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Farm Level Biosecurity: Challenges and Suggestions



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Abstract

Biosecurity (BS) can be briefly defined as comprehensive infection management practices. In this review it was aimed to clarify some of the challenges and solution suggestions about farm level biosecurity. Major difficulties regarding BS can be summarized in following seven categories:

- a. Education level.
- b. Sociocultural characteristics and perceptions.
- c. Costs and financial resources.
- d. Farm size.
- e. Geographical and climatic situations.
- f. Epidemiological situation.
- g. Regulations.

Training and specialization of the producers and making a cost benefit analyses of any BS plan will provide significant contribution to this concept which is the most effective way to avoid potential losses in the future.

Keywords: Biosecurity; Producer; Farm; Livestock; Economic; Infection; Enterprise; Cost-Benefit

Introduction

Biosecurity (BS) can be defined as comprehensive infections management practices. When we bring the concept of BS into the livestock sector, following important actions will attract attention: prevent (I), eliminate (II) and minimize/restrict (III). Firstly, we try to prevent introducing new diseases to a farm, if it not possible, to restrict or to eliminate the spread of disease within the herd is engaged in the second phase. Besides animal and public health, also farms and national economies obtain many benefits from effective BS measures [1,2].

The scope and definition of BS indicated that it has a different dimension (financial, technical, health etc.). In recent years, there are a lot of BS routines in different regions and populations have been used by farmers in different breeding systems. These implementations have been affected by several variables which are also sources of both problems and solution suggestions. Therefore, producers should determine their priorities taking into consideration the above fact. In this mini-review it was aimed to clarify challenges, some of the difficulties and solution suggestions about farm level biosecurity. It is thought that this article will contribute to a better understanding of the BS concept.

Certain Questions about BS

Before deciding to implement any BS measure, producers generally ask themselves the following basic questions; "how long will it take?", "how much is it cost?" and "this would be a practical or ease?" In fact, these questions lead us to the following conclusion "is it worth doing?". I must specify; the correct answers depend on many factors and situations. In other words, it will vary according to the technical, financial, sociocultural and geographical characteristics of the livestock enterprises. These are main sources of the difficulties about BS and these difficulties contain suggestions for solutions to current problems.

Some of the Difficulties about BS

There is no doubt that farmers/producers are encountered a great number of external and internal barriers when they implement BS measures. The response of farmers to the BS is also affected by these challenges. Major difficulties were summarized in seven different categories are listed below:

Education Level

Education is a factor that affects almost everything including farmer's attitudes and prefers. It provides significant benefits

to the farmers in accessing and using the right sources of information. Up to now, large number of studies indicated positive relationship between education level and BS practices [2]. Education is an important subtitle especially for developing countries. For developed countries, there is a need for improving health literacy among producers.

Sociocultural Characteristics and Perceptions

Sometimes culture and perception could be more important than other factors. A livestock owner has been largely affected by habits, beliefs and common practices used by neighborhoods enterprises [2,3]. In addition to that most of producers are convinced by seeing from other farmers instead of telling or explaining correct BS measures to them. Therefore, it can be said that difficult and time-consuming efforts are needed to change wrong practices or perceptions. To solve this problem, model livestock enterprises and training activities are among the good options.

Costs and Financial Resources

May be most understandable factor is financial facilities of farmers and cost of any BS implementation. Although low cost is generally most preferable factor for producers, this is not true in all circumstances. Financially most important point is that the benefit obtained from a single BS practice must be bigger than its cost [4,5]. Another aspect of the subject is the budget used by producers. Sometimes an effective BS plan can be prepared with a modest budget instead of huge financial resources.

Farm Size

It can be observed that there is a positive correlation between the farm size and BS just as indicated in the subheading of education. The most understandable reason for this is increasing specialization and economic power. But although farm size could be associated with financial resources, it sometimes has a different meaning especially for large-scale livestock enterprises. It should not be forgotten that the linear relationship cannot continue after reaching desirable farm size.

Geographical and Climatic Situations

Geographical and climatic factors such as wind, rainfall, humidity, localization of livestock enterprises, animal, vehicle and human traffic are significantly influence infections spread and outcomes of diseases. Therefore, BS plans should not be made without considering above-mentioned factors.

Epidemiological Situation

This factor plays a dominant role for BS especially when prevalence and incidence rates of certain important infections are high. If such a situation is the case, it is best to avoid taking a

risk. It should be known that this subheading also related to the geography and localization of the farm [4-7].

Regulations

Legal regulations are important instruments of government in protecting animal and public health. Regulations regarding BS can be used to encourage or punish the producers. Moreover, sometimes there are standards and laws affecting the international trade [2,8]. Unfortunately, government or local authorities do not always get the desired results from regulations due to fact that they alone will not work without solving some technical and economic problems.

Conclusion

BS is the most effective way to avoid further potential losses in the future. Increasing training and specialization, increasing communication with professional organizations and institutions, and holistic approach to the BS concept will provide significant contribution to solve current problems. In a more specific way, to make the best combination of BS measures, producers should consider characteristics of their own enterprises and they must calculate cost benefit ratio for each BS measure separately.

Conflict of Interest

The author declares that there is no conflict of interest.

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