

SWINE

BIOSECURITY PROGRAM

CID LINES[®]
An Ecolab Company

WHERE
HEALTH
BEGINS

THE BEST
FARM OUTCOMES
THAT
MAXIMIZE
PROFIT
POTENTIAL
NOW
AND FOR
GENERATIONS
TO COME



WHERE
HEALTH
BEGINS

Prevention is vital in keeping farm animals healthy and resilient.

That is something we truly believe in at CID LINES, An Ecolab Company – the newly created Global Animal Health Division of Ecolab.

We want to drive the industry forward in changing its whole mindset from reactive to proactive. We want to move, as a sector, from curative to preventive health management, through positive and productive action. Our Swine Biosecurity Program is an essential part of that action.

We invite you to discover the program here. As your trusted partner, CID LINES, An Ecolab Company is by your side to care, to help, to support and to consult you on biosecurity and how it can improve the health of both your animals and your business.

**Discover our
brand story**



FROM DISEASE MANAGEMENT TO PREVENTION

What is biosecurity

Biosecurity is the complete set of measures put together to prevent the introduction of harmful organisms (like viruses, bacteria, etc.) in order to minimize the risk of introduction, transmission and spreading of infectious disease.

Biosecurity should be conducted at farm level, throughout regions, countries or even worldwide. Biosecurity measures prevent new diseases and control existing diseases.

Prevention vs. uncertain damage control

Biosecurity not only allows the safeguarding of animal health while reducing antibiotics use. In terms of prophylaxis,

biosecurity is in most cases a more reliable solution than antibiotics.

How could we reduce the use of antibiotics while at the same time safeguarding animal health and guaranteeing production results?

In focusing on disease prevention through improved biosecurity. If we maximize the efforts to avoid animals getting into contact with pathogens, we will be able to minimize the risk of animals getting ill and needing treatment.

When animals get ill, it is because we failed to keep them healthy. That's the bottom line. The curative approach is merely damage control, an attempt at fixing



Cleaning

Disinfecting

Protection

BIOSECURITY IS THE BASIS OF ANY DISEASE CONTROL PROGRAM

something that should not have gone wrong in the first place.

That 'damage control' is less effective and a lot more expensive while its outcome is unpredictable.

TOP 5 CHALLENGES

Biosecurity is and should be the basis of any disease control program. If you have a good biosecurity to begin with, disease prevention through vaccination or other applications will be more successful, resulting in a minimal need for curative treatments. For any disease coming from bacteria, viruses, yeast, fungi or parasites, the appropriate biosecurity measures, hygiene procedures and product protocols ensure successful disease control.

 <p>AFRICAN SWINE FEVER</p>	 <p>SALMONELLA</p>	 <p>PORCINE REPRODUCTIVE AND RESPIRATORY SYNDROME VIRUS (PRRSV)</p>	 <p>COLIBACILLOSIS</p>	 <p>PORCINE EPIDEMIC DIARRHEA VIRUS</p>
<p>ASF is a highly contagious, fast spreading and deadly viral disease affecting domestic pigs and wild boars. There are neither vaccines nor cures. Healthy pigs become infected by: Direct contact with infected animals, contact with anything contaminated by the virus, Ingestion of meat or meat products from infected animals – kitchen waste, feed, infected wild boar and bites by infectious ticks.</p> <p>Symptoms High fever, loss of appetite, lethargy, skin bleeding and bloody diarrhea. In addition, there is an acute mortality.</p>	<p><i>Salmonella</i>, an intestinal bacteria, cause inflammation and necrosis of the small and large intestines, resulting in diarrhea. Infection with certain serotypes may be accompanied by generalized sepsis. Pigs of all ages are susceptible; however, intestinal salmonellosis is most common in weaned and growing-finishing pigs.</p> <p>Symptoms Lack of appetite, watery yellow diarrhoea, fever up to 105 - 106°F (40.5 to 41°C) and sudden death.</p>	<p>The PRRS virus is a highly contagious virus that can cause fertility problems and respiratory problems. PRRSV is introduced to a farm mainly through the purchase of infected animals, through the purchase of infected semen and through other vectors (vehicles, visitors, etc.).</p> <p>Symptoms Anorexia, fever, lethargy, depression, reproduction problems.</p>	<p>Colibacillosis caused by Enterotoxigenic <i>Escherichia coli</i> strains (ETEC strains) can provoke watery diarrhea. This can lead to significant death in neonatal piglets. This so-called enterotoxigenic form of colibacillosis can also occur in older, unweaned and weaned piglets.</p> <p>Symptoms Diarrhea, progressive dehydration, hair coat becomes roughened, body temperature often is subnormal, shivering often is noted.</p>	<p>The PED virus is a coronavirus that infects the small intestine of pigs. The virus is mainly spread and transmitted through manure. Purchase of animals and transport of animals increases a real risk for the introduction of PEDv. There is no vaccine available in Europe against the viral disease and animals can only be treated with symptom control.</p> <p>Symptoms Diarrhea and dehydration Reduced growth and high mortality.</p>



