



Using beans for finishing cuts two-thirds from costs

Buying a standing crop of beans and producing 21% protein forage has helped sheep and beef producer, Steven Smith, improve profitability on his Northumberland farm.

Northumberland sheep and beef producer, Steven Smith, says he will never go back to feeding purchased concentrates to his lambs, having slashed the cost of fattening them from £2.25 to 78p per head per week. This reduction in their finishing costs of almost two-thirds has been achieved by buying a standing crop of spring beans for wholecropping on the farm and growing the other feeds he can at home. The change has come with the unexpected bonus of improvements in health and grades, while also helping compliance with environmental schemes.

Farming 1,820 hectares (4,500 acres) of both owned and rented land from his base at East Greenridge Farm near Hexham, Mr Smith and his son William, run their 5,000 ewes as three flocks – one of Swaledales, one of Mules and one of Texel crosses.

Lambs from each flock are finished in different ways according to season and lambing date, but all are sold deadweight, with the target of averaging 21kg.

Lambs from the Texels and Mules mostly achieve this either straight from their mothers or on autumn grass, while ewe lambs from the Mules, sired by a Texel tup, are either sold for breeding or retained for the flock. Meanwhile, wether lambs out of the Swaledales which are not finished off autumn grass are brought inside to fatten.

“This used to be in sheds with hoppers using cake but it was very costly and we were finding problems with lambs out of spec and were sometimes penalised for grades of 4H or 5,” says Mr Smith.

“We knew we had to cut costs and felt there was scope to use more home-grown feed, so we decided to take specialist advice in reviewing our options,” he says.

Standing crop of beans

Central to the changes was the decision to buy a 24ha (60 acre) standing crop of spring beans, which was cut by a local contractor and ensiled by the team at East Greenridge Farm.

"We could not have grown the beans at home as they need to be part of a bigger arable rotation," he says, also remarking that two-thirds of the land he farms is marginal, on the northern tip of the Pennines.

So, buying from a neighbour seemed a perfect solution.

"There seemed to be different theories when it came to wholecropping beans, so I was entirely led by Michael Carpenter from Kelvin Cave, who has plenty of experience with legumes," he says.

Jointly deciding to harvest the crop in late summer, Michael explains: "As the crop matures and dry matter increases, starch continues to rise and can reach over 20%.

"We had to weigh up crop maturity against site conditions and the ease with which the beans could be harvested later in the season," he says.

Added to the starch is the beans' high protein which typically falls between 17.5 and 20%. And with plenty of structural fibre also supplied through the more mature crop, he says any idea of feeding straw – which had previously been fed with the pellets – could also be scrapped.

"Straw is a good complement to the pellets, providing structural fibre and a typical metabolisable energy of around 4.5MJ/kg dry matter," he says. "But the wholecrop beans have plenty of scratch factor without the straw, yet bring more energy, at an ME of closer to 9.5MJ/kg DM. This, together with their high protein, means they're a high-quality feed, and not expensive to complement in the ration."

In fact, Mr Smith's wholecrop beans analysed at an impressive 20.9% crude protein and 17.1% starch, and he chose to match the forage with whole oats grown on the farm. The final lamb ration in a three-tonne mix comprised two tonnes of grass silage, 500kg wholecrop beans and 500kg oats.

Key to the success of this ration is the effective preservation of the wholecrop beans, whose high dry matter (in this case, 53%), meant the process of ensiling had to be done with particular care.

This meant putting extra effort into compaction to achieve anaerobic conditions and treating the wholecrop beans with the salts-based preservative, Safesil Pro, which has been proven to be effective against yeasts, moulds and spoilage bacteria associated with aerobic conditions.

The clamp is also covered with O2 Barrier 2in1, the double layered silage sheet and vacuum combination



Above: *Despite being an old earth clamp, inherited on a recent tenancy, attention to detail means there's almost no waste.*

Facing page: *Beans purchased as a standing crop.*

whose lower layer is sucked down on to the silage surface, quickly creating an airtight seal. On top of this, Clampnet and gravel bags prevent bird damage, while 150-micron side-sheets, prevent the ingress of air through the clamp walls.

"We are over the moon with the lambs' performance on the beans," says Mr Smith, also remarking that he's equally happy with the cattle being finished on a grass silage and wholecrop bean mix, only supplemented with minerals (see panel).

"Since we've been on the mix, we have not had a single lamb out of spec," he says. "And when you go to the shed, they are really content – they just eat when they want rather than gorging on the concentrate and shouting when they want more.

"Now we feel we are treating the stock like ruminants – we will not go back to cake," he says.

