Image 1: Cory Christopher with his Sile King crop.

Sile King offers another white sorghum silage option

Ross Warren
Senior Dairy Extension Officer
Department of Primary Industries, Queensland

Sorghum varieties have become the dominant silage source in the subtropical dairying region. This has evolved over the last couple of decades due to erratic weather events, and the increased nutritional skills of dairy farmers which has contributed to the achievement of a higher margin over feed cost through inclusion of sorghum in dairy cow diets. We repeatedly see per cow production of 8,500 - 9,500 litres per lactation from diets based on sorghum silage. Sorghum's resilience to dry weather makes it not only appropriate for use in rain grown crops but also in irrigated systems whereby savings have been made in water consumption leading to reduced electricity and water charges. Corn, whilst still a very good fit in dairy cow rations, is associated with increased risk, higher growing costs and has been adversely impacted by fall armyworm.

The C4 Milk team have investigated a range of forage and grain sorghum varieties, with the most recent being Sile King. This variety was bred by Peter Stuart from Palafor Partners, with the view to providing a white sorghum grain variety with additional forage yield. Last summer saw the most hectares planted to Sile King, from the Darling Downs to the coast. Growing conditions were mostly above median rainfall, with some waterlogging experienced in coastal areas. There were very few second cuts on the coast due to the wet conditions. The season was very testing for all forage crops, including corn.

Each year the Mary Valley and surrounding district farmers come together to discuss silage. Before any feed quality considerations, ensuring enough forage stored is crucial. Last summer's results indicated it is possible to have both tonnes and quality. Table 1 (page 5) outlines the range of results for three grain sorghum varieties (Sile King, Liberty (white) and Sentinel (red)), including yield and some key nutrients. All samples were analysed at Forage Lab Australia. No irrigation was applied last season.

Some key outcomes were the following:

- The highest yielding crop in the Mary Valley was a Sile King crop, it was however, pipped by a single cut Sile King crop in the Brisbane Valley (15.9 t dry matter (DM)/ha, 36.3% DM)
- The Mary Valley Liberty crop was the best the dairy farmer had ever grown. Well done Garry.
- Sentinel red sorghum has found a niche, given it can be sprayed with imidazoline to successfully combat Johnson grass populations. An observation in the Mary Valley is that total tonnes are lower than other grain varieties, but starch is as high or higher.

- Yield was affected by wet weather events. Some crops were cut early, others late. Second cuts of significance were achieved on only two farms with Sile King and Sentinel. Total yield for the two silage cuts were 22.2 t DM/ha Sile King and 17.4 t DM/ha Sentinel.
- A Downs farm contributed to the data set this season. This farm had a strong feed inventory and trialled grain sorghums to lift feed quality. Although it was a drier season inland than on the coast, very acceptable tonnages were still harvested.

Silage costs are important to investigate and compare with other forage options. Costs include growing, harvesting and waste. In 2024/25 the growing and harvesting costs for one Sile King crop in the Mary Valley were $1767/ha, which equated to $180/t DM. No labour costs were included in this calculation, but other expenses were included. No second cut was possible due to the wet weather, however the ratoon crop was grazed.

It has been demonstrated that sorghum silages can have high levels of starch; however, it is also often observed that there are elevated levels of unprocessed grain. This season, with the help of Jordan Minniecon (Lallemand Animal Nutrition), we investigated processing further. On one farm the grain processor was tightened as far as possible, and speed of harvest was slowed a little which resulted in just over 50% of the sorghum grains being cracked at harvest. The C4Milk team is continuing research on starch availability in sorghum silages with more data being published soon.

Variety			Nutrient content (dry matter basis)			
	Dry matter (DM) (%)	Yield (t DM/ha)	Crude protein (%)	NDF (%)	Starch (%)	ME (MJ/kg)
Sile King	25.2 – 34.7	9.4 – 14.6	7.8 – 10.0	41.6 – 49.7	17.2 – 27.3	10.7 – 11.1
Sile King (Mary Valley crop)	32.0	14.6	7.8	44.1	27.2	11.1
Sile King (Darling Downs)	34.0	9.4	7.0	43.0	26.0	11.1
Liberty	27.9 – 32.0	9.8 – 11.6	6.5 – 10.4	44.3 – 45.2	24.1 – 27.2	10.8 – 11.0
Liberty (Darling Downs)	39.9	10.3	6.9	41.3	31.1	11.6
Sentinel	30.5 – 34.5	6.5 – 7.8	7.8 – 9.6	40.9 – 53.8	14.2 – 29.0	9.5 – 11.3

T – tonnes, NDF – neutral detergent fibre, ME – metabolisable energy, MJ - megajoules

Table 1. *Grain sorghum yields and quality results for summer 2024/25.*

Image 2: Jordan Minniecon (Lallemand Animal Nutrition) with Cory Christopher who was awarded with the Best Silage Crop in the Mary Valley for 2024/25.

Thank you to all the farmers and Jordan Minniecon who contribute to the data set and discussion every year. Grain sorghum varieties have become widely used as a silage source in the subtropical dairy region. They have provided viable alternatives to corn and forage sorghum varieties. Total yield and forage inventory is certainly the first priority for subtropical dairy farming systems, however, the data is indicating grain sorghums have potential to offer yield, quality silage and extra margin over feed cost.