

The Evaluations of Contagious Animal Diseases Eradication in Turkey

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Abstract: This study evaluated the increase in the number of some major epidemic outbreak in Turkey and some solutions have been put forward to combat these disease. The study evaluates the existing approaches to disease management system and its problems, such as, factors affecting the eradication negatively, social and political factors. An effective management plan to changing this trend are presented and explained in the study. In conclusion, necessary conditions of the disease control and eradication were determined.

Keywords: Economics, eradication, disease management, Turkey

Türkiye’de Salgın Hayvan Hastalıkları Eradikasyonunun Değerlendirilmesi

Özet: Bu çalışmada Türkiye’de bazı önemli salgın hastalık mihrak sayılarında yaşanan artışın nedenleri değerlendirilerek, bu hastalıklarla mücadele için çözümler ortaya konmuştur. Çalışmada sistemde var olan hastalık yönetim yaklaşımının, hastalık eradikasyon çalışmalarını negatif etkileyen unsurları, sosyal ve politik faktörler ve bu durumun değiştirilmesi için etkili bir hastalık yönetim planı açıklanmış ve sonuç olarak hastalık kontrol-eradikasyonu için yapılması gerekenler belirlenmiştir.

Anahtar kelimeler: Ekonomi, eradikasyon, hastalık yönetimi, Türkiye

Introduction

Several studies have reported on economic consequences of the disease and disease control applications (Yalçın et al., 2010; Sarıözkan et al., 2009). In this respect, integrated economic and epidemiological models are progressing to control of the contagious animal disease. The disease production loss is the most important reason of this need. It is reported that the 30 % of the total livestock production value are loosing in developing countries due to the animal diseases (Upton, 2004). The combat against contagious animal diseases is very important both in economically and socially. The success of disease problems is called disease eradication (Fenner et al., 1998). When the data of Office International Epizooties (OIE) were analyzed, it is seen that the achievement of national eradication of some animal disease like Foot and Mouth Disease (FMD), Bovine Tuberculosis, and Brucellosis in Turkey is failed up to this time (OIE, 2014). This has been

searched, why these interventions have failed and have continued, in this paper.

Disease eradication: Studies on the control of animal disease outbreaks are continuing intensively since the beginning of the 19th century (Fener et al; 1998). This process started with bovine pleuropneumonia which is cattle disease with a common struggle on a global scale and extends to the eradication of rinderpest disease (OIE, 2011). Eradication of the specific diseases which can define on a global scale to do not need to intervention measures in the destruction of a particular disease or disease control agent (Dowdle, 1998). Considering these definitions, Foot and Mouth Disease, Bovine Tuberculosis and *Brucella abortus* outbreaks were not decline in the period of 2006-2013 (OIE, 2014) in Turkey. This is given in Table 1. Why can not perform the desired success is searched in this paper and it was found the following headings.

Table 1. Numbers of some animal disease outbreak in Turkey.

Year	FMD	Index	Bovine Tuberculosis	Index	Brucella abortus	Index
2006	1562	100.0	277	100.0	390	100.0
2007	801	51.3	312	112.6	532	136.4
2008	251	16.1	422	152.3	675	173.0
2009	209	13.4	254	91.7	768	197.0
2010	1626	104.1	131	47.3	360	92.3
2011	1718	110.0	348	125.6	486	124.6
2012	1006	64.6	1102	397.8	1696	235.0
2013	1195	76.5	1601	578.0	1319	338.2

1. Existing approaches to disease management:

Protection and control of animal disease outbreaks in Turkey are carried out according to certain principles. Implementation of animal health policies are intended to protect public health and the prevention of the spread of animal diseases. Policies are determined by the central structure and are mainly applied in the same way in all settlements through the central structure of the provincial organization. The intervention measures are; vaccination, the method of destruction and restrictions on animal movements, taken sanitation, quarantine, isolation, cord, forming protection and surveillance zones, vaccination, cutting, culling, destruction, limitations imposed on animals and animal products movement, the destruction of products and contaminants, cleaning and disinfection (Official Journal, 2011; Official Journal, 2012; Official Journal, 2013).

2. Factors affecting the eradication negatively:

Their structure and structural problems in the livestock sector are not considering in animal disease management systems in Turkey. Management model applied for the animals of different breeds and species, and the same approach does not take into account these differences.

Scarce resources in animal disease outbreak management in Turkey is distributed all over the country level at the same time, efficiency in resource use can not be achieved. Geographic structure differences between the regions of the country, show differences in life course, including breeding period, primarily of animals, go to pasture, there are many different structures include such diverse factors affecting the occurrence and progression of diseases such as changing geographic area. However, the determination to implement the decisions of the centers countrywide standard first FMD vaccination, including (two sessions per year, spring autumn vaccination) leads to failure in the provision of immunization activities.

