



NSW PERI URBAN BIOSECURITY PROGRAM

Livestock Surveillance Champions in Peri-urban areas \$ – a NSW Case Study

Engaging peri-urban smallholders and the role of Small Farms Networks

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More information

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Cover image: Schembri N, Belgenny Farm Workshop, May 2018, Camden, NSW

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Executive Summary

This project explored the efficacy of using producer champions to facilitate producer-based livestock health surveillance and networks to achieve favourable on-farm biosecurity outcomes. Project activities were undertaken in collaboration with existing industry and government animal health surveillance and biosecurity efforts with a focus on changing the biosecurity behaviours of small landholders in such a way that disease surveillance and reporting is improved.

By using a local Livestock Champion, we sought to investigate and influence behaviours related to livestock disease surveillance and reporting by peri-urban and regional small landholders within the Greater Sydney area and Capital Region. Activities conducted during the project included:

-) A workshop on biosecurity planning for secondary school agriculture teachers
-) Workshops for small landholders in the Macarthur (Greater Sydney) and Capital Regions on the outskirts of Canberra were conducted (two workshops at each location)
-) A post-workshop telephone survey as follow-up with producers attending the first Macarthur workshop
-) The development of a guide for regions or communities who are interested in developing their own small farms network (presented as the following for the purpose of this report):
 - Analysis of small farms networks Australia-wide
 - Case studies of a number of past and existing small farms networks
 - Case studies of peri-urban landholders who developed alternative networks to support their enterprises

More insight into the practices and motivations of small landholders was gleaned through collaboration with the Livestock Champion than would otherwise have been possible given their veterinary expertise, highlighting the positive role of champions in educating small landholders.

Engagement of Smallholder livestock Champions:

Identifying additional local champions (small landholders), particularly within the peri-urban sphere who had the appropriate knowledge and practical skills and a willingness to engage with other local like-minded producers as a livestock champion was challenging.

Lifestyle and socio-economic factors including off-farm employment, family commitments, scale of operations, available time, and experience were all factors identified that inhibited the identification of additional livestock champions.

While a new champion could not be recruited from either of the project study locations, the Macarthur region in Greater Sydney or the Capital Region in the outskirts in Canberra in NSW, attendance at and engagement during organised workshop events was strong with positive and constructive feedback.

Key outcomes of the project:

More informed, better quality, bespoke engagement that acknowledges small landholder's motivations and incorporates producers' interests and needs are key to developing connection, garnering trust and building a producer community. Feedback from smallholder workshops indicated that continued opportunities for face-to-face engagement were most sought after. At these interactive events, predetermined messages about biosecurity, animal health, disease surveillance and reporting were strategically interwoven to bring about greater awareness leading to behaviour change.

Key implications for further work:

Factors, primarily off-farm employment, keeping stock as a hobby; for home consumption or secondary income, cultural and other lifestyle reasons meant that small landholders often felt disassociated from the broader industry, not knowing who to go to for production related advice. From the outset, workshop surveys on connectedness revealed small landholders mostly relied on family and friends for information with veterinarian and Government agencies poorly utilised. Following the second workshop, a small behaviour shift was evident in more producers starting to seek veterinary advice and engaging with government agencies ahead of family and friends for advice.

If we are to improve biosecurity awareness, animal health outcomes such as improved disease surveillance and reporting, including negative reporting, current levels of engagement by veterinary professionals and government agencies with this sector need to be sustained more broadly.

Further work needs to focus on areas of high-density of smallholders where organised small farms networks currently do not exist, as a priority, in order to provide animal health and disease surveillance support, build rapport with veterinary and government agencies and support the formation of a smallholder community.

A centralised repository of appropriately pitched information (such as a dedicated smallholder section on the Farm Biosecurity website) would:

- provide additional resources small farms networks are seeking
- ensure consistent messaging nationally
- reduce duplication of resources and effort

Recommendations based on project findings include:

Recommendation 1

Celebrating local smallholder livestock champions who have reported an unusual health event in their herd and had a good experience will help to break down the barriers and social stigmas often associated with reporting and encourage other local smallholders to do the same. Livestock champions could be celebrated within the local small farms network, via the local and social media outlets to inspire other local smallholders.

Recommendation 2

The establishment of a Small Farms Network Resource Hub could (1) provide a support scheme to aid networks financially, based on local factors such as biosecurity risk, location, demographics, network type (community-based versus government) and (2) provide a centralised communities of practice (CoP) approach to support network leaders in the development and maintenance of small farm networks. A CoP approach could centralise disease surveillance and other key reporting milestones, and if housed on the existing Farm Biosecurity website, serve as an information hub to share resources and reduce duplication of generic production and biosecurity information among small farms networks nationally.

Recommendation 3

The establishment of a program that trains trusted leaders or stakeholders who could act as livestock champions and may include agricultural service providers, private veterinarians or

highly motivated and informed producers or contractors would provide the framework for ongoing smallholder engagement in on-farm biosecurity management. Training of leaders should seek to build confidence and skills for effective smallholder engagement.

Recommendation 4

Extension resources should be developed based on smallholder needs as well as industry requirements such as updates in on-farm biosecurity practices, legislation and programs. Such a specialised training program should be developed by government agencies in collaboration with veterinary and industry representatives and local small farms networks to ensure relevance, shared ownership and community buy-in for long-term sustainability.

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1. Introduction

It is thought that small landholders' knowledge about land management and their practices are likely to pose a risk to Australia's biosecurity. The location of small landholders, particularly those in urban and peri-urban areas, their characteristics and information networks present opportunities and challenges to reduce this risk. As reported by Hollier et al in 2008, biosecurity risk is often not a conscience issue for most small landholders - it is simply not on front of mind. As a group, however, small landholders have a strong desire to manage land and livestock well, and be seen to be doing the right thing. Small landholders are generally enthusiastic to learn and motivated to seek advice.

Small landholder networks have been shown to play an important role in biosecurity information sharing and may be influential in land management behaviour. Social license, a growing sense of animal welfare and being seen as "doing the right thing" are also believed to have a role in spreading biosecurity messaging as a shared responsibility leading to better land and animal health management outcomes.

Peri-urban livestock champions

A champion is defined as someone who could act as an ambassador for a cause and has the ability to encourage and inspire others to make changes. Champions have been identified by the Australian Government as enablers of effective biosecurity engagement (Kruger et al, 2012).

Within community groups, champions have been shown to be fundamental in motivating community members to accept some responsibility in dealing with certain pests, weeds and diseases. For example, in the Sydney North Vertebrate Pest Network, local biodiversity managers and officers acting as champions continue to have great success in managing local weed and vertebrate pest issues.

This project sought to identify a local Champion(s) whom local small landholders could relate and look to for an example of best practice, advice and point of engagement with the community about biosecurity issues. The literature suggests champions may occur spontaneously if someone is passionate about a cause, however, in the urban and peri-urban environment competing priorities such as off-farm employment, family commitments, culture and other geographic and demographic factors may make identifying a small landholder champion challenging. For this project, the "Livestock Champion", a consultant from Scibus (Strategic Bovine Services) was put in place to support a range of community engagement programs developed to:

- establish a local peri-urban group / network
- identify and recruit additional champions to continue post-project.

Influencing biosecurity behaviour on small farms through engagement

Face-to-face engagement (along with using trusted sources of information) has been identified through communication and behavioural research as the most effective way to influence target behaviours (Hollier et al., 2008; Wright et al., 2016; Collins and Spence 2017).

Initiatives to promote behaviour change have been shown to be most effective when they are carried out at the community level and involve direct contact with people. This was the approach adopted by this project.

The project design is based on three key assumptions (supported by research and national policy) that:

-) biosecurity is a shared responsibility, contributes to sustainable economic growth, and protects the environment and community (and that surveillance is part of biosecurity)
-) empowering producers and their networks to undertake surveillance is one of the best ways to ensure that a) they perceive surveillance as partly their responsibility and b) are able (have the knowledge and skills) to contribute to surveillance

Initiatives to promote behaviour change are often most effective when they are carried out at the community level and involve direct contact with people (Kruger et al, 2012). While media advertising can be effective in creating public awareness and understanding of issues, it is thought to be limited in its ability to foster behaviour change.

The group selected for face-to-face engagement

Numerous studies suggest that the attitudes and behaviours around on-farm biosecurity of small-scale production systems have changed little over the past 10 to 15 years (Hollier et al, 2008; Schembri et al, 2010, Schembri et al, 2014, Brookes et al, 2014; Woodgate et al, 2014; Hernández-Jover et al, 2018). These previous studies also indicate that small-scale producers tended to engage in higher risk practices. For instance, many do not recognise themselves as being part of the industry, or having the same responsibilities as their commercial counterparts. High-risk practices include: undertaking minimal on-farm biosecurity measures, feeding alternative feedstuffs, performing minimal disease surveillance and reporting, have little veterinary contact and may trade stock via informal means.

In addition, smallholder producers are often transient, depending on the species kept, and may they enter and exit the industry in response to external factors such as seasonal factors, market price, feed costs, feed and water availability and lifestyle choices (Schembri et al., 2014). Providing an opportunity for consistent face-to-face support in the way of a small landholder network may have a positive impact of the rate of movement in and out of the industry and the application of sound on-farm biosecurity practices.

Project design and location

An effective way of communicating biosecurity messages to smallholders is to build in or ‘piggyback’ biosecurity information onto other activities, such as workshops, meetings or campaigns that are already happening (Kruger et al, 2012). For example, workshops about cattle health or productivity could be used to convey on-farm biosecurity-specific information to producers.

Two geographical locations were chosen for the NSW component of the Livestock Surveillance Champion study, one in south-western Sydney and the other in the Capital Region (Fig 1). These locations were identified based on the density of smallholders and the location of small farms networks (where present). Both the peri-urban region of Macarthur in Greater Sydney and the more rural Capital Region in the South East of NSW have a large population of small landholders predominated by sheep and cattle production intertwined with the keeping of pigs, goats, poultry and alpacas. At the time of this study, no small farms network existed in the Greater Sydney region and a recently established network, keen to build momentum was located in the Capital Region in the South East.

Two workshops were undertaken at each location using the ‘piggyback’ approach featuring topics of interest to the participants with biosecurity practices and messages woven throughout the event.

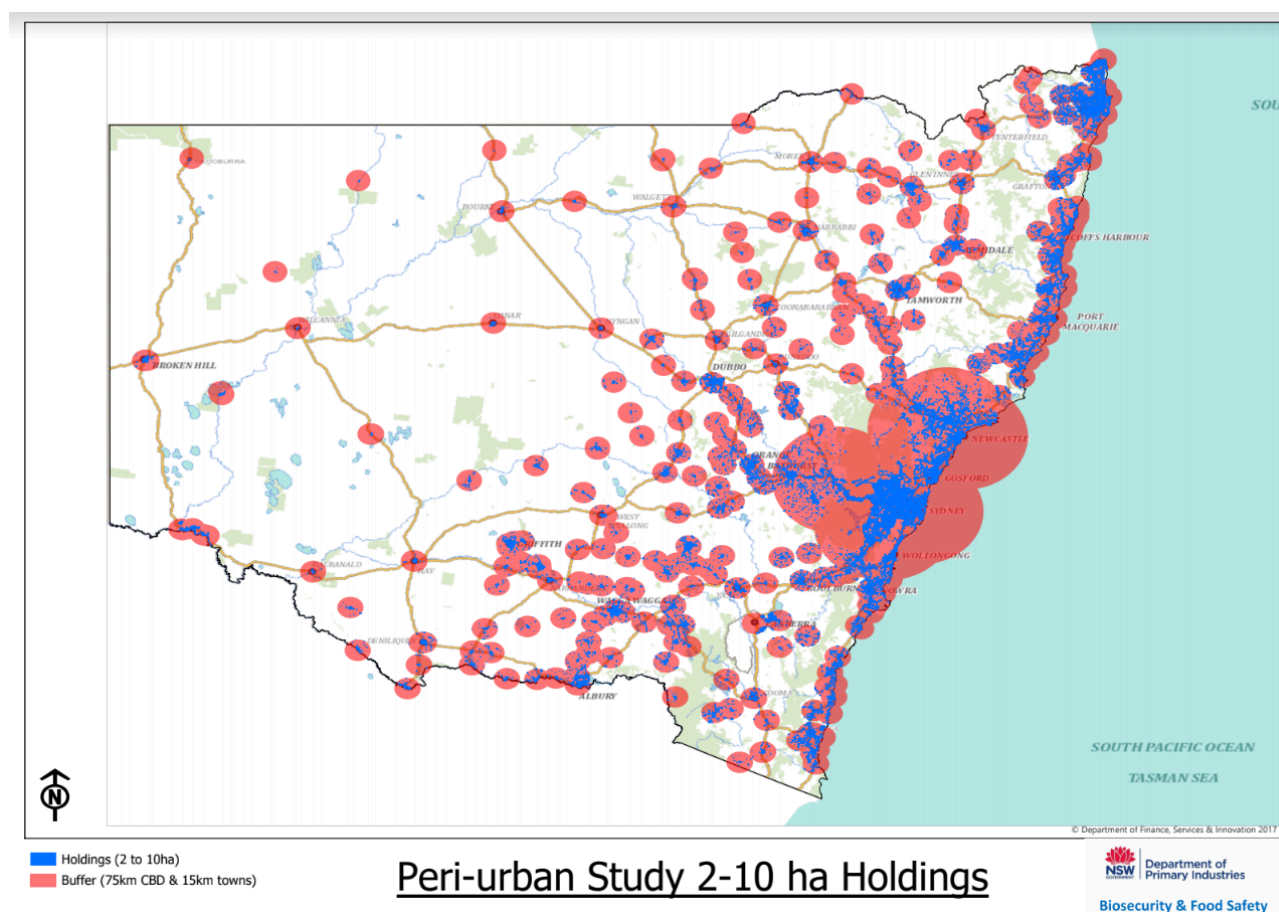


Fig 1. Small landholdings of 2 – 10Ha in New South Wales with a 15km buffer to towns and 75km buffer depicted for those in proximity to major CBD. Study sites, Macarthur is located south west of Sydney and the Capital Region in the South East of the state.

Project objectives

The objectives of the study included:

-) Increase the likelihood of early livestock disease detection and reporting by producers in peri-urban areas i.e. Greater Sydney and the Capital Region
-) Trial the efficacy of community-based producer networks for affecting animal health and reporting behaviour change.
-) Develop a model for encouraging stronger connections and industry networks among peri-urban smallholders to bring about disease surveillance behaviour change that can be extended to other smallholders and geographical areas.
-) Increase producers' ability and willingness to detect and report changes in livestock health.

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This project was funded by the Department of Agriculture and Water Resources with producer workshops funded by the Department of Primary Industries, Parks, Water and Environment, Tasmania and undertaken in partnership by NSW Department of Primary Industries (NSW DPI) and Greater Sydney Local Land Services (GSLLS) as part of the NSW Peri Urban Biosecurity Program in consultation with Champions from Scibus (Strategic Bovine Services), South East Local Land Services and the Small Farms Network Capital Regional.

The Small Farm Living Program, Tasmania and Small landholders in Western Australia; Grace Spring Farm, A Smart Farmer-Camden Valley Veal, Lancashire Downs and Elmsleigh for their contribution to the Small Farms Network assessment and producer case studies.

Abbreviations

BVDV	Bovine viral diarrhoea virus (pestivirus)
CoP	Community of Practice
DAWR	Department of Agriculture and Water Resources
EAD	Emergency Animal Disease
GSLLS	Greater Sydney Local Land Services
IPM	Integrated Pest Management
LLS	Local Land Services
LPA	Livestock Production Assurance
MSA	Meat Standards Australia
NSW	New South Wales
NSW DPI	NSW Department of Primary Industries
PMP	Property Management Planning
PIEFA	Primary Industries Education Foundation Australia
SELLS	South East Local Land Services
SFNCR	Small Farms Network Capital Region

2. Background

There is a widespread general perception that the increasing numbers of small landholders within rural communities and the peri-urban fringe pose risks to Australian animal and plant biosecurity, however, the nature and extent of these risks is unclear (Hollier et al, 2008; Woodgate et al, 2018). Urban and peri-urban small landholders are distinctly different to mainstream commercial farmers. Many may be new entrants to farming and land management and without a broad range of practical and technical agricultural knowledge. Moreover, small landholders are often poorly connected to mainstream industry and agricultural networks because they don't see themselves as farmers or don't rely on agricultural production as the main source of income. They may keep diverse varieties of animals and plants for a range of personal and professional interests with motivators including hobby, culture / tradition, home consumption, lifestyle or additional income (Woodgate et al, 2018; Schembri et al, 2014).

Biosecurity awareness among this small landholder sector is reportedly complex (Hollier et al., 2008). This may be due to the diversity of the social and demographic characteristics of this group of landholders, their high mobility, land use, off-farm employment and disconnect from traditional industry networks.

Hollier and Reid (2007) noted that the needs and impacts of the small landholdings within the rural-peri-urban landscape have not been specifically recognised or targeted in extension strategies and programs, and that extension service providers have not commonly provided extension services to this sector. Meanwhile other commercial industry sectors, such as Dairy and Meat, do get government funded extension and research and development support which arguably aids in those sectors having better surveillance and biosecurity awareness through instruction and advice on disease management strategies. The small farms sector has not been afforded these discrete types of opportunities that are tailored to their position in the agricultural industry.

A number of studies undertaken over the past 15 – 20 years in Australia, highlight a number of barriers (such as lack of trust in government) to producer detection and reporting of livestock disease which negatively influence the surveillance behaviour of producers (Wright et al, 2016). This project will pilot the efficacy of engaging influential producers to work (in collaboration with existing animal health services) to help address some of these barriers. It is expected that helping trusted messengers to implement behaviour change strategies (informed by research) will enable them to increase the willingness and ability of other producers to detect and report changes in livestock health.

2.1. Project activities

This project was carried out from May 2017 to April 2019 with the assistance of a Livestock Champion (veterinary consultant) from Scibus Strategic Bovine Services.

