



final report

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Enhancing the health, wellbeing, resilience and performance of red meat producers

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Abstract

This report is designed to provide MLA with an understanding of how reduced wellbeing impacts on-farm productivity, how positive health and wellbeing behaviours may contribute to success amongst MLA members, and how support could be created for individuals to improve their own health and wellbeing for theirs and a wider benefit.

Research demonstrates there is a clear distinction between the health risk profiles of people in remote and agricultural settings, and those in urban settings. Further to this, when applying an urban proactive health management model to address this health and wellbeing disparity, consideration to layers of personalisation and tailoring is required for personal, family and community health improvement.

Through our consultation it was apparent, based on MLA member engagement, that there is a strong opportunity for a longitudinal approach to preventative health and wellbeing amongst both the cohort involved and the communities in which they live and work.

To set a comprehensive preventative health program up for success, it is critical to develop a longitudinal health literacy and skills building approach. One that supports long-term outcomes, rather than short promotions. To achieve this, it is important to tailor and personalise an evidence-based medically led program, such as the Complete Wellbeing Program, as a strong and credible base to the initiatives. To then scaffold this with a supportive network of MLA Wellbeing Leaders to endorse program initiatives, and targeted promotion and communication to support program adoption.

Creating a program like this this would allow MLA to champion a sophisticated preventative medical and health research program to improve various facets health, work and life of its members, leading to improved livestock, environment, systems, and market outcomes.

Executive summary

This research paper was developed to address the unique challenges faced by Australian red meat producers by discussing their health challenges, gauging their support for a preventative health moving forward as a solution, and analysing the efficacy of a proposed Complete Wellbeing Program for 100 farmers over a 5-year period, tailored to meet the unique needs and circumstances of MLA members.

Problem Identification:

Australia's red meat industry is a vital part of our economic fabric, and the health and well-being of the producers are instrumental in its sustained growth. However, these producers face challenges that are markedly distinct from their urban counterparts. Geographic isolation, physically demanding roles, market uncertainties, and diverse responsibilities make their health and well-being considerations imperative yet intricate.

Methodology for Delivery of MLA Complete Wellbeing Program:

1. **Communication, Promotion and Recruitment:** A communication, promotion and recruitment strategy would need to be developed to target program participants within the MLA membership base to best achieve these outcomes and therefore maximise the return on the program's investment. This strategic targeting ensures both immediate and long-term benefits for the industry.
2. **Customised Wellbeing Framework:** Ford Health's proven Complete Wellbeing Program would be restricted to cater to red meat producers. By understanding the challenges of geographical isolation, increased physical labour, and market-driven stressors, the program was recalibrated to provide relevant health and mental well-being solutions.
3. **Blended Delivery Model:** Recognising the logistical constraints of remote living, a hybrid model has been outlined in consultation with MLA Members. This incorporates digital onboarding, in-depth in-person assessments at regional centres, and continuous digital support.
4. **Targeting Key Demographics:** The initiative focuses on three pivotal groups for maximal industry impact: Early-Career Farmers, Emerging Agricultural Leaders, and Proactive Regional Health Role Models.

Outcomes:

1. **Longitudinal Health Improvements:** The program offers a comprehensive health blueprint tailored to the unique demands of MLA Members, to assure peak health and performance into the future.
2. **Accessibility & Depth:** By leveraging a blended delivery model, the program effectively offers in-depth assessments and continuous support while mitigating the challenges of geographical remoteness.
3. **Future-Ready Strategy:** By engaging early-career farmers, potential industry leaders, and health role models, the program creates a ripple effect, laying the groundwork for a healthier, more efficient red meat industry.

Industry Benefits & Implications:

1. **Enhanced Industry Productivity:** With producers operating at their peak physical and mental health, the industry stands to benefit from increased efficiency, paving the path to potentially double red meat production by 2030.

2. **Positive Branding:** Investing in the well-being of producers strengthens the industry's reputation, making it an attractive sector for newcomers and ensuring sustained interest and commitment from current stakeholders.
3. **Strategic Decision Making:** Healthier producers are better equipped to make informed, strategic decisions, vital for navigating the intricacies of the red meat market and environmental challenges.

Recommendations for Future Actions:

1. **Continuous Evaluation:** Regularly assess the program's effectiveness, ensuring it remains relevant and adaptable to changing industry needs.
2. **Expand Regional Centres:** Increase the number of regional hubs for in-person assessments, making the program even more accessible to producers in the remotest locations.
3. **Engage with Industry Experts:** Collaborate with industry experts and stakeholders to keep the program aligned with emerging trends and challenges in the red meat sector.

By taking a preventative and long-term approach to the health of 100 key owners and managers in the industry over the course of 5 years, MLA is positioned to be the world leader in supporting a sustainable and people-centred industry.

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1. Background

1.1. Overview of Project

The greatest asset to any successful agribusiness is its workforce. As such, by identifying and supporting role models to proactively improve their own wellbeing, these individuals will lead and others to take ownership of their health futures and in turn, improve business performance in Australian farming communities. In doing this, agrarian communities become attractive for younger generations and further promotes intergenerational knowledge transfer, familial succession and retention of key participants in the sector. This preliminary project is designed to provide MLA with an understanding of how reduced wellbeing impacts on-farm productivity, identify behaviours that contribute to success amongst industry role models, and support these individuals to improve their own health habits. It is acknowledged subsequent longitudinal research design would be needed to build, test and report on key findings.

As an initial discovery piece, the intention of this project will leverage MLA members, with the support in a call to action from MLA, to run focus group/bespoke sessions and/or 1-on-1 discussions with red meat producers to inform the current situation and early-stage test how the 'The Ford Health Index' could be used to profile/segment wellness and resilience levels/traits. A model and metrics design for how attributional benefit from this (and future MLA investment) would also be part of this project along with a high level literature review/case studies e.g. methodology and feedback from advocates within the Australian meat industry; outside agriculture demographic/industry respondents in one of the participating collaborators Ford Health Rurals' database of users, to demonstrate how productivity / innovation-risk appetite /staff retention/mental wellness/resilience etc., could be defined and identified within the cohort of producers.

A cohort of high performing producers displaying strong physical and mental wellbeing attributes are likely to be success factors in driving MLA's innovation adoption amongst stakeholders. Whilst past producer attitudinal segmentation work has been done by MLA, this project aims to evaluate the merits of applying The Ford Health Index (a biometric model) to better understand and identify role models who exhibit positive 'mental and physical wellbeing and resilience' traits amongst red meat producers as well as provide a high-level overview of the current state of play along with a 'pulse check' for this area of study and interest amongst stakeholders for potential further research.

2. Project objectives

2.1. Research Purpose

This project is the stage of scoping and feasibility to ascertain how to effectively and efficiently ensure longevity and succession for MLA producers, by introducing an adapted 5-year Complete Wellbeing Program to 100 MLA Members in regional Australia. It is envisaged that this program will not only contribute to a robust and efficient workforce, paving the way to achieve our goal of doubling red meat production by 2030, but also provide MLA with a powerful advocacy tool MLA to positively influence the health of the industry in Australia and abroad.

2.2. Objectives Overview

1. High level overview of health, wellbeing and state of play for Australian farmers; introduction to its impact on productivity, succession planning and innovation adoption.
2. Case Study of The Ford Health Index and Complete Wellbeing program – application with non-agribusiness leaders; a sample of agriculture corporate meat producer groups
3. Introductory pulse check - completion of bespoke workshop/focus group/series of interviews with Australian red meat producers to test key assumptions regarding 6 sector Complete Wellbeing Program and planned stage approach for 100 Producer Stage 2 proposal.
4. Final Report – including a review of key findings plus commentary on:
 - a. Key insights from the ‘pulse check’, including a framework for potential cross over to MLA Ambassador mental wellbeing advocates etc.
 - b. Comparison of results against MLA’s past producer segmentation ‘personas.
 - c. Recommendation for potential research proposal-business case pitch for investment/support for State 2 research plan. This should consider appropriate methodology and key metrics for a longitudinal study on producers across sectors.

It is envisaged there will be 2 x MLA final reports – one would be commercial in confidence submitted to MLA, with a second case study project summary (~3 pages) that outlines the objectives, methodology and high-level findings and has been de-identified (and with no or minimal stage 2 recommendations or persona commentary included).

2.3. Project Objectives

Objective 1. “High level overview of health, wellbeing and state of play for Australian farmers; introduction to its impact on productivity, succession planning and innovation adoption.” and

Objective 2. “Case Study of The Ford Health Index and Complete Wellbeing program – application with non-agribusiness leaders; a sample of agriculture corporate meat producer groups” have been met at this milestone.

Objective 3. Survey completed across a sample of MLA Producers, as elected by MLA, to identify opportunities and strengths of Ford Health’s Complete Wellbeing program in order to customise the program for the MLA red meat producer population.

Objective 4. Align pulse check participants to MLA Industry Persona's in order to correlate findings and support segmentation initiative.

3. Methodology

3.1. Knowledge Sharing and Planning

Stage one involved sharing the existing body of knowledge and planning the project in detail.

This included discussion of:

- Review of past, current and proposed health, productivity and performance programs across Australia and Globally in the Ag sector
- Past and current engagement strategies, initiatives and the effectiveness of these
- External factors that may be relevant and impact on accessing producers
- Past MLA report and publication analysis.

3.2. Literature Review

A scoping review was conducted, and covered relevant literature on disease prevention, health promotion, success and barriers in agribusiness, and role modelling for rural communities. Please see appendix I for the full literature review.

The review included by searching three databases, including PubMed, Google Scholar, Scopus, and a general Google Search, as well as the databases of the University of Sydney and University of Queensland. Academic journals and peer-reviewed publications were sourced by consulting these databases and filtering by year (no older than 2015), published in English, and with a focus but not exclusive to an Australian context. Other relevant literature was also obtained by accessing Australian government publications (AHIW, Senate reports), World Health Organisation documents, an analysis on previously published MLA reports, and other grey literature such as reports from non-government organisations and non-profits.

3.3. Ford Health Data Analysis

Ford Health have been conducting health programs for working-aged Australians for over 20 years. Over this time, Ford Health have frequently conducted analyses of its database of health profiles to provide referential information on health, behaviours and health outcomes of preventative health programs. These have consistently demonstrated the benefit of taking a proactive, preventative focus to improve health, wellbeing and self-rated performance.

In 2021, additional psychosocial factors were added to extend the current health evaluation program. The Complete Wellbeing Program formalised scoring of six health and wellbeing sectors and their sub-sectors. The mean aggregate of these scores is known as the Ford Health Index. This scoring of health and wellbeing parameters aims to improve the capability to track changes over time and compare between datasets.

In this project, Ford Health seeks to:

1. Demonstrate improvement in health risk factors and wellbeing measures amongst Executives who attend Ford Health programs regularly over time.
2. Analyse its data to identify whether the location a Ford Health client is based has an impact on their health and wellbeing.

