

Why

Functional flower borders are an interesting alternative to conventional crop protection products. The aim is to use these edges to reduce the need for spraying and, consequently, the impact on the environment and biodiversity. By attracting targeted natural enemies via the right flower mixtures, they provide natural pest control in the surrounding fields.

What

Functional AgroBiodiversity (or FAB) is the targeted promotion of biodiversity in and around the field to provide services for agriculture. One of the FAB measures used are FAB flower borders. These are aimed at natural pest control: that is, they provide a habitat and nectar source for beneficial pest controllers (i.e. nutritious). These in turn then control pests in crops (e.g. larvae of ladybugs that eat aphids) around the flower border. In this way, there is less need for plant protection products.

How

Construction

Location

- Flower borders are best sown in areas with full or partial sun.
- The edge should also not be flooded for extended periods.

Condition of soil

- Preference for soil type goes to “marginal soil,” or soil that ideally is not too nutrient-rich. In too rich soil, there will be more weed pressure and the increase in biomass of the flowers will be too rapid, causing them to fall over more quickly.
- Also consider the previous history of the plot: what was the weed pressure in previous years? If it was high, it is important that due attention be given to weed suppression.
- It is also important to adjust the flower mix according to the type of soil (loamy/sandy/clay).

Sowing timing

When sowing, the soil must be sufficiently warm and moist for seeds to germinate. When is the best time to sow?

- With annual mixtures, you can either sow in the spring or in the fall. If you sow in the spring, then best in the months of March or April. April is preferred because the soil is warmer then. If you sow in the fall, make sure you get hardy species that will not break down in winter frosts.
- For perennial mixtures, it is best to sow in the fall (September or October). The fall is more likely to be successful because spring has often been very dry in recent years. This makes it difficult for seeds to germinate and causes weeds to take over more quickly.
- Because of changing climatic conditions, spring is sometimes drier. Therefore, it is increasingly interesting to sow in the fall. In this context, it is also worth considering drought-resistant varieties.

Tillage

In preparation for sowing, it is important to first remove dirt from your soil. In addition, it is also good to till once, if there was grass, for example. A good remedy against weed pressure is to plow the weed seeds to the bottom. It is also important that the soil is sufficiently fine (which can be achieved by milling), since flower seeds are very fine.

A next step is then to establish a false seedbed, this is especially important when you are sowing in the spring. So this is preparing the soil for sowing, but then wait about ten days before sowing. This way the first weeds can already germinate, which can then be worked in with the rotary harrow, for example. Then prepare a new seed bed for sowing the flower mixture. Note: If a false seed bed is too dry, the weeds will not germinate either and it is of no use.

Seeding

When sowing the flower mixture, it is important that the seeds are not embedded deeper than 1 cm. It is recommended to sow about 1 to 2 grams per m² (= 15 kg/ha). By sowing thinly you avoid competition between flower species. Furthermore, it is best to divide the seed in portions: this way you avoid running out of seed faster than planned (sowing machines are often difficult to fine tune to flower seed). Also make sure the seed is well mixed, as there can be a lot of difference in seed size (e.g. poppy versus sunflower). In addition, it is highly recommended to mix your seed mix with sand/tarrow meal/cornmeal: this ensures a more even sowing. After sowing, it is best to roll the soil again, this ensures better germination. Germination will occur after just a few days, flowering can be expected after 6 to 8 weeks.

Is it best to do the seeding manually or mechanically? If you sow by machine, there is often some work involved

in adjusting the seeder (because of the different sizes of seeds), so manual sowing will be quicker, especially on small areas (0.5 ha). Large areas are best done mechanically, this is usually done with a precision seeder.

Seed mixture

A seed mix is best tailored to local conditions: what crops are along? What kind of soil do you have? Moreover, you have to make sure that your flowers attract the right insects to promote natural pest control. That is why it is good to ask for advice on the composition of your mixture, this can be done for example at Boerennatuur Vlaanderen.

Layout

Flower borders are obviously very visually appealing and often elicit positive reactions from passersby. Therefore, if possible, try to sow the flower border along the street side of your plot, or in an area where others can also enjoy it.

Maintenance

Weed control is the most common problem at flower edges that needs to be addressed and often hinges on proper seeding. An annual problem species is mainly white goosefoot. Perennial problem species are field thistle, couch grass, hornwort and sorrel. Of course, the previous history of the plot has a big influence on the weed pressure you will experience.

