



# Mulberry (*Morus* spp.) for livestock feeding

A useful source of protein

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## Why use mulberry to feed livestock?

Mulberry is used as a livestock fodder in many countries around the world (e.g. India and Japan). The leaves of the mulberry are known for its high protein content (15-28%), good amino acid profile (> 46%), high digestibility (>80%), high mineral content with ash values up to 25%, low fibre content (7.1-8.1%) and excellent palatability.

The high biomass yield of the plant, together with its low tannin content, makes it an attractive resource for livestock. Moreover, mulberry is an excellent species to overcome pasture shortage during summer, which is a common issue reported in many Mediterranean countries.



Mulberry established in the field to feed livestock



Mulberry experiment established in Galicia (NW Spain).

## How to plant mulberry?

Mulberry can be established in any part of Europe, but it especially suited to areas such as Galicia (NW Spain), which face summer droughts. In such areas, animals can consume mulberry directly if they are shaped as shrubs. To determine the adaptation, productivity and fodder quality of *Morus* spp. in the temperate region of NW Spain, four mulberry clones (*Morus alba* criolla, *Morus alba* tigrenda, *Morus alba* illaverde and *Morus nigra*) were produced using two different techniques: in vitro propagation and rooted cuttings. In the field, mulberry clones were evenly distributed in the plot, at a distance of 50 cm to avoid intra-specific competition.

*Morus* spp. can be used for harvesting following a short rotation coppice system, and this can provide fresh forage to animals in stables or be stored for later use. If a short rotation coppice strategy is used, weeds should be controlled in the early stages of establishment. If *Morus* spp. are planted for direct consumption, they must be protected from the outset. However, no weed control is needed as animals will eat the surrounding herbaceous species. In our trials, to enhance initial tree development, mulch was added to the soil after establishment of the mulberry clones.



Production of mulberry after in vitro propagation/rooted cuttings



## Advantages

- *Morus alba* L. and *Morus nigra* L. have proven to be a productive forage with a high level of protein. This is especially useful for feeding livestock during periods of pasture shortage.
- Ecosystem services will also be improved through reduction in the need for concentrates.



Mulberry to feed livestock in summer

## Management

*Morus* spp. production varies according to location. In Galicia (NW Spain) production levels average around 0.2-1.4 Mg DM/ha. In this region, the levels of crude protein were also high (leaf: 10 to 18% and stem: 4 to 18%). In general, however, mulberry has a high potential as forage, and its establishment and use is easy. Where possible, local varieties should be established on farm. Due to their adaptation to weather conditions, local varieties can often provide better production and higher quality forage than exotics.

## Environment

Establishing *Morus* spp. as permanent crop, or as an element of permanent grasslands, will increase nutrient recycling, biodiversity, water quality and animal welfare. Moreover, it will reduce the need of concentrates due to its high protein content, and also reduce the carbon footprint of the farm as less external inputs are needed.

## Adaptation

Growing *Morus* spp. can make the farm more resilient against climate change by providing an additional source of fodder. If *Morus* spp. is used as a hedgerow it will also improve ecosystems services, such as pollination, and will reduce the negative effect of winds.

## Further information

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Mulberry in autumn

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