Identifying optimal choices for livestock production and mitigation of photosensitisation in sheep grazing Biserrula

Utilising biserrula as an on-demand break option in a crop-pasture rotation system significantly reduces input costs by removing the need to re-sow pasture after the cropping phase, as well as allowing maximal flexibility in terms of altering the crop to pasture/crop to livestock ratio of an individual farm in a very short timeframe.

Biserrula is a resilient hard-seeded annual legume that is well suited to use in crop-pasture rotations as an on-demand break option due to its ability to regenerate without the need for re-sowing following a cropping phase.

“Agronomically there are significant benefits to the inclusion of biserrula in mixed farming systems, but little is currently known about the performance of livestock grazing biserrula pastures,” said Dr Belinda Hackney.

During spring 2014, on-farm assessment of liveweight gain was measured in prime lambs on regenerating stands of biserrula at Beckom, 100 km west of Wagga Wagga. Average stocking rate over the duration of the grazing period (56 days) was 7.4 DSE/ha, while average lamb liveweight at point of sale 56 days later was 30.9 kg, which equates to an average daily gain of 350 g/head/day. Wether lambs grew faster than their female counterparts with an average 380 g/head/day compared to 335 g/head/day for ewe lambs.

Additionally, the performance of prime lambs and merino ewes with lambs at foot was assessed in a replicated grazing experiment at Charles Sturt University, Wagga Wagga. The CSU farm trials also investigated mitigation strategies to prevent the onset of photosensitisation in sheep grazing biserrula, as well as comparing the two commercially available cultivars, Cashbah and Mauro, for photosensitising ability.

“The results of both investigations show greater live weight gains on biserrula compared to animals grazing naturalised pasture in the same rainfall zones,” Dr Hackney said.

Neither the on-farm producer observations, nor the experimental trials at CSU were without incidence of photosensitisation. At Beckom, 4 % of lambs grazing biserrula pastures on-farm showed some mild signs of clinical photosensitisation (i.e. mild skin lesions primarily on the ears). But similar to that observed in the CSU experimental trials their weight gain was not significantly different to that of their unaffected counterparts.

At CSU, the extent of photosensitisation varied coincidently with the proportion of biserrula in the plots and presence or absence of skin pigmentation. Where proportions of biserrula were 95 % or higher, the majority of non-pigmented (white) animals (up to 100 % in some plots), both crossbreds and the merino ewes, were observed to show clinical signs of photosensitisation. Clinical signs ranged from transient and mild (reddening of eyes and swelling of ears without superficial skin lesions), to moderate (loss of superficial skin layers from the ears and muzzle). As the trial continued all affected animals showed resolution of these lesions as the proportion of senescing (non-photosensitising) biserrula residue available increased by the end of the trial period.
“This evidence suggests the presence of pigmentation in the skin of animals grazing biserrula, as well as an ability to moderate biserrula intake, whether via ingestion of milk or other pasture species, can act as significant mitigating factors against the clinical presentation of photosensitisation in sheep grazing this pasture species,” said Dr Jane Quinn.

“Our findings also suggest that biserrula can enhance growth rates for both meat and wool sheep breeds, above that observed on naturalised pasture alone, in the low to medium rainfall zone, and that biserrula mixed pastures are potentially the optimal grazing option. Exactly which mix will be optimal for any particular farming system will depend on a number of factors including annual rainfall, soil pH, weed suppression requirements within the cropping phase, choice of herbicides, and nature of stock to be produced. So the optimal biserrula pasture mix may differ from system to system.”

Dr Hackney will discuss her team’s research findings at the Graham Centre Sheep Forum being held at the Charles Sturt University Convention Centre on Friday 10 July.

Producers will also hear about the importance of how measurement of the Australian flock can be used to help both understand past market behaviour and in the development of plans for the future, both at the farm, supply chain and policy level; planning a profitable sheep enterprise; and on-farm biosecurity. The program includes two case studies from innovative producers across our region that are pushing the boundaries with genetics and wool handling.

The forum is run with sponsorship contributed from Animal Health Australia, Merial, Riverina Cooperative, National Australia Bank, Sheep Connect, Manildra Meat Company and Riverina Local Land Services.

Register online at www.trybooking.com/HROF or contact Toni Nugent, E: sfd@csu.edu.au or T: 0418 974 775.

For further details, interviews and photos please contact Toni Nugent, Industry Partnerships and Communications Manager, Graham Centre for Agricultural Innovation on mobile 0418 974 775.

-ends-

*The Graham Centre is a research alliance between Charles Sturt University and NSW Department of Primary Industries.*