

# Supplementary Materials File S2

## ProgRESSVet Uganda: risk analysis values

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### Start of Block: Background

#### Q1.1

#### **Welcome to the ProgRESSVet risk analysis questionnaire!**

The questionnaire starts with a background section containing 4 questions. Here, you will choose which subpopulations (any/all) you would like to provide your opinion and insight about.

For each subpopulation, there are 4 sections (Cattle population and disease risk, Sale and transport, Antemortem inspection and detection, Postmortem inspection and processing) with 4-7 questions per question.

We ask that you dedicate enough time to this to provide high quality information where possible. The amount of time will vary by how many subpopulations you choose, but we anticipate that it will take approximately 2-4 hours to complete.

Responses to the survey are saved every time you move to the next page, so you may leave the survey and return later to finish. As long as you return to the survey on the same computer and same web browser, and have not cleared your browser cookies, the questionnaire will resume where you left off.

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#### Q1.2 **Background**

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Q1.3

**Name**

*We ask for your name only to know whether or not your questionnaire has been submitted; we will not record or present the answers in a way that is connected with identifying information.*

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Q1.4 How many years have you been working in animal health and/or production?

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Q1.5 How would you describe your experience with cattle and beef production and processing in Uganda?

- ☐ Expert (many first-hand experiences, have relationships with a diverse set of value chain stakeholders) (1)
- ☐ Moderate (familiar with production and processing systems, some first-hand experiences) (2)
- ☐ Limited (little experience, most knowledge is second-hand) (3)

Q1.6

We are assessing the cattle industry as 4 sub-populations: Pastoral, Agro-Pastoral, Ranching, and Semi-intensive. The descriptions of each can be found in the Part A and Part B documents.

For which sub-populations do you have experience and/or feel comfortable giving your opinions about FMD risk and the farm-to-market process?

Please choose all that apply.

- ☐ Pastoral (1)
  - ☐ Agro-Pastoral (2)
  - ☐ Ranching (3)
  - ☐ Semi-intensive (4)
- 

Q1.7 Do you perceive there to be severe limitations to using this classification of sub-populations? Please explain.

- ☐ Yes (1) \_\_\_\_\_
- ☐ No (2) \_\_\_\_\_

End of Block: Background

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Start of Block: Sub-pop block

Q2.1

**Block A: Cattle population and FMD risk during production**

*[\\${Im://Field/1}](#) systems*

Please answer the following questions considering ONLY cattle raised in [\\${Im://Field/1}](#) production systems.

After each question, please use the Reasoning field to provide 1-2 sentences explaining why

you chose those values.

If you do not feel comfortable answering any question, please respond "No Answer".

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Q2.2 Please briefly describe your experience with  $\text{\$}\{\text{Im:}\text{/}\text{Field}/1\}$  cattle production systems.

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Q2.3 (P1) How many cases of foot and mouth disease occur in cattle per year (in  $\text{\$}\{\text{Im:}\text{/}\text{Field}/1\}$  systems)?

☐ Maximum: # cases per year (1)

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☐ Minimum (5) \_\_\_\_\_

☐ Most likely (2) \_\_\_\_\_

☐ Reasoning (6) \_\_\_\_\_

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Q2.4

(P1) What is the total population of cattle (in [\\${Im://Field/1}](#) systems)?

- ☐ Maximum: # cattle (1) \_\_\_\_\_
- ☐ Minimum (2) \_\_\_\_\_
- ☐ Most likely (3) \_\_\_\_\_
- ☐ Reasoning (4) \_\_\_\_\_
- 

Q2.5 (n) What % of the cattle population is sold for meat each year?

- ☐ Maximum: % of cattle population (0-100) (1) \_\_\_\_\_
- ☐ Minimum (2) \_\_\_\_\_
- ☐ Most likely (3) \_\_\_\_\_
- ☐ Reasoning (4) \_\_\_\_\_
- 

Q2.6 (n) How many head of cattle are sold to be slaughtered for meat each year?