To do so, the following methodology was used:

1. A random sample of 1000 individuals was drawn from 2019 data, which predates the Covid pandemic. The goal was to assess whether individuals who had participated in Ford Health Assessments in the past exhibited better health and overall well-being compared to those who were new to the program. Participants were categorised into three groups: those who were newcomers to Ford Health programs, those who had undergone an Executive Health Assessment 2 to 4 times before, and those who had gone through it 5 or more times. By conducting statistical analyses to compare these groups, Ford Health aimed to illustrate the effectiveness of their programs for their Executive clientele.
2. A random sample of 500 clients who completed the Complete Wellbeing Program in 2022/2023 was selected. This group was categorised based on remoteness using the ABS Remoteness Structure (ASGS Edition 3 Remoteness Areas of Australia) (ABS, 2023) and by industry according to ABS Australian and New Zealand Standard Industrial Classification (ANZIC) Division codes and titles (ABS, 2013).

Data was analysed using IBM SPSS Statistics software program, version 22. The independent samples t-test and Chi-squared test have been used to conduct statistical analysis.

3.4. Case Studies

This preliminary step is designed to provide MLA with an understanding of how reduced wellbeing impacts on-farm productivity, identify behaviours that contribute to success amongst industry role models and support these individuals to improve their own health habits. In its initial iteration, a call for participants was sent out to Red Meat Producers within Ford Health's customer base to define:

- What represents value in relation to health, productivity and performance
- Commentary on how rural clients feel the program needs to be modified for their needs
- Benefit of Health and Wellbeing programs for Agricultural business leaders
- Who are the key influences in relation to health, productivity and performance
- Application of CW and FHI tool in non-ag cohort

It is acknowledged subsequent longitudinal research design would be needed to build, test and report on key findings.

3.5. Approach to MLA Producers for Pulse Checks

As an initial discovery piece, the intention of this project will leverage MLA members, with the support in a call to action from MLA, to run focus groups and/or 1-on-1 discussions with red meat producers to inform the current situation and early-stage test how the 'The Ford Health Index' could be used to profile and segment wellness and resilience levels.

A model and metrics design for how attributional benefit from this (and future MLA investment) has been designed following literature review and case studies resulting in a methodology to seek feedback from MLA producers across all segments of the market.

Pulse Check design and Prompt question set are available in Appendix 1.

FHPC will compile and analyse findings to formulate what will be the selection criteria most likely to generate a cohort of MLA members who might consider themselves a "role model".

Determine best methods of attracting said participants participate in the Rural CWP.

3.6. Linkage to existing MLA market segmentation data

Linking MLA's Producer Segmentation Report from 2016 detailing segmentation criteria and characteristics with this research project on health and wellbeing provides numerous benefits, both from a methodological perspective and in terms of deriving actionable insights in phase 2 of the project.

Combining quantitative (segmentation report) with qualitative (opinions from stakeholders) data allows for a holistic understanding of the issue. We can validate the real-world applicability of existing segmentation data with on-the-ground insights. By overlaying segmentation data with stakeholder feedback, our intent is to identify the potential for future patterns or trends within specific segments. For instance, certain segments might disproportionately face health and wellbeing challenges.

Linking the segmentation research findings not only provides depth and breadth to our understanding of the health and wellbeing landscape in the red meat production industry but also enhances the utility and applicability of this piece of research.

4. Results

4.1. Literature Review

The literature review found that farmer and agricultural community health differs significantly from standard city health, due to unique social, environmental and occupational determinants, as well as specific risk factors relating to workplace, lifestyle, location and attitudes in the community. As such, there is a need to integrate community values and social determinants of agricultural health to ensure longevity when developing and promoting health initiatives for this sub-population, and that simply adapting a metropolitan health model will fail to capture a holistic measure of farmer's wellbeing.

4.1.1. Traditional models of healthcare are costly and largely ineffective

There was significant evidence to suggest that the paternalistic, biomedical model of healthcare is costly, and a poor allocation of resources. In fact, adopting a patient-centred healthcare model would not only have a significant reduction in the immediate burden to the health system, but would also have long-term economic, social and environmental benefits. Moreover, research shows that those who actively engage with, or seek out healthcare are more likely have a greater understanding and involvement in their own care and enjoy improved health outcomes. However, there was minimal literature on how the Australian government planned to integrate health promotion and disease prevention strategies for rural and regional communities.

Analysis of existing physical and mental health programs for farmer populations found community-based and community-led interventions are most likely to improve outcomes. Moreover, transitioning from a national to region-based programs allow communities to tailor programs specifically for their audience – whether it be based on geography, social factors, lifestyle, shared cultures, norms or beliefs. Programs focussed on enhancing mental health literacy, addressing attitudinal barriers for help-seeking, and improving access to GPs and mental health professionals were found to be the most beneficial for this population. However, there is currently a lack of holistic wellbeing programs available for farmers, despite evidence suggesting that these multidimensional interventions are critical for supporting the complex nature of rural health. These programs were passed over in favour of single-intervention strategies, in which the outcomes were easily measured and thus, the impact quantifiable. Thus, there is an outstanding need for rural-centred, holistic, community-based health promotion and disease prevention programs designed to improve farmer's health in Australia.

4.1.2. Agricultural determinants of health

The results of this scoping review found specific determinants of health relating to living and working in rural areas, as well as specific attitudes to health. Risk factors for farmer's health included isolation, long working days, time pressures, globalisation, climate change, stigma, and concerns regarding anonymity and privacy. A socioecological framework for rural health and resilience suggested that farmers contend with a third level of adversity than those living in major cities (life course, rural community, and universal adversity). Additionally, the research suggested that farmers also experience specific occupational and social risk factors such as farm employee exit, farming succession strategies, *topophilia* (the affective bond one holds to a place, and consequently quality of life), *solastalgia* (emotional distress that occurs when the land is under threat, degraded or

different), and rural depopulation that can increase stress levels and subsequent perceptions of health. These work and lifestyle elements made farmers more vulnerable to physical and mental ill health, with outcomes including loss of self-esteem, withdrawal from social/community activities and an inability to function in occupational roles. Therefore, not only were rural workers at a higher risk of developing physical and mental health conditions, but they were less likely to receive care – leaving a vulnerable population disempowered to engage in their own wellbeing.

4.1.3. Illness impacts agribusiness performance, productivity and sustainability

The literature review found extensive research supporting the link between wellbeing and successful business, but also the detrimental effects that illness can have on productivity and business innovation. Key traits of resilience, optimism, self-determination, and sense of belonging were all critical to both wellbeing and business productivity. For example, resilient people and optimists were found to have improved problem-solving skills and were more likely to adapt well to negative information – critical traits for someone working in a constantly changing field such as agriculture. Self-determination is critical for being inherently motivated to make good decisions for the betterment of one's health and wellbeing. However, this autonomy, sense of identity, and intrinsic passion for the choices one makes was also found to aid rural workers during challenging times in their careers – highlighting the need for intrinsically motivated people to work and stay within the farming business. Finally, a sense of belonging within the rural community was a key protector against numerous negative health outcomes – such as suicide, self-harm, poor physical health, violence, and substance use. Not only this, but social inclusion amongst farmers was found to reduce stress, improve decision making skills, and assisted in developing resilience and coping strategies when discussing shared challenges. This review found that ill health and lack of access to social services were found to be major drivers for young people to migrate away from farming and agriculture – depriving businesses of diverse, strong, innovative employees. Contrastingly, healthier producers were more productive and able to drive and contribute to the development of agricultural systems. Consequently, for a successful, long-term business, it is imperative to invest in the health and wellbeing of the employees – with health directly correlated to on-farm productivity, improved innovation, and long-term retention of staff.

4.1.4. Effectiveness of positive role models to influence individual and community health

The final stage of the scoping review found a significant positive correlation between the value of community connections, influence of role modelling from community members, and improved health outcomes. The benefits of community were three-fold: (1) mutual engagement and frequent interactions between like-minded individuals saw greater practical, cognitive and social impacts on business and health (2) older adults with valuable life experiences continue to be important contributors to social capital within their community (3) retaining young people to agribusiness was more likely when they had positive role models within their community.

Farmers who engaged with their community, shared knowledge, and received input from peers, family and friends were more likely to have stronger social bonds, improved sense of identity, better management of long-term health conditions, higher satisfaction of work, and improved quality of life. Additionally, the influence of community was more likely to influence attendance to Accident and Emergency than the opinion of a medical professional in farmers. Older, established individuals in the farming workforce positively influenced the social capital, sustainability, and longevity of local agricultural communities. This social capital is what enriches the social, civic, and economic wellbeing of a community – which is drawn upon in times of stress and hardship. Young people,

mental wellbeing and their connection to the sustainability of agribusiness long-term were all linked. Being part of a small community with a 'community spirit' or close social connections was a potential protective factor for people experiencing mental illness, and encouragement from informal support (i.e. family and friends), as well as testimonials or endorsements from other people in the community were positive forces for influencing young people seeking mental healthcare in rural communities. This wellbeing was then in turn linked to young people being employed and retained within rural communities and agribusiness.

As such, the importance of community for rural populations cannot be overstated. Any program designed to improve the health and wellbeing for these communities must gather input and incorporate the values, input, beliefs and opinions from the same population they intend to support. Additionally, utilising these role models and influencers will be paramount in ensuring uptake and investment in the program throughout the community.

4.2. Ford Health Data Analysis

4.2.1. Impact of participation in a Ford Health program on health risk factors & wellbeing

To illustrate the long-term impact of participation in Ford Health programs, a study was conducted using a random sample of individuals from 2019, prior to the onset of the Covid-19 pandemic. The well-documented effects of the Covid-19 pandemic on health and wellbeing included a decline in mental health, a reduced sense of belonging, increased social isolation, and limited access to non-urgent medical advice within Australian communities. This is likely to confound any more recent data. The findings of this analysis are consistent with those that Ford Health has historically conducted.

In this analysis, Ford Health focused on comparing the health and wellbeing of individuals who attended the health and wellbeing program during the same year. The fundamental assumption was that eligibility for the program was determined primarily by employment and role status rather than pre-existing health conditions. Consequently, within a given year, it is anticipated that both new attendees and frequent attendees would display similar frequencies and variations in their health status. This approach allows evaluation of the program's effectiveness while holding economic, political, and environmental factors constant.

The analysis revealed a positive correlation between increased participation in the program and improved health outcomes across several identified risk factors (**see Appendix 2: Ford Health Data Analysis Tables**). Executives in Ford Health programs demonstrated healthier lifestyle behaviours, including reduced rates of smoking, alcohol consumption, increased physical activity, and improved vegetable intake.

