

Supplementary material S1: Questionnaire for household heads

Start of Block: Demographic information

Q2 What is the unique participant ID code? [Interviewer to use excel spreadsheet]

Q3 Please confirm the unique participant ID code? [Interviewer to use excel spreadsheet]

Q4 How would you classify the respondents type of livestock for purpose of this study?
[Interviewer please select appropriate option based on Unique Participant ID Code]

Small-ruminant herd (own at least 5 sheep or goats) (1)

Poultry flock (own at least 10 chickens or a minimum of 50 chickens on commercial flock) (2)

Q5 What ward is your flock/herd located in? [Please choose from the drop down list]

▼ Tingatinga (11) ... Other ward (16)

Display This Question:

If What ward is your flock/herd located in? [Please choose from the drop down list] = Other ward

Q6

If other please specify what ward your flock/herd is located in.

Q7

What village is your flock/herd located in?

Q8 What is your gender?

- Male (1)
- Female (2)
- Prefer not to say (4)

Q9 What is your current role, in relation to managing the animals? Please select the most suitable option for the person completing the survey [One option]

- Owner of the animals/holding (1)
- Manager/supervisor of the animals/holding (2)
- Animal worker (3)
- Other, (please specify) (4) _____

Q10 What is the gender of the owner of the herd/flock?

- Male (1)
- Female (2)
- Prefer not to say (3)

Q11 What is the gender of the individual in charge of managing the herd/flock?

- Male (1)
 - Female (2)
 - Prefer not to say (3)
-

Q12 At present, how many people assist with managing the herd/flock?

- 2 or less (1)
- 3-5 (2)
- 5-10 (3)
- Over 10 (4)

End of Block: Demographic information

Start of Block: Prescribing practices



Q13 For how many years have you managed your herd/flock?

Q14 What animals do you keep/own? [please select all that apply]

- Cattle (1)
 - Goats (2)
 - Sheep (3)
 - Chickens (4)
 - Rabbits (5)
 - Turkeys (6)
 - Ducks (7)
 - Donkeys (8)
 - Pigs (9)
 - Other (please specify) (11)
-

Q15 What animal provides the most income? [please choose one only]

What animals do you keep/own? [please select all that apply] = Cattle

Cattle (1)

What animals do you keep/own? [please select all that apply] = Goats

Goats (2)

What animals do you keep/own? [please select all that apply] = Sheep

Sheep (3)

What animals do you keep/own? [please select all that apply] = Chickens

Chickens (4)

What animals do you keep/own? [please select all that apply] = Rabbits

Rabbits (5)

What animals do you keep/own? [please select all that apply] = Turkeys

Turkeys (6)

What animals do you keep/own? [please select all that apply] = Ducks

Ducks (7)

What animals do you keep/own? [please select all that apply] = Donkeys

Donkeys (8)

What animals do you keep/own? [please select all that apply] = Pigs

Pigs (9)

What animals do you keep/own? [please select all that apply] = Other (please specify)

Other (please specify) (10) _____

Display This Question:

If How would you classify the respondents type of livestock for purpose of this study? [Interviewer... = Poultry flock (own at least 10 chickens or a minimum of 50 chickens on commercial flock)



Q16 [If poultry animals selected] what is the current average flock size? [please enter number in text box below]

Display This Question:

If How would you classify the respondents type of livestock for purpose of this study? [Interviewer... = Small-ruminant herd (own at least 5 sheep or goats)



Q17 [If small-ruminant animals selected] what is the current average herd size? [please enter number in text box below]

Q18 Did you vaccinate your flock/herd in the last 12 months?

- Yes (1)
- No (2)

Display This Question:

If How would you classify the respondents type of livestock for purpose of this study? [Interviewer... = Poultry flock (own at least 10 chickens or a minimum of 50 chickens on commercial flock)

And Did you vaccinate your flock/herd in the last 12 months? = Yes

Q19 [If poultry animals selected] Which diseases do you vaccinate your flock against? Please select all that apply.

- Fowl pox (1)
 - Gumboro (2)
 - Infectious bronchitis (3)
 - Coccidiosis (4)
 - Salmonella (5)
 - Newcastle disease (8)
 - E coli (9)
 - Other (please specify) (7)
-

Display This Question:

If How would you classify the respondents type of livestock for purpose of this study? [Interviewer... = Small-ruminant herd (own at least 5 sheep or goats)

And Did you vaccinate your flock/herd in the last 12 months? = Yes

Q20 [If small-ruminant animals selected] which diseases do you vaccinate your herd against?
Please select all that apply.

- CCPP (Homa ya mapafu) (1)
 - Sheep and Goat pox (2)
 - Brucellosis (3)
 - Foot and mouth disease (4)
 - Helminth infection (5)
 - Peste des petits ruminants (PPR) (6)
 - Contagious pustular dermatitis (Orf) (7)
 - Other (please specify) (8)
-

Q21 Where do you source your vaccines from? Please select all that apply.

- Directly from a veterinarian/AHO (1)
 - Veterinary or agricultural drug shop (2)
 - Veterinary pharmaceutical distributor (3)
 - Government provides (4)
 - Other (please specify) (5)
-

Q22 How far do you travel on average to the source where you purchase your vaccines from?

- Under 30 minutes (1)
 - 30 minutes - 1 hour (2)
 - 1-2 hours (3)
 - Over 2 hours (4)
 - Not sure (5)
-

Q23 Do the following reasons influence your decision whether or not to vaccinate your animals against a certain disease? **For each option, click yes or no.**

	Yes (5)	No (6)
Price of vaccine (1)	<input type="radio"/>	<input type="radio"/>
Availability of vaccine (2)	<input type="radio"/>	<input type="radio"/>
Access to vaccine source or supplier (3)	<input type="radio"/>	<input type="radio"/>
Distance to vaccine source or supplier (4)	<input type="radio"/>	<input type="radio"/>
History of disease on farm (5)	<input type="radio"/>	<input type="radio"/>
Knowledge of disease (6)	<input type="radio"/>	<input type="radio"/>
Severity of disease (expected mortalities, morbidities) (7)	<input type="radio"/>	<input type="radio"/>
Occurrence of disease on other local farms in area (8)	<input type="radio"/>	<input type="radio"/>
Difficulty of administration method of vaccine (9)	<input type="radio"/>	<input type="radio"/>
Other reasons (10)	<input type="radio"/>	<input type="radio"/>

Display This Question:

If Do the following reasons influence your decision whether or not to vaccinate your animals against... = Other reasons [Yes]

Q24 If selected other to the following reasons that influence your decision whether or not to vaccinate your animals against a certain disease. Please specify in box below.

Display This Question:

If Do the following reasons influence your decision whether or not to vaccinate your animals against... = Price of vaccine [Yes]

Q25 Out of the options selected above, what are the **two main reasons** that influence your decision to vaccinate against a certain disease? [List selected options from above/or other]

Do the following reasons influence your decision whether or not to vaccinate your animals against... = Price of vaccine [Yes]

Price of vaccine (2)

Do the following reasons influence your decision whether or not to vaccinate your animals against... = Availability of vaccine [Yes]

Availability of vaccine (5)

Do the following reasons influence your decision whether or not to vaccinate your animals against... = Access to vaccine source or supplier [Yes]

Access to vaccine source or supplier (6)

Do the following reasons influence your decision whether or not to vaccinate your animals against... = Distance to vaccine source or supplier [Yes]

Distance to vaccine source or supplier (7)

Do the following reasons influence your decision whether or not to vaccinate your animals against... = History of disease on farm [Yes]

History of disease on farm (8)

Do the following reasons influence your decision whether or not to vaccinate your animals against... = Knowledge of disease [Yes]

Knowledge of disease (9)

Do the following reasons influence your decision whether or not to vaccinate your animals against... = Severity of disease (expected mortalities, morbidities) [Yes]

Severity of disease (expected mortalities, morbidities) (10)

Do the following reasons influence your decision whether or not to vaccinate your animals against... = Occurrence of disease on other local farms in area [Yes]

Occurrence of disease on other local farms in area (11)

Do the following reasons influence your decision whether or not to vaccinate your animals against... = Difficulty of administration method of vaccine [Yes]

Difficulty of administration method of vaccine (12)

Do the following reasons influence your decision whether or not to vaccinate your animals against... = Other reasons [Yes]

Other option (13)

Q26 Who is the primary provider of veterinary care and support for your herd/flock? Please select the one most suitable option.

- Animal Health Officer (1)
 - Private (on-farm) veterinarian (4)
 - Nobody (myself) (5)
 - Livestock Extension Officer (6)
 - Government official (7)
 - Other (please specify) (8) _____
-

Q27 Who gives you advice on the vaccines (and vaccine protocols) to use for your herd/flock? Please select all that apply.

- No one, I know what I need (1)
- My veterinarian or AHO (2)
- Vaccine supplier or vet shop owner (3)
- Government official (4)
- Other farm owners in local area (5)
- Friends and family (6)
- Other (please specify) (7) _____

Q28 In your opinion, do you experience challenges when trying to obtain or purchase vaccines for your animals?

