

Lupin mix should help to cut down fertiliser input

Lupicaleage is a mix of lupins and triticale which as a crop has the added bonus of fixing nitrogen and has brought considerable benefits to one Yorkshire dairy farm.

Andrew Parker farms with his parents Gerald and Ann on the 283ha (700-acre) Thorncliffe Grange Farm, Emley, near Huddersfield, with a mixed system comprising around 133ha (330 acres) of arable plus 290 dairy cows plus followers. Lupicaleage has been part of the farming system for four years and Andrew now grows around 24ha (60 acres) of the crop a year.

"We are in a marginal area for maize and I know yields have been rather inconsistent locally," Andrew explains. "Lupicaleage really suits my system as it is both drilled and harvested earlier and means we can follow it with wheat. It is also a convenient crop to grow requiring no fertiliser and just a pre-emergence herbicide.

"Another big plus is that as it fixes nitrogen we can reduce the input costs on the following wheat. We have actually grown the lupins on the same field for four years with no disease problems although there has been some weed build up so the plan now is to have two years of lupins followed by wheat."

Lupicaleage was first introduced into the UK in 2003 by Soya UK and the crop has slowly developed a foothold as an alternative forage. David McNaughton from Soya UK advises that the crop is not geographically limited like maize, but needs a fine tilth of the kind you would use for spring cereals to ensure good establishment.



Lupicaleage is a mixture of triticale and lupins and can get to 5ft tall.

That's why on heavily panned fields it usually pays to subsoil first.

Drilling

"The crop needs to be drilled during early to late April and the lupins need to be put in to a depth of 1.5-2 ins. Deep drilling also helps protect the crop from pigeon damage," says Mr McNaughton.

"The most common seed mix in the UK is the Avon Mix which combines Logo triticale and

Dieta Lupins. The seed rate is 75kg/acre. Around 50kg N is applied at tillering with an additional 20kg at stem extension. However at Thorncliffe Grange, Andrew grows his lupicaleage without any bagged nitrogen, with the crop relying on slurry and farmyard manure. Crops can require a growth regulator depending on the amount of nitrogen and slurry applied.

"The crop is ready to harvest in August or early September at

around three to five feet high. The triticale should be at the hard cheddar cheese stage and the lupin seeds should be full. Yields will be around 12-16t/acre at 30-40%DM. Typical analysis will be 10-11 ME, 12-14% CP, and starch levels of 18-24%," he claims.

The starch provides a source of fermentable energy while the protein in lupins contains both degradable and by-pass fractions. The combination of triticale straw and lupin stems provides digestible long fibre which promotes good rumen health.

Short cut

Andrew Parker uses a contractor to cut the crop. This year the crop was cut shorter to ensure better consolidation in the clamp, and a disc header was used to reduce pod loss. To ensure a stable product the clamp needs extensive rolling and an additive should be used.

"Lupicaleage is more fibrous than traditional wholecrop. It becomes less digestible as the crop matures but additives specifically formulated for legume crops such as Biotol's 'wholecrop legume' can break the stems down increasing forage digestibility," explains Biotol regional business manager Gary Copley. "At the same time the additive must ensure a rapid fermentation to prevent nutrient losses and also prevent the growth of yeast and mould."

At Thorncliffe Grange the lupicaleage is fed in a TMR with

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grass silage and crimped wheat. The current diet is 29kg grass silage, 10kg lupicalbage, 3kg crimp, 1.5kg soya, 2kg sugar beet pulp, 1kg wheat distillers, 1.5kg rolled cereals plus Biotol SC yeast and minerals. This diet is expected to support M+30 litres for the cows and M+28 litres for the heifers. An 18% concentrate is fed above this in the parlour.

The all year round calved herd is averaging 8300 litres at 4.00% fat and 3.4% protein.

Andrew is confident he has seen numerous benefits from growing lupicalbage and intends to stick with the crop. "In addition to the way it fits with our rotation and fixes nitrogen, it has had some real benefits when added to the ration," he claims.

Higher protein

"Being a higher protein forage at around 14%, it means we haven't diluted the overall protein content of the forage part of the diet. If we had added straight wholecrop or maize we would have more starch in the diet but would need to add more protein.

"At the minute it is hard to



Andrew Parker (left) discusses the quality of the finished lupicalbage crop with Biotol's Gary Copley.

replace protein in the diet cost effectively, while we can boost starch levels through using crimped wheat.

"When we first added the lupicalbage we saw a butterfat response which we put down to the fact that the cows were cudding better due to the scratch factor of the triticale. The cows also seemed more settled.

Fertility also improved which may be due to the energy levels or might be due to the amino acids present in the lupins."

There is a six-week period every year when he runs out of lupicalbage and butterfats always respond when the forage is put back in the ration. This year fat levels increased by 0.3% when the lupicalbage went back in.

Andrew pays close attention to rumen health and as he is including rolled cereals in the diet he also feeds a live yeast product to help reduce the risk of acidosis. "We need to keep the rumen healthy and I suspect the lupicalbage helps with rumen health as well," he says.

Break crop

"I will continue to grow lupicalbage, believing the benefit of fixing nitrogen and the higher forage protein content far outweigh the higher seed cost compared with straight cereal wholecrop. It also acts as a very good spring break crop which can be followed by winter wheat. Like any crop you have to do the job right but the benefits are certainly there," Andrew concludes.

Gary Copley believes more farmers will turn to lupicalbage as the quest for more milk from forage continues.

"With recent developments in varieties, harvesting and crop preservation, dairy farmers can expect a consistent yield of a high protein forage plus a reduction on their fertiliser bill," he says.



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