- ☐ Maximum: # of cattle (1) \_\_\_\_\_
- ☐ Minimum (2) \_\_\_\_\_
- ☐ Most likely (3) \_\_\_\_\_
- ☐ Reasoning (4) \_\_\_\_\_
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Q2.7 Do you have any additional comments about FMD risk in the cattle population of [\\${Im://Field/1}](#) systems?

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Q2.8

**Block B: FMD risk during sale and transportation**

*`\${Im://Field/1}` systems*

Please answer the following questions considering ONLY cattle raised in `\${Im://Field/1}` production systems.

After each question, please use the Reasoning field to provide 1-2 sentences explaining why you chose those values.

If you do not feel comfortable answering any question, please respond "No Answer".

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Q2.9 (P7, P8) How much time (days) passes between when a cow leaves the herd and slaughter?

- ☐ Maximum: days (1) \_\_\_\_\_
- ☐ Minimum (2) \_\_\_\_\_
- ☐ Most likely (3) \_\_\_\_\_
- ☐ Reasoning (4) \_\_\_\_\_

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Q2.10 (P2) Is it possible that a bovine sold for meat is commingled with animals from other herds after leaving its own herd?

- ☐ Yes (1)
- ☐ No (2)

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*Display This Question:*

*If Loop current: (P2) Is it possible that a bovine sold for meat is commingled with animals from other herds after... = Yes*

Q2.11 (P2) Please list the species of animals with which cattle may be commingled after leaving their own herd.

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*Display This Question:*

*If Loop current: (P2) Is it possible that a bovine sold for meat is commingled with animals from other herds after... = Yes*

Q2.12 (P2) What % of cattle sold for meat are commingled with animals from other herds after leaving their own farms?

☐ Maximum: % of cattle sold (0-100) (1)

\_\_\_\_\_

☐ Minimum (2) \_\_\_\_\_

☐ Most likely (3) \_\_\_\_\_

☐ Reasoning (4) \_\_\_\_\_

*Display This Question:*

*If Loop current: (P2) Is it possible that a bovine sold for meat is commingled with animals from other herds after... = Yes*

Q2.13 (P2) When commingling does occur, how many "new" cattle (from other herds) is an animal mixed with?

☐ Maximum: # cattle (1) \_\_\_\_\_

☐ Minimum (2) \_\_\_\_\_

☐ Most likely (3) \_\_\_\_\_

☐ Reasoning (4) \_\_\_\_\_

*Display This Question:*

*If Loop current: (P2) Is it possible that a bovine sold for meat is commingled with animals from other herds after... = Yes*



Q2.14 (P9, P10) At what step in the process from herd to slaughter does commingling first occur?

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*Display This Question:*

*If Loop current: (P2) Is it possible that a bovine sold for meat is commingled with animals from other herds after... = Yes*

Q2.15 (P9, P10) How much time (days) passes between initial commingling with animals from other herds and slaughter?

- ☐ Maximum: days (1) \_\_\_\_\_
- ☐ Minimum (2) \_\_\_\_\_
- ☐ Most likely (3) \_\_\_\_\_
- ☐ Reasoning (4) \_\_\_\_\_

Q2.16 Do you have any additional comments about FMD risk during sale and transportation of cattle from `#{m://Field/1}` systems?

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Q2.17

**Block C: Antemortem inspection and detection of FMD-infected cattle**

*\$\_{Im}://Field/1\$ systems*

Please answer the following questions considering ONLY cattle raised in *\$\_{Im}://Field/1\$* production systems.

After each question, please use the Reasoning field to provide 1-2 sentences explaining why you chose those values.

If you do not feel comfortable answering any question, please respond "No Answer".

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Q2.18 (P3, P4) Are cattle inspected for FMD between farm/herd and slaughter?

