



**EFFECTIVE MANAGEMENT OF
INFECTIOUS BURSAL DISEASE VIRUS (IBD)
AT PRE-PLACEMENT DISINFECTION WITH**



Virukill[®]



If IBD can be effectively managed at pre-placement - all other important poultry pathogens can also

INFECTIOUS BURSAL DISEASE VIRUS (IBD)

The structure of IBD virus makes it very difficult to inactivate. This is because IBD virus is a naked virus – which means that the virus just has genetic material surrounded by a protein shell. Any disinfectant which inactivates IBD virus must be able to disrupt the protein shell of the virus. This is very difficult to do and very few products effectively inactivate IBD properly. **Virukill® is one of the few products which can.** Various laboratory tests, including a GLP laboratory test from the USA have all confirmed that **Virukill®** inactivates IBD.

One of the main problems with IBD virus is that in young birds, the main target organ is the bursa of Fabricius. This is the organ involved in the immune response in birds and if this is damaged, the birds are immunocompromised. In other words their immune system is not fully functional. This can have an effect on vaccination efficacy, not only against IBD, but also all other pathogens.

The main efforts to control the problems with IBD (apart

from the very obvious method of inactivating the virus at pre-placement) is to establish the level of maternal antibodies in the flock, and then using various calculation and prediction methods to calculate the date of vaccination. When vaccinating with live virus vaccines, if there are very high levels of maternal antibodies in the bird, they will attack the live vaccine virus and the vaccine will not work. However, if there are very high levels of virus remaining in the house, they will also attack the bird and the maternal antibodies will be depleted much faster than the prediction. This means that the protective maternal antibodies are used up way quicker than predicted, and by the time the birds are vaccinated, there will be no antibodies left to protect the birds during the time it takes for the immune response in the bird produces their own antibodies. This may not result in clinical gumboro, but will result in sub-optimal production parameters and poor vaccination efficacy, with increased problems with diseases.



RECOMMENDED PREPLACEMENT DISINFECTION WITH VIRUKILL® TO EFFECTIVELY MANAGE IBD

Step 1: Removal of all organic material like bedding

This is a very important step. Remove as much of the debris and organic material as possible. All disinfectants are inactivated by organic material. This step is the same as the normal procedures.

Step 2: Dry cleaning of the house – to remove as much dust as possible

This step involves sweeping the house out to remove as much dust as possible. Same point as above. This is also the same procedures as normally followed.

Step 3: Wash the house with a 0.2% *Virukill*® solution (200 ml per 100 L) at a rate of 2 L solution per m².

This is where *Virukill*® is novel and unique. Changing to the *Virukill*® program will have a dramatic beneficial effect on the pre-placement disinfection process.

In the **normal pre-placement disinfection program**, the houses are washed with large volumes of water and detergent to remove as much of the organic material as possible. However, washing with water does nothing to the bacterial and viral pathogens in the poultry house, apart from moving them to areas where they are difficult to get to, like cracks, corners or even outside the house. The detergent is needed to break the organic matter and help with removal of more dirt. Some detergent types will neutralise the disinfectant which is used in Step 4, so the detergent must also be washed off, if applicable.

For the *Virukill*® application, replace the water used for washing with a 0.2% *Virukill*® solution (200 ml in 100 L) at a rate of 2 L solution per m².

HOW DOES THIS WORK?

Virukill® is highly effective against bacteria. Very low levels of *Virukill*® already kills many of the bacteria found in the house. This can be seen in Figure 1.

Washing of the house is an essential step in any effective pre-placement disinfection program. Washing with a dilute *Virukill*® solution will perform the same function as washing with water – i.e. removal of visible dirt. The washing with the 0.2% *Virukill*® (200 ml *Virukill*® in 100 litres of water) solution can be done making use of the same equipment currently used on the farm – i.e. high pressure sprayers. The surfactant in *Virukill*® will do the same function as the detergent in the normal preplacement disinfection program.

If most of the bacteria can be removed during the washing stage – the full force of the final disinfection stage can be focussed on inactivation of viruses especially the very difficult to kill naked viruses such as IBD and CAV.