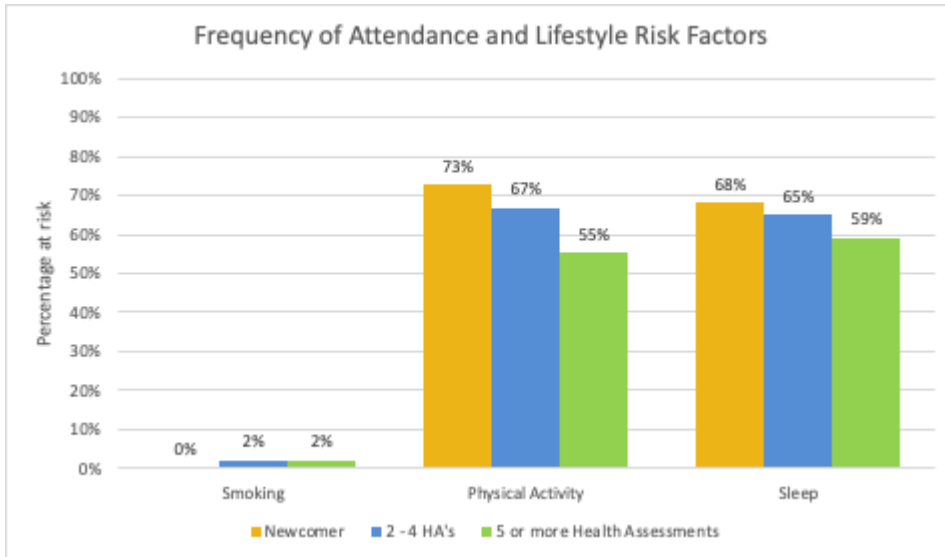


Figure 1. Frequency of attendance and lifestyle risk factors

Moreover, individuals who consistently participated in the program showed reduced mental health risks. In fact, newcomers to the program were found to be twice as likely to be identified as having moderate or greater clinical risk of anxiety, depression, and/or stress compared to those who attended five or more times. When it comes to severe or extremely severe risk of anxiety, depression, and/or stress, newcomers to Ford Health had a 4.5-fold higher risk compared to those who had attended the program five or more times.

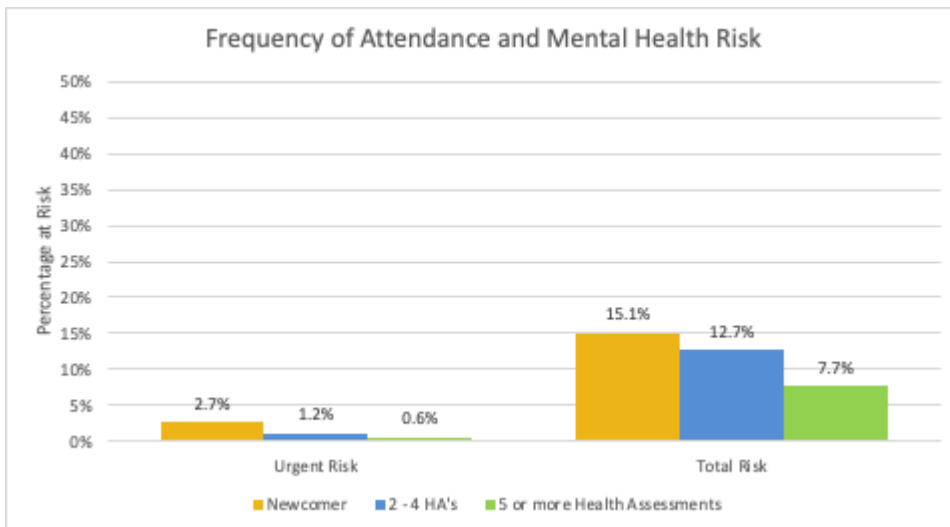


Figure 2. Frequency of attendance and mental health risk

Consequently, the cumulative risk, as measured by the number of risk factors associated with cardiovascular disease (CVD), type II diabetes, and chronic kidney disease, is significantly lower among individuals who have participated in Ford Health’s program for five or more years, as compared to newcomers to the program ($p=0.001$). People with chronic disease may be limited in their ability to participate fully in the workforce. Assessing the frequency of certain health risks gives an overall snapshot of health status and the potential for chronic disease, which may then impact on productivity. The maximum number of modifiable health risks an individual may have is nine. These

modifiable risk factors interact to cause cardiovascular disease, Type 2 diabetes and chronic kidney disease (AIHW, 2009). Each of these risk factors are modifiable through medical intervention and/or behaviour changes.

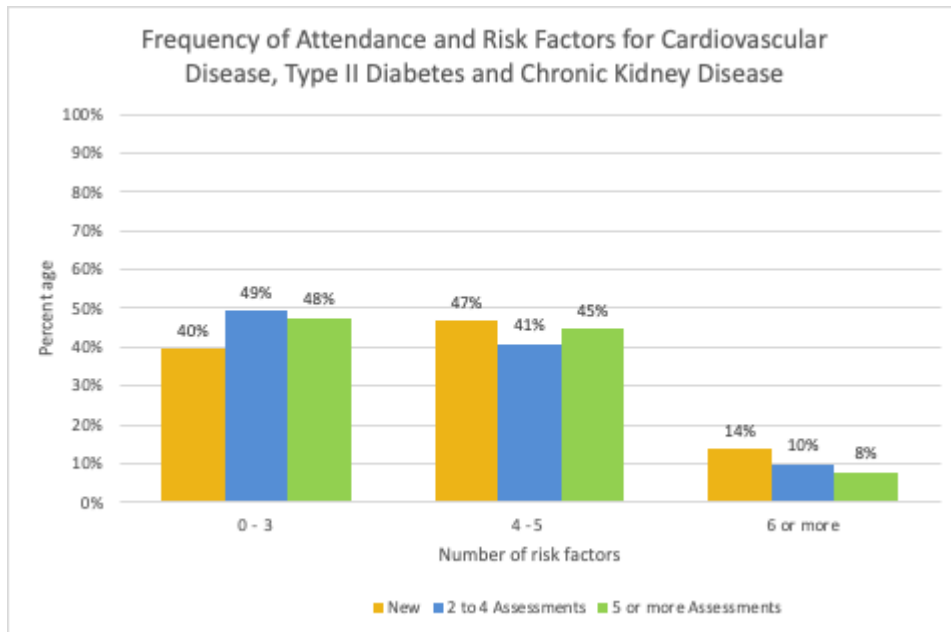


Figure 3. Frequency of attendance and risk factors for cardiovascular disease, type II diabetes and chronic kidney disease

While certain physical measures, such as cholesterol levels, diabetes risk, weight, and blood pressure, remained relatively consistent, this outcome is noteworthy. This is particularly significant considering that individuals attending the program more frequently were, on average, 7.3 years older than their counterparts who were new to the program.

Limitations of this analysis include:

- 1. Assumption of similar normal distribution:** We have assumed that the normal distribution of health characteristics among individuals in their first year of attendance is similar. This assumption is because Ford Health's clientele primarily consists of executives who share a similar level of education, health literacy, and access to healthcare services. While this assumption is reasonable given the demographic homogeneity, it's important to acknowledge that variations might exist.
- 2. Challenges in quantifying program dropout reasons:** It's challenging to precisely quantify the reasons why individuals drop out of the program. Dropout reasons could range from poorer health conditions (with individuals already under medical care) to personal beliefs that they are in good health and no longer require the program's services. These factors can introduce potential biases in our analysis.
- 3. Limited data for long-term analysis:** The scoring associated with the Complete Health Program provides Ford Health with a more quantitative measure of program effectiveness over time. However, it's worth noting that Ford Health has been delivering this program for only two years to limited groups, which means there is insufficient data for conducting conclusive longer-term analyses at this stage.

4.2.2. Impact of remoteness on health and wellbeing

The analysis of data revealed that individuals residing in Outer Regional and Remote areas of Australia had a lower Ford Health Index compared to those in Major City and Inner Regional locations. This discrepancy can be primarily attributed to lower scores in the Medical and Sleep sectors. Residents of Outer Regional and Remote areas reported lower ratings of physical health and exhibited poorer biometric results in cardiovascular risk score, blood pressure, and obesity (measured by waist circumference). Results are displayed in **Appendix 2. Ford Health Data Analysis Tables**.

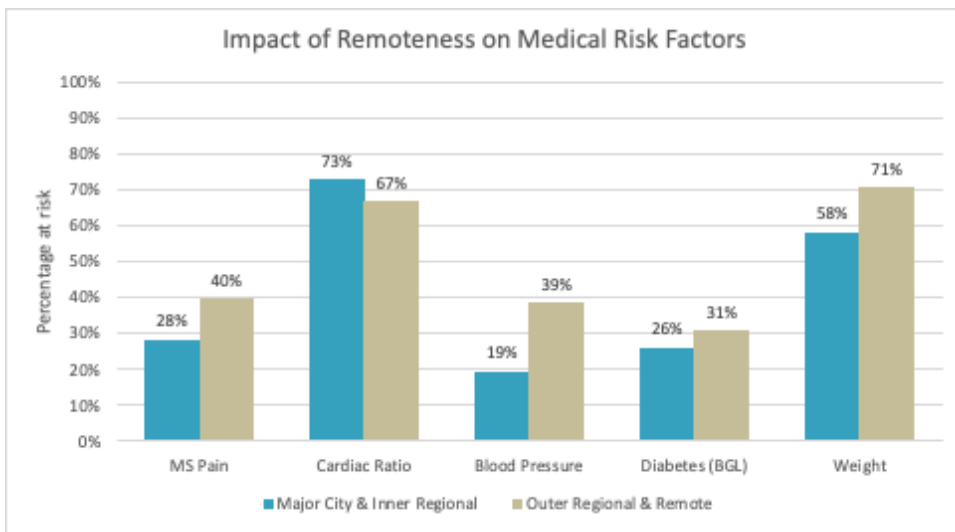


Figure 4. Impact of remoteness on medical risk factors

Individuals residing in more remote locations face an increased risk of mental health issues. Statistical analysis revealed that those living in Outer Regional & Remote areas showed elevated levels of depression (Pearson’s $r=0.008$) and clinical anxiety (Pearson’s $r=0.033$). These results align with the findings from the literature search.

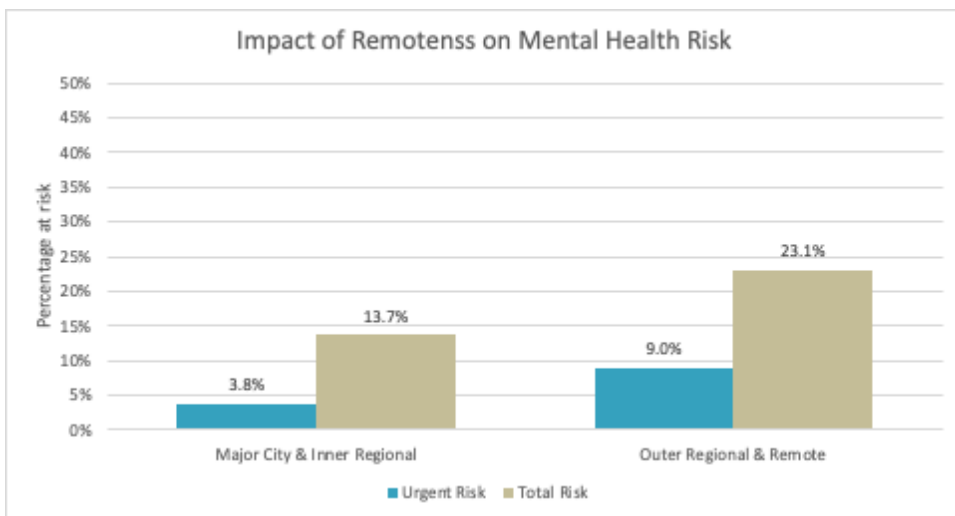


Figure 5. Impact of remoteness on mental health risk

Moreover, participants from Outer Regional and Remote areas exhibited inferior performance in lifestyle behaviours such as physical activity and fruit intake, and they self-reported lower sleep quality.

