

Why Biosecurity is more crucial now than ever?

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WHY APPLY BIOSECURITY? Benefits of biosecurity

- Biosecurity summarizes any technique or measure that can be implemented to prevent :
- ✓ introduction,
- ✓ maintenance,
- ✓ and dissemination of pathogens in a country, region, city and farm.
- We face new sanitary challenges with sometimes emerging diseases... and even human pandemic
- Biosecurity is the most efficient and economical way to control the sanitary status in order to get a better profitability and to get the best quality products.

WHY APPLY BIOSECURITY? Benefits of biosecurity

- Biosecurity measures are efficient on all pathogens.
- Increase with value of the birds (high level in parent stocks and limited in commercial flocks)...
- Always beneficial to evaluate the risk and modify the organisation to decrease the contamination and prevent economic loss.
- (for ex: ND with 50 to 100% mortality at 3 weeks old costs a lot.
- How much does a shower cost?
- How much do specific clothes and boots cost?)

WHY APPLY BIOSECURITY?

- Biosecurity can:
- prevent entrance of diseases into poultry farms / houses
- Avoid diffusion of the disease if it has occured in poultry.



WHY APPLY BIOSECURITY?

DISEASE	SURVIVAL CONDITION AND TIMING
SALMONELLA TYPHYMURIUM	18 months in litter or feed at 11°C
PASTEURELLA MULTOCIDA	15 to 100 days in the ground
MYCOPLASMA GALLISEPTICUM	1 to 3 days at 20°C in litter, droppings, clothes and in the nose!
E.COLI	80 to 100 days in litter or dust
MAREK	16 to 32 weeks in litter or feathers
CORONAVIRUS –IB	15 to 56 days
ORTHOMYXOVIRUS-AI	30 days at 4°C / 7 days at 20°C in droppings
PARAMYXOVIRUS- NEWCASTLE DISEASE	8 months on the egg shell, 2-3 months in droppings, 5 to 6 weeks in the carcass (dead bird)

Biosecurity concepts

How can biosecurity be applied?

- PROCEDURAL BIOSECURITY
 - Establishes the strategy (ex salmonella free) and describes how to obtain the result
- PHYSICAL BIOSECURITY
 - Concerns all the facilities and farm layouts (inside and outside)
- OPERATIONAL BIOSECURITY
 - Puts all the procedures into practice.
- AUDIT (and how can we manage the biosecurity?)
 - Validates that the procedures and rules are well applied and well understood.

PROCEDURAL BIOSECURITY

- Quite boring?
-Yes, of course ! But fundamental.
- All the operators and the manager have to do the same thing, and each procedure should be explained to each operator.
- Most important : the training of each operator and the insurance of good understanding.
 - Don't forget: **« the art of pedagogy is repetition ».**
- The key person: the manager of the farm has to accept and work with the sanitary system.

Farm location / Farm general design

PHYSICAL BIOSECURITY: location

In building a new farm, AVOID:

✓ High density poultry areas

Close waterways and lakes (used by migratory water fowls)

✓ Birds on a range (more susceptible to contaminate with wild birds)

 Close to roads with traffic of slaughtery trucks, manure trucks, etc....

PHYSICAL BIOSECURITY: physical organisation

The best organisation:

- Has secure perimeter fences. (including showers, protective clothes and boots).
- ✓ Has concrete areas
- ✓ Is bird-proof (non contact with wild birds)
- Is clear of vegetation between houses (no vermin)
- ✓ Is a well-drained area (avoids standing water)
- Has waste disposal and removes used litter far from the houses.
- Keeps the silos outside the perimeter of the farm to avoid entrance of trucks into the farm.
- is "all in all out": downtime for all the barns at the same time!
- ✓ Rearing is kept in a separate location





Air and air inlet

PHYSICAL BIOSECURITY: Ventilation and air flows

Air filtration and positive pressure is very good...... but the cost is very high.....