The key activities of this study have been divided into four categories to reflect the nature of the work undertaken in meeting the objectives of the projects, namely:

1. Small landholder workshops
2. Post-workshop telephone survey
3. Review of small farms networks
4. Peri-urban landholder case studies

Specifically, the aims of each component include:

1. Small landholder workshops
 - a. Disease prioritisation (of agriculture teachers and small landholders)
 - b. Agriculture teacher community networks
 - c. Small landholder producer community networks
 - d. Motivations of small landholders (second producers' workshop at each location only)
 - e. Behaviour change outcomes
2. Post workshop telephone survey
 - a. First Macarthur workshop only
3. Review of small farms networks
 - a. Survey and analysis of small farms networks from around Australia (active and finished)
 - b. In depth case studies of a number of small farms networks to highlight operational processes
4. Peri-urban landholder case studies
 - a. In depth case studies of 5 peri-urban small landholder operations in Greater Sydney to highlight the application of alternative informal networks for productive outcomes.

3. Methodology

A pilot project in New South Wales' Greater Sydney and South East regions to improve small landholder connectedness, biosecurity management attitudes and practices for improved surveillance and reporting outcomes was held from May 2018 until April 2019. The pilot project will test the efficacy of using producer champions to facilitate producer-based livestock health surveillance and small farms networks (in collaboration with existing industry and government animal health surveillance and biosecurity efforts). Through the pilot, participants will be able to proactively trial different community-based interventions.

The project utilised five main sets of information:

-) Information gathered by the Livestock Champion (Scibus) about Agricultural Teachers Networks (see 4.2)
-) Information gathered about smallholder producers in peri-urban and regional areas from a series of face-to-face workshops (see 4.3.1, 4.3.3)
-) Post workshop phone survey (following the May 2018 Macarthur Workshop; see 4.3.2)
-) Attributes of small farms networks, past and present to gather insight on what is required to develop a successful local network (see 4.4)
-) Case studies of successful smallholders who have formed alternative networks to support their enterprises (see 4.5)

Information gathered on small farms networks and small landholder case studies were incorporated into a guide to support the development of future local small farms networks.

3.1. Agricultural teacher networks

Jess and Luke Micallef of 'A Smart Farmer Pty LTD', a local educational resource, have been engaging high school students and agricultural teachers since 2010. A workshop for secondary school agricultural teachers working in the Greater Sydney region was conducted by Greater Sydney Local Land Services together with 'A Smart Farmer Pty Ltd' and the Livestock Champion. The aim of the workshop was to inform teachers and managers of the high school farms about the requirements for developing "on-farm" biosecurity plans and how they can go about managing those plans in a school-based environment.

As part of the study, the Livestock Champion from Scibus attended the workshop and sought to better identify the livestock diseases of most importance to the teachers and school farm hands and the key contacts in their support network and livestock community. This was determined using a paper-based disease priority and livestock community survey (similar to that shown in Appendix A).

3.2. Producer workshops

Workshop participants who attended the producer workshops were requested to complete a disease priority and livestock community survey as for the secondary agriculture teachers (Appendix A). This survey was modified for the second workshop at each location to capture additional information to better understand the motivations of smallholders in keeping livestock, based on known factors with an "other" category included to account for any outliers.

All the workshops activities were funded by the Department of Primary Industries, Parks, Water and Environment, Tasmanian and promoted via GSLLS, SFNCR Facebook pages, LLS Rates newsletters, local newspaper adverts and flyers at the local saleyard (Appendix B and C).

Animal ethics approval was sought from NSW DPI prior to all four producer workshops where livestock were handled. Any surgical procedures undertaken were done so by trained LLS district veterinarians under animal ethics approval. Ethics approval numbers are *Capital Region Animal Biosecurity Workshop ORA 18/21/010* and *Peri Urban Smallholder Workshops ORA 18/21/017*. Macarthur workshops were undertaken on NSW DPI property and complied with existing animal ethics approvals for educational purposes by approved staff and therefore did not require separate animal ethics applications.

Macarthur workshops

Both Macarthur workshops were held on a Friday evening to capture producers after work and to have minimal impact of weekend sport and other activities to try and maximise participation. These workshops ran for 3 hours from 4 – 7pm at Belgenny Farm in Menangle.

The first Macarthur region workshop was designed to capture the interest of small holder farmers through delivery of education from the Livestock Champion, district vets and a butcher. The Livestock Champion and district vets provided the opportunity for participants to test their practical skills and gain theoretical knowledge about animal handling, vaccination and common diseases. The butcher, a world butchery champion and previous GSLLS workshop presenter was sought as a ‘hook’ to draw local producers to the workshop and provided a meat handling and post mortem demonstration in collaboration with the Livestock Champion.

The second Macarthur region workshop maintained a sheep and cattle theme to capture some of the feedback from the previous workshop. Workshop topics comprised a practical component, as common for all workshops undertaken as part of this study. With drought an increasing issue state-wide, a practical session on sheep condition scoring, conformation and drenching was offered along with the opportunity for participants to test their weed identification skills and knowledge from samples that affect livestock collected in the local area. Presenters discussed weed management for livestock health and Meat Standards Australia (MSA) meat grading with livestock and on-farm biosecurity, disease surveillance and reporting messages interwoven throughout.

Small Farms Network Capital Region workshops

Both Small Farms Network Capital Region (SFNCR) workshops were held on a Saturday to capture producers who work weekdays to try and maximise participation. These workshops ran for 6 – 6.5 hours from 10am, providing ample time for participants to “network” and socialise.

The first SFNCR workshop undertaken as part of this study focused on farm biosecurity based on a sheep production system. The workshop was held on a Stud Dorper farm in Murrumbateman, NSW. The aim of the workshop was to create awareness and educate small farmers in the Canberra Capital Region about biosecurity issues affecting livestock. The topics presented were based on producer input with participants provided the opportunity to find out more on seasonal issues and common diseases affecting sheep and cattle, biosecurity regulations and requirements in relation to on-farm biosecurity planning, general biosecurity duty, surveillance and reporting obligations. The property owners highlighted their on-farm biosecurity practices, provided the opportunity for participants to experience practical sheep health assessments and conducted a farm walk to show the impact of the drought and weed infestations on their property.

The second SFNCR workshop was undertaken at a cattle property at Majors Creek by the regional Local Land Services veterinarian and agricultural advisor and farm manager. The aim of this workshop was to provide information and advice to small landholders about the procedures that occur at calf marking time: including castration, vaccination, ear tagging and nutrition for weaners and cows. This information session was reinforced with a practical session for participants using Black Angus calves and a surgical castration demonstration by the SELLS District Veterinarian. On-farm biosecurity such as notifiable diseases of cattle, emergency preparedness, disease surveillance and reporting were discussed.

3.3. Macarthur Region post-workshop telephone survey

Approximately two months after the May 2018 Macarthur workshop, a follow-up telephone survey was undertaken with participants that attended the Camden workshop and had agreed, on their survey forms, to be contacted after the workshop. Twelve participants from the initial Macarthur workshop consented to further contact and were eligible for participation in the follow-up telephone survey.

3.4. Small Farms Network analysis

A number of small farms networks that have and still operate throughout Australia were identified and surveyed to determine the ‘ideal’ qualities of a small farms network and the requirements in setting up a network. Results from the networks surveyed were collated and summarised to form a general guide for establishing a small farms network (see 4.4). The small farms network survey is presented in Appendix D.

A number of case studies detailing the different approaches in setting up and maintaining a network and communicating with members is presented (see 4.4.1).

3.5. Peri-urban small landholders case studies

A series of case studies of smallholder producers in the Greater Sydney area are presented to highlight alternative modes of communication and networking with other producers and the local community. Information was gleaned from up to two on-farm site visits to each location using the interview guide outlines in Appendix E. Case study information was recorded on paper with producers reviewing each report for correctness and their approval (see 4.5)

4. Results

4.1. Peri-urban Small Landholder Champion

A livestock consultant from Scibus assisted the project team in seeking out a local Livestock Champion who had sound on-farm biosecurity practices, livestock production knowledge and experience and would be willing to mentor other local producers and improve production practices, leading by example.

A potential cattle producer champion candidate was identified early on in the study by the Scibus consultant and Local Land Services. This cattle producer operated a larger semi-commercial enterprise and this together with other off-farm interests and commitments, however, felt they would be unable to relate to the target audience - small landholders, hobby farmers, lifestyles and provide the level of support required.

The challenges encountered in identifying an appropriate and willing local smallholder livestock champion shows the difficulties in accessing these landholders, particularly those not part of an established farmer network. In light of this, the decision was taken to continue to increase general engagement and raise awareness of good biosecurity, disease surveillance and reporting practices with assistance from the independent (non-government) livestock champion contracted via Scibus.

4.2. Secondary School Agricultural Teachers' Network

4.2.1. Biosecurity Planning Workshop: February 2018

Feedback from the agricultural high school teacher's group supported the project team's decision to choose Macarthur region as a suitable location within the Greater Sydney region to conduct a workshop to reach out and connect with the smallholder farmers.

The results of the secondary school teacher's disease priority and livestock community survey conducted as part of the biosecurity planning workshop indicated that parasitic worm burdens were the main diseases of importance. Pestivirus, diseases of chickens, lice and Johnes disease followed as important health concerns of school livestock species. Various other diseases of concern are shown in Fig 2.

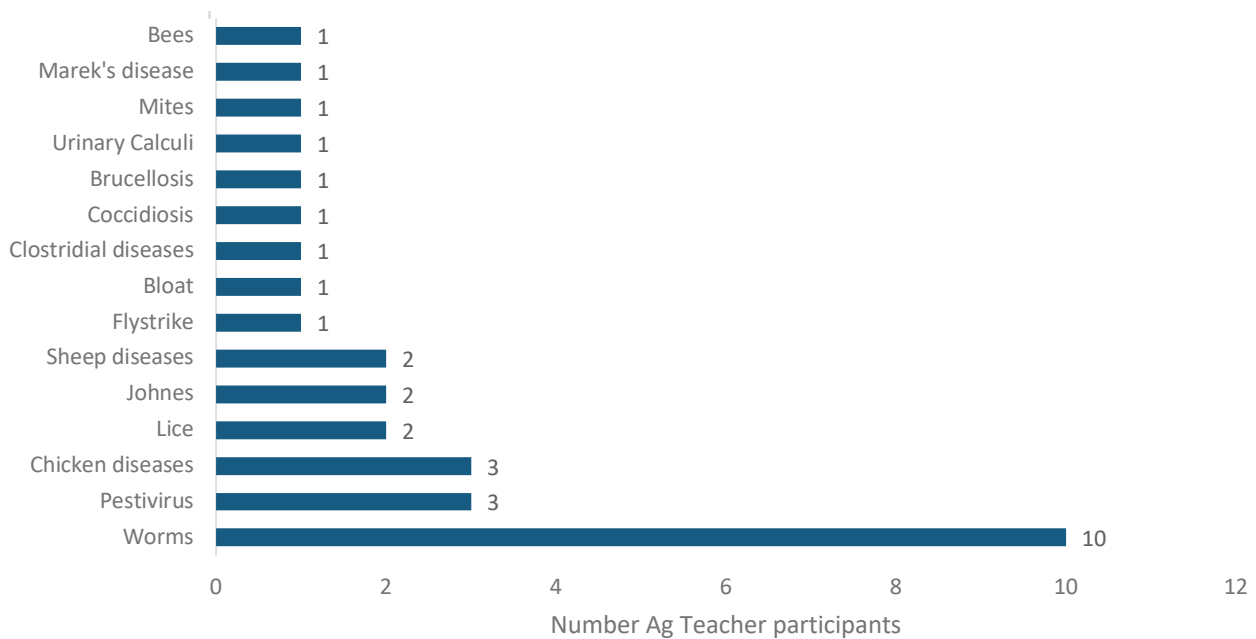


Fig 2. Priority livestock diseases as identified by secondary school agriculture teachers

The breadth of the diseases shown in Fig 1 suggests that, not surprisingly, there are many diseases that may concern individual farms but the overall assessment would suggest that it is the comparatively simple parasitic diseases that are of major concern and then some specific production level diseases such as Johnes and Pestivirus (BVDV). These specific production diseases may have been raised due to the higher level of education and awareness of these diseases within the agriculture teacher's cohort.

Within the livestock community that agriculture teachers interact, they seek to gain support and advice, as a first point of contact, predominantly from other agriculture teachers, followed by private veterinarians (see Fig 3). They also seek support to a lesser extent from the school farm hands as well as the Government district vet. It is worth noting that the use of internet or google was more likely to be used as a 3rd or 4th point of contact for advice.

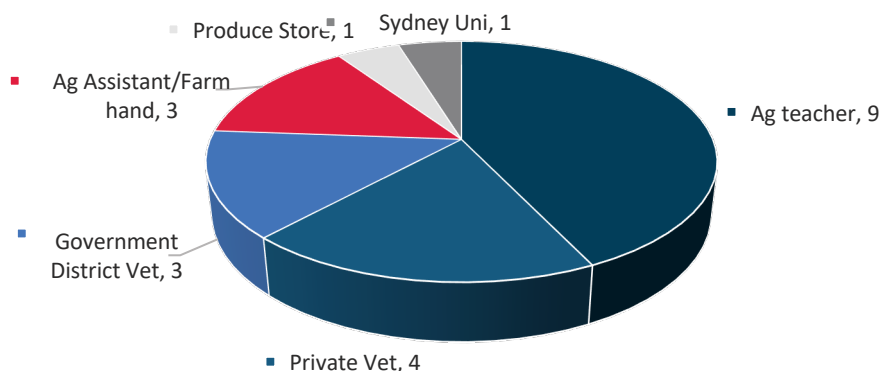


Fig 3. Agricultural teachers first call point for advice in their livestock community

This survey was used as a litmus test for what would be the likely topics to capture the interest of Greater Sydney smallholder farmers. Workshop participants provided recommendations for preferred future learning topics related to livestock health, surveillance and reporting in the form of workshop feedback after the event.

4.3. Producer Workshops

Informal discussions with producers at all four small landholder workshops revealed that producers felt it was the role of government authorities to provide education and extension (workshop) opportunities to landholders. However, with a number of restructures (LLS underwent two restructures in five years), staff turnover and budget cuts; capacity had reduced to the point smallholders were sceptical about the reliability of government networks as an information and support mechanism.

Producers are seeking an ongoing, consistently reliable government presence to begin building trust, leading to improved community engagement, better on-farm biosecurity management and disease surveillance and reporting.

Three producers attended both Macarthur region workshops and seven producers attended both of the SFNCR workshops.

4.3.1. Macarthur Region - Beef and Sheep Workshop, May 2018

Based on workshop registration information, the Macarthur region workshop participants resided on an average of 27Ha (range 1 to 120Ha). Participants kept between 2 - 40 sheep, 4 – 45 cattle in addition to pigs, poultry, goats and alpacas. Twenty-one producers attended the first Macarthur workshop on sheep and cattle health.

Workshop feedback indicated that participants were very satisfied with the workshop and found it very informative and valuable. Satisfaction ratings with the presentations and the event were high with over 93 % of participants giving the workshop a rating of 4 or 5 out of 5 (1 = very poor, 2 = poor, 3 = average, 4 = good, 5 = very good). In terms of value, over 56% of workshop participants rated the workshop a 5 (very good) and a further 19 % of participants gave the workshop a 4 (good). There were no ratings given of less than 3 (average).

Over 80% of participants thought they would change their practices with regards to livestock health and management as a result of attending the workshop. Ten participants gave specific feedback about what changes they plan to make. The benefits and plans ranged from looking more closely at the animals and what they are being fed, checking for disease and doing health checks on their livestock, paddock rotations and feelings of improved knowledge on disease and management strategies.

When asked about what they enjoyed most, 50% highlighted the butcher's demonstration and over 30% enjoyed the sheep practical most (Fig 4a, b). Other aspects that were enjoyed were the knowledge gained on diseases and interaction with other producers. There were some areas suggested for improvement and included having more detailed presentations and to cover more species.



Fig 4a. Butcher demonstration, discussing fat and muscling



Fig 4b. Demonstrating sheep handling and 'mouthing'

Responses to the disease priority and livestock community survey showed a similar focus on disease priorities in the Macarthur area as for the agricultural teachers survey where common parasitic diseases are seen as a priority (Fig 5). Other diseases that were notable were lice, footrot, pink eye, clostridial diseases and Pestivirus.

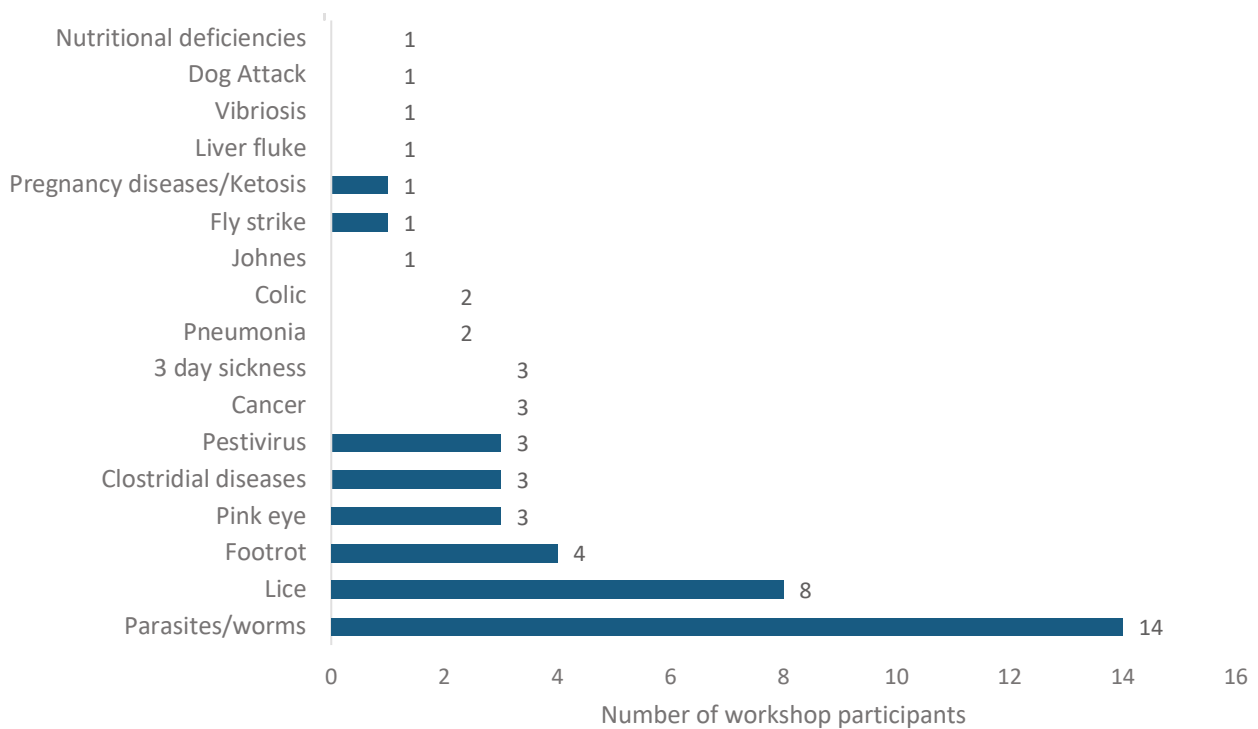


Fig 5. Diseases of importance identified by workshop smallholder participants attending the first Macarthur region workshop

The first producer survey revealed that smallholder farmers in the Macarthur region relied primarily on private vets as a first point of contact for advice followed by secondary agriculture teachers, experienced livestock owners and the internet, see Fig 6.