No statistically significant differences were observed between the remoteness groups in all other aspects of the analysis. Both groups had a similar mean age, with Major City and Inner Regional averaging 50.1 years and Outer Regional and Remote averaging 51.1 years. The Outer Regional and Remote group had a higher proportion of females (51%) compared to Major City and Inner Regional (38%).

It is worth noting that the Outer Regional and Remote groups included individuals from various industries, and their primary involvement was not limited to Agriculture. Table 1 provides an overview of industry participation within this group.

Table 1. Industry Divisions of Outer Regional and Remote Participants

Industry Division	Frequency	Percent
Accommodation and Food Services	1	1.4%
Agriculture, Forestry and Fishing	6	8.7%
Education and Training	57	82.6%
Mining	5	7.2%
Total	69	100.0%

These findings support the well-established link between geographical remoteness and poorer health outcomes in Australia.

Limitations of this analysis include:

- **Employer-funded programs are voluntary.** Those with poorer lifestyle behaviours and physical wellbeing are often more reluctant to attend. Particularly those from Outer Regional and Remote areas where attendance often also includes a commitment to travel to a Ford Health clinic.
- **A proportion of participants self-fund the program.** It could be argued that this group are more interested in their health and wellbeing, and therefore are in better health and wellbeing at the outset.

4.3. Corporate Producer Case Studies

Case Study interviews and focus groups are in progress. Transcripts and key findings from the user groups may be made available as they occur with the consent of participants.

Key themes and discussion points for each conversation are as follows:

1. What is the connection between Health & Wellbeing to the success in your business? Why have you participated in H&W initiatives?
2. What are your priorities as a producer & how can a positive uplift in H&W support these?

3. Culture and Communications - at a high level, how have you integrated H&W in your business and how could it be rolled out further across the industry?

4. What are some examples of the key influencers in your business and industry that role model, influence, and lead community change?

Case Studies are 30 – 60 minutes in length and produce transcripts, recommendations and challenges of access and engagement across all Red Meat Producer types.

4.4. MLA Producer Pulse Checks

4.4.1. Approach to MLA Producers for Pulse Checks

FHPC, with the support of MLA, has developed a communications suite, introductory video and hosted landing page in order to gain expressions of interest. This differs from planned model of FHPC attending MLA sponsored events and has been changed in consultation with MLA.

MLA has supported FHPC in the broadcast of a call for expressions of interest to MLA members, as an alternative to engaging with a group of MLA members at an MLA or industry event.

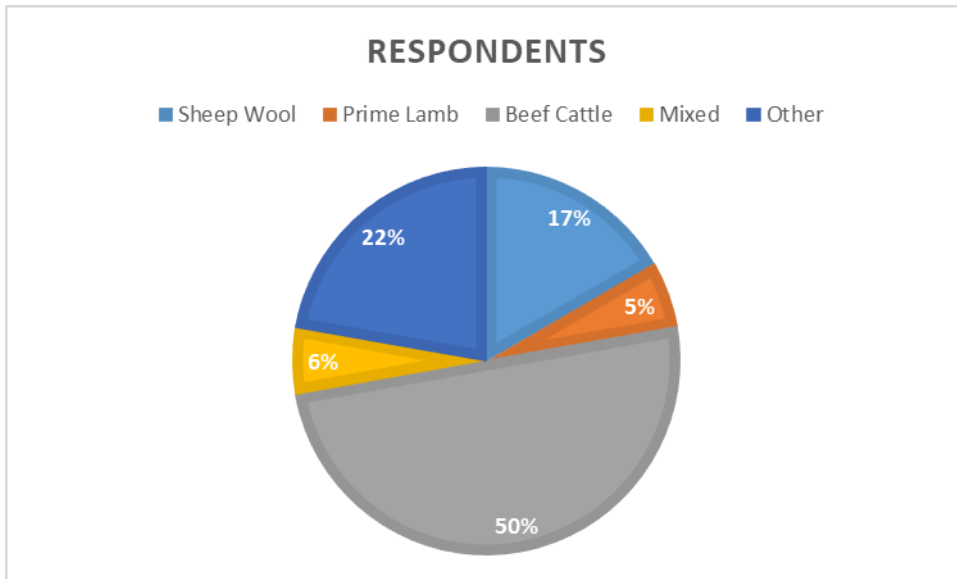
MLA members were informed of the project by MLA via:

- MLA weekly newsletter
- MLA Research webpage
- MLA LinkedIn account
- MLA Twitter account

FHPC set up a landing page [available to view here](#), in order to field responses and then engage with members individually in order to arrange a pulse check appointment with the FHPC team.

FHPC received 36 responses from MLA's call to action who were contacted by FHPC and invited to engage further. The goal of 20 interview participants was reached, and data was collected via phone, video and recording transcript depending on the preference of each participant.

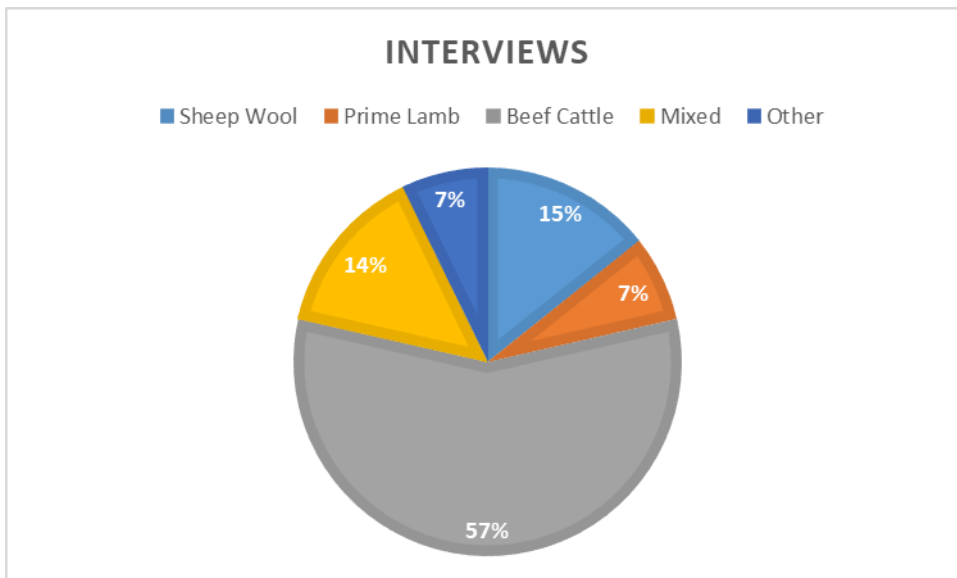
Figure 6. MLA Call to Action Total Respondents



Each respondent was contacted no less than two times to invite them to share their experience and feedback utilising FHPC’s standardised question set as a template for each discussion.

The series of interviews generated a large qualitative dataset comprised of recordings, transcripts and notes for further investigation. The group of 20 respondents is represented in Graph 3 below, with the majority being Beef Cattle producers.

Figure 7. MLA Pulse Check Completed Interviews



From the qualitative data generated from the interview process, FHPC have been able to identify some early themes emerging across the cohort. These will be investigated further along with the dissemination of other themes that have correlation across the cohort.

4.5. Initial key themes from interviews for further investigation

These themes are expanded upon and discussed in full in section 5 of the report.

4.5.1. Lack of access to preventative health and wellbeing services

Respondents stated that there is a lack of preventative health and wellbeing services in regional communities in which they live and work.

Lack of access to preventative health services can have significant and multifaceted impacts on red meat producers and their families living in remote areas. The nature of their work, combined with the isolation of their living situation, presents unique health challenges that are exacerbated when preventative health services are unavailable.

4.5.2. Need for ongoing relationship and support from health professionals

Respondents stated that whilst there are a range of travelling initiatives such as the “Are you bogged mate, Heart of Australia Bus, iFarm well, there is no overarching or consistent model of care for producers. Whilst telehealth is available, producers are unlikely to establish a rapport and ongoing relationship with a telehealth GP that is not familiar with their situation. Without a comprehensive approach to overall health and health literacy, producers are at increased risk.

4.5.3. For producers, being well is not just about the absence of illness, it is intrinsically linked to a high level of function in their business, community, family and industry

Respondents proposed that the energy and clarity of thought to be able to operate well and contribute was a key component of being well. A high level of resilience must be cultivated through positive behaviours in order to function well and do your job in the midst of variable seasons and the unpredictable nature of Australia’s weather.

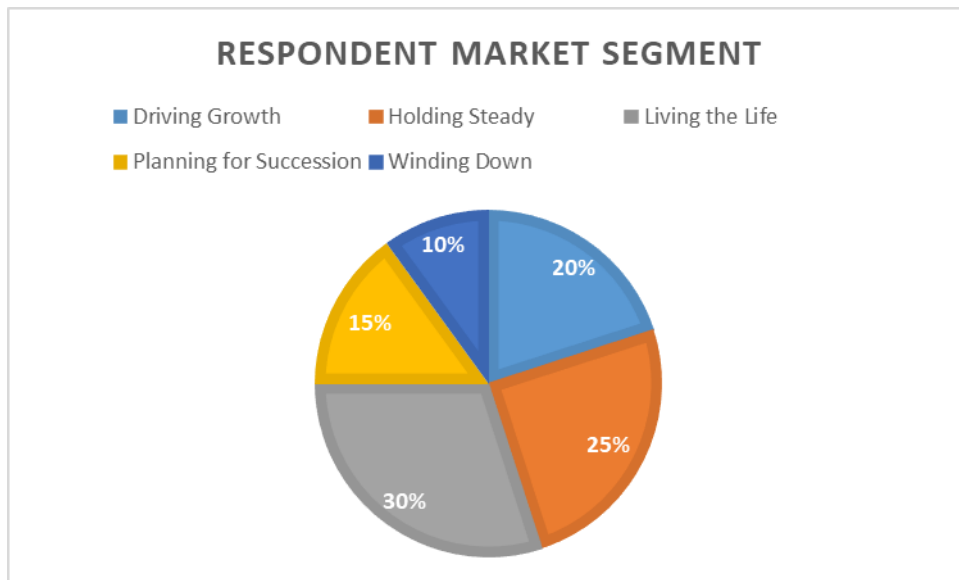
4.6. MLA Producer Segments

Comparison of the research program’s participants against MLA’s past producer segmentation personas provides an understanding the distribution of respondents across different market segments and provides insights into the representation and scope of our research.

Market segments and the criteria for each have determined based on MLA’s existing research in to Producer Segments, and categorised into relevant profiles based on the information available to FHPC throughout the expression of interest and interview components of the program.

Based on the existing research, FHPC aims to better understand how best to communicate innovation opportunities to producers from a more informed appreciation of ‘wellbeing resilience’ and a producer’s capacity to absorb new knowledge and intent to innovate at different stages of wellbeing.

