



Field researcher guide: Gender-responsive study of phage adoption opportunities for chicken keepers in Kenya

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# 1 Background

## 1.1 Objective

The objective of this research activity is to assess the feasibility of adoption of bacteriophage (phage) technology by chicken keepers in backyard and commercial production systems in Kenya and to identify opportunities and barriers to adoption that may vary by gender. Phages are parasitic viruses that can be used to attack bacteria that cause illness in poultry and people, in this case, *Salmonella* strains that cause salmonellosis, fowl typhoid, and pullorum disease in chickens and diarrhoeal diseases in people. Current methods of controlling *Salmonella* infections in poultry farms, either for therapeutic or prevention, include the use of antibiotics, and antimicrobial resistance (AMR) is a growing concern.

By conducting this research alongside the technical development of the bacteriophage product, we improve the likelihood that the final product will be accessible to women chicken keepers and chicken keepers with smaller flocks, groups that often have less access to veterinary services and inputs. We will use focus group discussions (FGDs) of chicken keepers to map relevant disease problems, existing solutions, and preferences for delivery systems for veterinary products qualitative activity guided by the social lean canvas template (Moscovitz 2021) (Resources 4.1). We will also conduct key informant interviews (KIs) with chicken keepers, animal health workers, and agro-veterinary (agrovets) shops that sell veterinary inputs.

## 1.2 Umbrella project and funder

The activities described in this manual are part of a larger International Livestock Research Institute (ILRI)-led project called 'Phages as a One Health approach for the replacement of antibiotics, and reduction of drug resistant nontyphoidal *Salmonella*, in poultry farms in Kenya'. It is funded by the Canadian International Development Research Centre (IDRC), in partnership with the UK Aid Global AMR Innovation Fund, Department of Health and Social Care (DHSC), grant number 109049. The manual was prepared for the IDRC project but can be used for other purposes.

## 2 Methods

### 2.1 Activities

1. Focus group discussions (FGDs): We will conduct FGDs with chicken keepers disaggregated by gender (men and women) and production system (commercial and backyard) in six sites in three counties for a total of 24 focus groups as shown below in Table 1. Each focus group will be limited to five to seven poultry keepers, four project team members (facilitators and notetakers) and one local host, such as a livestock field officer or local leader, for a maximum of 12 people. Goals of the discussions are to:
  - Map disease problems, existing solutions, and delivery system preferences to assess the feasibility of adoption of bacteriophages for chicken keepers.
  - Identify opportunities and barriers to adoption of bacteriophages that may vary by gender.

Table 1: Focus group discussions by site, gender, and production system

County	Site	Women Commercial	Men Commercial	Women Backyard	Men Backyard
Nairobi	A				
	B				
Kiambu	C				
	D				
Machakos	E				
	F				

2. Key informant interviews (KIs): We will conduct KIs with animal health workers and agroveter employees serving the study communities with a goal of 2-4 key informant interviews for each study site (minimum one agroveter and one community health worker). Additional key informant interviews may be conducted with chicken keepers beyond the focus group discussion if we identify an informant with additional, specialized information beyond what is captured in the FGD discussion or if there are additional questions raised within the FGD discussion that require additional attention. One facilitator and one notetaker will interview one respondent at a time.

### 2.2 Selection criteria for FGD participants

The selection criteria we will share with our community mobilizers/vets are men/women who own, make decisions about, or care for chickens in their farm/household, have had chickens within the past three months, and typically have flock sizes of greater than 50 chickens (commercial)/less than 50 chickens (backyard). We will ask for eight people to be recruited per FGD to achieve our target group size of 5-7 people.

## 2.3 Selection criteria for key informant interviews

Animal health workers: This interview can be conducted with veterinarians, paraveterinarians, or animal health workers who serve the study community.

Agrovets: This interview can be conducted with owners or employees of businesses that sell agro-veterinary products to members of the study community.

Chicken keepers: This interview can be conducted with chicken keepers within the study community.

## 2.4 Output

The output from the activities will be summarized as business plans using the social lean canvas template (Resources 4.1). Early engagement with chicken keepers to identify their production problems and preferred solutions will allow for co-development of a bacteriophage product with the ILRI laboratory team. Areas for co-development include modifying the delivery system, testing attributes of bacteriophage technology that are most relevant to chicken keepers, using indigenous chickens in trials, and exploring the potential to combine bacteriophages with existing Newcastle disease vaccines. Potential delivery systems for bacteriophages include drinking water, eyedrops, or aerosol spray.

## 3 Tools

The tools for this research are included below.

### 3.1 Focus group discussion guide–Chicken keepers

Further instruction for research team members in *italics*.

Record location, names of research team members, and basic information about participants using the ‘Participant information form’ in [Resources 4.2](#).

Read the information in the ‘Informed consent form’ (not provided) aloud and get written consent from all participants. If a participant is not able to give written consent, another participant can sign on their behalf, and this should be indicated on the form.

Introduce the activity – The goal is to learn more about challenges chicken keepers face so we can share the information with people designing veterinary products. Do not specifically mention bacteriophages or gender research as this may bias responses.

