**Level 3: Future Proofing Strategy**

**Biological Strategy Worksheet.**

**Biosecurity**

**Teacher Note:**

This worksheet is a **Future Proofing Strategies** exercise based on **Biosecurity.**

**Discussion questions:** Stimulate discussion and understanding why biosecurity challenges are on going and why biosecurity measure are important part of a risk management strategy to ensure long term viability of a farming business.

**Biosecurity Challenges Ongoing**

**COVID-19 has shown us the significant impacts biosecurity threats can create. Protecting our agricultural production is more important now than ever - but it requires an ongoing community-wide effort to mount an effective biosecurity response.**

As a remote island nation reliant on agriculture and tourism, our way of life depends on a united approach to protecting our plants. animals and people from biosecurity threats. Last year. primary sector exports totalled $46 billion (with dairy export revenue alone at $18 billion), while 3.8 million international visitors arrived and Kiwis made a further three million trips abroad. With such widespread movement of people. animals and goods, biosecurity is not something one party alone can deliver.

We are currently seeing the scale a biosecurity challenge can pose with COVID-19. It is not easy to detect and requires significant coordination across and within countries to respond to - by government. businesses and individuals.

**Monitoring a range of diseases**

*Mycoplasma bovis* poses similar challenges with detection and it has tested New Zealand's biosecurity system all along the chain. It has had a significant impact on our rural communities and has required that both farmers and organisations working with farmers step up their biosecurity awareness and practices.



The economic impact of disease outbreaks can be devastating, with African Swine Fever (ASF) recently wiping out 65% of China's pork herd. An outbreak of a disease-like foot and mouth could potentially do the same here, crippling our livestock sector which contributes $28 billion to our GDP. Biosecurity will continue to be a critical issue for New Zealand. As we adapt to a changing world as a result of COVID-19, we have a unique opportunity to regroup and renew our focus on biosecurity.

This is critical to protect the agricultural backbone of our economy and safeguard our food security. Our geographic isolation from the rest of the world, usually a challenge for exports, provides us with a unique opportunity to tackle biosecurity **risks** that many landlocked countries simply do not have.

Our rural communities have valuable biosecurity knowledge hardwired into our collective memory. We have faced diseases such as Enzootic Bovine Leukosis (EBL) and Bovine tuberculosis (TB), and despite challenges communities have persevered and gained ground as a result of coordinated biosecurity action. EBL, a virus that can lead to cancer in cattle, was successfully eradicated here in 2008. This occurred 11 years after it was first detected, and the eradication followed a successful milk screening programme.

TB has been here for over 100 years. Actively managed since the 1950s, TB had a resurgence in the 1980s and 1990s, and by 1994 almost 1,700 herds were affected.

Turning that around took hard work from farmers, with support from the government, until by 2019 only 26 herds were affected. The TB fight is far from over as we have recently seen, but farmers continue to share their biosecurity knowledge with the next farming generation through regional committees.

**Farmers and the community are part of our biosecurity response**

Finding, containing and controlling biosecurity threats is not easy. They are usually difficult to detect, take a significant amount of time to tackle, and setbacks are common along the way. Over the past 18 months, DairyNZ has been working with farmers, Beef+ Lamb NZ and the wider community through our OnFarm Biosecurity programme to address how we can collectively take responsibility and respond to these threats.

**We have seen farmers becoming increasingly biosecurity conscious,**

**with many treating their farms as an island with strong borders.**

Improved biosecurity measures have been put in place - secure fencing, vaccination against infectious diseases, and visitor procedures to clean boots and equipment. Stock movements are planned and tracked and regional farmer action groups champion biosecurity in the community.

Given the right tools and support most farmers will take the right steps to protect their livelihood. However, as with any community, there are always some who let the rest of the team down. Responsibility for on-farm biosecurity also goes well beyond the farmer, and it will be important that the upcoming Biosecurity Act review recognises this.

To be successful, the whole community needs to be aware of what others are doing and the risks they themselves could pose to on-farm biosecurity. This helps identify those who need additional support and to call out those who are actively flouting the rules. Changing longstanding behaviour is a process rather than an overnight event.

**The role of rural professionals**

Rural professionals also play an important role in advising and supporting farmers through change when they are adversely affected by biosecurity threats. Farmers, government, transporters, vets and rural professionals have worked together over the past year to support ongoing improvements to NAIT. The government recently recognised that having industry and farmers at the table with them has fundamentally improved the *M.bovis* programme and shown the way forward for future biosecurity management.

