

# Assessing Implementation of Biosecurity Recommendations in Canadian Dairy Farms: A Retrospective Cohort Study

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## BACKGROUND

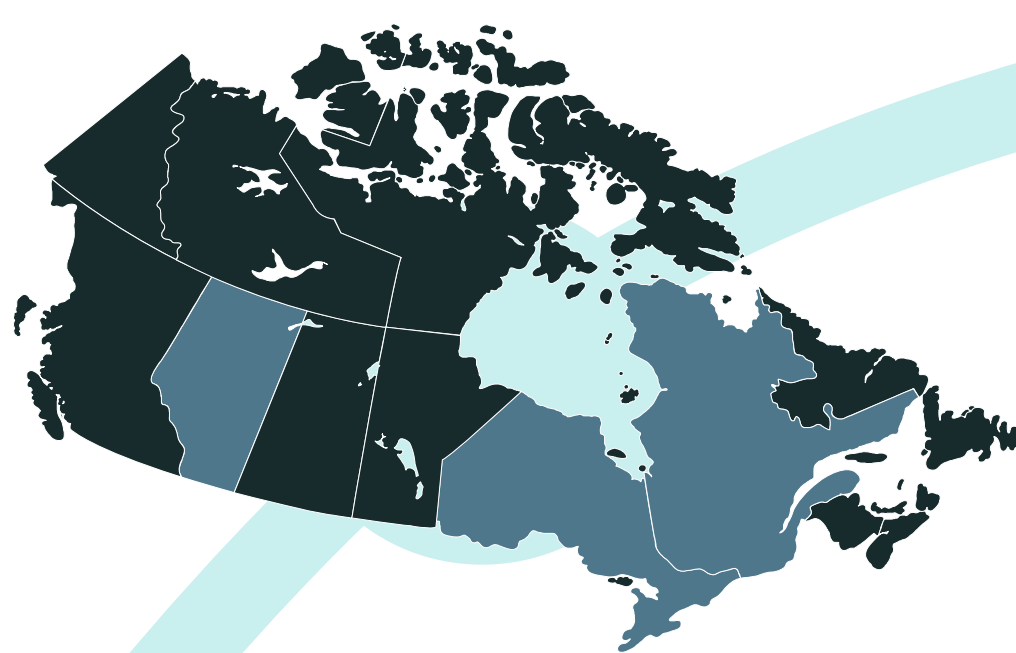
ProAction<sup>®</sup> is a mandatory quality assurance program for Canadian dairy farms, focused on animal care and milk quality.

Through proAction<sup>®</sup>, dairy farmers receive one to three personalized recommendations from veterinarians to enhance farm practices.

Are dairy producers adopting the recommendations they received?

Which factors influence the adoption of these recommendations?

3 provinces



278 dairy farms



678 recommendations



## PROBLEM STATEMENT

Little is known about farmers' perceptions of proAction<sup>®</sup> and if they are adopting recommendations received from the veterinarians.

**OBJECTIVE:** To assess farmers' compliance with recommendations and identify influencing factors of adoption.

## METHODOLOGY

### Retrospective Cohort study design:

- 278 dairy herds (Québec, Ontario, Alberta)
- Data collection period: April 2022 to December 2023