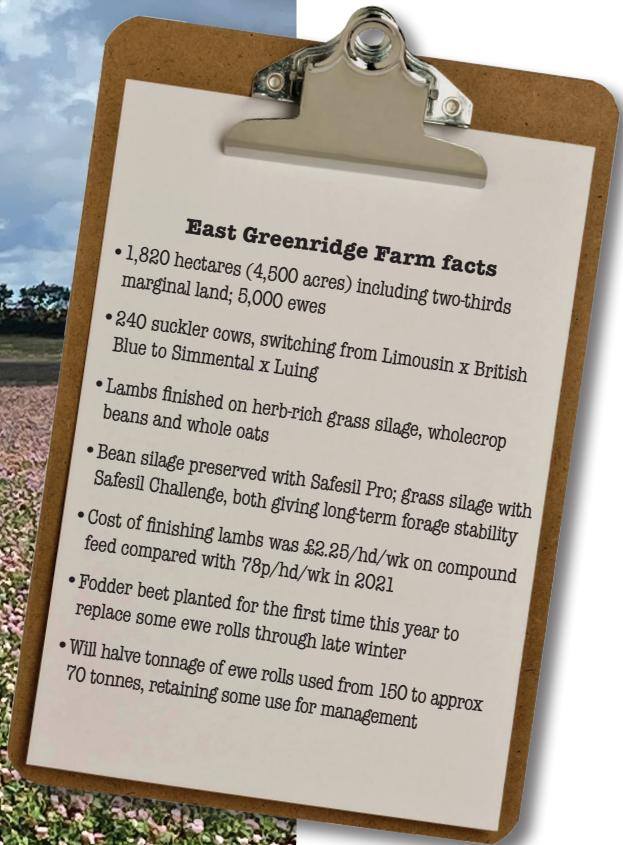
"However, I can't say whether their growth rates are better as we only weigh them when they are fat, but they're certainly no worse," he says. "Next year we will weigh them through the process but this year, I can say their health is definitely better, there's no scouring and mortality has declined."

This is said to be particularly rewarding at such substantially lower costs of production.

Herb and clover-rich silage

A second facet to the system's success has been the

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Above: Clover-rich swards have also helped keep down costs for Steven Smith.

production of high-quality, clover-rich grass silage.

“We have used a ‘GS4’ clover- and herb-rich sward mix so qualify for Countryside Stewardship, some in the Higher Level,” he says. “This means it’s ticking quite a few boxes – and that’s not just for the lambs.”

This includes returning nitrogen to the soil which has cut nitrogen fertiliser inputs from 128 tonnes in 2021 to 30 tonnes this year.

Also taking care to preserve the clover-rich sward as well as he can in the pit, he has treated it with a similar salts-based preservative to the bean silage.

“It can be a challenge to preserve a clover-rich sward because of its high buffering capacity, especially in wet conditions,” says Michael. “For this reason, no risks are taken with the grass silage, which was treated with Safesil Challenge, specifically formulated to eliminate

undesirable bacteria and maintain a favourable fermentation pathway.”

Silage making process

The process of making clamp silage involves layering the first and second cut grass across the length of the pit and adding wholecrop beans later in the season.

“It’s like a giant sandwich, and every day we use the full depth of the pit, to maintain the proportions fed,” says Mr Smith.

The efficacy of the silage and wholecrop preservation has been such that the forage remains stone cold after feed-out and can easily be fed every other day to any of the stock.

For the future, Mr Smith says he hopes to buy more standing crops of beans from neighbours every autumn,

although recognises the difficulty in agreeing a price in an unusually volatile market. Despite the outlay required for the beans, he is willing to take the risk as the savings in feed costs are such that it's considered worthwhile.

"It may not be a system that works on every farm but it certainly works for us, and with the reduction in Basic Farm Payment, any savings are advantageous," he says.

Cattle on East Greenridge Farm

Cattle management at East Greenridge has undergone major change over the past 10 years with a switch of suckler cow breed from Limousins x British Blue to Simmental x Luining, which is bred to an Aberdeen Angus bull.

The new system is designed for easier management all round, with the Angus-sired progeny having the ability to fatten without concentrates.

With two defined calving blocks in spring and autumn, stock will be sold throughout the year to provide a regular income.

A total mixed ration is made up of bean and grass silage with minerals and, like the sheep, the cattle are said to be more content on the high forage mix.

"They are not waiting for me to turn up and feed them, as they were when they were on barley and cake," says Mr Smith.

"We hope this will be the first year that we sell everything fat," he continues. "We do a mix every other day and it's absolutely fantastic. It never goes off at all."



East Greenridge Farm
wholecrop bean
analysis
20.9% crude protein
and 17.1% starch

Top: Lambs finishing on the TMR.

Above: Freshly harvested wholecrop beans.