

Restoration of semi-natural grassland has actually been effectively realized on lots of different sites for many years all over Europe.

Restoration success highly depends upon different aspects: suitable site preparation of receptor sites, selection of the optimal restoration technique and target neighborhood, as well as the implementation of a proper monitoring. Making use of seeds of local provenance for the establishment of species-rich grasslands contributes to the improvement of the organic diversity in the area.

1. The creating species-rich grassland can fulfill numerous ecosystem services such as water retention, carbon sequestration and oxygen production.
2. In addition, species-rich meadows are an important part of our cultural heritage, improving the lifestyle in the region. For more information see Scott et al. (2012).
3. A first action in grassland restoration as well as establishment, as well as an important element for restoration success, is the site evaluation and also site preparation of receptor sites.

For successful species introduction right into species-poor grassland, competition with currently existing vegetation need to be decreased with specialized equipment (e.g. curly comb, harrow, rotary hoe, rotating strip seeder, flail chopper).

Complete destruction of the sward can be gotten to through tilling. Several assessments showed that the more powerful the intervention as well as disruption of the sward, the higher the price of successful types establishment.

Restoration of semi-natural grassland has actually been effectively realized on several different sites for years all over Europe. Restoration success highly depends on various aspects: appropriate site preparation of receptor sites, selection of the optimal restoration approach and target area, as well as the application of an appropriate management.

Using seeds of local provenance for the establishment of species-rich meadows

The creating species-rich grassland can fulfill a number of environment solutions such as water retention, carbon sequestration and also oxygen production. In addition, species-rich grasslands are a vital part of our social heritage, enriching the quality of life in the region. For additional information see Scott et al. (2012).

Site preparation of receptor sites Introduction 4 Standards for restoration of species-rich grasslands Transforming of the dirt via ploughing or rotating hoeing is a common technique for the restoration of former arable land.

1. These soils are generally characterized by a high concentration of soil phosphorous or various other nutrients.
2. One straightforward yet time consuming approach to impoverish the dirt is a one to two years lasting plant manufacturing without fertilization
3. Sites with really high nutrient- and also weed-infested topsoil can be really positively influenced by initial deep ploughing or topsoil inversion.

Nutrient-rich dirt layers are buried and also at the exact same time nutrient-poor substrate is turned up. Deep ploughing or topsoil inversion can be limited by soil protection legislations. Timely removal of soil under completely dry conditions promotes the germination of weeds, therefore depleting the soil seed bank which can afterwards be managed mechanically.

Especially on bare, revealed locations and also raw soil with extreme site conditions (e.g. in extracted locations), restoration success can be improved by the creation of secure sites for germination and facility. Besides structuring with troughs, a harsh surface can be created with large rocks or plant life pieces (turf sods, shrubs, etc).

Sowing of nurse plants or application of a compost layer can additionally facilitate colonization as well as establishment of presented types.

5 Standards for restoration of species-rich meadows Selection of restoration method and also target vegetation The selection of an ideal restoration approach depends on the offered objective (e.g. settlement, nature conservation, disintegration prevention, recreation) and also the specific starting conditions (raw dirt, arable land, degraded grassland).

- Availability of devices and material, practicality, prices, possible succeeding use as well as expected upkeep must to be thought about.
- The selection of proper target vegetation additionally relies on the specific site conditions, especially nutrient standing as well as hydrology, however furthermore on specific restoration targets.
- For compensation measures as well as restoration of Natura2000 sites and nature conservation on areas specific plant communities of high nature value need to be established.

Making use of local material of excellent quality concerning the number and share of target types is necessary to create plant communities with a common varieties setting up. For this purpose, straight harvested seed blends from neighboring donor websites with equivalent site conditions are most appropriate.

If restoration focus on the restoration of landscape functions (e.g. biotope connectivity, environments for pets), the establishing vegetation need to fulfill specific needs (e.g. for target animals), thereby contributing to the improvement of organic diversity and biotope connectivity in the area (e.g. field margins).

To reach this goal, appropriate target plant varieties and also communities must be picked, with restoration product originating from benefactor websites in the area or from local seed propagation.

If re-vegetation adheres to infrastructural interventions, it should be ensured that site-specific types from local provenance and propagation are utilized to secure local ecotypes and also sub-species and assure quick vegetation advancement and erosion control. In this situation, it is not necessary to concentrate on the establishment of rare as well as endangered plant types.

If restoration objectives on recreation as well as improvement of quality of life, the major emphasis must lay on aesthetic demands (abundant in flowers, diverse in framework) as well as reduced upkeep costs, yet it has to be guaranteed that site-specific varieties are picked and seeds from local provenance and propagation are made use of.

6 Sowing seeds and also seed blends Seed mixes can be made up of agriculturally created specific types or blends gotten with threshing, removing or vacuuming straight from all-natural vegetation. The seed rate (related to the available pure seed in the restoration material) should be between 2 and 5 g m⁻². Despite having extreme site conditions (e. g. mined locations), the suggested seed price reveals very good outcomes.

On extreme websites in high hills, the sowing rate might be raised to approximately 15 g m⁻². Unclean seed mixtures can be planted with an amount as much as 25 g m⁻², whereby the real quantity of seeds utilized must range within 2000 to 5000 seeds per m². Seeds should just be sown on the surface and also not worked in.

Afterwards, they can be fixed to the soil via final rolling with a corrugated roller (prismatic roller, Cambridge roller, etc). In the case of manual or hydro-sowing, corrugated rollers likewise can be used before sowing to produce an organized surface. Sowing of seeds and seed blends can be recognized with the adhering to techniques: - Handbook sowing - Sowing by means of sowing and also dispersing gadgets - Over-sowing - Rotavator sowing - Wet sowing or hydro-sowing