

Hands off my lifestyle? Knowledge, attitudes and practices related to biosecurity and animal health surveillance in New Zealand's smallholder sector

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Abstract

Lifestyle farming is growing in popularity in New Zealand. The owners of these relatively small farming properties often have limited training or experience of farming, and may show risky biosecurity behaviours. Knowledge is limited of such behaviours, the size of the livestock populations kept by 'lifestylers', and their level of awareness of the Ministry for Primary Industry's (MPI) surveillance and readiness activities. A knowledge, attitudes and practices (KAP) survey was performed to increase the level of understanding, specifically to engage more actively with 'lifestylers' for the development of appropriate surveillance activities and biosecurity awareness materials.

Keywords: *Knowledge, attitudes and practices (KAP), lifestyle sector, smallholder production, biosecurity, passive surveillance*

Introduction

Lifestyle farming is a New Zealand phenomenon which is associated with a "back to the land" ethos; it has greatly increased in popularity over the previous two decades or so. The Collins English Dictionary (1) defines a lifestyle farm as "a semi-rural property comprising a house and land for small-scale farming". While the definition is quite loose, it is effectively a smallholding that is run as a hobby or to derive secondary income (as opposed to commercial farming enterprises, the purpose of which is to derive a primary source of income). Lifestyle blocks have been defined as occupying a land area of 0.4 to 30 hectares (2) and are predominantly situated in what is categorised by Statistics NZ as "rural areas with high urban influence" (3). These blocks are frequently created by subdividing larger agricultural holdings (4). Stocking densities are typically lower and minority breeds or species (such as alpacas) are more frequently kept.

From an animal health surveillance perspective, knowledge of livestock husbandry and management practices in the lifestyle sector is relevant for several reasons. Firstly, MPI's FarmsOnLine (FOL) database, which contains contact information and geospatial data on all New Zealand farms, lists 142,393 lifestyle properties out of a total of 255,634 farm properties (56%). However, FOL does not hold accurate data on livestock numbers at the holding level, so the size of the livestock population in the lifestyle sector is effectively

unknown. Secondly, animal movements and contact patterns are not well described. Thirdly, there is little information about biosecurity behaviours, which may be risky and contribute to disease spread (5). In the event of an epidemic outbreak of infectious livestock disease, the importance of this sector for transmission and as a reservoir of infection is currently poorly understood.

New Zealand's animal health surveillance system relies substantially on passive reporting of suspect exotic or unwanted organisms. There is a requirement under the Biosecurity Act (1993) for all New Zealanders to notify any suspect exotic disease or unwanted organisms to MPI. While awareness of this is high in the agricultural sector, it is lower among the general public (including those owning lifestyle properties). MPI also performs substantial work to strengthen readiness in the event of introduction of high-impact livestock diseases such as Foot-and-Mouth Disease (FMD).

The objectives of this work were to obtain an understanding of knowledge, attitudes and practices with regards to biosecurity in the lifestyle sector; to utilise this to inform and design specific animal health surveillance activities; and to develop targeted materials and communications to raise awareness and engagement.

Materials and methods

A knowledge, attitudes and practices (KAP) survey was performed. Such surveys have been implemented in public health as a tool to identify the extent of a known situation by a specific stakeholder group (6,7). It can also be applied to establish a baseline for use in future assessments, and develop intervention strategies that incorporate specific local circumstances and cultural factors influencing these.

An online questionnaire was developed in SurveyMonkey. The questionnaire asked for information on livestock demographics and location of the lifestyle farm; animal movements on and off the property; contacts of owned animals with other livestock; and respondents' biosecurity practices and understanding. The questionnaire was brief, taking roughly ten minutes to complete.