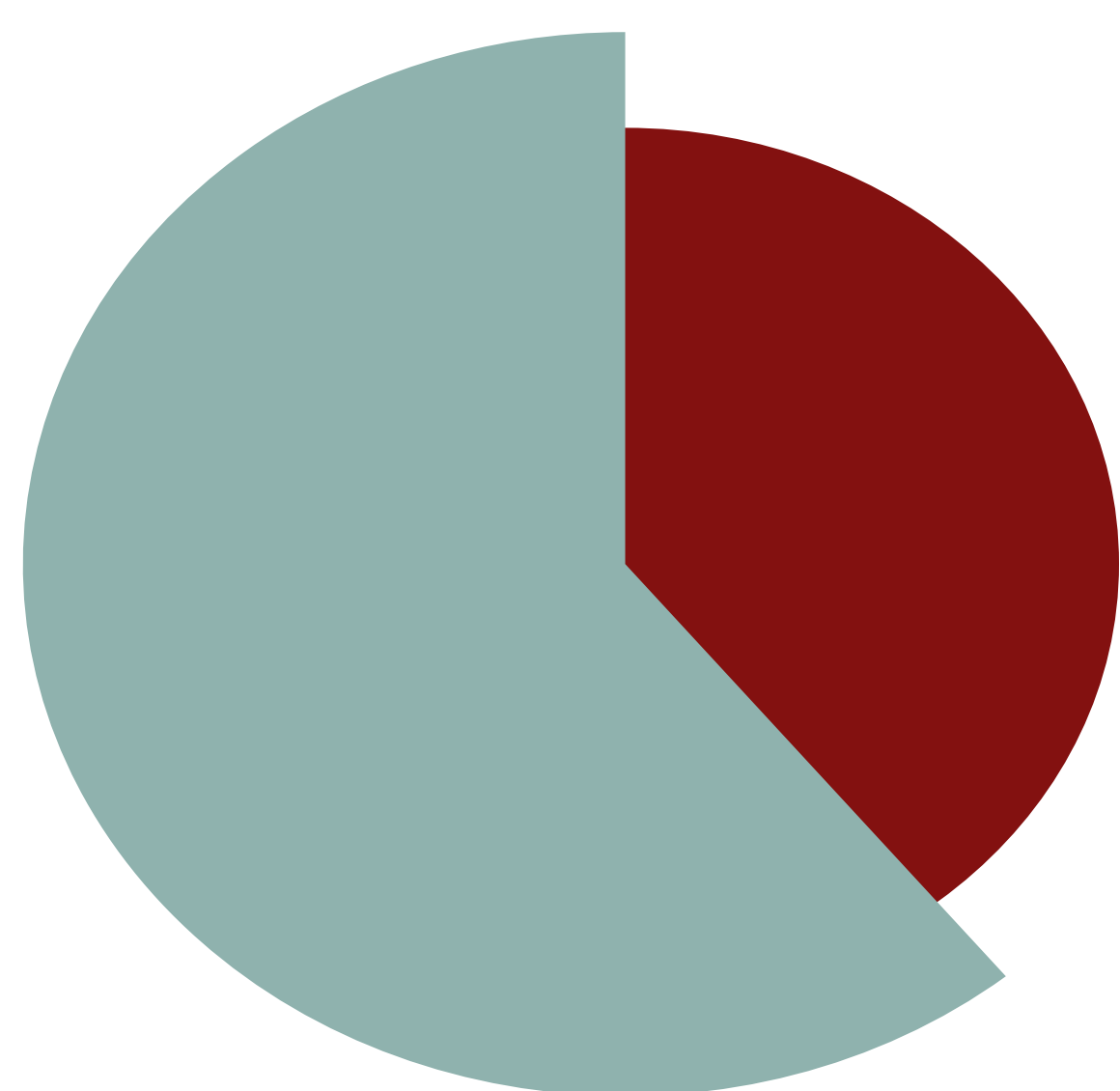
### Key variables:

- Biosecurity recommendations received (extracted from proAction<sup>®</sup> questionnaire)
- Questionnaire on socio-demographics, opinion about proAction<sup>®</sup> and adopted recommendations

### Analysis:

- Descriptive statistics
- Generalized Linear Mixed Models (GLMM) – 2-level hierarchical structure.

# RESULTS



62% Of recommendations were adopted

38% Of recommendations were not adopted

Fig.1. **Proportion of adopted recommendations** by farmers of the total of recommendations made by their veterinarian (n = 678).

