



Alternative forage crop can boost milk quality and reduce protein costs

# Lucerne makes the cut

A high-protein forage crop, suitable for growing on UK dairy units, can not only help to reduce bought-in feed costs but also boost dry matter intakes and milk quality.

text **Rachael Porter & Karen Wright**

**W**ith a crude protein content of around 20% and yields of up to 18 tonnes of dry matter per hectare, lucerne is a crop that more producers should be growing, according to Limagrain's Ian Misselbrook.

With a lower cell wall content than grass, lucerne is highly digestible and intakes tend to be high. "Protein and mineral contents are also high, which makes lucerne a valuable alternative forage. It is particularly suitable as a complementary feed when fed alongside maize silage.

"And it's ideal for cutting and clamping or making into big bale silage," he says, adding that it can also be zero-grazed. "It can significantly reduce the reliance on bought-in protein and many users report an improvement in milk quality when lucerne is included in the dairy herd's diet."

"As a legume, it's also a nitrogen fixing crop – as much as 250kg of nitrogen per hectare. It leaves a nitrogen-rich soil behind it. A following wheat crop would require up to 70% less applied nitrogen than a wheat crop in a cereal rotation. Some nitrogen benefit will be seen for up to three years after the lucerne crop. Producers can expect to take four cuts each year, on a 40-day cutting cycle," adds Mr Misselbrook.

## Protein levels

As with grass leys, lucerne's protein levels are at their best pre-flowering and delaying cutting until the flowers have emerged will typically see protein levels drop by 3% or 4%. Cutting pre-flowering will yield between 20% and 22% protein. This falls to between 17% and 18% once flowers emerge.

Lucerne is low in soluble carbohydrate

and using a silage additive is often advised. If the crop is clamped it should be well wilted to reduce fermentation problems.

## Variety selection

Mr Misselbrook stresses that choice of variety is important: "Not all lucerne varieties will be able to adapt to the cooler wetter climate of winters in northern Europe. So varieties grown in UK need to be carefully selected for high winter dormancy, as well as maximum dry matter and protein production." One such variety is Marshal, which has

*Ian Misselbrook: "Lucerne grown in the UK must be selected for high winter dormancy"*





| trait                                     | value |
|---|-------|
| average dry matter yield (tonnes/ha/year) | 10-12 |
| average fresh yields (tonnes/ha/year)     | 35-40 |
| dry matter (%)                            | 30    |
| crude protein (%)                         | 18-21 |
| digestibility value (D)                   | 70    |
| metabolisable energy (MJ/kg DM)           | 10    |

Table 1: Typical lucerne analysis

been grown successfully in the UK for several years. Its high dry matter yields, persistency and good drought tolerance makes the variety ideally suited to UK conditions. It also has particularly thin stems, which make it ideal for baling and wrapping.

Lucerne (alfalfa) has been a staple forage on French dairy units and plant breeders have pioneered new varieties – the latest from Limagrain, Mezzo, was introduced to the UK market this spring. It has produced record-breaking yields of 18t DM per hectare in trials – that’s 5% more than other varieties on the UK market.

“Mezzo will be popular in the UK not only for its improved yields, but also because it is disease and nematode resistant and has a dormancy rating of 3.6,” says Mr Misselbrook. “This means it is more winter hardy and persistent than many other varieties.”

### Good performance

Producer David Morgan, who runs a 205-cow herd near Usk in Monmouthshire, has been growing lucerne on his unit for the past four years. And he’s pleased with both crop and herd performance.

“It’s drought resistant, although that does seem somewhat irrelevant after all the recent wet weather, and it’s also high protein – that was a big draw for me. We’re looking at lucerne silage that analyses at around 19% protein and it certainly helps to reduce our bought-in feed costs.”

Mr Morgan also likes the variety that it adds to the dairy ration. “We feed three forages in our TMR – grass, maize and lucerne silage. Our cows have bread, butter and jam,” he says.

The stemmier nature of the forage also add the ‘scratch factor’ to rations – David doesn’t have to feed chopped straw. “And to prevent sorting, we chop the lucerne silage to 10mm pieces.”

His grows 24 hectares of lucerne – spread across four light, loamy fields – was sown in early September 2015 after wheat. It was cut for the first time in early June 2016 and since then Mr Morgan has averaged four cuts a

year. He expects the lucerne leys to last for another year and then, when yields begin to fall off, he’ll follow it with another wheat crop.

“The crop needs very little fertiliser. It’s nitrogen fixing, but I have applied potash – 250kg per hectare in 2016 and 360kg per hectare in 2017.”

When establishing the crop, which he says costs around £650 per hectare, he says that a good seed bed is a must: “And make sure you use an inoculant too – lucerne requires rhizobia to grow well. Other than that, it needs little attention.”

Lucerne accounts for 20% of the forage in the herd’s TMR. The latest analysis of the 2017 crop showed that it’s 40% dry matter with 19.15% crude protein and an ME of 9.7 MJ/kg DM.

### Milk quality

Mr Morgan is very pleased with how the cows are milking on it. “They don’t sort it from the ration and they like it. It’s palatable and I think our dry matter intakes have increased, as well as yields.” The herd average is 11,268kg of milk, at 4.07% fat and 3.19% protein, with individual cow yields, for the all-year-round calving herd, up at around 37 litres per day. The herd has been milked through three Lely A2 robots for the past 18 years. Mr Morgan says that milk

## Lucerne benefits

- High-protein forage
- Drought tolerant
- Highly digestible
- Between three and four years continuous production
- Good mineral content
- Nitrogen benefit for subsequent crop

quality is creeping up. “Some of this is due to breeding, but feeding plays a role here too – particularly lucerne.”

Dairy nutritionist John Parker, from Select Nutrition, agrees that feeding lucerne can help to boost milk quality.

“This is partly because lucerne silage adds bypass protein to the ration and these amino acids help with milk quality.”

He says that cow health can also benefit from adding lucerne silage to rations.

“Dry matter intakes typically improve, because the additional forage in the ration makes it palatable and adds the scratch factor. In my experience, producers who feed lucerne see fewer LDAs and a reduced incidence of SARA in early lactation because they have good intakes and achieve good rumen fill.”

*Alternative crop: lucerne is nitrogen fixing and adds home-grown protein to cow rations*

