



Final report

PDS.2111. Less Predators, More Lambs

Project code: L.PDS.2111

Prepared by: Matt Mahoney
Agridome Consultancy Pty Ltd

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Abstract

This Producer Demonstration Site (PDS) project addresses the critical issue of predator impact, specifically foxes and wild dogs on lamb survival rates in Northeast Victoria, particularly in the Goulburn Broken Catchment. The project aim was to assess the effectiveness of best practice predator control in conjunction with other best practice ewe management on lamb survival, particularly in twin-bearing mobs, with the ultimate goal of influencing widespread adoption among sheep producers. Eight engaged producers served as demonstrators, implementing property-specific best practice Predator Control Management Programs (PCMP). The objectives included improving lamb survival rates, conducting a cost-benefit analysis, and increasing knowledge through workshops and seminars. Results indicate improved lamb survival, economic benefits, and enhanced knowledge. The project benefits the industry by demonstrating the economic impact of best practices, potentially leading to benefits for the environment and increased profits for producers in the region.

Executive summary

Background

- The on-farm issue addressed was the impact of predators, particularly foxes, on lamb survival rates during and after birth. The group observed that current predator management practices were not coordinated and may inadvertently lead to mismothering, even without direct predator attacks. The aim was to assess if implementing best practice predator control can improve lamb survival, especially in twin-bearing mobs.
- The main target audience was sheep producers in Northeast Victoria, particularly those in the Goulburn Broken Catchment. The group estimates that high fox density is impacting all sheep producers in the region, and improved predator management could benefit the industry. The engaged producers will serve as demonstrators, aiming to influence the wider community by showcasing the benefits of best practice predator control.
- The results of the demonstration will be used to assess the impact of best-practice predator control in combination with other best ewe management practices, on lamb survival rates. Additionally, the findings will be crucial in estimating the economic benefits of implementing these practices on a larger scale. The data collected will contribute to a cost-benefit analysis and serve as a basis for promoting and encouraging the adoption of best practices in predator control among sheep producers.

Objectives

- Engage 8 producers to demonstrate and implement a property-specific Best Practice Predator Control Management Program (PCMP).
- Improve lamb survival rates to consistently above 80% and 90% for twin and single-bearing ewes, respectively, for merino and crossbred ewes.
- Conduct a cost-benefit analysis to assess the economic performance of best practice predator control programs, assuming other best practices are already in place.
- Encourage the implementation of PCMPs on 100% of core producers' properties and 50% of observer producers' properties based on project results.
- Increase knowledge, skills, and confidence of core farmers in predator and ewe management through workshops.

Methodology

Identified and engaged 8 core producers to participate in the demonstration.

Using a series of workshops and seminars, with invited experts in ewe management, ewe and lamb health, and predator management practices, develop and provide:

- property-specific Predator Control Management Programs (PCMPs)
- training and set up with the Feralscan App
- fundamental knowledge and updated information provided to the core producers and their staff in best management practices for their ewe flock, including flock reproductive disease assessment

Provided the core producers and their staff with on-farm training on best practice Predator Control Management and implementation of property-specific PCMPs utilising the Feralscan App on their properties.

Collected data on lamb survival rates, predator management practices, and lamb post-mortem findings across the engaged properties.

Results/key findings

- Lamb survival was improved if all of the best practices were implemented.
- Increased lamb survival from implementing PCMPs improved the farm bottom line on average by \$3.87/ha
- Outputs included 16 days of seminars and workshops, four articles, a case study and a radio interview
- monitoring and evaluation

Benefits to industry

This project has shown that producers clearly have seen an impact from time to time as a direct consequence of predators. ABS figures for 2017-18 estimate there are 1025 sheep properties in the Goulburn Broken Catchment and that the region produces 750,000 lambs annually. The properties involved with this project were already providing some means of predator management, however, they demonstrated that it could be generally expected that producers could improve their lamb survival figure as defined in this PDS by around 2-5% and in some cases by 8%. Conservatively speaking, valuing lambs at current market-low prices (Nov- Dec 2023) of \$120/hd , and using the lower 2% increase in lamb survival (LS)% figure this equates to around an extra \$56,000 for the core farmer group, and an estimated \$1,800,000 per year for the region. If increased to 5% and the prices stay at the current market lows, this equates to around \$4,500,000 for the region.

Future research and recommendations

1. Wild dog management is an issue that when arises can be devastating and more needs to be done to help producers as some are exiting sheep due to the problem (personal communication with local landholders and local area wild dog control officer).
2. An extension program as run for this PDS would make for an excellent sheep management course/extension program.

PDS key data summary table

Project Aim:			
To demonstrate that a best practice predator control management program can improve lamb survival at birth			
	Comments		Unit
Production efficiency benefit (impact) Reproductive efficiency – marking %, lamb survival%	Lamb survival rate from ewes under management	+2-5	%
Reduction in expenditure Reduction in labour i.e. DSE/FTE, LSU/FTE, AE/FTE; Reduction in other expenditure	i.e. reduction in labour	0	
Increase in income		\$56000.00	/core farmers
Additional costs (to achieve benefits)		\$2000.00	/farm
Net \$ benefit (impact)		\$54,000.00	/core farmers
Number of core participants engaged in project		8	
Number of observer participants engaged in project		15	
Core group no. ha	(3sheep/acre)	14,470	
Observer group no. ha		3,244	
Core group no. sheep		41,800	hd sheep
Observer group no. sheep		4,000	hd sheep
Core group no. cattle		5,645	hd cattle
Observer group no. cattle		650	hd cattle
% change in knowledge, skill & confidence – core	<i>Predator control and ewe mgt to include lamb survival</i>	100%	
% practice change adoption – core	<i>Use a well thought out and planned Predator Control Program</i>	100%	
% of total ha managed that the benefit applies to	<i>% of total area that predator management was applied to</i>	100%	
Key impact data			
Net \$ benefit /ha (total ha managed)		\$3.87/ha	

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1. Background

The problem this project sought to address was the variability in lamb survival rates and the impact that predators can have, after the hard work has been done. Group members had been monitoring lamb survival rates for several years and constantly assessed methods that would give improvements in their lamb survival rates, especially in twinning mobs. One such improvement is better predator management using the guidelines from the Centre for Invasive Species Solutions (CISS). Predator control before and during lambing is currently a mixture of baiting (including Canid Pest Ejectors - CPEs), shooting and scare (fox lights) and is not always done in a coordinated manner.

It has been mentioned that movements of predators through flocks may be inadvertently causing mismothering even if the animals are not being attacked. The group wanted to assess if changing predator management practices had an impact on lamb survival. As a group achieving high lamb survival rates already and many having records across seasons and years, the group was in a position to explore this issue without other factors (ewe condition, feed on offer and management) confounding the results.

It is estimated that four foxes exist per km² with as many as 1,256 within a 10 km radius of the engaged properties¹. With this level of fox density, it is hypothesized that foxes and other predators (wild dogs, pigs) are impacting on all sheep producers in Australia to some extent. Previous lamb mortality studies have estimated that primary predation accounts for 5-7% of lamb deaths at or just after birth. It is known from Lifetime Ewe Management studies that 70% of lamb mortality between birth and weaning occurs within the first 48 hours after birth.

However, it is not known if the producers who took part in these studies were already undertaking best practice predator control or changed their predator management during the study when early results were observed. It is also not known if the predators were contributing to other losses i.e. mismothering/starvation as a result of their movements through lambing flocks. For producers who are not using adequate predator control, the losses could be much higher, and many anecdotal stories are told of predators such as foxes, dogs and even pigs taking lambs. However, there is no real evidence of the losses occurring from primary predation or secondary effects on ewe behaviour due to the presence of predators.

The group aimed to look more closely at the impact predators were having on lamb survival in their flocks. Additionally, the producers were curious to know if some flocks are more susceptible to primary predation due to location (proximity to predator habitat dense vegetation/water courses etc) or breed. Ultimately the producers wanted to use this to improve their lamb survival (LS%) figure, and their farm production efficiency and financial bottom line.

This project is unique to any other program before it, because this PDS developed property specific Predator Control Management Programs (PCMPs) and combined these with other best management practices for lamb survival.

2. Objectives

Objective 1

8 producers will be engaged to demonstrate a property specific best practice Predator Control Management Program (PCMP) to:

(a) Improve lamb survival from current levels of around 70-80% and 80-90% to consistently above 80% and 90% for twin and single bearing ewes respectively for merino and crossbred ewes

(b) Increase knowledge, skills and confidence of core farmers by refreshing key management criteria affecting lamb survival such as Lifetime Ewe Management skills including FOO and CS assessment and targets for lambing and by analysing and discussing key data from each farm including reproductive disease (Campylobacter) status

Objective 1 was achieved successfully with 8 core producers engaged, and participating in the training workshops, seminars and on-farm events and PCMP development. Unfortunately, soon after project initiation, one of the core producers had a terrible footrot outbreak on their farm and had to withdraw from allowing access to their property. They did have a very complex highly fertile multi-meat flock. This property did not submit lambing data, however, did participate in every other way. They were able to host one of the final sessions on their farm following fully eradicating the footrot outbreak. This workshop was an extra workshop that wasn't originally planned for this project. The guest presenter was Dr Jason Trompf, and the high fecundity multi-meat flock was showcased, along with the issues that came with such an intensely productive ewe system.

With regard to the lamb survival levels, there were some changes agreed upon earlier in the project, plus some confounding issues not previously realised.

It was decided by the group that one lamb survival figure was adequate for each core property. This was because some properties which had a large flock size, only implemented the PDS for a portion of the flock, eg. multiples only, and some properties that included a mob (or mobs) of singles and the scanner had inadvertently scanned multiples through as singles, this meant a lamb survival of above 100% for some mobs was observed. Given the properties found they were able to achieve roughly similar proportions of their flock scanning either single or twin each year, a single lamb survival figure was deemed acceptable to monitor results at a property level from one year to the next. While lamb survival did improve on every property at some point during the three-year project, this figure did appear to 'jump' around from year to year.

Some confounding issues not previously realised which affected the property lamb survival figure increasing was the effect of any current practices employed by the property. These were practices designed to be implemented by the project such as predator control and reproductive disease management measures, however any property which was already implementing one or more of these practices therefore reduced the likelihood of improving lamb survival figures over a property not managing these practices. This is in effect what can happen when running such projects with engaged producers which are already operating at a highly productive level.

Objective 2

Conduct a cost benefit analysis to determine the relative economic performance of the best practice predator control management programs (assuming other best practice management already in place)

Objective 2 was estimated by the participating core producers. This was somewhat more difficult for some properties, as they were already partially implementing some of the predator control management practices and therefore, these costs would form part of their normal operational costs. This was also thought to partially affect the improvement in lamb survival figure, as mentioned above. One of the larger properties which had not implemented any predator control measures apart from electric fencing, could see the benefits after year one of the project. This property employed another labour unit for the implementation of the PCMP, and they estimated that the extra costs were about three thousand dollars, and this resulted in approximately 100 extra lambs surviving to marking, with an estimated value of twelve to thirteen thousand dollars, based on the most recent lamb sales so far from that property.

