# Information about “What is a meadow?”

## What is a meadow?

A meadow is agricultural grassland that, unlike a pasture, is not characterised by the grazing of farm animals but by mowing by humans. Neither meadows nor pastures are of natural origin; they have been used by humans for centuries to produce food. In the case of meadows, hay can be produced as fodder by mowing. However, many meadows are also used much more intensively to produce silage fodder or to provide raw material for fermentation in so-called biogas plants.
Meadows, pastures, commercial forests and arable land together form our current cultural landscape.

*Figure 1: Lean meadow also known as classic flower meadow.*

## History

Meadow landscapes arose during the Middle Ages and have been increasingly found in Central Europe since the 18th century. They were created as areas providing food for animals during the historical period when farming was becoming increasing stable. At that time, the scythe was used almost exclusively for haymaking, which spared many small animals (including amphibians). The hay was then cleaned. For this purpose, it was placed by hand on a three-legged wooden frame, a reuter, for storage and drying. The rain ran off the surface and the hay underneath stayed dry.
During the last 200 years, agriculture has become increasingly important in Germany. Around 1900, a farmer fed about 4 people, whereas in 2018, the number fed was about 155. This revolution in agriculture and the increase in settlement areas have led to a continual reduction in free land and thus to decreasing numbers of species-rich habitats.

Nowadays, modern mowing techniques are used to achieve a high harvesting speed. If the mowed material is not dried as hay and pressed into bales, it is compacted as fresh material into silo bales or in mobile silos, whereby air is excluded and the material is then preserved by fermentation.

A forage harvester is often used for silage extraction; it loads the mowed material onto a pusher wagon with suction support. During this process, the cut material and any small animals and seeds are chopped and quantitatively removed from the mowed area.

## What makes a species-rich meadow?

The number of different plant species in a meadow depends, on the one hand, on the intensity of its use and, on the other hand, on fertilisation and sowing.
This is because all plants compete with each other for the light, nutrients and water that they need to survive. If plenty of fertilization is applied, the soil contains many nutrients and those plants that can grow and spread quickly thus "win" the competition. The other species are thereby displaced and slowly disappear.

Meadows are therefore particularly rich in species when they are sparsely fertilized, used extensively (as opposed to intensively) and cut at an appropriate frequency. In the case of the classic flower meadow (smooth oat meadow), this corresponds to mowing twice a year.

## Meadow types in our area

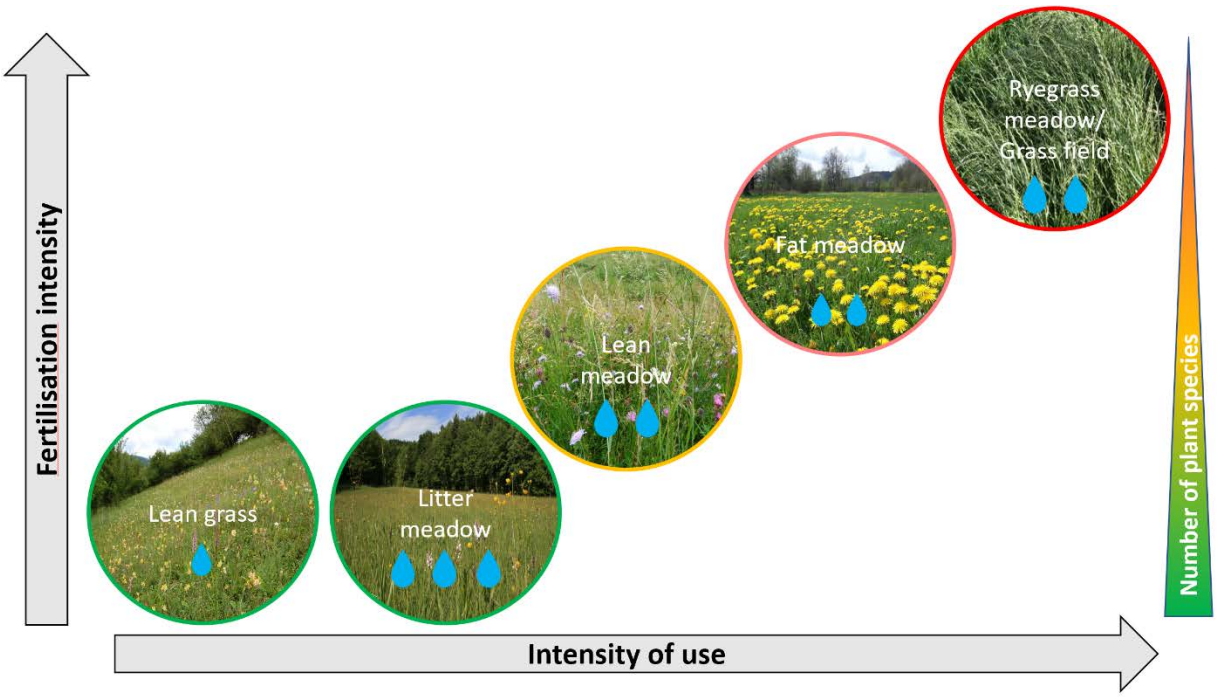


*Figure 1: Several meadow types are shown in relation to fertilisation intensity and to intensity of use. The number of species is indicated by means of a colour gradient. Green stands for a high number and red for a low number of plant species. The number of water drops indicates the degree of moisture of the relevant meadow type.*

