NEWSLETTER

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IN THIS ISSUE

Examples of downloadable literature available from our Website

PRACTICAL TIP

What about the water?

In spite of many terminal disinfection procedures being carried out faithfully in respect of the thorough cleaning and disinfection of the building, detailed attention to the drinking water system is often overlooked. Even with covers, water header tanks can become contaminated during a crop. If this happens, infectious organisms can be transferred to the new crop, however good the house cleaning has been.

After depopulation and dry cleaning of the house, the water system should be completely drained. The interior of the header tank should then be thoroughly cleaned and rinsed. This may be done in parallel with the cleaning of the house.

The system should now be filled with clean water and sufficient Viru-Gard added to the tank to create a 1:200 (0.5%) dilution, ensuring that the lines and drinkers are filled. Leave to stand for at least an hour, drain the system and fill the system with clean water and cover the tank.

COMPANY NEWS

This month we have been focusing on completion of many registration procedures in various market and making new contacts in new territories.

We informed you previously that our monthly newsletters were available for downloading in PDF format from our website. This new download section has now been expanded to include PDF files of our literature and Material Safety Data Sheets.

A number of additions, changes and improvements to the website are planned for the coming weeks, so check it out regularly.

All of the company's current range of 11 products are now available from stock.

EDITORIAL

In this issue we include an article on Fowl Cholera and the first of three parts of a paper on Chemical Disinfectants for the Livestock Industry and how they Work. This should answer many frequently asked questions on this topic.

Our featured product this month is **Farm-Gard;** probably the most versatile and cost effective heavy duty disinfectant formulation available.

We always welcome comment regarding the content of our newsletter and any requests for particular technical content will be considered. We are always available to answer customer's questions on these or any other topics. Contact us at info@farmcaregb.com.

FOWL CHOLERA

Introduction

Fowl Cholera is a serious, highly contagious disease caused by the bacterium *Pasteurella multocida* in a range of avian species including chickens, turkeys, and water fowl, (increasing order of susceptibility). It is seen worldwide and was one of the first infectious diseases to be recognised, by Louis Pasteur in 1880.

The disease can range from acute septicaemia to chronic and localised infections and the morbidity and mortality may be up to 100%. The route of infection is oral or nasal with transmission via nasal exudate, faeces, contaminated soil, equipment, and people. The incubation period is usually 5-8 days.

The bacterium is easily destroyed by environmental factors and disinfectants, but may persist for prolonged periods in soil. Reservoirs of infection may be present in other species such as rodents, cats, and possibly pigs.

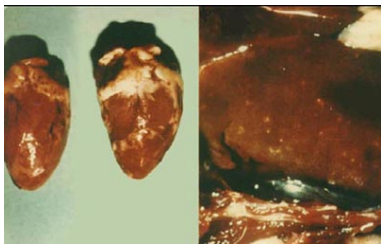
Predisposing factors include high density and concurrent infections such as respiratory viruses.

Signs

Dejection.
Ruffled feathers.
Loss of appetite.
Diarrhoea.
Coughing.
Nasal, ocular and oral discharge.
Swollen and cyanotic wattles and face.
Sudden death.
Swollen joints.
Lameness.

Post-mortem lesions

Sometimes none, or limited to haemorrhages at few sites.
Enteritis.
Yolk peritonitis.
Focal hepatitis.
Purulent pneumonia (especially turkeys).
Cellulitis of face and wattles.
Purulent arthritis.
Lungs with a consolidated pink 'cooked' appearance in turkeys.

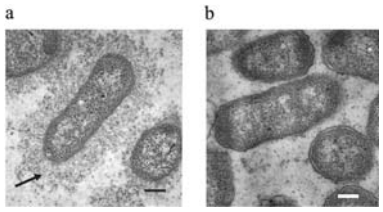


Post-mortem lesions

Diagnosis

Impression smears, isolation (aerobic culture on trypticase soy or blood agar yields colonies up to 3mm in 24 hours - no growth on McConkey), confirmed with biochemical tests.

Differentiate from Erysipelas, septicaemic viral and other bacterial diseases.



Electron micrographs of *Pasteurella multocida*

Treatment

Sulphonamides, tetracyclines, erythromycin, streptomycin, penicillin. The disease often recurs after medication is stopped, necessitating long-term or periodic medication.

