DISINFECTANTS FOR USE AGAINST ASFV

FOLLOW-UP FOR THE 2ND SGE-ASF FOR ASIA

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SUMMARY AND CONCLUSION ON BIOSECURITY FOR 2ND SGE-ASF FOR ASIA

Safe and effective cleaning and disinfection strategies are required, including appropriate choice of disinfectants. The application method should be science-based (i.e. OIE international Standards). The disinfectant concentration, contact time, pH, etc and the nature of the surface to be disinfected also needs to be considered. Specific precautions should be taken in case of freezing temperatures.

DEVELOPMENT OF THE PRACTICAL GUIDANCE FOR THE USE OF DISINFECTANTS

- Effect of disinfectant cannot be expected if proper disinfectant is not selected and properly used
- Availability of disinfectants and products name vary by country
- Practical guidance which can be easily translated or customized to each country may be useful
- Need input from participating members!

DRAFT PRACTICAL GUIDANCE FOR THE USE OF DISINFECTANTS

General consideration for applying disinfectants

- ✓ Organic materials such as soil, manure, and feed debris often reduce the activity of disinfectants. Therefore, it is extremely important to remove organic matters before applying disinfectants. CLEAN PROPERLY BEFORE YOU DISINFECT!
- ✓ If the organic materials contain pathogenic microorganisms, cleaning of such organic material should be done using disinfectants instead of water. (e.g. disinfection of the holding after the disease outbreak)
- ✓ When using a foot bath, it is highly important to wash boots thoroughly to remove organic materials before step into the foot bath and change disinfectant solution frequently to keep the foot bath fresh.
- ✓ Sufficient contact time is required in order to ensure effectiveness. Application method should be selected in order to ensure sufficient contact time such as using foam-type disinfectant to use in the livestock barns.

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- ✓ In general, effectiveness of disinfectant is compromised when temperature is low. Optimum temperature for disinfectant is around 20 C. When ambient temperature is low, heating of disinfectant solution or applying higher dilution should be considered. Use antifreeze agents if disinfectant solution as appropriate.
- ✓ Each disinfectant has optimal pH to maximize effectiveness. Effectiveness will be compromised if pH was altered by mixing with other type of disinfectants.
- ✓ Disinfectants are toxic for animals in general. When handling disinfectants, appropriate protection should be provided such as wearing eye protection, respirators and gloves in accordance with the labels of disinfectants as well as relevant laws.
- ✓ Consideration for the location and amount of disinfectant to be used should be made not to cause environmental load

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Type of disinfectants	Product name in each country	Characteristics/notes
Formaldehyde (Formalin)		·Broad spectrum ·Water-based solution with 37% formaldehyde is called Formalin · ASFV inactivated with 3/1000 formalin(30minutes) <OIE disease card> ·Most often used against ASFV as a vapour for disinfecting electrical device ·Highly toxic to human
Glutaraldehyde		·Broad spectrum ·Works most strongly at pH 7.5±0.85 ·Less corrosive to metals, rubbers and plastics ·Highly toxic to human
Sodium hypochlorite (bleach) Calcium hypochlorite (bleach powder)		· Widely used for hard-surface disinfection, broad spectram ·ASFV inactivated with 0.03%-0.5% chlorine(30 minutes) <OIE disease card> ·Relatively low residual toxicity ·Corrosive to metals ·Efficacy rapidly reduced with organic matter · Effectiveness diminished with extended storage
		·Stable in storage

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Iodine compounds		·Stable in storage ·Less toxic to human ·Corrosive to metals · ASFV inactivated 2-3% iodine compounds(30min) ·Efficacy rapidly reduced with organic matter
Calcium hydroxide (Lime)		·Widely used in livestock production including treatment of slurries and waste water treatments · ASFV inactivated with 1% calcium hydroxide(3min), 0.5% calcium hydroxide(30min) ·Apply on the ground or floor of the barns to be visibly white. In case of disease outbreak, apply sufficient amount(1kig/m2). ·Easy to obtain, easy to apply ·Requires long contact time and moisture ·Frequent application is required when used outdoor

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Sodium hydroxide (Caustic soda)		· The strongest vircidal agent · ASFV inactivated with 8/1000 sodium hydroxide(30min) <OIE disease card>, · ASFV inactivated with 1% sodium hydroxide (3min),0.5% sodium hydroxide(30min) Effective in the presence of organic material · Highly dangerous and need special caution when handling
Quantary Ammonium Compounds(QACs)		· Commonly used in ordinary environmental sanitation. · Generally low toxicity but prolonged contact can irritate skin and respiratory tract. · Effective for enveloped viruses including African Swine Fever viruses. · Inactivated with organic matter

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Phenol (clesol, lysol, lysephoform, creolin)		· Effect is enhanced with EDTA and warm temperature · Bacteriostatic at concentrations of 0.1%-1%, bactericidal and fungicidal at 1%-2% · ASFV inactivated with 3% ortho phenylphenol(30minutes)<OIE disease card> · Effect is decreased by an alkarine medium, lipids, soaps and low temperatures, but more active in the presence of organic material than other disinfectants · The activity is enhanced by EDTA and warm temperatures · Cresol has lower toxicity and stronger disinfecting activity than phenol
Multi-constituent compounds	VirkonS, Lysoformin Desoform, Ecocid S Virocid,Pheno-Cen Germicidal Detergent Low pH Phenolic256 Clearon Bleach Tablets KlorKleen,Klorsept and more	Apply according to the product instructions

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Choice of the disinfectant by purposes

- ✓ Foot-bath:
  QACs, hypochlorite, lime, any other disinfectants
- ✓ Vehicles(spraying):
  QACs, glutaraldehyde, Vircon-s
- ✓ Animal housing, cages(spraying):
  QACs, glutaraldehyde, sodium hypochlorite, Vircon-s, any other disinfectants.
  Note: Possible corrosion should be considered
- ✓ Entrance of the premise, areas around animal housing:
  Lime
- ✓ Electrical equipment(gas):
  Formaldehyde
- ✓ Clothing(dip in the disinfectants before washing);
  Sodium hypochlorite, Calcium hypochlorite, Vircon-s, any other disinfectnats

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Laboratory-scale inactivation of African swine fever virus and swine vesicular disease virus in pig slurry.
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"Handbook of disinfection in livestock sector" Japan Livestock Industry Association

The OIE technical disease card

Fact Sheet "African Swine Fever" by the National Institute for Animal Health, NARO, Japan

Fact Sheet "Disinfection on on-Farm Biosecurity Procedures"
The Ohio State University Collage of Food, Agricultural, and Environmental Sciences

"Disinfectants Approved For Use Against African Swine Fever" USDA, APHIS

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Please share materials or the list of disinfectants used in your country!