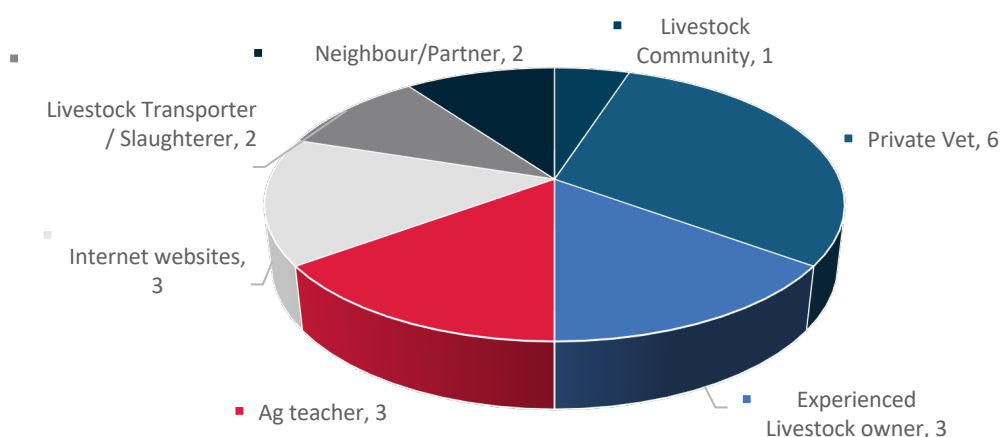


Fig 6. Macarthur Livestock community, primary points of contact for advice

Interestingly, the third point of contact for smallholders in the Macarthur region saw commercial produce stores becoming more prominent and at the fourth point of contact, consultants and more of the theoretical sources of advice such as books and the internet were more frequently identified as shown in Fig 7.

It is interesting to note that the smallholder farmers start with a known knowledgeable confidant such as a colleague or a veterinarian and as they move down the line, the more distant contacts come into the frame such as produce stores and consultants, whom they know may be sources of information but are reluctant to engage.

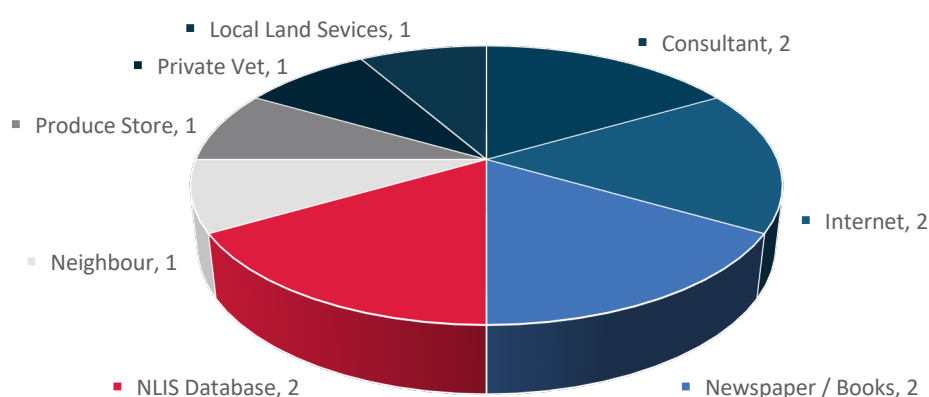


Fig 7. Macarthur Livestock community fourth point of contact for advice

4.3.2. Macarthur Region - Post Workshop Telephone Survey

The telephone survey took between 15 and 60 minutes depending on the willingness of the participant to talk. Of the 12 participants who consented to further contact after the initial Macarthur livestock workshop, seven (58.3%) were able to be interviewed over the phone.

All seven telephone survey participants said that they had been using knowledge gained from the workshop. Notably the knowledge that they recalled was now looking more closely at the stock to check for any abnormalities and any signs of diseases that were discussed at the workshop. As a

consequence, one participant discovered they had a sick goat so called their local private vet for help. A participant cited improving their monitoring of the ewes for ‘barber’s pole’ and another said the knowledge gained was useful in actually recruiting a farm assistant as they had a framework to assess the candidates’ knowledge and skill level. More specific actions taken were placing the Emergency Disease Hotline phone number on the fridge and knowledge was gained from taking and reading fit to load guides and vertebrate pest management brochures.

Three of the participants noted that they connected with other participants/farmers on the night and another three said they reconnected with people they already knew. One participant that didn’t make any connections said they would have liked to have connected with other farmers. The benefit of bringing people together in a workshop is that some do connect and reconnect with other smallholder farmers and this builds a realisation that others are trying to manage and achieve similar outcomes. Face-to-face workshops offer an opportunity for these farmers to highlight to each other and to service providers the areas where they need support and advice. All the follow-up participants reported they would attend another workshop, of which, four indicated that would definitely attend another workshop.

When asked if they ever ordinarily connected with other livestock owners; two participants said they did not, one said they talked to the neighbours, another said they connected with other farmers at the saleyards and another is a shearer, often connecting with many different smallholder farmers. Two of the participants are involved in the Camden show and breed societies. The level of interaction between small holder farmers appears very limited outside of organised events or associations. When asked if they have a sense of what other small holder farmers do when they have sick livestock the participants said that they call friends, agriculture teachers, private vets (one specifically stated Sydney University vets) and a shearer or experienced livestock owner.

Topics that telephone survey participants identified they would like to learn more about included:

- drought feeding management,
- safety in animal handling,
- fencing,
- pasture improvement,
- paddock rotations,
- regulations around what small holders can do, for example, sell eggs
- anything about goats, pigs and poultry.

Six of the seven follow-up telephone survey participants would reportedly be interested in receiving updates on regional livestock diseases in their area and most wanted it be via a newsletter or email and one wanted it to be on social media and one preferred to go to workshops. Four out of five of the participants were keen to have a workshop on biosecurity planning. This feedback is valuable to inform future workshops on where to target ideas to capture small-holder farmers. All of the participants said they would be keen to be involved in a Small Farms Network group in the Macarthur / Greater Sydney area. One of the participants was open to the idea of being involved in a coordination role with a Small Farms Network but stated they would need support from an organisation or government body.

The follow-up phone calls have shown that there is a desire and perceived need for information and education about livestock management in the small-holder farms community. There is also interest in being involved in an organised network of small holder farmers. Not all participants are in a position or have the skills to coordinate such a network but there is some interest if support can be provided. The interaction with and education of these farmers through the workshop did report some behaviour change and re-focusing of the farmers attention on appropriate livestock management.

4.3.3. \$ Macarthur Region - Sheep and Cattle Production Workshop, November 2018

The second workshop in the Macarthur region was also well received by 18 participants finding it informative and an ‘excellent’ program. The satisfaction ratings for the presentations, the event and how valuable it was to attend were high with over 80% giving the workshop a rating of 4 or 5 (1 = very poor, 2 = poor, 3 = average, 4 = good, 5 = very good). No ratings were given below a 3.

Some 83% of the participants who indicated they would change their practices (total N = 6), would improve their weed management as a result of attending the workshop. Specifically, attendees reported they better understood the impact of weeds on livestock health and were more confident in their ability to identify weeds and undertake weed control on their property.

The participants found a variety of things about this workshop that they enjoyed the best such as the hands-on body condition scoring, information on MSA meat grading, identification of weeds and the sheep practical session (Fig 8a, b). This workshop really seemed to have something different for everyone and, not surprisingly, the practical approach sessions were the most enjoyed. Areas where the workshop could have been improved were more information on weeds and more detail and depth in the presentations. Interest in topics for future workshops were cattle breeding, home brown crops for sheep and cattle, pasture management and practical animal handling.



Fig 8a. Condition scoring as part of the sheep practical session



Fig 8b. MSA presentation by EMAI pathologist \$ and ex-intercollegiate meat judging champion \$

Responses to the disease priority and livestock community survey show parasitic diseases as a consistent animal health priority (Fig 9). Other health issues relating to pasture management (an increasing concern state-wide with the ongoing drought conditions) and clostridial diseases, pink eye and vertebrate pests were identified by producers’ as their top animal health concerns.

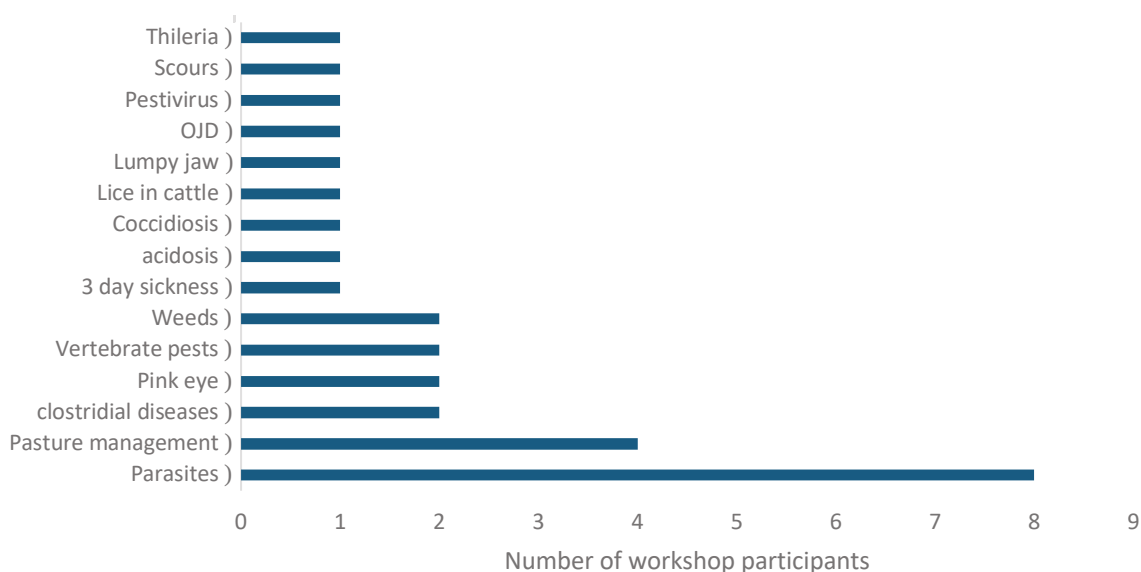


Fig 9. Diseases of importance identified by smallholder participants attending the second Macarthur region workshop

Unlike the results of the first Macarthur workshop, participants here primarily relied on other farmers and stock and station agents followed equally by veterinarians, family members and neighbours, see Fig 10.

Interestingly, the third point of contact for smallholders in the Macarthur region saw Government agencies – NSW DPI and LLS becoming more prominent as a contact that is sometimes contacted. Service providers such as pharmaceutical representatives, veterinarians, and produce store owners were identified as the main source of information that the attendees were unlikely to connect with for animal health issues as shown in Fig 10.

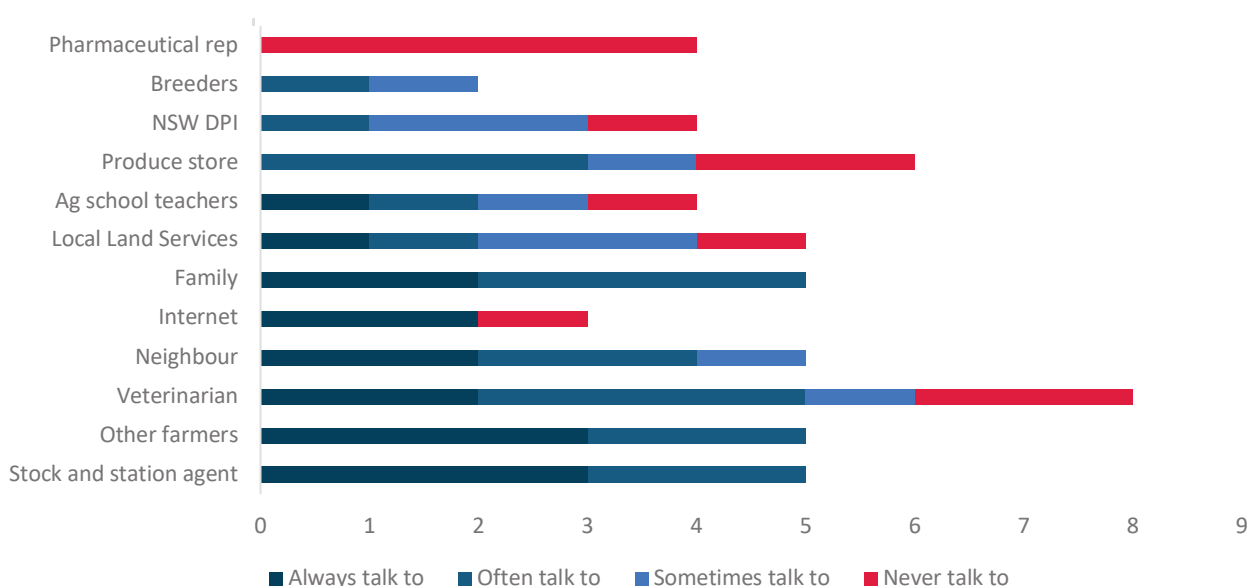


Fig 10. Livestock community contacts identified by participants of the second Macarthur workshop by the degree of connectedness from key contacts that producers always talk to, to known animal health providers whom they never contact

Participants of the second Macarthur workshop were asked to report on the importance of a number of known factors as motivation for keeping livestock and their management practices. More attendees quoted animal welfare as their key motivator, followed by income and disease prevention (Fig 11). Impacts on personal and family health were important secondary motivators while loss of home consumption was identified as the least important driver for participants.

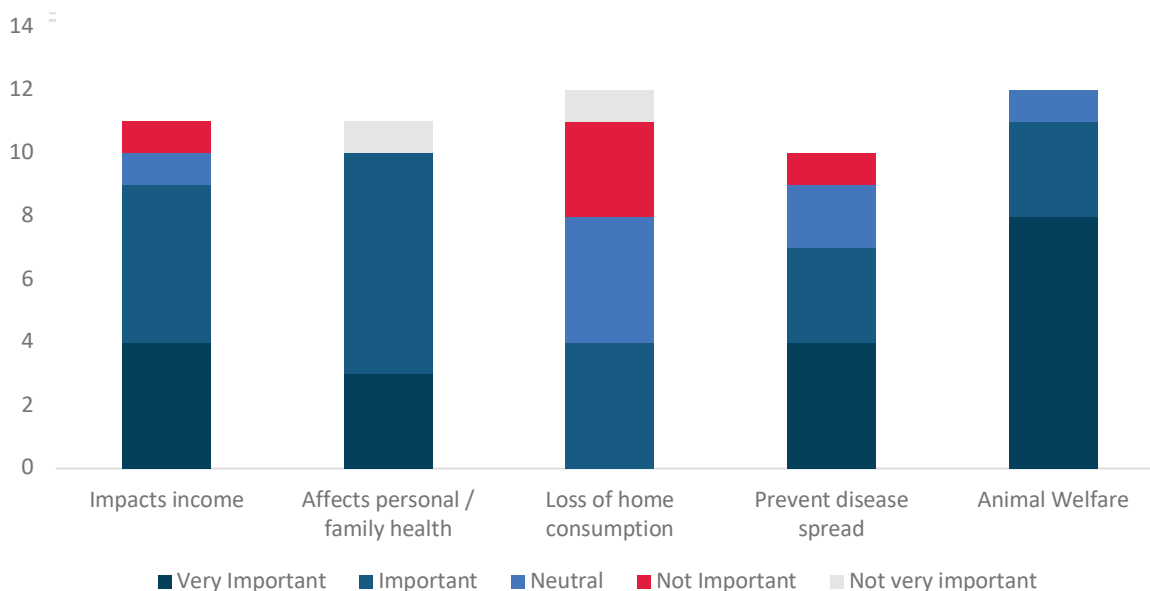


Fig 11. Motivations of Macarthur workshop participants in keeping sheep and cattle \$

4.3.4. Small Farms Network Capital Region - Sheep Production, May 2018

The first of our Small Farms Network Capital Region (SFNCR) workshops was attended by 25 participants and based around sheep husbandry and management and diseases of sheep and cattle as well as informing farmers of the recent biosecurity plan requirements for livestock owners.

Over 73% of the participants were very satisfied with the workshop and the remainder of the participants were satisfied (from a scale of Dissatisfied, Somewhat dissatisfied, Neutral, Satisfied or Very Satisfied). All the participants agreed that the workshop gave them a better understanding of animal health and biosecurity, more confidence in buying and selling livestock, new skills in handling and managing livestock and that they would recommend the workshop to other farmers. The most useful things learnt were drought feeding, biosecurity plan requirements, common diseases of sheep and cattle their recognition and treatment, practical skills, vaccinations and tagging (Fig 12a, b). This workshop was very well received and all aspects of the workshop were relevant to most of the participants.