BIOSECURITY OUTSIDE BIO-EXCLUSION

External environment

The cleaning and disinfecting principles used inside the farm also apply outside. Ensure appropriate protocols for external areas and carcass bins. Ensure personal hygiene for diseases transmitted by humans (shower, clothing, hand hygiene, boot hygiene) and transport.

Personal hygiene and daily working lines

Boot, hand and clothing hygiene and daily working lines are probably the fastest, most simple and cheapest ways to prevent the spread of pathogens and yet they are the most overlooked. Simply cleaning and disinfecting footwear and sanitizing hands with anti-bactericidal hand soap is a quantum leap towards animal health and safety.

By following the work lines from animals with a low immunity (new born piglets) to animals with a high immunity (fattening pigs), ... The infection pressure in the living area of the young animals is reduced. At the end of the day the quarantine pen should be visited.

BOOT, HAND AND CLOTHING HYGIENE & DAILY WORKING LINES ARE THE MOST OVERLOOKED

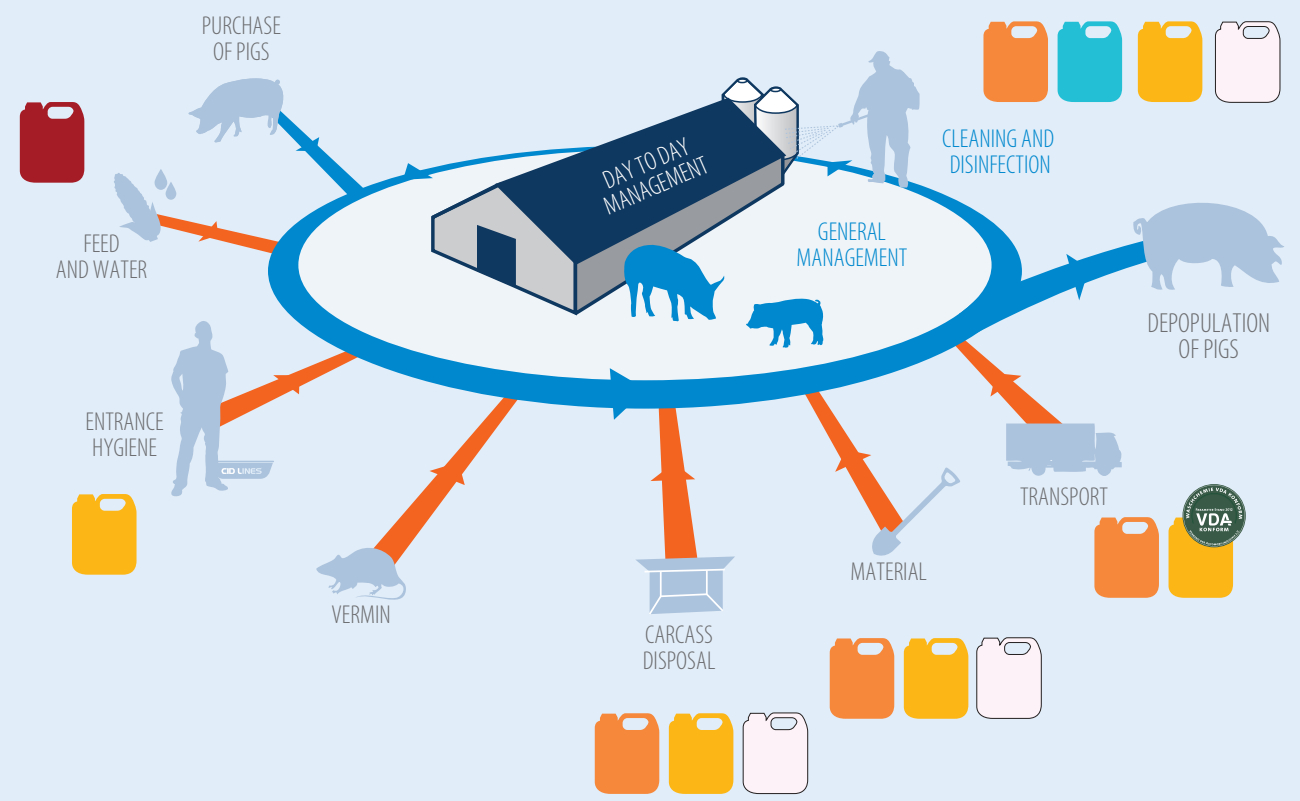
A daily habit

These tiny efforts that really must become daily habits for farmers and workers alike. Recent studies have yet again proven that farm boot samples are an important risk factor with a Salmonella prevalence of 19.7%! (Prev. Vet Med., 2011). When disinfection baths are adequately used and located in strategic places, they are very effective biosecurity tools on the farm. Additionally, the presence of boot baths draws the attention of staff and visitors to the importance of biosecurity on farm grounds (Amass et al., 2000; Pritchard, 2003)



