



Transitioning meat goat production systems in western NSW - Learnings from the Going Ahead with Goats project

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Key words: Meat Goats; Rangelands; Extension Program

Abstract

Historically, meat goats were considered a niche industry in Australia. However, goats are now viewed as a viable addition to livestock production systems in western New South Wales (NSW) rangelands, providing valuable income diversification. In the 2021-22 financial year, Australian goat exports were valued at \$298.6 million, with 55% of these goats produced in western NSW. The sector saw rapid growth following an 83% goat carcass price rise between 2018 and 2019, prompting landholders to invest in infrastructure and genetics, transitioning from opportunistic harvesting of rangeland goats to managed production systems. The Going Ahead with Goats (GAWG) project commenced in 2022, facilitating this transition by providing targeted extension support to landholders and the broader industry. Through extensive consultation with industry, the project delivers a suite of research, development, and extension activities aimed at improving the sustainability, productivity and profitability of the meat goat industry. The GAWG project combines traditional extension methods of knowledge dissemination such as producer groups, workshops, and field days with innovative digital platforms, including podcasts, video case studies and online discussion groups. To create landholder engagement and enhance on-farm decision-making, the project integrates advanced agricultural technologies, including satellite tracking tags, GPS collars, and satellite pasture monitoring systems, capturing real-time data on managed goat production. Despite adoption barriers such as market volatility, limited infrastructure and capacity to implement controlled mating programs, as well as labour shortages, the GAWG project has seen significant industry engagement, with over 65 western NSW goat businesses involved. These businesses are either transitioning to managed goat production enterprises or have identified an intent to transition, as well as adopt recommended management practices including; resting pastures, rotational grazing, weaning, infrastructure improvements and genetic selection decisions. This transition to managed goat production enables landholders to include goats in their overall grazing strategy, incorporating landscape management objectives such as recruitment of perennial pasture species and the control of invasive native scrub.

Introduction

Unmanaged rangeland goats are a common feature of western NSW landscapes, originating from a combination of dairy and Angora goats that were either released or escaped from domestication and have survived in a wild state for decades (Hacker and Alemseged 2013). Approximately 90% of goats slaughtered annually in Australia are rangeland goats, with Australia being the largest exporter of goat meat globally, valued at \$298.6 million in the 2021-22 financial year (Meat and Livestock Australia 2024). Historically, the sale of goats from rangeland

properties has been seen as an opportunistic enterprise to supplement alternative income streams, relying on harvesting unmanaged goats through self-mustering trap yards as well as land-based and aerial mustering (Robertson et al. 2020). The opportunistic harvest of goats is heavily dependent on seasonal conditions, population density, sale price and processor capacity, leading to limited continuity of supply. The low labour requirements of goats in comparison to Merino sheep and the ability of goats to survive on diets containing high browse and shrub contents have seen goats increase in popularity in western NSW rangelands (Hacker and Alemseged 2013). However, inadequate fencing and handling infrastructure as well as a lack of knowledge and skills associated with goat management have limited the development of managed meat goat enterprises in NSW rangelands.

The Australian goat industry experienced a major transition following an 83% Over The Hook (OTH) carcass price rise from 2018 to 2019, with goat export carcass prices exceeding lamb and mutton prices from 2019 to 2022 (Meat and Livestock Australia 2024). Many producers used cashflow from goat sales to invest in fencing, watering point and yard infrastructure improvements enabling the management of goats, contributing to an estimated 82% increase in managed goat production from 2015-16 to 2020-21 (Meat and Livestock Australia 2023). Significant investments were also made in purchasing Boer and Kalahari meat goat genetics to improve growth rates. There is currently a spectrum of managed goat enterprises in western NSW, from producers who have one securely fenced goat paddock that is being used to hold goats and grow out smaller harvested goats, through to multiple paddocks and managed breeding programs (Robertson et al. 2020). The management of goats allows for greater control over total grazing pressure and more predictable turnover and forecasting of goat sales. The GAWG project, delivered by Western Local Land Services, is a three-year extension program that aims to support and upskill goat producers in western NSW (40% of the state, covering 314,500 km²) and enhance the goat industry more broadly through a suite of research, development and extension activities.