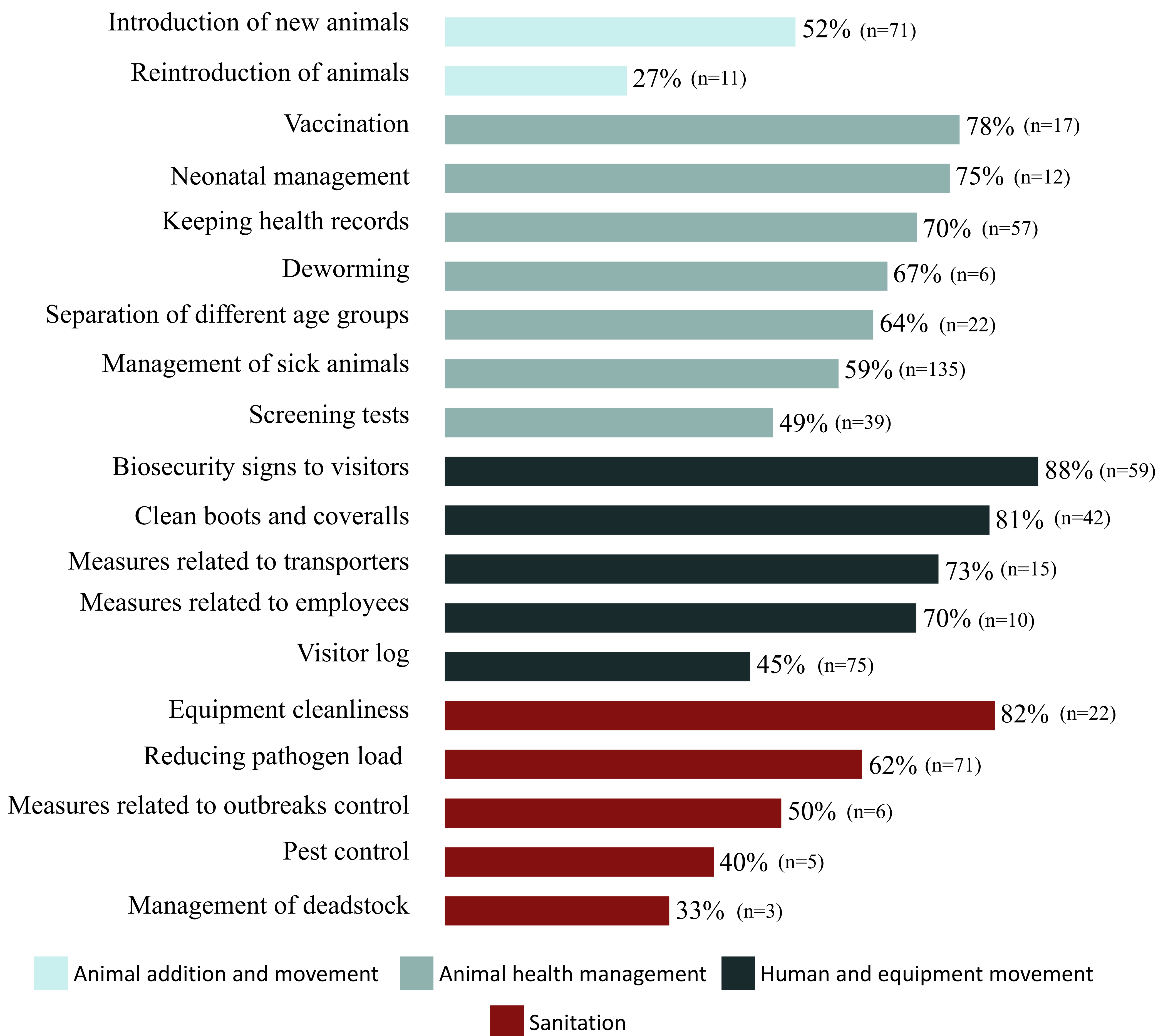


Fig.2. **Type of recommendation vs. percentage of adoption.** The bar chart presents the percentage of adopted recommendations categorized by different themes. The 19 themes were grouped in four broader categories represented by different colors. Each theme is labeled with the total number of recommendations (n) in parentheses.

- Adoption of recommendations was relatively high (**Figure 1**).
- No significant differences in adoption were observed between provinces.
- Recommendations were classified in 19 different themes (types) using a machine learning algorithm (**Figure 2**).
- Some types of recommendations were more adopted than others.

