

University of Delaware Poultry Health System: IBV Vaccination Recommendations

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Infectious Bronchitis Virus (IBV), like other coronaviruses, is a highly unstable virus prone to mutation. This is a reason that IBV vaccines, while safe when they are manufactured, can become pathogenic and established in high production areas. This fact sheet provides some thoughts on how best to use IBV live attenuated vaccines.

1. Vaccination of chickens with combination live attenuated vaccines-interference. Vaccine efficacy can be severely reduced when vaccines containing 3 IBV strains are administered simultaneously. The chicken's immune system can recognize and respond well to only 2 strains at one time. Little immunity will result from the third strain due to interference with the other 2 vaccines. This is a real effect that has been shown in lab trials at the University of Delaware.
2. Vaccination with combination live attenuated vaccines-potential for recombination and the evolution of new strains increases with number of IBV strains used.

Recombination is a genetic event that may occur when two (or more) different IBV strains replicate in the same cell(s) of the chicken, such as in the respiratory tract where vaccines normally replicate. The resulting infection may cause recombination events leading to hybrid strains containing genetic elements of each original vaccine strain.

1 and 2 above can produce pathogenic strains via back-passage in chickens in a flock and these will spread to neighboring flocks in time.

3. IBV vaccines should always be given at full dose. Vaccines given at partial dose will not achieve the desired coverage when given via spray or drinking water. This sets up a rolling reaction situation where unvaccinated chickens will acquire the vaccine virus from chickens that received the vaccine during the actual administration. The problem is that the vaccine continues to spread through the flock to additional susceptible chickens and they suffer a far stronger vaccine reaction and its consequences.
4. IBV booster vaccination should not be given to chickens experiencing a respiratory reaction due to an earlier respiratory virus vaccine application. IBV and ILT CEO vaccines produce stressful infections in young, growing chickens. Broilers will develop respiratory disease and mortality if booster vaccines are not appropriately applied. It may be better to not boost at all in the face of a vaccine reaction, or at a minimum, wait until the reaction has resolved.
5. IBV builds up in the poultry house, especially with short down times between flocks. Consider breaking the cycle of hot vaccine challenges or perhaps a new variant virus by using in-house litter composting between flocks. Composting/heating is a highly effective tool for reducing challenge due to IB, LT and other viruses such as Marek's and ND.

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