Extension Methodology

The methodology used for the GAWG project incorporates multiple extension activities in combination with the creation of accessible digital resources. Extension activities were designed to be regionally specific and use a whole-of-systems approach, delivering information that meets the needs and interests of producers and stakeholders in the western NSW rangelands. Prior to the delivery of educational activities, project staff undertook industry consultation activities including one-on-one interactions, group discussion sessions and a literature review to identify knowledge gaps and areas of interest for future research, development and adoption activities. Extension activities used in this project include the formation of two producer groups, promoting ongoing peer-to-peer learning, as well as workshops and field days for the broader goat industry. In addition, a core component of the extension project has included on-farm agricultural demonstrations and data collection including the use of Ceres Tags, GPS tracking collars, satellite pasture monitoring technologies and electronic eartags (eID tags) for individual animal data collection. Digital resource creation was another key aspect of the project, creating legacy documents in readily accessible formats including podcasts and video case studies.

Project Outcomes

Two goat producer groups comprising of 20 businesses were formed, which meet quarterly to partake in customised workshops and engage in peer-to-peer learning. These producers currently have managed goat enterprises or have identified an intent to transition to managed goat enterprises, and are seeking to improve their knowledge and skills, with approximately 150,000 goats managed across these businesses. Knowledge and experience levels vary in these groups, with a combination of producers who have been managing goats for less than 3 years, to over 25 years. Producer group members identified and ranked their top three categorised topics and areas of interest for further learning as part of the GAWG project. There was a mix of responses (Table 1) with the top three topics being labour saving technologies and goat infrastructure, genetic improvements and goat nutrition. This trend was also shared with wider industry when assessed by one-on-one producer consultations, provided direction for extension activities and resource creation.

Table 1. Ranking of topics of interest for further knowledge and skills development amongst western NSW goat producers.

Western NSW Goat industry producer topic of interest	Ranking (1 = Highest, 6 = Lowest)
Labour saving technologies and goat infrastructure	1
Genetic selection and improvement	2
Goat nutrition and supplementation	3
Marketing and sales	4
Pastures, species identification and feed budgeting	5
Goat health and disease	6

The GAWG project has also supported several industry research and data collection projects in collaboration with producer group members to further increase goat production data in western NSW including genetics, growth rates, grazing behaviours of goats and management factors affecting reproductive outcomes in goats. In addition to producer group events, broader goat production field days and workshops have been run across western NSW, including; goat infrastructure tours, along with workshops focusing on drone mustering, genetics, marketing options, as well as business, pasture and herd management. Ten podcast episodes were produced, focused on; genetic selection, target markets, pasture management, transition to managed goat production and weaning. Several episodes captured methods of “re-domesticating” harvested rangeland does to establish a core breeding herd, including segregating offspring by age and sex, and increased movement of animals to new paddocks and watering points to control grazing distribution and educate animals. Video case studies and resources created include goat infrastructure and trapping, as well as performing condition score and udder assessments on goats. To date, podcast episodes have received a total of 1600 downloads and two video case studies have received over 70000 views. There have been over 275 attendees at 20 events across western NSW, highlighting the significant ongoing interest in meat goat production in rangeland environments. Producers have identified an intent to change management practices including; spelling pastures, rotational grazing, weaning, infrastructure improvements, genetic selection decisions, as well as gastrointestinal worm control. Factors influencing intent to change and adoption of management practices presented at workshops include; inability to control mating regimes, limited infrastructure and number of goat paddocks and limited confidence in price and knowledge of target markets.

Project Challenges

Designing and delivering an extension program for an emerging industry transitioning to more managed production systems has highlighted several ongoing industry challenges. Some of these have been overcome through the project, with other challenges requiring further research and development. Firstly, extension programs for developed livestock industries including sheep, beef and dairy sectors focus on the adoption of demonstrated best management practices (BMPs) supported by relevant literature and research (Nelson and Robinson 2009; Bell 2019). While there are now several multi-year goat research projects being undertaken in the genetics, methane and reproduction space in Australia, there is currently very little scientific data on many aspects of goat production in Australian rangelands (Hacker and Alemseged 2013; Alemseged and Atkinson 2015). Hence, there is a reliance on information from international studies, often with exotic breeds in vastly different production systems. Thus, providing specific herd management advice based on peer reviewed literature and evaluated BMPs has been challenging in this extension project, with reliance on anecdotal evidence and small field trial data for some aspects of goat production in Australian rangelands. The depth of experience within the goat producer groups has been a major benefit, with early innovators and adopters of managed goat practices being able to share their experiences and observations of managed goats in rangeland environments. However, these experiences and observations sometimes contrast between producers. To create a complete BMP framework for goat production in Australian

rangelands, further research and economic evaluations are needed for management practices such as weaning, sex separation, castration, as well as joining time and age to validate the anecdotal evidence of production benefits.

