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BIOSECURITY AND FOREIGN ANIMAL DISEASES

WHAT DOES THIS LOOK LIKE FOR YOUR BUSINESS ?

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- infectious diseases of livestock are a major threat to global animal health and welfare and their effective control is crucial for agronomic health, for safeguarding and securing national and international food supplies and for alleviating rural poverty in developing countries
- Some devastating livestock diseases are endemic in many parts of the world and threats from old and new pathogens continue to emerge, with changes to global climate, agricultural practices and demography presenting conditions that are especially favorable for the spread of diseases into new geographical areas.

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- The science on viral transmission through feed and feedstuffs is still relatively young, but it has yielded some interesting and potentially useful information on mitigating the spread of costly viruses, such as African swine fever (ASF).
- One study has shown the theoretical ability for pathogenic swine viruses to survive transport to the United States in imported feedstuffs.1 Another one has shown the ability for ASF to infect pigs via feed and normal feeding activities.2 Results such as these have increased interest in viral mitigation processes for feed ingredients, and more studies are expected.

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- The larger threat of transmission comes from contact with humans.

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- The larger threat of transmission comes from contact with humans.
- 1-2 % of environmental surfaces associated with swine feed ingredients
- Reports of high vehicle contamination, Less ingredient contamination
- If it is going to get into the USA it is most likely through human transmission
- Clothing, Shoes, Brining back infected meat products from infected countries

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- We have a responsibility to help reduce the spread of AFS if / when it gets into the USA
- African Swine Fever is not the only disease that we have to worry about.
- We already have foot and mouth disease, Avian Flue, PedV (Porcine Epidemic Diarrhea)
- Salmonella Etc.
- Right now it is the most critical

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- **"Even if infected animals are quickly partitioned, AFS may still find its way to the rest of the herd within 15 days."**
  - **"Swill feeding is common around the world and has been identified as a major factor in ASF transmission."**
  - **"all it takes is one unwitting visitor who has been in contact with ASF to carry the germ on the sole of a shoe, a medical tool, or a vehicle"**
  - **"Ignorance as to how the disease spreads contributes to its threat."**

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- A little bit about African Swine Fever

- AFS is a Very Large Enveloped DNA Virus
- Over 20 different strains
- Has Threated the pork industry globally since moving from wild boar population in sub-Saharan African to domesticated pigs.
- Introduced onto Europe Asia in 2007 most likely via pig swill containing uncooked pork products from affected pigs.
- It has an incubation of 4-19 days before showing symptoms

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- Humans Cannot Contract the disease by contact or consuming pork
- It is not Transferable to other Species
- Can be transmitted from wild boar or ticks to domestic pigs
- High case fatality symptoms are similar to salmonella
- Later infections: highly contagious with a 90% Motality

- No Available vaccine or treatment
- Survives in Formites for extensive periods
- Virus is spreading faster than the speed of research

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How fast does it spread ?

Nose to nose contact in wild boars (1-2 Miles / Month)

Outbreaks that jump due to fomites (60+ Miles Month)

How fast does it spread ?

August 2018 – China 149 Outbreaks the spread was fairly slow

Jan 2019 – Mongolia

Feb 2019 – Vietnam

April 2019 – Cambodia

May 2019 – North Korea, Hong Kong

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African swine fever is a highly contagious and deadly viral disease affecting both domestic and wild pigs of all ages. ASF is not a threat to human health and cannot be transmitted from pigs to humans. It is not a food safety issue.

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- ASF is found in countries around the world, particularly in sub-Saharan Africa. More recently, it has spread through China, Mongolia and Vietnam, as well as within parts of the European Union. It has never been found in the United States – and we want to keep it that way.

- Anyone who works with pigs should be familiar with the signs of ASF:
- High fever
- Decreased appetite and weakness
- Red, blotchy skin or skin lesions
- Diarrhea and vomiting
- Coughing and difficulty breathing

Immediately report animals with any of these signs to state or federal animal health officials or call USDA's toll-free number at **1-866-536-7593** for appropriate testing and investigation. Timeliness is essential to preventing the spread of ASF.

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On-farm biosecurity is crucial to preventing any animal disease from developing and spreading. All pig owners and anyone involved with pig operations should know and follow strict biosecurity practices to help protect U.S. pigs from ASF. Assess your biosecurity plans and make improvements as needed.

