Biosecurity for Disease Prevention

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Summary

Due to the large number of poultry and concentration in flocks it is imperative that producers put in place precautionary measures to prevent the introduction and spread of disease-causing organisms. Biosecurity consists of a bundle of preventative disease control measures practiced by poultry producers. It reduces the risk of disease agents moving onto farms from outside, the movement of diseases within same farm, and carryover of disease agents between different flocks on a farm. Diseases may lead to mass culling of a flock or even an entire farm, thus justifying the cost of attention to fundamental strategies that prevent transmission of pathogens in the farms. The effectiveness of a biosecurity program can be optimized by regional participation since the practices are more effective if all poultry producers apply them.

Technical Description

Biosecurity involves a set of practices and strategies that are guided by the design and day-to-day management of poultry production units. Its three main elements are isolation, traffic control and sanitation. Poultry farmers and workers benefit from training on the importance of biosecurity measures for their personal health and profitability of the business. Diligent surveillance is key for early detection which can greatly reduce the impact and spread of disease to other flocks. Poor biosecurity standards can undermine vaccination and medication, and good flock and feed management practices.

Uses

Precautionary measures against diseases are required in every part of the poultry value chain from breeding centers, hatcheries, brooding units, layer and broiler farms to feed blending and processing factories.

Composition

Biosecurity measures protect against a wide range of pathogens, incl. Newcastle disease, Avian cholera, Marek’s disease, Salmonella, Coccidiosis, Mycoplasmosis, Colibacillus, and Avian Influenza, some of them also posing a threat to humans.

Means of application

Poultry houses should be located away from heavily populated human settlements, and other animal production systems. Every poultry operation should have an isolated area

for the treatment of sick chickens until their full recovery. Newly acquired birds should be quarantined for fourteen days and vaccinated before being introduced into the main flock. Workers must always wear boots, overcoats, gloves, and face masks, and these must be regularly disinfected. Each poultry house should have a footbath at the entrance with a strong cleaning solution. Facilities for feed storage and processing birds should be located 30m to 50m away from production houses. Vehicles entering the premises have to drive through a water sanitation pan. Poultry manure is to be kept at least 20m away from production units. Infected chickens must be burnt or buried off site. Fencing of premises with mesh wire helps to keep out rodents, wild birds, and domesticated animals that carry diseases.

Agroecologies	All Agroecologies.
Regions	Africa South of Sahara.
Developed in Countries	Zimbabwe, Zambia, Uganda, Tanzania, South Sudan, Somalia, Sierra Leone, Senegal, Rwanda, Nigeria, Niger, Mozambique, Malawi, Kenya, Ivory Coast, Guinea, Ghana, Gabon, Ethiopia, Democratic Republic of the Congo, Central African Republic, Burundi, Benin.
Available in	Zimbabwe, Zambia, Uganda, Tanzania, South Sudan, Somalia, Sierra Leone, Senegal, Rwanda, Nigeria, Niger, Mozambique, Malawi, Kenya, Ivory Coast, Guinea, Ghana, Gabon, Ethiopia, Democratic Republic of the Congo, Central African Republic, Burundi, Benin.
Solution Forms	Management.
Solution Applications	Disease control, Livestock Production.
Agricultural Commodities	Poultry.
Target Beneficiaries	Agro-dealers, Agro-manufacturers, Commercial farmers, Small-scale farmers.

Commercialization

Commercialization Category

Commercially available

Startup Requirements

Poultry farmers should work with veterinarians and engineers to design secure premises and appoint a staff member as biosecurity leader.

Production Costs

The cost of biosecurity is about 2% to 5% of total operations cost. Materials for preventing disease spread amount to as little as US $0.036 per bird for broilers and US $0.076 per bird for hatching egg producers.

Customer Segmentation

Biosecurity practices are equally relevant to commercial and smallholder producers but vary depending on flock size.

Potential Profitability

Prevention of disease is always less expensive than treatment and can lead to a 50% reduction in veterinary costs. Increased egg production and feed efficiency due to precautionary measures render it highly cost-effective, with a cost/benefit ratio of 1:49.

Licensing Requirements

There are no licensing requirements for operating biosecurity measures on poultry farms, rather it is considered a sound business practice. Serious disease outbreaks should be reported as soon as possible to local authorities. In some cases, requirements are in place for signposting disinfection points, entrances and exits, and clean and dirty areas.

Innovation as Public Good

The solution is a regional public good disseminated by the International Livestock Research Institute.

Solution Images



Key elements of biosecurity on a poultry farm



Wire mesh fencing to keep out animal pests (left) and drinking device for reduced water-borne disease spread
(Source: dreamstime.com)

Institutions

ILRI
INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

Accompanying Solutions

Universal Vaccination against Newcastle Diseases

Value Addition to Poultry Manure