Controlled mating programs have been demonstrated as a key tool to optimise stocking rate, sales timing and manage pasture demands (Reeve and Sharkey 1980). A major limitation to the transition and further management of goats highlighted throughout the GAWG project is the difficulty in implementing controlled mating programs. This is due to multiple factors including the incursion of unmanaged rangeland goats disrupting breeding programs and slowing genetic progress, combined with maiden does reaching sexual maturity as young as 5 months of age, resulting in year-round kidding (Robertson et al. 2020). In addition, continuous mating adds challenges to timing of livestock movements and resting pastures, as well as performing business benchmarking due, to constantly changing livestock inventories and difficulties in calculating cost of production. Additional fencing improvements are needed for many properties to have greater livestock control.

A further challenge identified during the project was a lack of clarity on the ideal carcass specification requirements and the ideal breed composition, weight and sex of goats at a processor level, with limited feedback on goat consignments, consistent with the findings of Tesse et al (2023). Some producers were hesitant to introduce meat goat breeds into their managed rangeland goat herds due to reservations of potentially being penalised for breed composition in future, despite most processor carcass grids only including carcass weight as price differentiation criteria. Part of the GAWG project involved interviewing processors and sharing their ideal carcass specifications with producers to overcome this barrier to adoption. Further research is still needed into the effects of breed composition on yield and meat quality attributes.

Moreover, industry confidence associated with short term market price, which went from the highest average OTH price on record in Australia prior to the commencement of the project to the lowest average OTH price on record since prior to 2003 (Meat and Livestock Australia 2024b), was another challenge identified during the project. Several producers who had begun to transition from opportunistic harvest systems to managed goat production systems began to question their decisions and look into alternative livestock enterprises that suited existing infrastructure improvements such as Dorper sheep. Explaining the factors that influenced this price shift as well as delivering data on comparative long term average enterprise profitability was a key part of maintaining project engagement from these participants.

Learnings from the Going Ahead with Goats Project

There have been several key learnings through the delivery of the GAWG project. These include:

1. Drawing on the knowledge and experience of early adopters and innovators in the industry is critical when there is limited relevant production data. However, these experiences and observations can often be conflicting and require further validation through production research and economic evaluation.
2. Agricultural technologies and on-farm data collection has been a useful median for ongoing and real time engagement with project activities, as well as the delivery of extension messages.
3. There is the capacity for a number of new research projects in the goat industry, particularly in the nutrition space, as well as economic analysis of best practice goat management methods.
4. Short term market price is a limiter to extension program engagement and adoption of new practices for emerging industries. Many participants in the project began infrastructure improvements to run more managed goats during periods of high prices. These investments have slowed and stalled in some cases with participants focusing their time on alternative enterprises that are perceived to be more profitable or spending more time pursuing off-farm employment as an alternative income stream.
5. Barriers to adoption are enterprise specific. The transition from harvested goat production to managed goat production systems has its own unique set of challenges, with infrastructure limitations, labour and property scale remaining as ongoing challenges.

In summary, the GAWG project has identified and delivered a range of extension events to meet the needs of producers transitioning from harvested rangeland production systems to managed production systems, as well as assisted producers who are currently managing goats. This extension project has faced some unique industry challenges with several key learnings. On-ground, locally relevant information and data collection have enabled ongoing industry engagement. With further research, coupled with the experiences and knowledge of early adopters and innovators within the industry, the goat industry is set to continue to advance into the future.

Acknowledgements

The Going Ahead with Goats project is delivered by Western Local Land Services with the assistance of NSW Department of Primary of Primary Industries and Regional Development through funding from the NSW Government. Research was approved by Animal Research Authorities (ARA24-061 and OAEC-0639)

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