3. Social and political factors: A set of social and political factors are summarized as follows; motivation of employees working in disease control programs, educational level of sector workers, prejudices and beliefs, political commitment, terrorism problem in some countries, uncontrolled animal movements (Rushton, 2009).

Methods of developed countries covered by the European Union harmonization of disease management are followed. A significant portion of

the structure of the livestock sector in this country is different from existing industrial structure in Turkey. The existence of the business record-keeping habits of farmers, the animals included in the company to consist of high yielding breeds, adequate and feed supplies in appropriate circumstances, business scale, operational physical conditions, biosecurity practices, different the same business in the absence of the species specified in the business of management of the shape as dissimilarity disease control same methods makes it fail. Turkey's epidemic animal problems needs to develop rational approaches for disease control for the activities to control these disease and to evaluate these data, but also be able to ask to be added to the system of data lacking, and thus will not be shared with scientists to contribute to the solution of problems.

4. How to change this trend: High number of outbreaks and carried out the central decision-static model approach and models developed countries in Turkey suggests that inadequate to solve the problem, based on disease control methods implemented. Therefore, countries in the livestock sector, taking into account the structure and the structural risk of the disease in the regional and national scale disease management plan has prioritized the needs. The need for disease control programs and to tell the stakeholders involved in the disease process of determining the vehicle can not be transferred to the applications discussed and accepted method (Value Chain Stakeholder Analysis), failure to provide all levels of intelligibility of the strategy into practice at this stage. Growers considering compliance with the criteria for the fight against disease in livestock should support the struggle to encourage the adoption of policies to support compliance should be applied. In this direction, in 2011, published by the OIE and animal health guide recommendations for each country mainly involved the epidemic control of the account field approaches its livestock value chain and the work of some scientists guiding with (OIE, 2011).

Thought to be effective in the outbreak of management efforts diseases in the world and the factors affecting the eradication set out in the various scientific studies (Keegan et al., 2011; Molyneux et al, 2004; OIE , 2011) examined and success is determined to deliver targets. In parallel these study perspective the chart of the necessary conditions for the contagious some animal disease eradication is progressed by the literature based. It is given in Table 2.

Table 2. The chart of the necessary conditions for the eradication.**Conditions of the disease control or eradication****Management problems** (Molyneux et al., 2004; Keegan et al., 2011; OIE, 2011)

Is the disease governed by the central government?

Is the disease intervention method static?

Are there any problems of the disease reporting systems?

What is the number and size of animal farm?

How is the distribution of the farm across the country?

Biological and technical feasibility (Percedo et al., 2013; OIE, 2002; OIE, 2011)

The disease incidence or prevalence is known or not. And which levels are known?

Which disease agent more susceptible by the race or breeds?

Which season or month the disease seen?

Is the meteorological data evaluated?

Is the geographic data evaluated?

The entire value chain of the disease is identifiable?

Diagnosis of the disease doing complete and accurate?

The carriers of the disease are fully known?

Etiology of the disease is fully known?

Is the general and biological risk analysis made?

Are the risk management plans made?

Are the effective tools to break the chain of transmission of disease (e.g, vaccines, serums, biologicals)?

Is the time between the diagnosis and the occurrence of the disease process reasonable?

Is the disease intervention plan suitable for the technically (full and accurate)?

Economical feasibility (Şentürk, 2015a; Şentürk, 2015b; Rushton, 2009, OIE, 2011)

Is the cost-benefit analysis has been implemented the disease eradication strategy plan?

Is there adequate public infrastructure?

Is there adequate funding to government and non-government?

Is the government and non-government fund fully meeting the compensation of the loss of breeders?

The economic regulation of animal value chain is suitable to make adjustments or not?

If the needs of biosecurity measures for the disease control, financial support to provide or not (or level of support in both social and economic)?

Social and political factors (Fener et al., 1998; Rushton, 2009, Jones and Rushton, 2013)

Border problems?

Terrorism problems?

Macroeconomic status of the country

The position of the sector in the economy

The education level of breeders

The type and level of supports

Media support of disease control

Other

Conclusions

Turkey is developing country and has many troubles in animal disease like FMD, Bovine Tuberculosis and *Brucella abortus* and vaccination is using a highly effective method of preventing certain infectious diseases. However, vaccines may not always be solution methods for a success of disease eradication. On the other side, controlling of these diseases is costly in an economic viewpoint. But the real problem is not only scarce resources but also management problems. In this paper, it is explained all these parameters of eradication plan of the diseases. Turkey has to change their disease management approach in the light of developments in recent years.

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