Contacts were established with two key stakeholders. The first was the coordinator of the website lifestyleblock.co.nz,

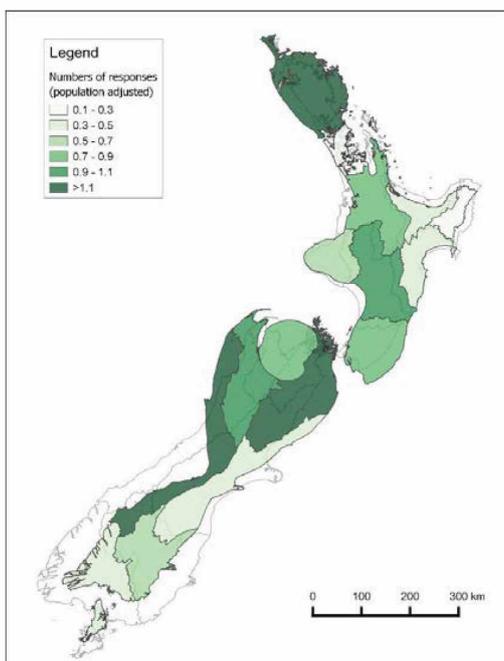
which represents an active community of lifestyle block owners with an email database of approximately 19,000 people. The second was the editorial group of New Zealand Lifestyle Block magazine, a periodical with an estimated readership of 75,000. The questionnaire was piloted by 19 people identified through the former contact; several questions were modified or the wording adjusted. The survey link was subsequently advertised by both media; as an incentive, respondents were entered in a draw for two subscriptions to the (paid) lifestyleblock.co.nz toolbox and three subscriptions to Lifestyle Block magazine. The online surveys were opened on 20 September 2016 and closed on 21 October 2016.

Where possible, the precise locations of the lifestyle holdings were determined using the FOL database. Locations were aggregated to the regional level where this information was absent. Analysis of the survey data was descriptive, and was performed in Excel, R and Qgis.

Results

A total of 258 responses were received (103 via the lifestyleblock.co.nz website and 155 via NZ Lifestyle Block readers). The northern and southern parts of the North Island, and the northern and western South Island were somewhat overrepresented (Figure 1). 96 respondents (37%) were unwilling or unable to provide the unique FOL property identifier. Of the 162 responses for which a FOL number was present, 142 (88%) were classified as Lifestyle enterprise type.

Figure 1. Cartogram showing the numbers of individual survey responses for 15 regions, adjusted for the human population * 10,000.



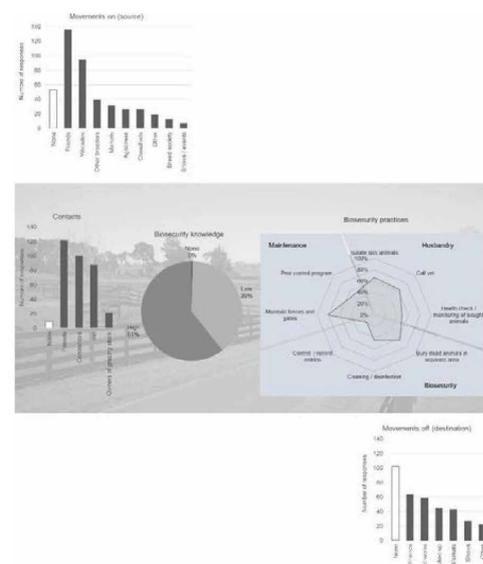
The most popular livestock species were poultry (n=172), sheep (n=146) and beef cattle (n=91).

205 of the respondents (80%) brought new animals onto their properties. The three most common sources were friends or direct contacts (35%), buying and selling / auction websites (24%) and other breeders (10%) (Figure 2). Interestingly, a lower proportion of respondents recorded moving animals off their properties (n=156; 60%). Of these, friends (25%), meat works (23%), online sales (17%) and markets (17%) were the most common.

Almost all respondents reported regular hands-on contact from people outside of their household with their animals, especially friends and visitors but also vets and contractors. In terms of understanding of the meaning of the term 'biosecurity', 39% of respondents felt they had some but limited understanding, whereas 61% felt they had a good to high level of understanding.

