Biosecurity Attitudinal Research Report

Key Findings

July 2022

WHERE TO

NSW GOVERNMENT

Published by the Department of Regional NSW

Title: Biosecurity Attitudinal Research Report – Key Findings
First published: July 2022

More information

Biosecurity and Food Safety
Strategic Programs & Partnerships
NSW Department of Primary Industries
Locked Box 21
ORANGE NSW 2800

Key Findings

Background, objectives, and methodology

The New South Wales Department of Primary Industries (NSW DPI) purpose is to maximise outcomes for NSW primary industries, the communities they support and the resources they rely on, both today and for the future. Given the implications biosecurity has for the health of humans and animals, as well as productivity, NSW DPI has an important responsibility in protecting and enhancing the biosecurity of NSW.

The Biosecurity and Food Safety branch of NSW DPI fulfils a strategic and operational leadership role within the NSW Government, to protect primary industries, the environment, and the community from the increasing threat of pests, weeds, diseases and contaminants; to ensure markets and consumers are confident that industries and business meet high standards of food safety and animal welfare; and that the impact of adverse events is minimised and rapid recovery, with increasing resilience over time, is supported.

These goals supported by strong traceability and market assurance programs will ensure NSW has access to markets and a reputation for premium value products.

The overarching purpose of the 2021 NSW Biosecurity Attitudinal Research was to assess the following among the NSW population:

- understanding of biosecurity,
- current behaviours and practices,
- perceived barriers to managing biosecurity,
- values that inspire and motivate action,
- awareness of information resources and gaps, and
- their desired tools and trusted sources for advice.

Further, given elements of this study were benchmarked in 2017, the findings provide important insight and understanding of progress that has been made since 2017, key challenges and emerging issues for the future.

The study consisted of a large scale statistically valid survey of NSW residents (n=1,163) and primary producers (n=550), as well as three location based qualitative case studies with metropolitan, regional and peri-urban residents, primary producers and other stakeholders, a case study with Aboriginal and Torres Strait Islander residents, primary producers and other stakeholders and a case study with aquatic producers.

Key Findings: General Population

Key findings - general population

Understanding and importance of biosecurity

There have been a range of positive developments in the NSW public's awareness and understanding of the importance of biosecurity since 2017. In particular:

- Importance of biosecurity measures overall have increased significantly.
- Importance of biosecurity for protecting native flora and fauna has increased (8.4 up from 8.0 in 2017), as has importance for public health (8.5 up from 7.2 in 2017).
- Understanding that biosecurity encompasses a broad range of dimensions has also increased, including aspects such as prevention and control, biological threats, environmental protection, and state border protection in addition to significantly greater agreement with the broader definition of biosecurity used by NSW DPI.

These results suggest that the public's understanding of biosecurity has evolved somewhat since 2017, with a broader sense of what it covers, and an increased sense of importance.

While the research findings demonstrate that the broader population has a good general sense of what biosecurity is, what it means for Australia, and the breadth of its scope in relation to environment, industry and society, there is some level of confusion that arises primarily from the sheer breadth of its scope and the range of topics and issues it touches upon.

Although regarded as important, when presented alongside a broader list of issues, biosecurity is less likely to be rated as highly important compared to issues such as health, housing, employment, and environment. This lower rating for biosecurity is likely a reflection of other issues being more prominent (in terms of media coverage or directly impacted by the pandemic), more pressing or seen to have higher direct personal relevance. Nevertheless, the significant increase in the mean importance rating of biosecurity in 2021 (8.3 up from 7.9 in 2017) is encouraging.

When considering the potential impacts of biosecurity issues, consumers are much more likely to rank the environmental impact as the most important impact of biosecurity rather than its economic or social impact. NSW DPI's broad and all-encompassing definition 'Protecting the economy, environment, and community from the negative impacts of pests, diseases, weeds, and contaminants' is regarded as the strongest and most useful definition of biosecurity, and together with the increase in perceived importance of biosecurity overall, suggests there is interest and appetite for a simple and compelling biosecurity narrative for the future.

