

Farmer's Opinions on the Effectiveness of Management Interventions for Endometritis in Smallholder Dairy Farms in Rwanda

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Introduction

Endometritis is a prevalent uterine disease in postpartum cows. The disease reduces fertility performance and milk yield, and subsequently, productivity and profitability of dairy farms. The reduction in performance is associated with considerable economic losses on dairy farms. Smallholder farmers are likely to incur considerable economic losses from the disease where they lack knowledge of effective management interventions (MINTs) for the disease. This study used farmer's opinions to determine the effectiveness of different MINTs for endometritis prevention and control on smallholder farms in Rwanda practicing dairy zero-grazing.

Methodology

- The best-worst scaling (BWS) choice method was applied that relied on past 1 year recall data obtained from 154 farmers in Gasabo district of Rwanda.
- Farmers were identified through snowball sampling in a cross-sectional study.
- The BWS object case was applied to 20 MINTs considered important in the prevention and control of endometritis, based on the literature review (Table 1).

Table 1. List of 20 management interventions examined in the study

Management interventions (MINTs)	MINTs codes
Avoid equipment-sharing between cows within the farm	01
Avoid equipment-sharing with neighbouring farms	02
Avoid housing fresh cows with diseased cows or those with chronic illnesses such as mastitis	03
Avoid off-farm bedding materials and maintain adequate bedding materials per cow	04
Avoid sharing or hiring a breeding bull	05
Consult animal health service (ANHS) provider about the treatment and prevention of diseases such as mastitis and metabolic diseases	06
Consult ANHS provider about the treatment of endometritis positive cases	07
Cull of persistently endometritis positive cows	08
Disinfect equipments of calving assistance before and after use	09
Keep cows in a clean and dry shed	10
Maintain adequate feeding per cow	11
Maintain a clean transition cow housing	12
Maintain regular contact with ANHS providers for advisory support on endometritis prevention in dairy farm	13
Select sires based on calving ease	14
Select sires based on low percent stillbirths	15
Remove fetal membranes immediately after passing	16
Use gloves during calving assistance	17
Use artificial insemination service as a breeding method	18
Use sexed semen during artificial insemination service	19
Wash the hands and udder before each milking	20

- The check-list for BWS choice was designed in Sawtooth Software (Version 8).
- Each dairy farmer had to respond to a total of 16 choice cards of five MIs each.

- For each choice card, the farmer was asked to choose first the most effective and then the least effective MINTs for endometritis prevention and control.
- The effectiveness of different MINTs for endometritis prevention and control was qualitatively assessed by BWS method on a standardized score on a scale from -1.0 (indicates that the MINT was chosen as least effective more often than as most effective) to +1.0 (indicates that the MINT was chosen as most effective more often than as least effective).
- All statistical analyses were performed in IBM SPSS Statistics 22.0 for Windows.

Results

- Of the MINTs examined, 60% (n=12) were identified as most effective whereas 40.0% (n=8) as least effective for endometritis prevention and control on smallholder farms.
- The standardized scores are zero-centred and represent the computed effectiveness scores assigned to each MINT (Figure 1). The y-axis represents the effectiveness score of the MINTs.
- The MINTs located above 0 on the y-axis were chosen as most effective; whereas those with scores over 0 on the x-axis were chosen as least effective.

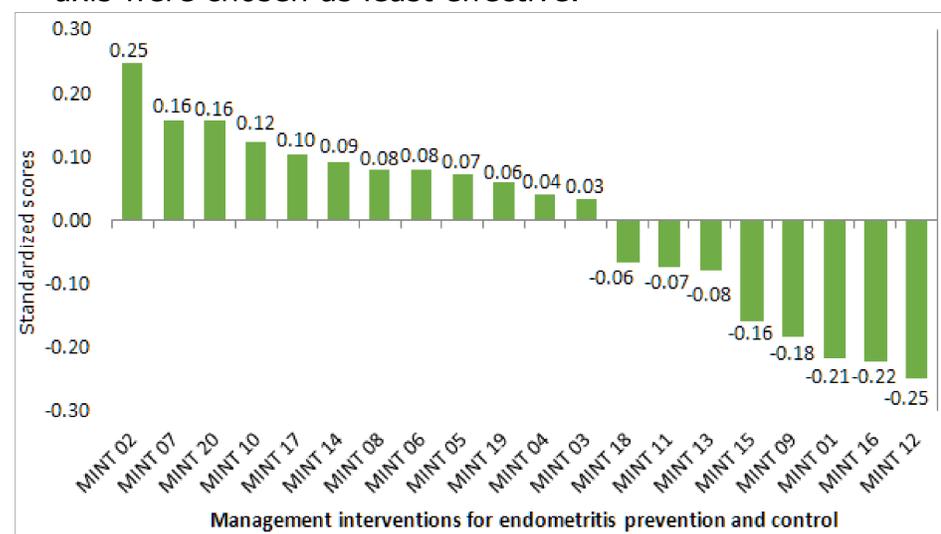


Figure 1. Effectiveness scores for the 20 management interventions for endometritis prevention and control

Conclusion

- BWS choice method informed appropriate MINTs that when effectively implemented would improve animal health and performance and herd profitability.
- Most effective MINTs should be considered for prioritization in extension services and research to continuously improve and enhance their practical application on smallholder dairy farms.

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