- Yes (1)
- Sometimes (2)
- No (3)

Display This Question:

If In your opinion, do you experience challenges when trying to obtain or purchase vaccines for your... = Yes

Or In your opinion, do you experience challenges when trying to obtain or purchase vaccines for your... = Sometimes

Q29 What challenges do you experience in relation to obtaining or purchasing of vaccines? Please select all that apply.

- Vaccines not available/not in stock (1)
- Vaccine supplier/source too far away (2)
- Poor transport methods to reach vaccine source or supplier (4)
- Vaccines too expensive (3)
- Unsuitable vaccine package size for herd/flock (5)
- Other (please specify) (6)
-

End of Block: Prescribing practices

Start of Block: Block 3

Q30 In your opinion, do you experience challenges in relation to the use of vaccines on your farm?

- Yes (1)
- Sometimes (2)
- No (3)

Display This Question:

If In your opinion, do you experience challenges in relation to the use of vaccines on your farm? = Yes

Or In your opinion, do you experience challenges in relation to the use of vaccines on your farm? = Sometimes

Q31 What challenges do you experience in relation to use of vaccines on your animals? Please select all that apply.

- Vaccine is no longer effective against disease (e.g. vaccine resistance) (1)
 - Problems related to climate (e.g. heat stress, climate-related ineffectiveness) (2)
 - Problems related to administration/application method (3)
 - Problems related to vaccine schedule (4)
 - Problems related to vaccine storage (e.g. cold chain needed) (5)
 - Vaccine side-effects (6)
 - Other (please specify) (7)
-

Q32 In your opinion what do you think would influence you the most to use vaccines on your herd/flock. Please choose one.

- Funding and investment opportunities in agriculture (1)
 - Government support with access to expensive vaccines (4)
 - Technology advancement for administrating vaccines on your herd/flock (5)
 - Labs within close proximity to your livestock household (6)
 - Information and education regarding administrating vaccines safely (7)
 - Other (please specify) (8)
-

Q33 In your opinion, do you consider gender (i.e. being male or female), to be a barrier to vaccine access?

- No (1)
 - Yes, to some extent (2)
 - Yes, greatly (3)
 - Not sure (4)
-

Display This Question:

If In your opinion, do you consider gender (i.e. being male or female), to be a barrier to vaccine a... = Yes, to some extent

Or In your opinion, do you consider gender (i.e. being male or female), to be a barrier to vaccine a... = Yes, greatly

Q34 In what way has gender (i.e. male or female), acted as a barrier to vaccine access?

Q35 Do you use vaccines produced by the veterinary pharmaceutical company Zoetis (originally Pfizer Animal Health)?

- Yes (1)
- No (2)
- Not sure (3)

Display This Question:

If Do you use vaccines produced by the veterinary pharmaceutical company Zoetis (originally Pfizer A... = Yes

Q36 Which vaccines produced by the veterinary pharmaceutical company Zoetis (originally Pfizer Animal Health) did you use? please list them.

Q37 Are there diseases of concern that you are currently not able to source a vaccine for?

- Yes (1)
- No (2)

Display This Question:

If Are there diseases of concern that you are currently not able to source a vaccine for? = Yes

Q38 Which 3 diseases are of most concern to you?

Q39 If known, list at least 3 prioritised vaccines that you can not currently access.

Q40 Has your local government ever had a vaccination campaign in your area within the last 5 years?

- Yes (1)
- No (2)
- Not sure (3)

Display This Question:

If Has your local government ever had a vaccination campaign in your area within the last 5 years? = Yes

Q41 Which vaccines were being promoted in the campaign?

Display This Question:

If Which vaccines were being promoted in the campaign? Is Displayed

Q42 Which diseases were being vaccinated against in the campaign?

Q43 Do you ever use traditional methods to treat your animals against disease or poor health?

- Yes (1)
- No (2)

Display This Question:

If Do you ever use traditional methods to treat your animals against disease or poor health? = Yes

Q44 List the traditional methods you use to treat your animals against disease or poor health.

Q45 In what language is the survey being conducted in? [please select one]

- English (1)
- Kiswahili (2)
- Both English and Kiswahili (3)
- Other (please specify) (4) _____

End of Block: Block 3

Supplementary material S2: Questionnaire for animal health professionals

Start of Block: Demographic information

Q2 What is the unique participant ID code? [Interviewer to use excel spreadsheet]

Q3 Please confirm the unique participant ID code? [Interviewer to use excel spreadsheet]

Q4 What ward are you located in? [Please choose from the drop down list]

▼ Tingatinga (11) ... Other ward (16)

Display This Question:

If What ward are you located in? [Please choose from the drop down list] = Other ward

Q5

If other please specify what ward you are located in located in.

Q6 What is your gender?

Male (1)

Female (2)

Prefer not to say (3)

Q7

Which of these best describes your current role? Please select one most applicable

- Animal Health Officer (4)
 - Paravet (7)
 - Livestock Extension Officer (8)
 - District Veterinary Officer (9)
 - Government extension officer (10)
 - Government Official/representative (11)
 - Veterinarian (12)
 - Other, (please specify) (13)
-

Q8 For how many years have you worked as an animal health professional?

- 0-2 years (12)
 - >2-5 years (13)
 - >5-15 years (14)
 - >15 years (15)
-

Q9 In your role as an animal health professional, what activities do you participate in most frequently? Please select all that apply:

- Treatment of animals (1)
 - Supplying veterinary pharmaceuticals to farmers (e.g. antibiotics, vaccines) (5)
 - Advising farmers on health & production of their animals (7)
 - Collecting and submitting samples (blood, faecal etc.) to veterinary diagnostic laboratories (8)
 - Liaising with government officials/representatives (9)
 - Other, (please specify) (10)
-

Q10 What is the highest level of education you attained?

- Secondary school/Post-Secondary certificate (7)
 - Diploma (1)
 - Bachelors degree (Bsc) (5)
 - Veterinary degree (BVM/BVS) (10)
 - Master's degree (MSc/MPH) (6)
 - Other, (please specify) (8) _____
-

Q11 To your knowledge, at present, on average how many animal health professionals (e.g. AHOs, vets, paravets etc.) work in each of the ward(s) that you also work in?

- 2 (1)
- 3 or more (2)
- Don't know (3)

End of Block: Demographic information

Start of Block: Prescribing practices

Q12 To your knowledge, on average, how many livestock farmers do you **provide veterinary services to or work with or consult with, per month**?

- Less than 5 (2)
 - 6-10 (5)
 - 11-20 (6)
 - Over 20 (7)
-

Q13 Do poultry farmers in your ward typically vaccinate their poultry flocks?

- Yes (1)
 - No (2)
 - Not sure (3)
-

Display This Question:

If Do poultry farmers in your ward typically vaccinate their poultry flocks? = Yes

Q14 If yes, what is the **average poultry flock size** that poultry farmers in your Ward vaccinate?
Please select **one** answer.

- Less than 50 (1)
 - 51-200 (4)
 - 201-500 (5)
 - Over 500 (6)
-

Q15 Do goats/sheep farmers in your ward typically vaccinate their herds?

- Yes (1)
 - No (4)
 - Not sure (5)
-

Display This Question:

If Do goats/sheep farmers in your ward typically vaccinate their herds? = Yes

Q16 If yes, what is the **average herd size** that goat/sheep farmers in your Ward vaccinate?
Please select one.

- Less than 5 (1)
 - 6-10 (4)
 - 11-20 (5)
 - 21-50 (6)
 - Over 50 (7)
-

Q17 **Which animals** do you provide veterinary services (advise, treat) for in your ward(s)?
Please select all that apply.

- Cattle (1)
 - Goats (4)
 - Sheep (5)
 - Chickens (6)
 - Rabbits (7)
 - Turkeys (8)
 - Ducks (9)
 - Donkeys (10)
 - Pigs (11)
 - Other (please specify) (12)
-

Display This Question:

If Do poultry farmers in your ward typically vaccinate their poultry flocks? = Yes

Q18 In your experience, which **diseases are most commonly vaccinated against by poultry farmers** in your ward(s)? Please select all that apply.

- Fowl pox (1)
 - Gumboro (2)
 - Infectious bronchitis (3)
 - Coccidiosis (4)
 - Salmonella (5)
 - Newcastle disease (8)
 - E coli (9)
 - Other (please specify) (7)
-

Display This Question:

If Do goats/sheep farmers in your ward typically vaccinate their herds? = Yes

Q19 In your experience which diseases affecting goat/sheep do farmers most commonly vaccinate against in your ward(s). Please select all that apply.

- CCPP (Homa ya mapafu) (1)
 - Sheep and Goat pox (2)
 - Brucellosis (3)
 - Foot and mouth disease (4)
 - Helminth infection (5)
 - Peste des petits ruminants (PPR) (6)
 - Contagious pustular dermatitis (Orf) (7)
 - Other (please specify) (8)
-

Q20 In your experience, where do poultry and goat/sheep farmers **get/source their vaccines from**? Please select all that apply.