Prevention

Biosecurity, good rodent control, hygiene, bacterins at 8 and 12 weeks, live oral vaccine at 6 weeks.

PRODUCT PROFILE – Farm-Gard

General properties

Farm-Gard is a 100% active synergistic blend of organic acids, surfactants and high and low molecular weight biocides for broad-spectrum pathogen control. Farm-Gard is active against a wide range of viruses, bacteria and fungi. Farm-Gard is cost effective and formulated to provide heavy-duty disinfection. It is particularly effective in the presence of organic challenge, hard water and at low temperatures.

Instructions for use

Immediate protection – Terminal disinfection before stocking: Use via a pressure washer with a fan nozzle set at 500-1000 psi at a dilution of 1:200, thoroughly wetting all surfaces. This will require 250-300 ml of solution per m². Allow drying before re-stocking.

Wheel and Foot Dips: Use a dilution of 1:100. Clean and replenish dips weekly

Recommended Dilution Rates

Terminal Disinfection	1:200
Foot and Wheel Dips	1:100

For a Particular Disease Instances

Newcastle Disease	1:200
TGE	1:320
Herpes Virus	1:200
Foot and Mouth Disease	1:700
Salmonella Enteritidis	1:200

Available in 4 x 5L and 20L packs.

Chemical Disinfectants for the Livestock Industry and how they Work –Part 1

John Woodger, B.Vet.Med., MRCVS,
FarmCare GB Ltd

Chemical agents provide the most wide spread means of disinfection in veterinary practice. There are many different types of chemical antimicrobial agents, serving a variety of purposes. Not all of these are used as veterinary disinfectants.

The term 'disinfection' as used in this paper refers to the destruction of pathogenic organisms on inanimate surfaces. 'Bactericide', 'mycobactericide', 'sporicide', 'fungicide and 'virucide' are terms referring respectively to agents that kill bacteria, mycobacteria, bacterial spores, fungi and viruses. The suffix '-stasis' or '-static' refers to an inhibition of growth but not to a lethal effect.

There can be considered to be two broad types of disinfectants in use. Firstly what can be termed 'simple' chemical disinfectants, which are those which contain a single chemical biocide often in combination with a surfactant (detergent) for improved surface contact. Secondly there are formulated disinfectants where more than one biocidal agent is combined often with other chemicals to enhance the overall activity of the product.

The various types of 'simple' disinfectants commonly used in livestock production will be considered under the headings of their chemical groups. When considering the properties of 'formulated' disinfectants later, it is useful to refer to these simple chemical groups where appropriate as a number of them are used in the formulations.

Phenols

Many phenols used in the manufacture of disinfectants are derived from the distillation of coal tar. Tar derived from the destructive distillation of coal is fractionated to yield a group of products including phenols (tar acids). Coal tar produced in a low temperature carbonisation process contains the following fractions at he temperatures indicated, phenol (182^{o}C), cresols (189-205^{o}C), xylenols (210-230^{o}C), and high boiling tar acids (230-310^{o}C). The combined fractions of cresols plus xylenols are also available as a commercial product known as cresylic acid. Non-coal tar or synthetic phenols are also available. These include phenol itself and some of its derivatives such as 2-phenylphenol (*o*-phynylphenol).

Antimicrobial properties

There is a considerable variation in the antimicrobial activities of various phenols attributable to variations in chemical structure. Substitution of an alkyl chain up to six carbon atoms in length and or halogenation increases the antibacterial activity of phenols. Nitration also increases activity but also increases systemic toxicity. The nitrophenols act as uncoupling agents and interfere with oxidative phosphorylation in bacteria.

As a group, these chemicals are bactericidal to Gram-positive and Gram-negative bacteria but bacterial spores are highly resistant at ambient temperatures. 2-phenylphenol and the black fluids are particularly effective against mycobacteria, but bisphenol is ineffective. Phenols and cresols particularly halogenated phenols posses activity yeasts and fungi. The enveloped or lipid type viruses tend to be sensitive to phenols whereas non-enveloped viruses are more resistant. 2-phynylphenol is active against both types.

The influence of organic matter on activity varies according to the type of phenol Generally, clear soluble types are little effected while with cloroxylenols the activity is decreased.