Objective 3

As a result from the project and associated extension / communication activities, 100% of core producers and 50% of observer producers will implement PCMP's for their properties.

All of the producers are implementing their PCMPs. However, one of the challenges is to implement the programs completely. Some properties are partially implementing, eg. they are applying baits, however they are not recording the activity in the Feralscan App. Or the property is not recording any dead or mauled lambs discovered during the mob monitoring rounds. This has been a constant battle for this project and has been put down to staffing issues. Either due to staff-shortage or just short of time, corners had to be cut and unfortunately this was the result. On about half of the properties involved, the staff that started the property in the project, or were responsible for the implementation of the project best management practices, had changed by the beginning of the second year, and some had further staff shortages or changes in the final year.

Objective 4

Implement a series of skills and training development workshops to increase the knowledge, skills and confidence of 100% of core producers and 50% of observer producers in relation to best management practices for predator and ewe management that have a direct impact on lamb survival.

Objectives 4 was completed 100%. The producers were able to attend and have access to experts in the relevant fields of flock health, ewe management, and predator control management. Each step of the way, the producers were able to contribute to the development of the worksheets and PCMPs for the project and their properties with the guidance of visiting experts. This would not have been possible without the funding provided by MLA to run this project.

3. Demonstration Site Design

3.1 Methodology

Year 1

8-10 weeks Prior to joining ewes on each host farm (October 2020):

1. Assess flock reproductive disease exposure. Many factors are attributed to affecting lamb survival, including reproductive diseases. This was considered and addressed at the initiation of the project based on expert advice from Coopers animal health in light of recent work the company had done on this topic. It was advised that the core producer flocks be screened for the most common disease agent, *Campylobacter spp.* Each host farm submitted blood samples from 5x maiden ewes and 5x older ewes to assess their farm for *Campylobacter spp.* status. A recommendation for the management of this important reproductive disease was then based on the results obtained. Coopers Animal Health Veterinarian Jim Walsh was involved to assist with interpreting results and the recommendations for each host farm. This additional analysis of flock disease status also aimed to create awareness within the core and observer group of farmers about reproductive diseases affecting lamb survival. If it was discovered that reproductive disease was a factor and had previously gone unmanaged on a host farm, then this was to be investigated when discussing the results.

Prior to the Lambing Season (Feb – May 2021)

2. Introductory Field Day: Best Practice Predator Control field day (utilizing services from Greg Mifsud Centre for Invasive Species Solutions and Lucy-Anne Cobby Victorian DELWP wild dog controllers and AV's Established Invasive Pests group), to core and observer group members and others. This day marked the initiation of, and introduction to the Project. This included an introductory and training workshop in the use of the Feralscan App which, due to the presence of both wild dogs and foxes on the core producer's properties, included both the WilddogScan and FoxScan sections of the App.

3. Plan Predator Control Management Programs: With the help of the attending organisations mentioned above, property specific best practice and detailed Predator Control Management Programs (PCMPs) were developed for each of the eight host farm properties. There were two components to the construction of the PCMPs. First the PCMP document was constructed for the host property with the input of the core producers during the initial workshop training session. Each property had the option to choose to target dogs &/or foxes in their program PCMP data was compiled on the collection section on the project data worksheet – by active input by attending/core farmers. The second component was a visit to each core property to demonstrate the use of the App, and to specifically identify control points for example baiting so the producer could see how this was recommended for their specific situation. This included further in-depth training in the use of the FeralscanApp WilddogScan/FoxScan so that the producers were able to record their predator management activities in real time, which aimed to assist with reporting and management decisions. As part of this project, a Producer Guide has been developed which includes all of the relevant information required to develop a PCMP.

4. Maximising lamb survival workshop: There were 9 core and observer farmers who attended a “Feeder Activity Workshop” for lifting lamb survival. A separate application for this day was submitted. The day was run by Nathan Scott from AchieveAg. This workshop was used to help the core producers compile their Lamb Survival data collection worksheet to be used during the project.

5. Lifetime Ewe Management Refresher workshop: The 8 core farmers met on a core producer property and refreshed their skills in Condition Scoring drafted ewes in a race, pasture assessment and feed budgeting. Data was also collected and collated. This included historical scanning and marking rates (baseline), lambing management plan and the PCMP. Upon completion of this day on each property, the aim was for the core farmers to be clear on the project methodology and practices to be followed for the first lambing season of the project.

6. Data collection: As lambing season began on each property, data was collected as per the newly compiled project data worksheet. This worksheet was developed by farmer feedback and input after attendance at the series of workshops that formed part of this project. This was to ensure that not only the data being captured was essential for the project, but also practical from the farmer standpoint. This was also to ensure buy-in from the farmers and to ensure that all data was captured when it was supposed to be. Additionally, 2 lambs/property/week over five weeks during lambing (target ten lambs/property/year; 80 Autopsy’s for project/year) were to be delivered to the local Vet Practice for uniform and concise autopsy and data collection. Data collected and best practices being highlighted over the core farms included but were not limited to (data collected as per Workshop Activities):

- i. Pregnancy scanning for singles and twins to determine conception rates (starting number of lambs for measuring survival rates)
- ii. Differential management of twins and singles mobs using LTEM guidelines to ensure ewe condition and nutrition are not factors impacting on survival.
- iii. Monitoring/recording: on a minimum daily basis for duration of the lambing period, lambing ewes were to be monitored at the lambing paddock field observations of any dead lambs (weight, feet membrane etc. as per Lambs Alive Workshop Manual), and for visual signs of primary and secondary predation. Cause of death recorded if known.
- iv. Each farm was to drop off to Vets for uniform lamb autopsy two freshly found dead lambs/week during five weeks of lambing (ten/farm total)
- v. Marking of lambs in lambing mobs was to calculate survival rates for each mob/paddock combination. Comparisons were to be made to previous seasons lamb survival figures. Reconciliation of # dead lambs, live lambs and pregnancy scanning rates.
- vi. Recording of predator management activities ie baits laid, shooting, dead predators noted as per PCMP workshop. Use of APP(s).
- vii. Some field cameras were available for use to be placed at different bait sites to monitor bait take if required
- viii. Records of time and cost for predator control and management activities and to allow cost:benefit to be calculated

7. Compile results from host farms: after lamb marking was complete on each property, the data from the worksheets was collated.

8. Results and Review workshop: after results were compiled, this workshop was held with the core farmers and utilizing services from Greg Mifsud Centre for Invasive Species Solutions and Lucy-Anne Cobby Victorian DELWP wild dog controllers and AV's Established Invasive Pests group, to discuss and review the results. Any changes or improvements to the project methodology and data collection were discussed and implemented for year 2. The changes were only some minor formatting to the data collection worksheets. There were also some suggestions to see if any of the flock data collected in the worksheets for the project could be integrated into the Feralscan App.

Year 2

(April 2022)

9. Best Practice Ewe Management Refresher workshop: visiting each host-farm, the lambing management plan and the PCMP for the host property and any revised implementation of the project and data collection for each farm was discussed. Upon completion of this day, the core farmers were to be clear on the project methodology and practices to be followed for the second lambing season of the project (Season 2 – 2022).

10. Compile results from host farms: after lamb marking was complete on each property, the data from the worksheets was collated.

11. Results and Review workshop: after results were compiled, this workshop was held with the core farmers and utilizing services from Greg Mifsud Centre for Invasive Species Solutions and Lucy-Anne Cobby Victorian DELWP wild dog controllers and AV's Established Invasive Pests group, to discuss and review the results. Any changes or improvements to the project methodology and data collection were discussed and no changes were implemented for year 3.

Year 3

12. Refresher Workshop and new products demonstration: Several visiting speakers presented on topics to do with predator management, including the local wild dog controller, the Centre for Invasive Species Solutions and a local hunting equipment supplier showed some thermal optics. The seminar was designed to add to PCMPs for the core producers, and to discuss any changes to be implemented for the final year. The lambing management plan and the PCMP plus any revised implementation of the project and data collection for each farm was reviewed in the lead up to the lambing season ahead. Upon completion of this day, the core farmers were clear on the project methodology and practices to be followed for the third lambing season of the project (Season 3 – 2023).

13. Best Practice Lamb Survival workshop: with facilitation from a visiting expert. This workshop was an additional workshop, not originally planned. The workshop was held on a core-producer host-farm, then the group moved to a local venue for presentations and discussion. Activities included condition scoring ewes and a good discussion around meeting condition score targets and feed budgeting and subsequent scanning rates.

14. Compile results from host farms: after lamb marking was complete on each property, the data from the worksheets was collated. Review all seasons and compiled guidelines for group for predator management based on results.

15. Results and Review workshop: after results were compiled, this workshop was held with the core farmers and utilizing services from Greg Mifsud Centre for Invasive Species Solutions and Lucy-Anne Cobby Victorian DELWP wild dog controllers and AV's Established Invasive Pests group, to discuss and review the results. Any changes or improvements to the Project methodology and data collection were discussed and compiled into a Lamb Survival data worksheet for sharing with the entire observer farmer group. Development of a Profitable Grazing Systems (PGS) was discussed at this point.

16. Final Project Seminar and Project Conclusion: An open invitation seminar including 10 core and observer group farmers, and the local wild dog controller David Klippel was held to share Project findings and the Producer Guide. The collated data and recommendations along with the data capture worksheets were presented and discussed.

3.2 Economic analysis

Producers were asked to determine the extra time and associated costs directly involved with implementing the project management practices including the PCMPs on-farm and to calculate the associated benefit in terms of extra lambs surviving and realised for sale. The direct costs were estimated using the baits purchased and the time required to put them out (if this was not already being done). Any other associated time to complete worksheets or to collect lambs for post-mortem was also estimated to go towards the cost of implementation. The improvement in lamb survival on the property along with pricing from lambs sold was used to calculate the benefit. This data was not recorded, but collected via conversations with the producers. For this reason, some properties had a more accurate cost-benefit figure. For the project, the group estimated cost-benefit was determined by compiling this together into a figure for the entire group and using an average but conservative lamb price.

3.3 Extension and communication

An outline of the project communication and extension activities is summarised in Table 1 below.

Table 1. Outline of the extension and communication activities for the PDS.