**Lean grass:** The term “lean” does not refer to the diversity of species but to the nutrient content of the soil. Contrary to idea that the name suggests, nutrient-poor grasslands are among the most species-rich plant communities in Central Europe. Lean grassland types include limestone and silicate lean grassland (called "juniper heaths" as a special form with a landscape-shaping proportion of juniper) and dry grassland (on sand called "sandy dry grassland"). They can be found on flat ground.

**Litter meadow:** These meadows are used to produce litter for animal housing. They are grown in alternating locations and are only mowed once in the autumn. They are not fertilized but can be transformed into forage meadows by fertilization, earlier mowing and drainage. They are often dominated by moor grass (genus *Molinia*).

**Fat meadow:** Fat meadows, for example meadows characterised by a high proportion of dandelion (*Taraxacum officinale*), are created by increased fertilisation. The high nitrogen content in the soil created as a result of fertilisation can be used particularly well by dandelions. Even more heavily fertilized meadows often have a high proportion of meadow hogweed or meadow chervil. Weak competing species fare badly on highly nitrogenous soils and are hardly found here.

**Lean meadow**: Lean grasslands usually belong to smooth oat meadows. They are the classic flower meadows and are usually created by mowing twice a year (hay and ohmic; see Protection of flower meadows). They are named after the smooth oat (*Arrhenatherum elatius*) that represents the uppermost flowering horizon (the tallest plant). In addition to the striking green of the grasses, the flower colours blue, yellow, white and red can also be seen here.

**Ryegrass meadow:** Ryegrass meadows are dominated by ryegrass (*Lolium perenne*), are mainly green and thus resemble grass fields. High-performance grasses are sown because they respond very well to nitrogen and phosphate fertilization, are tolerant of treading and mowing and have a high resistance to drought in the increasingly dry summers.

## Protection of flower meadows

Because of the influence of climate, species-rich flower meadows exist (almost) only in Western and Central Europe, where summers are warm and humid.
The first mowing in the Ostalbkreis involves the harvesting of "hay" in mid-June. The ripening of the seeds of the first grasses begins at this time.
About eight weeks later, the "Öhmd" is harvested. The rule is: "Do not wait until the last flowers bear seeds, but mow when some of the flowers bear seeds."

Mowing should occur above a height of 4 cm (a mowing height of 7-12 cm is recommended in order to protect insects), because deeper mowing damages the organs of survival of the plants. Solid manure (a straw-dung mixture) should be used for (maintenance) fertilization. Stronger fertilization, especially with liquid manure or fermentation residues from biogas plants, can turn a lean meadow into a fat meadow. Less fertilization leads, in the long run, to soil degradation and promotes more undemanding species, with a resulting disappearance of many colourful flowers.

## What can I do?

- You can create a flower meadow in your own garden with native seeds or you can wait to see which species grow by themselves by mowing less frequently.
- In order to reduce the nutrient content in a garden lawn, which is usually quite nutrient-rich, it is important to clear the mowed material from the area. However, this should only be done after 1-2 days to allow small animals to escape from the mown area to the edges.
- Avoid using poisons and robot lawnmowers in your garden.
- Only mow your lawn two to three times a year or, if you mow it frequently, leave corresponding meadow islands on the lawn and change their location over the years. Even in winter, meadow islands can serve as wintering refuges for insects.
- It is best to mow with a scythe or a beam mower, as mowing with flail mowers kills many small animals.
- Support agriculture that cultivates species-rich hay meadows or extensive grazing.

## Sources

Worm, R. (2020). *Die Wiesenfibel - Blumen und Gräser nach Farben bestimmen.* Wiebelsheim: Quelle und Meyer

https://de.wikipedia.org/wiki/Streuwiese#Pflanzenwelt (04.06.20)

http://imperia.verbandsnetz.nabu.de/imperiamdb/naju/pdfs/downloads/lebensraum_magerrasen.pdf (04.06.20)

**Picture sources**

Worm, R. (2020). *Die Wiesenfibel - Blumen und Gräser nach Farben bestimmen.* Wiebelsheim: Quelle und Meyer