

## Recommendations for the production and use of wild flower seeds adapted to local ecological conditions in Switzerland

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Since nearly 20 years, promotion of ecological aspects, including diversity of plants and animals, has been one of the important tasks of Swiss agriculture. The federal administration supports this plan by direct payments.

Measures are diverse; one of those is to set aside 7% of farmland as ecological compensation area. This area can include

- (1) border strips of a crop without weed control, sometimes sown with a mixture of (rare) indigenous weeds,
- (2) wild flower strips sown with indigenous species normally remaining no longer than six years at the same place,
- (3) rotational fallows with indigenous species integrated in crop rotations;
- (4) extensively managed meadows and pastures,
- (5) ruderal areas,
- (6) dry stone walls,
- (7) orchards with high-stem trees and so on.

The farmer can obtain more financial support if the compensation area is of particularly high quality, for example an extensively managed meadow with a characteristic and high biodiversity. This high quality can also be obtained by sowing appropriate seeds for restoring a high biodiversity.

The Swiss Commission of Wild Plant Conservation, CPS, has noticed already in 1992 that only a small part of the wild flowers sown was of Swiss origin. However, we know that the introduction of non-native seed can lead to erosion of native genetic variation by crossing between native and introduced plants. Helping to remedy this problem, the CPS set up „Recommendations for the production and use of seeds adapted to local ecological conditions“. These are not only helpful for agriculture but also for wild flower seed used along streets and railways, in gardens and parks, for restoration of grasslands on ski runs, and so on.

The most important guidelines of the recommendations are based on the bio-geographical classification, which is in relation with distribution of the indigenous flora and fauna. We distinguish 6 main regions and 11 subregions. According to the conservation status of the species the requirement for the seed origin is more or less strict. Seed of relatively frequent wild flower species has to come from the same main region in which it will be used; seed of rare or geographically disjunct species has to come from the same subregion. The use of endangered species can only take place in collaboration with the Cantonal Office of Nature Conservation. Further

more, we recommend that altitude and soil conditions have to be taken into consideration.

*What is the situation today? What are the results or effects of these recommendations? Are they followed? Which problems occur?*

Today, nearly all wild flower seed used in agriculture are of native Swiss origin and also multiplied in Switzerland. Only some species of Poaceae are still from foreign origin. However, recommendations of the CPS concerning the bio-geographical regions are still difficult to put in practice and are in general not considered.

Today, we can say, that thanks to an intensive communication work, awareness about the importance of using regional adapted seed has globally risen considerably. Cities like Geneva or Berne, organised their own seed production in collaboration with some specialised firms; a Website - [www.wildpflanzen.ch](http://www.wildpflanzen.ch) - promotes knowledge over the use of indigenous wild flowers and certain companies can provide suitable material if there is enough request.

*But the largest part of wild flower seed used in agriculture does not respect the regional origin recommended by the CPS. Why? Are the recommendations too strict and not applicable? What are the consequences? What could help to have the recommendations respected?*

In the beginning, a large effort of the producing companies was needed for understanding the biology, germination and growth conditions of species in question. Multiplication of some species was very difficult and requested special techniques to be developed. The question of the bio-geographic origin was not a priority. Most of the companies today offer up to 300 and 400 species (Switzerland counts about 2600 indigenous taxa) and their seed mixtures contain often 40 and more species. The firms offer also different seed mixtures for the different environmental conditions (soil pH, humidity, elevation, etc.). Diversity of the offer is such, that it is very difficult to organize the same kind of offer multiplied by the number of bio-geographical regions.

Some negative consequences of an indiscriminate use of wild flower mixtures are already visible. For example,

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*Anthemis tinctoria*, a species with a disjunct natural distribution in Switzerland, is widespread today. Some rare and endangered „weed“ species like *Nigella arvensis* or *Agrostemma githago* can be found today in areas where they never occurred before. Other consequences are supposed, such as crossing between native and introduced plants. Regarding these problems, the CPS is determined to find solutions together with the companies producing wild flower seed and with persons in charge of agriculture policies. Several proposals are promising, like reducing the number of species in seed mixtures, using only species according to

main bio-geographical regions and stopping the use of rare and endangered species. Technologies using wild flower seed have to promote the natural, local flora by using low seed quantities and density. With less species in a mixture, it should be possible to follow the recommendations.

For compensating the loss of profit for the companies, it is very important to encourage also the adapted use of indigenous wild flowers in gardens and parks.

All these efforts will, hopefully, preserve the biodiversity of our indigenous flora.