

LUCERNE

MANAGEMENT GUIDE

PROTEIN PRODUCTION

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WHY GROW LUCERNE?

- Up to 14t DM/ha can be expected over 3 – 4 cuts,
- Delivers 19-22% protein
- Excellent drought resistance from its long tap root
- Needs no N inputs as it will 'fix' up to 200kg N/annum
- Well managed crops can persist for up to 5 years
- Also known as Alfalfa



DAIRY

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SHEEP

SILAGE

Sowing

- Lucerne thrives on deep soils which are free draining and not susceptible to flooding or high water tables. A soil pH of 6.2 or above is essential
- Soil temperature must be over 8°C for establishment, which is generally between April and mid-August
- Seedbeds should be fine, firm, moist and fertile
- Sowing rate: 8-10kg/acre (20-25kg/hectare). Drill at 5-12mm deep on normal soils or up to 25mm on light sandy soils.

Crop Management

- Phosphate doesn't need to be applied after establishment, unless the soil is particularly deficient
- Regular applications of potash are recommended. Slurry is an excellent source of potash and is very cost effective if applied at under 25 tonnes/hectare to a crop which is not actively growing
- Lucerne has a high demand for sulphur and an application of 25-50kg/hectare of sulphate is required every two years.

Cutting Lucerne removes a significant amount of nutrients.
For every tonne of dry matter removed from the field 8kg of P & 30kg of K is removed.

- Weed Control. Lucerne cannot tolerate competition; early weed control with the appropriate herbicide at the seedling stage is essential
- Pest Control. Lucerne seedlings are vulnerable to attack by Sitona weevil larvae, slugs and leatherjackets when growing conditions are unfavourable and an appropriate insecticide should be applied if necessary
- Disease Control. Verticillium wilt is the main threat and resistant varieties should be sown. Crown rot can occur after very heavy dressings of slurry or overstocking of a field in wet conditions.

Nutritional Benefits

Well silaged lucerne is very palatable to sheep and cattle and provides excellent rumen stimulation. The stems stimulate the rumen, improving digestion. The saliva produced by animals during rumination results in stabilisation of the rumen pH. The main advantage of lucerne is the fast digestion of the crop. The rumen remains full of feed without the risk of congestion. As a result, lucerne offers a lot of effective fibre in combination with high dry matter intake.

Lucerne is a highly nutritious forage for livestock. It combines good digestibility with high proteins providing excellent milk yields or daily live weight gains. A more mature hay crop would be more suitable for feeding young stock.

Farmers can enhance the feeding qualities of lucerne by cutting it earlier, just before flowering. This results in more energy (ME/MJ) and protein per kg dry matter.

The table below gives an example of the differences in forage qualities which can result from early cutting compared to normal cutting of lucerne silage.

Lucerne silage	Early cut	Normal cut
Crude protein (g/kg dm)	210	172
Crude fibre (g/kg dm)	228	303
Crude ash (g/kg dm)	139	119
Digestibility organic matter (%)	70.5	64.5
Dry matter intake (kg)	14.2	13.3

Typical Lucerne silage analysis	
Dry Matter	36%
Crude Protein	18.75%
D value	71.0
ME (MJ/kg DM)	10
pH	4.2



HARVEST AND YIELD ADVICE

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Although lucerne can be grazed, it is most useful as silage and is therefore well-suited to zero-grazing systems (fresh feeding) and for making silage.

Lucerne's regrowth is very strong, depending on the availability of food reserves stored in the roots (just at the beginning of flowering, sufficient food reserves are present for a good regrowth of the crop).

Harvest recommendations:

- The best time to cut lucerne is when 5-10% of the plants are flowering, with stubble length at 7-10cm. Lower cutting heights will kill the new sprouts
- Do not cut in wet conditions as Lucerne is susceptible to damage from traffic
- For varieties suitable to the UK, make sure the plants are able to recover following the cut before they go dormant in the autumn
- Do not cut the crop frequently at a very young stage. Cutting frequently will damage the crop, meaning it will only perform for a couple of years. It is better to cut at least twice a year at the beginning of flowering (5-10 % of total crop on flower). If the crop is weak, it is advisable to allow the crop to fully flower before cutting. This will ensure it remains a productive crop for 4-5 years. This will not adversely affect the feed value as the digestibility and palatability are less likely to fall in comparison with grasses.

Silaging

The quality of fermentation of Lucerne silage and its resultant feed value will be greatly improved by making every effort to achieve dry matters in the region of 30-35% at harvest. Compressing and closing the clamp as soon as possible will ensure a good fermentation process.

Growers should be prepared to wilt for up to 48 hours. The leaves contain 70% of the protein and 90% of the vitamins and minerals, so it is essential that any leaf loss should be minimised.

