

MORE IS NOT ALWAYS BETTER FOR MAIZE

When it comes to irrigation water and nitrogen fertiliser, more is not necessarily better for maize silage.

FutureDairy research has shown that although higher levels of water and nitrogen application generally result in higher maize yields, the nutritional value drops because the increase in grain percentage is offset by an increase in fibre content.

Rather than focussing on yield alone, FutureDairy researcher, Associate Professor Yani Garcia, encouraged farmers to manage maize crops to optimise both yield and nutritive quality.

“Nitrogen and water use efficiency are interrelated,” Assoc Professor Garcia said.

In FutureDairy trials, fully irrigated maize resulted in silage with a lower content of crude protein and metabolisable energy. Nitrogen fertilisation can counterbalance this to some extent.

“Nitrogen use efficiency improves with irrigation; and water use efficiency improves with nitrogen application. But there is a point where the marginal return decreases, and it’s not profitable to increase inputs beyond that level. We refer to that level as the ‘optimal level’,” he said.

As a guide, maximum requirements are about 7-8ML/ha of water (rainfall and irrigation) and about 320kg N/ha.

“In practice, aim at about 80-90% of these requirements to reduce the risk of the penalty in quality.

“In the past we focussed mostly on yield but we couldn’t achieve the quality we wanted. Because of its high yields, maize is a big user of water and nutrients, so there are significant savings to be made through an approach to ‘optimise rather than maximise these inputs,” he said.

“When planning fertiliser applications for a maize crop, take into account irrigation water availability. Never apply the full amount of nitrogen to your crop unless you are sure water will not be limiting. And you’ll achieve better value for money by applying nitrogen at the ‘optimal level’.”

If irrigation water is limited, prioritise irrigation around crop establishment and the four to five week period around tasselling.

For more information refer to FutureDairy tech note 5, Growing maize for silage, available at www.futuredairy.com.au.

FutureDairy’s major sponsors are Dairy Australia, NSW DPI, DeLaval and the University of Sydney.



When it comes to irrigation water and nitrogen fertiliser, more is not necessarily better for maize silage.