- A possible solution is very local chemical weed control in some cases (within a management agreement this is not allowed), but this method is better avoided.
- Another option when there is too much weed pressure is to mow the flower border. Late June is a good time for this when the white goosefoot is just taller than the flowers. After three weeks, the flowers will then have grown back and the white goosefoot will remain smaller.
- If necessary, you can do this mowing in phases, so that there is always a food supply for insects and pollinators. For example, you could mow one half in mid-June and the other half at the end of June.

In addition, perennial edges should be mowed with runoff every year. This is necessary to get light to the bottom so that seeds can germinate again. You can do this in the fall from as soon as the edge has flowered out, which is usually from late September. However, you can also wait to mow until late February: this allows the flower border to act as shelter for wildlife and overwintering habitat for insects during the winter months. Mowing can be done up to 10 to 15 cm above ground level (so best not too deep).

Annuals: earlier spring (March/April, best April (warmer soil)) OR also in fall (hardy varieties that do not break down with frost in winter)

Perennial: fall (September/October) (best)

- autumn sowing more likely to succeed (because last years spring is often very dry: difficult for germination + weeds take over more quickly)

Tillage:

- remove dirt + milling if e.g. grass stood
- remedy for weed pressure: plowing (weed seeds to bottom)
- make sure soil is fine enough (flower seeds are very fine)
- establishing false seedbed (especially when sowing in spring)
 - Prepare the soil for sowing, but wait about 10 days before sowing: that way the first weeds can already germinate -> you can then rework (e.g. with roto harrow); then sow a new seed bed for flower mixture. Note: if false seedbed is too dry, weeds will also not germinate, and it is of no use
- Seeding:
 - do not penetrate deeper than 1 cm
 - 1-2 grams/m² (15kg/ha) (= sow thinly: avoid competition between flower varieties)
 - divide seed into portions: avoid running out faster than planned (seeders often difficult to fine tune to flower seed)
 - make sure it is well mixed, often large differences in seed size (poppy vs. sunflower)
 - mix with sand/wheat flour/cornmeal at sowing: makes for more even sowing
 - rolling after sowing: better germination
 - germination after a few days
 - flowering after 6-8 weeks

How to sow? Manually or mechanically?

- Small area (< 0.5ha)? Manual: faster. (By machine: more work in properly adjusting seeder, considering seeds have different sizes)
- Larger areas: by machine, usually with precision seeder

To mow, it is best to wait until the end of February. This allows the flower border to act as shelter for wildlife and overwintering habitat for insects during the winter months.

Cost

Target price

Cost depends on supplier & seed mix (varying prices from +- 130 to 260 euros per kg seed), per ha comes to about 1,950€/ha to 3,900€/ha.

You can possibly reduce the price by joining a co-purchase of a Regional Landscape.

Subsidy

There are some grant channels for flower borders:

- [Management agreements at VLM 'Flower Field'](#) -> as part of the new CAP (Common Agricultural Policy 2023-2027).
- Ecoregulation 'Buffer strip plus - flower mixture' at Agency for Agriculture & Marine Fisheries as part of the ecoregulations parcel-based aid (See at the links on the side of the page)

For questions regarding these grant opportunities, please contact info@boerennatuur.be

There are also regular projects on flower borders throughout Flanders, e.g. by Boerennatuur Vlaanderen. The project usually offers seed mixtures and guidance.

Benefits

Economic

By focusing on more useful natural pest controls, you can improve the natural balance and save on crop protection products. In addition, it becomes financially interesting especially through BO grants (or reimbursements from project operation).

Ecological

Through the flower borders you create additional biodiversity (both more diversity of flowers and animals), which also provides valuable ecosystem services for both agriculture and nature:

- higher level of pollination
- higher level of natural pest control
- flower border can also serve as an erosion strip

- flower edge also counteracts the runoff of fertilizers and plant protection products, avoiding their discharge into adjacent watercourses, which is beneficial to water quality

What to look out for

Legislation

If you are planting a flower border as a management agreement, there are, of course, quite a few rules involved here. If you sow within a management agreement, your edge may be a maximum of 200 meters away from small landscape elements (KLEs).

When you plant a FAB flower border within projects, you often have more degrees of freedom.

Useful links

- [Webinar October 26, 2020: What's in my flower border?](#)
- [Eco-regulation: construction of buffer strips](#)
- [Guide flower borders](#)

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Examples

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