Intentions Related to Blood Tests for Enzootic Bovine Leukemia virus: Targeting Small-scale Breeding Farmers in Miyagi Prefecture

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In recent years, the prevalence of enzootic bovine leukosis (EBL) has increased worldwide. In Japan, the number of EBL cases caused by bovine leukosis virus (BLV) infection has multiplied, causing significant economic losses. There is no treatment for EBL, and no vaccine is currently available. Thus, prevention of disease is now the only way to control the spread of BLV. Blood inspection is the first and most crucial step in eradication measures.

In Japan, beef cattle are of high value, and the economic loss to farmers is very high because cattle infected with BLV have no treatment and must be culled. Breeding farms are risking infection both in cows and newborn calves. However, it is difficult for small-scale breeding farmers to take extensive BLV eradication measures, especially blood tests, because of limited finance and space. In Miyagi Prefecture, the majority of breeding farms are small-scale farms. Therefore, it is essential to clarify the current status of blood inspection activities in small-scale breeding farms and establish mechanisms to encourage them to start controlling BLV from adopting blood tests.

This study aims to clarify the factors that influence the intentions to perform blood tests of BLV among small-scale breeding farmers. A questionnaire survey was carried out among the small-scale breeding farmers through the assistance of NOSAI Miyagi, and 156 answers were valid. The questionnaire covers primary farm attributes and the current implementation status of BLV prevention measures such as blood tests. In this study, we adopted factor analysis and Binary choice model to analyze the variables to influence the intentions to perform blood tests targeting small-scale breeding farmers.

A factor analysis was conducted, and six factors were extracted. Each factor was named as [Management Risk], [Knowledge of BLV], [Appropriate Feeding], [Penalties], [Requests] and [Incentives]. Next, Binary choice model was used to analyze the intentions to perform blood tests. As a result of the analysis, it is found that the [Management Risk], [Penalty], [Requests], and [Incentive] factors positively influence the adoption behavior of blood tests by farmers at a statistical level of respectively 1%, 1%, 10% and 1%. Among the farm attributes, [household income], [feeding pattern], and [willingness to pay of PCR test] variables were found to influence farmers' intentions to adopt blood tests.

The results show some penalty policies related to eradication measures are necessary to strengthen the intention to implement blood tests. Veterinarians and specialists should promote BLV eradication measures to enhance the knowledge and manage risks of BLV for breeding farms. Moreover, it is essential to encourage farmers to test through incentive measures such as lowering or compensating the fees for blood tests.