Timing	Communications and Extension Activity Summary
4 th Feb-21	Introductory Worksop Seminar – Official Project Launch. Two components to the day. The first component was a presentation on reproductive diseases affecting ewe flocks and the subsequent effect on lamb survival rates in our region. This gave a lot of background information to the producers about the blood testing of their flocks. Best practice predator management formed the second component of the day. The day was an open-invitation to both core and observer producers. The issue of predators and their impact was presented. Techniques and guidelines for predator management and monitoring was also presented and discussed with the group. Other important aspects of lamb survival including economical and ethical issues along with key management practices were also discussed. A FeralScan App tutorial for both WilddogScan/FoxScan was delivered as part of the workshop which included getting participants signed up to the online private Feralscan “Mansfield Less Predators, More Lambs” group. The use of these relatively unknown apps in the project will provide the capacity for producers to record their predator management activities in real time, which for the core group will assist with project reporting and management decisions. The Project will be launched and it is envisaged the 8 host farmers will briefly discuss their involvement in the project with the group. A pre-project survey will be conducted by attending core and observer group members.
2 nd – 4 th Feb-21	Predator Management Workshop. This comprised several days and included a 1-day workshop and on-farm visits. The workshop covered formulating the Predator Control Management Programs (PCMPs) for each of the 8 core producer demonstration sites. The on-farm component helped formulate the site specific portion of the PCMPs to be deployed for the Project. This was done via direct guidance and property visits by members of the Centre for Invasive Species. Baiting sites for different species were selected on the producers' property demonstrating the specific areas to target for different predator species control points. This allowed for each particular property to be specific with their PCMPs. This also included use of the Feralscan App in the field including demonstrating logging control points and predator management activities..
25 th Mar-21	Maximising lamb survival workshop (utilising Feeder Activity Funding). A separate “MLA Feeder Activity” workshop on lamb survival was run by Nathan Scott from AchieveAG.

28 th Apr-21	Best Practice Ewe Management Refresher workshop. On one of the core producer host properties, ewes were yarded and the demonstrations routinely carried out during a Lifetime Ewe Management session were practiced. These included condition scoring, feed on offer (FOO) assessment and feed budgeting exercises. Baseline data collection and sign-off on predator management and project monitoring requirements were covered off at this time. Upon completion of this day on each property, the core farmers were to be clear on the Project methodology, data that must be recorded and practices to be followed for the Project duration.
Aug-21	Results and Review. Collect and collate core group autumn lambing data. Modify protocol if necessary for spring lambing.
4 th Nov-21	Results and Review workshop. After results were compiled, this workshop was held with the core farmers to discuss and review the results. Any changes or improvements to the Project methodology and data collection will also be discussed and the materials and methods altered accordingly.
5 th May-22	Best Practice Ewe Management Refresher workshop. Lifetime Ewe Management and Lamb Survival guidelines will be revisited including CS and FOO measurements. Upon completion of this day, the aim was for the core farmers to be clear on the project methodology and practices to be followed and data to be recorded for the project duration.
3 rd Aug 22	Combined PDS group seminar. Another PDS group demonstrating predator control visited Mansfield. The groups both shared their results. This was an extra workshop which was not originally planned for.
31 st Jan-23	Results and Review Field Day. After results were collected and compiled, this Field Day was held with the core, observer and other interested farmers invited to attend to discuss and review the results after year 2. Any changes or improvements to the project methodology and data collection were discussed and the materials and methods altered however no changes were required.
20 th Apr-23	Refresher workshop and equipment demonstration. Lifetime Ewe Management and Lamb Survival guidelines will be revisited. Predator management and project monitoring requirements were revisited. New thermal and spotting scopes from a local Hunting equipment supplier were also viewed and a presentation on the new evolving technology and the capabilities was given. This was in the context of being able to spot and identify predators and offer alternative control methods to include in PCMPs. Upon completion of this day on each property, the core farmers will be clear on the project methodology and practices to be followed for the project duration.

2 nd Jun-23	Best Practice Lamb Survival workshop: with facilitation from a visiting expert. This workshop was an additional workshop, not originally planned. The workshop was held on a core-producer host-farm, then the group moved to a local venue for presentations and discussion. Activities included condition scoring ewes and a good discussion around meeting condition score targets and feed budgeting and subsequent scanning rates.
Dec	Results and Review workshop. Collect and collate core group lambing data. Compile Final Report. After results were compiled, discussions were held with the core farmers to discuss and review the results. The data collection worksheet, methodology and guidelines for best practice predator management were also packaged to share with the wider group in the form of a Producer Guide.
25 th Jan-24	Open Seminar – reporting the overall project results was done at a Grand Finale seminar.

3.4 Monitoring and evaluation

The process utilised in the project for data collection was by way of worksheets developed by the producer group during project workshops. The data collected included:

- lamb scanning and marking percentages (one property)
- lamb survival percentage (LS%)
- lamb post-mortem information
- predator management such as sighting, controls (baits deployed) and damage

Note on monitoring and evaluation: It was recognised that using lamb survival figures as a KPI of the impact of improved predator management was likely to be an imperfect measure as lamb survival is also known to be impacted by ewe condition, feed on offer, weather events, the birthing process, disease and infection and genetic abnormalities etc. However, it was impractical to have a control treatment in a commercial sheep operation or to conduct the types of predator monitoring recommended for an experimental trial. Instead, we utilised existing lambing records that include accurate measures of lamb survival (as based on numbers of lambs preg scanned), monitoring of bait stations (bait takes, tracks and camera footage), assessment of dead lambs found during lambing and where possible, numbers of foxes observed by project participants.

Monitoring and evaluation included the development of a MER plan what was updated with each milestone. This included the development of a pre-project survey to demonstrate the change in knowledge, skills confidence and practice change followed by a post-project survey completed at the end of the project.

4. Results

4.1 Demonstration site results

Blood Tests and Animal Health

The project commenced with blood sampling and subsequent analysis for the presence of reproductive disease (past or present), in the flocks of the core producers. This information was kept confidential with the core producer veterinarian and the data was not made publicly available. Each core producer had a one-on-one conversation with a veterinarian to discuss their results and if required to implement any additional animal health procedures for their flock.

PCMPs & Baits laid:

All producers had their Predator Control Management Programs (PCMPs) completed prior to the autumn lambing, by design of the project, there was a refresher day held to kick the second year off, however, some had difficulty following the entire program, citing staff changeover and understaffing at or during a very busy time on the property, coupled with testing seasonal conditions.

An estimated 1,000 control measures or baits were laid and monitored during this project. This figure is based on producer feedback on their purchases. Not all staff were using the Feralscan App to record the baits and therefore the reports do not reflect the complete number of baits used. The estimated baits for years 2021, 2022 and 2023 were 340, 300 and 300 respectively. However, the Feralscan App report as shown in Figure 1 below, only documents 435 control measures for baits laid during the 2021 to 2023 period, reflecting the reduced use of the Feralscan App.

Figure 1. FeralscanApp Foxscan Report of Control, Damage and Sightings Records of Foxes in the Less Predators, More Lambs PDS 2021 to 2023



Control Type	This Period	YTD
Number of control records	435	0
Fox Drive	6	0
Sighting Type	This Period	YTD
Number of sighting records	43	0
Number of fox seen	42	0
Live fox observed	36	0
Dead fox observed	5	0
Number of fox seen	42	0
Adults	29	0
Adults	5	0
Unknown	8	0
Camera trap detection	1	0
Den/burrow	1	0



Damage Type	This Period	YTD
Number of damage records	16	0
Number of animals killed	17	0
Lambs killed	9	0
Poultry killed	1	0
Sheep killed	7	0
Number of animals mauled	3	0
Sheep mauled	3	0
Non-categorical records	1	0
Other	1	0

The reports produced by the Feralscan App are useful and easily obtained. The particular reports generated for this project regularly were for Controls, Damage and Sightings for different predator

species, being either Fox, using Foxscan (Fig.1) or Wild dogs using Wild Dog scan as depicted in Fig.2 below.

Figure 2. FerascanApp Wild Dog Scan Report of Control, Damage and Sightings Records for Wild Dogs in the Less Predators, More Lambs PDS 2021 to 2023



Control Type	This Period	YTD	Damage Type	This Period	YTD
Number of control records	109	0	Number of damage records	115	1
Number of dogs destroyed	1	0	Number of animals killed	171	1
Wild dogs shot:	1	0	Cattle killed	1	0
Number of baits laid	72	0	Calves killed	1	0
1080 ground bait laid:	72	0	Lambs killed	58	0
Number of traps set	2	0	Sheep killed	111	1
Padded-jaw trap set:	2	0	Number of animals mauled	22	2
			Lambs mauled	8	0
			Sheep mauled	14	2
Sighting Type	This Period	YTD			
Number of sighting records	13	1			
Number of wild dogs observed	14	3			
Live dogs observed	11	3			
Sign (track/scat)	3	0			

Some of the producers reported the reason for variable use of the Feralscan App, and differing numbers of baits laid from year to year were due to different or new staff not having full access to the Application, a very wet winter in year two with a high incidence of elevated worm egg counts (WECs), leading to an increased workload on staff. In summary, the reduced use of the App is a combination of time and timing. Previous staff trained up and taken through the LPML journey ie. Workshops/training have been replaced either with noone or new staff that that were not able to be trained up in time for the lambing season.

Lamb post-mortem results 2021 to 2023:

Over the three-year period, a total of 119 lamb mortalities were randomly collected during 'monitoring-rounds' by the producers and delivered to the local veterinarian for post-mortem examination. The number of lamb post-mortems carried out in each year of the project from 2021 to 2023 were 44, 51, and 24 respectively. The combined data summary for these post-mortems is presented in Table 2 below.

Table 2 shows that the mortalities were categorized into single births (32 cases) and twin births (87 cases). The primary causes of lamb mortality included predation (13 cases), dystocia (25 cases), mismothering (MM)/Starvation (62 cases), infection (10 cases), goitre (1 case), intestinal torsion (1 case), and undiagnosed conditions (7 cases). The undiagnosed cases were inconclusive investigations and had suggested reasons for mortality, ranging from pneumonia, secondary predation removing too much tissue for diagnosis, or several factors making certain diagnosis impossible.