Controling pets and wild animals

Nets don't allow the entrance of birds







CO-HABITATION BETWEEN LAYERS AND WILD BIRDS

PHYSICAL BIOSECURITY: « other species proof »

OPERATIONAL BIOSECURITY: pest control

- Fight the mice, rats and other rodents with pest control.
- All operators should be in control and alert.
- The pest control is based on anticoagulant bait and the control of these baits must be done each month or week if consumption.

OPERATIONAL BIOSECURITY: pest control

• Protection (concrete at the bottom of the doors) against the entrance of water and small animals (mice, rats,...)

OPERATIONAL BIOSECURITY: pest control

OPERATIONAL BIOSECURITY : insect control

- Insect control
- Apply insecticide:
- ✓ Larvicide
- ✓ And adulticide
- Against flies, red mite,...
- All these insects can be a vehicle for pathogens: bacteria, viruses, worms.

Controling vehicles

PHYSICAL BIOSECURITY: entrance into the farm

OPERATIONAL BIOSECURITY

• Traffic inside the farm: rules for all the visitors

PHYSICAL BIOSECURITY: entrance into the farm Vehicles stay out of the farm (except trucks of feed if the silos are inside) The truck for remains (dead birds) never comes inside! All trucks have to be cleaned and disinfected before entrance into in the farm

OPERATIONAL BIOSECURITY: common mistakes

• Traffic inside the farm: rules for all visitors

PHYSICAL BIOSECURITY: birds disposal and garbage

Dead bird disposal and garbage located outside the fence of the farm and on a concrete ground (easier to clean and disinfect)

Controling visitors

OPERATIONAL BIOSECURITY: Entrance and Exit

- Entrance in the clean area:
- All the crew has to take a shower (if available) or at minimum clean their hands.
- Operators can carry contaminated organic material in their hands or clothes.
- Don't forget the equipment : clean it and disinfect it before entering the farm and the barn.
- Wear different uniforms for different areas or jobs.
- Control staff movements (including staff for debeaking, vaccination...and their equipment). Still better to get dedicated

PHYSICAL BIOSECURITY: the footbath case

Footbath must be well maintained to remain efficient!

PHYSICAL BIOSECURITY: Entrance into the house / cloakroom

- Entrance in the farm: simple and easily understood.
- The best: 3 areas with a complete change of clothes after a shower for all operators.
 - Should be well designed and comfortable for the employees
 - The delimitations of the different areas should be well applied (clean/intermediate/dirty)
 - Use uniforms : sometimes people are in the farm with civilian clothes.

PHYSICAL BIOSECURITY: Entrance and Exit

Before shower, disinfection in a corridor

Controling equipment

OPERATIONAL BIOSECURITY: entrance of equipment

- All equipment entering the house must be disinfected
- Reduce as much as possible equipment introduction : get dedicated equipment / tools inside the house.
- Special care with litter : disinfect when introduced + disinfect after spreading on the floor

Controling feed and water

PHYSICAL BIOSECURITY: feed

- Feed is difficult to control :
 - Evaluate raw material quality
 - Be careful with raw material storage
 - Use heat treated feed to avoid salmonella is a must.
 - Be careful with feed bags

 Recommendation: Keep a sample of feed from each truck (for analyses if a problem occurs mycotoxin, intoxication, salmonella,...)

OPERATIONAL BIOSECURITY: feed

PHYSICAL BIOSECURITY: water

• Quality of water:Using potable water and control it (chlorine level, pH,...)

Decontaminate the house

 Remember that pathogens can survive in the environment for several months.

 How to manage the litter? (it's a reservoir). It should not be stored close to the house (risk of Marek disease in rearing farm).

- Surfaces have to be adapted (smooth, easy to wash)
- Use only water that is disinfected
- (ex contamination in salmonella Typhimurium after using contaminated lake water)
- Use detergent (with a good quality foam)
- Disinfection on clean surfaces!
- The disinfectants are not efficient against organic matter.
- Allow time to dry (if the smell is not good, the barn is not well cleaned)

Lime around the barn (to be active you need to spray it with water) (500 gr to 1kg per m2)

• DECONTAMINATION and collect water used during the cleaning

Training of farm employees

How can we manage biosecurity with the operators?