Fig 12a. Practical session on vaccination and drenching



Fig 12b. SELLs District Vet discussing biosecurity planning

The topic that people wanted to know more about was worm management programs. This again reflects the small holder farmers priorities for wanting to understand and manage parasitic diseases. The actions the participants plan to do as a result of the workshop were to quarantine new livestock, vaccinate for selected diseases, establish a biosecurity plan and get Livestock Production Assurance (LPA) accreditation and consider better feed sources and establish a sacrificial feeding area. The intentions of the participants were both general and specific but seemingly well considered and obviously a direct result of their learning from the workshop.

Feedback on the event was positive, with one producer quoted as saying they would like:
*“... more time for questions, more time for diseases, discuss diseases earlier.
 More time/less rush.”*

SFNCR Producer A

Responses to the disease priority survey reinforce the participants desire to learn more about worms with parasitic diseases a significant animal health priority (Fig 13). Other key health issues that were identified include footrot, Johnes disease and clostridial diseases, with the former two being somewhat expected given the geographical location of the workshop and the local livestock disease history. Management of pink eye, pregnancy and fly strike were additional sources of concern for participants.

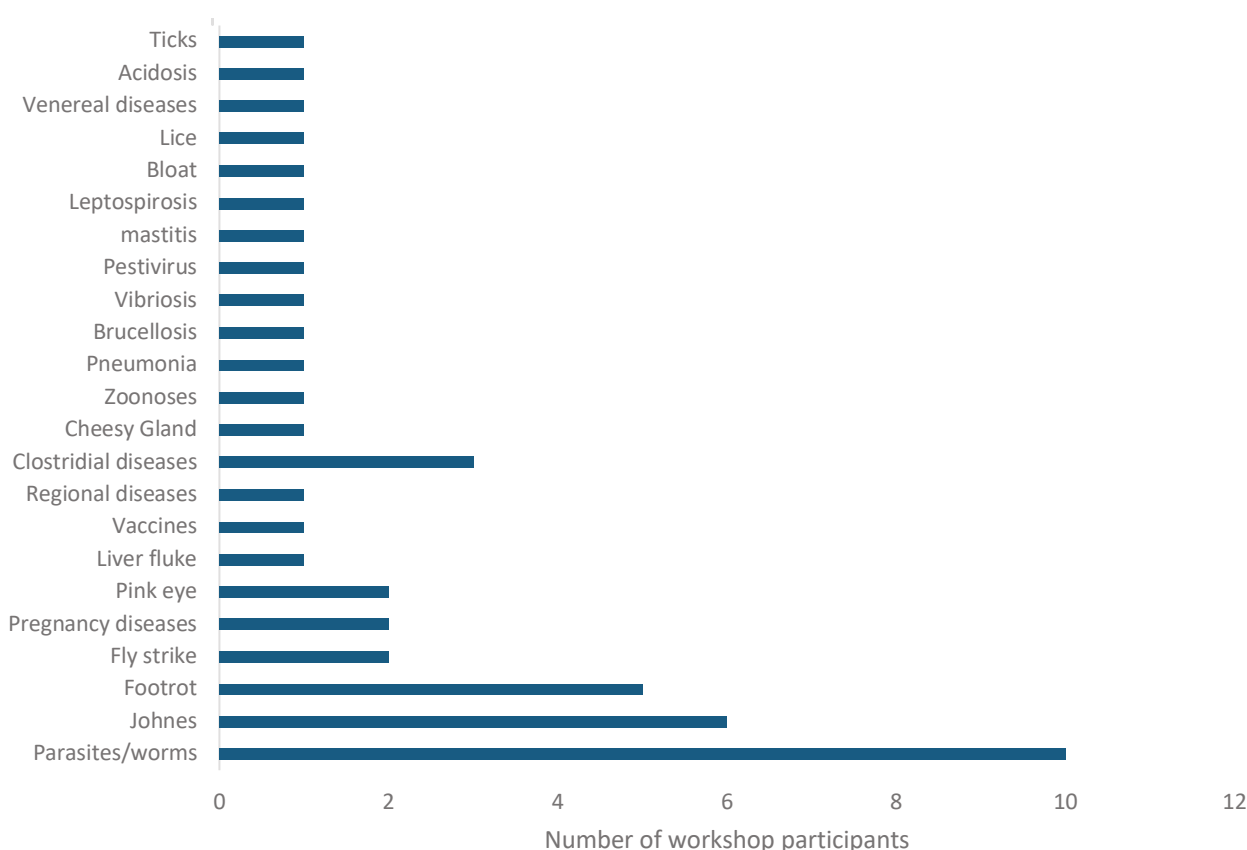


Fig 13. Diseases of importance identified by smallholder participants attending the first Capital Region workshop

Similar to the second Macarthur workshop, participants identified family followed by local producers and then the local produce store as key animal health source of information, see Fig 14.

The fourth point of contact is those who may have the capacity to provide animal health and production information but are never engaged by workshop attendees. This group was equally represented by both veterinarians and the internet, followed by Local Land Services and livestock agents as shown in Fig 15.

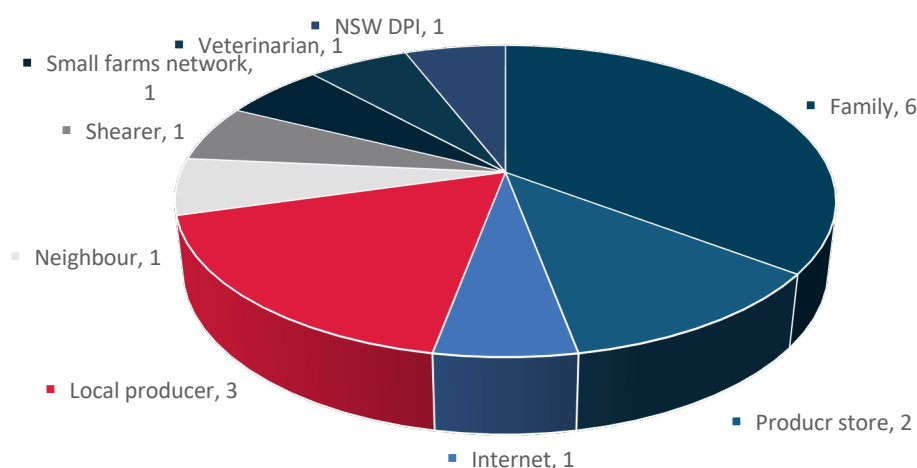


Fig 14. Capital Region Small Farms Network Livestock community, primary points of contact for advice \$

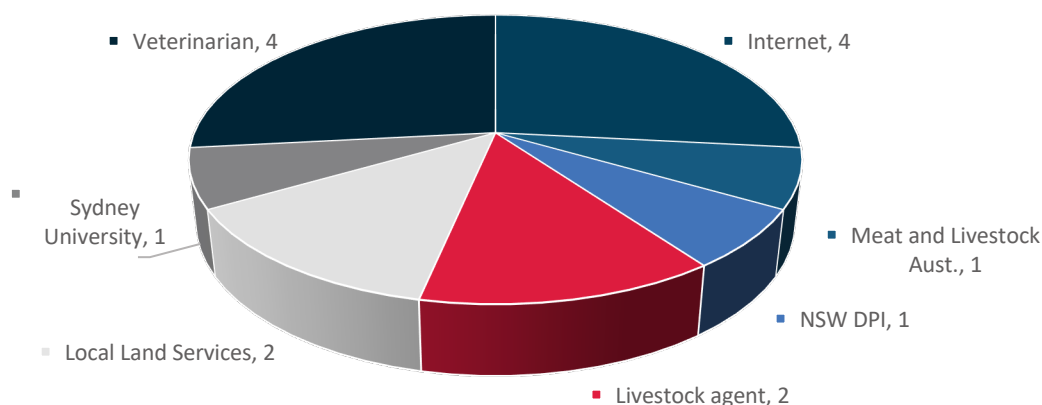


Fig 15. Capital Region Small Farms Network Livestock community fourth point of contact for advice

4.3.5. \$ Small Farms Network Capital Region Workshop - Calf Marking and Cattle Health, September 2018

The second SFNCR workshop based on calf marking and cattle health was attended by 24 participants. Over 85% of participants were Very Satisfied and the remainder Satisfied, with the workshop (from a scale of Dissatisfied, Somewhat Dissatisfied, Neutral, Satisfied or Very Satisfied). Over 90 % of responses agreed that the instruction was a high standard and resources were clear and useful; they felt more confident about how to manage calves and cows after this workshop; they learnt more about disease management in cattle; the practical activities were useful and enjoyable; there were enough opportunities to interact with other participants; the pace was right for them and they would recommend this field day to other landholders.

The most useful things that participants learnt were the practical aspects of vaccinating, tagging and handling calves as well as castration techniques (Fig 16a). Suggestions for how to improve the content of the workshop were limited to giving more time and opportunity for individuals in the practical aspects of the workshop.

The practical component was well received with most participants involved in basic husbandry activities. The attendees were very engaged during the surgical castration demonstration with the LLS District Veterinarian providing excellent commentary of the procedure (Fig 16b). Again, it is noted that these practical sessions are an integral forum for smallholder farmers to interact and connect as well as learn and gain desired skills. Feedback received included:

“Practical, spot on information, good notes, engaging and very patient teachers. Enjoyable program altogether and a yummy lunch – thank you everyone. Thank you Brad for being so patient and Lou the castration demo was brilliant. The most useful thing that I learnt was handling the calves. Ear tagging, information about Q Fever and vaccinating cattle.”

SFNCR Producer B

“The timing of the workshop was perfect for me as I am just about to have some calves at my place, so now we know what to do. The most useful thing that I learnt was how and when to vaccinate, general animal health and what to look for. Thank you we had a fabulous day.”

SFNCR Producer C



Fig 16a. Farm manager demonstrating ear tagging calf using a calf crush



Fig 16b. South East District Vet demonstrating surgical castration

Responses to the disease and animal health priority survey shows that producers attending the second Capital Region workshop are most concerned about vaccination. Other concerns of equal weighting include worms (parasites), nutrition, and health in drought, reproduction and calving and nutrition (Fig 17).

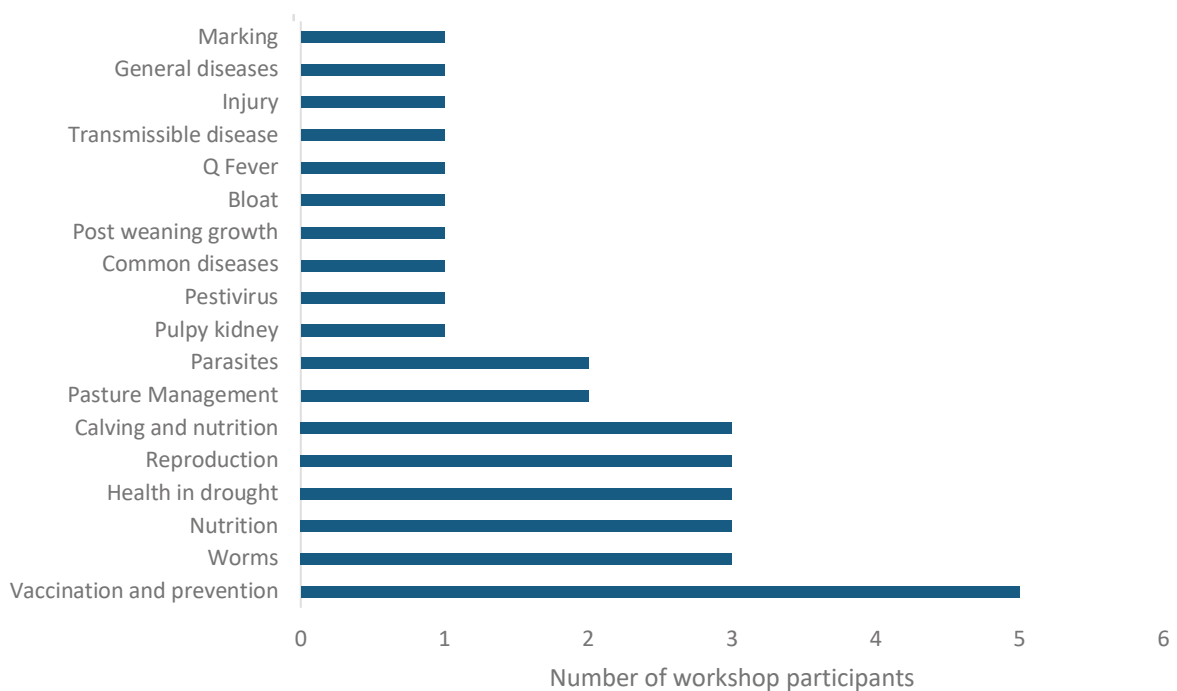


Fig 17. Diseases of importance identified by smallholder participants attending the second Capital Region workshop

Responses to the livestock community survey revealed that participants here primarily relied on veterinarians, followed by, to a lesser extent, the LLS and NSW DPI, see Fig 18.

Interestingly, the third point of contact for smallholders in the SFNCR saw friends / neighbours and produce store providers becoming more prominent as a resource that is sometimes contacted. Service providers such as the RSPCA, social media / internet was identified as the main source of information that the attendees were unlikely to connect with for animal health issues as shown in Fig 18.

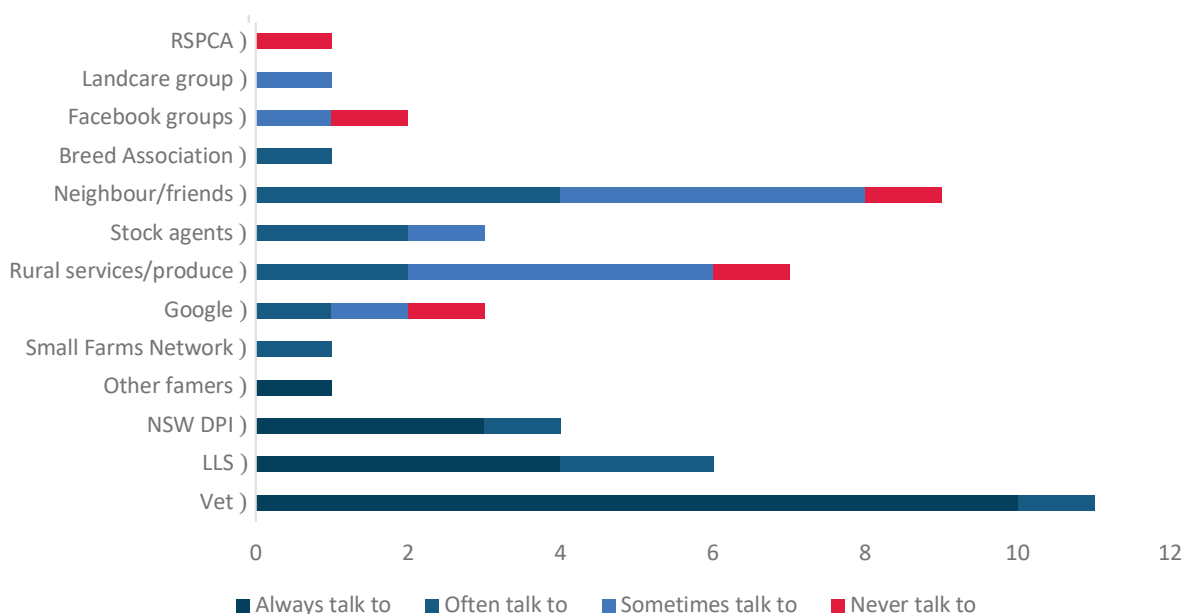


Fig 18. Livestock community contacts identified by participants of the second SFNCR workshop by the degree of connectedness from key contacts that producers always talk to, to known animal health providers whom they never contact

Participants of the second SFNCR workshop were asked about their motivations for keeping livestock and their management practices. Equal number of attendees quoted preventing disease spread and affecting personal/family health as their key motivator followed by animal welfare outcomes (Fig 19). Impacts on income were important secondary motivators while loss of home consumption was identified as the least important driver for participants.

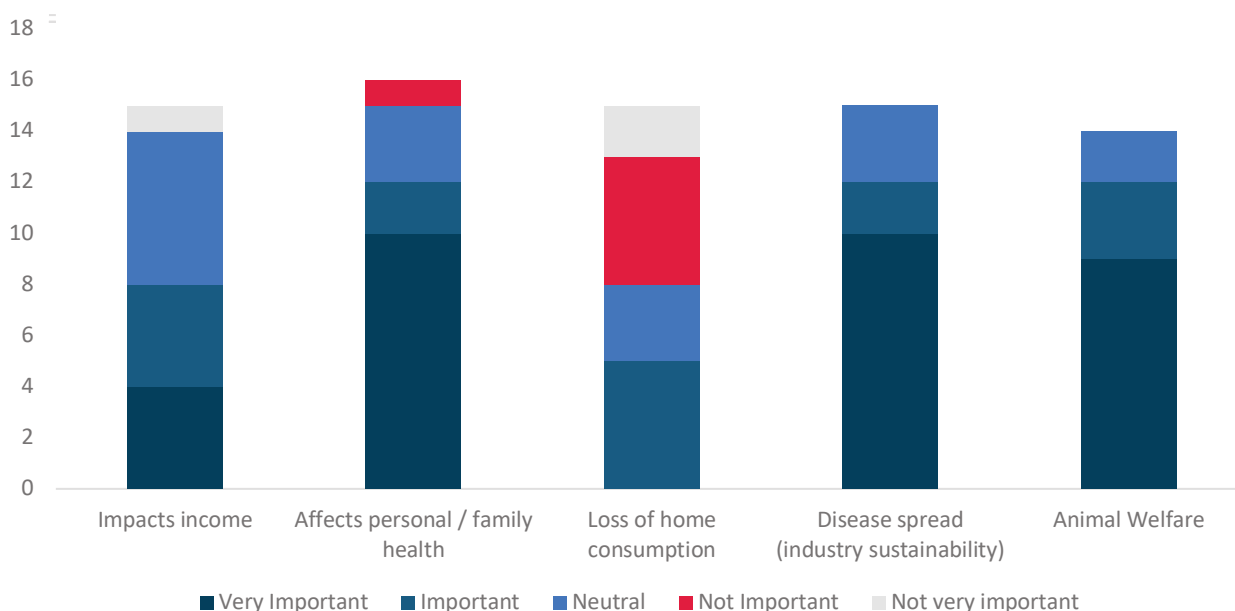


Fig 19. Motivations of SFNCR participating in the second workshop \$

The topics that participants were most interested in learning more about in the future were farm machinery and fencing, plant identification and weed management, sheep and cattle health management, property planning and slaughtering stock. The many and varied topics that participants would like more knowledge about can be challenging to cover but this feedback is valuable to inform what interests small holder farmers so as they can improve livestock management, make connections with other like-minded farmers in their community and discuss their experiences with each other and service providers in their region.