# RESULTS

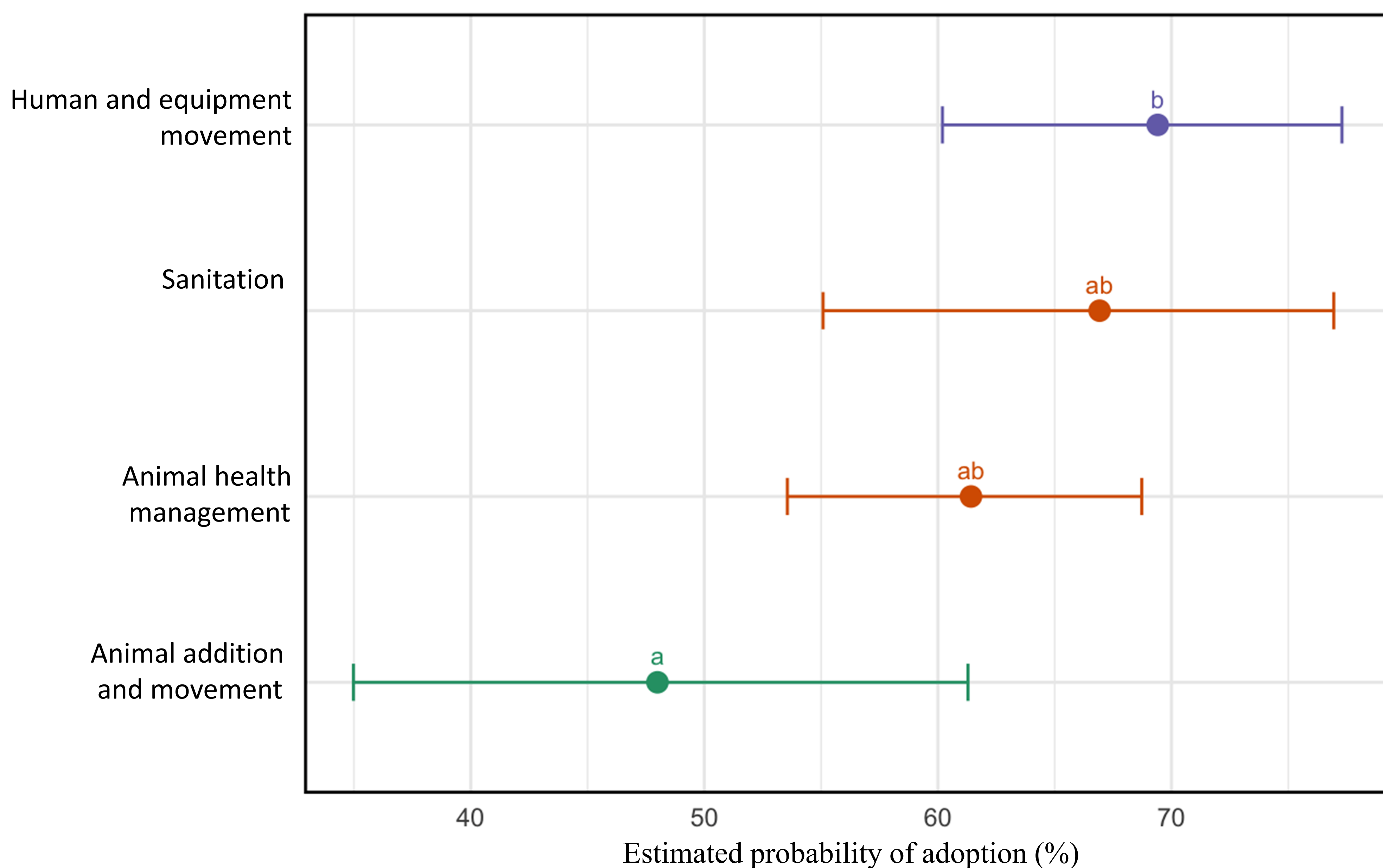


Fig.3. **Estimated probability of recommendation adoption**, with 95% confidence intervals, obtained using the GLMM analysis. The 19 themes of recommendations were grouped into four broader categories. Categories sharing the same letter (e.g., 'a,' 'ab,' 'b') are not statistically different. Animal Addition and Movement ('a') had the lowest probability of adoption, while Human and Equipment Movement ('b') had the highest.