Figure 8. MLA Respondent Interviewee Market Segments



5. Discussion

The following items represent the key recurring themes and relevant discussion points from stakeholder interviews and pulse checks:

- Lack of access to preventative health and wellbeing services
- The need for consistent care v ad-hoc health events and intervention
- Link between health and business performance
- Adaptation of health program data and discussion points for health professionals delivering a program.
- Face-to-face vs. Digital Delivery in the Context of Rural Australians

5.1. Lack of access to preventative health and wellbeing services

Respondents stated that there is a lack of preventative health and wellbeing services in regional communities in which they work.

Lack of access to preventative health services can have significant and multifaceted impacts on red meat producers and their families living in remote areas. The nature of their work, combined with the isolation of their living situation, presents unique health challenges that are exacerbated when preventative health services are unavailable. Here's how the lack of these services can impact MLA members:

Table 2. Impacts of lack of access to preventative health and wellbeing services on agribusiness producers

	Impact	Explanation
1.	Delayed detection of diseases	Preventative health services play a critical role in the early detection of diseases. Without regular check-ups or screening programs, conditions like cardiovascular diseases, cancers, or diabetes might go undetected until they're in a more advanced and less treatable stage (AIHW, 2019)
2.	Higher morbidity and mortality	The combination of physically demanding work and lack of early disease detection can lead to higher morbidity and mortality rates among red meat producers and their families (ABS, 2013)
3.	Economic Strain	Late-stage diseases or conditions are often more expensive to treat. Additionally, when a primary producer falls ill, the productivity of the farm may decline, leading to financial hardships (NRHA, 2017)
4.	Mental health concerns	The isolation of the bush can already contribute to feelings of loneliness or depression. The added stress of potential undetected health issues, combined with the lack of mental health services, can exacerbate mental health problems (Judd et al, 2002)
5.	Increased health complications	Without access to preventative services individuals might be more susceptible to preventable illnesses,

		which can lead to complications, especially in young children or the elderly (AIHW, 2019)
6.	Injury and accidents	Red meat production is associated with various risks, from handling livestock to operating machinery. Lack of preventative health services or first aid training can lead to untreated minor injuries, which might escalate into more serious conditions (Franklin et al, 2001)
7.	Family health	Children in these families may miss out on essential health checks and vaccinations, making them more vulnerable to certain diseases. Additionally, women might not receive appropriate prenatal and postnatal care, leading to complications during and after pregnancy (Garnett et al, 2003)
8.	Lack of health education	Preventative health services often offer education on healthy living practices, nutrition, safe work practices, and more. Without this, families might not have the information they need to make healthy choices (Alson et al, 2012)
9.	Strain on acute care services	When individuals do not have access to preventative services, they might rely more heavily on acute care services, which can strain already limited resources in remote areas (Wekerman et al, 2011)

It's important to note that while these are potential impacts, they won't necessarily be true for all red meat producers and their families in every bush area. However, the lack of access to preventative health services in remote areas does highlight a disparity that needs addressing to ensure the health and wellbeing of these communities.

5.2. The need for consistent care v ad-hoc health events and intervention

A comprehensive, long-term preventative medical program for red meat producers in the bush, when compared to a range of ad-hoc health events, could offer numerous advantages and possibly yield different outcomes. Here's a comparison based on potential impacts:

Table 3. Advantages of a preventative medical program vs ad-hoc events for red meat producers

	Potential Impact	Comprehensive Program	Ad-Hoc Events
1	Continuity of care (Starfield et al, 2005)	A consistent, long-term program would provide continuity of care, allowing for better monitoring of individual health progress and adjustments to care plans based on feedback.	These might provide valuable information during each event, but without follow-up, it's difficult to track or ensure sustained impact.
2.	Holistic approach (WHO, 2005)	This would likely address multiple facets of health (physical, mental, social, etc.), leading to a well-rounded health improvement strategy.	By focusing on one component, these may not address interlinked health issues or the broader determinants of health.

3.	Behavioural change (Prochaska et al, 1997)	Prolonged and regular exposure to health promotion and preventative strategies can lead to sustained behavioural change.	While impactful in the short-term, single events might not create lasting behavioural changes.
4.	Resource efficiency (Drummond et al, 2015)	Consolidated resources (funding, personnel, and equipment) for a long-term project can lead to economies of scale and better allocation based on continuous feedback.	These can be resource-intensive for short-term gains, and the lack of integration may result in duplicated efforts.
5.	Community Engagement (Laverack et al, 2006)	Continuous engagement can foster trust, build relationships, and lead to better community participation.	Single events might not develop the same level of community trust or engagement.
6.	Feedback and adaptation (Glasgow et al, 1999)	Continuous programs allow for ongoing feedback, enabling timely modifications to improve program efficacy.	Feedback might be event-specific and not integrated into broader health initiatives.

While both comprehensive and ad-hoc approaches have their place in public health, the long-term, integrated nature of a comprehensive preventative medical program could potentially offer more sustained benefits to red meat producers in the bush. The depth and consistency of such a program would likely provide a more holistic, interconnected approach to health and wellbeing. However, it's crucial to recognise the importance of proper implementation, community engagement, and adaptability for the success of any program, whether comprehensive or ad-hoc.

5.3. Link between health and business performance

The impact of poor health on beef cattle producers, particularly in the contexts of business, community, family, and industry, can be profound. It is evident that good health is central to their overall functionality across several spheres. Here is an overview of the potential impact of poor health on beef cattle producers, particularly in the contexts of business, community, family, and industry:

Table 4. Potential impact of health on business performance

	Impact Area	Impact
1.	Business	<p>Productivity: Poor health often leads to decreased physical and mental capacity. In agricultural settings, this reduced capacity translates directly to decreased productivity and efficiency on the farm.</p> <p>Financial Impact:</p>

		<p>Decreased productivity often carries an economic penalty. Coupled with potential medical expenses, a producer's financial stability can be at risk.</p> <p>Business Longevity: Chronic health issues may imperil the long-term viability of farming operations, particularly for smaller, family-run establishments.</p> <p>References: Gregoire et al, 2002 Barclay et al, 2007</p>
2.	Community	<p>Participation & Leadership: In many rural settings, farmers play pivotal roles in community cohesion and leadership. Health issues can limit their involvement, potentially weakening community ties.</p> <p>Support System: Rural communities often operate on mutual support mechanisms. Producers in poor health might draw more from this system, potentially straining communal resources.</p> <p>Reference: Alston et al, 2012</p>
3.	Family	<p>Emotional Impact & Care Responsibilities: The health of a family member, particularly a primary earner, can have significant emotional and logistical impacts on the family unit. This includes stress, potential role changes, and added responsibilities for other members.</p> <p>Generational Impact: In farming families, a premature passing of responsibilities due to health issues can disrupt established successional plans and potentially strain relationships.</p> <p>References: Booth et al, 2000 Barclay et al, 2007</p>
4.	Industry	<p>Supply Chain: Health-related drops in productivity can ripple through the agricultural supply chain, affecting both availability and pricing.</p> <p>Innovation & Growth: Collective growth often relies on the shared innovations and best practices of individual producers. Those in poor health may be less able to contribute to such collective endeavours.</p> <p>Reputation: The aggregate health and well-being of producers can shape perceptions of the industry, with potential ramifications for regulatory attention and consumer trust.</p> <p>References: Stayner et al, 1998 Leathwick et al, 1995</p>

The health of MLA producers in rural Australia is intricately linked to their effectiveness in business, their role and influence in community and family structures, and their contribution to the broader industry. Poor health can ripple outwards, impacting not just the individual producer, but also the larger spheres they are a part of. Thus, emphasising preventative health and wellbeing initiatives is crucial for the sustainability and prosperity of both the individual producers and the collective industry.

5.4. Adaptation of health program data and discussion points for health professionals delivering a program.

The adaptation of a comprehensive, longitudinal preventative health program designed for corporate executives in urban settings to suit the needs of farmers is crucial due to significant differences in the lifestyles, challenges, and priorities of these two groups. Complete Wellbeing Program structure and content are to be adapted to address the following considerations based on our findings.

Table 4. Framework for adaptation of the CWP for MLA Members

	Consideration	Recommended Change
1.	Distinct Work Environments	<ul style="list-style-type: none"> • Executives often work in structured, climate-controlled environments with access to amenities. • Farmers work outdoors, exposed to the elements, handling machinery, livestock, and manual labour. Adapting the program acknowledges the physical demands and health risks unique to farming.
2.	Different Stressors	<ul style="list-style-type: none"> • Executives face deadlines, meetings, and management challenges. • Farmers deal with unpredictable weather, pests, livestock health, and market price fluctuations. Tailoring the program ensures it addresses the unique mental health challenges of the group.
3.	Varying Access to Healthcare	<ul style="list-style-type: none"> • Urban executives usually have easy access to medical facilities. • Farmers, especially in remote areas, may have limited access, necessitating more preventative measures and telehealth options.
4.	Lifestyle and Dietary Differences	<ul style="list-style-type: none"> • Executives might have sedentary lifestyles due to desk jobs, with potential for more processed food options. • Farmers often have active routines but may lack variety in their diet, especially in remote areas.
5.	Diverse Social Interactions	<ul style="list-style-type: none"> • Executives often interact in structured settings like meetings, with significantly more opportunities for social interaction.

		<ul style="list-style-type: none"> • Farmers might experience periods of isolation, especially during off-seasons, impacting mental well-being. Programs for farmers should incorporate strategies to combat isolation.
6.	Cultural and Value Differences	<ul style="list-style-type: none"> • Corporate culture might emphasise competitiveness, innovation, and growth. • Farming communities might prioritize sustainability, community, and tradition. Health and well-being interventions should respect and align with these values.
7.	Education and Training	<ul style="list-style-type: none"> • Executives often have access to training programs, workshops, and seminars for professional development. • Farmers might rely more on experiential learning, local networks, and agricultural extensions. Educational components of the program should consider these differences.
8.	Digital Literacy and Access	<ul style="list-style-type: none"> • Executives in cities likely have consistent internet access and are comfortable using digital tools. • Farmers might have limited internet connectivity or may not be as tech-savvy. Digital components of health programs should be intuitive and possibly offer offline alternatives.
9.	Scheduling and Time Commitments	<ul style="list-style-type: none"> • Executives have more predictable 9-to-5 schedules. • Farmers have seasonal and daily variations, with some periods being incredibly busy. Health interventions should be flexible to accommodate these irregularities.

While there are demonstrable overlapping health and well-being needs between executives and farmers, the contexts in which they live and work are vastly different. A one-size-fits-all approach won't be as effective. Adapting the program ensures that interventions are relevant, meaningful, and effective for the target audience.

