



# The fundamentals of effective Biosecurity on farms

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Undoubtedly, today we are experiencing the largest pandemic in the swine species history although, from what I remember, there have been several pandemics that globally affected the industry. The first one was “Mystery Disease ” or “X disease” in the USA (this is how PRRS was originally called), later it was the Porcine Circovirus (initially described in Spain as “Enfermedad del desmedro” or “PMWS”, but obviously renamed in the USA as PCV2) and, finally, the Porcine Epidemic Diarrhea (I think that all of us remember the picture of an Iowa’s farm truck, loaded with dead piglets). Nevertheless, we have never seen a disease as devastating as the African Swine Fever, which has decimated the world's pig population, and even more, due to its crossing through different continents, it modified the global meat market. An interesting aspect of this disease is that it was first identified in Kenya, Africa, in 1910, that’s 77 years before PRRS was described in America, and we still do not have an effective vaccine. Therefore, we must consider that there are diseases, especially viral ones, that no matter how hard we try, we cannot control them and the only thing we can do, at all costs, is to avoid infecting our herds. With this in mind, the only and most fundamental tool is **Biosecurity**.

Regarding Biosecurity, we can find several definitions and approaches but from the way I like to see things, Biosecurity is a risk assessment that allows us to define the main risks of INTRODUCTION (of one or several diseases) to our farms as well as the possible routes of SPREADING towards other farms once you get infected. This must also consider that the risk of infection of our animals will depend on individual factors, such as whether they are immunized against the specific disease or not, the presence of immunosuppressive diseases and the age of the animal, among others.

For all the above, Biosecurity is clearly the most relevant tool in pig production worldwide. That is why each company and professional in the area has currently reviewed and analyzed the Biosecurity measures that have been implemented to protect their farms. In this regard, more today than ever, we have a varied and abundant source of information to guide us, for example: scientific publications, seminars, congresses, consultancies, and especially the numerous webinars that this new Covid-reality has left us.

This has led us to implement new measures to strengthen our Biosecurity, such as audits, new replacement flows structures, better sanitary filters, increased monitoring frequencies and, above everything, the application of new

technologies, such as the higher use of molecular diagnostic techniques (Rt-PCR, NGS, Viteck, Maldi-Tof), digital control of farm accesses (Digital Biosecurity), vehicle georeferencing, CCTV camera monitoring, etc. This kind of measures and technologies obviously are effective and contribute a lot, but we must not forget that in order to achieve a truly effective Biosecurity, we must have the commitment and conviction of the personnel who works every day on our farms, because, after all, they are constantly applying the Biosecurity measures and ensuring their compliance.

Considering the above, like many professionals I know, I believe that there are some fundamental aspects for Biosecurity to be fully implemented and complied with in our facilities. I may not cover all of them in this list, but at least the following aspects should be taken into consideration:

**Staff education:** farm staff must know the health risks to which the animals they work with are exposed and understand why the risk mitigation measures they deal with are implemented. That's why they must be trained regarding the Biosecurity concepts they will need.

**Simplicity:** Biosecurity measures and implemented structures must be easy to understand and to comply with. It is essential to maintain an understandable and direct language because if the staff does not understand them, they will not correctly apply the necessary measures.

**Operability:** Biosecurity regulations must be achievable, that means that their application should not generate restrictions that could diminish production processes or not be feasible at all. We must consider that many Biosecurity measures are detrimental to production efficiency (although not to its effectiveness), and therefore we get into a conflict with the production system in order to achieve a greater Biosecurity status. For example, we tend to establish long down times in an all-in-all-out farm, because 30-days are always going to be better than 10-days without animals, but the productivity of our facilities or the ROI of our barns depends on their occupation. Therefore, such long period of time only increases the production cost but does not give a real health benefit. It would be better to strictly verify the cleaning and disinfection of the barns, considering a rational downtime that really depends on the pathogens present in the farm and the microbiota of the system and in the meantime, making the use of the barns more efficient and achieving greater productivity.

**Discipline:** defined as "a set of rules or regulations whose compliance constantly

leads to a certain result". In a way, it is suggesting that biosecurity "is not negotiable" and must be taken into consideration 365 days a year, because as we very well know, a single failure in the sanitary filters is enough for a virus to infect our animals and losing all the work done for years. If we can ensure that Biosecurity measures are applied in a disciplined and constant manner in each of the farms, we will generate a Biosecurity culture that is applied across the entire production system.

**Setting Biosecurity indicators:** standards must be measurable. We must implement procedures and instructions that can be evaluated, analyzed or at least, where compliance can be verified. As a friend says: "what is not measured does not advance". This is a rather complex aspect regarding biosecurity: for example, whether the replacement gilts' truck is well washed or not is easy to evaluate and record as a relevant indicator. But on the other hand, if restrictions on access to personnel are established in a farm with sanitary downtime between the different barns, it is going to be complicated to verify the compliance of this requirement, unless you have movement traceability systems, such as sanitary passports or digital systems of access registration, that allow you to generate these indicators. I would like to mention that when it comes to Biosecurity, as well as to many other aspects, the digital transformation can be a major contribution to our productive activity.

When it comes to considering designing and implementing biosecurity measures in a farm there might certainly be many aspects to consider, but I have the conviction that if these 5 points get addressed, this will be applied correctly in each of the farms.