- Directly from a veterinarian/AHO/paravet (1)
 - Veterinary or agricultural drug shop (2)
 - Veterinary pharmaceutical distributor (3)
 - Government provides (4)
 - Other (please specify) (5)
-

Q21 In your experience, on average, **how much time does it take poultry and goat/sheep farmers to travel to the source where they purchase their vaccines from?** Please select one.

- Under 30 minutes (1)
 - 30 minutes - 1 hour (2)
 - 1-2 hours (3)
 - Over 2 hours (4)
 - Not sure (5)
-

Q22 In your experience, do the following reasons influence the decision of poultry and goat/sheep farmers in your Ward(s) to vaccinate their animals against a certain disease? For each option, click yes or no.

	Yes (5)	No (6)
Price of vaccine (1)	<input type="radio"/>	<input type="radio"/>
Availability of vaccine (2)	<input type="radio"/>	<input type="radio"/>
Access to vaccine source or supplier (3)	<input type="radio"/>	<input type="radio"/>
Distance to vaccine source or supplier (4)	<input type="radio"/>	<input type="radio"/>
History of disease on farm (5)	<input type="radio"/>	<input type="radio"/>
Knowledge of disease (6)	<input type="radio"/>	<input type="radio"/>
Severity of disease (expected mortalities, morbidities) (7)	<input type="radio"/>	<input type="radio"/>
Occurrence of disease on other local farms in area (8)	<input type="radio"/>	<input type="radio"/>
Difficulty of administration method of vaccine (9)	<input type="radio"/>	<input type="radio"/>
Other reasons (10)	<input type="radio"/>	<input type="radio"/>

Display This Question:

If In your experience, do the following reasons influence the decision of poultry and goat/sheep far... = Other reasons [Yes]

Q23 If selected 'other' to the following reasons that influence the decision of poultry and goat/sheep farmers to vaccinate their animals against a certain disease. Please specify in box below.

Display This Question:

*If In your experience, do the following reasons influence the decision of poultry and goat/sheep far...
= Price of vaccine [Yes]*

Q24 Out of the options selected in the previous question, what are the **two main reasons** that influence the decision of poultry and goat/sheep farmers to vaccinate against a certain disease? [List selected options from above/or other]

In your experience, do the following reasons influence the decision of poultry and goat/sheep far... = Price of vaccine [Yes]

Price of vaccine (2)

In your experience, do the following reasons influence the decision of poultry and goat/sheep far... = Availability of vaccine [Yes]

Availability of vaccine (5)

In your experience, do the following reasons influence the decision of poultry and goat/sheep far... = Access to vaccine source or supplier [Yes]

Access to vaccine source or supplier (6)

In your experience, do the following reasons influence the decision of poultry and goat/sheep far... = Distance to vaccine source or supplier [Yes]

Distance to vaccine source or supplier (7)

In your experience, do the following reasons influence the decision of poultry and goat/sheep far... = History of disease on farm [Yes]

History of disease on farm (8)

In your experience, do the following reasons influence the decision of poultry and goat/sheep far... = Knowledge of disease [Yes]

Knowledge of disease (9)

In your experience, do the following reasons influence the decision of poultry and goat/sheep far... = Severity of disease (expected mortalities, morbidities) [Yes]

Severity of disease (expected mortalities, morbidities) (10)

In your experience, do the following reasons influence the decision of poultry and goat/sheep far... = Occurrence of disease on other local farms in area [Yes]

Occurrence of disease on other local farms in area (11)

In your experience, do the following reasons influence the decision of poultry and goat/sheep far... = Difficulty of administration method of vaccine [Yes]

Difficulty of administration method of vaccine (12)

In your experience, do the following reasons influence the decision of poultry and goat/sheep far... =
Other reasons [Yes]

Other option (13)

Q25 In your opinion, **which of the following is most commonly used by poultry or goat/sheep farmers for veterinary care and support?** Please select the one most suitable option.

- Animal Health Officer (1)
 - Para-vet (9)
 - Private (on-farm) veterinarian (10)
 - None/farmer treats animals themselves (11)
 - Livestock Extension Officer (13)
 - Government official (7)
 - Other (please specify) (8) _____
-

Q26 In your experience, do poultry or goat/sheep farmers in your Ward experience **challenges when obtaining or purchasing vaccines** for their animals?

- Yes (1)
 - Sometimes (2)
 - No (3)
-

Display This Question:

If In your experience, do poultry or goat/sheep farmers in your Ward experience challenges when obta... = Yes

Or In your experience, do poultry or goat/sheep farmers in your Ward experience challenges when obta... = Sometimes

Q27 [If yes or sometimes selected] What challenges do poultry or goat/sheep farmers in your Ward experience in relation to **obtaining or purchasing** of vaccines? Please select all that apply.

- Vaccines not available/not in stock (1)
 - Vaccine supplier/source too far away (2)
 - Poor transport methods to reach vaccine source or supplier (4)
 - Vaccines too expensive (3)
 - Unsuitable vaccine package size for herd/flock (5)
 - Other (please specify) (6)
-

End of Block: Prescribing practices

Start of Block: Block 3

Q28 In your experience, do poultry or goat/sheep farmers in your ward experience **challenges in relation to use of vaccines** on their animals?

- Yes (1)
 - Sometimes (2)
 - No (3)
-

Display This Question:

If In your experience, do poultry or goat/sheep farmers in your ward experience challenges in relati...
= Yes

Or In your experience, do poultry or goat/sheep farmers in your ward experience challenges in
relati... = Sometimes

Q29 [If yes or sometimes selected] In your experience, what challenges do the poultry or goat/sheep farmers in your Ward experience **in relation to use of vaccines**? Please select all that apply.

- Vaccine is no longer effective against disease (e.g. vaccine resistance) (1)
 - Problems related to climate (e.g. heat stress, climate-related ineffectiveness) (2)
 - Problems related to administration/application method (3)
 - Problems related to vaccine schedule (4)
 - Problems related to vaccine storage (e.g. cold chain needed) (5)
 - Vaccine side-effects (6)
 - Other (please specify) (7)
-

Q30 In your opinion what do you think would influence poultry and goat/sheep farmers the most to use vaccines on their herd/flock? Please select the **three most influential** options.

- Funding and investment opportunities in agriculture (1)
 - Cost of vaccines (9)
 - Access to and availability of vaccines (10)
 - Government support with access to expensive vaccines (11)
 - Technology advancement for administrating vaccines on herd/flock (12)
 - Labs within close proximity to livestock household (13)
 - Information and education regarding administrating vaccines safely (14)
 - Other (please specify) (16)
-

Q31 In your opinion, do you consider gender (i.e. being male or female), to be a barrier to vaccine use or access, on your ward(s)?

- No (1)
- Yes, to some extent (2)
- Yes, greatly (3)
- Not sure (4)

Display This Question:

If In your opinion, do you consider gender (i.e. being male or female), to be a barrier to vaccine u... = Yes, to some extent

Or In your opinion, do you consider gender (i.e. being male or female), to be a barrier to vaccine u... = Yes, greatly

Q32 In what way has gender (i.e. male or female), acted as a barrier to vaccine use or access, on your ward(s)?

Q33 Do you know if farmers in your ward use vaccines produced by the veterinary pharmaceutical company **Zoetis** (originally Pfizer Animal Health)?

- Yes (1)
- No (2)
- Not sure (3)

Display This Question:

If Do you know if farmers in your ward use vaccines produced by the veterinary pharmaceutical compan... = Yes

Q34 Which vaccines produced by the veterinary pharmaceutical company **Zoetis** (originally Pfizer Animal Health) are used? please list them.

Q35 In your experience, do you know if there are **goat/sheep diseases of concern to farmers** in your ward(s) that they are currently not able to source a vaccine for?

- Yes (1)
- No (2)
- Not sure (3)

Display This Question:

If In your experience, do you know if there are goat/sheep diseases of concern to farmers in your wa... = Yes

Q36 Which **3** small-ruminant diseases are of **most concern to goat/sheep farmers** in your ward(s)?

Display This Question:

If In your experience, do you know if there are goat/sheep diseases of concern to farmers in your wa... = Yes

Q37 If YES was selected, list at MOST 3 prioritised vaccines that the **goat/sheep farmers in your Ward can not currently access?**

Q38 In your experience, do you know if there are **poultry diseases of concern to farmers** in your ward(s) that they are currently not able to source a vaccine for?

- Yes (1)
- No (2)
- Not sure (3)

Display This Question:

If In your experience, do you know if there are poultry diseases of concern to farmers in your ward(... = Yes

Q39 Which **3** poultry diseases are of **most concern to poultry farmers** in your ward(s)?

Display This Question:

If In your experience, do you know if there are poultry diseases of concern to farmers in your ward(... = Yes

Q40 If YES was selected, list at MOST 3 **prioritised** vaccines that the **poultry farmers** in your Ward can not currently access?

Q41 Has your local government had a vaccination campaign in your Ward(s) **within the last 5 years**?

- Yes (1)
- No (2)
- Not sure (3)

Display This Question:

If Has your local government had a vaccination campaign in your Ward(s) within the last 5 years? = Yes

Q42 Which vaccines were being promoted in the campaign?

