

PRODUCTION OF LONG TERM, LOW-COST SPECIFIC PATHOGEN FREE PIGS

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Introduction

In pig production, most of the people are familiar with the techniques in use when eradicating pathogens. The first technique described was based on surgical methods (Young et al 1955). In our facilities at Ploufragan, Specific Pathogen Free piglets have been obtained for several years by hysterectomy. The newborn piglets are raised in sterile isolators. This technique aiming at the production of CD/CD piglets is indeed very efficient but a rather expensive mean to obtain clean pigs (Cariolet et Tillon 1978). In addition, raising piglets in sterile isolators is delicate because of the permanent risk of bacterial contamination (Cariolet et al 1987).

In 1979, we decided to build up a specific facility able to maintain a high health status for an entire pig herd. The objective was to obtain SPF piglets through the natural ways in a protected, totally confined piggery. Such SPF piglets could be obtained on a regular base, at a much lower cost. This paper gives some details of the conditions which permitted the maintenance of the high health status in the piggery.

The building design

The piggery is a single piece building with concrete walls. Air inlet is equipped with a filtration system. The air level filtration is referenced as EU 13. The floor is partially (sows) or totally slatted (other pigs). The slurry is removed daily. There is no use of straw.

Biosecurity measures

Only a very limited number of technicians are allowed to enter the building. Normally, these technicians do not visit conventional piggeries. Strict sanitary measures are taken before people may enter this building (shower and total changing of clothes). A specific entrance is devoted to the feed, the latter being prepared in our own feed mill and delivered in bags (Pelleted feed). The entry of pig feed is highly controlled. The feed is conditioned in pellets after being heated to 72°C during 3 minutes. The surface of each bag is sterilized by paraformaldehyde sublimation in a dedicated coffer. All diets are free from antibiotics.

There is no introduction of semen from outside the unit. Replacement boars are periodically introduced. They are all hysterectomy-derived and have been raised in total confinement in our experimental rooms. These rooms are also of level 3 biosecurity with air filtration. The suckling period of 28 days is considered as the quarantine phase. The newborns due to enter the piggery can suck there SPF sows whose own piglets have been removed. After having passed through the required health checks, the piglets are transferred into the post-weaning room of the piggery.

Results concerning infections

Serology regularly demonstrates the absence of the following viral contaminations : Classical and African swine fever, Aujeszky's disease, Porcine Reproductive

and Respiratory Syndrome (PRRS), Parvovirus, Porcine Respiratory Coronavirus, Influenza, Porcine Circovirus type 2. Our herd is free from pathogenic bacteria responsible for respiratory diseases, *Mycoplasma hyopneumoniae*, *Pasteurella multocida*, *Bordetella bronchiseptica*, *Actinobacillus pleuropneumoniae* and other bacteria like *Haemophilus parasuis* and *Streptococcus suis* type 2. The pigs are also free from digestive pathogens : *Lawsonia intracellularis*, *brachyspira hyodysenteriae*, *Salmonella enterica*, *Listeria monocytogenes* and *campylobacter*. All these bacteria are searched for on selective media.

Results concerning clinical disease and performance

Health evaluation is first based on daily clinical observation and recordings. In addition, serological controls are carried out twice a year on all the pigs. For some bacteria like *Salmonella* and *Campylobacter*, faeces are sampled once per 7 weeks. The small replacement boars produced by hysterectomy and raised by SPF sows in a quarantine room have undergone the totality of these health checks before their introduction into the piggery.

There is no vaccine used in this unit. The only health problem occasionally encountered is high temperature in sows after farrowing. When this happens, the concerned sows receive antibiotics for 3 consecutive days. Another point to be mentioned relates to some leg problems in the sows. We have to carefully sort the gilts in this respect.

Reproduction and growth performances are rather good. Twenty-six piglets are weaned per sow / year and they reach 100 kg live-weight at 135 days of age on average. Mortality rate from birth (born alive) to weaning is 12,8 % mainly due to euthanasia of light newborns (below 0,8 kg). Mortality from weaning to slaughter is below 1%.

Discussion

Although the general health status of the pigs issued from our piggery was the same as that of piglets produced by hysterectomy and raised first in isolators, the flora borne by the two groups of pigs was not exactly the same. When representatives of both groups were mixed at 6 weeks of age, we could observe some disorders. In particular an outbreak of exudative epidermitis occurred in the hysterectomy-derived. In this case *Staphylococcus hyicus* was identified.

References

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