> *"But I think when it comes to biosecurity, well that just is part of the environmental issue that we're facing in this country and we have a very precious country here that is quite removed from everywhere else…So we have very few terrible pests, etc here, and disease and weeds, etc. There's a real opportunity now with I think people's heightened concern about the environment and particularly after being in lockdown and people spending more time at home. With biosecurity it's a good time to bring that to the forefront to show people you know, how special we've got it here and what the risks are, whether they're fire ants or cane toads that have been deliberately introduced…and that it's up to everyone at the local level."*
>
> ***Source:*** *General population respondent*

Responsibility and personal behaviours

Consumers see the responsibility for biosecurity as shared between government, industry, and primary producers, with government taking the lead role. Since 2017, biosecurity is seen even more to be the responsibility of the NSW Government (8.4 up from 8.1 in 2017), the Commonwealth Government (8.3 from 7.9 in 2017), local councils (8.1 from 7.8 in 2017) and Local Land Services (8.1 from 7.8 in 2017).

While personal responsibility remains unchanged (7.7 in 2021 and 7.5 in 2022), what is clear is that ratings of importance and personal responsibility are highly correlated. That is, the more people know about biosecurity, and the more confident they feel in being able to help, the more personal responsibility they are able and willing to take. This suggests that a continued focus of communication on the behaviours and actions individuals can take to protect biosecurity is likely to eventually result in an increase in both personal responsibilities, and therefore, shared responsibility.

It is also critical that education for the general public continues, given currently less than a third feel confident in identifying, preventing, and responding or managing biosecurity threats, noting of course that these can be very broadly defined. However, the vast majority are keeping weeds in their garden under control, are vigilant about quarantine requirements at airports and ensure fruit is not left unpicked on trees. Further, since 2017:

- Self-rated ability to prevent, manage, or respond to any potential biosecurity issues has increased significantly (6.1 up from 5.5 in 2017).
- More people at least occasionally wash their clothes after bushwalking (84% up from 77%) visiting a farm (88% up from 77% in 2017), or thoroughly check, clean, and dry their boats before moving them to another waterway.

These findings demonstrate that the NSW public has a growing understanding of optimal actions and behaviours to protect biosecurity.

However, **the next step is to migrate behaviours from occasional to habitual.**

For example, the findings demonstrate that strict compliance (consumers citing that they ‘always’ undertake the behaviour) is much less common. For example, a third (31 - 33%) ‘always’ wash their clothes after bushwalking or a visit to a farm, only 44% ‘never’ use food sold for human consumption as bait, and only 39% ‘always’ keep their garden weeds under control. It is a common challenge in behaviour change to move consumers to habitual behaviours, and this is a key opportunity for the future.

While the term non-compliance may suggest deliberate action in many if not most occasions likely to be the result of low awareness or understanding of risk. Encouragingly more than half of NSW consumers would like to know more about biosecurity – particularly as it pertains to their lifestyle – and would most like to hear from their local councils, from NSW DPI, and from plant nurseries and retailers.

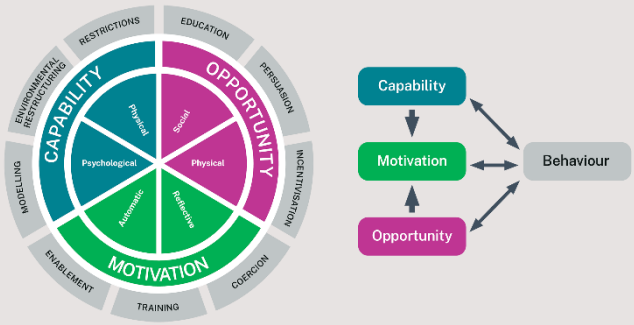
Consumers would prefer this information come to them through the normal day-to-day course of their lives rather than them having to search for it, highlighting the importance of a multi-pronged, partnership-led approach to public communications in this vital area of national biosecurity.

Opportunities for the Future

There are a range of conceptual frameworks that can be used when considering behaviour change. At Where*to* we use the Michie COM-B model because it is used extensively in behaviour change interventions in scientific literature, recognising that behaviour is part of an interacting system involving the three key components (Capability, Opportunity, Motivation). This model is effective because it identifies what component of behaviour needs to be changed in order for an intervention to be successful.

When considering the opportunities for the future we use the synthesised Michie COM-B framework to provide an overview of the range of different mechanisms available to change behaviours. These range from education and persuasion through to incentives, coercion, training, enablement, modelling and environmental restructuring. All of these are applicable to different biosecurity behaviours. Applying such a lens to the general public yields a number of potential avenues for exploration, dependent on the identified behaviour where change should be encouraged.