Toxicity

Phenolics are general protoplasmic poisons. They are rapidly absorbed through the skin and can cause severe burns. They can be fatal if swallowed. Alkyl and halogen substitution decreases caustic properties and toxicity.

Acids and Esters

Some acids, e.g. salicylic and benzoic have been employed, suitably formulated for topical treatment of fungal infections of the skin. Citric acid is an approved disinfectant against the Foot and Mouth Disease virus.

Organic acids on their own have limited application in livestock disinfection, though some are of considerable value in formulated disinfectants (see later in this article). Lactic acid has been employed as an aerosol for aerial disinfection against non-sporing bacteria. Due to its low toxicity it has been used in buildings occupied by animals. Lactic acid is also a useful decontaminant in slaughter and processing procedures. It produces an immediate bactericidal effect and a delayed bacteriostatic one, resulting in an extended meat shelf life. Formic and proprionic acid have been used to control salmonella in feedstufs.

Alkalis

Alkalis have been used as disinfectants for a long time. Their activity is related to the concentration of hydroxyl ion (OH).

Caustic Soda (Sodium hydroxide, NaOH) posses strong alkali properties and kills many common bacteria. At concentrations above 5% it is lethal to anthrax spores. For normal disinfection purposes, a 2% solution is used in hot or boiling water.

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FORTHCOMING EVENTS

In Association with **Dairy Focus Asia 2008**

FarmCare GB is proud to be associated with the above events and we are providing a speaker (Dr John Woodger) for both the Poultry and Dairy events. John will be presenting a paper entitled "Effective breeder/hatchery biosecurity" on day three of the Poultry conference and one entitled "Dairy Farm Biosecurity" to Dairy Conference.

We hope that as many of our distributors and key customers as possible will make plans to attend one or more of these events. March 2008 may seem a long time off, but I think we all know how time flies. Of additional interest to some will be the fact that these conferences precede the Victam Asia Exhibition at a convenient location close to the conference centre.

We hope to be able to arrange a dinner on the evening of Wednesday 5th March 2008 for all distributors and their Key customers attending the event.

Programs for Poultry Focus Asia 2008 and Pig Focus Asia 2008 are available. Anyone who would like a copy, please contact john@farmcaregb.com.

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Chemical Disinfectants for the Livestock Industry and how they Work –Part 1 (Continued from page 3)

Calcium hydroxide (hydrated lime) is used as a 20% suspension as a white wash which kills many types of non-spore forming bacteria. Obviously whitewashed surfaces are not compatible with the use of acid based disinfectants. Calcium hydroxide is used as a powder or thick suspension for the disinfection of livestock pens.

Sodium Carbonate (Na_2CO_3) is used as a 4% w/v solution for cleaning prior to disinfection. Trisodium phosphate (Na_3PO_4) has similar properties and uses.

Toxicity

Alkalis can cause severe burns and must be handled with care. Contact with skin and eyes must be avoided. They may be fatal if swallowed.

Chlorine releasing compounds

The stability of free available chlorine in solution is dependent particularly on chlorine concentration, pH of the solution, the presence of organic matter and light. Chlorine is a strong oxidising agent, which is corrosive to metals and will cause bleaching of some materials. The types of chlorine compounds that are most frequently used are hypochlorites *N*-chloro compounds.

Hypochlorites

These show a wide antibacterial spectrum although less against spores and mycobacterium. They show activity against enveloped and non-enveloped viruses and protozoa. Their activity is markedly affected by organic material due to chlorine being a highly reactive chemical. Hypochlorites are more active in an acid than an alkaline pH.

The most important hypochlorites are sodium hypochlorite and calcium hypochlorite. Apart from being adversely affected by organic material, solutions loose strength on storage. Methanolic solutions buffered to pH 7.6 - 8.1 show maximum stability and sporicidal activity. Hypochlorites are widely used in the dairy industry and as disinfectants for the concrete floors, walls and ceilings of farm buildings.

Toxicity

Ingestion of chlorine releasing agents or inhalation of hypochlorite aerosols may produce severe or fatal consequences. Acids should not be added to hypochlorite as chlorine gas may be liberated.

Other Chlorine Releasing Compounds

These are organic chlorine compounds such as chloramine-T, dichloramine-T and di- and tri-chloroisocyanuric acids. Their action is slower than the hypochlorites, but is increased under acidic conditions. They are less affected by organic material than hypochlorites.