

ROLE OF RISK ANALYSIS IN MAINTAINING LIVESTOCK HEALTH

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Abstract: Risk analysis is applied in different fields, such as the maintenance of livestock health on different types of farms. Risk analysis in the field of animal health should be done by identifying risks that threaten animal health and contamination of the population in the case of catching diseases. A well-done risk analysis takes into account uncertainty as part of scientific data on which it relies, with precaution playing an equally important role. If used properly, risk analysis is an extremely useful and powerful instrument in determining if there is lack of information, if information is inaccurate, and to assess the amount and quality of the information that can improve decision-making in emergencies on animal farms.

Keywords: risk, health, animals, farm

INTRODUCTION

Risk analysis applies in very many fields, but one of its most important applications is in the sanitary-veterinary field. Very many authors have used **risk analysis** in this field in matters related to animal health [2,5,6]. Applying **risk analysis** in animal health should be done whenever we identify some kind of risk or threat that can affect animals' health state [1,4,8]. **Risk analysis can be applied to maintain livestock health and to avoid the contamination of the population in case of catching diseases** [3,7,9,10]:

- In the **management of catching diseases in animals**, produced by **biotic risk factors** such as:
 - *Bacterial agents*, through the prism of animals and humans diseased by the consumption of animal produce from diseased animals and through contamination of animal produce when they are produced, stored, distributed, or marketed;
 - *Parasites and fungi*, that can affect animals and humans or that can be also contaminating agents;
 - *viruses*, through direct contact with animals and humans or through the direct consumption of animal produce, etc.;
- in the **management of animal diseases** produced by **abiotic risk factors** such as:
 - *toxic substances*;
 - *hyper- or hypo-concentration of some elements in different target-tissues that induce different diseases*;
 - *substances that trouble the normal functioning of some organs or tissues*;
 - *non-polluting substances that can have negative effects on the animal body*;
 - *physical factors* (excessive heat, cold, radiations, some blocking substances);
 - *some daily stimulants administered to the young animals*.

MATERIAL AND METHOD

Maintaining livestock's health should rely on the risk analysis of the dangers that have troubling effects on the development of young animals in the case of catching diseases. We need to study thoroughly the carrying agents, risk factors that have a both qualitative and quantitative aspect.

This paper was published under the frame of European Social Fund, Human Resources Development Operational Programme 2007-2013, project no. POSDRU/159/1.5/S/132765.

RESULTS AND DISCUSSION

Risk analysis is not a new concept: it was introduced with the improvement of sanitary and phyto-sanitary measures.

Risk analysis has existed for a long time now and it has been used in many fields such as insurance, investments; **risk analysis is a systematic model of collecting, evaluating, and recording information that can produce recommendations, positions, approaches, and actions as a response to identified risk or danger.**

In this context, we can classify **risk analysis in the veterinary field** in relation to one of several of the following (Figure 1):

- the trade with animals and/or animal produce ;
- animals' health;
- common measures (animal wastes, feeds with medicines, residues, hormone substances, zoonoses, etc.);
- veterinary products;
- radioactivity;
- animal flows;
- animal nutrition;
- animal protection;
- critical points in the food industry.

