

Final report

Pasture Dieback Co-ordination

Project code: B.PAS.0503
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Abstract

Pasture dieback is a direct economic and operational threat to the beef industry throughout Queensland and Northern NSW. Following the MLA “Emergency Response” program, successful Commonwealth Grant Funding (B.PAS.0002) was secured. The proposal for funding highlighted a number of projects priorities, including Project Co-ordination by Matrix Professionals (B.PAS.0503 Pasture Dieback Co-ordination). This is in part due to the following:

- Scale of the problems
- The disparate stakeholder community
- Number of competing interests
- Need for a broad, yet focussed response
- Highly competitive nature of researcher providers
- Limited funding available

Project co-ordination consisted of various levels of communication, internal and external to MLA and its stakeholders. It combined scientific and pastoral interests as they related to Pasture Dieback and the response to industry. Further, the extensive knowledge gained through the Emergency Response program was built upon and made accessible to MLA and its agencies.

Executive summary

Background

At the conclusion of the Emergency response program, MLA's Strategic Plan On A Page (SPOAP) was developed and focused on a key set of Themes. These were: -

- Identify, Detect and Monitor
- Managed Interventions
- Stakeholder Engagement

The Commonwealth Grant Funding was structured towards these themes, with an agreed work plan to be further developed. Continued scoping and refinements continued including an open call to the research community including QDAF and NSW DPI for relevant projects to combat the Pasture Dieback problem.

A Scientific Review Panel and Industry Advisory Group were established and convened to assess new and existing projects funded by this program. Co-ordination of these activities involved MLA internal staff and supported by Matrix Professionals.

Objectives

Advance the Pasture dieback themes as identified in B.PAS.0002

Methodology

Coordinated and revenue MLA directed activities for B.PAS.0002

Engage with potential research providers and stakeholders to support MLA efforts. Provide summary and commentary on pasture dieback activities, including historical, current, and planned.

Results/key findings

Co-ordination of the disparate set of stakeholders, researchers, interested parties and competing ideas was required to focus messaging and project priorities regarding pasture dieback.

Benefits to industry

Providing an independent access pathway to communications with MLA, researchers, and stakeholders regarding the Pasture dieback program 2020

Future research and recommendations

Clear and concise communications of framework toward addressing the direct, indirect, and intangible impacts of pasture dieback as it pertains to the Beef industry in Queensland and Northern NSW.

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1. Background

1.1 Pasture Dieback History

Since the early 1990s, pasture dieback has had an increasing economic effect on the grazing industry. First reported in Baralaba Central Queensland 1993, effecting Buffel grass, a primary cattle feed stock. Since this time, reports have spread from northern Queensland through to northern NSW, effecting more grass and sedge species. The predominate spread pattern is most likely associated with wind, moisture levels, weather factor and on farm animal/vehicle transport.

1.2 Historical Research

Since 1993 and over the past 20+ years, there have been several multi-year research efforts carried out by government agencies, universities, and private organisations (Queensland DPI now QDAF, CQU, UQ, NTU and Landcare Baralaba), directed at identifying the causal agent(s) and/or co factors of pasture dieback. Common themes of research included: Sampling campaigns, soil health (chemical nutrient & structure profiles), root nematodes, phytoplasmas, plant viruses, pathogenic fungi and bacteria, Koch Postulates, spread patterns, growth studies, re-cultivation, on farm practices (burning/slashing) and various soil amendments. Each study failed to isolate a singular causal agent or offer viable treatment options. The consensus from pre 2017 research was that Pasture Dieback is a complex issue involving a multitude of biotic and abiotic factors. It was thought to be most likely an unknown fungal pathogen, exploiting environmental conditions to effect grass death and spread. Further research would be required to isolate causal agent(s) and co factors, before valid treatment options for pasture dieback would be available.

Dieback is not limited to grazing lands, being observed along roadsides, council parkland, woodlands, state forests and private yards. Potential treatments will need to address these areas, to avoid re-inoculation of grazing lands with dieback. Once treatment options are established, the engagement of other government agencies may be required.