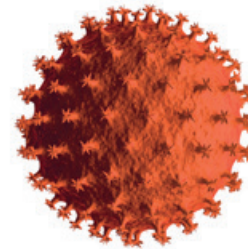
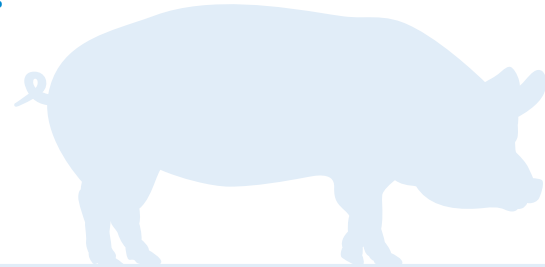
Protection

ROUTE OF TRANSMISSION



CLEANING & DISINFECTING (C&D) ANIMAL HOUSES

A complete Cleaning & Disinfection protocol prevents that animals get in contact with pathogenic microorganisms.



95%

of microorganisms can be removed by **CLEANING**, and they represent 5% of the disease risk.

5%

of microorganisms need to be removed by **DISINFECTION**, and they represent 95% of the disease risk.

A complete C&D protocol consist of **seven steps**:

STEP 1



Dry cleaning to remove all organic material.

STEP 2



Main cleaning of all surfaces with detergent.

STEP 3



High pressure rinsing with water to remove all dirt. (This step will be easier, faster and more effective when all surfaces have been cleaned with a detergent beforehand)

STEP 4



Drying of the house to avoid dilution of the disinfectant that is to be applied in step 5.

STEP 5



Disinfection of the house to achieve a further reduction of the microorganisms

STEP 6



Drying of the house to make sure that animals cannot come into contact with remaining disinfectant

STEP 7



Monitoring the efficiency of the procedure through sampling surfaces.



CLEANING THE PIG BARN

When the animals are moved out of the pig barn, it is time to start the cleaning protocol. The sooner you start the better. Manure must be removed as soon as possible. The longer a cleaned and disinfected pig house is left dry before the animals enter, the better. But some microorganisms can survive up to 60 days in a dry environment. Cleaning before disinfecting is obligatory as - remains of - organic dirt cannot be disinfected.