Display This Question:

If Which vaccines were being promoted in the campaign? Is Displayed

Q43 Which diseases were being vaccinated against in the campaign?

Q44 Do poultry or goat/sheep farmers in your ward(s) ever use traditional methods to treat against disease or poor health?

- Yes (1)
- No (2)
- Not sure (3)

Display This Question:

*If Do poultry or goat/sheep farmers in your ward(s) ever use traditional methods to treat against di...
= Yes*

Q45 List the traditional methods that poultry or goat/sheep farmers in your ward(s) use to treat against disease or poor health.

Q46 Other than challenges associated with vaccines, **what other challenges or constraints do you think goat/sheep or poultry farmers in your ward(s) experience in relation to the health and production of their animals?** Please describe in detail.

Q47 What challenges do you **experience in the provision of veterinary services to goat/sheep or poultry farmers in your ward(s)**? Please select all that apply.

- Not enough animal health professionals in my ward(s) (1)
 - Time constraints/workload (4)
 - Poor road and transport access to farmers (5)
 - Poor mobile/Wi-Fi networks to be able to communicate with farmers (6)
 - Lack of tools and equipment to use in clinical work (7)
 - Poor overall governance in the veterinary sector (8)
 - Inadequate skills/expertise to treat/advise farmers (9)
 - Lack of veterinary diagnostic facilities in local area (10)
 - Poor pay from farmers (11)
 - Farmers' inability to pay (12)
 - Other, please specify (13)
-

Q48 Is there anything else you (the AHO) would like to comment on that has not been covered by this survey? If yes, please describe here.

Q49 In what language is the survey being conducted in? **[Interviewer - please select one]**

- English (1)
- Kiswahili (2)
- Both English and Kiswahili (3)
- Other (please specify) (4) _____

End of Block: Block 3

Supplementary Materials: Tables S1-S11

Table S1. Current average flock/herd size kept by households.

Variable	Response	Number of respondents	Percent of respondents
The type of livestock for purpose of this study (n=216)	Poultry flock (own at least 10 chickens or a minimum of 50 chickens on commercial flock)	117	54.2%
	Small-ruminant herd (own at least 5 sheep/goats)	99	45.8%
Animals kept/owned (n=216) ¹	Chickens	174	80.6%
	Goats	115	53.2%
	Cattle	99	45.8%
	Sheep	41	19.0%
	Ducks	27	12.5%
	Pigs	18	8.3%
	Donkeys	8	3.7%
	Rabbits	6	2.8%
	Turkeys	3	1.4%
	Other (Not specified)	35	16.2%
Type of animal that provides the most income (n=216)	Chickens	104	48.1%
	Goats	65	30.1%
	Cattle	39	18.1%
	Pigs	5	2.3%
	Sheep	2	0.9%
	Ducks	1	0.5%
Current average poultry flock size (n=117)	>10–20	41	35.0%
	>20–50	33	28.2%
	>50–200	25	21.4%
	>200–500	13	11.1%
	>500–1000	4	3.4%
	>1000+	1	0.9%
Current average small-ruminant herd size (n=99)	>5–10	36	36.4%
	>10–50	44	44.4%
	>50–100	10	10.1%
	>100–200	7	7.1%
	>200–300	1	1.0%
	>300+	1	1.0%

¹ Respondents could select all options that apply.

Table S2. Diseases vaccinated against, vaccination source and veterinary care and support.

Variable	Response	Number of respondents	Percent of respondents
Did you vaccinate your flock/herd in the last 12 months? (n=216)	Yes	190	88.0%
	No	26	12.0%
[If poultry animals selected] Which diseases do you vaccinate your flock against? (n=108) ¹	Newcastle diseases	99	91.7%
	Fowl pox	52	48.1%
	Gumboro	40	37.0%
	E coli	15	13.9%
	Infectious bronchitis	7	6.5%
	Coccidiosis	5	4.6%
	Salmonella	5	4.6%
Other (Not specified)	2	1.9%	
[If small-ruminant animals selected] which diseases do you vaccinate your herd against? (n=82) ¹	CCPP (Homa ya mapafu)	51	62.2%
	Other (Not specified)	16	19.5%
	Sheep and Goat pox	14	17.1%
	Foot and mouth disease	6	7.3%
	Peste des petits ruminants (PPR)	6	7.3%
	Contagious pustular dermatitis (Orf)	4	4.9%
	Brucellosis	2	2.4%
Where do you source your vaccines from? (n=216) ¹	Veterinary or agricultural drug shop	140	64.8%
	Directly from a veterinarian/AHO	92	42.6%
	Other (Not specified)	15	6.9%
	Government provides	9	4.2%
	Vet pharmaceutical distributor	5	2.3%
How far do you travel on average to the source where you purchase your vaccines from? (n=216)	30 minutes - 1 hour	79	36.6%
	Under 30 minutes	71	32.9%
	1-2 hours	22	10.2%
	Over 2 hours	22	10.2%
	Not sure	21	9.7%
	NA	1	0.5%
Who is the primary provider of veterinary care and support for your herd/flock? (n=216)	Animal Health Officer	115	53.2%
	Nobody (myself)	53	24.5%
	Private (on-farm) veterinarian	31	14.4%
	Livestock Extension Officer	12	5.6%
	Other (Not specified)	5	2.3%
Who gives you advice on the vaccines (and vaccine protocols) to use for your herd/flock? (n=216) ¹	My veterinarian or AHO	157	72.7%
	Other farm owners in local area	87	40.3%
	Vaccine supplier or vet shop owner	60	27.8%
	Friends and family	26	12.0%
	Government official	15	6.9%
	No one, I know what I need	14	6.5%
	Other (Not specified)	7	3.2%

¹ Respondents could select all options that apply.

Table S3. Challenges experienced by household heads, most concerning diseases, and prioritised vaccines

Variable	Response	Number of respondents	Percent of respondents
In your opinion, do you experience challenges when trying to obtain or purchase vaccines for your animals? (n=216)	Yes	118	54.6%
	No	78	36.1%
	Sometimes	20	9.3%
What challenges do you experience in relation to obtaining or purchasing of vaccines? (n=118) ¹	Vaccines too expensive	92	78.0%
	Vaccine supplier/source too far away	72	61.0%
	Vaccines not available/not in stock	25	21.2%
	Poor transport methods to reach vaccine source or supplier	22	18.6%
	Unsuitable vaccine package size for herd/flock	20	16.9%
	Other (Not specified)	5	4.2%
In your opinion, do you experience challenges in relation to the use of vaccines on your farm? (n=216)	No	106	49.1%
	Yes	100	46.3%
	Sometimes	10	4.6%
What challenges do you experience in relation to use of vaccines on your animals? (n=100) ¹	Problems related to vaccine storage (e.g. cold chain needed)	50	50.0%
	Vaccine is no longer effective against disease (e.g. vaccine resistance)	42	42.0%
	Vaccine side-effects	39	39.0%
	Problems related to administration/application method	28	28.0%
	Problems related to vaccine schedule	18	18.0%
	Problems related to climate (e.g. heat stress, climate-related ineffectiveness)	5	5.0%
	Other (Not specified)	7	7.0%
Are there diseases of concern that you are currently not able to source a vaccine for? (n=216)	No	133	61.6%
	Yes	83	38.4%

Table S3. Cont.

Variable	Response	Number of respondents	Percent of respondents	
Which 3 diseases are of most concern to you? (n=83)	Small-Ruminant Diseases	Circling disease	21	25.3%
		CCPP	11	13.3%
		FMD	4	4.8%
		East Coast Fever	4	4.8%
	Poultry Diseases	Fowl Pox	16	19.3%
		Newcastle	8	9.6%
Coccidiosis		4	4.8%	
If known, list at least 3 prioritised vaccines that you cannot currently access? (n=216)	Small-Ruminant Vaccines (n=99)	Circling disease	17	17.2%
		CCPP	8	8.1%
	Poultry Vaccines (n=117)	Fowl Pox	18	15.4%
		Newcastle vaccine	11	9.4%

¹ Respondents could select all options that apply.