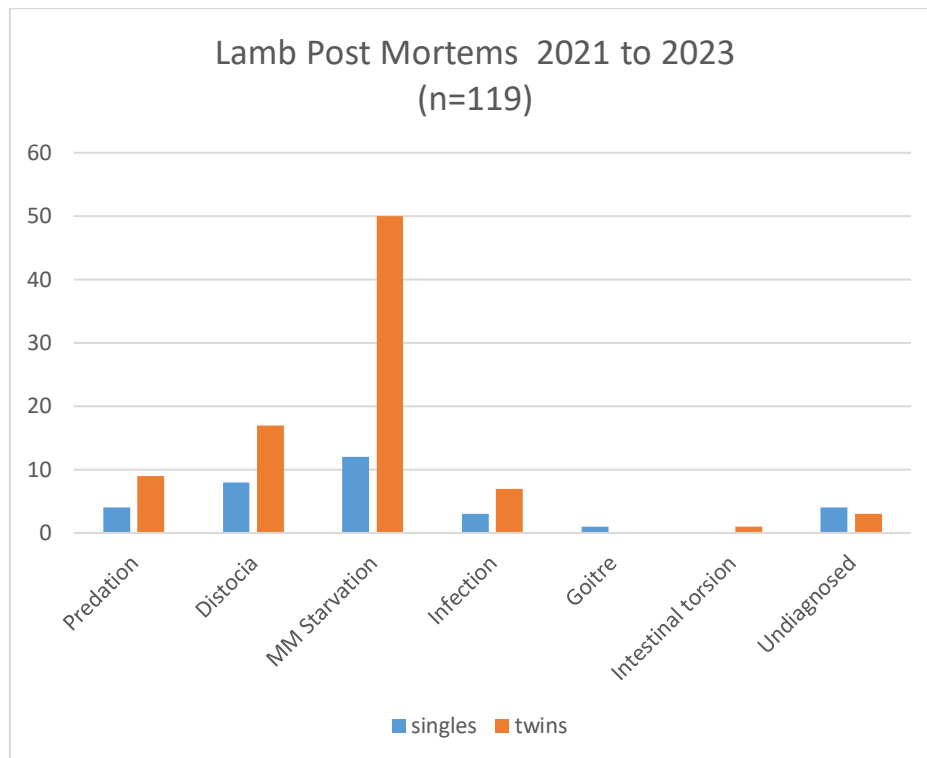
Subsequently, further analysis of the 32 single birth mortalities revealed four of these cases were attributed to predation, eight to dystocia, 12 to Mismothering/Starvation, three to infection, one to goitre, and four cases that remained undiagnosed. In the twin births category, nine cases were due to predation, 17 to dystocia, 50 to Mismothering/Starvation, seven to infection, one to intestinal torsion, and three cases remained undiagnosed (Table 2).

The distribution of these causes is summarized as a percentage of the total mortalities. Predation accounted for 11% of all cases with a range of 6% to 18%, dystocia for 21% with a range of 13-25%, mismothering/starvation for 52% with a range of 43-63%, infection for 8% with a range of 0-12%, goitre and intestinal torsion were each less than 1% of the data-set, and undiagnosed conditions accounted for around for 6% with a range of 0-17% (Table 2).

Table 2. Combined Lamb Post Mortem Results Summary of 119 lambs from 2021 to 2023

2021 to 2023	Single	Twin	Predation	Distocia	Mismothering Starvation	Infection	Goitre	Intestinal torsion	Undiagnosed
singles	-	-	4	8	12	3	1	0	4
twins	-	-	9	17	50	7	0	1	3
Sub-Total	32	87	13	25	62	10	1	1	7
Total	119								
Out of Total (ave.)	27%	73%	11%	21%	52%	8%	1%	1%	6%
Range	27-36%	64-84%	6-18%	13-25%	43-63%	0-12%	0-2%	0-2%	0-17%

A graphical representation of the averaged lamb post-mortem data from years 1 to 3 of the project is depicted in Fig. 3 below. The data for both single and twin births has been separated for each of the different causes of death. A clear stand out feature is that the twin lamb mortalities lead almost every category except goitre, however, was far exceeding single mortalities for mismothering/starvation (Fig. 3).

Figure 3. Lamb Post Mortem results of 119 lambs from 2021 to 2023

While mismothering and starvation was found to be the largest cause of lamb losses, this could also be due to a combined effect of the weather conditions and the lamb collection/sampling methods for post-mortem. To clarify, the weather events were perceived (no specific data collected from individual properties) by the producers to be colder and longer-lasting than usual during the project period, especially 2022. Additionally, a predator would possibly be more likely to seek shelter to eat the preyed lambs. While sampling/collection of dead lambs from the paddock by the producers, were those encountered while traversing the paddock, ie. commonly from the open areas. This would be conducive to areas where lamb mortality may be expected to be higher from exposure, than other causes.

Producers seemed to agree that in 2022 they experienced harsher lambing conditions. This included winter storms, and very cold, relatively high chill-index of longer duration compared to other lambing seasons (up to a week in duration this year per storm event compared to common 1-2 days in previous years). It is thought that shelter was an even more important factor in 2022, although if it was provided in a lambing paddock, producer observations were that the ewes didn't utilize it on their own accord for their lamb's sake, given lambs collected for post-mortem were predominantly from these areas of a paddock following a storm event.

Lamb survival rates:

The lamb survival data was combined into a single figure for each participating property. While there are many ways to present the lamb survival data, for example by breed, age or pregnancy status, the properties needed a simple figure which could gauge their overall progress and without being overly complicated. Some properties also have all of these differentiating factors but managed them differently ie. one would lamb down scanned singles together but wouldn't separate based on age

where another producer might have maidens separated. Due to the properties involved in the project being relatively constant with regard to ewe numbers, breed, age groups, scanning rates, and ewe management practices through lambing, they required a simple measure of their own progress on lamb survival from year to year to monitor the response to PCMPs in this project. This meant that the whole-farm average lamb survival figure could be a single number used as a reference figure for each property to use in comparing their own performance from one year to the next (it is still possible to separate out the data to the different categories on some farms).

The summary of the lambing data submitted from the seven data contributing properties is represented in Table 3 below. The data is laid out to compare each property to their own data for each year, rather than to compare properties to one another, for reasons mentioned above.

The data shown for each property in Table 3 includes the lambing year, the number of lambing ewes (either total or number monitored for the project), the number of scanned foetuses for the ewes monitored, the number of surviving lambs and the calculated lamb survival percentage. One core producer property was unable to scan for two of the years during the project and so submitted lamb marking data instead, however lamb survival could not be determined accurately for these years.

For the duration of the project, each property submitted data either from individual mobs, or from whole-of-flock farm data. However, ewe numbers participating in the project may have varied from year to year for this reason but were tried to be kept relatively constant by the producers. Property 7 increased their number of ewes they submitted data for, as this was easier given their on-farm computer system and data recording software. This property went from submitting data for several mobs to the majority of ewes on the farm. As a result, their figures saw some large fluctuations, however the LS% was maintained despite over a more than 10-fold increase in the number of ewes included in the program. This property was also one of the properties which was already in some part practicing predator control methods prior to involvement with the PDS project.

In year one (2021) of the project, it was found that generally lamb survival rates increased on all participating core properties for which there was sufficient comparable historical data (2020 data not shown) to compare. The increase was around 2% for most farms and up to 5% on some properties based on the data from mobs monitored during the project. The data was from a total of 6,110 ewes and an estimated 9,484 foetuses in year one. Based on these results and going with 2% extra lambs surviving, this is 280 lambs extra for these core farmers with a value of \$42,000 based on \$150/head, conservative market value of lambs in that year.

It should also be noted that an interesting observation made during the collection of survey data in year one was that there was initially some confusion between farmers on how to calculate lamb survival. This is suggested due to the fact that only 2 farmers out of the dozen surveys collected gave correctly calculated answers on the lamb survival question while the rest gave percentage values of over 100% which is either confusion with lamb marking %, or scanning was performed grossly incorrectly. Nonetheless, it was perceived the calculations were incorrect, suggesting that farmers were confused with lamb survival and lamb marking percentage. This has been discussed and clarified with the producers following this observation as a side-note during the initial workshops held pre-lambing during the early stages of this project.

The data submitted in 2022, the second year of the project, shows that lamb survival rates had improved on properties 1 and 6, being 6% and 21% better respectively but had decreased on all of the other core properties (Table 3). The improvement in lamb survival for 2022 by property 6 could not be explained other than an exceptional result. Property 4 did presumably have an improvement in lamb survival as lamb marking percentage increased by 5% in 2022 (Table 3). The reduction in lamb survival in 2022 on each of the other properties, was approximately as high as the gains made in the first year of the project. It is possible that the properties had reverted back to their 'old ways'. This result shows support for the program, in that a properly executed PCMP can improve the lamb survival on a property. It could be argued that implementing a PCMP for the first time would see the highest gains, which if improved upon in successive years would be the result of efficiency gains.

In 2023, properties 1,3 and 6 had reduced lamb survival figures from their 2022 figure, down 6%, 6% and 12% respectively (Table 3). Properties 2, 5, 7 had all improved their property LS% figures in 2023 by 5%, 5% and 3% respectively and presumably property 4 had increased theirs as well based on a higher LM% although they did produce less lambs overall (Table 3).

Table 3. Overall Project Results Summary for Ewe, Foetus and Lamb numbers of 7 Core Producers participating in the Less Predators More Lambs PDS Project

Core Sites	Year	Lambing Ewes (no.)	Foetuses (no.)	Lambs (no.)	LS (%)	LM (%)
Property1	2021^	1045	1322	1004	76%	
Property1	2022^	1004	1312	1081	82%	
Property1	2023^	949	1304	997	76%	
Property2	2021	989	1642	1257	81%	
Property2	2022	1586	2294	1838	69%	
Property2	2023	1702	2923	2149	74%	
Property3	2021	991	1982	1861	94%	
Property3	2022	1294	2588	2253	87%	
Property3	2023	1207	2414	1956	81%	
Property4^	2021	2154	NS	2632		122%
Property4^	2022	2026	NS	2568		127%
Property4^	2023	1659	2643	2340	89%	133%
Property5^	2021	1135	1599	1264	79%	
Property5^	2022	1130	1483	1151	79%	
Property5^	2023	1287	1644	1387	84%	
Property6	2021	785	1350	1051	76%	
Property6	2022	743	1205	1159	97%	
Property6	2023	1265	1800	1533	85%	
Property7	2021	719	999	957	95%	
Property7^	2022	8172	12412	10208	85%	
Property7^	2023	8645	10776	9223	88%	
Property8*	2021-23	0	0	0	0	0

*Property8 participated but did not submit data. ^whole of flock data. NS: No Scanning results

Property specific notes:

Property1 did not report historical base lamb and ewe numbers for 2020. However this property did fully implement the program (PCMP) in the first year, however changed their practices in years 2 and 3 by way of different monitoring and bait use and recording to try and reduce disturbance during lambing.

Property2 had a good start to the project by following the program, however 2020 data was not supplied. This property reported a lack of staff and higher than usual workload due to the season in the second year meaning the program was virtually not followed in year2. The final year3 they had employed someone to put out baits and continue the program, however this casual worker did not attend any of the training.

Property3 did report figures for 2020 and showed an increase in LS% in the first year by following the PDS program. This property also already had a fox-baiting and shooting program leading up and during lambing, prior to involvement in the PDS. There was also a staff changeover in year2, and the new staff were not trained in all aspects of the PCMP until late in the second year of the project. The program was not followed closely in the final year of the project, and was also unable to collect lambs for post-mortem.

Property4 was unable to secure a scanner for the first two years of the project. This property did report LM% which continued to increase for the duration of the project. This property also had staff leave after year1, which meant the workload for remaining staff was increased. This meant the program was not followed closely in year2 or year3, however the lambing data was collected, and scanning was completed in year3. This property also was unable to collect any lambs for post-mortem.