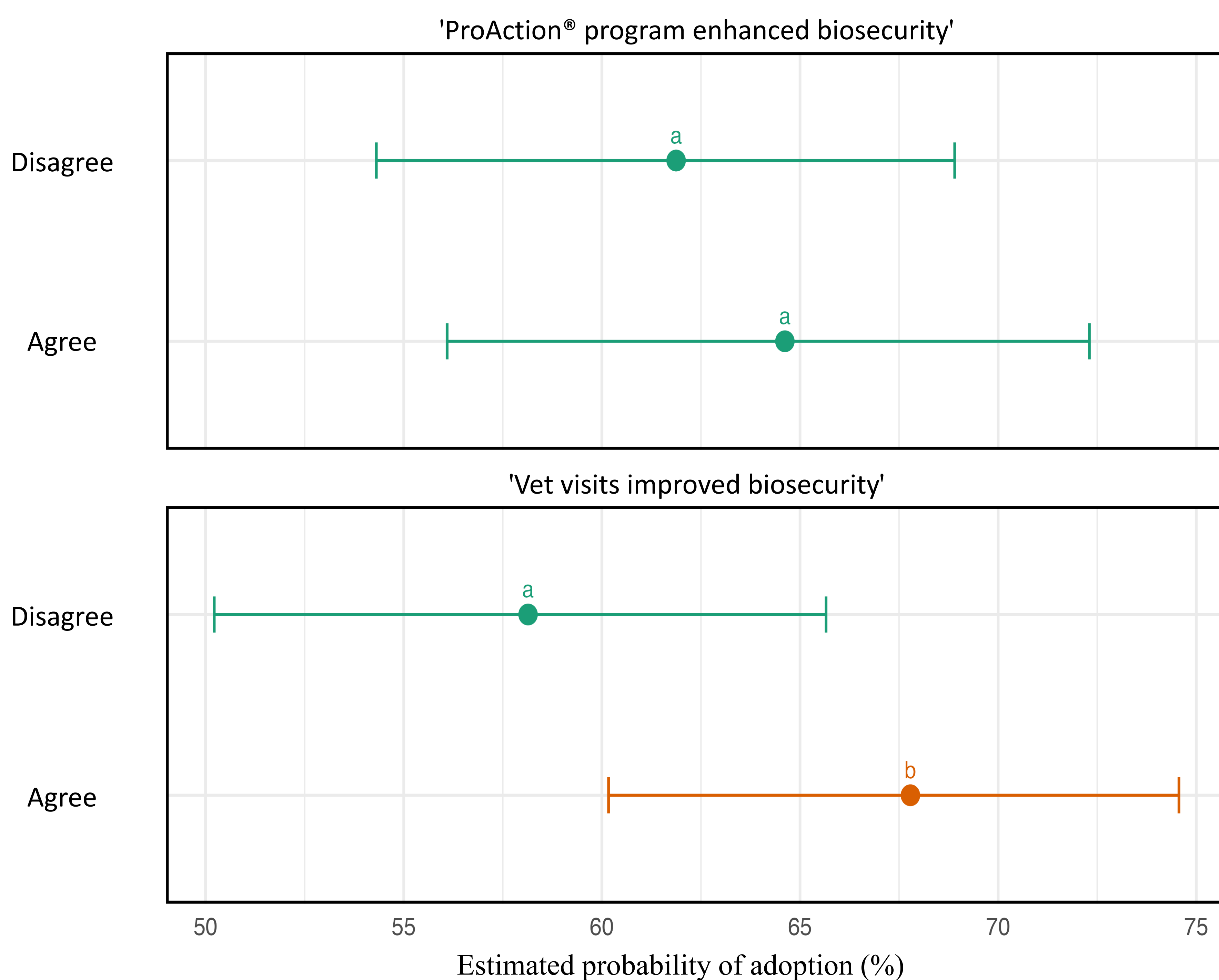
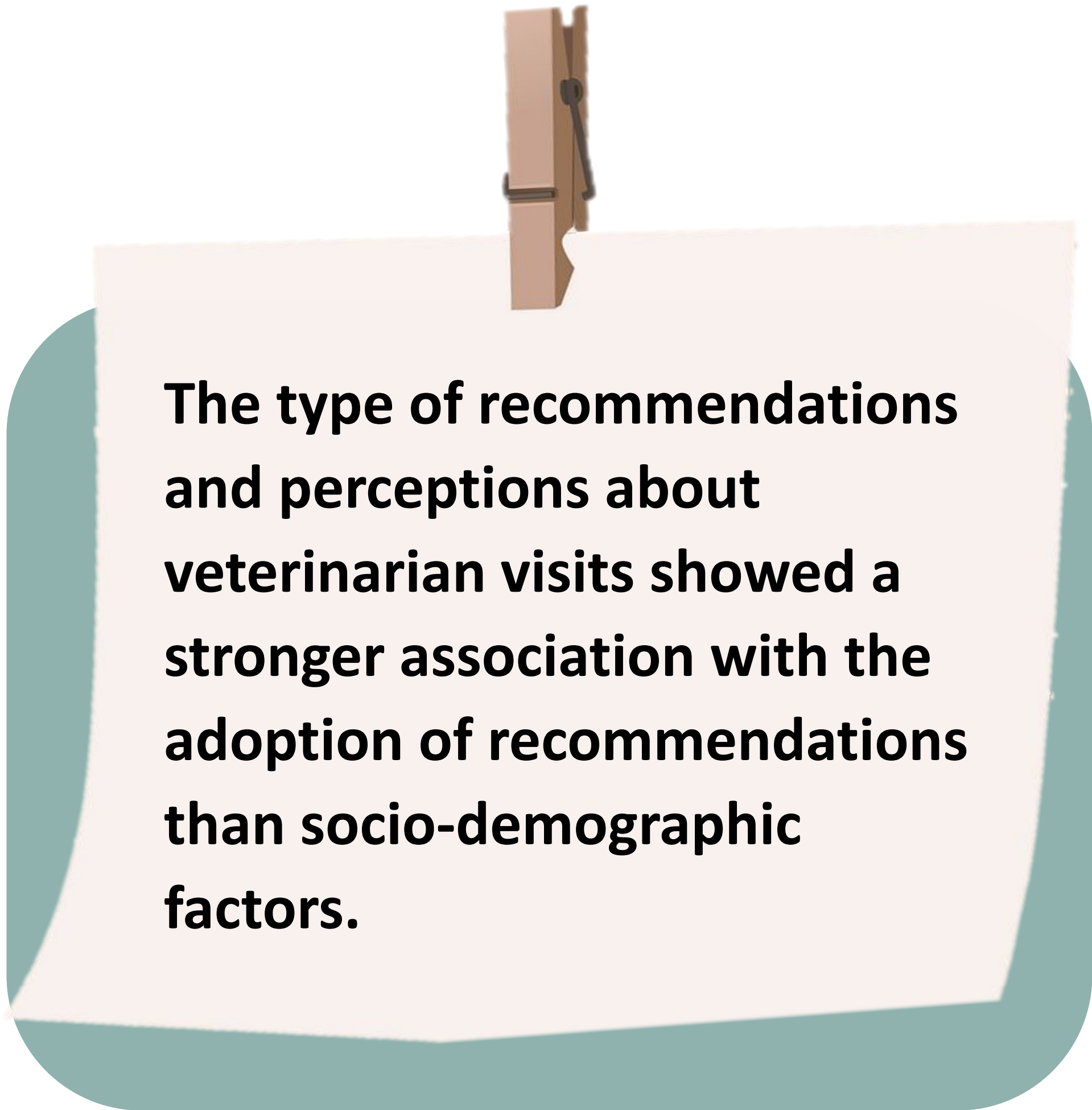


Fig.4. **Estimated probability of recommendation adoption**, with 95% confidence intervals, obtained using the GLMM analysis, as function of the producers' agreement or disagreement with the statements 'ProAction® Program Enhanced Biosecurity' and 'Vet Visits Improved Biosecurity'.

# CONCLUSIONS

- These results highlight the critical role of the relationship between farmers and veterinarians in the adoption of biosecurity measures.
- Ease of implementation and having new mandatory measures (by industry) likely influence adoption of recommendations (**Figures 2 and 3**).
- Socio-demographic factors such as province, type of housing, level of education and gender were not associated with recommendations adoption.
- The association between recommendation types and adoption indicates that some recommendations present inherent challenges, making them less likely to be implemented.
- Further qualitative research will provide valuable insights into these challenges and help us better understand these results.



**The type of recommendations and perceptions about veterinarian visits showed a stronger association with the adoption of recommendations than socio-demographic factors.**



**ATTENTION!**  
**Biosecurity is being improved**

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