

Modern disease control for a modern poultry industry

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Abstract

A new model for controlling emergency diseases, incorporating the best features of different control measures, is proposed. This model would draw from poultry industry and government expertise to quickly, cooperatively and cost-effectively stop poultry disease outbreaks. The advantages of the proposed program are that it requires no unethical destruction of healthy birds, requires no costly disposal, is cost effective and puts more of the control costs on the producers with infected birds.

Introduction

Stamping out (designation of infected zones, imposition of quarantines, slaughter and destruction of infected and susceptible animals and intensive monitoring) is a well-recognized but unproven strategy for emergency livestock diseases.

Attendees at the XIIIth Congress of the World Veterinary Poultry Association were privileged to hear Dr Erhard Kaleta, President of the World Veterinary Poultry Association, present the welcome address. Dr Kaleta reminded the audience that “...*clubbing of farmed animals originated during severe outbreaks of a disease which is now termed rinderpest in the year 1711 in Italy. It was the pope Clement 11th who – after deliberations with some of his cardinals and medical advisors – decided to eradicate rinderpest in all cattle by clubbing and deep burying. Very soon responsible authorities in other European countries and later also in the United States of America followed this divine advice.*(2)”

In the late 19th century funds were provided to the Bureau of Animal Industry, U.S.D.A., to pay indemnity for the quarantine and slaughter of cattle affected with bovine pleuropneumonia and the disease was successfully eradicated. In the first three decades of the 20th century, using this familiar approach foot and mouth disease and fowl plague were eradicated six times and twice respectively(3).

Certainly most veterinarians are in agreement that eliminating susceptible animals will contribute to eradication of a pathogen, but elimination of susceptible animals is not equivalent to destruction. Times have changed since the pope embarked on a rinderpest eradication campaign:

- Microbiology was discovered,
- Our arsenal of disease control tools has expanded,
- Agriculture has evolved from a scattered poultry population disseminated throughout rural areas to dense populations on industrial farms in various rural areas,
- The consuming public has become increasingly suspicious of dramatic televised scenes of destruction and disposal of animals and
- Questions are being raised about the ethics of killing and disposing of healthy animals.

Even though the public finds it distasteful, there is support in the veterinary community for stamping out when applied to emergency (O.I.E. List A) diseases. This support is strong but not

universal. Recently (in the last 2 years) eggs or poultry have been destroyed as a result of low pathogenic avian influenza (LPAI) infections in 10 states. Support for this approach may exist for small outbreaks, but what happens if hundreds of flocks are involved? It is often said that stamping out is the most cost effective strategy; however, recent stamping out programs involving poultry disease all eclipsed the \$100 million mark in their total costs (Virginia, California, Italy, Netherlands).

It is questionable whether the modern poultry can tolerate this expensive, unproven, draconian and dramatic method of disease control much longer. The question of whether an alternative strategy would have been more effective has not been asked. In the absence of research trials to document the advantage of this archaic approach, regulatory officials should examine and document instances where emergency diseases were satisfactorily brought under control with a different approach. Low pathogenic avian influenza outbreaks have been effectively controlled by vaccination and controlled marketing as well as by stamping out, but for substantially less money. It was recently pointed out that stamping out programs for low path AI may cost 10 to 100 times more than controlled marketing (1).

A proposal

Because industry-driven controlled marketing programs as well as government-driven stamping out programs have been successful, a thoughtful examination of stamping out programs leads to the idea that their success is related, not to the destruction of infected, susceptible and convalescent poultry, but to the enforced downtime, designation of infected zones, imposition of quarantines, and intensive monitoring. There is nothing special about killing and burying or burning poultry because disease outbreaks have been stopped by alternative means. Thus we can infer that it is the government's authority to quarantine, order cleaning and disinfecting, monitor and permit repopulation that accounts for its success in controlling disease. These strengths in government programs match up well with the major weakness of industry programs.

The modern poultry industry is driven by the companies' needs for meat and eggs. The weakness of industry-driven disease control is that this need for a continuous supply of meat and eggs may cause companies to act in ways that do not contribute to disease control and may actually contribute to disease spread.

A new hybrid disease control program is proposed that encompasses the best that industry and government programs have to offer. Industry and APHIS veterinarians, in a cooperative arrangement, could initiate well-thought out measures when a disease outbreak occurs. For example:

- **Biosecurity.** First, all off-farm movement of dead birds and manure should be halted area wide, and all off-farm movement of live birds or eggs should be controlled as should movement of people and equipment. The group can immediately do an epidemiological assessment.
- **Processing and scheduling.** The cooperative group should initiate a program of processing all healthy meat birds of marketable age in the area. Placement schedules

should be interrupted. No placement of chicks or poults should be allowed and downtime should be extended for infected premises.

- **Vaccination.** Depending on the disease, the group should assess whether long-lived birds need to be vaccinated. Layer (and breeder) replacements should be vaccinated twice before being moved to the layer facility. Meat birds should be vaccinated if deemed to be at risk (if they are moving from brooder farm to infected grower farm for example). Vaccinated flocks may be held under quarantine. It is imperative, however that vaccine is available for emergency use.
- **Area repopulation.** After no new infected flocks are detected for an agreed upon period of time, controlled repopulation may begin. When all flocks are virus negative the outbreak is over but antibody positive flocks remain under quarantine.
- **Cost.** The costs of this program would be borne by the affected individuals and companies with government providing diagnostic and logistical support. Companies and individuals with infected birds would experience more of the costs than their noninfected counterparts. These costs would include the costs of mortality, medication, condemnation, lost production, rescheduling and vaccination. People with noninfected flocks might experience the costs of rescheduling and vaccination. The greatest cost is the forced rescheduling which would be greater for infected than noninfected farms.

Conclusion

It is no longer necessary to consider diseased or convalescent poultry as “evil.” In the scientific age, we now recognize that disease control programs with totally different approaches can have the same outcome. Combining the best features of existing programs has the potential to improve the existing disease control strategies and to reduce the objections that have been raised about them.

References

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