

Desmanthus for silage

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Introduction

Desmanthus is known as a pasture legume where its inclusion can increase animal performance. However, under a cropping scenario desmanthus can produce high yield of good quality forage (Mwangi *et al.* 2022). This study was initiated to determine if desmanthus could be preserved as silage.

Materials and Methods

Progardes desmanthus, cultivars JCU 4, JCU 6 and JCU 9, were established in three irrigated 4 ha blocks in north Queensland (19°35'S 146°54'E) on 21/12/2021. The blocks were slashed and regrowth was mowed after 60 d on 12/4/22. Within 4 hours of mowing, cultivars were round baled and wrapped in 5 to 8 layers of white plastic film wrap. Bales were stored on their ends outside. On 14/9/22 two bales of each cultivar were unwrapped and presented to a group of 15 beef cows for 24 h for monitoring of feeding behaviour. Samples at ensiling and feed-out were analysed by NIR.

Results

The dry matter (DM) at mowing was similar, but JCU 9 silage was drier than the other silages (Table 1) leading to more extensive moulding. The loss of water soluble carbohydrate (WSC) in all silages was matched by a reduction in pH and production of fermentation acids. All silages had a restricted heterotactic fermentation typical of round bale silage. Video monitoring revealed that cattle spent more time at cultivars JCU 4 and 6, possibly due to visibly less moulding in these bales.

Table 1. Composition of cultivars at mowing and of the resulting silages

| | JCU 4 | | JCU 6 | | JCU 9 | |
|---------------------------|--------|--------|--------|--------|--------|--------|
| | Mowing | Silage | Mowing | Silage | Mowing | Silage |
| DM (%) | 36.7 | 54.4 | 38.2 | 54.7 | 30.4 | 64.1 |
| WSC (% DM) | 13.8 | 3.7 | 13.7 | 7.0 | 9.80 | 4.90 |
| ME (MJ/kg DM) | 10.36 | 9.82 | 10.16 | 10.17 | 8.96 | 9.49 |
| CP (% DM) | 19.1 | 20.4 | 23.9 | 27.10 | 17.8 | 23.40 |
| pH | | 4.84 | | 5.23 | | 5.15 |
| Fermentation acids (% DM) | | 5.52 | | 2.85 | | 3.75 |

Conclusions

This preliminary study demonstrated that desmanthus can be ensiled. All three silages were of good nutritive value and satisfactory fermentation and should support good levels of animal production. The higher apparent presence of moulds in the drier JCU 9 silages suggests ensiling above ~ 50% DM increases moulding and reduces preference for the silage.

Reference

Mwangi *et al.* (2022) *Fermentation* **8**, 377

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