1.3 MLA Emergency Response June 2017 – Dec 2018

Central Queensland MLA members petitioned MLA to rapidly and directly invest levy funds to address pasture dieback as it is a direct threat to the beef supply chain and operational viability. MLA appointed Matrix Professionals (Project Management Co-ordination) and Applied Horticultural Research (AHR) Pty Ltd to conduct investigation into potential causes in an 'Emergency Response' style of action. Strategies were designed to focus research efforts and foster adoption, across the beef industry with special consideration in pasture dieback effected areas. These focus areas were Causal Agent(s) & Co factors, Detection and Monitoring, Managed Interventions and Stakeholder Engagement and Communications. A number of research providers were engaged, including University of Southern Queensland (USQ), Queensland Department of Agriculture and Fisheries, NSW Department of Primary Industries (NSW DPI), University of Sydney (USYD), University of Queensland (UQ), Hortus, Queensland University of Technology (QUT) and others.

The combinations of efforts across the period pointed to the most likely causal agents being that of a pasture mealybug *Heliococcus summervillei*. Further, structured research would be needed and the development of an industry wide IPM was highlighted.

1.4 Commonwealth Grant Funding

Key members of the emergency response program, developed a special funding application to the then Commonwealth Department of Agriculture (DOA), seeking funding to address priority projects. Funding was successful for \$3M AUD (inc. GST) and announced in March 2019. At that time the MLA board agreed to match the funding. This was widely communicated through various news channels and broadly welcomed by the beef industry.

1.5 Coordination – Themes, researchers, stakeholders, and industry

Effective coordination across internal and external program parties, builds robust and trusted communications. This is key in any program seeking to develop a set of solutions that have the potential to change existing operational strategies of an industry. Matrix Professionals made itself available for open communication on multiple levels, from direct grazier contact, industry, stakeholders and rural communities. MLA elected to keep Commonwealth and, State agencies and some research provider communication and coordination in house.

Strategic plans developed during the emergency response period and further refined under this grant funding, highlighted the need for careful coordination across a number of key focus areas, also called themes. Coordination of messaging across theme areas was to ensure that the most updated and current information was available to all parties. The core message should remain consistent but potentially delivered in different ways tailored to suit the audience. Core messaging would remain constant, with variability in delivery to reflect the target audience – an example being the messaging format to research providers maybe very different to that relayed to small scale graziers.

The scale of the pasture dieback problem could detrimentally impact all grazing operations (beef, breeding, dairy, lambs, goats etc) in effected areas (Queensland & Northern NSW). Simply put, “*No pasture, no beef, no beef no industry*”. Effective coordination should promote the highest values for the industry. Without effective communication between the broader researcher and stakeholder communities, trust is eroded and the risk of suboptimal solutions, and/or poor adoption rates ensues.

Pasture dieback has been shown to have the ability to rapidly effect large swathes of productive grazing lands, the need for timely responses is paramount. Stakeholders perceiving slow responses to these issues, erodes trust and potentially decreases brand reputation. Independent and effective coordination can go some way to alleviating these issues.

2. Objectives

The main objective of this research contract was to provide coordination, technical input, review, and collation of relevant information and provide reports as requested by MLA representatives.

It was also to: -

1. Support MLA required actions (in concert with producers, and research organisation stakeholders) to address pasture dieback in Queensland and NSW.
2. Implement required coordination actions to ensure success of the Pasture Dieback Research Grant (B.PAS.0002).
3. As required, scope, develop, implement required research and delivery actions based on the Dieback Program Plan and the B.PAS.0002 approved workplan