Thanks to the commitment of many farmers across the country, the farming community has a better understanding of biosecurity threats and how to manage them. But ultimately, we can only protect ourselves if we work together to strengthen the weak links in our defence. It takes perseverance and teamwork to overcome biosecurity threats, and we all have a part to play to protect our precious vegetation, animals and people.

**More information**

For detailed advice on protecting farms, practical tools and guidance visit [www.dairynz.co.nz/biosecurity.](http://www.dairynz.co.nz/biosecurity) Local OSPRI committees can also provide valuable support and tips - see [www.ospri.co.nz.](http://www.ospri.co.nz/)

*Dr* Tim *Mackle is Chief Executive at DairyNZ.*

**Discussion questions**

1. What is biosecurity, and why is it important for New Zealand?
2. Why is biosecurity especially important for New Zealand as a remote island nation?
3. How does the movement of people, animals, and goods increase the risk of biosecurity threats?
4. What are some examples of diseases mentioned in the article that have affected animals?
5. What changes have farmers made on their farms to improve biosecurity?
6. Why is teamwork across the community important in fighting biosecurity threats?
7. How are rural professionals and organisations like DairyNZ supporting farmers?
8. If you were a farmer,
   * What would be your top three biosecurity priorities?
   * Explain how prioritising biosecurity can help future-proof your farming business against risks and challenges.

**Answers**

1. What is biosecurity, and why is it important for New Zealand?

Biosecurity means protecting our country, animals, plants, and people from harmful pests, diseases, and organisms.  
It is important for New Zealand because we rely heavily on agriculture and tourism. An outbreak of disease can damage our economy, harm native species, and affect people's livelihoods.

1. Why is biosecurity especially important for New Zealand as a remote island nation?

As an island nation, New Zealand has natural advantages. We can better control what comes in and out of the country. However, this also means we are more vulnerable to certain pests and diseases because we do not have natural defences once something gets in. Our geographic isolation makes it both a challenge and an opportunity to manage biosecurity well.

1. How does the movement of people, animals, and goods increase the risk of biosecurity threats?

Every time people, animals, or products move between countries (or even regions), there is a risk of accidentally bringing in diseases, pests, or harmful organisms. With millions of international visitors and exports, there are many opportunities for threats to enter New Zealand.

1. What are some examples of diseases mentioned in the article that have affected animals?

* Mycoplasma bovis – A bacterial disease affecting cattle.
* African Swine Fever (ASF) – A deadly disease that wiped out 65% of China’s pork herd.
* Foot and Mouth Disease – A potential threat that could cripple New Zealand’s livestock sector.
* Enzootic Bovine Leukosis (EBL) – Eradicated in New Zealand by 2008.
* Bovine Tuberculosis (TB) – Still present but reduced through long-term management.

1. What changes have farmers made on their farms to improve biosecurity?

* Treating farms like “islands” with strong borders.
* Fencing to prevent animal contact.
* Cleaning equipment and boots for visitors.
* Vaccination of animals.
* Tracking stock movements.
* Working in regional action groups to promote good biosecurity practices.

1. Why is teamwork across the community important in fighting biosecurity threats?

Biosecurity threats are hard to spot and take a long time to deal with. If only some people take it seriously, others can undo their hard work. Everyone, farmers, government, transporters, vets, and communities need to work together to spot threats, share knowledge, and support each other. Teamwork helps identify weak links and provide support where needed.

1. How are rural professionals and organisations like DairyNZ supporting farmers?

* DairyNZ has programmes like OnFarm Biosecurity to raise awareness and help farmers take action.
* Rural professionals like vets, advisors, and transporters help farmers understand and apply biosecurity practices.
* OSPRI committees support regional coordination and education.
* These groups work with farmers and government to make programmes (like the one for Mycoplasma bovis) more effective.

1. If you were a farmer...

* What would be your top three biosecurity priorities?

1. Control who and what comes onto the farm, only allow clean equipment and visitors who follow hygiene rules.
2. Monitor and vaccinate livestock to prevent and detect disease early.
3. Track all animal movements to stop disease from spreading between farms.

* Explain how prioritising biosecurity can help future-proof your farming business against risks and challenges.

By focusing on biosecurity, I can reduce the risk of a major disease outbreak that could affect or kill my animals or affect my ability to sell products. It also builds trust with customers and the government and helps keep New Zealand’s agricultural reputation strong. Long term, it saves money, protects the environment, and keeps the farm running for future generations.