- Pedagogy: all operators have to understand well the rules.
- Importance of the manager (explanations about what we would like to protect, what could be contaminated, How....)

- How can we control when the operators work without the manager?
 - ✓ Give a sense of responsibility about biosecurity
 - Give good conditions for the application of biosecurity (ex: clean and pleasant shower... imagine a cold shower in Canada during winter!)
 - Avoid operators working alone

How can we manage biosecurity with the operators?

- Audit: first to congratulate the team in the field
- Don't forget : encouragements and congratulations,
- 2nd step: analyse, propose new solutions, explain what's wrong.
- If nobody enter in the farm except the close team, you can't see all the mistakes.

 Exemplary behaviour : all the rules should be applied by all and especially by the management.

Vaccination

What about vaccination?

- Crucial to prevent birds contamination and shedding of contaminants
- Insurance in case of breach in the general biosecurity in the farm

Vaccination program

- No standard vaccination program : should be adapted to local conditions and even farm sanitary history
- Regular reevaluation to be adapted to any changes in field condition.
- Common mistake : too many vaccinations. Consequence on growth during rearing period

Vaccination procedures

- Follow good practices for :
 - Vaccine storage (ex : mini-maxi thermometer in the fridge)
 - Vaccine preparation (ex : no use of chlorinated water)
 - Vaccine administration
- In case of vaccine failure, check if procedures are well applied before reinforcing vaccination program!

Challenge in modern egg production : protection with longer cycles

- Farmers are keeping birds on a longer period (100 weeks!)
- What about the protection provided by vaccination in rearing period
- Few information from vaccine companies about protection of old layers
- Interest of new vector vaccines : as vector remains in the vaccinated bird for its all life, we can expect a long lasting protection.

Why biosecurity becomes more and more important?

The market changes! Impact on disease pressure?

- Western countries : less birds in cages / more birds on floor
- Ban of cages for table eggs expected in the coming years in Europe.
 - More cage free birds : more parasitic problems (coccidiosis, helminthiasis, histomoniasis...)
 - Free-range : birds are kept on floor but have access to a ranging area with potential risk of contamination with wild birds. On top of parasitic diseases, we can see higher risk of additional diseases : erysipelas, botulism, salmonella
- Customer expectations in term of sanitary status become more and more strict :
 - Salmonella spp free
 - MG/MS free

* Estimations ITAVI d'après DGAL Sources : ITAVI d'après SSP, DGAL, Agence Bio et Synalaf

Emerging diseases

- We can see an increase of prevalence of some other diseases : avian influenza, Fowl adenovirus, Campylobacter hepaticus (spotty liver disease) with limited access to vaccines or treatment.
- As a consequence biosecurity is more and more important to reduce risk of diseases.

What about COVID?

- COVID changed the situation : farm management and global organization had to adapt to the sanitary crisis.
- Big impact on our business due to airfreight problems : flight cancelation (sometimes in last minute!), increase in freight costs

At the beginning of crisis : difficulty to get masks and disinfectant, storage of masks.

- Reduce contacts between people :
 - Forbiden to move between production centers.
 - Work from home when possible. Reduce number of people in office.
 - Stop non essential meetings, including training.
 - Organization with 2 teams that never cross each other.
 - Work more alone.
 - Team staying in the farm.
 - Define essential people and separate them (vet team, lab...).

- Re-evaluate biosecurity plans (important to learn from others) :
 - Monitoring of employees. PCR in environment (restrooms).
 - No car-sharing.
 - Training / information of employees about clinical signs in order to avoid they come working.
 - Weekly videoconference with production centers to check difficulties in farms.
 - Promote COVID vaccination

Conclusion

- Vaccination program and medication are key in disease control, but prevent is still better than cure!
- Biosecurity is key to reduce risk of disease challenge. This is not cost, but investment!
- To be effective biosecurity must be applied by everybody, with no exception!
- Evolution of our production systems and emergence of new diseases may increase disease incidence and as a consequence biosecurity will be more and more important.

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