☐ Yes (1)

☐ No (2)

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*Display This Question:*

*If Loop current: (P3, P4) Are cattle inspected for FMD between farm/herd and slaughter? = Yes*

Q2.19 (P3, P4) Is the FMD inspection process different for cattle that are commingled with other animals during the sale process than for cattle that are only exposed to animals from their own herd? Differences could include: number of inspections, proficiency of person conducting the inspection, sensitivity of the inspection to detect an infected animal, or other differences.

☐ Yes, inspections are different for animals that are commingled vs. for animals that are only exposed to animals from their own herd (1)

☐ No, inspections are the same for all animals (2)

☐ Not Applicable, all animals are commingled with others during the sale process (3)

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*Display This Question:*

*If (P3, P4) Is the FMD inspection process different for cattle that are commingled with other animal...  
= Yes, inspections are different for animals that are commingled vs. for animals that are only exposed to animals from their own herd*

Q2.20 Please explain the differences in the inspection process.

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*Display This Question:*

*If Loop current: (P3, P4) Are cattle inspected for FMD between farm/herd and slaughter? = Yes*

Q2.21 (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and slaughter?

- ☐ 1 (1)
- ☐ 2 (2)
- ☐ 3 (3)
- ☐ 4 or more (4)

*Display This Question:*

*If Loop current: (P3, P4) Are cattle inspected for FMD between farm/herd and slaughter? = Yes*

Q2.22 (P3, P4) Briefly describe the first point at which an animal may be inspected (by whom, step in the sale/transport process, outcome if found to be positive or negative for FMD, etc.)

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*Display This Question:*

*If Loop current: (P3, P4) Are cattle inspected for FMD between farm/herd and slaughter? = Yes*

Q2.23 (P3, P4) What % of cattle sold for meat undergo this inspection?

☐ Maximum: % of cattle sold (0-100) (1)

\_\_\_\_\_

☐ Minimum (2) \_\_\_\_\_

☐ Most likely (3) \_\_\_\_\_

☐ Reasoning (4) \_\_\_\_\_

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*Display This Question:*

*If Loop current: (P3, P4) Are cattle inspected for FMD between farm/herd and slaughter? = Yes*

Q2.24

(P5, P6) What % of FMD-infected cattle displaying clinical signs are identified as FMD-positive by this inspection? (In other words, what is the sensitivity of this inspection to detect FMD in this population of cattle?)

☐ Maximum: % of infected cattle detected (0-100) (1)

\_\_\_\_\_

☐ Minimum (2) \_\_\_\_\_

☐ Most likely (3) \_\_\_\_\_

☐ Reasoning (4) \_\_\_\_\_

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*Display This Question:*

*If Loop current: (P3, P4) Are cattle inspected for FMD between farm/herd and slaughter? = Yes*

Q77 (not on Event Tree) What % of cattle identified as FMD-positive by this inspection are NOT removed from the food supply, but instead the inspection results are ignored or compromised?

- ☐ Maximum: % of positive test results ignored or compromised (1) \_\_\_\_\_
- ☐ Minimum (2) \_\_\_\_\_
- ☐ Most likely (3) \_\_\_\_\_
- ☐ Reasoning (4) \_\_\_\_\_

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*Display This Question:*

*If Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 2*

*Or Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 3*

*Or Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 4 or more*

Q2.25 (P3, P4) Briefly describe the second point at which an animal may be inspected (by whom, step in the sale/transport process, outcome if found to be positive or negative for FMD, etc.)

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*Display This Question:*

*If Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 2*

*Or Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 3*

*Or Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 4 or more*

Q2.26 (P3, P4) What % of cattle sold for meat undergo this inspection?