Date of meeting: \_\_\_\_\_

County: \_\_\_\_\_ Sub-county: \_\_\_\_\_

Type of chicken keepers (tick one): ☐ Smallholder (< 50 chickens) ☐ Commercial (> 50 chickens)

Gender of chicken keepers (tick one): ☐ Women ☐ Men

Facilitator: \_\_\_\_\_ Notetaker(s): \_\_\_\_\_

1. Why do you keep chickens? Briefly
2. Which breeds and types of chickens do you keep? Why?
3. What are the daily activities needed for your chickens? Who does it and why? List gender and age (child or adult) of responsible people.

Daily activities	Person/people responsible (Gender, age, family role)	Notes
Cleaning		
Feeding/watering		
Other (describe)		
Other (describe)		



4. Who owns chickens in the household? Who needs to be consulted if a chicken is bought/sold? How do you decide whether household resources should be used for chicken keeping? Note gender and age (child or adult) of responsible people.
5. What are the main health issues that affect your chickens? What are the signs? Which animals are affected (e.g. adults, chicks, exotics only, etc.)? What do you do to prevent this issue? What do you do to treat or control it once it has already come? Include traditional medicine. For any prevention or treatment, give as much information as possible including source, delivery method, and estimated cost. For each prevention or treatment method, ask what they like and do not like about each method. Prompt for factors like ease of access, cost, efficacy, and delivery system. If a biosecurity action like cleaning is mentioned, ask what products, if any, are used. List multiple actions for each health issue if needed. Do any of the health issues vary seasonally?

Health issue	Signs	Affected chickens (age, breed)	Actions to prevent	Pros/cons	Actions to treat/control	Pros/cons	Seasonality

6. You mentioned who in the household does daily activities. For disease control, who in the household is responsible for different activities?

Veterinary activities	Person/people responsible (gender, age, family role)	Notes about WHY this person has the role	Other notes
Identifying sick birds			
Sourcing vaccines/drugs			
Paying for vaccines/drugs			
Vaccinating chickens			
Other (describe)			

7. Does keeping chickens affect the health of the people in the household? How? Goal here is to probe about knowledge of zoonoses, but do not prompt directly and avoid leading questions. Can also note positive effects if provided.
8. Mapping resources:
- Where do you source treatments/vaccines/vitamins from? Approximate distance/means of transport for women and men. Are they usually available when you need them? Describe.
  - Where do you source other inputs, such as feed from? Approximate distance/means of transport for women and men. Are they usually available when you need them? Describe.
9. Where do you get information about keeping chickens? Production and health issues.
10. Have you attended any chicken production-related trainings in the last three years? Who organized? Who in your household attended and why?
11. How does access to veterinary products and services differ between men and women?
12. What are some of the qualities that a new veterinary product should have to work well for you?
13. Is there any other information you would like to share that we have not asked?

Close meeting and answer any questions

## 3.2 Key informant interview guide–Animal health workers

Note: Further instruction for research team members in italics.

This interview can be conducted with veterinarians, para-veterinarians, or animal health workers who serve the study community.

Record location, name(s) of interviewer, and basic information about the key informant (name, gender, age range).

Introduce the research – Goal is to learn more about challenges chicken keepers face so we can share the information with people designing veterinary products. In key informant interviews, it is okay to mention that we are interested in gender and that we are working to develop a bacteriophage product.

Request written consent by having the informant sign the ‘Informed consent form’ (not provided) and leave a copy with them.

1. Describe briefly the work you do as vet/para-vet/animal health worker.
2. What percentage of your time do you estimate you spend on chicken-related activities?
3. What are the biggest challenges facing chicken keepers you work with?
4. What are chicken keepers doing currently to address these issues?
5. What are the most common products used by chicken keepers with small flocks (less than 50 chickens)? Are there any additional products used by chicken keepers with larger flocks?
6. What factors promote or constrain adoption of new, more efficient technologies and practices for chicken production?
7. Do you notice any differences in the way men and women chicken keepers respond to disease? If so, describe.
8. How does access to veterinary products and services differ between men and women?
9. If women face barriers accessing veterinary products, what could be improved to help them increase access?
10. What challenges do women face in this profession?
11. What are some important qualities that a new veterinary product would need to have to work well for chicken keepers?
12. Any other thoughts/questions?

## 3.3 Key informant interview guide–Agrovets

Note: Further instruction for research team members in italics.

This interview can be conducted with owners or employees of businesses that sell agro-veterinary products (agrovets) to members of the study community.

Record location, name(s) of interviewer, and basic information about the key informant (name, gender, age range).

Introduce the research – Th goal is to learn more about challenges chicken keepers face so we can share the information with people designing veterinary products. In key informant interviews, it is okay to mention that we are interested in gender and that we are working to develop a bacteriophage product.

Request written consent by having the informant sign the 'Informed consent form' (not provided) and leave a copy with them.