For big baling Lucerne should be wilted to 40-60% dry matter before wrapping. Mature crops with lignified stems are liable to puncture polythene, so bales should be wrapped at the point of storage, well wrapped, handled carefully and stored on the ground, not heaped.

Dry matter yield

The number of cuts in the sowing year (spring sowing) will be limited to two to three cuts. The dry matter yield in the first year will be about 6-9 tonnes until the crop is fully established. In subsequent years, you can expect up to 14 tonnes of a well managed crop.

In the second year the total dry matter yield can vary between 12-17 tonnes depending on the dormancy class of the variety. Varieties with a high dormancy class will give more cuts per year resulting in a higher dry matter yield.



CUTTING LUCERNE

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Spring

The focus is on above the ground production

- Cut when lucerne is around 40-45cm tall to maximise quantity. The best time to cut the lucerne stand for hay or silage is late morning to mid-afternoon after any morning dew has lifted. This is when the concentration of sugars and starches is at its highest level
- After cutting, allow 35-42 days recovery (any shorter reduces root reserves and lowers root size and stem height)
- Apply 150-250kg/ha lucerne fertiliser after the first spring cut then after every second cut, providing it isn't too dry. Lucerne takes a high amount of potassium (K) when made into hay or silage so it is necessary to apply potassic based fertiliser to replace what is removed. This should be applied in spring, after the first or second cut. Potassium deficiency is exhibited by the plant as light green/white colour around the edge of the leaf.

Summer

- Short rotation, 30-35 days recovery
- Earlier flowering during summer, so cut when lucerne is at 35-40cm tall

Autumn

The focus is below the ground allowing root reserves to replenish

- Allow a minimum of 50% lucerne stems to flower at least once from mid-summer to autumn to allow the roots to recharge before cutting – this period decides the following seasons production and increases stand persistence
- Apply 150-250kg/ha lucerne fertiliser after every second cut providing it isn't too dry
- Long rotation, 42 days recovery
- For varieties suitable to the UK, make sure the plants are able to recover following the cut before they go dormant in the autumn

Winter

- Cut when growth stops, for example once frost stops growth
- Remove any over-wintering aphids
- Spray weeds

HIGHEST YIELDING LUCERNE

- Barenbrug-bred variety
- Dormancy class 4.5
- Rated as No.1 on the French "Liste A"
- Excellent yield
- Extreme persistence – especially in dry and cold areas
- Powerful crop
- Officially listed in: France, Switzerland
- Guaranteed top yields with Yellow Jacket Rhizobium coating

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Rated as No.1 on French "Liste A"

Artémis has been on the French Liste A since 2010, as the highest yielding Lucerne variety. It is a very persistent crop with outstanding resistance to nematodes and diseases.

In the UK there is currently only a descriptive list of varieties in the NIAB booklet, so we look to the French recommend list for accurate data and trial results.

Flemish varieties, such as Artémis, are used in maritime and continental climates (North West Europe), which have similar patterns to the UK with colder winters than the rest of continental Europe.

Barenbrug varieties are selected for leafyness and stem flexibility, which results in higher energy and protein content and less leaf loss during harvesting.

Excellent yield

Artémis is an extremely high yielding crop, for the first cuts (100.9) as for the total yield (101.2). It's rated as the best variety for yield on the French recommended list (17.5T dry matter per hectare), making it ideal for hay and silage production.

Consistent and Persistent

Artémis produces a very strong crop. It has outstanding winter hardiness and scores very high for persistence (8.8).

Due to its deep rooting system, it improves the soil structure and grows very well under dry conditions, alongside being ideal for cold areas and climates.

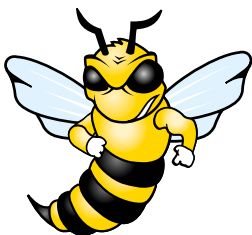
Powerful crop

Nematodes and diseases can be an issue with growing Lucerne, Artémis is a perfect choice because of its high resistance to disease and is the highest rated variety on the French recommended list for its resistance to nematodes and other diseases (like Anthracnose and Verticillium).

Top yields with Yellow Jacket Rhizobium coating

Yellow Jacket Rhizobium coating is Barenbrug's enhanced seed coating for Lucerne, designed to improve establishment and increase forage production.

Using new technology, high levels of effective Rhizobia are embedded in a protective polymer matrix, which also includes a nutrient booster containing all essential minerals and trace elements.



Yellow Jacket delivers:

- Improved establishment under difficult conditions
- Better use of available water and soil moisture
- Increased disease resistance
- Improved nitrogen fixation
- Increased forage and protein yield.

YELLOW JACKET
ENHANCED SEED COATING

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