☐ Maximum: % of cattle sold (0-100) (1)

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☐ Minimum (2) \_\_\_\_\_

☐ Most likely (3) \_\_\_\_\_

☐ Reasoning (4) \_\_\_\_\_

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*Display This Question:*

*If Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 2*

*Or Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 3*

*Or Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 4 or more*

Q2.27

(P5, P6) What % of FMD-infected cattle displaying clinical signs are identified as FMD-positive by this inspection? (In other words, what is the sensitivity of this inspection to detect FMD in this population of cattle?)

☐ Maximum: % of infected cattle detected (0-100) (1)

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☐ Minimum (2) \_\_\_\_\_

☐ Most likely (3) \_\_\_\_\_

☐ Reasoning (4) \_\_\_\_\_

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*Display This Question:*

*If Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 2*

*Or Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 3*

*Or Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 4 or more*

Q78 (not on Event Tree) What % of cattle identified as FMD-positive by this inspection are NOT removed from the food supply, but instead the inspection results are ignored or compromised?

- ☐ Maximum: % of positive test results ignored or compromised (1) \_\_\_\_\_
- ☐ Minimum (2) \_\_\_\_\_
- ☐ Most likely (3) \_\_\_\_\_
- ☐ Reasoning (4) \_\_\_\_\_

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*Display This Question:*

*If Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 3*

*Or Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 4 or more*

Q2.28 (P3, P4) Briefly describe the third point at which an animal may be inspected (by whom, step in the sale/transport process, outcome if found to be positive or negative for FMD, etc.)

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*Display This Question:*

*If Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 3*

*Or Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 4 or more*

Q2.29 (P3, P4) What % of cattle sold for meat undergo this inspection?

- ☐ Maximum: % of cattle sold (1) \_\_\_\_\_
- ☐ Minimum (2) \_\_\_\_\_
- ☐ Most likely (3) \_\_\_\_\_
- ☐ Reasoning (4) \_\_\_\_\_

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*Display This Question:*

*If Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 3*

*Or Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 4 or more*

Q2.30

(P5, P6) What % of FMD-infected cattle displaying clinical signs are identified as FMD-positive by this inspection? (In other words, what is the sensitivity of this inspection to detect FMD in this population of cattle?)

- ☐ Maximum: % of infected cattle detected (0-100) (1) \_\_\_\_\_
- ☐ Minimum (2) \_\_\_\_\_
- ☐ Most likely (3) \_\_\_\_\_
- ☐ Reasoning (4) \_\_\_\_\_

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*Display This Question:*

*If Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 3*

*Or Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 4 or more*



Q79 (not on Event Tree) What % of cattle identified as FMD-positive by this inspection are NOT removed from the food supply, but instead the inspection results are ignored or compromised?

- ☐ Maximum: % of positive test results ignored or compromised (1) \_\_\_\_\_
- ☐ Minimum (2) \_\_\_\_\_
- ☐ Most likely (3) \_\_\_\_\_
- ☐ Reasoning (4) \_\_\_\_\_

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*Display This Question:*

*If Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 4 or more*

Q2.31 (P3, P4) Briefly describe the fourth point at which an animal may be inspected (by whom, step in the sale/transport process, outcome if found to be positive or negative for FMD, etc.)

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*Display This Question:*

*If Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 4 or more*

Q2.32 (P3, P4) What % of cattle sold for meat undergo this inspection?

☐ Maximum: % of cattle sold (1)

\_\_\_\_\_

☐ Minimum (2) \_\_\_\_\_

☐ Most likely (3) \_\_\_\_\_

☐ Reasoning (4) \_\_\_\_\_

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*Display This Question:*

*If Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 4 or more*

Q2.33

(P5, P6) What % of FMD-infected cattle displaying clinical signs are identified as FMD-positive by this inspection? (In other words, what is the sensitivity of this inspection to detect FMD in this population of cattle?)