International travelers could unknowingly bring back this disease from an ASF-affected country, especially if they visit farms. Visit the APHIS traveler page to know which items you can bring back into the United States. Some food items may carry disease and threaten domestic agriculture and livestock. If you go to an ASF-affected country, do not bring back pork or pork products.

APHIS = United States Department of Agriculture

Animal and Plant Health Inspection Service

https://www.aphis.usda.gov/aphis/resources/pests-diseases

- Declare any international farm visits to U.S. Customs and Border Protection when you return. Make sure you thoroughly clean and disinfect, or dispose of, any clothing or shoes that you wore around pigs, before returning to the U.S. Do not visit a farm, premises with pigs, livestock market, sale barn, zoo, circus, pet store with pot-bellied pigs, or any other animal facility with pigs for at least 5 days after you return.

APHIS = United States Department of Agriculture

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- Why should we have a plan in place ?
- Our Responsibility
- Your Customers are eventually going to demand it !
- What kind of plan are you going to make ?
  - For Go ?
  - For Show ?

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- Developing a Biosecurity Plan For your Facility

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Every facility is different and a biosecurity plan to control the spread of animal disease must be specific for the location. A team should be created to ensure the appropriate procedures and processes are implemented. Responsibilities of the team include the following

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Identifying areas of reasonably foreseeable hazards for the spread of animal diseases;

- Developing a site-specific biosecurity plan for preventing animal diseases;
- Increasing biosecurity awareness and ensuring compliance with policies;
- Ensuring proper training is maintained and completed; and
- Keeping management informed of potential animal disease risks and updating the biosecurity awareness plan as needed.

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Feed contamination with a disease-causing pathogen can be introduced at numerous points throughout the manufacturing process:

. Use of contaminated ingredients,

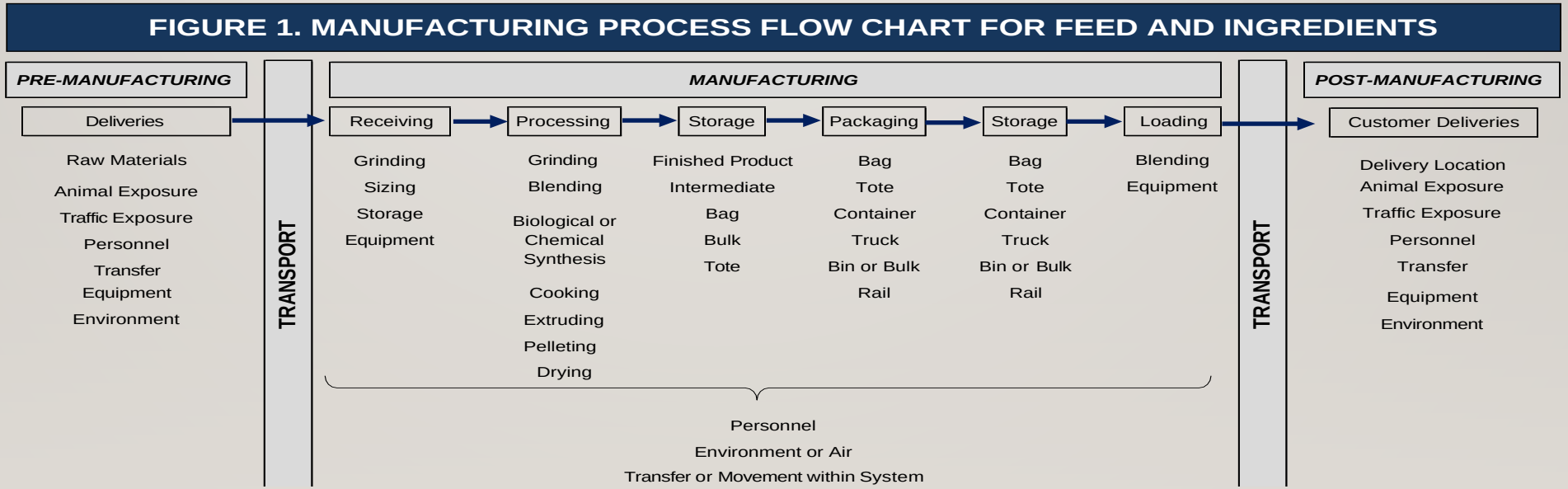
.During receiving at the feed manufacturing site, (Receiving Pit)

.Delivery Vehicles (both incoming and outgoing)

.Delivery Personnel.