Table S4. Factors influencing the decision-making of household heads to vaccinate their animals

Variable	Response	Number of respondents	Percent of respondents
Do the following reasons influence your decision whether or not to vaccinate your animals against a certain disease? (n=216)	Knowledge of disease	178	82.4%
	History of disease on farm	150	69.4%
	Price of vaccine	137	63.4%
	Occurrence of disease on other local farms in area	136	63.0%
	Availability of vaccine	127	58.8%
	Severity of disease (expected mortalities, morbidities)	128	59.3%
	Access to vaccine source or supplier	119	55.1%
	Distance to vaccine source or supplier	107	49.5%
	Difficulty of administration method of vaccine	87	40.3%
	Other reasons (financial difficulties, unknown)	2	0.9%
Out of the options selected above, what are the two main reasons that influence your decision to vaccinate against a certain disease? (n=216)	Price of vaccine	97	44.9%
	Knowledge of disease	54	25.0%
	Distance to vaccine source or supplier	42	19.4%
	Availability of vaccine	32	14.8%
	Severity of disease (expected mortalities, morbidities)	27	12.5%
	History of disease on farm	11	5.1%
	Difficulty of administration method of vaccine	8	3.7%
	Occurrence of disease on other local farms in area	7	3.2%
	Access to vaccine source or supplier	6	2.8%
In your opinion, what do you think would influence you the most to use vaccines on your herd/flock? (n=216)	Government support with access to expensive vaccines	80	37.0%
	Information and education regarding administrating vaccines safely	58	26.9%
	Funding and investment opportunities in agriculture	32	14.8%
In your opinion, what do you think would influence you the most to use vaccines on your herd/flock? (n=216)	Labs within close proximity to your livestock household	26	12.0%
	Technology advancement for administrating vaccines on your herd/flock	16	7.4%
	Other (Not specified)	3	1.4%
	NA	1	0.5%

Table S5. Vaccination campaigns, traditional treatment methods and the role of gender in livestock production

Variable	Response	Number of respondents	Percent of respondents
Has your local government ever had a vaccination campaign in your area within the last 5 years? (n=216)	No	112	51.9%
	Yes	64	29.6%
	Not sure	40	18.5%
Which vaccines were being promoted in the campaign? (n=64)	CCPP Vaccine	10	15.6%
	Rabies Vaccine	8	12.5%
	Anthrax Vaccine	7	10.9%
	East Coast Fever Vaccine	2	3.1%
	Newcastle Vaccine	2	3.1%
	Fowl Pox Vaccine	1	1.6%
	I don't remember	10	15.6%
Which diseases were being vaccinated against in the campaign? (n=64)	CCPP	8	12.5%
	Anthrax	7	10.9%
	Rabies	6	9.4%
	East Coast Fever	3	4.7%
	Newcastle	3	4.7%
	Trypanosomiasis	2	3.1%
	Fowl Pox	1	1.6%
	I don't remember	8	12.5%
Do you ever use traditional methods to treat your animals against disease or poor health? (n=216)	No	120	55.6%
	Yes	96	44.4%
List the traditional methods you use to treat your animals against diseases or poor health (n=96)	Aloe Vera Leaves	41	42.7%
	Neem Leaves	11	11.5%
	Papaya Leaves	3	3.1%
	Molinga	3	3.1%
	Ashes	3	3.1%
	Mwarobaini	2	2.1%
In your opinion, do you consider gender (i.e. being male or female), to be a barrier to vaccine access? (n=216)	No	170	78.7%
	Not sure	42	19.4%
	Yes, to some extent	3	1.4%
	Yes, greatly	1	0.5%

Table S5. Cont.

Variable	Response	Number of respondents	Percent of respondents
In what way has gender (i.e. male or female), acted as a barrier to vaccine access? (n=4)	Can't say	2	50.0%
	How to get money to buy expensive vaccine	1	25.0%
	If the officer is female it is hard for her to vaccinate our animals because it is hard work	1	25.0%

Table S6. Respondent demographics for animal health professionals (animal health/livestock extension officers)

Variable	Response	Number of respondents	Percent of respondents
What is your gender? (n=19)	Male	14	73.7%
	Female	5	26.3%
To your knowledge, at present, on average how many animal health professionals (e.g. AHOs, vets, paravets etc.) work in each of the ward(s) that you also work in? (n=19)	2	12	63.2%
	3 or more	6	31.6%
	NA	1	5.3%
To your knowledge, on average, how many livestock farmers do you provide veterinary services to or work with or consult with, per month? (n=19)	Less than 5	2	10.5%
	06-10	2	10.5%
	10-20	3	15.8%
	Over 20	12	63.2%
In what language is the survey being conducted in? (n=19)	Both English and Kiswahili	7	36.8%
	English	5	26.3%
	Kiswahili	4	21.1%
	NA	3	15.8%
Which of this best describes your current role? (n=19)	Animal Health Officer	12	63.2%
	Livestock Extension Officer	7	36.8%
For how many years have you worked as an animal health professional? (n=19)	0-2 years	3	15.8%
	2-5 years	2	10.5%
	5-15 years	11	57.9%
	15 years	2	10.5%
	NA	1	5.3%
In your role as an animal health professional, what activities do you participate in most frequently? (n=19) ¹	Treatment of animals	18	94.7%
	Advising farmers on health & production of their animals	16	84.2%

Table S6. Cont.

Variable	Response	Number of respondents	Percent of respondents
In your role as an animal health professional, what activities do you participate in most frequently? (n=19) ¹	Supplying veterinary pharmaceuticals to farmers (e.g. antibiotics, vaccines)	12	63.2%
	Liaising with government officials/representatives	11	57.9%
	Collecting and submitting samples (blood, faecal etc.) to veterinary diagnostic laboratories	9	47.4%
What is the highest level of education you attained? (n=19)	Diploma	13	68.4%
	Bachelor's degree (BSc)	3	15.8%
	Veterinary degree (BVM/BVS)	2	10.5%
	Secondary school/Post-Secondary certificate	1	5.3%

¹ Respondents could select all options that apply.

Table S7. Diseases of most concern to household heads and prioritised vaccines, as reported by animal health professionals

Variable	Response	Number of respondents	Percent of respondents
In your experience, do you know if there are goat/sheep diseases of concern to farmers in your ward(s) that they are currently not able to source a vaccine for? (n=19)	Yes	9	47.4%
	No	8	42.1%
	NA	2	10.5%
Which 3 small-ruminant diseases are of most concern to goat/sheep farmers in your ward(s)? (n=9)	CCPP	5	55.6%
	PPR	5	55.6%
	FMD	2	22.2%
	Circling disease	2	22.2%
	Diarrhoea	1	11.1%
	Lump skin	1	11.1%
	Marek's disease	1	11.1%
	Worm	1	11.1%
	Offal	1	11.1%
If YES was selected, list at MOST 3 prioritised vaccines that the goat/sheep farmers in your ward can not currently access? (n=9)	PPR	4	44.4%
	CCPP	3	33.3%
	Circling disease	1	11.1%
	ECF	1	11.1%
	Brucellosis vaccines	1	11.1%
	Worm	1	11.1%
	I don't know	1	11.1%
In your experience, do you know if there are poultry diseases of concern to farmers in your ward(s) that they are currently not able to source a vaccine for? (n=19)	Yes	9	47.4%
	No	8	42.1%
	NA	2	10.5%
Which 3 poultry diseases are of most concern to poultry farmers in your ward(s)? (n=9)	Coccidiosis	2	22.2%
	Marek's disease	2	22.2%
	Typhoid	2	22.2%
	Newcastle disease	2	22.2%
	Fowl pox disease	1	11.1%
	Gumboro,	1	11.1%
	Circling disease	1	11.1%
	Salmonellosis	1	11.1%

Table S7. Cont.

Variable	Response	Number of respondents	Percent of respondents
If YES was selected, list at MOST 3 prioritised vaccines that the poultry farmers in your ward can not currently access? (n=9)	Gumboro	2	22.2%
	Newcastle	2	22.2%
	Typhoid	2	22.2%
	Fowl pox vaccine,	1	11.1%
	Marek vaccine	1	11.1%
	Brucellosis	1	11.1%
	All vaccines	1	11.1%
	I do not know	1	11.1%

Table S8. Factors influencing the decision-making of household heads to vaccinate animals against a certain disease, as reported by animal health professionals

Variable	Response	Number of respondents	Percent of respondents
In your experience, do the following reasons influence the decision of poultry and goat/sheep farmers in your ward(s) to vaccinate their animals against a certain disease? (n=19) ¹	Knowledge of disease	17	89.5%
	History of disease on farm	16	84.2%
	Occurrence of disease on other local farms in area	15	78.9%
	Access to vaccine source or supplier	13	68.4%
	Severity of disease (expected mortalities, morbidities)	13	68.4%
	Price of vaccine	10	52.6%
	Distance to vaccine source or supplier	9	47.4%
	Availability of vaccine	8	42.1%
	Difficulty of administration method of vaccine	8	42.1%
	Other reasons (specified as lack of education)	3	15.8%
Out of the options selected in the previous question, what are the two main reasons that influence the decision of poultry and goat/sheep farmers to vaccinate against a certain disease? (n=19)	Price of vaccine	8	42.1%
	Availability of vaccine	4	21.1%
	Distance to vaccine source or supplier	4	21.1%
	Access to vaccine source or supplier	3	15.8%
	Knowledge of disease	2	10.5%
	Occurrence of disease on other local farms in area	2	10.5%
	History of disease on farm	1	5.3%
	Severity of disease (expected mortalities, morbidities)	1	5.3%
	NA	1	5.3%
In your opinion, which of the following is most commonly used by poultry or goat/sheep farmers for veterinary care and support? (n=19) ¹	Animal Health Officer	7	36.8%
	Livestock Extension Officer	5	26.3%
	None/farmer treats animals themselves	3	15.8%
	Other (Not specified)	2	10.5%
	Private (on-farm) veterinarian	1	5.3%
	NA	1	5.3%

¹ Respondents could select all options that apply.

