The importance of biosecurity in intensive and extensive industries

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The recent outbreak of listeriosis once again emphasised the importance of food safety. Consumers instantly reacted when the source of listeriosis was discovered at an Enterprise processing plant, among others.

The effect of the shift in consumers' protein purchases was probably felt most by the pork industry, whose prices, according to sources, fell by up to 40% after the announcement. Although this industry was bound to experience lower prices for the foreseeable future, or until consumer trust was regained, the beef and mutton industries can consider themselves lucky as their prices were not affected to the same extent.

Which brings us to the issue of biosecurity and its importance. Although the listeriosis outbreak occurred on the processing side, the consequences of a similar incident at production level will have disastrous consequences for livestock producers.

What is biosecurity?

Biosecurity entails preventing new diseases from entering and spreading on a farm or production unit by applying the right management practices. Aspects relating to biosecurity that should be considered include the acquisition of production inputs, output distribution, stray animals, people, vehicles, equipment and production practices.

Almost everything that is transported to the farm or production unit can be possible carriers of biosecurity risks. Biosecurity risk awareness, accompanied by any of the above-mentioned, is the first step to risk prevention.

The best defence against risks is to implement good biosecurity practices at farm level. Quick and simple measures built into the daily practices will help secure your farm and your future.

Extensive biosecurity

Practical guidelines that can be followed by extensive livestock farmers to improve their biosecurity include checking the health status of new animals before they are bought. Keep new animals separate for 14 days so they can be monitored, as this will allow time for any disease symptoms to be displayed. The quarantine period may be longer, but a minimum of 14 days is prescribed.

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The same principle can be used for example when livestock leave the farm and return after shows. It is crucial to check fences regularly and to ensure that they are in good condition. Keep vulnerable animals away from livestock with an unknown health status.

Even in extensive production systems, the biosecurity of staff, vehicles and equipment must be carefully managed. Limit unnecessary access of people and vehicles to the farm. If possible, reduce the number of access points to the farm or prevent access completely. Mark specific areas on the farm for visitors, such as the milk or feed truck, and inform these drivers where they may park before they enter the farm.

Ensure that feed is bought only from registered producers. Inspect purchased feed after delivery and look for signs of contamination. Stored feed should be kept out of reach of livestock, mice, rats and other wild animals to prevent contamination.

Thorough waste management

Ensure that waste management is applied in such a way that grazing, feed and water are not contaminated. Remove carcasses as soon as practically possible, and in a way that is environmentally friendly. Where possible, fence off dumpsites to prevent access by livestock, wild animals and

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stray animals. Lastly, the quality and amount of water supplied should be suitable for livestock.

In existing herds, it is of cardinal importance to determine the health status. Apply practices that will protect animals against known diseases occurring in the area. Inspect livestock frequently to ensure early detection of sick animals. The cost of a full immunisation programme is minimal compared to the value of the asset, which is something all producers must realise.

Increase the frequency of livestock inspections during periods of higher risk, such as higher insect and game activities. Ensure that all staff working on the farm are immunised against identified diseases that present a risk (e.g. tetanus) and, where needed, that livestock are immunised against zoonotic diseases. Isolate and treat sick or vulnerable animals in case of a disease outbreak. In addition, take your neighbouring farms into account, because diseases such as brucellosis that affect you may also affect them.

Intensive production

Manie and Karin Wessels, owners of Mamre Dormers in the Frankfort area, who run an intensive sheep production unit, have the following to say about the importance of biosecurity and its costs: "We use the Mamre Intensive Lambing System (MILS). To date, there has been no pressure on the sheep industry to apply biosecurity measures.

"As a result of a drastic increase in lamb mortalities due to various reasons, the importance of biosecurity came to the fore. Many diseases are transferable from one farm to another, but they can be prevented by applying biosecurity measures on your farm."

Under intensive conditions *E. coli* and *Cryptosporidium* are common challenges. They believe non-compliance with biosecurity measures can lead to the extinction of an entire lamb yield, which can place immense financial pressure on a farming enterprise.

Basic measures

They believe basic biosecurity measures can no longer be omitted from intensive sheep farming enterprises. The sheep industry is heading towards a system similar to that used for poultry and pig farming.

The first basic measure on their farm is that workers must wear shoes inside and outside. In addition, no visitors are allowed in the lambing pens. The next step will be to implement foot baths for people and vehicles, as well as shower facilities. Furthermore, the fences around the lambing facilities and feedlots will be electrified. Quarantine areas are used to keep suspect sheep as well as newly purchased sheep, until they are declared clean.