4.4. Small Farms Network Analysis

4.4.1. Community approach to building a small farms network

The effectiveness of biosecurity plans is strengthened when delivered across local networks. Creation of networks for small landholders is recognised as a model which builds participation, inclusiveness and community support resulting in better land, livestock and biosecurity management.

A small farms network involving a number of communities in a region are likely to have greater landholder engagement where the:

- Regional aspects of the local community, ie. Provide local solutions to local issues
- Interests ie. common experiences, values, lifestyle, culture and
- Practices such as horticulture or livestock production are considered and catered for.

In addition, community and farmer networks have been shown to enable communities to better support each other and provide “services” beyond agricultural production and environmental outcomes when faced with adversity, such as natural disasters (GHD, 2013).

In 2011, Wegner-Trayner identified a number of critical success factors in developing a Small Farms Network, these include:

- Leadership - a network needs someone to provide the energy and time to take care of planning and logistics
- Time - to develop and continually evolve the network to ensure high value for ongoing engagement and commitment by community members
- Self-governance and a sense of community ownership
- Recognition of members' contributions - sense of inclusion
- Interactions with other communities for broader engagement and development of \$ knowledge and skills. \$

Who are small landholders?

The term ‘small landholder’ encompasses a diverse range of land managers and can include small farmers, lifestyle, hobby and absentee landholders. Small landholders are viewed as managers of properties less than 100ha in size (40ha in coastal zones), sub commercial in nature with diverse interests, a mix of traditional and heritage livestock breeds with lifestyle commonly quoted as a key motivator. Many small landholders demonstrate a keen desire to learn, strong stewardship and environmental values are open to new and innovative ideas, life experiences and off-farm income which supports and drives the local economy. A key message from existing networks across Australia is:

While small in size, combined they could result in a large area of land managed for better water, biodiversity, biosecurity and productivity outcomes.

Small Farm Living, NRM North, Tasmania

Why create a Small Farms Network?

Across Australia small landholder networks have been developed to improve engagement with this growing demographic. The networks provide support for small landholders to develop and manage their property more sustainably and adopt best practices in agriculture and land management.

Most small landholders identify themselves as a 'small farmer' and value a support network that addresses their needs. Most Networks begin by coordinating workshops and field days around soil, pasture and weed management which are the dominant land management issues for small landowners. Other topics of interest include animal health and production, bee keeping, integrated pest management (IPM) and farm planning.

Small Farms Networks provide opportunities for collaboration and cooperatives where members can share equipment and pool produce for better marketing opportunities. Additional opportunities such as business development and associated marketing and skills development are also associated with involvement in Small Farms Networks.

Building a small landholder network gives its members a supportive, targeted and inclusive community, enabling landholders to socially connect with like-minded farmers. Landholders can meet neighbours, share stories, locally relevant resources, visit other properties and peer-learn from farmers with similar interests and land management issues, including quality assurance, on-farm biosecurity planning and pest management solutions.

The first three years of the Small Farms Network in the South Coast of NSW focussed on running regular agricultural workshops, providing opportunities for landholders to meet in a relaxed and social environment. We realised this is what landholders wanted, a social support network where they could learn, laugh and share their successes and failures. Providing a safe environment for landholders built significant community trust which leads to huge on-ground benefits and word of mouth advertising in the long term.

South East Small Farms Network Coordinator

Developing management systems

Small landholder networks across Australia are predominantly coordinated by government through regional Natural Resource Management (NRM). Other networks, such as the Small Farms Network Capital Region (SFNCR) are run by a volunteer committee with a part-time paid coordinator to deliver a wide range of services to members.

A key lesson identified by new and existing networks is for staff and coordinators to develop management systems before launching a new network. Based on the experience of two NSW networks, the demand and support from small landholders can become overwhelming with initial interest extremely high.

Setting up simple, effective membership, communication and social media platforms is vital to ensure the successful launch of a new network. Whether it is using a spreadsheet or database for membership records, online platforms for e-newsletters, Facebook and webpages for event promotion, having these systems in place enables greater control over landholder data, promotion and evaluation of outcomes. Many of these management tools are free, easy to use and save significant time for coordinators.

Membership

Building membership can be challenging depending on location, existing industry and Landcare networks, climatic conditions and varying landholder types (e.g. absentee vs on-farm). The majority of small landholder networks begin by promoting themselves through existing groups, media articles, letterbox drops across and attending regional field days. Building relationships with local agribusiness/produce stores, breed societies, community groups (e.g. local Amateur Beekeepers' Association), Landcare and council weeds officers greatly increases engagement effectiveness but also encourages cross promotion of workshops, funding and seasonal management tasks with regional partners.

Government coordinated networks can offer free membership to join an e-newsletter mailing list, while community-based groups may charge a nominal fee to gain priority access to workshop updates, funding and local discount opportunities. Linking social media platforms to digital registration forms can increase membership and provide direct contact via a centralised email database.

Communication is key

Communicating a wide range of information specific to small farms is a key focus of all small landholder networks across Australia. Free and regular e-newsletters to landholders providing links to online resources (fact sheets, property checklists, calendar of operations), cross promotion of regional workshops (agricultural, Landcare, natural resource, biosecurity), field days, funding opportunities and biosecurity updates, aim to increase the knowledge and awareness of better farm management practices.

The Capital Region and South Coast Small Farms Networks send out regular e-newsletters to a combined membership list of 950+ landholders across South East NSW. Both networks achieve an average opening rate of 49 percent which is above the industry average of 18 percent. Feedback indicates e-newsletters are the primary source of local information for sustainable land management issues. Using free online tools provides coordinators with accurate feedback on the topics, resources and events small landholders are interested in, which informs future updates and workshop topics.

“Thank you for your emails. I may not attend many field days but I love reading about what is happening across the region and letting my neighbours know what’s going on.”

Small Farms Network Capital Region member

State coordinated networks provide a wealth of resources (fact sheets, biosecurity management planning guides) on regional websites, while community-based networks provide links to government fact sheets, workshop summaries, project case studies and local information. The use of social media is a great way to promote events however, reach is generally limited with older members not always active or interested in adopting the technology. Using multiple communication tools can extend reach and capture all demographics.

Workshops

Delivering workshops on a diverse range of agricultural, biosecurity, livestock and natural resource management issues is a great way to engage with small landholders. Soil fertility, pasture and weed management as well as property planning are key topics of interest. Small landholders are usually enthusiastic and keen to learn a wide range of skills and information. Partnering with local

associations and community groups to run workshops on backyard poultry, beekeeping and fruit tree management provides an excellent opportunity to engage a wider audience while still promoting key biosecurity and land management best practices.

Most networks agree it is important for presenters to be engaging and relatable. Workshops are held on farm where possible in a relaxed, safe and social atmosphere and include a balance of theory and practical sessions while providing adequate time for landholders to network over lunch or morning tea.

Providing a range of fact sheets, management guides and other resources as well as integrating key biosecurity and land management issues into each workshop such as

-) Showcasing good on-farm biosecurity in-situ from the farm gate through to the production area
-) Managing the introduction of new stock / equipment / visitors
-) Management of sick stock
-) Pest and disease surveillance and reporting practices
-) Regional weed management strategies.

ensures landholders take away a number of key messages and practices to apply on their farms.

Coordinators have found Friday workshops or short two-hour weekend or weeknight information sessions are preferable for busy small farmers.

Top 10 Key Learnings from a Small Farms Coordinator

1. \$Identify your target audience, consider whether the network will target a specific group of producers (e.g. new producers) or a broader group of producers and the geographic region the network will encompass. Knowing what the network is aiming to achieve, such as building skills and biosecurity capability will help in identifying the target audience.
2. \$Being able to clearly describe the purpose of the group will help promote the new network, boost membership and provide a framework for network activities.
3. \$Take time to build your management systems – membership database, e-newsletter and social media tools. Sign up to state, regional and local newsletters, search online booking systems, bookmark your state Department of Agriculture and Landcare event pages and use this to create relevant content for your e-newsletter.
4. \$Build relationships with local organisations, associations, agribusinesses and council weeds officers.
5. \$Coordinate regular and diverse workshops focussing on soil fertility, pasture, weeds, livestock management and biosecurity:
 - a. On-farm workshops are best structured to have theory in the morning, practical in the afternoon, good food in between and plenty of time for networking and peer learning.
 - b. Workshops are best held on Fridays and short weekends, or as evening events of around 2 hours.
 - c. Integrate key farm biosecurity management messages into all events.
6. \$Whole farm management and one-on-one farm visits build relationships, trust and maintain engagement.
7. \$Regular communication of regional events should be a priority, in order to cross-promote a wide range of workshops, field days, funding and other opportunities to

meet the diverse interests of small landholders (e.g. beekeeping to cheese \$ making). \$

8. \$Regular feedback via surveys and post-activity feedback will help inform the future direction of network activities and maintain active engagement in the network.
9. \$Seeking funding or grants from external organisations can boost network resources, reduce the cost of network activities attracting more producers to the network.
10. Have fun by creating a safe and open learning environment for all to share stories of success and, more importantly, failures.

4.4.2. Small Farms Networks - Case Studies

Small Landholder Information Service, WA (1999 - 2015)

Network location: Higher rainfall areas of the South West of Western Australia.

Motivation: In 2004 Department of Primary Industries and Regional Development formed the Small Landholder Information Service (SLIS) to provide information to small landholders on natural resource management, biosecurity, property planning, horticulture, animal management, soil and water conservation and economic development. In 2004, an estimated 60 000 small landholders (farming properties less than 100 ha), occupied over 650,000 ha of rural land in Western Australia.

Extension focus: The SLIS provided a variety of technical and targeted online resources and free workshops based on landholder needs. Important natural resource management and biosecurity messages were incorporated into each event. SLIS also provided an enquiry service and developed a range of information products targeting the small landholder including:

- Online Small Landholder Resource Hub - <https://www.agric.wa.gov.au/climate-land-water/land-use/small-landholders-western-australia>)
- Seasonal e-newsletter - what to consider in the upcoming season, ideas for your \$ property/seasonal calendar/upcoming events and articles
- Attended field days/small landholder events allowed for direct communication and an opportunity to promote the service and increase e-newsletter subscription
- Enquiry service – an average of 40 telephone and email enquiries per month
- Small landholder community column published in up to 17 community newsletters (very low cost) potentially reaching 14,800 landholders/month.



Fig 20. field day display (Left); mobile trailer education unit (right)

Key learnings:

- Developed relationships/partnerships and collaborating with agribusiness, local Landcare groups, local government and other small landholder services resulted in better promotion and extension opportunities such as: workshop, webinar and field day collaboration
- Weekend and weeknight workshops were preferred due to off-farm work commitments
- Shared and develop information tools in partnership with other organisations (e.g. apps for small landholders)
- Potential to support small landholder/business co-operatives (e.g. market products/ work as a group to acquire services/products at a cheaper rate - buying in bulk)
- Social media and online platforms for information sharing was increasingly important
- Local ownership - focus on developing the local networks and organisations already providing services to small landholders \$
- It took four to five years to develop market place recognition amongst all stakeholders.

Small Farms Network, South Coast, NSW (2004 - ongoing)

Network location: South Coast NSW (Shoalhaven and Illawarra regions) and across the southern highlands of NSW.

Motivation: To engage the large number of new small landholders moving from Sydney and assist them to manage their land more sustainably and productively while building a supportive community to share resources and ideas. A strong focus on agricultural production and coordinating diverse workshops (backyard beekeeping, poultry, pasture management).

Funding: The Small Farms Coordinator position is primarily funded through the National Landcare Program and partly through Catchment Action NSW for the delivery of on-ground projects as well as via Envirofund, Environmental Trust, Sustainable Agricultural/NLP grants.

Membership: Free for all landholders regardless of property size or industry. Members receive a fortnightly e-newsletter promoting local and regional events. There are currently 720 members, most on small properties up to 40ha. with no farming background, but are keen to have livestock and improve their property.

Extension focus: The network was supported by NSW DPI Extension Officers who provided significant time and resources to run on-farm workshops focussed on soil, pasture and livestock management. These events were fundamental in landholder engagement and formed the basis of a number of improved land management programs during 2004-2010. The network also:

- Coordinated a wide variety of small farms/lifestyle workshops, such as: beekeeping, cheese making, biodiversity forums, meat chickens, home preserve making, increasing engagement of a wider audience
- The development/creation of industry associations allowed the network to develop community capacity and establish a peer-learning model to improve long term management practices.
- Established the Berry Small Farms Field Day attracting 6,000 people.

Key learnings:

One of the key benefits is the opportunity for landholders to connect, build relationships, share resources and support each other. Other learnings include:

- Regular communication through regional and local newsletters, social media, websites (Eventbrite / Local land Services for workshops) and Landcare groups maximises reach
- On farm workshops are important; creating a relaxed, social environment for landholders to share ideas and management issues.
- One-on-one farm visits build trust and create on-ground change with minimal investment
- Offering a range of services from weed and pasture ID, soil testing, funding and general advice save landholders time and creates opportunities to create property-specific change
- Word of mouth continues to be the primary engagement tool. Neighbours, council weeds officers, Local Land Services staff and contractors telling landholders about the network and funding available for project work.



Fig 21. (Right) South East Small Farms Field Day tent and (left) Bee keepers workshop

Small Farm Living, NRM North, Tasmania (2012 - ongoing)

Network location: Northern Tasmania – the region covers 25,200 km². The Small Farm Living program's regular engagement extends to landholders in Cradle Coast NRM and NRM South regions and some landholders on mainland Australia.

Motivation: In 2012, NRM North commissioned a report to determine the best way to engage with local smallholders. Report findings highlighted many small landholders felt intimidated engaging in extension activities as they weren't commercial farmers, had other jobs and couldn't attend when events were held.

Funding: The Small Farm Living program was established in July 2012 through funding provided by the Australian Government's Biodiversity Fund and the National Landcare Program.

Membership: The program is designed to support and assist owners and managers of small, non-commercial lifestyle holdings (<100ha) to develop and manage their property sustainably. A monthly e-newsletter is distributed to keep members up-to-date with the program, upcoming events and feature resources that are often available in the online Small Farm Living Resource Centre: <https://www.nrmnorth.org.au/small-farm-living-resource-centre>.

Extension focus: The Small Farm Living program began by coordinating workshops focussed on soil and pastures extension). After the first two years, a program review found there was greater demand for knowledge and skill development than for financial assistance with on-ground works. The program evolved to offer

- Property Planning tailored to smallholders
- Local workshops and field days
- A web-based resource centre
- Support for eligible environmental works on properties.

Other major activities delivered through the Small Farm Living program have included:

- Hobby farm pasture renovation trials
- The biannual Small Farm Living Field Day
- Small Farm Property Management Planning (PMP) workshops
- Farm fencing demonstrations activities
- Balancing soil nutrients/soil health

Key learnings:

From the program review report in 2012

- Smallholders relied heavily on the internet for information about farming and land management resulting in misinformation. Web-based resource centre was developed as a first 'port of call' for relevant information
- Smallholder Property Management Planning (PMP) has been successful and well-subscribed and small grants for on-ground works are often attached to PMPs. \$
- NRM North/Small Farm Living has strong networks with other local organisations enabling cross-promotion of events between local organisations.
- A majority of small landholders have off-farm jobs, timing of events and pitch of information being delivered is important
- The need for knowledge and tools were stronger drivers for participation than financial assistance for environmental works.
- Workshops and one-on-one advice (very popular) to support behaviour /on-ground change have achieved more cost-effective practice change.

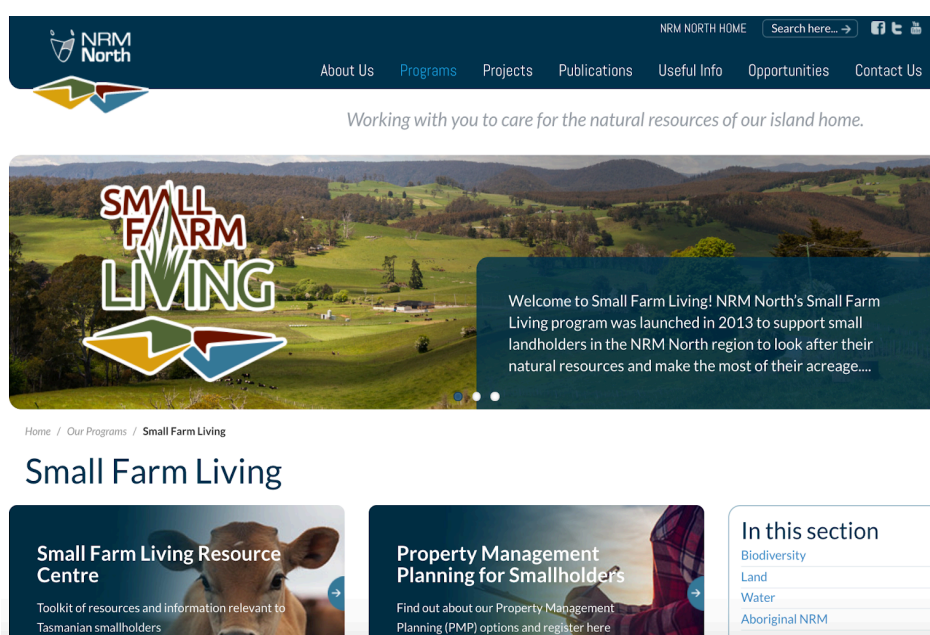


Fig 22. Tasmania's Small Farm Living resource centre \$

Small Farms Network Capital Region Inc., NSW (2015 - ongoing)

Network location: Based in Bungendore NSW, the network services the needs of people managing small rural holdings in the NSW Southern Tablelands with people travelling up to 100km to attend events.