5.5. Face-to-face vs. Digital Delivery in the Context of Rural Australians

While digital health programs offer immense flexibility and scalability, several factors make blended models, especially those incorporating face-to-face interactions, more effective:

Table 5. Considerations for Rural CWP delivery for MLA Members

	Consideration	Recommended Change
1.	Trust	Face-to-face interactions can build a deeper sense of trust and credibility, especially in farming communities where personal connections hold significant value.
2.	Quality of Assessment	Some components of the assessment require in-person delivery, and for those that do not, self-reported data is generally less accurate than that collected by a health professional.
3.	Cultural and Contextual Understanding	In-person interactions offer healthcare professionals insights into the living conditions, challenges, and lifestyles of rural Australians, leading to more tailored advice.
4.	Digital Literacy & Access	Not all rural Australians might be comfortable with or have access to advanced digital tools. Hence, blending face-to-face interactions can bridge this potential gap.
5.	Improved Outcomes	Studies have indicated that blended models, which combine personal touch with the convenience of digital tools, often lead to better adherence and outcomes in health programs. The face-to-face interactions increase motivation and commitment, while digital tools provide the convenience and scalability.
6.	Immediate Feedback:	In-person sessions allow for immediate feedback and clarification, ensuring that misunderstandings or misconceptions are addressed promptly.

A blended approach combining both face-to-face and digital interactions can indeed be a beneficial method to deliver health programs to rural Australians. For MLA members, a blended approach to health programs that integrates both face-to-face and digital interactions can offer the benefits of personal connection and trust, alongside the convenience and scalability of digital platforms.

6. Conclusions and Recommendations

6.1. Recommendation

The future of the Australian red meat industry is reliant on the strength, agility, and resilience of our producers. With changing dynamics in both the market and environment, it is paramount that our producers are equipped not just with the best tools and technologies but also with optimal physical and mental health. This recommendation serves to highlight the imperative need for a "Longitudinal Preventative Complete Wellbeing Program" adapted to suit the needs of 100 MLA producers in Australia.

The individuals at the helm of this industry - Station Managers and Owners - shoulder significant responsibilities and face unique challenges markedly different from their urban, executive counterparts. Given the vital role they play, it becomes imperative to ensure their holistic well-being. This recommendation underscores the need for a "Complete Wellbeing Program" tailored specifically for MLA Members.

FHPC have collected and completed a thorough, evidence-based analysis of research data available, an interrogation of anonymised health data from Ford Health's 1000 study as well as engaged with stakeholders for feedback. Our findings detailed in the report support the implementation of a longitudinal preventative health program for MLA members.

Ford Health anticipates collaborating with MLA (Meat and Livestock Australia) to establish a comprehensive database of meat producers. This initiative aims to facilitate analysis that can enhance the health and well-being outcomes within this demographic while also improving the quality of services provided to them.

6.2. Benefits for MLA

Sustainable Production Growth:

Healthy producers mean a robust and efficient workforce, paving the way to achieve our goal of doubling red meat production by 2030.

Positive Industry Perception:

By investing in the health of its key players, the industry reinforces its commitment to its people, making the sector more attractive for the next generation.

Enhanced Decision Making:

Positive medical, mental and physical health allows individuals to improve consistency of quality decision making over time, ensuring that our producers make informed, strategic decisions vital for industry growth.

Thought Leadership:

The ongoing program evaluation and data generation from the program will allow stakeholders to define and share how the program is positively influencing the health, business and communities of participants, which creates a powerful tool for MLA to positively influence the health of the industry in Australia and abroad.

6.3. Operational Feasibility

Utilising a blended approach, initial onboarding can be digital, followed by in-person assessments at regional hubs, ensuring detailed, individualised evaluations. Ongoing support can be offered digitally, providing continuous backing without logistical constraints. This hybrid model resonates with rural Australians, offering an effective balance between personal touch and flexibility.

Interviews conducted as part of this study further support this recommendation and blended delivery model, notably due to the distinct lack of preventative and post-diagnosis health service available to the cohort, coupled with the support for a longitudinal preventative health program evidenced by 100% of participants.

6.4. Considerations for further programming

4.6.1. Evidence Generating Practice approach

FHPC to deliver ongoing programming utilising Evidence Generating Practice in order to best refine and improve programming in real time. Evidence Generating Practice refers to the approach of actively generating new evidence through systematic research or data collection in real world settings. This involves specific clinical or organisational questions to generate data that can inform decision-making and improve practices.

4.6.2. Target group

It is advisable to strategically target MLA members to take part in the proposed program. A considered recruitment approach has the potential influence the outcomes, longevity and reach of the program, and associated investment, to best ensure both immediate and long-term benefits for the industry. FHPC recommends that Early-Career Farm Owners and Managers, Emerging Agricultural Leaders and Proactive Community Health Role Models are an ideal fit for an initial program for the following reasons:

	Benefit	Outcome
1.	Skill Development at Foundation Level	Engaging with farmers early in their career allows for the instillation of best practices from the onset, ensuring a strong foundation for the future.
2.	Future Investment	Supporting early-career farmers' well-being is a long-term investment, maximising their efficiency and longevity in the industry.
3.	Adaptability to Modern Practices	Those in the early stages of their career might be more open to embracing new techniques, technologies, and best practices shared during the program.
4.	Securing the Industry's Future	By focusing on the health and well-being of farmers at the start of their journey, the industry ensures a robust and vibrant future.
5.	Shaping Industry Direction	Emerging leaders have the potential to significantly influence the direction of the agricultural industry. Ensuring their well-being means decisions will be made with clarity and foresight.

6.	Ripple Effect	Leaders, by nature, set the tone for their peers and teams. A focus on their health and well-being can encourage others in the industry to also prioritise these areas.
7.	Networking and Collaboration	Leaders often have a broader network. Their participation in the program can lead to greater collaboration, shared learning, and collective growth.
8.	Community Impact	Health Role Models have the ability to impact not just their immediate circle, but entire communities. Their participation can drive broader community engagement and awareness.
9.	Championing Preventive Measures	Role models can be vital in promoting the importance of prevention over intervention, fostering a culture of proactive health management.
10.	Cultural Shift	By engaging with regional health influencers, there's potential to instigate a larger cultural shift towards prioritizing health and well-being within farming communities.
11.	Local Advocacy	Regional influencers can serve as local ambassadors for the program, lending it credibility and driving participation.

A communication, promotion and recruitment strategy would need to be developed to target program participants within the MLA membership base to best achieve these outcomes and therefore maximise the return on the program's investment. This strategic targeting ensures both immediate and long-term benefits for the industry.

While our literature search, Ford Health data analysis, and internal expertise suggest that the Complete Wellbeing Program may lead to improvements in participants' performance, productivity, and quality of life, it is important to note that these outcomes cannot be guaranteed.

It is important to note that the program recommendation does not seek to replace the community medical system. The MLA 100 Farmers Project has been designed with the intent to address particularly the non-users of the system and build in proactive and preventative health behaviours reducing the need to leverage the already limited access to public and private health services in regional Australia.

FHPC's statistical analysis reveals that outcomes can vary significantly among different demographic groups due to a multitude of factors. First and foremost, the inherent diversity within these demographics, encompassing variables such as age, gender, socioeconomic status, and cultural background, often results in distinct health-related behaviours, preferences, and needs. Additionally, external factors, including disparities in healthcare access, environmental conditions, and regional differences, exert considerable influence on these outcomes. Furthermore, the efficacy of interventions or programs may diverge based on demographic characteristics, as individual responses can vary within each group. Consequently, a comprehensive understanding and consideration of these demographic variations are essential when tailoring interventions and policies to effectively address the unique requirements of each specific group.

7. Key messages

7.1. Message for Producers

The greatest asset to any successful agribusiness is its workforce. As such, by identifying and supporting role models to proactively improve their own wellbeing, these individuals will lead and influence others to take ownership of their health futures and in turn, improve business performance in Australian farming communities. In doing this, agrarian communities become attractive for younger generations, and further promotes intergenerational knowledge transfer, familial succession and retention of key participants in the sector.

FHPC, supported by MLA, intends to pilot a group of 100 red meat producers, through a Complete Wellbeing Program, that has a quantifiable impact on overall health, wellbeing and performance. As there is a distinction between both the health risk profiles of people in remote and agricultural settings, and those in urban settings, the approach to health and wellbeing in relation to personal, family and community health requires additional layers of personalisation which FPHC will define to ensure the program is a best fit for red meat producers.

The health of MLA producers in rural Australia is intricately linked to their effectiveness in business, their role and influence in community and family structures, and their contribution to the broader industry. By taking a preventative and long term approach to the health of 100 key owners and managers in the industry over the course of 5 years, MLA is positioned to be the world leader in supporting a sustainable and people-centred industry.

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9. Appendix

9.1. Appendix 1. MLA Producer Pulse Check Design

Necessary engagement with rural representatives is required to understand the lived experience in the bush and collect feedback to effectively implement the CWP for a rural audience and environment.

- i. Participants will be asked to provide recommendations on how to address identified shortcomings in rural health, specifically in regard to red meat producers in each of MLA’s identified segments.
- ii. Adjusting language and CWP questions to maximize understanding across 5 archetypes and within a rural community.
- iii. Address differences in communication between people and the community in a rural setting (e.g., phone, email, fax, in person etc)

Additionally, a specific “influencer” profile will need to be identified, as this forms part of the social research aspect of this study, addressing *why people change their behaviours*.

- 1. Participants will be asked to reflect on what are common characteristics of a leader/role model/influencer?
- 2. Can the focus groups confirm why they as MLA members might engage with an influencer? This will identify traits in the influencer and behaviours in the followers (early adopters).
- 3. This input will develop an effective selection process to identify and recruit a representative group of like-minded people with “influencer” characteristics

Key Questioning Themes:

Theme	Questions
Health Indicators	What does it mean to you to “be well”?
Health Indicators	How do you know when you are going well?
Health Indicators	What detracts from being well?
Role Models	Who influences your health and why?
Role Models and Delivery	What social and digital tools do you use to connect with others?
Role Models and Delivery	What would FHPC need to consider in delivering a CWP to you?

Pulse Check Prompt Questions:

To identify the correct language to modify the CWP Questionnaire for a rural scenario:

MEDICAL SECTION

- What does health look like to you in rural Australia?
- What does physical activity mean? Exercise?
- What does your diet consist of from day to day? Variation in meals?
- What does wellbeing mean?

WORK SECTION

- What does good/bad performance look like?
- How would you describe where you work every day? (Workplace vs farm language)
- Are there opportunities to take breaks/rest at work? Leave?

POSITIVE PSYCHOLOGY

- How would you describe your life satisfaction?
- What does content look like/feel like in your life?
- Do you have opportunities to enjoy life outside of work? Hobby activities?

To identify the estimated best design for medical assessment:

- Would participants prefer to see Dr face-to-face or online?
- Would waist/hip ratios, BP and pathology be feasible to collect at your home/farm?
- Would you need to be sent a “starter kit”, and what would need to be included in that in order to collect baseline health information?

To gather background/baseline data on influencer characteristics:

- Who are you influenced by?
- What characteristics do they have?
- What makes you care what they do?
- Why do you feel that they are a good person to emulate?
- What would motivate you to change something about yourself/life?
- If you were to influence someone, how would you go about it?
- Who do you turn to when you want advice on a problem?
- Who’s help/support do you value the most?
- Who do you respect within your professional contacts?

- **Who do you catch up with to talk about the business/farm?**

Arrangement, Promotion, Bookings:

- **Best/Preferred way to contact in the bush (online/phone call/in person)?**
- **Best way to promote program – town hall, letterbox drop, online?**
- **Best way to book participants in to program and continue contact**

Overview of Health in the Bush

Barriers to being “well”?

