

CLOVER GRASS FOR ARABLE FARMERS

A BENEFIT FOR CATTLE AND SOIL



Lucerne undersowing

“Clover grass is the single most important crop in organic farming.” This is the overriding dictum in organic farming and equally relevant for livestock and arable farmers. After all, clover or alfalfa grass (in the following generically referred to as clover grass) fulfils multiple functions in organic farming. Yet, increasingly conventional farmers, too, are taking clover grass into account.

The 2019 and 2020 drought years made it painfully clear that it is important to grow roughage for basic rations not only on grassland. In these years we observed that clover grass often continued growing when grassland stands had already burnt out. Lucerne in particular played to its strengths as its deep-reaching roots were able to tap into residual moisture that was not accessible by other plants.

However, not only yields but above all the quality of the feed mix are arguments for adding clover and lucerne to the grass mix.

In organic farming, grassland legumes are the primary source of protein and in terms of yield levels per hectare they are even superior to most grain legumes. Therefore, we definitely need to develop methods that help us make these protein sources available also to monogastric animals (creatures with one stomach) which have the highest requirements on amino acid compounds.

Nitrogen and the fertility of the soil

Clover grass plays a pivotal role also on predominantly or exclusively arable farms. This is because the grass is much more than just animal feed. Indeed, its major asset is probably the fact that it provides nitrogen to the other crops in the rotation. Especially organic farmers who are registered to soil associations have only very few options of buying in nitrogen. **Legumes, especially small-seeded legumes and legumes that are used as animal feed, present the only substantial source of nitrogen for organic farmers** who cannot use animal-generated nitrogen and instead have to source it from protein-rich feed. In fact, well-established clover and alfalfa crops are able to fix an annual 200-300kg/ha of nitrogen from the atmosphere and store it in the plants and soil.



WELL-ESTABLISHED CLOVER AND ALFALFA CROPS ARE ABLE TO ABSORB AN ANNUAL 200–300 KG/HA OF ATMOSPHERIC NITROGEN AND STORE IT IN THE PLANTS AND SOIL.

Red clover undersown to oats

Root exudates which are rich in nitrogen and

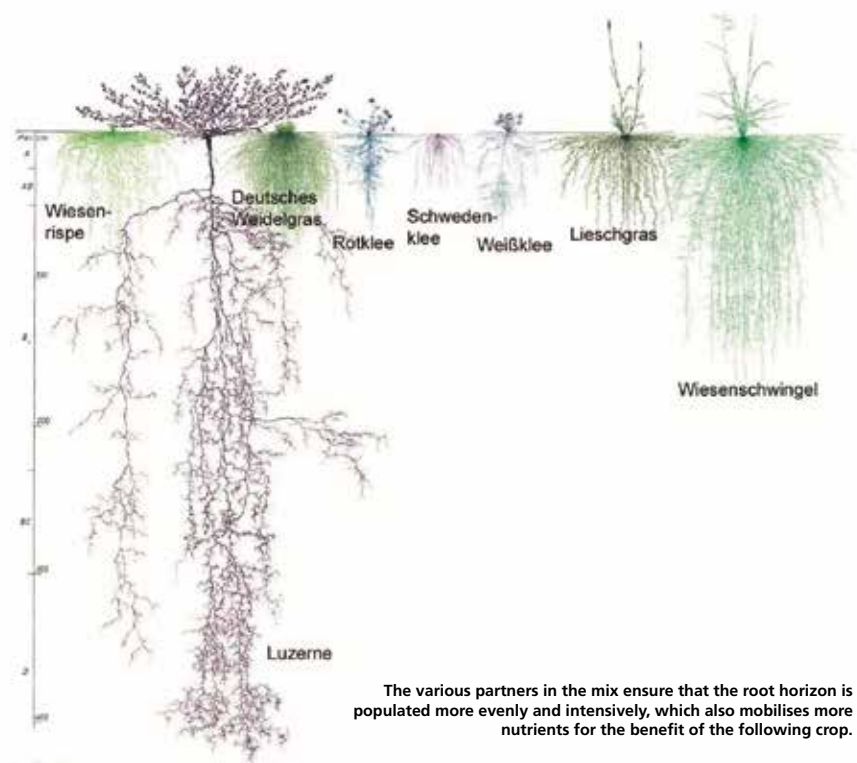
carbon are extremely important as they supply nutrition for microorganisms and promote the soil's crumbability enormously, hence promoting the soil's water storage capability and rain digestibility. **In a symbiosis with grasses, it is especially clover and lucerne that promote humus formation by means of root symbiosis and mycorrhizal fungi.** The various partners in the mix ensure that the root horizon is populated more evenly and intensively, which also mobilises more nutrients for the benefit of the following crop.

Another aspect is weed control for which clover grass can hardly be dispensed with. After all, growing annual or preferably perennial forage is an effective strategy to fight thistle, black grass and many other weeds. Frequent cuts followed by a rapid regrowth weaken the weeds significantly as they compete for light, water and nutrients. In addition, the seeding potential on the surface and in the soil is greatly reduced due to the long dormancy and high biological activity.

Composition of the mixes and seed establishment

For all these reasons, it is essential that clover grass develops optimally if it is to contribute to a successful crop rotation. The first step is to choose the proper seed mix. Here, the ratio of small-seeded legumes relative to the percentage of grasses varies depending on the type of farm and field site; and in some cases herbs are added as feed crops. Farmers who are not predominantly livestock farmers will choose a mix with the highest possible percentage of legumes. However, for the mentioned reasons the mix should always contain a minimum percentage (> 10%) of grasses. The question of whether red clover and/or lucerne should be the major partner in the mix depends greatly on the field site and precipitation. White clover is a good gap filler and can be included in every mix. Farmers should also make a point of choosing suitable varieties. Proven and recommended varieties not only suggest high yields and a good quality but also winter hardiness and resistance to fungal diseases.

Clover grasses can be sown directly or undersown to cereals such as oats or rye. Yet, to achieve a satisfactory field emergence, it



is necessary to observe the following rules: Whether using it as the main crop or as an undersowing, make sure the seeds are not placed too deep: 0.5-1.5cm is ideal. Rolling after sowing is a must as it ensures capillary action and provides a level surface for the mower (especially in stone-strewn fields).

Supplying nutrients and maintaining soil fertility

Liming the seedbed increases crumb stability and supplies the forage legumes with sufficient calcium. Due to a lack of sulphur emissions in the atmosphere, sulphur, too, has been proven to be an equally important component in the optimum nutrient mix for clover and lucerne. Therefore, a sufficient

supply should also be ensured in this respect.

A cutting height of 8cm (red clover) to 10cm (lucerne) guarantees a rapid regrowth which in turn strengthens the crop. The stands should not be too lush in winter and the growth height should be 15-20cm. In taller stands the risk of clover canker infection increases and mice enjoy too much cover.

Conclusion

Feed legumes present the most important source of protein and nitrogen in organic farming and are therefore of particular importance. However, in order to make the most of the many positive aspects of growing clover grass in arable fields, it is necessary to choose the proper mix and ensure a proper establishment, nutrient supply and treatments. These boxes ticked, clover grass is a good basis for a successful crop rotation.



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