1. Describe briefly the work you do as an agrovet.
2. What chicken-related products do you have in stock now? Are there other products you like to stock that aren't currently available or that you stock seasonally?
3. What are the biggest challenges facing chicken keepers you work with?
4. What are chicken keepers doing currently to address these issues?
5. What are the most common products used by chicken keepers with small flocks (less than 50 chickens)? Are there any additional products used by chicken keepers with larger flocks (50+ chickens)?
6. What factors promote or constrain adoption of new, more efficient technologies and practices for chicken production?
7. Do you notice any differences in the way men and women chicken keepers respond to disease? If so, describe?
8. How does access to veterinary products and services differ between men and women?
9. If women face barriers accessing veterinary products, what could be improved to help them increase access?
10. What challenges do women face in this profession?
11. What are some important qualities that a new veterinary product would need to have to work well for smallholder chicken keepers?
12. What qualities of veterinary products are important to you as an agrovet?
13. Any other thoughts/questions

## 3.4 Key informant interviews – Chicken Keepers

Note: Further instruction for research team members in italics.

This interview can be conducted with chicken keepers within the study community.

Record location, name(s) of interviewer, and basic information about the key informant (name, gender, age range).

Introduce the research – The goal is to learn more about challenges chicken keepers face so we can share the information with people designing veterinary products. In key informant interviews, it is okay to mention that we are interested in gender and that we are working to develop a bacteriophage product.

Request written consent by having the informant sign the 'Informed consent form' (not provided) and leave a copy with them.


When should I do a key informant interview with a chicken keeper? Don't we already talk to chicken keepers in FGD discussions?

KIIs with chicken keepers can be done in special cases where we identify people with special information beyond what was discussed in the FGD or if the FGD discussion brought up additional questions that need further investigation.

There is no guide for this, but questions from the FGD discussion guide can be modified or used.

## 4 Resources

### 4.1 Social lean canvas template

<b>PURPOSE</b> Clearly defined in terms of the social/environmental impact that is intended and any financial goals as well as any other key aspects of the vision. This will include the overarching problem/s that the venture will look to solve. This box is not really part of the canvas as it is not part of the business model that needs to be validated. This needs to be in place before starting on the rest of the canvas as it will serve as a set of guiding principles for the development of the business model.				
<b>PROBLEM</b> What are the biggest problems? Note these are specific problems faced by the customers (in customer segments) not the overarching problems that arise in the Purpose section.  Existing Alternatives How are these problems currently being solved?	<b>SOLUTION</b> What solution will deliver the UVP/s to the different customer segments?  <b>KEY METRICS</b> What key numbers tell you whether your venture is succeeding?	<b>UNIQUE VALUE PROPOSITION</b> What single or multiple value propositions remove the problems faced by the different customer segments?  High Level Concept A one-liner explaining what your organisation does.	<b>UNFAIR ADVANTAGE</b> Why will this venture succeed?  <b>CHANNELS</b> How will you reach your customers in a scalable way?	<b>CUSTOMER SEGMENTS</b> Who do you need to move to make this business model work? - Customers - Users - Investors/Funders - Volunteers etc  Early Adopters Which customers will move first?
<b>COST STRUCTURE</b> How much will it cost to deliver your solution to customers at scale?			<b>FINANCIAL SUSTAINABILITY</b> 1. Traditional Revenue Model - ongoing income, e.g. customers paying for your product/service, ongoing donations etc. 2. Funding Model - individuals or organisations contributing initial capital (also include the ownership structure proposed for this venture)	
 <b>social lean canvas</b> V1.04 Available at <a href="http://www.socialleancanvas.com">www.socialleancanvas.com</a>			<b>IMPACT</b> What social or environmental impact will result and who are the beneficiaries? Including defined metrics for how these outcomes will be measured (these assumptions will be validated (and potentially pivoted on) like every other part of the business model).	

## 4.2 Participant information form

Complete this form at the beginning of each focus group discussion. Facilitators can ask participants for this information individually before the activity begins. Age can be given as within a range (for example, <35 years for youth).

Guests such as local leaders or animal health workers can be added in the guest section.

The number of participants in a focus group discussion should not exceed eight. This is a safety precaution to minimize the risk of spreading COVID-19. Only participants who were invited should attend the focus group discussion.

Full names of participants will be collected in a separate document.

[Printable version of participant information form below]

### Participant information – FGD with chicken keepers

Date of meeting: \_\_\_\_\_

Facilitator: \_\_\_\_\_ Notetaker: \_\_\_\_\_  
\_\_\_\_\_

Guest names and titles: \_\_\_\_\_  
\_\_\_\_\_

County: \_\_\_\_\_ Sub-county: \_\_\_\_\_  
\_\_\_\_\_

Type of chicken keepers (tick one): ☐ Smallholder (average of less than 50 chickens) ☐ Commercial (average of 50 chickens or more)

Gender of chicken keepers (tick one): ☐ Women ☐ Men

[illegible]

# References

Moscovitz, D. 2021. Social lean canvas. (Available from: <https://dave.moskovitz.co.nz/files/2020/05/SocialLeanCanvas.v5.pdf>).



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