Motivation: The Small Farms Network Capital Region (SFNCR) was a community initiative started by small farmers in 2015 to fill an information and education gap related to managing small rural holdings. The objective of the SFNCR is to deliver improved agricultural productivity and land management for the long term especially on small rural properties in the Capital region.

Funding: The network has maintained operations of a number of grants, including a Sustainable Agriculture Grant from the Australian Government, Department of Agriculture and Water Resources; the LLS Community and Industry Landscapes Fund; Environment Small Grants and volunteer in kind contributions.

Membership: The SFNCR is an incorporated association with paid membership \$20 per annum. The cost includes early notification of workshops, advertising in the newsletter and access to the members-only Facebook page and members-only events. Participants attending workshops pay a small fee of around \$25 per person, which helps cover catering and other minor administration costs. The network currently has 81 members and a committee of six volunteers who run the community association and employ, guide and support a project officer.

Extension focus:

Priorities and themes for the network's education events are based on participant feedback collected at earlier events. There is emphasis on the hands-on building of practical skills and matching the content to the needs and realities of small farmers.

- Communication is maintained via a monthly newsletter, Facebook page, a members' Facebook Group, advertisements and press releases.
- A summary for each education event is posted on the website along with links to useful resources. These summaries are accessed by people across Australia with around 25,470 website visitors in the second half of 2018.
- Email communication to members (including the newsletter) has proven successful in engaging with the small farms' audience. Facebook has been less effective but by publishing information in multiple formats, the network has been able to engage a wide audience.
- Marketing of events has been via Eventbrite, with further notices placed on the website, e newsletters, Facebook and local papers.
- The committee attends local shows and field days to engage local producers.

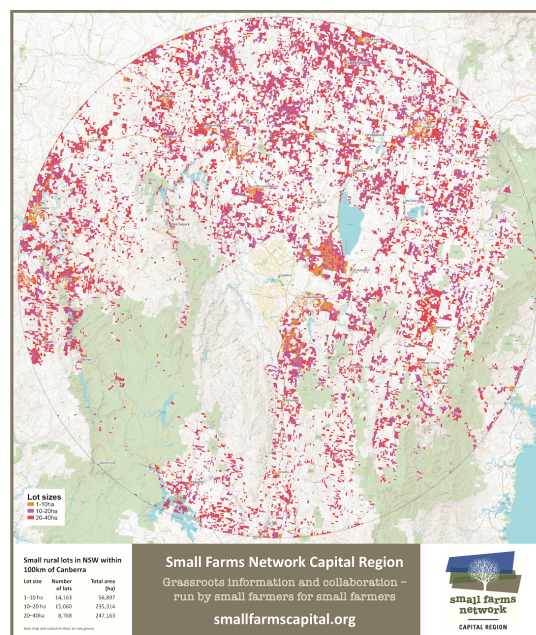


Fig 23. Map of small landholders in the Capital Region

Key learnings:

The SFNCR community engagement model has worked with committee members managing projects as volunteers and through collaboration with several government agencies such as LLS, NSW DPI and the ACT Regional Landcare Facilitator.

Network members are less likely to engage in formal courses because they have little need for formal qualifications related to farming. At workshops, PowerPoint presentations are kept to a minimum and always have a hands-on component.

The greatest challenge has been sourcing funding to maintain current level of activity. The project has led to the following outcomes

- Greater knowledge about evidence-based land management and animal husbandry practices and strategies for smallholders
- An increased sense of community and inclusivity through regular opportunities to connect with other smallholders at workshops and events
- Increased awareness of private land conservation, natural resource management and retention of native vegetation on farms
- Raised awareness in the small farms community about key natural resource management messages, weeds and biosecurity.

4.4.3. \$ New networks and unexpected outcomes for peri-urban small landholders

NSW Hobby Farmers Community

In October 2018, NSW DPI established the NSW Hobby Farmers Community Facebook Group (Fig 24). This online network seeks to share information about good hobby farming practices and what we can all do to ensure a sustainable future by keeping pests and diseases out of NSW. To date, posts have focussed on raising awareness of African swine fever – swill feeding and pig identification; drought, sheep health, and promotion of events state wide aimed at small holders in peri-urban and regional areas.

Anecdotally, a vast number of subscribers originate in more regional areas and while they have sizeable properties (up to 500ha), they still consider themselves as hobby farmers. These people tend to have small numbers of stock for lifestyle reasons or may be absentee landholders and are looking to connect with like-minded producers.



Fig 24. NSW Hobby Farmers Community Facebook Group social media tile \$

Greater Sydney Small Farms Network

The Greater Sydney Local Land Services has recently (April 2019) launched a new Small Farms Network for the Greater Sydney region (Fig 25). The network is designed for producers wanting to learn more about how to be productive and sustainable on-farm. With free membership, network members receive monthly e-newsletters, keeping producers up to date about upcoming events, workshops, news, resources, research, case studies and funding and networking opportunities.



Fig 25. Greater Sydney Small Farms Network social media tile

Digital storytelling for behaviour change – Small Farms Network Capital Region

The Small Farms Network Capital Region (SFNCR) is expanding into digital storytelling to take what they are learning in workshops and through their members' networking to a wider audience. This will build on their successful online presence. The SFNCR aim to produce a series of short (5-10 minute) digital stories that will be included as valuable content on their website and promoted through social media and newsletters. The digital stories will help demonstrate the changes that are occurring on-farm as a result of the SFNCR and/or demonstrate a particular farming technique.

A professional documentary filmmaker has been contracted to design a template that will allow SFNCR members to produce, shoot and edit their own content to a professional level. The contractor will initially produce a template, including a titles sequence and style format and help produce a pilot episode to illustrate an episode. This will involve taking a brief from SFNCR, helping to produce and edit an episode, video making training for some members of the network and providing the template in a format that the network can use to make additional videos.

This project, still in the development phase, allows the SFNCR to celebrate the success of the network by sharing stories about how it is working, showcase positive on-farm behaviour and attitudinal change of members, build their capacity to produce high quality videos on an ongoing basis, providing more communication options for the future. This innovative approach is an attempt to further develop their innovative edge and maintains their commitment to quality in building capacity among their membership for continually improving production outcomes.

4.5. Peri-urban small landholder case studies

A series of case studies of local grazing farms with a variety of biosecurity and production practices were developed to highlight alternative methods in which small landholders are successfully establishing their own networks and thriving. These will be incorporated in a guide alongside the small farms analysis and case studies to encourage local champions, industries, government and non-government agencies alike to develop their own networks, formally or otherwise.

4.5.1. Grace Springs Farm

Tony and Virginia Mall established Grace Springs Farm when they moved to Kulnura on the NSW Central Coast in 2012. They produce grass fed and finished beef, pastured eggs, vegetables, garlic, honey and Muscovy duck meat and eggs. Regular farm tours and beekeeping workshops are also hosted at the property. All of this happens on a 10ha property making this a productive small farm.

The Malls believe that healthy soils support healthy pastures that help produce healthy animals - nutrient dense produce to sustain a healthy population. They are part of the growing regenerative agriculture movement, farming without the use of chemicals, and working to improve the health of the soil and pastures they manage.

The cattle and poultry at Grace Springs Farm are raised ethically and managed with respect and kindness. “We keep a close eye on our cattle, regularly checking their condition and addressing any issues quickly. Having quiet, easy to manage cows gives us more time to work on other aspects of the farm” Virginia says.

Virginia has observed that by practising holistic management and looking after their soils and pasture means that their animals are in good health and appear to be less susceptible to disease. She has also found information from Pat Coleby a useful resource to maintain good animal health. The whole farm is considered as part of their holistic grazing plan. Virginia says that “during dry times, the family use electric tape fencing to graze the pasture available along laneways and within the house paddock.” These areas are naturally fertilised and improved thanks to their duck and chicken enterprises and this also allows other paddocks additional days to recover before moving the animals back onto them.

During the drought in 2018 the grass was much shorter than usual however the paddocks still had groundcover, which is their main priority.

“Once rain did come in early spring, the response from the pastures was incredible. The pastures were actively growing with the warmer weather and we began to move cattle onto new grass every day to allow each area time to rest and recover,” she says.

Virginia attended holistic grazing management training and found the course invaluable when applied on farm (Fig 26). “We move all of our animals regularly. The aim is for the animals to graze within the fenced area, drop dung & urine & trample any weeds they don’t eat. This practice mimics natural grazing animals in herds, and allows a longer rest period for the pasture to recover before that paddock is grazed again”.

Dung beetle populations thrive in the grazing paddocks, and play an integral role in processing animal manure to improve the soil health. Dung beetles also reduce the available manure for fly larvae and gastrointestinal parasites, removing the need for drenching cattle and reducing the time spent undertaking these activities.

The family (Fig 27) are now adapting their farm management to manage risks associated with our changing climate. Virginia says they focus only on what is within their control, work with the natural systems and make decisions to protect the natural resources on their farm. “Holistic management gives you a framework to consider complex situations, to plan and make informed decisions,” she says.

Virginia uses social media to share stories of success as well as the struggles that come with managing a farm. “I try to give people an authentic insight into the realities of running a farm and hopefully help them understand the benefits of regenerative agriculture,” she says.

“We also open our farm up to local school students so the agriculture students can get some hands-on experience.”

Social media is used by the growing community of regenerative farmers to regularly connect with each other. Virginia’s enthusiasm for regenerative farming, producing nutrient dense chemical free food and simply loving what she does is contagious.



Fig 26. Cattle grazing on diverse pasture, acknowledgment is Grace Springs Farm



Fig 27. Tony and Virginia Mall and family, acknowledgment Joy & Sparrow Photography

4.5.2. Camden Valley Veal and A Smart Farmer

Luke and Jess Micallef brought their 12ha property in Cawdor, south west of Sydney eight years ago. The couple studied agricultural science together at Sydney University and worked on farms before starting their own business. Starting with a blank canvas; no fencing, no farm infrastructure and no house, it was the opportunity to run a farm close to the city and their family that attracted them to the region. They now run a dairy herd of 70 of which 20 are currently being milked (Fig 28).

Initially the couple developed ‘A Smart Farmer’, a mobile dairy education business. “We offer a unique, educational and syllabus aligned experience for students to learn about the dairy industry and the nutritional benefits of drinking milk”, says Luke.

“We saw an opportunity to diversify our operation and add value. We started to sell our veal direct to niche markets in the city to achieve a premium price (Fig 29). Later, we began to stop milking the dairy cows and allowing them to graze for a further nine months to gain fat. This then allows the butcher to hang the meat and creates a valuable dry-aged product that is both tender, flavoursome and high in omega 3s”.

“It is important the butchers we work with share our values. We are passionate about using the whole animal and reducing waste. Testimonials from chefs and butchers have helped us to establish a market for our produce in some areas of Sydney,” says Luke.

Jess says they learnt a lot from online research, trial and error and talking to other farmers. “At one time we had a bad case of pneumonia within the herd that we resolved by switching to bucket feeding,” she says.

The Micallef's have a good relationship with their local vet and have learnt to take disease prevention and management seriously. The couple follow a 7 in 1 vaccination schedule and address any health issues without delay. No calves younger than 14 days are purchased. The future plan is to require all calves brought into the operation to be tested for bovine viral diarrhoea virus (BVDV) to prevent weakening the herd's immunity.

“We hosted a biosecurity awareness event at the farm in 2017. The idea was to improve farm and animal health practices at the schools we work with, primarily to protect the health of our cattle when they visit,” says Jess.

“We have learnt lessons about how to manage during drought,” says Luke. “We should have de-stocked earlier last year. We managed by buying in feed, creating sacrifice paddocks and drying cows off earlier. For the first time we cut silage in summer to help get us through the coming winter. We were faced with rising feed costs, difficulty sourcing quality feed and reduced production rates. We are now conscious of managing our feed budget”.

The couple have recently engaged an agronomist for advice on pasture management, and undertaken baseline soil and water testing in preparation for using recycled water for irrigating some of their pastures. “Accessing a reliable water source is part of our strategy to maintain production levels during dry times. It has taken significant investment and five years of planning to use recycled water to irrigate our pastures,” says Luke. “This will allow us to return to strip grazing, generally moving the herd twice a day and following a 20-day rotation plan.”

The couple undertake fox baiting each year as part of a program coordinated by Greater Sydney Local Land Services to help reduce the impact of the pests. This involves letterbox dropping all of their neighbours including those on residential house blocks. The couple is also required to attend training.

The couple enjoy the process of producing their own quality food for the Sydney market, and themselves. “We love to barbeque veal ribs with our own special marinade, there's nothing quite like enjoying a meal with your family on the farm it was created,” says Jess of the family's favourite way to enjoy their produce.



Fig 28. Dairy cattle on the Micallef's 12ha property in Cawdor (from Camden Valley Veal and A Smart Farmer)



Fig 29. Camden Valley Veal produce (from Camden Valley Veal and A Smart Farmer)

4.5.3. Lancashire Downs

For the last six years Linda Smith and her partner have owned and operated Lancashire Downs, a boutique beef cattle and horse property in Kurrajong Hills in the upper Hawkesbury. Motivated by a change of lifestyle they now manage 10.5 hectares of land along with 16 Lowline Angus cattle and three horses.

Lowline is a versatile breed, has compact frames and are generally easy to manage. They are ideally suited to smaller farms.

All animals on the property are rotationally grazed meaning paddocks are rest periods between grazing. Rotational periods vary based on a variety of factors including seasonal conditions. Cross grazing is used to limit internal parasites and ticks.

During recent drought conditions they chose to maintain their herd size. “It’s been a challenge having to buy additional feed with reduced availability and quality resulting in significantly higher costs,” Linda says. To reduce the risk of introducing weeds, they monitor storage areas and paddocks for new weeds.

The Smiths sell their produce through direct sales via a network of ‘conscious consumers’ that they have developed locally and in Sydney.

“We process a steer approximately every 10 weeks. Customers receive the meat vacuum-sealed and unfrozen and are able to come to the farm to pick up their order or have it delivered,” Linda says. “We are able to tell our customers where the animal has been, how and what it has been fed and the way it has been raised from paddock to plate”.

In 2017 the Smiths received a grant through Greater Sydney Local Land Services. The money allowed them to fence a 250m section of a creek that travels through their property. Local native plants were revegetated and bush regeneration techniques were used to control weeds including privet, moth vine and crofton weed.

Before moving to the farm, Linda had an agricultural degree and continues to learn through a combination of experience, advice, reading and courses.

“Local Land Services have helped us by offering various workshops on soil management, livestock health and pests, sustainable horse property management and drought management,” Linda says. “It not only gives us access to expert knowledge and advice, but also the opportunity to network with other farmers and learn from local experts.”

“Running a farm is challenging, especially during drought. Continuous learning is important to adjust your management. Building your knowledge builds your confidence to make informed decisions about your livestock, farm business, lifestyle and protecting the natural resources on your farm such as the pastures and soils,” she advises.

The Smiths follow an annual vaccination program for their cattle to clostridial diseases (pulpy kidney, tetanus, black disease, malignant oedema and blackleg). “We also regularly check on both the cattle and horses ensuring they have adequate shelter, feed and water.”

Linda has used the NSW DPI veterinary laboratory at Camden to monitor worm egg counts. She used the test kit provided to submit dung samples for testing and then received the results. This information can be useful to monitor your worm control program and prevent a serious infection.

4.5.4. Elmsleigh Farm

Lisa and Brad Martin bought their 80-hectare property, Elmsleigh Farm, at The Oaks, south west of Sydney about five years ago. They run Black Angus beef on this farm and also agist on a further 40 hectares nearby.

The Martins refer to themselves as ecosystem farmers and actively manage their animals to regenerate the landscape and monitor the recovery of the pastures.

The couple know starting a beef cattle business requires a diverse skill set, and the right infrastructure. “Farming is hard work, and over the years I have learnt to observe and monitor the natural systems. It takes time to learn and build your confidence, so don’t be in a hurry to make large scale investments” Lisa says.

Over the years, through trial and error, reading, asking questions and attending training courses the Martins have developed the practical skill set and knowledge required to run a successful operation. Having grown up in the city, Lisa had to learn the required animal health and husbandry skills on the job.

The couple are currently considering agri-tourism to diversify their business and share the farm experience with others. “You have to work to your strengths,” Lisa says. “By knowing your values and your context you can determine the best fit enterprises to add to the business and create complimentary income streams.

In 2018 the Martins trialled direct to the public beef sales and were able to sell 95 percent of their product through friends and their networks. The decision to process and market their ‘seasonal’ beef was motivated by the challenges associated with drought. While beef is their product, it is their regenerative and ethical farm practices that they use to tell their story to customers.

Lisa and Brad have a well organised system to store and carry farm equipment. Over the years, they have learnt the value of creating system efficiencies. Simple systems such as placing the NILS tag on the left side and management tag on the right side of the cattle saves time. They also keep master farm records.

Lisa and Brad follow a vaccination schedule and have been taught how to correctly administer vaccines and keep records for all animals.

“Our business model is flexible but in general we breed and grow within our herd,” says Lisa. “When we do have new stock brought on to the property, they spend time separate from the main herd to reduce the risk of introducing new weeds and diseases”. This quarantine period also allows new stock to be vaccinated before mixing.

The couple also carry out regular checks of their herd (Fig 30). They observe how they are walking, body condition, herd behaviour and temperament (Fig 31). When stock is on agistment away from the property, the couple still look after the herd with daily visits to check the stock, water and fences.