. On Farm Consultants

Understanding the Points of Exposure is Important for Biosecurity



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There are many routes of Pathogen Transmission:

Airborne transmission;

- Animal manure and soiled bedding.
- Direct animal to animal contact;
- Semen;
- Human contact, including dirty boots, clothing or hands; zoonotic diseases (those that are communicable between animals and humans) can also be included in this group;

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There are many routes of Pathogen Transmission:

- Vehicles and other fomites;

Fomites is an inanimate object, that when contaminated with or exposed to infectious agents, such as pathogenic bacteria, viruses or fungi, can transfer disease to a new host.

- Vectors, including rodents, feral animals and insects; and
- Feed, including water.

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The feed manufacturer is responsible for biosecurity of the feed chain, which includes selecting, receiving and processing ingredients into the compounded feed all the way through to the final feed delivery, or until the livestock producer takes possession of the feed.

This means you !

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- Biosecurity Plan should be science-based.
- Biosecurity Plan should be flexible enough to allow some modification depending on circumstances, yet specific for the facility.
- Incorporate new practices or processes for new foreign animal diseases
- Updated with more effective actions or processes

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The potential risk of exposure to pathogenic agents can be managed through the use of biosecurity measures aimed at reducing the risk of disease introduction and transmission. By understanding the routes of disease transmission and targeting biosecurity measures to those particular routes of transmission, a biosecurity plan effective against multiple disease agents can be developed.

Supplier Verification:

The goal of supplier verification is to ensure the supplier has an adequate program to control contamination of the ingredient they are supplying. If the supplier does not have an adequate biosecurity program, then it is the responsibility of the feed manufacturer to develop an adequate testing program or risk mitigation procedures at the supplier location or as part of its production processes. Steps that feed and ingredient manufacturers should take to ensure risks from incoming ingredients or raw materials are controlled.

Supplier Verification:

When you are conducting or updating your hazard analysis for your food safety plan one of the actions that we depend a lot on is the Supplier Verification. When you are having your suppliers fill out their questionnaires wouldn't it be important to address their biosecurity plans or intentions as well?

Supplier Verification:

If you are importing ingredients from foreign countries this is even more crucial.

Some of you buy ingredients from brokers it your responsibility to know where they are sourcing them from so either the broker supplies you with supplier verification data or you get it directly.

Supplier Verification:

Developing a testing and risk mitigation program if ingredients are sourced from a supplier that does not implement an adequate biosecurity program is another component.

Maintaining ingredient specification requirements for feed or ingredients, including the requirements for biosecurity; and ensuring suppliers understand those ingredient specifications and biosecurity requirements.

Ingredient Receiving:

- Determine the relative risks associated with ingredient delivery
- Document cleanliness of transportation vehicles before entry into the unload area.
- Implement Practices within the receiving area to ensure potential hazards are controlled (Develop SOP's for receiving products and follow them)
- Truck Disinfectant Areas

Ingredient Receiving:

Employee's Visitors and Drivers – Control access of people throughout your facility.

Establish a personnel Hygiene Policy

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- Post Appropriate Signage
- Make sure that it is visible and, in a place, where people will see it.

Personal Hygiene:

Somewhere in your personnel policy or personal hygiene policies these itesm should be included:

Washing hands in an adequate hand washing facility

Soring clothing or other personal belongings in areas other than where animal food is exposed

Approved footwear and clothing for the manufacturing area

Know your employees and require them to report livestock farming activities.

Personal Hygiene:

Maybe your employees don't have a hobby or home farm, but they might take an extra job at one of your customers facilities.

Do you know about that – have you had a discussion with your employee about it

Do you require that they changed their clothes, especially their shoes.

Shipments for customer deliveries – Sanitary Transportation

Ensure that your loadout equipment is clean

Ensure that the vehicle compartments are clean and ready for loading

Establish and maintain a disease status log for livestock production locations where feed is delivered.

Establish protocols for unloading feed at the livestock site: These may be different than what you originally wrote into your food safety plan sop's remember plans need to be flexible and ever changing.

Shipments for customer deliveries – Sanitary Transportation

Establish protocols for unloading feed at the livestock site:

These may be different than what you originally wrote into your food safety plan sop's remember plans need to be flexible and ever changing.

Establish appropriate cleaning procedures for trucks and transport equipment and delivery personnel.