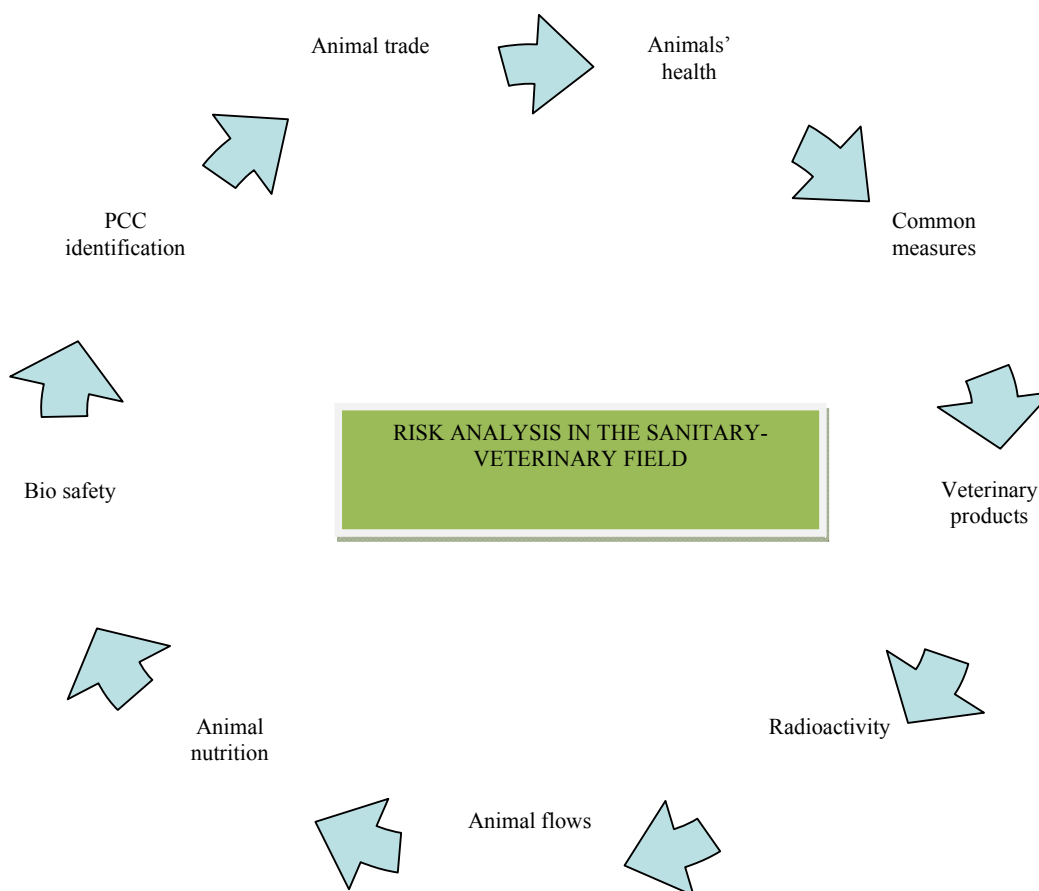


Figure 1. Criteria for the classification of risk analysis in the zoo and veterinary fields

Uncertainty is the key component of risk analysis. A well-done risk analysis considers uncertainty as part of scientific data on which it has relied. In this respect, **the role of precaution is as important as uncertainty.** Taking into account uncertainty has been the key to decision-making and, in this context, defining the **difference between uncertainty and variability** has been extremely important. Variability cannot be reduced through accurate or less accurate information: it is normal and it should be accepted as such. Uncertainty is something completely different since it is made up of the lack of information or of improper information, of unfunded information or of obsolete information. The difference is that, **in risk analysis, we can say something about uncertainty: in some cases, it can be corrected and, in an analytical context, even measured.**

Risk analysis cannot fail because of insufficient information. **Risk analysis has been used precisely because of the lack of enough information. Risk analysis is an instrument for the determination of both uncertainty level and risk level.**

In April 2000, the *Codex Alimentarius* Committee gathered to discuss the general principles of using precaution in the context of the “Working principles in risk analysis” in relation to uncertainty in the field of food safety. They discussed the possible criteria in using precaution in the field of food safety and the grounds for using precaution.

One of the issue of risk analysis is the somehow sophisticated (for some of the member states of the World Trade Organisation) procedure of achieving it. It has been admitted, for instance, that risk assessment could be complex and, at the same time, either necessary, or essential.

We believe that all the countries in the world should have a scientific ground in their decision-making about live animals and animal produce trade. If these decisions are made based on risk analysis, then we need only thorough documenting.

The Internet is an important instrument in risk analysis, particularly in the developing countries because the most difficult aspects of risk analysis are collecting information and information quality. The Internet has created a permanent source of available information that are multiple and precise when concerning a certain phenomenon such as, for instance, African swine flu, influence area, and stopping measures.

Risk analysis has been defined in many ways, among which as *a process consisting in three elements: risk assessment, risk management, and risk communication.*

In this context, we suggest three measures directly linked to risk analysis (Figure 2):

- increasing transparency in animal health;
- providing expertise concerning animal health state;
- protecting animal health in international trade.

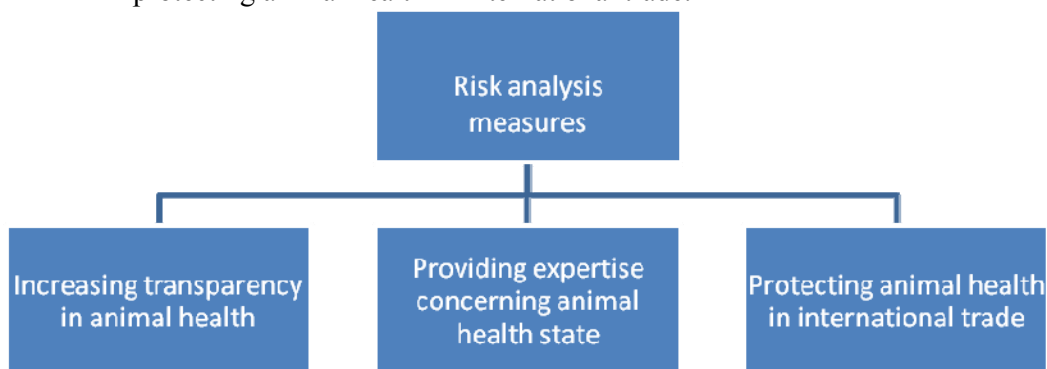


Figure 2. Risk analysis measures

Based on the code of a country or zone, they can be asked to observe different standards such as country or area contaminated, country or area free of or with vaccination, and country or area officially free.

CONCLUSIONS

Risk analysis is not supposed to provide with decisions, but it is an instrument that supports decision-making on animal farms. In most countries, the decision concerns whether a risk can or cannot be accepted and what exactly should be done to reduce or eliminate the risk.

Risk analysis supplies mechanisms for risk assessment and for the development of recommendations on which the decisions should rely. It is also an analytic instrument that results from the need to characterise and manage a risk situation.

The efforts made by international bodies in the field of risk analysis have produced the introduction, in the International Code of Animal Health, of a separate chapter titled "Guide of risk analysis". The International Epizootics Office intends to edit a book concerning risk analysis and the development of specific procedures for farm animals.

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