

Could wholecrop mix be the solution to spiralling protein prices?

Home-grown protein packs a punch

Protein sources, particularly soya, can be expensive, even for businesses that forward buy. So what are the home-grown options and is there money to be saved? We spoke to a nutritionist, an agronomist and a producer to find out more.

text Rachael Porter

Soya is expensive, but it's a 'hit' that many dairy producers take in a bid to ensure that their herd's winter ration contains enough of the top quality protein – in the correct form – to maximise rumen efficiency and keep milk flowing into the bulk tank. Some UK-based arable producers are growing soya successfully, but this still



needs to be processed – at considerable expense – to turn it into a dairy feed. So growing soya to feed to your herd is not an option in the UK, according to Soya-UK's David McNaughton. "Once you factor in processing, it will cost the same as imported soya." Instead, lupins are the way forward, he says: "They are the only protein crop you can grow in the UK to replace soya in cow rations."

And the good news is that they – or the wholecrop mix they're included in – are relatively easy to grow. Around 80% of the lupins grown in the UK are grown as wholecrop.

A mixture of lupins and spring-sown triticale is the ideal, with the two crops complementing each other out in the field, in the clamp and at the feed fence.

'True' protein

The crude protein percentage of lupin/triticale whole crop is around 14%. "And a high percentage of this – as much as 25% – is 'true' protein. Grass silage can also analyse at 18% protein, but very little of that will be true protein. So the two feeds are very different", Mr McNaughton says.

He has producer clients growing 40 hectares of wholecrop lupins and triticale who have reduced the amount of soya they feed to their herds by two lorry loads. "You can't do that with any other crop that you can grow on a UK unit – not even wholecrop peas and beans. That analyses at about 15% bypass protein, compared to 25% for lupins and triticale."

Biotol's Chris Totten says that he has many clients who've been growing this wholecrop mix for eight or nine years, adding that it's a good crop for land that's too heavy for maize. "And it's certainly a more flexible crop than maize."

On the nutritional side, he says that lupins have an amino acid profile that's superior to soya: "And any producers who grow it certainly reduce the level of soya fed to supplement rations, which is good news as this tends to be the most expensive ingredient in many winter diets."

The crop is sown in early April, at a seed rate of 150kg/ha that costs around £135/ha. The mix would contain slightly more lupin seed – about 60%. The two crops mix well together, according to Mr Totten, because they have very different dry matters. Lupins are harvested at about 15% DM, whereas the triticale is a much more mature 70%. "So the average



Ration balancer: lupin/triticale wholecrop is palatable and good for rumen health

of the harvested crop is around 30%." At harvesting, the triticale grain is too hard to digest, but the 'juice' from the less mature lupins is absorbed by the triticale in the clamp and softens it. The lupins are used as a guide to harvest, which should be in late August or early September. At this stage, the lupin pods will be pale green, according to South Yorkshire-based producer Richard Dickinson.

"Even if the triticale is really hard at this point, the moisture in the lupins will soften it and balance out the resulting wholecrop silage to produce the ideal dry matter," he says.

Mr Dickinson farms in partnership with his brothers – Bruce, Jonathan and Matthew – at Thurlstone and they've grown lupin and triticale wholecrop for the past 10 years to feed to one of their two dairy herds.

"We started with four hectares and that's increased to six during the past decade," says Richard, adding that the crop is straight forward to grow. "We apply slurry to the land in March, before we plough and prepare the seed bed. We don't use any bought-in fertiliser.

"We simply sow in mid April and follow with a pre-emergence herbicide a fortnight later. That's usually it. We have applied a fungicide this year, but that's unusual and due to the extreme weather conditions we've seen this growing season."

He says that the resulting wholecrop is ideal for balancing the herd's winter

ration. "The cows enjoy it – it seems to be very palatable. And it's also great for rumen health."

"It certainly has the 'scratch factor'," says Mr Totten. "I've never seen any feed that makes cows cud like it – they drool! And if cows are producing a lot of saliva then acidosis problems are reduced. It's a fantastic rumen conditioner."

Nitrogen-fixing plant

Producers don't need to feed a lot to see the benefits either – just 5kg per head per day is needed in typical dairy rations. It's cost effective too – just £14 per tonne to grow, harvest and ensile with an additive.

Additional nitrogen for the growing crop isn't required as the lupins are a legume – a nitrogen fixing plant. "The lupins feed the triticale. And the triticale complements the lupin because it acts as a cover crop, suppressing any weeds, until the lupins get more established.

"Because the triticale is relatively tall it also encourages the lupins to grow tall, as it's a sun-seeking crop. It will grow to keep up with the triticale," adds Mr Totten.

The wholecrop mix yields around 37 tonnes/ha fresh weight at around 30% DM, so that's more than 11tDM/ha.

"In my experience, producers who give it a go are so pleased with it that they continue to grow it year after year," he adds. "Many tell me that it feeds more like a cake than a forage. It's a great balanced feed." |