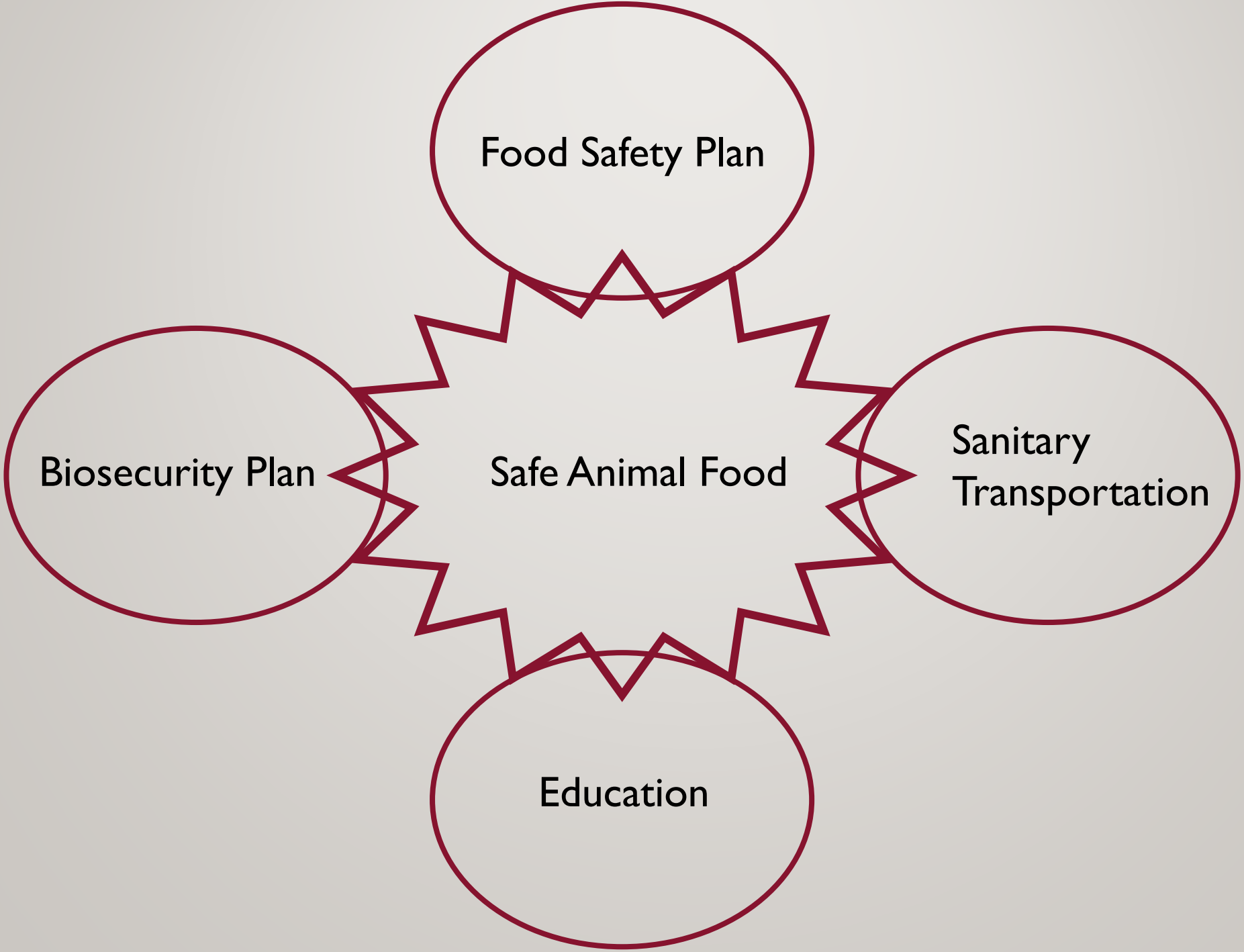
Communication – Education – Commitment

In order for a Plan to be successful it has to have the buy in from everyone involved. This comes from the top down Management has to be committed to the program and develop a Culture that is conducive to effective implementation:

Lead by example !

Communication – Education – Commitment

Commitment to the biosecurity plan is **necessary for its success**. Management personnel must support the development and implementation of the program. This includes participation in the process as well as **providing resources** to ensure the success of implementation and maintenance of any plan.


Food Safety Plan
Biosecurity Plan
Safe Animal Food
Sanitary Transportation
Education

Look at a Some Real-Life Biosecurity Practices

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- All feed trucks tires are sprayed with disinfect immediately upon returning from farms and before they enter the loadout. These trucks are sprayed with a disinfectant. Disinfectants are alternated between synergize and Tektrol.
- Truck drivers also will carry a spray can of Tektrol with them to spray the floorboard of truck.
- Truck drivers are to wear boot covers at every farm they go to.
- Visitors entering the mill will wear boot covers.
- We have posted multiple signs about biosecurity around the office and mill.
- We do not accept any feed bags back once they have left the mill.

