

Graiss, W., 2004: Recultivation after separation of forest and pasture considering aspects of plant production, ecology and landscape planning, Abstract, publication, BAL Gumpenstein, book 41, 104 p.

Different methods of recultivation after the separation of wood and pasture considering aspects of plant sociology, plant production and landscape planning have been investigated on a site with siliceous soil and a site with limestone.

The assessment of the statistically exact trials included aspects of fertilizing, questions about the selection of suitable seed mixtures and different methods of seedbed preparation and -treatment.

1 Aspects of soil science

The fertilization with compost and also with mineral fertilizer led to better availability of nutrients and allowed a corresponding development of vegetation and yield.

Soil parameters improved with the use of lime fertilizer on the site Eschwald, the mobility of heavy metals and microelements was reduced. Through it, shifting of these elements to the subsoil and leaching was prevented. The use of lime led to an improvement of the base saturation and in the long term will contribute to the soil stability.

The pH value and therefore the mobility of the microelements are the decisive soil parameters on which the seed mixtures for recultivation should be adjusted.

2 Aspects of plant sociology and vegetation science

In the year after sowing, the vegetation cover reached a satisfying degree of about 70% on both sites. The variant without seeding reached this level on the site Eschwald not until two vegetation periods. On the acid site Eschwald, satisfactory vegetation cover was reached with the use of compost. Additional lime fertilizer led to nearly 100 % of vegetation cover.

On the site Scharberg the composition of the species corresponded to the relation of productive grassland, only for mineral fertilizer the replacement of leguminosae by mineral nitrogen was noticed. Lime fertilizer improved the situation of plant production on the site Eschwald, the development of the valuable species *Cynosurus cristatus*, *Lolium perenne*, *Phleum pratense* and *Lotus corniculatus* was positively influenced.

The extremal soil and climatic site conditions, the more persistent was the site specific mixture in comparison to the commercial seed mixtures on the aspect of persistence, reproduction and cover.

3 Aspects of plant production

Between the site specific seed mixtures and the mixtures according to the seed law, no difference in the biomass and energy yield could be observed. The fodder quality depended on the seeded species; the quantity depended on the fertilizer used. Compost came to slightly bad results in comparison to mineral fertilizer. On the acid site Eschwald, the use of lime led to better values of fodder quality.

The soil contents (low phosphorus value) reflected the low nutrient contents in forage for the not fertilized variants on the limestone site Scharberg. However, the norm values for grassland were reached by all seeded mixtures.

The acid site Eschwald showed low nutrient contents in forage by the variants without lime fertilizing, the use of lime led to an improvement, caused by the high percentage of leguminosae and herbs.

On Variants with low nutrient supply, the site specific seed mixture showed a higher below ground biomass yield compared to commercial seed mixtures.

4 Aspects of landscape planning

The evaluation of conservation of the different variants of recultivation used and their development over the years showed the highest values for the site specific seed mixtures and the variants without seeding. On the acid site, the biodiversity increased by the use of lime fertilizer. On the limestone site the use of long term organic fertilizer led to an increased biodiversity.

The use of site specific seed mixtures caused a higher ecological value of the revegetated areas.

The creation of a seedbed that ensured optimal conditions for germination was decisive for the development of the sown seeds and the existing diaspores in the soil. The share of self-reproducing species should be high, if the durability of the site specific recultivation will be guaranteed. Fertilization at the beginning with organic long time fertilizer supported a dense vegetation cover and ensured a high ecological function.

5 Management

Using the stock rotary hoe, the stocks, branches and other wooden residuals have to be removed as complete as possible at the beginning of the recultivation. Otherwise, poor germination of seedlings and monotone vegetation with poor nutrition value will result.

Before sowing and fertilizing a recultivation area, a soil analyses is strongly recommended for selection of an appropriate seed mixture and planning of the right fertilizing system.

On former forest areas, useful and sustainable pastures with satisfying yields and high ecological value can be produced if good preparation of the seedbed, the use of high quality seed mixtures and an adapted fertilization are considered.