Property5 showed an increase of LS% by 2% in the first year from the historical data supplied (not shown). However, Property5 was late to implement the program, until just prior to the start of lambing. This property had started the PCMP earlier in the final year 2023 of the project and subsequently recorded an increase in their LS%. This property also reported an improved worm management protocol was used in the third year of the project. In comparison to the second year, this property reported a much reduced workload during the lambing period of 2023 compared to 2022

Property6 submitted historical data from 2020 and showed an increase in the first year of 2% for their LS% figure. This property reported only on select mobs that were monitored as per the program and achieved an otherwise unexplainable and remarkable LS% figure and improvement from the year prior on similar ewe numbers and scanning rates. This goes to show what is possible. The LS% figure did drop down in the final year, however the number of ewes for which data was supplied nearly doubled, meaning the program was expanded to include extra mobs on the property.

Property7 did not report historical data for 2020, however showed a relatively high LS% figure in the first year of the project for a few mobs. In subsequent years, the property submitted the majority of their lambing data and the LS% figure dropped in year2 but increased in year3. This property also was already implementing predator control practices such as baiting and shooting prior to

participating in the PDS. It is possible this property had already improved their LS% compared to other properties that were not implementing a fox-baiting program.

Given that the producer properties were not able to integrate the program on their property 100% every year of the project, this must be considered when determining the benefit of the project and predator control to the properties. While clearly the evidence is by way of increased LS% figure, when the properties achieved their best LS% result during the project, this was when they were able to follow the program closely. And when their LS% figure dropped, was due to not following the program as they would have liked, due to the above mentioned factors. For these reasons, it has been decided that the benefit of participation in this PDS should be the result obtained when the property was confident they had best followed the program. Given there is going to be some variation from year to year naturally, this should be considered also. Conversely, given that some properties had their LS% reduce, it is impossible that by following best practices that production would be reduced. Therefore the reduction in LS% if any, must be due to other external factors, and are assumed would be larger, or worse-off without the implementation of the program.

Based on this reasoning, and assuming that the best results were achieved while following the program closely, and the worst LS% when the program wasn't followed closely, then the average best increase in LS% over these 7 data contributing core properties is 9%, with a range of 6 to 13% increase in foetuses surviving over the duration of the project. However, given that the data has jumped from year to year, there is no clear trend to follow, and after much discussion on the data, the producers agree that they could increase lamb survival by 2-5% and possibly more on an average property not currently following some or any of best management practices demonstrated in this project. The following benefit-cost analysis has been calculated based on this reasoning using a conservative 2% increase in Lamb survival that any property should be able to obtain.

4.2 Economic analysis

Result of the economic cost-benefit analysis (CBA) undertaken can be found in Table 4 below. The core producers reported the time and consumables they used in the final year of the project, as well as their average lamb sales figures for which to base the CBA (personal communication). Using this information, Table 4 shows that when a conservative 2% increase in lamb survival is achieved, this group of producers with an estimated 23,491 foetuses, can produce an extra 470 lambs. Based on average lamb prices (personal communication) for the period of November/December 2023 for prime lambs of \$120/head, also believed to be a current market low, this amounts to a potential increased revenue of \$56,378 for the group over a 12 month period. After all directly associated costs are accounted for, and using the most conservative figures, this works out around \$38,000 of extra income for the group over a 12 month period (Table 4).

Table 4. Economic Analysis of benefits of Property Specific Predator Control Management Programs

	Total Foetuses*	Extra Lambs	\$/Hd*						
Benefits	23491	470	120						\$ 56,378.12
Property	1	2	3	4	5	6	7	Total	
consumables	100	200	500	200	150	500	500	2150	
labour	3000	3000	3000	500	1000	3000	3000	16500	\$ 18,450.00
Total									\$ 37,928.12

*Figures based on 2023 project data for monitored mobs and producer correspondence

It should be noted that significant losses due to wild dog attacks were also recorded during this PDS of 171 animals (Figure2). The value of these animals is estimated at around \$37,000, or around \$12,000 per annum over the period of the PDS. The bulk of these losses were incurred by only two of the core producer properties involved and occurred during off-target periods ie. not prior to lambing, when heightened control measures were not being implemented. This highlights the threat and damage that wild dogs pose to sheep producers. These costs and the reduction of further losses have not been included in the CBA, however, would be very relevant to consider for properties in areas where wild dogs are present.

4.3 Extension and communication

There have been at least 16 days over the course of the project where activities, either on-farm one on one (not all recorded as were run ad-hoc to fit individual schedules) to collect bloods, set up Feralscan and plan property specific PCMPs. Other days were group workshops or seminars which had visiting guest speakers present to the core and observer producers, as part of the communication and extension of this project and is summarised in Table 5 below.

Table 5. Summary of Communication and Extension Activities, guest speakers and attendances as part of the Less Predators, More Lambs PDS.

Date	Session Topic	Guest Speakers	Attendees
YEAR1			
16.12.20	Zoom Planning (Project steering committee)		3
13.1.21	Zoom Planning (Project steering committee)		3
27.1.21	Project Overview and Introduction for Core Producers		8
4.2.21	Reproductive and Ewe Health Seminar	Jim Walsh	13
4.3.21	Predator Management Workshop	Greg Mifsud	12
25.3.21	Lamb Survival Workshop	Nathan Scott	9
28.4.21	LTEM Refresher Onfarm workshop		8
YEAR2			
4.11.21	Year One overview Workshop		5
3.8.22	Combined MLA PDS Groups Seminar/Refresher Workshop	Kristy Howard	20
31.1.23	Year 2 Review Meeting		6
YEAR3			

20.4.23	Project refresher Day and Predator control Update	Greg Mifsud, David Klippel	12
2.6.23	High Ewe Production and CS Workshop	Jason Trompf	16
25.1.24	Grand Finale Review Meeting	David Klippel	10
Total			119

Total attendances across the events have been calculated to 119 (Table 5), with the highest attendance being when a guest speaker and observer producers were invited to attend. The PDS was heavily weighted with six meetings plus on-farm days in the first year, and two to three days in years two and three. This was due to the course-like structure of the PDS to demonstrate the best management practices to staff on the core properties. The activities on-farm included Lifetime ewe Management style refresher days where ewes were yarded and a Condition Scored (CS) and feed on offer (FOO) and feed budgeting demonstration and hands-on exercises were run. In addition, the PCMPs were discussed.

The procedure on how and where to lay baits for different species was also demonstrated as well as the use of the Feralscan mobile phone App. Seminars with visiting experts were held on ewe health, vaccinations, drenching and reproductive disease management with visiting guest speaker Dr Jim Walsh, Coopers Animal health. There was another session focussing on lamb survival with Nathan Scott, and another similar day was run looking at lamb survival in highly fertile sheep breeds with Jason Trompf. Observer producers were also invited to attend these events with visiting guest speakers.

There has been at least four articles in the Mansfield and North East Farmer Newspapers, and a similar amount published in the National Wild Dog Action Plan (NWDAP) newsletter. There has been a case study article published online [LPML Producer case study article](#) and for the 2023 Spring edition of the MLA Feedback magazine. This article features one of the core producers involved in the PDS, with this same producer also featuring on a prominent TV program The ABC 7:30 Report investigating the impact of Wild Dogs and the effectiveness of their management practices, with a view that some wild dogs are dingoes and as such should be protected ([click here for a link to the story online](#)). From discussion with industry, it is understood that some producers are no longer running sheep due to the devastating damage and destruction caused by wild dogs in some areas. There was also an ABC radio interview regarding the project, following a media release by the NWDAP, however there is no record or link to the radio interview available.

4.4 Monitoring and evaluation

Maintaining optimum lamb survival is considered a great result let alone improving it on any ewe breeding enterprise. Generally it appeared that the ability of the individual core producer to focus on their PCMPs and ensure to carry out the best ewe management practices demonstrated, and on time, led to the properties achieving their best LS% results. The particular ewe management practices were monitoring ewe condition score, feed on offer (FOO), feed budgeting, animal health such as reproductive disease, worm burden, scanning and separation of singles and twins, use of shelter and reducing mob size during lambing. In addition, changes can only be made possible if measuring and recording these metrics is occurring on farm.

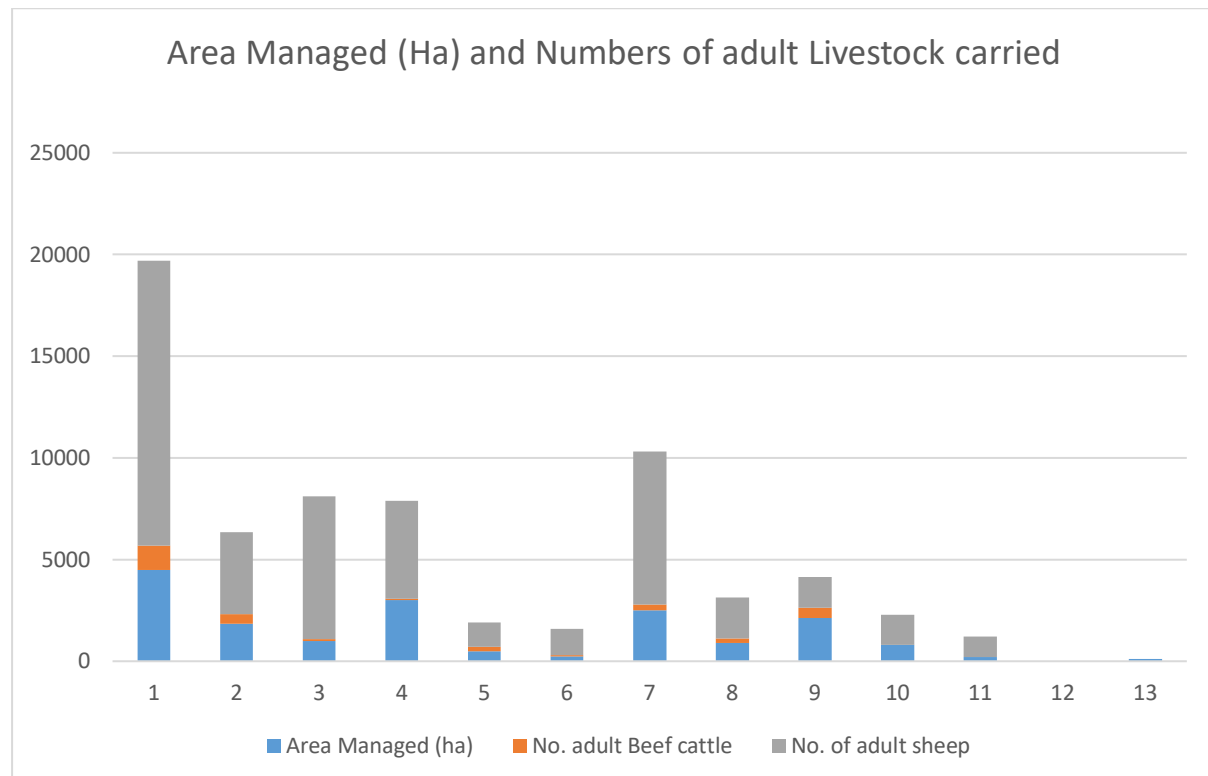
The survey results obtained from the pre and post project surveys gave insights to the change in knowledge, skills and practice change of the producers involved in the PDS.