- a. Problematic as work plan was not disclosed
4. Develop and have approved by the DOA, the Stage 2 workplan of the Grant (Oct 2020 May 2021)
 - a. This was unachievable as work plan was not disclosed by MLA
5. Undertake high quality reviews of milestones and final reports from all sub-projects in B.PAS.0002 and collate into one report to address requirements of the Grant milestone.
6. Initiate and coordinate the Steering committee, Advisory Group, Science group for B.PAS.0002
7. Provide on-going review of the validity of projects and advise MLA on issues and strategies to deliver program objectives in the short and longer term, with particular emphasis on addressing multi-faceted issue of dieback.
8. Undertake actions to develop greater information sharing and consistent, common reporting to stakeholders from MLA, QDAF and NSW DPIE.
9. Develop required communication ideas with MLA support, and review developed materials.
10. Report monthly to MLA against a work plan, that will be approved by MLA before progressing
11. Liaise with producers, R&D providers (including researchers), Federal government and other stakeholders as required by MLA with the aim of developing greater information sharing and consistent, common reporting to stakeholders:
 - a. As directed some communication was coordinated at “arms-length” or third hand, via MLA project manager and other MLA representatives.
 - b. Covid-19 restriction adopted by MLA, limited the amount of direct member interaction, especially on site visits and which were drastically limited.
12. Develop a program plan for future pasture dieback research, and delivery needs, as required, based on the results of activity within the Grant and other sources.

This scope of this deliverable changed once a range of Governance structures were established – Industry Advisory Group and Science Review Committee to provide external advice on investment priorities, quality of proposals and gaps analysis and following the June 2020 Science Forum. MLA Program Managers gradually resumed responsibility for this activity. Matrix continued to contribute input through participation in the various consultative committee and weekly Program Steering Group meetings.

3. Methodology

3.1 Coordination

The Project Coordination role as was originally envisaged, at the start of this contract, did not develop the full scope as planned. The budget constrained the number of projects approved and contracted by MLA. A previous milestone report by MLA to DOA, stated that the work plan needed further development and independent review of activities to strengthen the scientific rigour. This process provided the focus and investment recommendations which arose from the stakeholder planning workshop in June 2019.

Matrix Professionals was directed to support MLA activities in organisation, coordination and development of documentation, for the re-development of the work plan. This required considerable time and resources to redirecting strategies developed during the emergency response program. These directed actions consumed the complete available contract time and budget as set out in B.PAS.0503.

Matrix Professional's role changed from the intended role of project Coordinators to industry liaison, technical review, and a source of historical pasture dieback information.

3.2 Challenges

At the beginning of the co-ordination, via weekly MLA Pasture Dieback meetings, Matrix Professionals made clear that "without an agreed disclosed Action Plan", or a clear project description document coordination of activities in the program would be near impossible. Matrix Professional activities would then be limited to directions given directly by MLA representatives and would not allow for any initiative by the "coordinators".

At the commencement of this contract, an "Open Call" for new research projects had been already been sent out and placed with a selected number of research organisations, some of which were not involved during the Emergency Response period. Matrix was not involved with the initiation or structuring of the Open Call therefore some of the background needed by the selected respondents to enable them to present a reasonable response to the Open Call was limited. Little of the available unpublished research undertaken during the emergency Response was provided to responders to the Open Call. Many respondents therefore relied on published research.

The proposal that was provided to the Federal Government requesting funds was based on the belief that the causal agent that caused Pasture Dieback had already been identified. This was the mealybug *Heliococcus summervillei* that had previously been identified by Summerville in Kilcoy in 1926 and also in Pakistan and India on sugarcane and rice. It has now recently been found in Barbados and Ecuador in pasture grasses.

To review the Open Call responses a Science Panel was appointed consisting of a range of respected scientists from a number of academic institutions and Departments of Primary Industry. The Science Review Panel was used to provide a first pass review and to then recommend only those projects that were thought relevant in contributing to solving the problem of Pasture Dieback within the constraints of the Grant funding. Only a limited selection of research materials as developed during the Emergency Response, was made available to the panel, despite the complete documented findings from the emergency response program being available.

A Science Forum was held sometime after the Open Call for projects had closed and the initial recommendations of the Science Group having been made. Generally this was considered a fruitful forum with many benefits, including a greater understanding of historical and proposed research. In hindsight this type of forum should have been held before the Open Call was initiated.

Following these processes i.e. Open Call initiation; review of projects by Science Group; the holding of the Science Forum; changes to project scope with project responders and time taken to negotiate contracts with MLA meant that there was only limited contracted time available for Matrix to actually engage with service providers.