Table S9. Challenges experienced by household heads when obtaining or purchasing vaccines and in relation to use of vaccines on animals, as reported by animal health professionals

Variable	Response	Number of respondents	Percent of respondents
In your experience, do poultry or goat/sheep farmers in your ward experience challenges when obtaining or purchasing vaccines for their animals? (n=19)	Yes	17	89.5%
	No	1	5.3%
	NA	1	5.3%
What challenges do poultry or goat/sheep farmers in your ward experience in relation to obtaining or purchasing of vaccines? (n=17) ¹	Vaccine supplier/source too far away	10	58.8%
	Vaccines too expensive	8	47.1%
	Vaccines not available/not in stock	7	41.2%
	Unsuitable vaccine package size for herd/flock	7	41.2%
	Poor transport methods to reach vaccine source or supplier	6	35.3%
	Other (Not specified)	2	11.8%
In your experience, do poultry or goat/sheep farmers in your ward experience challenges in relation to use of vaccines on their animals? (n=19)	Yes	13	68.4%
	No	4	21.1%
	NA	2	10.5%
In your experience, what challenges do poultry or goat/sheep farmers in your ward experience in relation to use of vaccines? (n=13) ¹	Vaccine side-effects	9	69.2%
	Problems related to vaccine storage (e.g. cold chain needed)	6	46.2%
	Vaccine is no longer effective against disease (e.g. vaccine resistance)	5	38.5%
	Problems related to administration/application method	5	38.5%
	Problems related to vaccine schedule	5	38.5%
	Other (Not specified)	4	30.8%

¹ Respondents could select all options that apply.

Table S10. Additional challenges or constraints experienced, as reported by animal health professionals

Variable	Response	Number of respondents	Percent of respondents
Other than challenges associated with vaccines, what other challenges or constraints do you think goat/sheep or poultry farmers in your ward(s) experience in relation to the health and production of their animals? (n=19) ¹	Lack of service providers	8	42.1%
	Lack of education and knowledge	5	26.3%
	Lack of equipment and facilities	5	26.3%
	Expensive drugs and services	4	21.1%
	Small area for grazing	4	21.1%
	Propper breed for chickens	3	15.8%
	Increase of Poisonous plants	2	10.5%
	Poor transportation	2	10.5%
	NA	4	21.1%
What challenges do you experience in the provision of veterinary services to goat/sheep or poultry farmers in your ward(s)? (n=19) ¹	Lack of tools and equipment to use in clinical work	14	73.7%
	Not enough animal health professionals in my ward(s)	13	68.4%
	Poor road and transport access to farmers	13	68.4%
	Farmers inability to pay	11	57.9%
	Lack of veterinary diagnostic facilities in local area	7	36.8%
	Time constraints/workload	6	31.6%
	Poor pay from farmers	6	31.6%
	Poor mobile/Wi-Fi networks to be able to communicate with farmers	5	26.3%
	Poor overall governance in the veterinary sector	5	26.3%
	Inadequate skills/expertise to treat/advise farmers	5	26.3%
	Other (Not specified)	2	10.5%

¹ Respondents could select all options that apply.

Table S11. Vaccination campaigns, traditional treatment methods and the role of gender in livestock production, as reported by animal health professionals

Variable	Response	Number of respondents	Percent of respondents
Has your local government had a vaccination campaign in your ward(s) within the last 5 years? (n=19)	Yes	11	57.9%
	No	6	31.6%
	NA	2	10.5%
Which vaccines were being promoted in the campaign? (n=11)	Rabies	5	45.5%
	CCPP	4	36.4%
	Anthrax	2	18.2%
	Newcastle	2	18.2%
	Contagious bovine pleuropneumonia	1	9.1%
Which diseases were being vaccinated against in the campaign? (n=11)	Rabies	5	45.5%
	CCPP	4	36.4%
	CBPP	3	27.3%
	Anthrax disease	2	18.2%
	Newcastle disease	2	18.2%
	Lampskin	1	9.1%
Do poultry or goat/sheep farmers in your ward(s) ever use traditional methods to treat against disease or poor health? (n=19)	Yes	12	63.2%
	No	5	26.3%
	NA	2	10.5%
List the traditional methods that poultry or goat/sheep farmers in your ward(s) use to treat against disease or poor health. (n=12)	Aloe Vera	7	58.3%
	Neem Leaf	6	50.0%
	Papaya trees	3	25.0%
	Mwarobaini	2	16.7%
	Mixture of pepper, garlic and gingers	2	16.7%
	Bush trees	1	8.3%
In your opinion, do you consider gender (i.e. being male or female), to be a barrier to vaccine use or access, on your ward(s)? (n=19)	No	15	78.9%
	NA	2	10.5%
	Not sure	1	5.3%
	Yes, to some extent	1	5.3%

Table S11. Cont.

Variable	Response	Number of respondents	Percent of respondents
Is there anything else you (the AHO) would like to comment on that has not been covered by this survey? If yes, please describe here. (n=19)	Training for both farmers and animal health officers	5	26.3%
	Lack of workers on veterinary wards	3	15.8%
	Lack of equipment and resources	3	15.8%
	Poor transportation	2	10.5%
	Fair pricing of vaccines/drugs	1	5.3%

Note: This is Online Appendix 4 of Williams, S., Endacott, I., Ekiri, A.B., Kichuki, M., Dineva, M., Galipo, E. et al., 2022, 'Barriers to vaccine use in small ruminants and poultry in Tanzania', Onderstepoort Journal of Veterinary Research 89(1), a2007. <https://doi.org/10.4102/ojvr.v89i1.2007>