See below for the Michie COM-B framework:



For example, if the goal was to increase the proportion of people who 'always' wash their boots after a bushwalk or a visit to a farm, one may consider:

- An education approach utilising campaigns or promotions to increase awareness of the importance of washing footwear, and damage done by non-compliance. An education approach would also extend to signage at entry and exit points to state and national parks, in car parks and back of toilet doors to focus on importance of washing shoes.
- An enablement approach that helps consumers track the progress of where their footsteps take them. This could take the form of a partnership with a major workwear/hiking boot manufacturer, many of whom are keen to increase their Environmental and Social Responsibility (ESR) credentials, who provide several trackers so consumers can map the different types of ecosystems they traverse each time they wear them.
- Role-modelling – where known and respected opinion leaders, nature enthusiasts and clubs, and tourism operators raise awareness and education about the need to wash footwear, every time.
- The above encouragements are likely to be more efficient and effective, rather than say, making non-compliance a crime (Coercion approach).

While this is an example of a range of 'nudges' aimed at a specific behaviour, this study also found that consumers who rate biosecurity importance more highly are also better informed, and more willing and able to take action. This suggests that there is a need at an overarching level to increase the importance of biosecurity in the public's mind, through ongoing high-level messaging in the public realm that can direct people to places where they can find out more information about what they can do to protect NSW, and through it Australia and its interests.

Key Findings: Primary Producers

Key findings - primary producers

Understanding and importance of biosecurity

Biosecurity is well understood by primary producers who have a much stronger (self-rated) understanding of all it entails compared to the general public, demonstrated both in 2017 and 2021. When asked to define biosecurity the large majority prefer the definition '*Preventing the introduction of diseases, pests and weeds through plants, livestock, and waterways*' (83%). This was similar to '*Controlling or managing the introduction of diseases, pests and weeds through plants, livestock, and waterways'* (82%).

The definition of biosecurity currently being used by NSW DPI - '*Protecting the economy, environment and community from the negative impacts of pests, diseases, weeds, and contaminants'* – was the third most endorsed, with eight in ten (79%) supporting this as a 'good' definition. That these are the three highest ranked definitions indicates that primary producers predominantly think of biosecurity in terms of the impact upon their own day-to-day business operations, as opposed to broader environmental, economic, and societal implications – and this remains unchanged since 2017.

Pleasingly, eight in ten (82%) primary producers rate biosecurity as highly important to primary producers in NSW with key additional reasons including:

- Ensuring sustainability of business (protection of livelihood), and
- Ensuring animal welfare.

A significant increase was apparent in the importance rating of animal welfare (average rating of 8.9 in 2021 up from 7.8 in 2017), with animal welfare now equal fourth in terms of relative importance (previously ranked eighth).

Based on qualitative discussions with primary producers this result is driven by a combination of the increased prices livestock is now commanding, as a response to the impact that both bushfires and drought has had upon required levels of animal husbandry, and in response to media attention in relation to issues such as live exports and mulesing.

> *"There is a lot of variance in my membership (about what they believe about biosecurity) we have some who think it's a government run and led system and others believe they have a role to play. I think they are starting to understand what bridges the gap as well."*
>
> ***Source:*** *Primary producer industry association respondent*

The vast majority of primary producers felt that both their own business and the industry are more attuned to the issues of biosecurity since 2017:

- 65% strongly agreed that their *industry* has increased its focus on biosecurity in the last five years,
- 60% strongly agreed that their *business* has increased its focus on biosecurity in the past five years, and
- 67% have a biosecurity management plan or industry accreditation plan in place, up from 46% having a biosecurity plan in place in 2017[1].

[1] Note question wording changed from 'Have a biosecurity plan in place' (2017) to 'Have a biosecurity management plan or industry accreditation plan in place' (2021).

Qualitatively, this increased level of interest was associated with an increased focus on biosecurity in both government communications and regulations, as well as in industry newsletters and communications.

> *"So we do a lot of work as part of our biosecurity plan, which is registered with DPI that I'm sure that you can access, to ensure that we don't bring any bugs or parasites or diseases on site. We closely monitor and record all chemical uses. And in in that way, over the last especially 15 years, we have pruned a lot of chemicals out of our system and gone back to some very basic ones which are a lot easier on the fish, because being an intensive fish farm, we supplementary feed and we have aeration in every pond."*
>
> ***Source:*** *Primary producer respondent*

Responsibility and personal behaviours

As with the general public, primary producers also recognise that responsibility for biosecurity is shared. There is a strong sense among primary producers that a range of stakeholders are responsible for biosecurity. The NSW DPI was the entity most producers rated as highly responsible (84%), followed closely by:

- Local Land Services (82%), and
- Primary producers, and a shared responsibility between government and industry (both 80%).