4.4.1 Section A – demographic information

The first workshop seminar was used to hand out pre-project surveys and obtain important demographic information on the group. Out of the 13 responses obtained the total amount of hectares managed by the core producers was 14,470 Ha, and 3,244Ha for the observer producers (data not shown). The range in property size was from 0-4,500 hectares (Fig. 4). The number of adult breeding cattle in the core group was 3,155 head with the number of sheep being 45,800. Cattle herd sizes ranged from 0 to 1200 head, while sheep numbers ranged from 1,000 to 15,000 breeding ewes (Fig.4).

Below is a visual representation of the quantity of adult sheep and cattle the producers currently run.

Figure 4: Producers responses to the area managed and the number of adult Livestock carried in 2021



Core producers were satisfied with the project overall giving an average score of 9/10.

The core producers found the project valuable with an average rating of 8/10 and all producers said they would recommend participating in a PDS project.

4.4.2 Section B – knowledge and skills

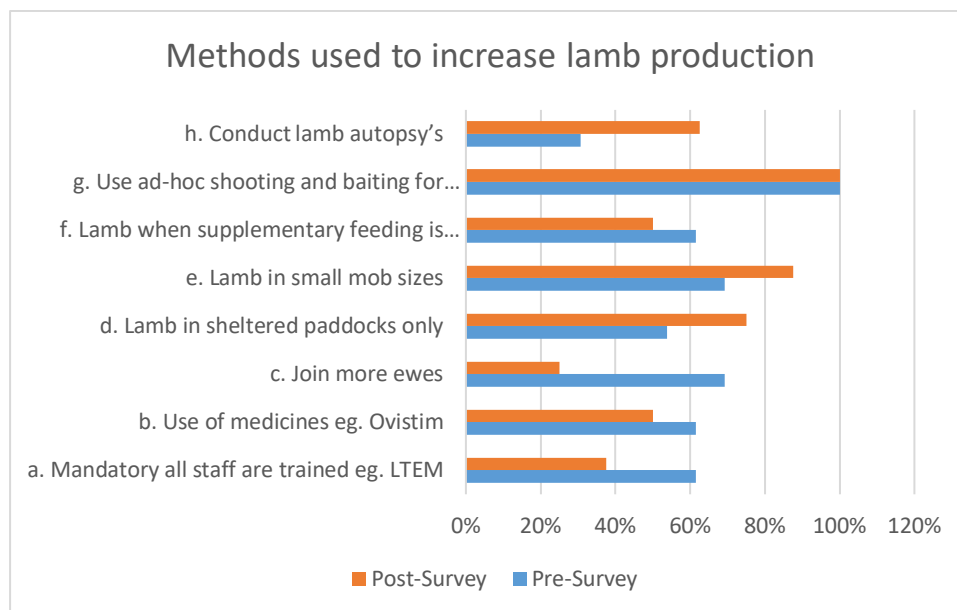
Overall, the producers thought the PDS increased their knowledge of predator control and ewe management resulting in increased lamb survival. Similarly the producers gave an average score of 8/10 for their increase of skills in predator management and control methods. It should also be noted that some producers already had a good grasp on these skills and knowledge, having adopted some or similar methods prior to the PDS project beginning. The core producer group in this PDS

were therefore starting from a high knowledge and skill base in both ewe management and predator control management.

Knowledge was found to have shifted from a high level of importance placed on only a couple of areas of ewe management being Ewe CS and FOO at the beginning of the project, to a more unanimous consensus of 7/8 agreeing that there were more factors that played an important role in maximising lamb survival. These other factors were primary predation, reproductive disease and chill index at lambing (all of the above).

Between the pre and post project survey, participants demonstrated a change in what they selected for 'methods currently used to increase lamb production', whereby the emphasis on mandatory LTEM, use of medicines, joining more ewes, and lamb when supplementary feeding is not required all reduced, however lambing in sheltered paddocks and smaller mob sizes, conducting lamb autopsy increased in focus, and using ad-hoc predator management shooting and baiting stayed the same at a unanimous 100% (Fig.5).

Figure 5: Producers responses to the 'methods used to increase lamb production' pre-project in 2021 and post-project in 2024



4.4.3 Section C – confidence and practices

On average, the group improved their confidence that lamb survival is at its highest level possible through their management practices, and so too was their confidence in controlling predator numbers during lambing.

The key point highlighted that may limit the producer to implement the practices was time, which was apparent with staff shortages and a high workload of the producers.

A noteworthy comment is that one producer decided to hire extra staff to implement the PCMP program due to involvement in the PDS.

The producers involved in this PDS also included some producers that were already implementing best practice predator control methods, and therefore their results and skills improvement may not have been as high as others that were not using these practices.

The PCMPs were implemented 100% by 7 of the core producers supplying data for the project. For a range of reasons, mainly staffing arrangements and workload and seasonal conditions meant that the PCMPs were implemented to varying degrees over the duration of the project.

Where possible, all core producers implemented the PDS PCMPs. There were reports of some observer producers also implementing some of the PDS practices, they did not have guided help to develop a PCMP for their property.

All producers said they would measure lamb survival rates, bait for wild dogs and foxes and a mixed response to identifying paddocks with better lamb survival. This is probably due to predator control practices occurring in the better sheltered paddocks giving good lamb survival rates in all paddocks.

All responding producers reported that their scanning rates, lamb marking rates and lamb survival percentages had all increased.

Other comments left by producers when asked if they intend to make any changes to their business as a result of participating in this PDS included the following:

- Continue with Best Practice.
- Baiting for longer
- Baiting & getting neighbours onboard
- Yes, methods for predator management
 - Bait more
 - Use PCMPs each year

5. Conclusion

This project found that that if a producer followed the best management practices demonstrated in this PDS closely and implemented the property specific PCMP and ewe management practices, it achieved its best or improved LS% results. However, the properties reported that it was difficult to achieve full program implementation at times, for varying reasons. This was especially difficult when new staff are employed and are not properly trained in the program, or when the workload on current staff ballooned due to changes in seasonal conditions (no data reported).

The core producers all agree that their LS% can be maximised by implementing the multifaceted approach to ewe management as demonstrated in this PDS project. This improvement can result in increased farm income that is higher than the cost to implement the practices.

5.1 Key findings

- Predator management in the form of a property PCMPs implemented 6 to 8 weeks prior to the start of lambing will reduce lamb losses to predators, even if the neighbour isn't implementing baiting practices
- Lamb survival can be improved by at least 2% and potentially by 9% by fully implementing one or more ewe management practices, and can be additive, and starts with measuring the flock performance
- Producers found it difficult to implement all the best practice management strategies 100% of the time, every year, due to varying reasons, such as staff workload and seasonal differences
- One of the major causes of lamb loss as determined by post-mortem was mismothering and starvation, and was highest in mobs scanned as multiples

5.2 Benefits to industry

- Implementation of the Less Predators, More Lambs multi-faceted approach to ewe management can improve lamb survival rates and increase farm production efficiency which can have an effect on the climate
- The Less Predators, More Lambs would make an excellent PGS program
- Key challenges were being able to manage all of the multi-faceted ewe management practices in combination with the variables experienced by ewe grazing enterprises, including but not limited to: staff knowledge and availability, seasonal conditions and variation in workload, animal health in particular worm burden and reproductive disease
- Predator control practices need to be considered, and when wild dogs are left un-controlled their impact can be devastating, to the point where producers will no longer be able to farm sheep.

6. References

1. Data from Greg Mifsud, National Wild Dog Management Coordinator, Centre for Invasive Species Solutions

7. Appendix

7.1 Project producer guide

Download here: [Project producer guide for increased lamb survival through better predator management](#)



AGRIDOME
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Producer guide for increased lamb survival through better predator management

Predator management and lamb survival data capture

The importance of predator management

Predator numbers can build quickly such as in response to the availability of a feed source. Once predator numbers grow, their feed source will need to be maintained to sustain them which can mean predators will need to move into new territory in search of food. This could be onto your farm and your young lambs, or it could be into native reserves where they will prey on native animals.

The proper management of predator numbers can reduce their impact on both native animals and livestock.

Understanding predator behavior

It is important to understand the behavior of different predators. For example, wild dogs prefer to take paths of least resistance and ridgelines, whereas foxes prefer to take paths along secluded or lower-lying areas such as creeks and drainage lines.

Depending on the predator of concern, different areas or zones within a property should be chosen to place baits in order to be more effective in controlling that particular species.

This can vastly reduce the amount of time spent on predator control activities, while maximizing the results obtained.

Key outcomes

- Predator Control Management Plans (PCMPs) save time and improve the effectiveness of baiting campaigns.
- Lamb survival can be improved with combined predator and ewe management practices.
- The FeralScan app can help improve predator management efficiency.

Things to consider

- key date to implement your PCMP
- animal health considerations
- paddocks for twin and single bearing ewes.
- Staff training



Image 1: David Klippel, DEECA Senior Wild Dog Controller, demonstrating to producers the procedure for setting a trap.

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1

Preparing lambing areas

There are many considerations when preparing paddocks for lambing in order to maximise lamb survival. These include scanning ewes and separating ewes based on single, twin or triplet, feed on offer (FOO), ewe body condition score (BCS), and animal health such as vaccinations for disease and deficiency. Other factors considered important are shelter from inclement weather, paddock and mob size, and privacy.

Predator management techniques

There are several management techniques useful for predator management. These can be broadly grouped into lethal, deterrent or avoidance techniques.

Depending on the predator being targeted and the preferences of the livestock manager, one or more of the following techniques may be employed. The main techniques for each broad category are listed below:

Monitoring: Remote activated field cameras and sensors, drones and thermal optics

Lethal: Trapping and Shooting and baiting/fumigating

Deterrent: Lights, alarms, guard animals, drones

Avoidance: Exclusion fencing, housing or enclosing

Timing predator management strategies

Pre-lambing: Studies have shown that when a predator management program is in operation at least six weeks prior to the commencement of lambing, a wider area or zone will be cleared of predators, even if the neighboring property is not controlling their predators.

During lambing: Predators such as foxes and wild dogs can travel large distances in search of new territory. Continuing predator control throughout lambing is aimed at controlling any new predator arrivals into the lambing area on your farm.

Post lambing: Monitoring of control sites once lambing is complete is important to ensure no baits are left in the field. Focusing predator management strategies on key times of year such as during predator mating season can help control predator numbers during lambing season.

Record keeping and data analysis

Records required to measure changes in lamb survival rates due to improved practices include:

- mob description and lambing paddock details
- scanning data
- lamb marking data
- any ewe or lamb mortality data
- any relevant site observations during lambing
- all data should be recorded for each different lambing area/paddock.

