.

Concretely, the foreseen activities are:

1. the analysis of the total seed production of some important species of the considered grassland types, both grasses and forbs. Due to the different phenological behaviour of the several species and to the variability of phenological development of the single plants within a single species population, the total amount of seed produced by each species is normally much greater than the amount, which can be found on the same grassland at the harvesting time. The comparison among total seed production, standing seed yield at the time of seed harvesting and seed production actually harvested will allow to evaluate the total seed harvesting efficiency and the possible harvesting impact on the community.
2. the quality of the produced seed, mainly with regard to germinability.
3. a first attempt to model the total seed production and the standing seed yield in a semi-natural grassland, which would allow to estimate its development as a consequence of the temperature development.

The studies on the efficiency of the several harvesting methods done in WP5 find their completion in the experimental assessment of the herbaceous covers, which can be obtained with propagation material coming from semi-natural grassland. This is the main aim of WP6, which foresees the analysis of the quality of the communities as a consequence:

- of the harvesting method used to obtain the propagation material;
- of the type of receptor site (ex-arable field, mined area etc.).

The characteristics of the herbaceous covers considered to assess the effectiveness of the restoration will be the botanical composition (number and cover of the sown species) and the density of the herbaceous cover as compared to the donor site.

The second aim of WP6 is to show the target groups the efficacy of ecological restoration carried out with propagation material from semi-natural grassland. To this aim, both the experimental restoration trials and the demonstration sites organised on wider surfaces but with simpler methods (less propagation materials and not-experimental methods) will be used. The demonstrations, too, will regard different types of degraded areas, as degraded grasslands, ex-arable fields, ski slopes etc.

The activity of WP6 will be completed with the cost/benefits analysis of the restoration techniques considered in the project.

In the third work package, the concrete activities of acquisition of new knowledge foreseen in WP's 4-6 will be put into the context of the importance of HNV semi-natural

grassland in Central Europe. Their recent development is characterised by a clear reduction of their total extent and of the contained biodiversity. Based on this fact, the work package foresees the evaluation of three aspects:

- the status quo of the HNV semi-natural grassland in some Central Europe regions included in the countries represented in the project;
- the analysis of the recent agro-environmental policies and of their impact on the extent of the HNV semi-natural grassland;
- the possible future development of the HNV semi-natural grassland;
- a study on the attitudes of the affected stakeholders;
- the proposal of possible strategic approaches to maintain and increase the presence of HNV semi-natural grassland in Central Europe.

The studies will be based on available information and on questionnaires and discussions done with technicians, stakeholders and policy makers.

### *The project SALVERE: knowledge transfer*

This part of the project meets two explicit requirements of the Central Europe programme, that is the Effective knowledge creation and transfer and to the production of Concrete outputs and results.

In this project part, the main aims are:

- to integrate the acquired knowledge with that available in the literature;
- to exchange the obtained integrated knowledge within the project group and to transfer it to the main project target groups.

The Internal knowledge transfer will be carried out through:

- sharing of the adopted methods and of the results obtained in WP's 3-6;
- joint drafting of the Manuals and Guidelines by all partners, included those not directly involved in the knowledge acquisition (WP's 3-6);
- the participation of all partners in the national workshops foreseen within the project (WP2).

Here, the general aim is to contribute to the creation of a common background concerning the use of semi-natural grassland to establish new HNV areas. While taking into account the different environmental and agro-economic conditions of Central Europe, the common background should be made up by the principles, that can be shared in all situations and, at the same time, by the different methods, consistent with those principles, which are concretely applicable and adaptable to the different environments.

The intra-partnership sharing of principles and methods obtained in the three project years will be the basis of an effective transfer by each partner of the common knowledge within each country, also in the years after project completion.

The external knowledge transfer is addressed to several target groups:

1. decision makers and technicians of public administrations and private companies working in the conservation and the restoration of HNV Areas, who need knowledge about the methods of harvesting seed in semi-natural grasslands and of using it for the restoration;
2. farmers: farmers of regions characterised by intensive agriculture, who need biodiversity rich seed to revert to a less intensive management and farmers of the less favoured areas, who will be able to „sell“ the biodiversity of their HNVF for the creation of new HNV Areas.

The transfer to these groups will be carried out with different tools:

- publication of Guidelines and Handbooks:
  - 3 Guidelines: Guidelines on Seed harvesting in HNV Farmland; Guidelines for Donor sites; Guidelines for High Nature Value Farmland establishment;
  - 1 Handbook for the utilisation, the seed harvesting and the establishment of High Nature Value Farmland;
  - 1 Proposal of a Native Plant Certificate;
- actions of direct contact carried out within:
  - the pilot actions foreseen in each involved country: guided visits to the surfaces restored within the project, organised in each involved country and addressed to a local public;
  - the national workshops and the international conference foreseen with six months frequency within the project in Austria, Poland, Czech Republic, Slovak Republic, Germany and Italy;
- actions of indirect contact:
  - website ([www.salvereproject.eu](http://www.salvereproject.eu));
  - electronic newsletter (six months frequency);
  - press releases and articles.

### *Conclusions*

To achieve the foreseen aims, the project SALVERE provides the integration of components of different types:

- partners with different backgrounds and competences;
- the public interests of biodiversity protection with those of the private companies;
- the acquisition of new knowledge and the exploitation of already available knowledge.

The project will succeed insofar as the involved partners will be able to carry out all these integrations.