

Maize quality is key to maximising returns

Focus on feed quality



Selecting maize varieties with an emphasis on the quality of feed produced, as well as the return on investment, has helped to control feed costs on one Cornwall-based unit.

text **Phil Eades**

Quality forage has always been at the heart of Paul and Tracey Fletcher's dairy management system and it remained one of their top priorities when they moved from Pontypridd, in South Wales, to Trevissick farm, near Bodmin in Cornwall. Farming 122 hectares, comprising two county council tenancies and a share farming agreement, 106 metres above sea level on the edge of Bodmin Moor, they run a herd of 200 pedigree cows, which are averaging 8,500 litres at 4.1% fat and 3.2% protein. The all-year-round calving herd is

TMR fed in the winter. Cows graze by day in the summer, but are housed and buffer fed at night.

"Key to our system is producing plenty of high quality forage," says Paul. "Since we moved here we have reseeded the whole farm to improve the quality of the swards and now target four cuts of grass silage. The diet also includes maize and fermented wholecrop, because we want to feed a higher starch forage throughout the year.

"Wholecrop was initially introduced three years ago to eke out the maize, but we like it and it suits our feeding and management system well, allowing an

early grass reseed. So we will continue to grow a relatively small area every year. Maize, however, is the principal forage used in the TMR alongside grass silage."

Best return

Paul says that when they select a maize variety they want to maximise the amount of quality forage produced, because it is the quality that drives intakes and milk production. "We always look to grow an early maize variety because we want to make sure it is harvested as soon as possible and in the best possible conditions.

"A quality crop, which is in the ground in good time and in good order, gives us the best return on investment on the crop."

Mole Valley Farmers' Graham Ragg has been advising on maize varieties. He says the selection criteria have been based around choosing early maturing varieties that produce high quality forage. Having grown the Limagrain variety Yukon for several years, he suggested Paul

Maize harvest: variety selection should focus on maximise the amount of good quality forage produced



should try Wizard in 2016. This is the latest variety to gain Limagrain Animal Nutrition (LGAN) accreditation.

“Wizard is a variety that fits the bill,” says Graham. “It is early maturing with good early vigour, so it will get away quickly.”

The variety also delivers excellent dry matter yields and superb energy yields thanks, in part, to extremely good cell-wall digestibility (CWD).

“LGAN varieties are evaluated for all the key parameters affecting nutritional value, namely starch content and yield, ME content and yield, CWD, dry matter yield, dry matter percentage at harvest, and early vigour.”

Limagrain UK’s Tim Richmond believes developments in maize breeding are opening up the real potential of the crop. He says that during the past 24 years, the milk production potential of maize varieties has risen from 30,900 litres/ha to 44,800 litres – an increase of 45%. With growing costs reasonably consistent



End goal: look at total energy yield, rather than just starch content

between varieties, this extra production potential can have a significant impact on margins.

Cell-wall digestibility

When looking for varieties that deliver the best overall return, he explains that it is important to look at total energy yield rather than just starch content. “Up to 50% of the total energy available is in the leaf, stover and other vegetative material,” he says, adding that the Limagrain breeding programme is the only commercial programme that places particular emphasis on cell wall digestibility.

“The cob is between 92% and 100% digestible so there is little opportunity to influence energy yield here. However, the rest of the plant is between 40% and 70% digestible, meaning if CWD can be improved then the energy available will increase.”

The only way to significantly increase energy production per hectare is by improving CWD. Increasing this improves more than just energy content and yield. “Research shows that each 1% increase in fibre digestibility will increase dry matter intakes by 0.12kg per day, giving another benefit from selecting varieties with higher cell wall digestibility.”

By selecting varieties with a good balance of starch and CWD, he says that producers will optimise production from forage and reduce purchased feed requirements.

“Producers should look closely at starch content, CWD and energy yield when refining their initial variety shortlist, because there is a significant difference in milk yield per hectare between average and top varieties ranked on energy yield.”

The 16 hectares of Wizard grown by Paul Fletcher were sown on May 6, about 10 days later than usual due to the season. However, the crop was soon well-established. “It looked even throughout the season and was around 2.5 metres tall at harvest,” says Paul. “The crop was harvested on October 15 at 30% dry matter when the cob was mature, which was three weeks earlier than in 2015. And, because the plant was still quite green, it consolidated well in the clamp. Yield was 42 tonnes per hectare at 37% dry matter and when analysed it came out at 12MJ ME and 38% starch.

“The high starch actually caused a few problems when we introduced maize into the diet.”

Top quality

Paul explains that initially the diet, which provides for maintenance plus 27 litres, comprised 10kg maize, 6kg wholecrop, 32kg grass silage, 6.5kg of blend, 2kg Regumaize 40 plus minerals, bicarbonate and a yeast binder. Big-bale silage is also provided to give the cows ‘something to pick over’ and concentrate is fed to yield in the parlour.

“We started to see a few signs of acidosis and so have switched to 8kg maize and 8kg of wholecrop and the cows have settled down now. I can’t complain. Having to fine tune the diet due to having top quality forage is a nice problem to have.

“Selecting varieties that deliver high quality feeds, which are harvested and available to include in the diet earlier in the winter having had a reasonable time in the clamp, is helping us to keep control of feed costs. Looking forward it should allow us to increase yields cost-effectively should prices continue to improve.” |