☐ Maximum: % of infected cattle detected (0-100) (1)

\_\_\_\_\_

☐ Minimum (2) \_\_\_\_\_

☐ Most likely (3) \_\_\_\_\_

☐ Reasoning (4) \_\_\_\_\_

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*Display This Question:*

*If Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 4 or more*

Q80 (not on Event Tree) What % of cattle identified as FMD-positive by this inspection are NOT removed from the food supply, but instead the inspection results are ignored or compromised?

- ☐ Maximum: % of positive test results ignored or compromised (1) \_\_\_\_\_
- ☐ Minimum (2) \_\_\_\_\_
- ☐ Most likely (3) \_\_\_\_\_
- ☐ Reasoning (4) \_\_\_\_\_

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*Display This Question:*

*If Loop current: (P3, P4) How many times is an animal potentially inspected or tested for FMD between farm and sla... = 4 or more*

Q2.34 Are there additional inspections between sale and slaughter that you have not yet described?

- ☐ Yes (1)
- ☐ No (2)

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*Display This Question:*

*If Are there additional inspections between sale and slaughter that you have not yet described? = Yes*

Q2.35

For each additional inspection point, please use the space below to describe:

- brief description of the inspection
- % of cattle sold for meat that undergo this inspection (max, min, most likely)
- % of infected cattle that are identified as FMD positive by this inspection (max, min, most likely)
- % of cattle identified as FMD positive whose test result is ignored or compromised (max, min, most likely)

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Q2.36 Do you have any additional comments about antemortem inspection and detection of FMD in cattle from [\\${Im://Field/1}](#) systems?

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Q2.37

**Block D: Postmortem inspection and processing**

*\$\_{Im}://Field/1\$ systems*

Please answer the following questions considering ONLY cattle raised in *\$\_{Im}://Field/1\$* production systems.

After each question, please use the Reasoning field to provide 1-2 sentences explaining why you chose those values.

If you do not feel comfortable answering any question, please respond "No Answer".

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Q2.38 (P11) What % of carcasses undergo postmortem inspection?

☐ Maximum: % of carcasses infected (0-100) (1)

\_\_\_\_\_

☐ Minimum (2) \_\_\_\_\_

☐ Most likely (3) \_\_\_\_\_

☐ Reasoning (4) \_\_\_\_\_

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Q2.39 (P12) What % of FMD-infected carcasses displaying lesions are identified as FMD-positive by this inspection? (In other words, what is the sensitivity of this inspection to detect FMD in this population of carcasses?)

☐ Maximum: % of infected carcasses detected (0-100) (1)

\_\_\_\_\_

☐ Minimum (2) \_\_\_\_\_

☐ Most likely (3) \_\_\_\_\_

☐ Reasoning (4) \_\_\_\_\_

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Q2.40 (P13, P14) Among carcasses processed for de-boned meat, what % have lymph node and bone tissue completely removed?

☐ Maximum: % of carcasses (0-100) (1)

\_\_\_\_\_

☐ Minimum (2) \_\_\_\_\_

☐ Most likely (3) \_\_\_\_\_

☐ Reasoning (4) \_\_\_\_\_

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Q2.41 Is the answer to the previous question different for carcasses that were inspected vs. for those which were not inspected?

☐ Yes (1) \_\_\_\_\_

☐ No (2) \_\_\_\_\_

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Q2.42 (P15, P16) Among carcasses processed for de-boned meat, what % undergo a maturation process which effectively destroys FMDV in muscle tissue?

☐ Maximum: % of carcasses (0-100) (1)

\_\_\_\_\_

☐ Minimum (2) \_\_\_\_\_

☐ Most likely (3) \_\_\_\_\_

☐ Reasoning (4) \_\_\_\_\_

Q2.43 Is the answer to the previous question different for carcasses that were inspected vs. for those which were not inspected?

☐ Yes (1) \_\_\_\_\_

☐ No (2) \_\_\_\_\_

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Q2.44

Do you have any additional comments about postmortem inspection and processing meat of cattle from [\\${m://Field/1}](#) systems?

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End of Block: Sub-pop block

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