The Martins have installed a biosecurity sign on the front gate to manage biosecurity risks as well as reducing the likelihood of the public entering without notice and causing a farm accident.

There are three endangered ecological communities on the property. The couple have received grant funding from Greater Sydney Local Land Services to conserve these communities using bush regeneration techniques. They also established the Spring Creek Landcare group, to manage the African olive and other weed infestations on the property and hope to welcome adventure land carers from the city in the future.



Fig 27. Monitor Black Angus herd grazing



Fig 28. Checking condition of Brown Angus calf, born 2018 on Elmsleigh Farm

4.5.5. Paddock to Plate

Alastair and his family operate a beef, poultry and lamb business on leased land in Western Sydney. The farm produces grass fed and finished beef and lamb and pastured eggs that are sold through the local farmers markets. A meat chicken enterprise and ‘farm chores’ tours will be trialled in 2019. Shearing demonstrations are also a source of income for this diversified farm business.

Eating quality and animal health are important. The family implements the principles of holistic grazing management. They farm with minimal use of chemicals, and aim to improve the health of the soil and pastures they manage.

Alistair grew up working with family members on farms in Victoria, although more recently has been inspired by the work of Joel Salatin from the USA. Two family members have completed holistic grazing management and are implementing the practices learnt on properties at Yarramundi and Richmond.

At Yarramundi the enterprise is using grazing management to regenerate a compacted horse paddock that was primarily african love grass. The combination of animal disturbance and manure makes the grass more palatable and gives more favourable plants a chance to recover to create a diverse pasture. Alistair’s advice is to use the resources that you have available. He has successfully regenerated bare areas in the paddock by covering them with wool shawn from the meat lambs. The wool protects the soil surface, captures sediment and helps to retain moisture which allows plants to regenerate and establish groundcover.

Alistair is currently trialling mixed species grazing where sheep (black faced Suffolk and a few goats) graze an area for one day, followed by cattle for one day then three days rest before the chickens come in. Sheep are selective, cows will eat more and then chickens spread manure and eat the fly larvae preventing disease and allowing more even recovery of the pasture.

At the Richmond property Alistair has an additional 200 acres leased where he runs 100 angus. During the recent drought conditions, the farm received assistance through the local community to purchase the irrigation pipe required to commence holistic grazing management at this site.

Alistair ensures all the properties he leases have good boundary fences as this prevents people entering the land and dumping which can be issue. Paddocks are broken down into smaller grazing units using ‘low-tech low-cost fencing’ comprising of one strand electric fence with recycled start pickets. Standard sizes and measurements help to streamline the daily fence and water movements. The family chooses to move the stock on to new pasture each afternoon so they are able to eat fresh pasture at the time of day when it is most nutritious and full of energy before the plants draw their energy to their roots during the night.

Alistair takes almost daily photos (with something recognizable such as a tree or fence) and notes to record the pastures and stock movements. He can track the pastures recovery this way. Whilst he is yet to implement a full written grazing management plan, his advice is that changing your management takes time - time to observe, to notice and to learn. Implement new practices, take small steps and improve your management through gradual change.

Holistic grazing teaches you simple strategies to manage during drought and make farm management decisions with confidence. Alistair says “it like a hay shed in your paddock; you’re assessing how much feed you have and then giving cows access to a certain amount each day so you can plan”.

Daily stock movements have the added benefit of enabling regular checks of the condition and behaviour of the cattle. This ensures that any issues or concerns can be addressed quickly. Inspecting poo is also a daily habit that is an indicator of animal health. “If it sits up but is slightly sunken in the middle this indicates good health”.

Alistair has attended livestock health workshops delivered by Greater Sydney Local Land Services. Alistair also participates in the National Arbovirus Monitoring Program. A surveillance and monitoring program managed by the NSW Department of Industry that involves monitoring the distribution of bluetongue virus and the biting midge that are its vectors in the environment. This program aims to inform the cattle industry of bluetongue virus in Australia to protect valuable export markets.

5. Discussion

Currently there are no extension programs targeted specifically at peri-urban smallholders with research indicating low levels of access to service providers by this sector. In addition, service providers, such as private veterinarians, contractors, agents and domestic abattoirs may lack the confidence, knowledge, appropriate resources and avenues to access the sector as a group. This represents a major gap in the provision of biosecurity information and in engaging smallholders for improved disease surveillance and reporting outcomes. Furthermore, the decline of publicly-funded extension means that agencies such as the LLS are limited in the staff and funding they can invest in such programs.

The number of smallholders, particularly within the peri-urban interface is extensive. Smallholder producers keep stock for a variety of reasons as highlighted by workshop activity results for each workshop location. This coupled with the producers working off-farm to generate an income to sustain a city-rural lifestyle and reliance on a variety of information sources, including friends, family and neighbours to receive their animal health information, is likely to result in mixed messaging, poor industry connectedness and poor/non-compliant biosecurity practices.

An industry champion, whether it be a producer or a small group of producers as part of a small farms network would be better positioned to provide a reliable information source and industry contact point that small landholder producers can trust. From here, smallholders can begin to tap into information and resources from both animal health service providers such as veterinarians and government agencies such as NSW DPI and LLS (Fig 29). In time, participants are likely to build up their own capacity as an informed, skilled producer and potentially become a livestock champion themselves to share their knowledge and experience with others in their community resulting in improved widespread animal biosecurity, disease surveillance and reporting outcomes.



Fig 29. Smallholder producers seek connection with trusted sources of information.

Well-connected and informed livestock champions with linkages to small farms networks boost local connection with animal health professionals, government agencies and industry. Small farm networks provide an opportunity for development of more local livestock champions that will continue to build local livestock producer animal health, surveillance and reporting capacity.

Biosecurity engagement with agriculture teachers

Engagement with organisations such as A Smart Farmer Pty Ltd with links to the teaching fraternity may provide an alternative method of engagement for improved biosecurity surveillance and reporting outcomes via school-aged children. Engaging school-aged children either via curriculum-based programs or external learning opportunities such as school excursions, agricultural shows and field days, increases the potential for crucial biosecurity messages reaching the smallholder parent. It also represents an alternative pathway for engaging with Non-English Speaking background (NESB) families who may not be tuned into the more traditional information pathways.

Livestock community survey responses showed that most secondary high school agriculture teachers first sort advice and support from a person of known reputation for skills and knowledge, predominantly someone they know personally first then they may seek others. Later they would seek to learn about a specific issue through other sources such as produce stores and the internet. Whilst the conflicting demands of work, family and lifestyle would make attending a gathering or workshop seem less manageable, in actuality, listening to and talking with someone with the appropriate knowledge and skills is the preferred method of seeking animal health and biosecurity advice and support.

Secondary school agricultural teachers may also be part of professional networks such as the Primary Industries Education Foundation Australia (PIEFA) and the NSW Association of Agriculture Teachers with guidance provided by the national and/or state Departments of Education. These networks have key contact points, specialists and champions providing ongoing linkages to industry, Government agencies, veterinary professionals and policies and procedures to ensure best biosecurity, animal welfare, disease surveillance and reporting practices are maintained. Interestingly, a number of secondary school agriculture teachers seek out and are active at local small farms events to remain locally relevant with their teaching and to maintain their own practical skills.

Small landholders and behaviour change

A number of social research studies suggest a high level of weariness and mistrust of authorities (Hollier et al, 2008; Hernandez-Jover et al, 2014). This, together with a “traditional and multicultural demographic” who are likely to keep stock “for secondary income or as pets” make it challenging for engagement to occur as farming is not their primary priority. It is thought that part-time or hobby farmers don’t see themselves as farmers or as having a need to be committed to agricultural disease control and monitoring, rather, preferring to do “their own thing”. Moreover, poor connectedness to the agricultural industry and other producers as well as demographic factors such as NESB, off-farm employment and keeping livestock for home consumption makes forming a network, particularly in peri-urban areas challenging.

Conducting workshops with a local small farms network, such as the SFNCR and working with Local Land Services and the Scibus Livestock Champion, we were able to achieve good attendance and engagement at organised workshops. It was through these workshops we were able to further appreciate the diversity and complexities of the smallholder community. There was a vast array of experience, skills and knowledge about animal care and health with distinct variations in the motivations, experience, knowledge and socio-demographic characteristics.

It is the diversity between producers’ knowledge, motivations, biosecurity practices and relative risk status that serves to reinforce one of the challenges of working with smallholders; that a generic approach may not reach those who pose the highest risk, that is those not seeking to be engaged. This is supported by the premise among researchers, that smallholders who participate in research are already engaged and may not be truly representative of the smallholder group (Barret et al, 2010; Hernandez-Jover et al, 2014). The same could be said for those smallholders who belong to small farms networks.

Publicly championing local small landholders with good on-farm biosecurity, husbandry practices, disease awareness, and a positive approach or experience with reporting could serve as a relatable advocate to market small farms networks, available resources and training opportunities within the community and encourage other landholders to become engaged.

Recommendation 1

Celebrating local smallholder livestock champions who have reported an unusual health event in their herd and had a good experience will help to break down the barriers and social stigmas often associated with reporting and encourage other local smallholders to do the same. Livestock champions could be celebrated within the local small farms network, via the local and social media outlets to inspire other local smallholders.

Studies show that stakeholders and smallholders view face-to-face communication as the most effective method for increasing engagement of smallholders and improving their awareness of specific topics or practices (Hollier et al, 2008, Hernandez-Jover et al, 2017; Schembri et al, 2014). However, as noted in the small farms network analysis and case studies (section 3.4), the decline of publicly-funded extension means that there are fewer resources available for face-to-face extension. For some landholders, other producers have filled the role of educator, as highlighted by workshop communication activity analysis. While this is viewed positively from the perspective of the landholder, there are questions over the accuracy and source of the information provided and challenges service providers and government agencies to better improve engagement with these informal role models.

From the first workshop in the Macarthur and Capital Regions, there was a general positive shift in the source of animal health and biosecurity information. Producers attending the first workshop highlighted producers, teachers, produce stores, the internet and veterinarians as key information resources. The strong influence of teachers at the Macarthur workshop could be explained by the presence of high school teachers at the workshop with this stakeholder not identified by producer participants. By the second workshop, more participants, particularly in the Capital Region, identified animal health professionals such as veterinarians, district vets as well as other producers as key sources of valuable animal health information. This highlights a small, yet significant shift in producer attitude in acknowledging the importance of quality animal health information. This shift also highlights the impact of face-to-face engagement in developing trust and laying the foundations for behaviour change (improved) on-farm animal health disease surveillance and reporting.

Moreover, workshop feedback revealed that producers are now more aware of herd monitoring as a result of their participation, proactively checking livestock and daily actively monitoring for signs of disease. Small landholders were informed of the Emergency Animal Disease (EAD) Watch Hotline telephone number, with feedback to the effect that as a result of the workshop, the EAD Watch Hotline number had been placed on the fridge – a prominent place in the house for easy reference in the event of an animal health disease event.

Small landholder behaviour changes were consistently reported in workshop feedback highlighting the positive impact of face-to-face engagement. Continued in-person engagement with small landholders at workshops, field days and workshops would provide the opportunity for incremental behaviour change for positive biosecurity and disease surveillance and reporting outcomes over time.

Furthermore, phone survey and workshop feedback support the theory that small landholder producers revere livestock champions as trusted animal health information source. This was most evident for the Macarthur producers, who are not part of any formal producer network compared to the Capital Region smallholders who belong to a small farms network and engaged regularly with local champions. The latter reportedly recognise and value service providers - animal health professionals and government agencies as trusted sources of information.

Small farms networks as an engagement tool

Supporting the development and maintenance of small farms networks provides a community evidence-based resource that industry, animal health professionals and government agencies can tap into to provide resources. These networks create the opportunity for producers to build capacity around good animal health practices, on-farm biosecurity, understand why disease surveillance is important, how they can do it, why report and the likely process if they do report something unusual.

Small Farms Network analysis and case studies identified various pathways both government and community-led networks have created and managed. There is no “one size fits all” approach with small farms networks, however, all networks identified funding as an ongoing critical constraint to network longevity and despite growing membership, positive outcomes, including behaviour change are often difficult to quantify. The establishment of a small farms network hub could provide greater support to local networks by pooling resources to build on-farm biosecurity and disease surveillance capacity of small landholders at the community level.

Recommendation 2

The establishment of a Small Farms Network Resource Hub could (1) provide a support scheme to aid networks financially, based on local factors such as biosecurity risk, location, demographics, network type (community-based versus government) and (2) provide a centralised communities of practice (CoP) approach to support network leaders in the development and maintenance of small farm networks. A CoP approach could centralise disease surveillance and other key reporting milestones, and if housed on the existing Farm Biosecurity website, serve as an information hub to share resources and reduce duplication of generic production and biosecurity information among small farms networks nationally.

As noted by Hernandez-Jover et al, 2017, network workshops and field days led by trained facilitators should be aimed at engaging with smallholders to support biosecurity knowledge and practices in a participatory bottom-up approach that would be more meaningful than a compliance-driven approach. Developing biosecurity policy and programs that build on smallholders’ existing knowledge, practices and priorities and involve trusted leaders and animal health stakeholders, such as private veterinarians, would improve attendance and engagement.

Recommendation 3

The establishment of a program that trains trusted leaders or stakeholders who could act as livestock champions and may include agricultural service providers, private veterinarians or highly motivated and informed producers or contractors would provide the framework for ongoing smallholder engagement in on-farm biosecurity management. Training of leaders should seek to build confidence and skills for effective smallholder engagement.

Recommendation 4

Extension resources should be developed based on smallholder needs as well as industry requirements such as updates in on-farm biosecurity practices, legislation and programs. Such a specialised training program should be developed by government agencies in collaboration with veterinary and industry representatives and local small farms networks to ensure relevance, shared ownership and community buy-in for long-term sustainability.

6. Bibliography

- Barrett C, Bachke M, Bellemare M, Michelson H, Narayanan S, Walker T. 2010. Smallholder Participation in Agricultural Value Chains: Comparative Evidence from Three Continents. MPRA Paper No. 27829, 41pp https://mpra.ub.uni-muenchen.de/27829/1/MPRA_paper_27829.pdf
- Brookes, V.J., Schembri, N., Ward, M.P., 2014. Network analysis of the structure of the pig industry and its associated industries in Australia. Report prepared for Australian Pork Limited, Canberra, Australia, pp. 49.
- GHD, 2013. Multiple benefits of Landcare. Final Report to Australian Landcare Council, 7 July. <https://landcarens.w.org.au/wp-content/uploads/2015/11/Multiple-Benefits-of-Landcare.pdf>
- Hernández-Jover M, Higgins V, Taylor M, 2017. Greater Sydney Peri urban Biosecurity Social Research Project. Report for NSW Department of Primary Industries.,ik-hn0f0g9m 108pp
- Hernández-Jover, M., Toribio, J.-A., Hayes, L., 2014. Smallholder production in Australia. Report for the Department of Agriculture and Water Resources. <http://www.agriculture.gov.au/SiteCollectionDocuments/animal-plant/pests-diseases/biosecurity/animal/smallholder-report.pdf>
- Hollier, C., Reid, M., 2007. Small lifestyle farms: Improving delivery mechanisms for sustainable land management: a report for the Cooperative Venture for Capacity Building. Rural Industries Research and Development, Victoria https://www.academia.edu/25320083/Small_Lifestyle_Farms_Improving_delivery_mechanisms_for_sustainable_land_management_A_report_for_the_Cooperative_Venture_for_Capacity_Building
- Hollier C, Reid M, Curran E. 2008 Small Landholders: An assessment of potential biosecurity and land management risks. RIRDC publication no. 08/186 <https://www.agrifutures.com.au/product/small-landholders-an-assessment-of-potential-biosecurity-and-land-management-risks/>
- Kruger H, Stenekes N, Clarke R, Carr A. 2012. Biosecurity engagement guidelines: Principles and practical advice for involving communities. The Australian Bureau of Agricultural and Resource Economics and Sciences. 66pp
- Mercer R, Hyam L, McLean F. 2017 Social attitudes and understanding of plant health surveillance. Report for the Department of Agriculture and Water Resources. www.instinctandreason.com
- Schembri, N., Hernandez-Jover, M., Toribio, J.-A. LML., & Holyoake, P. (2014). On-farm characteristics and biosecurity protocols for small-scale swine producers in Australia. *Preventive Veterinary Medicine*, 118(1), 104-116. <https://doi.org/10.1016/j.prevetmed.2014.11.008>
- Schembri, N., Holyoake, P.K., Hernández-Jover, M., Toribio, J.-A.L.M.L., 2010. A qualitative study of the management and biosecurity practices of 13 interviewed pig owners selling via informal means in New South Wales, Australia. *Anim. Prod. Sci.* 50, 852–862.
- Wenger-Trayner, 2015. Communities of practice a brief introduction. <https://wenger-trayner.com/wp-content/uploads/2015/04/07-Brief-introduction-to-communities-of-practice.pdf>

Woodgate, R., Hernandez-Jover, M., Hayes, L., Schembri, N. 2018. Biosecurity engagement of small- scale pig producers. APL Project 2016/084. May 2018.

Wright B, Jorgensen B, Smith L. 2016 Development and behaviour change strategies for animal disease surveillance and reporting. Report for the Department of Agriculture and Water Resources. https://www.behaviourworksaustralia.org/wp-content/uploads/2016/11/BWA-Final-Report_Animal-Disease-Surveillance-November-2016.pdf

Appendices

Appendix A

Disease prioritisation and communication workshop activity

Fig A1. Online disease prioritisation and communication form

The screenshot displays a mobile application interface for a survey titled "Calf Marking and Cattle Health Pre-Workshop Activity". The interface includes a top navigation bar with a back arrow, the title, a folder icon, a star icon, a palette icon, an eye icon, a gear icon, a "SEND" button, and a profile icon. Below the navigation bar, there are tabs for "QUESTIONS" and "RESPONSES" (showing 17 responses). The main content area is divided into two sections.