- **Fresh fruit and vegetable produce**
- **Time/Energy for Exercise**
- **Temperature/Climate/Location limiting exercise**
- **Attitudes to health**
- **Tolerance of ill-health**

9.2. Appendix 2. Ford Health Data Analysis

Table 1. Impact of Frequency of Attendance on Health Risk Factors (Chi Squared Test)

Health Risk (% exceeding Australian Guideline)	Newcomer	2 – 4 HAs	5 or more HAs	Pearson Chi-Square Value
Smoking	7.1%	2.1%	2.2%	0.000**
Alcohol	66.3%	50.3%	60.2%	0.000**
Physical Activity	72.8%	66.9%	55.2%	0.000**
Nutrition – Vegetables	90.8%	94.7%	87.3%	0.004**
Nutrition – Fruit	67.2%	64.5%	59.3%	0.100
Sleep	68.0%	65.1%	59.0%	0.046*
Musculoskeletal Pain	28.1%	21.0%	21.9%	0.062
Depression (Moderate or greater)	3.6%	4.4%	3.4%	0.752
Anxiety (Moderate or greater)	6.8%	2.4%	2.2%	0.002**
Stress (Overall, clinical & Self reported)	11.2%	11.2%	4.6%	0.003**
Total Mental Health	15.1%	12.7%	7.7%	0.012*
Urgent Mental Health	2.7%	1.2%	0.6%	0.081
Cholesterol	60.4%	58.0%	60.5%	0.759
Cardiac Ratio	68.9%	69.5%	72.5%	0.557
Diabetes (BGL)	22.8%	21.3%	25.6%	0.411
Weight	45.0%	41.1%	40.4%	0.441
Blood Pressure	17.8%	15.4%	11.4%	0.070
Urgent Follow up (Mental health, BP and/or glucose)	3.6%	1.5%	0.6%	0.017*

Legend: * $p < 0.05$ (Significant); ** $p < 0.01$ (Highly significant)

Table 2. Impact of Frequency of Attendance on Health Risk Factors (Independent t-test)

Health Risk (% exceeding Australian Guideline)	Newcomer	5 or more HAs	P value (Independent t-test)
Age in years	44.53	51.80	0.000**
Body Mass Index (BMI)	27.73	27.29	0.198
No. of dietary risk factors	4.3846	3.8796	0.000**
No. of risk factors for CVD, type II diabetes and CKD	3.9556	3.5895	0.001**
Self-rated Performance Score	6.0190	6.1693	0.12

Legend: * $p < 0.05$ (Significant); ** $p < 0.01$ (Highly significant)

Table 3. Impact of Remoteness on Complete Wellbeing Sectors – Independent t-test

CWP Component	Major City & Inner Regional	Outer Regional & Remote	P value (Independent t-test)
Ford Health Index	74.66	71.43	0.020*
Medical Sector	85.31	79.33	0.008**
Sleep Sector	76.24	70.14	0.049*
Lifestyle Sector	65.48	61.57	0.055
Work Sector	74.83	75.10	0.893
Connections Sector	76.40	74.96	0.486
Resilience Sector	69.60	67.54	0.212

Legend: * $p < 0.05$ (Significant); ** $p < 0.01$ (Highly significant)

Table 4. Impact of Remoteness on Health Risk Factors – Chi Squared Test

Health Risk (% exceeding Australian Guideline)	Major City & Inner Regional	Outer Regional & Remote	Pearsons Chi-Squared Test
Smoking	4.0%	2.6%	0.534
Alcohol	64.2%	62.8%	0.813
Physical Activity	64.9%	85.9%	0.000**
Nutrition – Vegetables	91.2%	92.3%	0.756
Nutrition – Fruit	63.3%	80.8%	0.003**
Sleep	64.0%	75.6%	0.046*
Musculoskeletal Pain	28.2%	39.7%	0.041*
Depression (Moderate or greater)	5.0%	12.8%	0.008**
Anxiety (Moderate or greater)	5.2%	11.5%	0.033*
Stress (Overall, clinical & SR)	11.4%	19.2%	0.055
Total Mental Health	13.7%	23.1%	0.035*
Urgent Mental Health	3.8%	9.0%	0.045*
Cholesterol	59.0%	62.8%	0.528
Cardiac Ratio	72.7%	66.7%	0.273
Diabetes (BGL)	26.1%	30.8%	0.389
Weight (Waist Measurement)	58.1%	70.5%	0.039*
Blood Pressure	19.4%	38.5%	0.000**
Urgent Follow up (Mental health, BP and/or glucose)	4.3%	14.1%	0.001**

Legend: * $p < 0.05$ (Significant); ** $p < 0.01$ (Highly significant)

Table 5. Impact of Remoteness on Health Risk Factors – Independent t-test

Health Risk	Major City & Inner Regional	Outer Regional & Remote	P value (Independent t-test)
Age in years	50.26	50.60	0.734
Body Mass Index (BMI)	27.85	30.54	0.000**
No. of dietary risk factors	4.3128	4.8846	0.000**
No. of risk factors for CVD, type II diabetes and CKD	4.0047	4.6667	0.000**
Performance Score	6.0481	5.9542	0.381

Legend: * $p < 0.05$ (Significant); ** $p < 0.01$ (Highly significant)

9.3. Appendix 3. Literature Review

Illness, Wellbeing and Productivity in Rural Agribusiness: A scoping review

Margot Lane

Abstract

Health and wellbeing standards in rural Australia lag behind that of their city equivalents. This is a consequence of unique geographical, social, occupational, and other health determinants affecting those living in regional and remote cities. Within the agricultural sector, health is inextricably linked to productivity, with a producer's ability to innovate, experiment, and capitalise on farm-specific knowledge directly related to wellbeing. Illness and consequent reduced productivity can have significant impacts on an individual's resilience and their ability to adapt, which in turn can negatively impact business outcomes. This literature review provides evidence that proactive mental and physical health management is linked with improved wellbeing, which in turn can improve business performance over time. Additionally, it found significant relationships between strong role models, industry leaders, positive social capital, community ties, and improved wellbeing. Whilst current rural health programs address individual aspects of health (such as mental wellbeing, workplace safety, or resilience), there is a need to incorporate holistic and multi-level health promotion initiatives involving rural community role models and influencers to improve health standards. However, this model must be specifically designed to integrate the social determinants of agricultural health to ensure uptake, longevity, and success of the program long-term.

Introduction

Background and context

Almost one-third of Australians live in rural and remote areas, and yet health standards between regional cities lag behind that of their metropolitan equivalents. This gap exists due to intersecting biological, psychological, interpersonal, occupational and social determinants disproportionately affecting rural Australians, such as reduced community infrastructure, health literacy, transportation, access to services, geographical and social isolation, resource mismatch and injurious work settings (Brew et al., 2016). Generally, rural Australians have shorter lives, decreased access and use of health services and higher rates of disease and injury (Australian Institute of Health and Welfare, 2022a). Additionally, due to the variety of population diversity with rural towns – including coastal areas with high numbers of tourists and retirees, mining communities with the accompanying transient populations, remote indigenous communities and large areas of farming and agriculturally based communities – health challenges must be examined carefully, and a one-size-fits-all approach to addressing these health inequities will not succeed (Kennedy et al., 2020).

There has been a substantial and increasing incidence of mental ill-health and suicide, particularly in rural areas as a result (at least in part) of a predominance of *negative social determinants* such as lack of knowledge, education and incentive to take care of self over *positive social determinants* such as constructive customs, behaviours, beliefs, incentives and collective endorsements through feedback and positive communications (Australian Institute of Health and Welfare, 2022b, Radcliffe et al., 2018). It is believed that these effects may be perpetuated in future amongst younger generations of rural Australians, due to an inability to find, connect and belong to visible communities containing role models who demonstrate resilience, positive mental wellbeing and the potential for attaining prosperity in a rural setting (Radcliffe et al., 2018). As such, there is a critical need to be able to identify and support the development of positive role models and key influencers, to promote generational family business succession and ensure long-term outcomes for these communities.

Current research acknowledges the effectiveness of preventing disease, rather than interventions that interrupt the progression of established disease, from the perspective of achieving the greatest health benefits to the greatest number of people (Waldman & Terzic, 2019). Reports estimate that the prevalence of four key reversible risk factors (overweight and obesity, unhealthy diet, physical inactivity and tobacco use) represent a significant health burden for Australia, estimated to cost the Australian public between \$561m for dietary factors and \$15.6b for physical inactivity (Howse et al., 2021). This includes not only costs for the medical system, but broader costs associated with illness, such as reduced employment, productivity, absenteeism, and presenteeism (Howse et al., 2021). This review found that adopting a patient-centred, preventative healthcare model would not only have a significant reduction in the economic and social costs associated with a high healthcare burden, but would also have wider, lasting impacts – such as environmental benefits (e.g. reduction in temperatures, air pollution and carbon emissions) (Howse et al., 2021).

Patient-centred healthcare represents a significant cultural shift from traditional, paternalistic, biomedical models of healthcare, to one that recognises the patient's

experiences, environment, needs and understanding into every facet of treatment (Fix et al., 2018, Fisher et al., 2022). Those who actively engage with or seek out healthcare are more likely have a greater understanding and involvement in their own care, greater commitment to self, presence of positive emotions, sense of meaningfulness, and improved health outcomes (Ali and Katz, 2015, World Health Organization, 2016). Thus, this treatment model shift may not only improve health outcomes for all Australians, but may prove to have lasting effects within communities by providing patients with the tools to improve their own health and wellbeing (Ali and Katz, 2015).

Purpose of the literature review

This literature review aims to explore the link between illness, wellbeing, and on-farm productivity, how wellbeing and illness impacts the sustainability of agribusiness workforce, and finally how strong positive role models and industry leaders can influence individual health and wellbeing in a rural community. To do this, the following ideas have been searched:

- What is healthy? What does farmers health look like globally?
- What is the impact of ill health on farming communities and businesses?
- How is wellbeing linked to on-farm productivity/successful business?
- What behaviours contribute to success amongst industry influencers?
- What current initiatives are being undertaken to assist farmers and red meat producers in improving wellbeing?
- What defines, and who are, the influencers amongst red meat producers?
- What are the biological/psychological/social impacts on health and productivity in farmers?

Methods

This scoping review was conducted by consulting three databases, including PubMed, Google Scholar, Scopus and a general Google search. Within this search, the key terms that were applied are as follows (including the utilization of Boolean Operators AND, OR, and the use of "" where appropriate): "Health" OR "Health Promotion" OR "Disease Prevention" OR "Wellbeing" AND "Productivity" OR "social" OR "biological" OR "psychological" AND "business" AND "Rural" AND "Influence" AND "Australia" OR "Physical" OR "Mental" OR "Agricultur*" OR "Healthcare" OR "Industry" OR "Resilience" OR "Farm*". PubMed and Scopus are databases mainly containing papers and abstracts regarding physical sciences, social sciences, life sciences, health sciences and biomedical themes. Google Scholar's Advanced Search function was utilised in order to input the specific search terms, and filter for relevance (sorting by results published after 2015). The general Google search was also used to obtain any other relevant grey literature, including government publications, reports from non-government organisations, and other published frameworks.