Figure S1

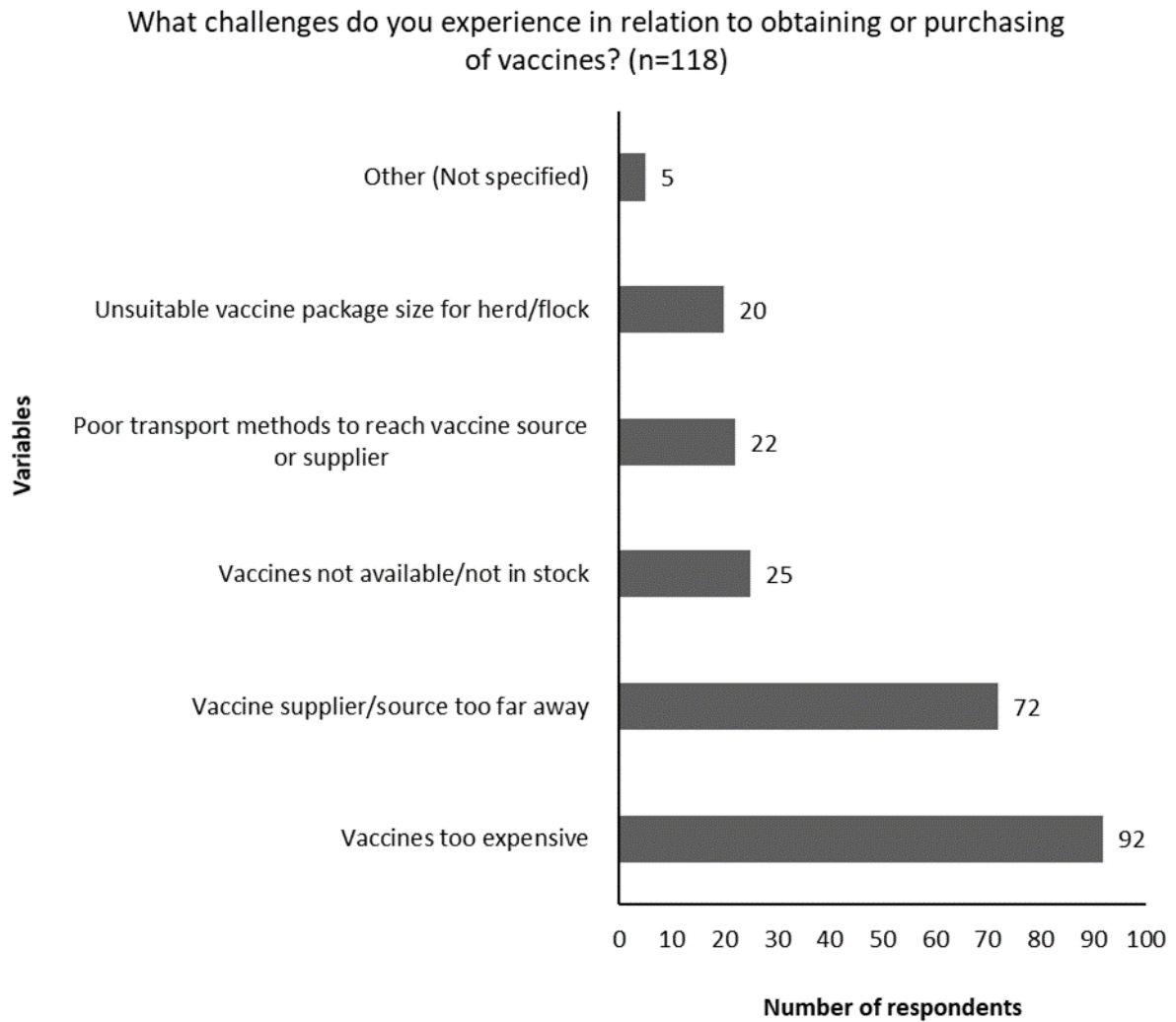


Figure S2

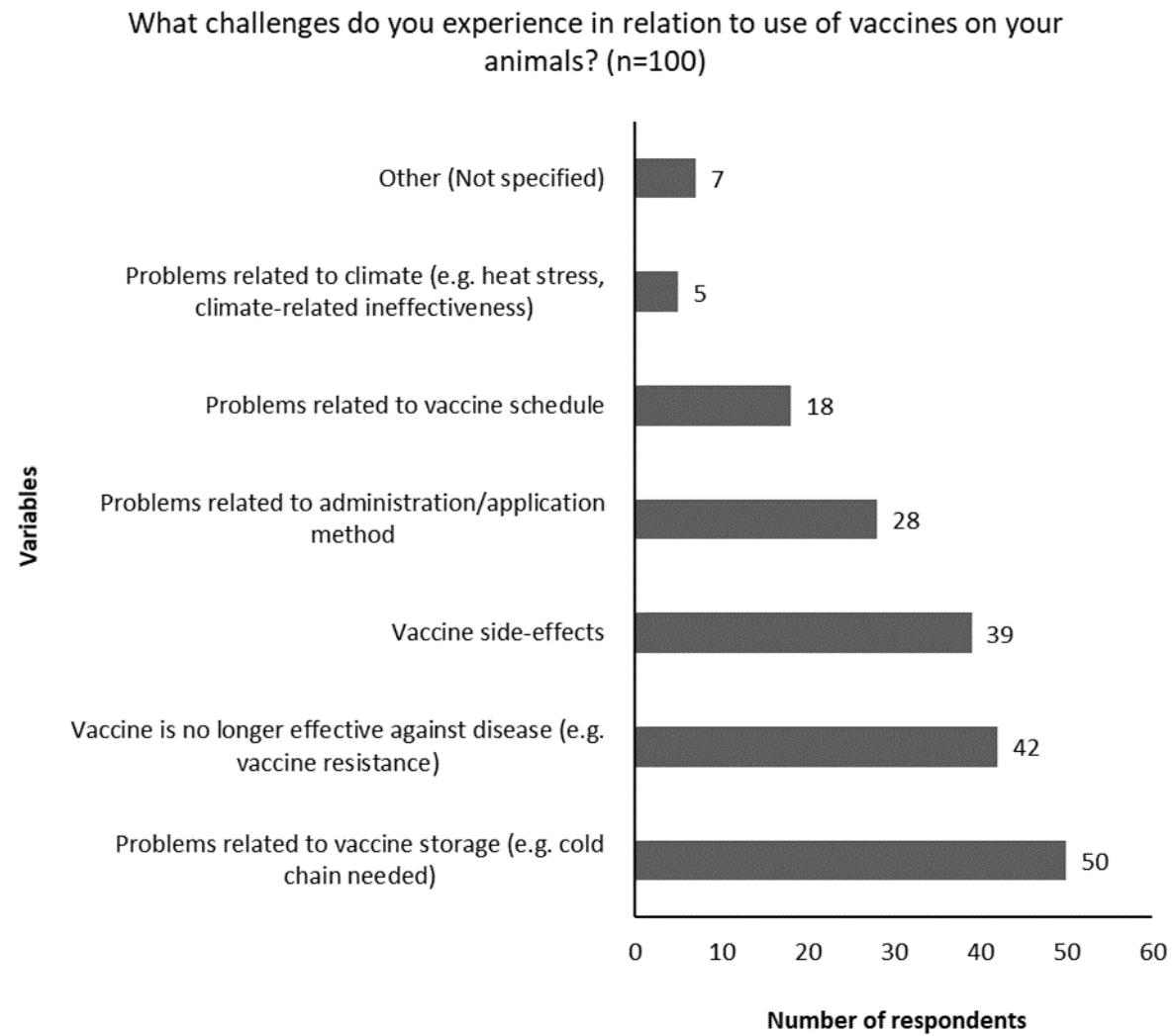


Figure S.

Which 3 small-ruminant diseases are of most concern to small-ruminant farmers in your ward(s)? List at MOST 3 prioritised vaccines that the small-ruminant farmers in your ward cannot currently access? (n=9)

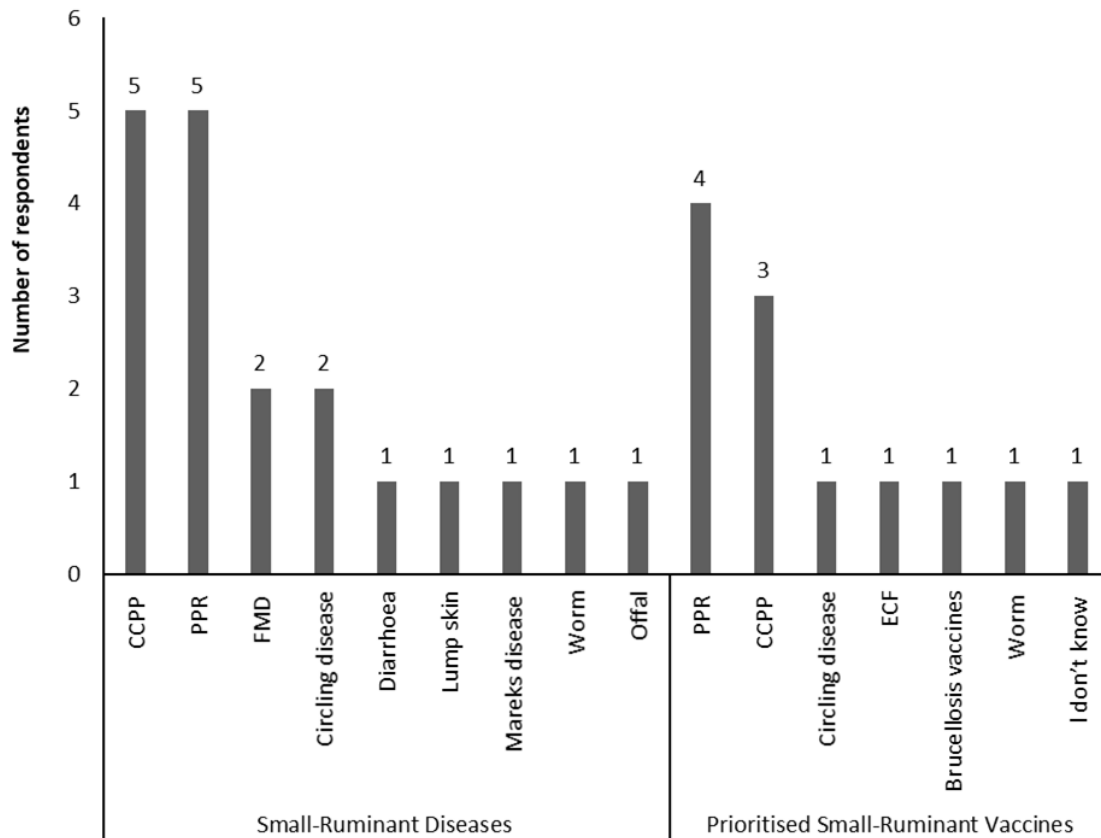


Figure S4

Which 3 poultry diseases are of most concern to poultry farmers in your ward(s)? List at MOST 3 prioritised vaccines that the poultry farmers in your ward cannot currently access? (n=9)