The cost of biosecurity measures for intensive sheep production will therefore consist of the costs connected to these measures, among others. Actions that are taken as soon as biosecurity problems arise include the isolation of sick animals and expert advice from veterinarians.

Alwyn Laas, quality coordinator of the Sernick Group, who also owns a major feedlot, has the following view of biosecurity in the cattle industry: "The age-old adage that prevention is always better than cure is especially emphasised by the biosecurity of commercial feedlots. If no preventative measures are taken, it is one of the major risks of fatal losses and loss of profit due to inadequate growth."

Identify potential risks

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His advice for biosecurity control is to identify potential risks. Steps that should be taken to control potential risks in a cattle feedlot include:

- Access control (fencing and security gates).
- The use of well-known and respected suppliers of feed and animals.
- A dedicated monitoring programme.
- Healthy feed formulation for animals, determined by a qualified nutritionist.
- Uncontaminated water for animals.
- The implementation of an immunisation programme and medication from registered suppliers.
- Qualified and competent people managing the feedlot.
- Setting up a management programme and training.
- Compliance with legislative requirements.
- Implementation of an animal welfare programme.
- Overview and advice from qualified veterinarians.
- Determining the cause of mortalities.
- Only purchasing animals from areas with no danger of diseases.

Danger in feedlots

The danger of a lack of biosecurity in a feedlot can result in:

- Direct mortalities in animals.
- Inadequate 'growth' of animals, which leads to losses.
- Contamination of meat, which may lead to rejection by the abattoir's meat inspectors.

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Alwyn says: "Sabotage and deliberate contamination are probably the main external risks, while the lack of a quality management programme implemented by a competent management team is probably the most significant internal risk."

Regarding the cost of biosecurity at the Sernick Group, he says: "It is too difficult to quantify, as it isn't a specific cost It is a general cost that includes all the aspects mentioned, which should be in place in any case if a feedlot wants to be profitable."

Pig and chicken industry

Biosecurity measures have been part of production systems in the pig and chicken industries for a while. Due to the smaller area utilised by these units, it is easier to fence properly and to control access than with extensive systems. Shower facilit es for p ople who enter the facilities and hosing down of vehicles go without saying.

There is speculation that gigantic chicken farms, each accommodating large numbers of birds, will become something of the past. We will instead see chicken and egg producers spreading their production units across distant farms or using contract growers – all to reduce the danger of biosecurity risks.

These kinds of actions will prevent the spreading of diseases between remote chicken units It also means that, in case of an outbreak, not all birds will have to be killed by the producer, only those at the particular unit.

According to Dr Foch-Henri de Witt of the Department of Animal, Wildlife and Grassland Sciences at the University of the Free State, prevention of an outbreak remains the cheapest option for producers, regardless of the cost.

Foreign research

A study by Hafi, Addai, Zhang and Gray (2015) found that if Australia was to remove its current biosecurity system, the country's cattle, milk and sheep industries would lose approximately 8 to 12% of their profits, and the pig industry 15%.

In another study from Finland by Siekkinen, Heikkila, Tammiranta and Rosengren (2008), the cost of broiler production biosecurity was calculated at approximately 2% of the production costs, which is the same as the loading and transport costs. Apart from the financial aspect, it was determined that almost 8% of the working time on broiler farms is devoted to biosecurity.

Effect on the consumer

Prof Arno Hugo of the Department of Food Sciences at the University of the Free State says biosecurity is important in agriculture because it can directly affect the consumer. If it is applied on the farm, the quality of raw products in agriculture will improve and any uncertainties regarding the product will be eliminated.

The farmer's contribution to biosecurity may include practical applications, such as dehorning cattle, slaughtering of animals after the immunisation waiting period and regular cleaning of livestock transport and handling facilities before animals are sold to feedlots or at auctions. It will also reduce the possibility of disease transfer in feedlots, as cross-contamination is reduced.

Processing plants have the biggest responsibility to meet biosecurity requirements, since there is an increased chance that workers can be exposed to diseases. Future solutions include the implementation of a traceability system for agricultural products. It will improve biosecurity in the agricultural industry and make farmers accountable for negligence.

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Current solutions entail cooperation from the Department of Agriculture, Forestry and Fisheries and the Department of Health, to ensure that the legal requirements among producers and places such as abattoirs are in place. Border posts can also be better controlled to ensure that the local agricultural market is not negatively affected by imported products.

In conclusion

In a ma ket where the client is king, producers must acknowledge the importance of biosecurity. The advantages of healthy animals will not only be important to the producer, but will also play an increasing role in consumers' buying decisions. Great value can be created by offering consumers peace of mind over the safety of the products on offer, thus ensuring their continued support.

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