

Managing maize silage across the season means better forage utilisation

Monitoring and managing

Growing, ensiling and utilising maize silage on his mixed cow-and-goat dairy unit is an on-going, year-round job for one Dorset-based producer. And he says that the work certainly isn't done once the crop is off the field and in the clamp.

text **Emily Ball**

Monitoring the changing feed characteristics of maize silage during storage means that Dorset-based Lee Ford can manage and efficiently utilise the crop throughout its lifetime. He milks a 280-cow, all-year-round calving herd – currently averaging 9,500 litres – as well as 1,800 dairy goats,

at Ilsington Farm in Tincleton near Dorchester. And he has always seen high quality forage as a vital to the success of the business. “The goats eat the same forages as the cows and, as they are incredibly susceptible to listeria and other mycotoxins in the silage, we’ve always



Lee Ford: “Maize silage is a key ingredient in both the dairy cow and goat rations”

had to be on the ball with every aspect of managing forages,” he explains. “We pay close attention to harvesting techniques, clamp management and feeding out to ensure that the forages reach the animals in the best possible condition. And, of course, this means that the cows benefit too.





Tidy face: Lee pays close attention to clamp management to protect his investment and reduce waste

“The goats’ nutritional needs are pretty similar to the cows’, although we do feed them some extra yeast and protected fat. In fact, we’ve been able to transfer some of the knowledge we have about feeding our goats for milk constituents, to help meet our cows’ milk buyer’s recent requirements.”

Dry conditions

In 2015 Lee planted 73 hectares of maize in May and, although the crop got away well, it suffered from the dry conditions on farm in the spring. Much of Lee’s maize-growing area is on dry, sandy soil and, although the area was flat lifted about two weeks before planting, the crop really suffered from the lack of rainfall.

He worked with ForFarmers’ Jim Abbott to select the most suitable maize varieties for the different soil types he has. “We do have mixed soil conditions, from relatively wet clay areas to the dry sandy ones, but in 2015 spring was exceptionally dry,” explains Lee. “The crop did pick up towards the end of the season, but it wasn’t an easy year for maize here. Combine this with the challenging milk price and it’s even more crucial to maximise maize utilisation to drive milk yields.”

Lee harvested 20 hectares of maize early, at the end of September, in order to meet his Basic Payment Scheme requirements, but knew the crop would have a chance to ferment well in the clamp, as he still

had about a month’s worth of the previous year’s crop available to him. The rest of the maize was harvested at the end of November.

“The early crop was a bit green and wet, but I knew we could balance that with a higher dry matter grass silage or the straw we put in the diet,” he says. “We harvested quickly and efficiently, sheeted the clamp up well and didn’t touch it until late October.”

Maize silage is analysed every six weeks or so across the winter, to give a full understanding of its nutritional content. By comparing key feeding characteristics of samples taken from the early maize clamp in early November 2015 and early January 2016 – using SilageManager Dry NIR analysis, which gives more consistent and accurate results – the changes in the feeding characteristics are easy to see (see Table 1).

Increased degradability

The sample from mid-November shows 26.7% dry matter, an ME of 11.6MJ/kg DM and starch at 29.5%. The pH is 3.9 and lactic acid is 6.3%. By the time the sample was retested six weeks later, dry matter had increased to 30.5%, ME had risen to 11.7MJ/kg DM and starch levels had risen to 29.8%.

The second sample also showed pH levels had fallen to 3.7 and lactic acid levels had risen to 7.2%.

“The starch degradability of the maize silage has increased during that

period, with resulting benefits to milk production,” explains ForFarmers’ Dominic Paterson. “But these changes also increase the risk of acidosis and rumen health issues.”

Lee manages this changing degradability and pH by adding straw as additional long fibre. He uses a straw chopper with two sets of blades, to chop straw to the optimal length to avoid sorting, and includes straw in the diet of both cows and goats.

Nutrient utilisation

“When the maize is first fed, straw is included at a rate of about 0.5kg per cow per day and this rises to about 1kg as the maize silage spends more time in the clamp.”

The introduction of additional long fibre is a good way of managing highly digestible and high acid feeds. Put in its simplest terms, it slows the passage of feed to the rumen, allowing for greater nutrient utilisation.

Straw also provides a ‘scratch factor’, which increase cudging and saliva production. Both help to increase rumen pH. Lee also adds about 1.5kg per cow of soya bean hulls to further improve rumen health and milk quality.

Although grass silage is playing an increasing role in the dairy ration, Lee believes that the high energy and starch content of maize silage, and the push for high milk constituents, means it is irreplaceable in the diet.

“This year I’ll be planting the same area of maize and looking at earlier maturing varieties. You do need to manage the crop well to make sure you utilise its full potential, and I’m looking at some precision farming techniques to help me manage our dry conditions here better, but for high yielding dairy cows it can be an excellent performing feed.” |

Table 1: Dry NIR analysis of silage samples taken at Islington Farm

	sample taken mid-November 2015	sample taken early January 2016
dry matter (%)	26.7	30.5
ME (MJ/kg DM)	11.6	11.7
starch (%DM)	29.5	29.8
pH	3.9	3.7
lactic acid (%)	6.3	7.2