Results

Social, environmental, psychosocial, and occupational determinants of health for farmers

This literature review found significant links between rural-specific determinants of health, and outcomes and attitudes to healthcare of farmers. Rural workers felt that they prefer to manage themselves rather than access help for physical conditions (50%) or mental health needs (75%) (Brew et al., 2016). Risk factors for farmers health included isolation, long working days, climate change, personal/business finances, time pressures, globalisation, as well as workplace-specific and social factors such as farm employee exit, farming succession strategies, and rural depopulation (Brew et al., 2016, Herrera Sabillón et al., 2022, Rudolphi et al., 2020). These workplace-specific conditions and lifestyle risk factors made farmers more vulnerable to physical and mental ill health, with outcomes including loss of self-esteem, withdrawal from social/community activities and an inability to function in occupational roles (Daghagh Yazd et al., 2019). This was compounded by the fact that intentions to seek healthcare decreased with an increasing degree of rurality, and reported barriers to help-seeking besides the aforementioned risk factors included concerns regarding anonymity and privacy, and stigma (Kaukiainen and Kølves, 2020, Daghigh Yazd et al., 2019, Brew et al., 2016).

The conceptual framework for rural health, stress and adversity was found to differ significantly from standard health, as it includes not only life course adversity (individual and family), but also rural adversity (across the community) and universal adversity (experienced throughout society) (Lawrence-Bourne et al., 2020). Ill health was also linked to *solastalgia* (emotional distress that occurs when the land is under threat, degraded or different) and *topophilia* (the affective bond one holds to a place, and consequently quality of life) (Lawrence-Bourne et al., 2020). Brolan et al (2019) found there was minimal comment made on how the integration of rural and regional communities to health promotion programs (and thus improvement of health) will occur in Australia (Brolan et al., 2019). Therefore, not only are agricultural employees at a higher risk of developing physical and mental health conditions, but they are less likely to seek or receive healthcare – leaving a vulnerable population disempowered to engage in their own healthcare and wellbeing, with subsequent impacts to agricultural businesses outlined below (Fisher et al., 2022, Daghigh Yazd et al., 2019).

How is wellbeing linked to on-farm productivity/successful business?

It is well established that employees in good physical, mental, and emotional health are more likely to deliver optimal performance in the workplace, better quality of life, lower risk of disease and injury, and are more likely to contribute to their communities (Adams, 2019). However, the underlying reasons for this were unclear. A major theme that emerged from this scoping review was the specific traits or factors that are linked to both workplace performance and improved health outcomes – namely resilience, optimism, self-determination and motivation, and connections or sense of belonging (Haim-Litevsky et al., 2023). Those with a greater understanding of resilience were found to have positive developmental outcomes when faced with unforeseen stressors, and those businesses who

employed resilient people were found to perform better in economic crisis (Ungar and Theron, 2020, Harter et al., 2020).

Optimism was associated with exceptional longevity, regardless of socioeconomic status, pre-existing health conditions, depression, social integration, and health behaviours (Lee et al., 2019). Moreover, optimism was found to positively impact individual's perceptions of their physical and mental health and promote a healthier lifestyle by way of improved adaptive behaviours and cognitive responses, problem-solving capacity, greater flexibility and efficient processing of negative information – all of which can be incredibly useful when working in constantly changing conditions in agriculture (Conversano et al., 2010).

Self-determination and autonomy were found to be key for both wellbeing and workplace performance – in the sense that pursuing things that are intrinsically motivated and aligned with personal goals means an individual is more likely to make better decisions and feel happier as a result (Rigby and Ryan, 2018). Finding a sense of identity in farming, a driving passion for the work and the challenge, having intrinsic motivation and the freedom to work were all found to be buffers for the challenges faced by farmers in their careers (Riethmuller et al., 2023). Additionally, self-determined farmers were found to feel more satisfied with the work they were doing, as they were engaging in the activity for the inherent reward of the behaviour itself, rather than an extrinsic motivator - further proving the need for generational, self-determined, healthy farmers in rural communities to ensure sustainability of the business long-term (Riethmuller et al., 2023).

Finally, one of the most important aspects of wellbeing and productivity is the concept of connections, or sense of belonging. The importance of social connectedness and sense of belonging, particularly in a rural context, was highlighted by the numerous health risks associated with isolation and loneliness – such as suicide attempts, self-harm, increased prevalence of mental health disorders, exposure to violence, poor physical health, and substance use (Motillon-Toudic et al., 2022). Connections were not limited to personal relationships, but include belonging in the workplace and within a social community. A 2018 study found that social interaction and social connectedness reduced stress and improved farming decisions through the process of learning resilience and coping strategies from one another when dealing with shared challenges, such as extreme weather events (Tisch and Galbreath, 2018).

As aforementioned, these key traits of resilience, optimism, self-determination, and belonging are all crucial for both wellbeing and productivity on the land, given that significant stressors such as financial problems, unpredictable climate and time pressures were the most reported risk factors for farmers mental health (Daghagh Yazd et al., 2019). Ill health, absence of decent work opportunities and lack of access to social services were major drivers for young people to migrate away from working in agriculture and leave rural areas, which deprived farm activities of much-needed innovators (Hawkes and Ruel, 2006, FAO, 2017). Contrastingly, healthier producers were more productive and able to drive and contribute to the development of agricultural systems (Hawkes and Ruel, 2006). Therefore, incorporating a strengths-based approach for health promotion and illness prevention in agricultural workers is critical, as it recognises an individual's strengths, appeals to their character, and builds on the existing positive factors within the communities for the greatest improvements in wellbeing.

The impact of role models and influencers on individual and community health status

There was extensive literature regarding the importance of relationships, social capital, influence, and role models on health status in rural communities. Social capital refers to the product of community social interactions, which in sum contribute to the social, civic or economic well-being of a community, and is what is drawn upon in times of stress (O'Meara, 2019). They found that older, established individuals in the farming workforce positively influences the social capital, sustainability, and longevity of local agricultural communities. They also noted that community spirit amongst the aging continues, even when the associational activities are limited (O'Meara, 2019).

Of the six hypothesised farm-level indicators contributing to satisfaction with quality of life (holidays and free time, working hours, age of assets, financial aspects, advisory services and community engagement), community engagement was the only one that directly impacted both satisfaction of work and quality of life (Herrera Sabillón et al., 2022). Moreover, farmers that had input from peers, family, neighbours and advisors were more likely to develop positive practical, cognitive, psycho-affective and social experiences in their work (Slimi et al., 2021). Moreover, mutual engagement, frequent interactions and shared commitment between farmers developed stronger bonds and a sense of communal identity (Slimi et al., 2021). A 2018 study of farmers' decision-making behaviours found that influence of family, friends and peers was one of the most important factors in behavioural change, with like-minded community members more likely to provide vital support for encouraging good management of long-term health conditions (Hughes et al., 2017, Rose et al., 2018) This was supported by Coster *et al.* (2017), who found that 48% of farmers would attend Accident and Emergency due to influence of family and friends, compared to 35% when following the advice of a healthcare professional (Coster et al., 2017).

Being part of a small community with a 'community spirit' or close social connections was a potential protective factor for people experiencing mental illness, and encouragement from informal support (i.e. family and friends), as well as testimonials or endorsements from other people in the community were positive forces for influencing young people seeking mental healthcare in rural communities (Radcliffe et al., 2018). This sentiment was echoed by Wu et al. (2020), who found a correlation between enhanced relationships between community and individual, employees and employers, and an increased sense of belonging (Wu et al., 2020). This in turn could improve self-identity and social skills, as well as supporting workers through education and intervention to adapt to different challenges and improve mental health status (Wu et al., 2020). Thus, positive role models and a strong community influence can not only support young people when seeking healthcare but can also motivate them to stay and be contributing members within their communities long-term.

Current intervention strategies to improve farmers' health.

The main findings from existing mental health programs was that these prevention programs must be relevant to the population of the region – either based on geography, social factors, shared cultures, lifestyles or beliefs in the community (Grattidge et al., 2023). Thus, transitioning suicide prevention efforts from a national scale to a regional focus allows for these rural populations to support themselves, and to draw on established social capital (Grattidge et al., 2023). Lack of communication and leadership were key barriers to effective program delivery and improving outcomes (de Deuge et al., 2020). Improving mental health

literacy significantly improved participant's self-reported mental health knowledge, confidence in recognising mental health struggles and ability to help someone who may be struggling with mental health – highlighting the importance in involving community in their own care (Hagen et al., 2020).

A recent systematic review of current farmer mental health interventions found that whilst holistic, multi-component programs are theoretically the most effective at countering stress, treating mental illness, and preventing suicide, they were passed over in favour of single intervention strategies, of which the outcomes are empirically and unambiguously measurable (Yunker and Radunovich, 2022). Additionally, a longitudinal cohort study of Australian farmers found that programs and policies that address attitudinal barriers for help-seeking, whilst improving access for farmers to GPs and mental health professionals would be the most beneficial intervention for improving health outcomes for this population (Brew et al., 2016).

Conclusion

This literature review identified 4 distinct themes relating to the health status and outcomes for rural communities and agricultural businesses:

- (1) Being an agricultural producer is a determinant of health, due to intersecting individual, social and environmental risk factors,
- (2) Traits such as resilience, optimism, self-determination and connectedness are associated with better health amongst individuals, and in turn, can contribute to greater successes for respective businesses and improve innovation and gains throughout the broader industry
- (3) Fostering community spirit, social capital, and reciprocal relationships can contribute to greater health standards for the wider community, retain people in the area, and even serve as a protective factor for young people's mental health, and
- (4) current single-arm intervention strategies fail to encompass the holistic nature of health, requiring innovative multi-level initiatives for these communities.

Farmer and agricultural community health differs significantly from standard city health, due to unique social, environmental, and occupational determinants, as well as specific risk factors relating to workplace, lifestyle, location, and attitudes in the community. Consequently, people living rurally are less likely to access or receive care – with this manifesting as worsening health outcomes as remoteness increases. However, poorer health has been linked with decreased productivity and suboptimal performance at work, reduced quality of life, higher risk of disease, and lower likelihood of contributing to their communities.

Ill health and reduced access to services was a major driver for young people to leave agricultural businesses. However, this same population was motivated to stay and contribute to their community if there was a strong 'community spirit', thriving social capital, and sense of belonging. This was also felt amongst a wider population, in which those who frequently interacted with, sought opinions from, and shared knowledge with their community were

more likely to enjoy stronger social bonds, greater sense of identity, and improved management of chronic health conditions long-term.

Currently, there are no programs designed to improve rural health outcomes, whilst incorporating all elements of agricultural wellbeing. As such, there is a need to integrate the social determinants of agricultural health into a complete health promotion program, to ensure success and longevity, as simply adapting a metropolitan health model will fail to capture a holistic measure of farmer's wellbeing. Moreover, this initiative must seek to include the community's input and feedback in the design and implementation phase, to incorporate community-specific values, norms, beliefs, and customs, and ensure that the program is relevant for the participants.

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