Section 1 of 5

Calf Marking and Cattle Health Pre-Workshop Activity

This activity will assist the presenters prepare for the workshop on 22 September. Whether you are new to keeping and producing livestock or a seasoned producer, your participation is greatly appreciated (it only takes a few minutes to complete).

Firstly, these few questions will help you identify the livestock diseases and health events that are most important to you OR as new producers, you are most concerned about.

The second part of this pre-workshop activity asks you to think about the different people and groups of people you speak with and seek information from about the health of your stock. If you're new to keeping stock, these might be the people you would engage if you had a problem.

If you would like a print out of your answers given to you at the workshop, please provide your name at the end of the activity, otherwise your responses can be anonymous. For those of you who would like a copy of your entries, we can also provide a summary of the groups entries.

The information collected in this activity is used to provide presenters with the key diseases/health events of interest to address in their presentations and highlights the ways in which we seek information and use local networks. The workshop will provide an avenue to identify additional sources of cattle health information to expand participant's networks. Additionally, your responses will help us to further understand the complex networks associated with livestock production on small farms for improved producer engagement.

If you would like any further information, please contact me on the details below.

Kind regards,
Nic Schembri

Calf Husbandry Workshop Sponsor
Peri urban Program Coordinator
NSW Department of Primary Industries
nic.schembri@dpi.nsw.gov.au | 0417 573 744

Section 2 of 5

Livestock management

To better understand your level of knowledge and experience in preparing for the workshop:

Do you currently manage cattle or other livestock on your property?

☐ Yes

☐ No

After section 2 Continue to next section

Section 3 of 5

Livestock diseases of importance to you

Whether you are new to cattle production OR a long-time owner and producer, think of the cattle diseases or health events that are/may be of greatest concern or importance to you and your family.

Of these, choose your top 3 diseases/health events of main concern or importance to answer the following:

What is your #1 livestock disease/health event concern?

Short answer text

What is your #2 livestock disease/health event concern?

Short answer text

What is your #3 livestock disease/health event concern?

Short answer text

In thinking about any potential disease or health event in your stock, how important are/would the following factors be to you to actively manage that disease or health event?

	Not very important	Not Important	Neutral	Important	Very Important
Impacts income (...)	☐	☐	☐	☐	☐
Affects personal ...	☐	☐	☐	☐	☐
Loss of home co...	☐	☐	☐	☐	☐
Disease spread (i...	☐	☐	☐	☐	☐
Animal Welfare	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐

Section 4 of 5

Small Farms Communication Networks

Given the importance of the above diseases to you and your family, you probably want to treat or prevent them. This section asks you think about where you get or would get livestock health and production information from, for example:

- * Who you communicate with regarding livestock health and management and for what purpose

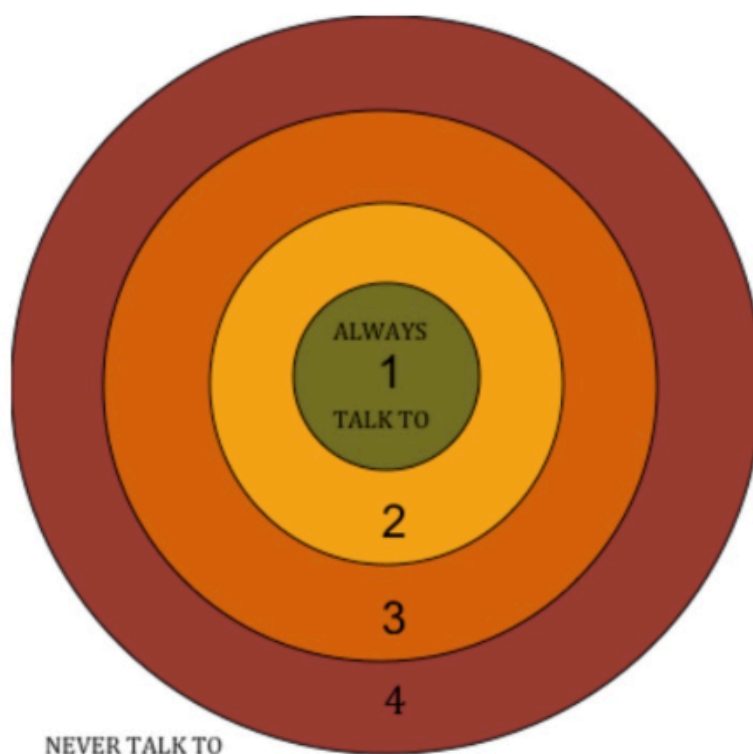
- * Other groups that may be sources of information for stock health and production

Our network circle is similar to a target, with those closest to us on the inner circle and those with least influence on the outer circle.

Please complete the following target activity. This activity may help you identify alternative information pathways to access livestock health and disease information and support while helping us identify the best avenues to provide you with the latest industry advice and support.

If you are new to the industry, please identify those who you know of, trust and would contact for livestock health and production information.

Communication Network Diagram



1. These are the people or groups that are or would be your **MOST** trusted and regularly contacted sources of stock disease/health information:

Short answer text

2. These are the people or groups that are or would be **SOMETIMES** trusted and contacted sources of stock disease/health information:

Short answer text

3. These are the people or groups that are or would be **OCCASIONALLY** contacted for stock disease/health information:

Short answer text

4. These are the people or groups that may have stock health/disease knowledge but are or would **NEVER** be contacted for stock disease/health information:

Short answer text

After section 4 [Continue to next section](#)



Section 5 of 5



Thank you

Thank you for completing this pre-workshop activity. Your entries will help the workshop presenters in planning a workshop more suited to your needs and highlight additional opportunities for expanding your livestock networks.

Please indicate whether you would like a print out of your entries to assist with your decision making AND/OR would like a summary of all entries for a regional perspective.

Yes please

No thank you

I would like a print out of my entries

☐☐

I would like a summary the region's ent...

☐☐

If you answered yes to the above, please provide your name or email address so your print out can be given to you at the workshop.

Short answer text



Appendix B

Macarthur Region Workshop Adverts

Fig B1. Raising Sheep and Cattle

Raising sheep and cattle

in Greater Sydney

FREE WORKSHOP

Farmers and livestock producers in the Macarthur region are invited to hear about raising happier, healthier and more profitable sheep and cattle

When: Friday, 18 May 2018 | 4 - 7pm

Where: Belgenny Farm
100 Elizabeth Macarthur Ave,
Camden South

Bookings essential
Register online at
www.lls.nsw.gov.au/greatersydney or call (02) 4724 2100.

Hands-on sheep handling and livestock health

- > A practical sheep handling session
- > Performing a sheep and cattle health check.

Presented by District Vet Dr Nigel Gillan

What disease is that?

- > Identifying common livestock diseases affecting productivity and meat quality.

Presented by District Vet Dr Lisa Goodchild

The Meat Market

- > A demonstration of the best meat cuts and cooking tips from an Internationally award winning butcher.

Presented by Paul Brady, Tender Gourmet Butchery









Supported by the



This initiative is part of the Australian Government's Agricultural Competitiveness White Paper, the government's plan for stronger farmers and a stronger economy.

Fig B2. Sheep and Cattle Production \$

Sheep and cattle production update

Camden

FREE WORKSHOP

Farmers and livestock producers in the Macarthur region are invited to hear about current seasonal conditions and issues to maximise local sheep and cattle production.

Topics will include

- > Assessing livestock condition with a practical sheep handling demonstration
- > Sheep and cattle health
- > Weeds affecting livestock
- > Impacts on meat quality.



When: 30 November 2018

4-7pm

Tea, coffee and BBQ dinner provided

Where: Belgenny Farm

100 Elizabeth Macarthur Ave
Camden South

Bookings essential

Register online at

www.lls.nsw.gov.au/greatersydney or
call (02) 4724 2100.



This initiative is part of the Australian Government's Agricultural Competitiveness White Paper, the government's plan for stronger farmers and a stronger economy.

Appendix C

Small Farms Network Capital Region Workshop Adverts

Fig C1. Biosecurity Workshop, May 2018

Animal Biosecurity Workshop

Date: 5 May 2018 10.00am-3.30pm

Location: "Wallaby Hills" 205 Tara Lane, Murrumbateman, NSW 2582

Hosts: Penny and Peter Dagg

Speakers:

Kate Sawford - District Veterinarian South East Local Land Services

Natasha Lees - SCIBUS

Penny and Peter - Eastern Animal Health Professionals



TOPICS

The aim of this workshop is to create awareness and educate small farmers in the Canberra Capital Region about biosecurity issues affecting livestock. Seasonal animal health issues will also be discussed.

Key questions/topics that our group would like addressed:

- A small farms focus - practical biosecurity measures that can be implemented easily by small farmers.
- How to prioritise biosecurity measures for small farms - what is essential to know about biosecurity when managing livestock.
- Small farms mixed species issues/ what is normal what is not/where to report problems. What happens next? What should you not do?
- Endemic diseases of concern sheep cattle - what to look for/questions to ask when buying stock. Exotic diseases.
- Seasonal animal health issues - what to look out for in sheep/cattle coming in to winter?
- A simple biosecurity plan for small farmers, small amount on vender declarations/selling (only what is needed for small farmers selling to sale yards others). Where to register/forms etc.

Sheep and Cattle health and biosecurity

- Seasonal issues – Kate Sawford
- Practical - health assessment Penny and Peter Dagg Tash Lees – Cattle, Kate Sawford – Sheep
- What disease is that? Photo gallery of common disease presentations – Tash Lees
- Biosecurity regulations and requirements - Kate



Local Land
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South East

EASTERN

Dorpers and White Dorpers



Program

8.45am Alex arrives/set up - signs/catering etc.

9.15am Vets arrive set up any AV equipment (if required).

9.45 am Sign In and welcome (participants arrive)

10.00 am Introduction and housekeeping - Acknowledgement Country - Alex

“What do you want to learn today?” Topics from registration forms - Alex

Introduce our hosts -Penny and Peter - a few words from you

Introduce Kate and Tash

10.30 - 11.30 am Kate Sawford - Power point presentation

Theory session - BIOSECURITY and Animal Health ON SMALL FARMS - what you need to know. Hand out for most important topics - **Handouts Farm Biosecurity for Livestock Producers (26 copies).**

Biosecurity Regulations 10-15 Minutes - PICS, buying selling stock, health declarations, buying stock from another farmer (what to ask about disease status), quarantining and drenching on arrival.

11.30 Morning Tea

11.45 Practical Health Assessment - sheep (ALL) in sheep yards.

Tash to discuss what to look out for in cattle. (Handouts/where to find information). Peter and Penny Dagg and Kate to discuss sheep. Demo on drenching, practical care of sheep.

12.45- 1.15pm LUNCH

1.15 -2.15 pm Paddock/farm walk - lead by Peter and Penny - Putting it into practice and season update by Kate Sawford.

Looking after sheep health coming in to winter/feeding?

How we manage biosecurity on our farm - Peter and Penny - handout from Penny and Peter.

Where to get help with a simple plan for small farmers.

2.30 pm - Disease Recognition Session - Slide Show Kate sheep and Tash Cattle

What disease is that? Endemic diseases and exotic diseases. Zoonotic diseases to look out for. Getting help - who to contact if you have unexplained livestock deaths.

Final questions - all



Local Land
Services
South East

EASTERN

Dorpers and White Dorpers



Fig C2. Calf Marking and Cattle Health Workshop, September 2018 \$

Calf Marking and Cattle Health Workshop Proposal



Date: 22 September 2018 10.00am - 3.00pm

Speakers: Lou Baskind SELLS District Veterinarian, Helen Smith SELLS Agricultural Advisor and Brad Fleming Manager Wongabel
Nicole Schembri A/Senior Peri Urban Program Coordinator NSW DPI

Venue: "Wongabel" - 332 Quists Road, Majors Creek.

Purpose: Provide information and advice to small farmers about the procedures that occur at calf marking time: including castration, vaccinations, ear tagging, and nutrition for weaners and cows. Notifiable diseases of cattle and a discussion about emergency preparedness for disease outbreaks etc. will be included.

Cost: \$ 15.00 per person maximum 25 participants

Workshop schedule

Prior to the workshop participants have registered and given Alex details on type of enterprise, stock classes, hectares, number of animals. This information is given to presenters for planning the day.

Program

Time	Presenter/Who	Activity
9.00	Alex	Arrive at venue set up signs (parking and workshop signs. Organise catering and urn etc.
9.15	Helen and Lou	Arrive set up AV Equipment (if needed), handouts etc.
9.45	Participant sign in and registration	Everyone gets a cupper, ready to sit down and get started. Morning Tea
10.00	Alex	Welcome to country, introduction to SFN and introduce speakers. Helen, Lou and Brad

Time	Presenter/Who	Activity
10.15	Brad Fleming	About you what you do.
	Lou Baskind	When to mark age requirements, site selection (infection risk), how you do it and equipment.
	Brad	Procedures/ equipment required – Yard requirements – Ear tagging/ ear marking – Vaccination and routine procedures at marking time
		Post Marking Mothering Up, general observations what to look for & what to do when there are problems
		General pain relief for cattle. What to look for how to tell if a cow/calf is unwell.
	Lou/Brad	When to wean at what age, animal health treatments at weaning.
		Worming and paddock considerations. Worm testing when and how.
11.30	Alex/Nic	Where do you get your animal health info from? A reflection activity. Discussion with farmers?
		Think about what diseases are of concern.
12.00	ALL	LUNCH
12.30	Lou Baskind	Cattle health and diseases
		Notifiable diseases/what happens if you suspect you have a problem. Who you gonna call? What really happens do we need to be scared?
		Specific diseases of cattle in this region that are a particular problem for producers, Cattle diseases associated with the dry conditions/supplementary feeding.
1.00	Brad/Lou	Yard session, demonstration of marking, vaccination sites, ear tagging. Participants have a go under supervision.
		Disease watch symptoms and what to look for when considering cattle health/nutrition.
		Fat scoring if people want to
2.00	Helen	Post weaning nutrition for weaners and cows.
	Alex All	Seasonal Conditions - what the outlook is that going to impact planning and supplementary feeding
		Have you discovered a new tool for managing disease
		Feedback forms final questions

Appendix D

Workshop follow-up telephone survey questionnaire

Follow-up Phone Calls from Camden Workshop

Hello Natasha Lees calling from the livestock workshop that was held in May at Belgenny farm in Camden.

I just wanted to follow up and see how you were going. Is now a good time?

I hope you found the workshop useful:

- Have you been able to use any of the knowledge you gained from the workshop? If so what?
- Did you make any new livestock owner connections as a result of the workshop?
- Would you be interested in attending another workshop?
- What topics would you like to know more about?
- Given your experience at the last workshop with the farmer, the district vets, vet consultant, butcher other vets or professionals or anyone else - what type of people provide the most useful information about raising healthy livestock for you?
- Outside of the workshop, do you regularly connect with other livestock owners in your area? If so, how?
- What do people in your area generally do when their livestock are sick?
- Do you think it would be valuable to know what livestock diseases are in your area (if any)?
- How would you like to receive that kind of information?
- Would you be interested in a Biosecurity session?
- Would you be interested in being involved in a small farms network group?
- (*Depending on previous answers and interest of the participant ask:*) Would you be \$ interested in coordinating a small farms network? \$
- Do you have any questions or things you'd like clarified?

Thank you for your time. I hope to see you at our next workshop later this year.

Appendix E

Small Farms Network Questionnaire

Small Farms Network (Network Name)

Network location:

Reason for network being initiated:

Still operational Y/N:

Start-up – Who, What, When, How:

Funding – Where did \$ come from, Grant name if possible, duration of \$, conditions of funding (if any), costs to run network (overheads, entry fees etc):

Membership framework and local investment (if any):

Communications and engagement strategies / activities, what do you do (or have done), what are most successful, why?

Marketing the network – how was this done:

Activities being undertaken including pros/cons eg workshops, onsite visits, specialist speakers, daytime vs evening etc:

Generally – what works well, what would you change/do different, what factors contributed to your network closing, if you had your time again, what would you do differently?

Some additional questions that indicate the impact of networks

What impact, do you think, has being part of a network had on local producers? Why?

Do you feel there has been a general improvement in producer attitudes and practices re on-farm biosecurity because of their involvement in the network? What makes you think that way?

Is there a “type” of person that comes to network functions?

Have people interested in starting out or absentee landholders participated in organised network functions?

For networks that have shut down, what feedback did they get from the local producers when this happened?

Have any of these groups undertaken specific projects? If so, with what results?

What helps/hinders the sustainability (or continuity) of the group?)

In what ways did the group mature over time (e.g. did it take on new tasks or more complex ones) etc)?)

In what other ways did the group change over time (if possible, provide a timeline)?)

Appendix F

Small Farms Case Study Questionnaire

Livestock Surveillance Champion Case Studies

4 case studies from GS LLS Regions highlighting innovative small holders and livestock health networks

Case study surveillance questions will focus on

1. \$Farm / producer information
2. \$Producer Networks
3. \$Animal health practices and monitoring

Farm and producer information (will vary depending on producer, enterprise and situation):

- How long have they been a producer?
- Why they became a producer?
- Size of property?
- What are they producing?
- What's unique or innovative about producer or production system?
- Do they trade as part of a group or coop?
- Other interesting information

Producer networks

- Are they part of any formal groups or associations? (eg APL, small farms coop, farmers markets etc)
- How did they find out about the associations / networks?
- How have these associations / networks benefited them?
- Do they actively seek information to improve their production and/or animal health?
- Where do they go to for their animal health/production information? (eg vet, internet, produce store, other producers, LLS/DPI, undertaken courses etc)

Animal Health practices and surveillance

- How do they manage their animal health? (daily checks, maintain records, vaccination routine etc)
- How do you keep unwanted pests and disease off your property and away from livestock? (eg biosecurity gate sign, fencing, vertebrate pest management, routine health checks, quarantine new stock etc)
- Do they actively seek feedback on production for improvement? Who from?
- Have they ever reported a health event to a vet, LLS/DPI, Disease Watch Hotline? \$ (depending on response): \$
- If no, what would make you want to report? OR
- If no, are there any reasons why you wouldn't report?
- If yes, why do you think people may not want to report?