Qualitative consultations found that the key roles government plays in regard to biosecurity relates to both border protection (state and international), and to the governance and oversight of biosecurity, namely the introduction of legislation. Primary producers, however, see themselves as responsible for biosecurity prevention and management at the farm level, and rely on their industry associations to educate them as to both the importance of biosecurity and how to comply with relevant industry standards, and laws.

Between 2017 and 2021 the relative ranking of perceived areas of responsibility and average rating of responsibility remains largely unchanged, with the following key exception:

- A significant increase was apparent in the level of responsibility attributed to 'Local Land Services' (average rating of 8.6 in 2021 up from 7.9 in 2017), with Local Land Services also now with the second highest mean rating of responsibility (previously seventh). This result was likely due to Local Land Services having only been formed in 2014, meaning it was a much more established agency in 2021 than it was in 2017.

Importantly, nearly three quarters (71%) of primary producers rated their ability to manage and respond to biosecurity issues highly – this is a critical measure given their confidence to act on those biosecurity issues that affect their day-to-day operations.

However, significantly fewer primary producers rate their ability to identify (63%) or prevent issues (58%) as high. Based on the qualitative consultations the lower rating primary producers gave for their 'ability to prevent' is driven by the perception that while they can take action to minimise the likelihood of incursions of known weeds, diseases and pests onto their property, the biggest biosecurity threat they face is the introduction to Australia of a previously unknown pest, weed or disease.

More specifically primary producers felt powerless to both prevent new threats from reaching Australia and take preventative action that will minimise the incursion of the new threat onto their property if introduced into NSW.

Conversely the higher rating primary producers gave for their ability to **manage** a biosecurity issue is driven by their perception that they do possess both the knowledge and tools to be able to effectively **respond to** incursions of known pests, weeds, or diseases onto their property.

There was no significant change in producer's ability to identify, prevent or respond to an issue between 2017 and 2021.

Importantly, from 2017 to 2021 there has been a significant increase in the adoption of desired behaviours regarding:

- Having a biosecurity management plan or industry accreditation plan in place (67% up from 46% having a biosecurity plan in place in 2017)[2], and
- Having established animal hygiene protocols in place (92% up from 86% in 2017).

Most primary producers claim to 'usually' or 'always' comply with a wide range of the desired biosecurity behaviours relevant to their operation. Behaviours with the highest level of stated compliance tended to be reactive, and those which producers describe as long established and based on principles of sound land management, animal husbandry and established governance requirements.

For each of the desired best practice behaviours a proportion of primary producers stated that this was something they had only commenced doing within the past five years.

The behaviours with the highest instance of recent uptake tended to be related to specific biosecurity initiatives or governance requirements. However, despite the positive uptake of these behaviours in the last five years, a relatively high level of non-compliance is also apparent. These behaviours tend to centre on internal/on-farm biosecurity governance, such as having biosecurity signage at all entry points to premises (58% do not), having a biosecurity management plan or industry accreditation plan in place (33% do not), having established vehicle and machinery protocols in place (30% do not), and maintaining a cash reserve specifically for the management of emergency biosecurity issues (73% do not). This indicates the need for increased education of primary producers as to the importance of both proactive and reactive behaviours.

Few of the potential barriers to best practice provided in the survey were identified as applying to the majority of producers. The one exception to this is 'concerns around chemical residue', with more than half (54%) of primary producers agreeing that concerns around chemical residue is a reason why they do not follow best practise in relation to biosecurity.

While for some this applies only sometimes (7%) or rarely (13%), for one third of primary producers, concerns about chemical residue are a reason for not following best practice in relation to biosecurity that strongly applies to them. This concern was also raised extensively in qualitative consultations with horticulture producers stating that many available sprays were contradictory to both organic and other industry certification requirements.

Additionally, two further barriers were found to have a statistically higher likelihood of being a barrier to practising biosecurity measures, namely:

[2] Note question wording changed from 'Have a biosecurity plan in place' (2017) to 'Have a biosecurity management plan or industry accreditation plan in place' (2021).

- ‘Concern that if I report an issue, I will not receive fair compensation for any animals or plants that need to be destroyed’ with 39% indicating that to some extent this was a reason why they did not follow best practise in relation to biosecurity. This reflects primary producers’ fear of being financially disadvantaged if they report an issue that leads to them being required to destroy plants or animals for which they are not eligible for compensation. Again, this was also raised as a concern within the qualitative consultations.
- ‘Consider risks to be external or out of my control’ with 40% stating that to some extent this was a reason why they did not follow best practise in relation to biosecurity.