Figure 1

Step 4: Final preplacement disinfection

Disinfect the house with a 1% solution of *Virukill*® (10 ml *Virukill*® per litre of water). *Virukill*® has been tested and found to be effective against IBD, CAV and all other poultry pathogens including naked and enveloped viruses such as NDV, AI, IB, *Mycoplasma* species, Gram positive and Gram negative bacteria as well as fungi and yeasts.

The normal application rate is around 600 ml of the 1% *Virukill*® solution per m².

The most important factor influencing the efficacy of a disinfectant is contact time. In order to kill IBD (the most difficult of the viruses to kill) a contact time of 20 minutes with a 1% solution is needed. If you notice that the disinfectant applied to the house is drying too quickly, increase the volume which is applied to the house to increase the contact time.

Under circumstances where there has been major and persistent IBD problems in the house, increase the dilution rate to 2% *Virukill*®

IBD is by far the biggest problem in poultry production and if this virus is not effectively controlled at pre-placement disinfection you will always have sub-optimal production and high mortality rates. ▶

Step 5: Disinfection of cooling pads

Disinfect cooling pads with a 0.2% **Virukill**[®] solution (200 ml per 100 L water). If **Virukill**[®] is used in cooling pads for the first time it is recommended to pre-disinfect the cooling pad with 1% **Virukill**[®] solution.

Step 6: Monitor disinfestation process

Monitoring of the disinfection process is always a good idea, but you must understand the limitations of these tests. In the monitoring process, you are looking at how effectively you have killed bacteria. Remember your main concern is to kill viruses. It is not possible to effectively and cheaply monitor the efficacy of the disinfection program against viruses.

Step 7: Disinfection of all equipment

All equipment, including the drinking water system should be disinfected with a 1% **Virukill**[®] solution before going back into the house.

Step 8: Add new bedding material and replace equipment

Add new bedding material to the house and replace all of the pre-disinfected equipment back into the house.

Step 9: Final preplacement fogging

A final fogging of the house before placement of the birds can also be done. Pre-placement fogging should not be seen as a replacement for any of the steps above. Pre-placement fogging is a final step which can be done, but is not essential. The following application rates can be used for fogging or misting:

ULV Solution:

500 ml**Virukill**[®]
5 000 mlPropylene glycol
14 500 ml.....Water

Fogging Solution (Cold or Thermal):

500 ml**Virukill**[®]
17 000 ml.....Propylene glycol
2 500 mlWater

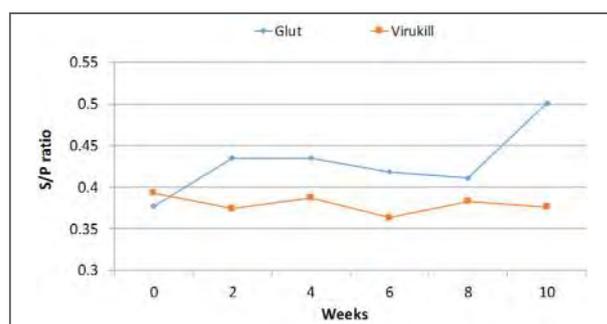
The rate for both fogging and misting is 550 ml per 1 000 m³.

PROOF OF THE EFFICACY OF VIRUKILL[®] IN REMOVING IBD FROM HOUSES

The efficacy of **Virukill**[®] against IBD has been extensively tested in various laboratories, including a GLP accredited laboratory in the USA.

In an experiment performed at the University of the Free State, two chicken pens were contaminated with a live vaccine strain of IBD. One pen was disinfected with a glutaldehyhde based product. The other pen was disinfected with the **Virukill**[®] method. SPF chickens were then placed into the houses. These birds have no antibodies against IBD.

The serum of the birds were collected over time to check for the development of antibodies. The only way that antibodies could develop is if the vaccine virus added to the floor was not inactivated. Antibodies were seen to develop in the birds in the pen treated with glutaldehyhde, but not in the **Virukill**[®] pen. This clearly shows that the **Virukill**[®] preplacement disinfection program works.



Virukill[®] (Poly Dimethyl Ammonium Chloride 120g/ℓ)
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