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- That is some of the main things we do. With us having a drive thru for our showpig customers it makes it a challenge as well. We do a few things to keep them away from our commercial side.
- If they have a trailer and are picking up a skid of feed, we have a designated area for them to park and be loaded.
- If they prefer not to leave their truck, we will come right out and load their feed.

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- **Facility Security**
- Ensuring the physical security of our buildings and grounds is an important step in overall biosecurity. A conscious effort shall be taken to assess and control security risks by recognizing and anticipating security issues before they surface.
- Where possible the company will use security lighting.
- Secure all buildings as best as possible.
- Guards shall be installed on exterior ladders, protecting them from unauthorized use and preventing access to the top of bulk storage tanks.
- All exterior liquid tanks (above and below ground) shall be secured when not in use.
- Lock all vehicles parked outside at night or during non-business hours.
- Facility shall request local law enforcement to patrol company premises on a regular, but unpredictable basis.
- Employees shall report suspicious behavior.
- Restrict access to computer process control and data systems, secure on-line communications, and safeguard them with virus protection. Store back-ups off-site.

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- **Visitor Policy**
- All visitors/contractors are to sign in at the main office and report to the feed department manager or designate before entering the production facility. This procedure protects against unwanted visitors and helps account for all persons during an emergency.
- Maintain a visitor's log with a record of individuals' names and companies, arrival and departure times, and purposes of the visit.
- Do not allow visitors, including delivery personnel, contract providers and service support, to wander the premises. A company representative shall serve as escort at all times.
- Restrict access to key manufacturing areas.

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- Ingredient & Product Integrity
- An important component in feed biosecurity is ensuring that all feed ingredients are safe.
- Purchase ingredients only from an approved-list of suppliers. Follow an Approved Supplier Program.
- Visit new suppliers, request samples and lab analysis, review their quality programs and procedures for positive product identification, their relationships with contract haulers, and product security during transport.

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- Do not use any grain, feed ingredients or feed contaminated by dead animals or fecal material.
- Label and use in accordance with federal and state regulations only approved ingredients for feed production.
- Follow the Bagged Ingredient Receiving, Bulk Ingredient Receiving and Liquid Ingredient Receiving SOPs to maintain integrity on all incoming ingredients.
- Manufactured product integrity will be maintained by following the Mixing, Bulk Load Out and Delivery SOPs.

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- **Delivery Trucks**
- Certain precautions shall be implemented to assure delivery trucks do not spread diseases or viruses from one site to another. To minimize disease risk involved with feed manufacturing and delivery, follow basic biosecurity measures:
- Do not allow anyone to enter the feed compartment of the feed trucks without clean clothing and clean disinfected shoes.
- Collect and dispose of contaminated spilled feed off the production site.
- **Feed delivery personnel shall not enter an animal production unit.**
- Feed delivery personnel shall wear clean clothing and clean shoes at the farm site.

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- Only truck drivers and other authorized cooperative employees are allowed on delivery routes. No animals are allowed in or on the delivery truck at any time.
- Upon customer request or when a hog site and/or sow farm has recently been found infected by a disease or virus, plastic boot covers shall be worn while outside the cab and feed truck wheels should be sprayed with a disinfectant after delivery to or entering of a production site. The floor and foot pedals of the cab shall also be disinfected before leaving the site. Approved disinfectants for delivery vehicles and/or shoes include:
- Household bleach (Clorox) mixed at 3 oz./gallon water
- Tek-Trol (Bio-Tek Industries) mixed at .5 oz./gallon water
- DCR Disinfectant mixed at 1 oz./gallon of water

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How Easy would it be to sanitize your facility if it became infected?

As with most things in the Food Safety world Prevention is the Key

Elimination of Porcine Epidemic Diarrhea Virus in an Animal Feed Manufacturing Facility

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0169612

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Summary

Foreign and Domestic Diseases pose a threat to the Animal and Feed Industry

We have to do our part in being ready to help stop the spread from facility to facility

We have to change/develop a Culture of genuine concern and awareness of what our actions can do

What do you think is one of the Biggest obstacles to containing animal diseases and stopping their Spread?

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Summary

Apathy !

Everyone must do their part !

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https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0169612

Questions ?

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