A significant number of changes were made to the list of potential barriers measured in 2017 and 2021 with only five consistent across both years. The extent to which each of these five issues are perceived as barriers has declined significantly from 2017 to 2021, with primary producers now less likely to state that biosecurity behaviours are:

- ‘Too costly to do’ (2.7 down from 4.3 in 2017),
- ‘Irrelevant to my operation’ (2.5 from 4.5 in 2017),
- Something they are ‘too busy, don’t have the time’ for (2.2 from 4.0 in 2017),
- Something they ‘do not see the risk to be worth the effort’ for (2.2 from 3.6 in 2017)’, and
- Something they are less likely to ‘not know what best practice measures are’ (2.1 from 4.0 in 2017).

These results align with the earlier finding that the majority of primary producers have increased their focus on biosecurity over recent years.

Further, this increased focus appears to have resulted in a corresponding decline in negative perceptions as to the relevance, value exchange and credibility or legitimacy of behaviour performance. Additionally, the decline in ‘*do not know what best practise behaviours are’* as a barrier to compliance reflects the earlier finding that primary producer’s ability to manage or respond to biosecurity issues has increased.

Priorities for effective biosecurity management

When asked to rate several priorities for effective biosecurity management, producers tended to agree that all should be a high priority. This is a clear indication of strong support among producers for multiple and concurrent initiatives in this area.

Primary producers were most likely to see *increased biosecurity surveillance at international borders* as a high priority (90% rated as a top priority). This reflects producers seeing national border protection both as a key means by which biosecurity incursions to Australia can be prevented, but also the area (i.e., prevention) where they have the least ability to act.

The second highest priority was to *'increase awareness/understanding about biosecurity among hobby farmers/ backyard operators / recreational fishers'* (85% rated as a top priority) – the risk that these audience groups pose to biosecurity was also raised within qualitative consultations with commercial primary producers located in peri-urban area.

'Increased levels of government resources aimed to support primary industry in managing biosecurity' was the third most highly rated priority (84% rated as a top priority). Qualitative consultations indicate that the areas in which additional support was most needed related to navigation of regulations and 'red tape', as well as grants to subsidise biosecurity implementation costs, and more departmental advisors such as horticulturalists, large animal vets and agronomists.

The only strategy for which a significant downward change occurred between 2017 and 2021 was for 'greater education of primary producers as to what best practice biosecurity behaviours are' (8.2 down from 8.5 in 2017). This reflects both the increase in primary producers' ability to manage / respond to biosecurity issues, as well as the lower proportion of primary producers stating that the reason they did not perform best practice biosecurity behaviours was due to not knowing what best practice biosecurity behaviours were.

Primary producers tended to prefer resources that would allow for easier identification and hence prevention of biosecurity issues rather than those aimed at increasing ability to manage such issues. This includes:

- Biosecurity alerts (80% highly interested)
- Industry certification for biosecurity compliant produce / livestock if it meant you could attract a higher price (68%), and
- Fact sheets about pest and disease types, their symptoms and prevalence (63%).

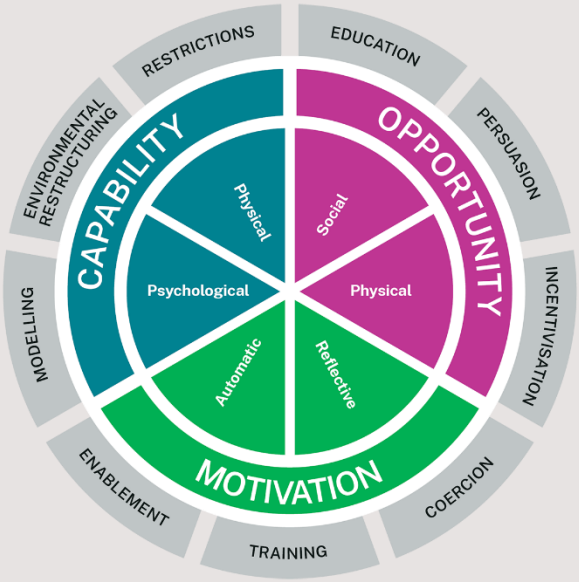
Opportunities for the future

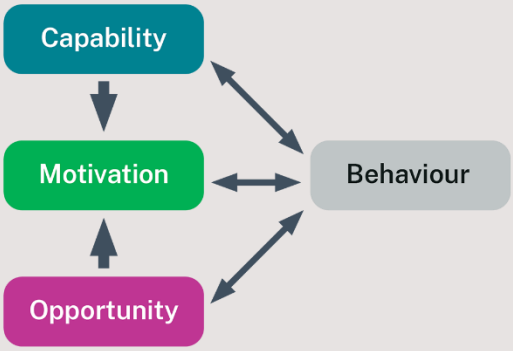
Biosecurity is already an issue of top concern for primary producers, and most are highly engaged in the issues as they relate to their own operations. However, this study identified a range of critical behaviours that currently few producers are engaging in, including:

- Placing biosecurity signage an entry points to their operations (58% don't have this),
- Quarantining new plant matter and livestock (64% plant, 20% livestock don't do this),
- Only purchasing plant matter (and feed) from approved providers (36% plants, 33% feed don't do this),
- Belonging to industry certification schemes (35% don't do this), and
- Having established hygiene protocols for vehicles, machinery (30%) and a lesser extent, humans (21%).

Utilising the Michie COM-B framework again, we would recommend conducting a purpose-built workshop on the desired behaviour and identify the most compelling interventions or actions that may result in the desired behaviours.

See below for the Michie COM-B framework:





The results provide some insightful findings in this regard – for example, the top reasons most primary producers cite for undertaking biosecurity behaviours is 'to ensure sustainability of business' (91%), to maximise quality of goods and prices achieved (90%) and to ensure continued or improved market access (88%).

The high endorsement of the above suggests that utilising these benefits in either education, persuasion or enablement domains will serve to increase perceived legitimacy and credibility, and hence greater contemplation and uptake of desired behaviours). The coercion approach was least compelling (to avoid fines and penalties was seen as being the least impactful driver of practising biosecurity measures).

Finally, given the volume and range of communications that are aimed at time-poor business and farm managers, we would suggest a strategy that focusses on just one or two of these per year. For example, year one could focus on getting biosecurity signage up at farm gates, year two could focus on quarantining biological matter brought onto farm. Communications would need to be considered in the context of other behavioural interventions or strategies being undertaken at the same time.

Biosecurity Attitudinal Research Report

July 2022

Results Overview

Primary producers consider NSW DPI, LLS & primary producers highly responsible for biosecurity

FOR PRIMARY PRODUCERS... More support to manage biosecurity is needed

Percent of primary producers who feel each entity is highly responsible for biosecurity;

DPI	84%
LLS	82%
Primary Producers	80%
Local Council	58%
General Public	39%

The general population considers Government & Industry primarily responsible for biosecurity

FOR CONSUMERS... Education on biosecurity impacts & how/why individuals can act is needed

Percent of consumers who feel each entity is highly responsible for biosecurity;

NSW Government	76%
Federal Government	74%
Government & Industry	73%
Individual	59%
General Public	58%

Gains Since 2017

Primary producers

A large increase in primary producers with a **biosecurity plan** or **industry accreditation** in place

2017 46% → 2021 67%

A significant increase in primary producers **strongly agreeing** they practice biosecurity measures to **protect the environment**

2021 68% → 2021 83%

Consumers

In 2021, almost twice as many people are **highly confident** they could act on biosecurity compared to 2017

x2: 2017 18% → 2021 33%

The proportion of people with a **high understanding** of biosecurity increased by one third from 2017 to 2021

1/3: 2017 21% → 2021 28%

Most Practiced Best Practice

Primary producers

99% Take steps to eradicate known disease, weeds or pests

97% Regularly monitor plants, livestock & waterways for disease, weeds & pests

96% Use all chemicals in accordance with APVMA or manufacturer guidelines

Consumers

87% Overseas travelers usually or always vigilant about quarantine requirements

82% Gardeners usually or always keeping weeds under control

Primary Producers Want

90% Increased biosecurity surveillance at international borders

85% Increased understanding of biosecurity among hobby farmers, backyard operators, recreational fishers

84% More government resources to support primary industry in managing biosecurity

Consumer Behaviours of Concern

62% Chicken owners usually or always feeding food scraps to poultry

60% Pig owners usually or always getting pigs from non-breeders; and usually or always feeding meat to pigs

54% Pig owners usually or always buying pigs online

Least Practiced Best Practice

Primary producers

42% Have biosecurity signage at all entry points to premises

36% Quarantine new plant matter

27% Maintain a cash reserve specifically for management of emergency biosecurity issues

Consumers

41% People usually or always cleaning shoes & clothes between visits to natural environments

23% People usually or always reporting unusual animal or plant sightings

Biosecurity Attitudinal Research Report

WHERE TO

NSW GOVERNMENT