Department of
Primary Industries and Regional Development

GOVERNMENT OF WESTERN AUSTRALIA

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Over-sowing legumes into native pastures adapting a technology from north-eastern Australia

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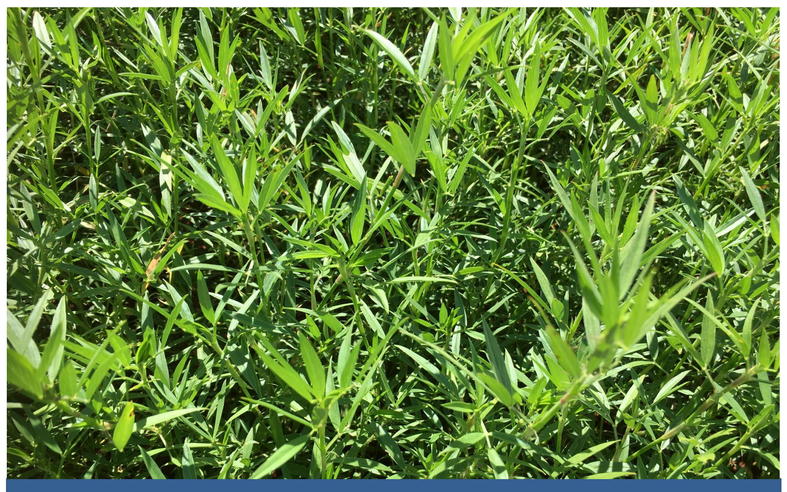
The Department of Primary Industries and Regional Development (DPIRD) in Western Australia, with funding from the 'Northern Hub (formerly NWANT Drought Hub), is undertaking research, development and extension to de-risk over-sowing stylo in the northern rangelands of WA.

Background

- A key opportunity to develop a more resilient and drought-proof feedbase in the rangelands of northern Western Australia (WA) is to take a proven technology from Queensland (Partridge et al. 1996) and the Northern Territory, the over-sowing of legumes like Stylosanthes species ('stylos') into native pastures.
- Over-sowing legumes can extend the length of the growing season (green feed) and in doing so reduce the effective length of the dry season when cattle typically lose weight. The animal production benefits are well known (Hall and Glatzle 2004) and the economics are favourable (Chudleigh et al. 2018; Chilcott et al. 2020), however there has been minimal adoption.
- Previous research in the north Kimberley has highlighted the importance of site selection (soil type) and that phosphorus fertiliser is required on some soils to maintain legume productivity (Holm and D'Antuono 1990). Another study showed there were >0.9 Mha of soils suitable for growing stylos in the north and central Kimberley (Av. annual rainfall >750mm) (Kubicki and Beer 1975).

Stylo in west Kimberley (photo July '17)



R, D & E Objectives

This project aims to:

(i) work with industry and relevant Government Departments to clarify the approvals process;

(ii) adapt the technology for conditions in northern WA (suitable soils, low P), and

(iii) undertake R&D with industry to develop a reliable, cost-effective establishment package including site selection.

By addressing the barriers to adoption as described in Chilcott et al. (2020) this will de-risk adoption for beef producers, while simultaneously also developing local producer champions.

Stylo trial near Wyndham (30 March '23)

Project plan

Preliminary 'stylo' field trials were conducted over the 2022/23 wet season at Diggers Rest (near Wyndham) and at Country Downs on the Dampier Peninsula. There were a number of key learnings from these trials:

- Importance of early seeding to allow for hardseed breakdown
- Poor results from seeding into cleared land
- Response to phosphorus
- Pasture type and density not just soil type
- Seed harvesting ants
- Effectiveness of feeding seed directly to cattle through a lick

For the 2023/24 wet season the plans are to increase the number of sites and to expand the scale of the demonstrations. The project is working through the approvals process with a number of pastoral stations. In WA diversification permits are required to grow any non-indigenous plants on pastoral leases. Also, investigating use of a drone for aerial sowing of the demonstration trials.

Q. How can we best tap into the knowledge base in north-eastern Australia to improve the likelihood of success of this technology in northern WA?

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Acknowledgements

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Northern Hub

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