Our solutions

Removing this organic dirt should be done in the easiest and fastest way. That's why CID LINES, An Ecolab Company has developed a range of alkaline and acid cleaners which prove their benefits – including superior efficacy and time saving properties – daily on many pig farms worldwide.

Detergent action mode*

Foaming detergent contains surfactants, molecules with a hydrophilic head and a hydrophobic tail. The hydrophobic tail is attracted to the dirt and attaches to it. The hydrophilic head is attracted to the water and starts to pull the dirt away from the surface. The dirt particle is surrounded by the detergent that breaks it down into small particles.

MANURE MUST BE REMOVED AS SOON AS POSSIBLE



*Scan the QR code to discover more

KenoTMsan



- Sticky and long-lasting foam
- Very cost-effective use
- Extreme dirt penetrating capacity

KenoTMsan was launched following 2 years of intensive R&D and field trials. This strong alkaline degreaser has superior cleaning properties. KenoTMsan's unique formulation with multi-ionic surfactants allows a very good and fast penetration of soiling. Its combination of anionic and non-ionic surfactants decreases the surface tension and increases penetrating capacity. With his Low Critical Micelle Concentration, KenoTMsan quickly attaches to the dirt and penetrates it to the surface, in order to dissolve the dirt completely.

KenoTMsan's high foam quality and ultra-strong adhesive strength ensure effective contact time to get rid of soiling on the application surface: ventilation fans, air inlets, ceilings and entire house structures, ... KenoTMsan retains its effectiveness and strength even at low dilution, safe for user & materials.

KenoTMco

- Effective foam
- Patented formula

KenoTMco contains special surfactants to remove residuals after the first cleaning by hydrophobic action in animal houses.

Biogel



- Safe in use
- Allowing for superior contact time
- Adhesion power
- Gel forming properties

Biogel is another detergent in the 'cleaning open place' program. It is a safe universal cleaner, very effective for equipment. Thanks to the combination of powerful cleaning agents and special corrosion inhibitors.





DISINFECTING THE PIG BARN

Microbiological reduction

The goal of disinfection is to achieve a 99.999% microbiological reduction to prevent pathogens building up to a dangerous level. It is a continuous task that requires constant focus. Every area should be cleaned and disinfected. Otherwise, bacteria, viruses and fungi will find a breeding place in overlooked areas and spread disease via people, pigs, transport, vermin, insects etc. that are passing by these infectious hot spots.

Healthy and safe farms

Effective disinfection starts with a well cleaned and dry animal house. CID LINES, An Ecolab Company has developed a range of active and effective disinfectants that keep thousands of pig farms around the globe healthy and safe on a daily basis. In today's pig farming, efficient and continuous disinfection is a top priority. Virulent diseases not only destroy your animals' health, they destroy your profits and increase your costs. In short, they make your life a lot more difficult.

EFFECTIVE DISINFECTION STARTS WITH A WELL CLEANED AND DRY ANIMAL HOUSE

Virocid®

- Fast and strong disinfection thanks to multiple synergistic actives in formulation
- Ease of use liquid solution
- Can be sprayed, foamed and fogged without adding other chemicals
- Neutral pH in dilution: non-corrosive on any metal



Safety, biosecurity and prevention are key, today more than ever. And **Virocid®** is your partner to help achieve those.

Virocid® is a super concentrated disinfectant, with a synergistic composition of 4 ingredients and 3 groups of actives. As a result, **Virocid®** is arguably effective even at a very low dosage* against all micro-organisms: bacteria, viruses, fungi and spores. In addition **Virocid®** has a long effect and can be used in many different circumstances and on different surface like concrete, metal, foot baths, vehicles.

For thousands of poultry farmers throughout the world, **Virocid®** puts the action in disinfection day after day.

For vehicle safety, we only use detergents and disinfectants that are certified by the German Association of the Automotive Industry (VDA) as 'non corrosive'.



*Use biocides with precaution. Before any use, read the label and the information concerning the product. This product is not necessary available or registered in every country. Check the registration number in your country.



WATER HYGIENE

ACIDIFICATION

Microbiological reduction

Water is vital for animals. It is indispensable for regulating body temperature, digesting food and eliminating toxins. At normal temperatures, pigs consume at least twice as much water as feed. Cleaning and disinfecting pig house water lines is at least as important as cleaning and disinfecting surfaces.