It is important to note that some data may seem irrelevant at the time, however it can help form an overall picture at a later time when assessing the data and looking for opportunities to improve results.

Working with local authorities

Working with the local authorities such as the local Wild Dog Controller can improve your results. Often the local authorities can provide helpful information that aids in the effectiveness of your predator control program. They will often have in-depth knowledge of predator behavior.

Local authorities can also hold information sessions to help notify and explain to the community why predator control is necessary.

It is important to know who your local authority is, how to contact them, and to notify them of any predator behavior such as wild dog attacks.

Training and educating staff

Staff are a key asset on any farm. If they are adequately trained, they will have the proper knowledge to carry out tasks and understand both why they are needed and when they should be completed by.

The use of apps such as FeralScan can help reduce staff workload. Being trained in the use of new technology can save labour and ensure information is easily accessible during times of audit or reporting to business owners.

Access the FeralScan app here:
<https://www.feralscan.org.au/>

Reviewing predator management strategies

Managing your flock for increased production will generally lead to running greater quantities of more productive stock. It is therefore important to use multiple strategies that build efficiency and reduce waste in the overall system.

When combined with predator control programs, an integrated approach has been shown to improve lamb survival and the bottom line. Strategies as part of this approach include staff training in best ewe management techniques for feed requirements and animal health, as well as lambing paddock size and location.

Record keeping and data capture 'Predator Control Management Program' (PCMP)

The recording of data and relevant information has been simplified by the compilation of a PCMP template. The PCMP is specific to a property and can be quickly deployed every succeeding year by changing the relevant dates. The benefit of the PCMP is that all the relevant information including key dates, resources required and neighbor notification of program record as may be required by law in some states and territories, is conveniently included in a simple two-page document. This saves time when the program needs to be deployed or when new staff require information about the program. *The PCMP template is located on page 4 of this document.*

Lamb survival data capture:

By measuring and monitoring this data for several lambing seasons, management decisions can be made to improve lamb survival. These could include the best lambing paddocks for twin vs single scanned ewes.

As a part of the PCMP template attached, a data capture worksheet has been developed. The worksheet contains the relevant fields to help keep track of important lamb survival records for each mob on the property. This page can be copied or transferred into a spreadsheet. *See page 6 of this document.*

Additional Resources:

The following supporting resources have been developed by the Centre for Invasive Species Solutions and can be found at pestsmart.org.au/resources/

- [A field guide to poison baiting: wild dogs and foxes](#)
- [Glovebox guide for managing wild dogs](#)
- [Glovebox guide for managing foxes](#)

For further information: Matt Mahoney, Agridome Consultancy Pty Ltd M 0438 209 707 E Matt.agridome@gmail.com

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3

Predator Control Management Program __/__/__

Property name: _____

FeralScan login details: _____ Password: _____

Property key contacts

NAME	MOBILE	EMAIL

Property key dates

Rams in:	Rams out:
Lambing start:	Lambing finish:

Program start date: _____ Program finish date: _____

Signs up date: _____ Neighbour notifications date: _____

Name	Contact method	Y/N	Name	Contact method	Y/N

Baits and devices:

Number of signs: _____

Number of bait sites: _____

Number of device sites: _____

Bait/device	No.	Cost	Order		
1080 Bait Fox Dog					
PAPP Bait					
Canid Pest Ejector					

Property map

[Insert property map from FeralScan website here]

Lamb survival data capture worksheet:

This data capture worksheet contains the relevant fields to help keep track of important lamb survival records for each mob on the property. This page can be copied or transferred into a spreadsheet.

Lambing season base data and summary worksheet:

Farm ID:		Lambing Season:	
-----------------	--	------------------------	--

Lambing Paddock	Description of Ewes (breed, age, single or twin)	Paddock Size	No. Lambing Ewes	Scanned T/S	Dry %	No Foetuses	Lambs Marked	Lamb Mortality Observed	Marking %	Lamb Survival %	Ewe Mortality %	Other
Farm Total /Average												

7.2 Articles and Case Studies

7.2.1 Mansfield Courier – June 2021

mansfieldcourier.com.au

MANSFIELD COURIER - Wednesday, June 2, 2021 - Page 27

Working for lamb survival in Mansfield

By EMMA OLIVER

WITH autumn lambing in full swing, a group of local producers have been laying the groundwork to ensure a higher survival rate of lambs by removing predators from the equation.

Less Predators, More Lambs is a pilot program putting in place property-specific, pest management plans, tracked over a three year period.

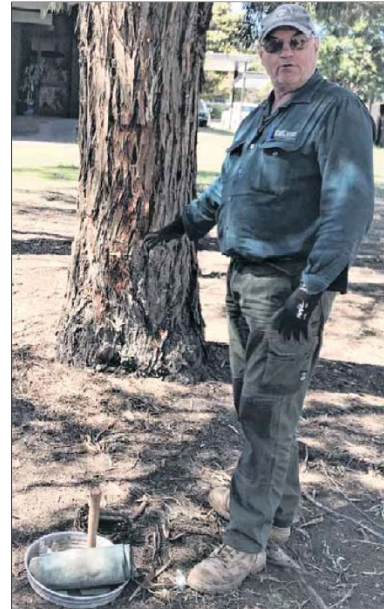
Funded by Meat and Livestock Australia (MLA), the project involves eight core producers in the Mansfield Shire and the project is led by agronomist and livestock advisor Dr Matt Mahoney, of Agridome Consultancy, and utilises the skills of national wild dog management co-ordinator Greg Mifsud and community baiting co-ordinator Lucy-Anne Cobby of DELWP and Australian Wool Innovation.

"Predator eradication for many producers can often be something of an ad hoc approach, trialling shooting then baiting, followed by a year when nothing is done," said Dr Mahoney.

"What we are doing is introducing a planned ongoing program utilising the FeralScan app as part of a preda-



EXPERT ADVICE: Greg Mifsud, the national wild dog management co-ordinator, has also been brought into the project as a consultant, determining best predator management plans that are property specific.



PROVEN EFFECTIVE: David Klippel from DELWP demonstrating wild dog and fox control measures at a workshop held in Bonnie Doon.

tor control management program specific for each property, and combining this with best management practices for our scanned in lamb ewes.

"The overall aim is lifting lamb survival rates and farm profitability.

"The predator control program has a defined start and finish date relevant to when lambing begins, with the objective of reducing predator numbers in a zone surrounding a lambing flock for the duration of four to six weeks prior to lambing until the completion of lambing.

"We realise that there are so many predators out there (with previous research indicating over 300 foxes within a five kilometre radius) that complete eradication would be impossible."

Eight core producers are participating in the three year project, with many more observer producers watching on in support.

There are a mixture of predators that concern the producers, while mostly it's foxes some are unfortunate to have wild dogs as well.

"In the lead-up, many variables that could affect lamb survival were considered," Dr Mahoney said.

"We have tested ewes for reproductive disease and have implemented vaccination programs where this was advised.

"Ewe pregnancy scanning and lambing figures will be compared from previous years on each property to monitor any improvements as a result of the project."

Another integral part of the project is a series of workshops that both core and observer producers

could participate in.

This included another MLA-funded workshop dedicated specifically to increasing lamb survival.

This information can then help with ewe and lamb management in the future.

This will be a combination of producer recorded information and post mortems conducted by the local vet at Delatite Veterinary in Mansfield.

While it is known that predators have an impact on lamb survival, industry professionals are not sure exactly by how much.

The project hopes to clarify this, taking into consideration that some paddocks will have higher predation than others due to natural landscape access corridors such as creeks, gullies and treed areas that provide cover for the predators.

Ms Cobby is responsible for supporting landholders in the Hume region with wild dog control.

Data regarding lambs taken by predators is somewhat ambiguous, with a conservative estimate of between a five and nine per cent attrition rate.

Many producers would not be surprised if in fact the figure was much higher, and when wild dogs are active, this is thought to be significantly higher again.

This is because the wild dogs both directly kill lambs and adult ewes, and indirectly disturb by causing others to miss-mother.

"I oversee from Corryong to Mansfield and everything in between - which are all wild dog areas - and my role is to set-up community groups within those areas to

support each other and to work collaboratively in a coordinated way to tackle the problem," Ms Cobby said.

"I organise training and workshops, with a clear understanding that each region and problem is slightly different, and that things need to happen in a way that is location specific.

"In regards to predator eradication, my work specifically addresses the wild dog issue, however, there has always been an undercurrent of foxes.

"When a wild dog attack is reported, time and resources are used up removing a quantity of foxes with baits taken and traps set-off, before the problem wild dog can be caught.

"There is a commonality between the predators, however, there are also quite significant differences between the species, and my belief is that if you can keep control of your foxes you can then get on with your dogs."

David Klippel works for DELWP, supervising wild dog control in the Mansfield Shire, along with overseeing the controllers in Whitfield and Alexandra to ensure a collaborative effort to the problem between bordering shires.

Mr Klippel has been working in the industry for 31 years, specifically targeting wild dogs, and welcomes the pilot program for the concentrated effort at eradicating introduced predator species.

His role in the program has been to facilitate workshops through demonstrations of traps and baits, like the spring activated Canid Pest injector, along with site

preparation tips for setting traps correctly.

"Ideally more landholders will take on the initiative, so that we can expand the program and hopefully reduce predators in the region," Mr Klippel said.

"Traditionally, fox control has fallen under the landholders' responsibility, and with this controlled approach targeting the introduced predators during a set time, we may see a decline in the fox population in

some localities."

With a bait take-up and replacement strategy clearly defined for the project, the hope is to capture data around this which hopefully can be correlated with increased lamb survival.

There are numerous factors involved in lamb survival, and those involved with the project are aware that they may not initially see much of a result.

As the first step in a trial model intended to create

long ranging impact, Dr Mahoney is entering the project quietly optimistic.

"While we cannot accurately say how many predators are actually out there in our region or the effect they are having on producers' ewes and lambs, we know it is significant," he said.

"This project will go some way to helping us better understand this impact, and the control measures we need to put in place to mitigate them."

Wangaratta Saleyards

Support local producers and buy at Wangaratta's state-of-the-art facility



Weekly Prime Cattle Sales

June 3rd, 10th 17th & 24th

Starting at the new time of 8am

\$12 Flat Fee per head
(Weigh Fees and Yard Dues)

Monthly Store Sale

1st Friday of the month at 10:30am

\$10 Flat Fee per head
(Weigh Fees and Yard Dues)

7.2.2 North East and Goulburn Murray Farmer – July 2021



EXPERT ADVICE: Greg Mifsud, the national wild dog management co-ordinator, has also been brought into the project as a consultant, determining best predator management plans that are property specific.

July 2021

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Continued page 5

North East and Goulburn Murray Farmer - Page 5

From page 4

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PROVEN EFFECTIVE: David Klippel from DELWP demonstrating wild dog and fox control measures at a workshop held in Bonnie Doon.