Regarding husbandry measures related to biosecurity, 171 respondents (66%) isolated sick animals; 163 (63%) called the vet if they had sick animals; and 126 (49%) said they performed a health check before buying animals, and monitored them subsequently. Biosecurity practices of burying dead animals in a separate area away from healthy animals was performed by 164 respondents (64%); 116 (45%) performed some degree of cleaning and disinfection; and 47 (18%) controlled entry to their properties and/or maintained records of entries. General measures included maintenance of fences and gates (n=209; 81%) and implementation of a pest control programme (n=130; 50%)

Figure 2. Biosecurity practices on lifestyle properties, showing sources of animals brought on (top); contacts, biosecurity knowledge and practices (central panel); and destinations of animals taken off (bottom)



In relation to attitudes to biosecurity, for those who practiced less than three of the listed biosecurity measures, over 50% reported the reason as being 'I understand they have value on commercial farms, but believe they don't have much value on my block / farm'. 25% who didn't practice more biosecurity measures did not know about them.

We also provided a list of biosecurity measures and asked respondents to indicate which of these were not currently practiced, but which seemed sensible. The measures which had low uptake and also had a low 'sense' rating were: 'Have a cleaning station at the entry to my block (hose or pressure washer)'; 'Make sure vehicles are clean before entry'; and 'Have a record of who comes onto my block and when'.

Discussion

Previous work performed to describe the lifestyle sector in New Zealand is limited or was performed considerable time ago. Sanson *et al.* (2) performed an extensive descriptive survey which represents the only effective baseline; however, this provided little data on biosecurity and did not address behaviours such as animal movements, contacts and risky management practices. It is also likely that conditions have changed substantially since publication of this report. Andrew and Dymond (4) discuss the effects of subdivision and fragmentation of productive agricultural land for lifestyle purposes in peri-urban areas, including the associated social impacts on previously predominantly agricultural communities; it does not discuss biosecurity. A recent and very thorough report from Australia (5) presents a more useful framework, but cannot be directly applied to New Zealand.

The information collected by our survey was somewhat constrained by the requirement to keep the questionnaire as brief as possible. The number of responses we received was in the order of our expectations, especially given that we did not mail out any questionnaires, and respondents needed to make the effort to open the online survey link. As the respondents were self-selected, it is likely that there was a degree of selection bias.

The lack of ability or willingness of over one third of respondents to provide their FOL identifier is concerning. One of the primary purposes of this comprehensive contacts database is for use in biosecurity responses. On the other hand, a high proportion of responses was correctly classified as lifestyle properties.

The survey results confirm that, as a whole, lifestyle farms are open enterprises with multiple and varied contacts. Animals from different sources move onto the properties; informal networks of buying and selling or exchanging animals (e.g. from friends or neighbours) appear to be common. Online auction sites as well as breeders of breed clubs are frequently

used. These findings will enable us to develop materials outlining how introducing animals can be pragmatically performed while maintaining a level of biosecurity. They also indicate the need to highlight the requirements around animal identification and registration as well as animal movement recording.

The level of biosecurity knowledge was self-assessed as being quite high. This was not tested – it would have been interesting to do so. Despite this, over 50% of those who practiced less than three of the listed biosecurity measures reported the reason as being 'I understand they have value on commercial farms, but believe they don't have much value on my block / farm'. Clearly, there is a need to ensure the importance of biosecurity is more effectively communicated. The open comments were quite interesting, with a number of respondents commenting that they would value good and practical biosecurity information.

From the perspective of MPI (the regulatory authority for animal health), engagement with a stakeholder group such as the lifestyle sector is challenging. There is no cohesive organisation representing their interests; in addition, there tends to be a level of distrust regarding the motives of the central Government authority. However, such engagement is of increasing importance. The survey performed here has shown that there is a need for targeted and appropriate biosecurity information, and has enabled us to target specific areas and husbandry activities. It has also facilitated the initiation of constructive relationships with the sector, which will hopefully be conducive to development and dissemination of information and awareness-raising materials.

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