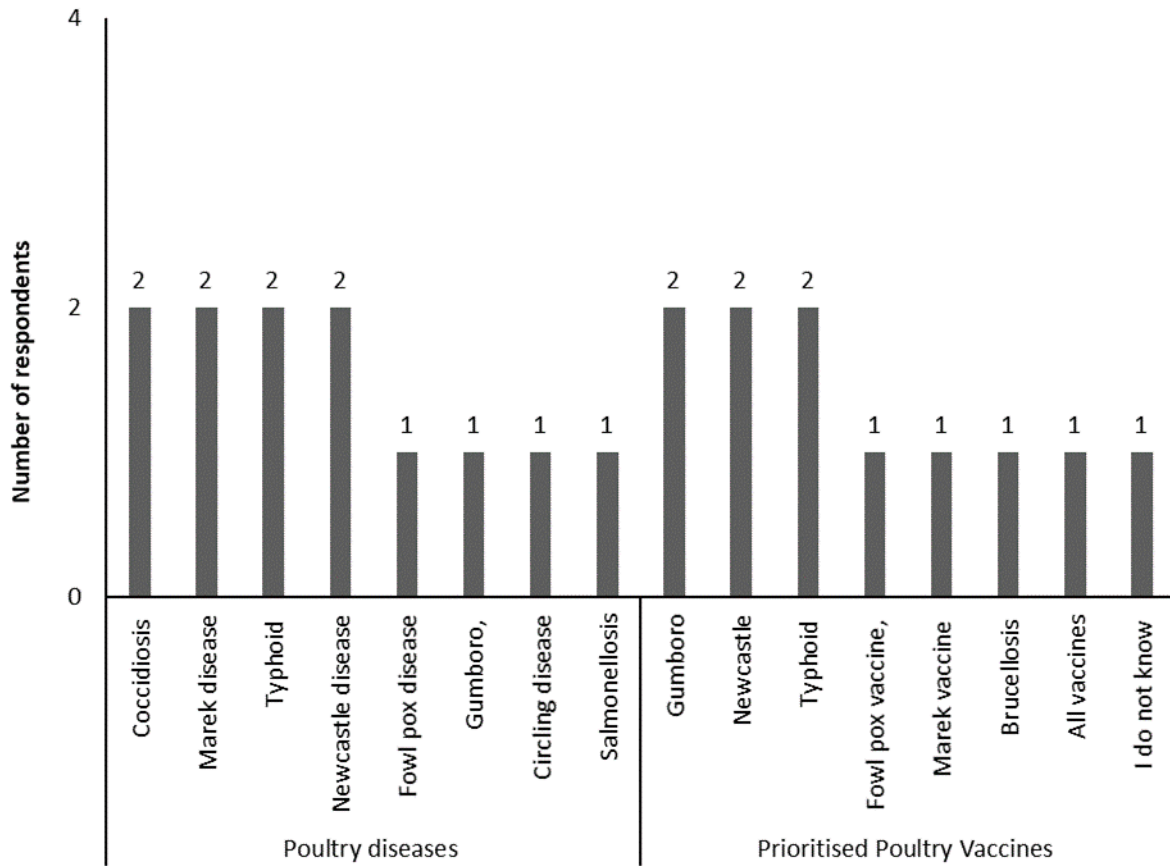


Figure S5

In your experience, what challenges do poultry or small ruminant farmers in your ward experience in relation to obtaining or purchasing of vaccines? (n=17)

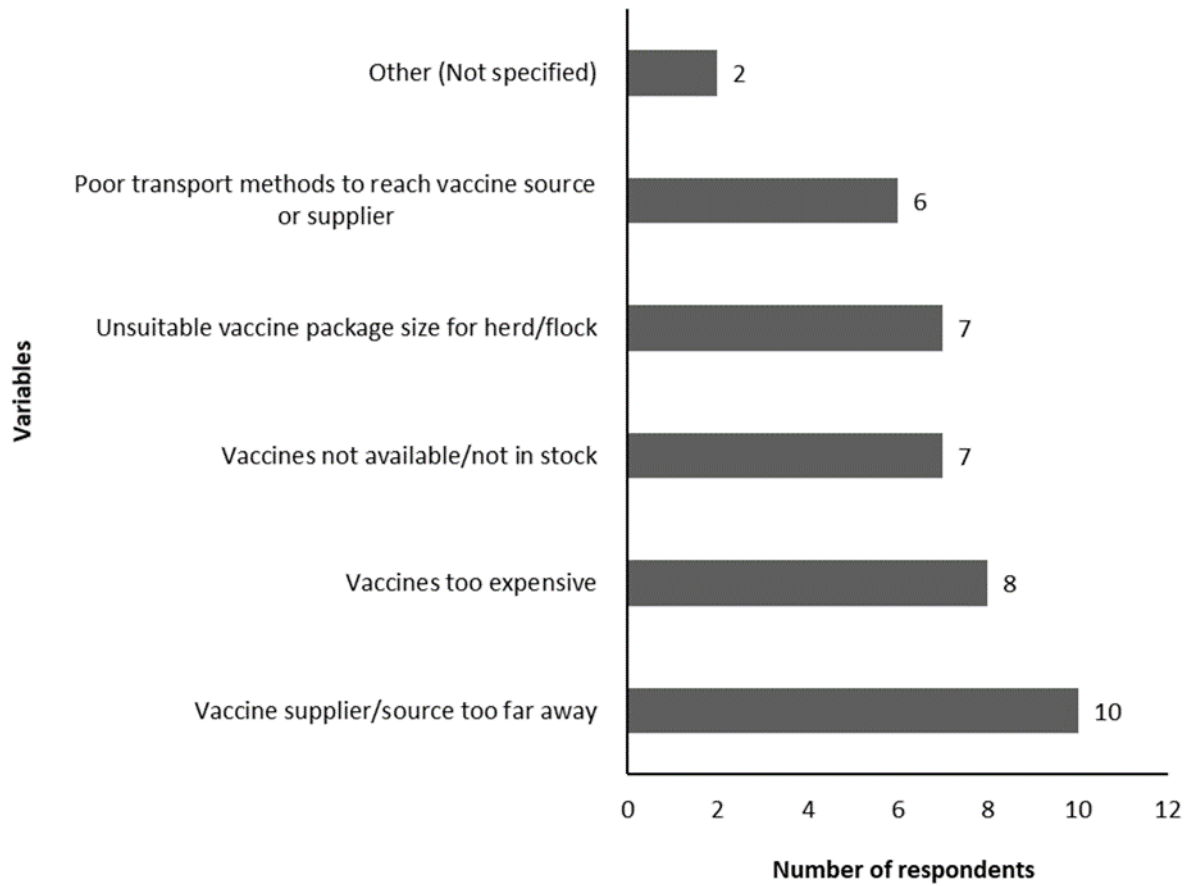


Figure S6

In your experience, what challenges do poultry or small-ruminant farmers in your ward experience in relation to use of vaccines? (n=13)

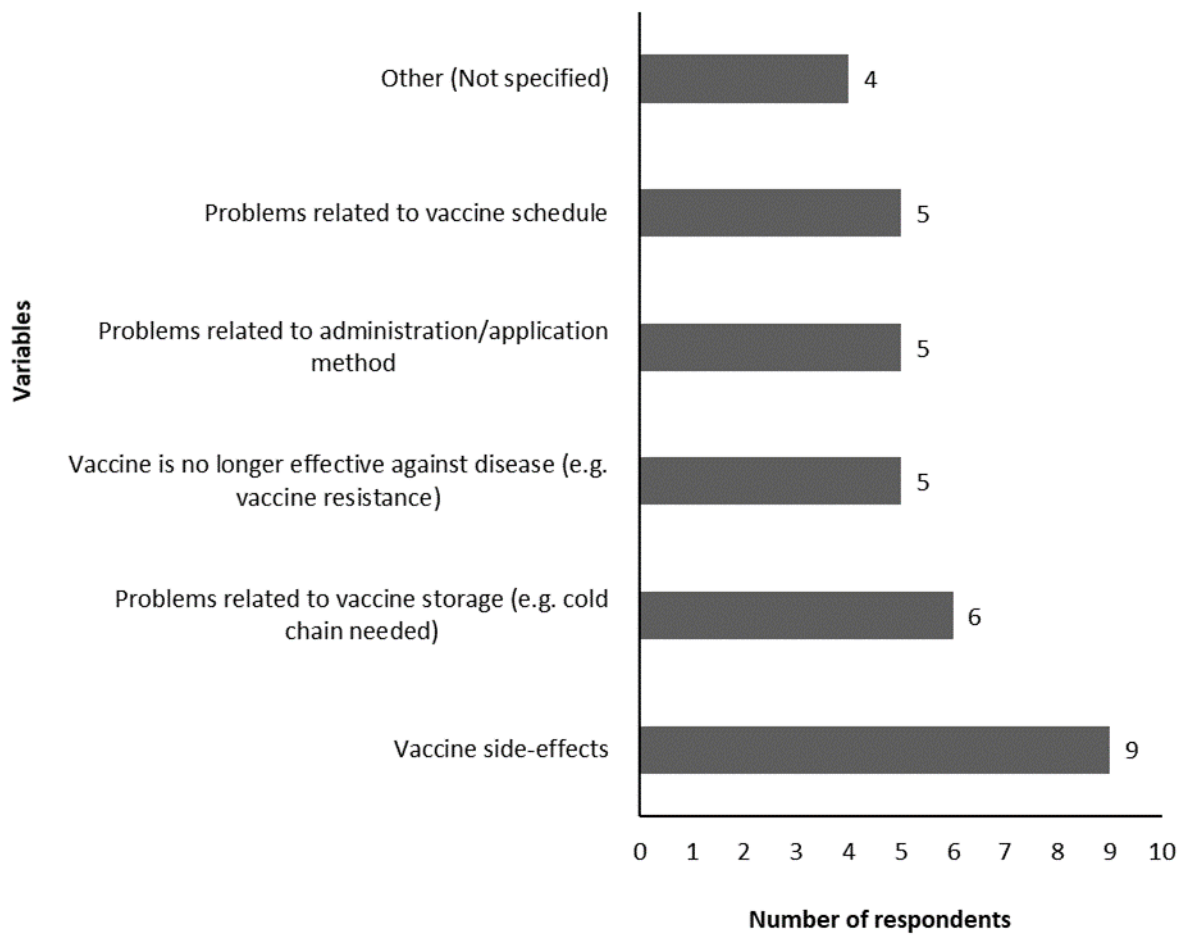


Figure S7

Which vaccines were being promoted and which diseases were being vaccinated against in the local government campaign in the ward(s)?
(n=11)