7.2.3 North East and Goulburn Murray Farmer – July 2021

NORTH EAST AND GOULBURN MURRAY

Farmer



Part of the Farmer Group Rural Newspapers Covering Victoria

Published since 1986

JULY, 2021

www.farmernews.com.au



LESS PREDATORS, MORE LAMBS

THE aim of the game is always to get as many prime lambs to market as possible, with Dr Matt Mahoney and seven sheep producers in the Mansfield Shire employing a concentrated effort of predator eradication to document the results. Putting in place property specific, pest management plans, 'Less Predators, More Lambs' is a three year experiment funded through Meat and Livestock Australia, with producers chosen to participate based on best management practice. The goal is to achieve a noticeable improvement in surviving lamb numbers through a considered and consistent approach to fox and wild dog control.
■ Turn to pages 4 and 5 to read more.

Lack of process exacerbates problems with Land Act

By EMMA OLIVER

WITH Russell Bate's grazing licence up for renewal in October, he's seriously considering whether he wants to take on the responsibilities and the angst of holding a licence with the Jamieson river frontage on the Jamieson, with changes to the Land Act coming into effect on September 1.

"I wanted to determine what changes were proposed to the wording of agricultural licences to protect licence holders from exposure to issues like liability caused by the changes," said Mr Bate, a former Mansfield Shire councillor, and current acting president of the Jamieson Community Group.

Contacting both the Department

of Environment, Land, Water and Planning and the Victorian Fisheries Authority, neither was able to answer Mr Bate's query.

"My query was in relation to four specific clauses - two that governed indemnity and insurance, and another two that related to rubbish removal and burning on Crown land," he said. "All these clauses impose

obligations on licensees that were acceptable, until recent changes to the Land Act and proposed camping on licensed land.

"Yet no one was able to answer what the impact on these four fundamental clauses would be.

"DELWP and the VFA are supposedly working in partnership to implement the government's election commitment, yet I was

handballed between the two departments.

"The final response in regards to my licence was that specific conditions may need to be removed, updated or even added, and that this would occur after the finalisation of regulations that will support camping on grazing licensed areas.

■ Continued page 13

7.2.4 AWI Beyond the Bale - March 2022

Monitoring and evaluating pest predator management

By combining the principles of Lifetime Ewe Management with best practice wild dog and fox control, a group of sheep producers at Mansfield in North East Victoria have increased their total lamb survival rates by up to 5 per cent.

Eight prime lamb and wool producers at Mansfield are taking part in a Meat and Livestock Australia funded Producer Demonstration Site project called 'Less Predators, More Lambs'. The project showcases the implementation of best practice predator control on the participating sheep properties.

The project started in February 2021 and will finish at the end of 2023. It is led by Dr Matt Mahoney of Agridome Consultancy and supported in partnership with the part AWI-funded National Wild Dog Management Coordinator Greg Mifsud of the Centre for Invasive Species Solutions, and the AWI-supported Community Wild Dog Control Coordinator Lucy-Anne Cobby.

In its first year, the project included three training workshops focused on key sheep management topics and included refresher days on Lifetime Ewe Management (see box right), increasing lamb survival and constructing property specific Pest Management Control Program (PCMPs).

There was also training and accreditation on 1080 baiting. Expert speakers on each topic were involved with running each workshop, including DELWP Senior Local Wild Dog Controller David Klippel on proven techniques for laying 1080 baits, and setting Canid Pest Ejectors and traps.

Support also included on farm guidance from Greg Mifsud to formulate their PCMPs and use the FeralScan app. This was important to ensure each property could focus control efforts where foxes and wild dogs were mostly likely to be found.

Lamb survival rates increase

The producers met towards the end of last year to evaluate their progress so far. The results from the first year showed total lamb survival had improved on all the participating properties in the range of 2 to 5 per cent.

With more than 6,000 ewes scanned to either single or twins being monitored as part of the project, this increase in lamb survival could potentially add significant



The 'Less Predators, More Lambs' workshops focused on key sheep management topics and included refresher days on Lifetime Ewe Management, increasing lamb survival and constructing control programs using the FeralScan app. PHOTO: Lucy-Anne Cobby

dollars to the producers' bottom line.

Post-mortems on a sample of dead lambs collected by producers were undertaken by the local veterinarian to determine cause of death. Although only 40 lambs were collected for post-mortem, 18 per cent were confirmed to have been killed by primary predation with no apparent difference in predation risk as to whether the lamb was a twin or a single.

It is hoped this information can be further substantiated by increasing this dataset over the remaining life of the project.


The group will continue to monitor, evaluate and report their progress of the project until its completion in 2023.

FeralScan app proves easy to use and useful

FeralScan is a free online resource that producers – plus other landholders, community groups and professional pest animal controllers – can use to record information about pest animal activity in their local area. It can be accessed and works through a user-friendly website and phone app. See www.feralscan.org.au for more information.

The producers in the Mansfield 'Less Predators, More Lambs' project formed their own FeralScan app group and used the app to record incidents of livestock attacks, implementation of control and the outcome of control programs.

The app allowed the group to create a map of where they were focusing their control activities, keep records of where they laid baits or traps and helped the group to remain connected and work with their neighbours to coordinate control to get the best outcomes.

The producers reported they were happy with how easy the FeralScan app was to use. 



Lifetime Ewe Management (LTEM) was developed using research outcomes of the AWI-funded Lifetime Wool project (lifetimewool.com.au), which ran from 2001 to 2008, and involved growers and researchers in WA, Vic, NSW, and SA.

LTEM courses, supported by AWI, are run in wool producing regions across Australia. The course aims to increase producers' understanding of the influence of ewe nutrition and management on overall reproduction rates and lamb and ewe survival. Producers develop the skills to manage their ewes to achieve condition score targets and explore the economics of supplementary feeding and pasture management to review stocking rates

LTEM groups meet six times during a period of 12 months. The course is very hands-on, being based in the sheep yards, shearing sheds and paddocks of participating woolgrowers, which enables participants to share and learn from one another.

More information

If you are interested in joining an LTEM group in your area, contact RIST's LTEM Program Manager, Bec Malseed on 0407 730 943 or visit www.rist.edu.au/lifetime-ewe-management

7.2.5 Article: Producers implementing collaborative predator management to lift lamb survival – August 2022

[Article: Producers Implementing Collaborative Predator Management to Lift Lamb Survival – August 2022](#)

7.2.6 Producer case study: Pinnaroo - Aug 2022

[Paul Diamond, 'Pinaroo', Producer Case Study](#)

7.2.7 MLA Feedback magazine: Project overview and case study - Spring 2023

[Project overview and producer case study, Published MLA Feedback Magazine - Summer 2023](#)

7.2.8 North East and Goulbourn Murray Famer – March 2024

Less Predators, More Lambs three-year project concludes

LOCAL producers in Mansfield gathered at the end of January to review the final overall results from the 'Less Predators, More Lambs' MLA Producer Demonstration site Project, which recently completed its third and final year.

In an attempt to address the critical issue of predator impact on lamb survival rates, particularly attributed to foxes and wild dogs in Northeast Victoria, the 'Less Predators, More Lambs' Producer Demonstration Project, coordinated by Matt Mahoney of Agridome Consultancy and funded by Meat & Livestock Australia (MLA), has now completed three years.

This MLA Producer Demonstration Site (PDS) project assessed the effectiveness of best-practice predator control in conjunction with best practice ewe management, ultimately influencing adoption among local sheep producers.

The project, supported by collaborating partners including the Centre for Invasive Species Solutions, DELWP (now DEECA), and Agridome Consultancy, engaged eight producers serving as demonstrators.

These producers implemented property-specific Predator Control Management Programs (PCMPs) which utilises the Feralscan App to address the impact of predators on lamb survival.

The on-farm issue targeted by the project was the impact of predators, mainly foxes and wild dogs, on lamb



DISCUSSING RESULTS: Mansfield producers from the 'Less Predators, More Lambs' MLA Producer Demonstration site Project, pictured from left are Garry Breadon, Alex Jackson, Emma Tadday, David Klippel, Matt Mahoney, Paul Diamond, Adrian Oliver and Karin Oliver.

survival rates from birth to lamb marking.

The group observed that predators may inadvertently lead to mis-mothering, even without direct predator attacks.

The aim was to assess if implementing best-practice predator control can improve lamb survival.

The main target audience was sheep producers in North East Victoria, particularly those in the Goulburn Broken Catchment.

The engaged producers served as demonstrators, aiming to influence the wider community by showcasing the benefits of best-practice predator control.

The project's objectives included engaging eight producers to demonstrate

and implement property-specific PCMPs, improving lamb survival rates, conducting a cost-benefit analysis, encouraging the implementation of PCMPs in conjunction with other best ewe management practices on producers' properties, and increasing knowledge through workshops and seminars, which other interested producers or members of the community were invited to attend as well.

The project developed property-specific PCMPs, provided training with the Feralscan App, and offered a comprehensive overview of knowledge in best management practices for ewe flocks.

On-farm training on best-practice Predator Control Management and the im-

plementation of property-specific PCMPs using the Feralscan App, ewe condition scoring and feed budgeting were all provided to the core producers.

The results indicated that lamb survival could be improved significantly when all best practices were combined together with predator control.

Increased lamb survival from implementing PCMPs improved the farm bottom line on average by around \$3.87/ha of area managed.

This initiative has far-reaching benefits for the industry, demonstrating the economic impact of best practices and potentially leading to benefits for the environment and increased profits for producers in the region.

Producers observed a clear impact from predators, and the project estimated that improved predator management could benefit the entire region.

The ABS figures for 2017-18 estimated 1025 sheep properties in the Goulburn Broken Catchment, producing 750,000 lambs annually.

The project properties demonstrated a general improvement in lamb survival figures, suggesting an additional \$1,800,000 to \$4,500,000 per year for the region.

While not factored into the cost-benefit analysis, it's crucial to note that the core producers experienced substantial losses due to wild dog attacks during the pe-

riod of this project.

These attacks resulted in an estimated financial setback of approximately \$37,000 for the PDS group over the three-year period, considering market-low prices recorded in November/December 2023.

It is noteworthy that these attacks affected only a small proportion of the group and occurred outside the PCMP target-periods for the PDS, namely prior to and during lambing.

However, despite their infrequency, when these attacks did occur, they proved devastating to the ewe flock concerned.

Looking ahead, the project highlighted the need for further investment and focus on wild dog management, as this remains a significant issue for producers.

An extension program similar to the one implemented in this PDS is recommended for a comprehensive sheep management course.

As the project concluded, these findings and recommendations gave promise of a brighter future for lamb survival and enhanced profitability for sheep producers.

A Producer Guide will be available from the MLA Producer Demonstration Site website: <https://www.mla.com.au/extension-training-and-tools/pds-producer-demonstration-sites/#pr>.

For further information on this project, contact Matt at Agridome Consultancy on m:0438 209 707 e:matt@agridome.com.au.