Diseases in drinking water

The fastest way a pathogen can spread disease in a farm and affect the majority of your livestock is through the drinking water! Contaminated drinking water can compromise the immune system of pigs. It will cause stress and disease due to constant exposure to infection. *Salmonella*, *E coli*, *Streptococcus* and oocysts (coccidiosis) can spread easily throughout the pig house and each drinking nipple where they eventually are consumed.

Your whole hygiene, all your health management, all your cleaning efforts can be destroyed by flawed drinking water hygiene.

Disinfection

Some problems may still occur even after complete cleaning of the water lines. In these cases the problem is often related to the water quality. Where does the water come from? Surface water such as artificial lakes or surface wells and well water often carry a high bacterial load. Trichoderma and algae are commonly found in these water sources. In this case incoming water should be continuously disinfected throughout the whole production cycle.

THE PROBLEM IS OFTEN RELATED TO THE WATER QUALITY

Quality improvement

Acidifying the drinking water can help to improve the quality of this 'forgotten nutrient'. Together, acidification and disinfection improve the quality of drinking water by lowering the bacterial load (and the risk of *Salmonella* and *Campylobacter*) it can also improve performance of the animals. Lowering pH in the stomach increases protein digestibility, which increases feed conversion and weight gain.

When applying a product with one single organic acid ingredient in drinking water, the pH decreases quickly and if the dosage is too high, the pH can lower too much, leading to a negative result, namely lower water intake with decreased performance.

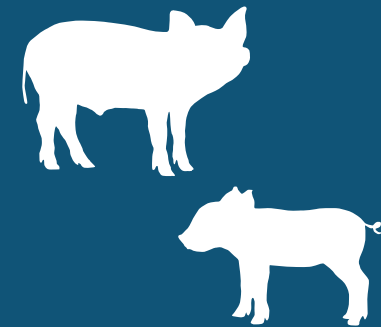
Organic acids

Choosing a product which has a synergistic formulation of multiple organic acids is advised. These organic acids have superior buffering capacities and decrease pH slowly. They have a greater antibacterial effect, taste better and are less corrosive compared with a single inorganic.

TOGETHER, DISINFECTION AND ACIDIFICATION IMPROVE THE QUALITY OF DRINKING WATER

WEANED PIGLETS

Weaned piglets experience a huge stress situation (new group, other environment, other feed,...), resulting in a drop of immunity and a reduced digestive capacity. In this critical period, piglets can be supported by giving organic acids to their drinking water.



CLEANING DRINKING WATER LINES



Cleaning the water lines means removing the scale. Removing the scale is important as this can lead to biofilm formation. Everything that you put in the water line leaves residues. The water leaves minerals behind, organic acids leave organic matter and medication and vaccines can leave carriers behind or precipitate. All these elements form a 'slime' called biofilm. Biofilm is a mix of organic and inorganic ingredients in which microbes are multiplying. It can contain pathogens like *Salmonella* and *E. coli* which are

sources of contamination for the drinking water. It decreases water flow and can block the drinking nipples. Biofilm can neutralize medicine and vaccines and that leads to under dosage or poor results.

When the animals are moved out of the pig barn, the water system should be emptied and then filled up again with a 2% CID 2000 Pro solution. It is important to push on every single nipple to allow the solution to clean it. The contact time must be respected to achieve a good result.

THE CONTACT TIME MUST BE RESPECTED TO ACHIEVE A GOOD RESULT

After 4-6 hours, the water system must be rinsed with clean water to flush out all the loosened dirt. Check if the product solution is removed with test strips.

Cid 2000 Pro



- Water line cleaner
- Effective until the end of the line
- Removes scale

Cid 2000 Pro can be used continuously for water cleaner at 100 ml to 500 ml / 1000 L.

All the ingredients have a high cleaning capacity to clean the lines



*Use biocides with precaution. Before any use, read the label and the information concerning the product. This product is not necessary available or registered in every country. Check the registration number in your country.

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