4. Highlights

During this period Matrix participated and contributed to the following:-

4.1 Open call projects

- Was undertaken and prepared prior to Matrix's re-engagement in this contract
- Limited opportunity to circulate prior research as part of the tender process.
- Contributed to a detailed review of the received submissions

4.2 Science Panel

- Matrix was able to guide the formation of the Science Review Panel, which was used to review the proposals received from the research establishments in response to the Open Call
- Provided a broad range of skills and experience
- Limited information and background materials supplied on the research that had been undertaken during the preceding emergency response period.
- Provided excellent reviews of the received proposals and it was disappointing that they had limited foundations and basis on which to form recommendations. None the less recommendations addressed all priority themes in the agreed work plan with DAWE.

4.3 Science Forum

- A great resource event that promoted sharing and questioning of research and practical review by key stakeholders of previous research and proposed future expenditure of projects.
- This would have been of even greater benefit had this event happened before selecting key research program areas.

4.4 Ag-Vet Grant

- Whilst this grant was unsuccessful a respected proposal was submitted that place the MLA position on the frontline with APVMA.
- Fostered a continuing relationship with an organisation that specialises in this space. MLA will need assistances to continue to receive emergency approvals for chemical treatments of mealybug on pasture.

4.5 Advisory Group

- An Advisory Group was established consisting of members from AgForce, NABRC, QDAF, NSW DPI and MLA.
- 2 Meetings were held and some issues that concerned the group were resolved. A Two pager communication tool for industry engagement opportunities was developed for members use.

4.6 Communications information

- Several producers were identified to MLA which allowed their experiences of dealing with pasture dieback to be documented and shared on the MAL Web-page
- Forwarded specific industry happening via report to MLA, e.g. The ABC Landline program on pasture dieback.
- Supplied annotated pasture dieback photos that will form the foundation of an image reference library.

4.7 Content to Updated MLA Dieback Website

- Information was supplied such that MLA Communications team could continue to update their web portal with relevant information
- Input of experience gained with pasture dieback during the emergency response period was provided to MLA's media team and incorporated into available communications resources (website).

5. Conclusion

MLA via B.PAS.0002 has now contracted research projects with QUT, QDAF, UQ and AHR Pty Ltd to address various aspects of pasture dieback research across planned investment themes. These include research into causal agents, remote monitors, managed interventions, and development of coordinated and common messaging. Matrix Professionals have briefed and supported MLA Managers in their understanding of the complexity of pasture dieback, helping them to come up to speed, in building their industry and researchers networks and alerting them to the urgency and sensitivities of this issue for redmeat producers and various organisations.

Some planned responsibilities and objectives in the consultancy agreement could not be fully realised primarily due to MLA evolving and changing the purpose and role of Matrix Professionals in the coordination of the Pasture Dieback Program. MLA absorbed the functions and responsibilities of Program coordination in-house and there was insufficient time and resources allocated in the contract for Matrix to fully contribute as envisaged.

5.1 Benefits to industry

- Industry now has a central communication portal and pathway for MLA sponsored pasture dieback research, information, and messaging.
- Research projects will deliver finding via reporting milestones to MLA, which in turn will be communicated to the grazing industry.

6. Future research and recommendations

The co-ordination of MLA themed efforts into addressing the sustainability of the beef industry in pasture dieback areas, requires continual attention and refinement. The dynamic nature of any agriculture operation is reliant on favourable climatic, and/or environmental conditions requires the timely and reliable information on threats, trends, and opportunities. Beef operations need greater access to reliable forecasting of threats (potential, actual, upcoming) and have at their disposal a range of management tools and products to minimise threats and maximise opportunities. As climate changes into a warmer period, this will potentially increase the risks existing with established grazing (and other agricultural) practices on a number of fronts. These include increased risk to insect pests, ecology dynamics, variable yields, directly effecting one of the core supply chain components, pasture grass and cattle feed.

- Elevate the development of Integrated Pest Management for pasture dieback across industry
- Include entomologist/insect pathologist into pasture management
- Explain insect population dynamics as related to crop/pasture loss.
- Develop a rapid risk profiling protocol for threat of curtailed supply chain through put
- Incorporate a truly diverse scientific and advisory panel, with some members from outside the industry and research areas, with industrial/project/solution experience.