

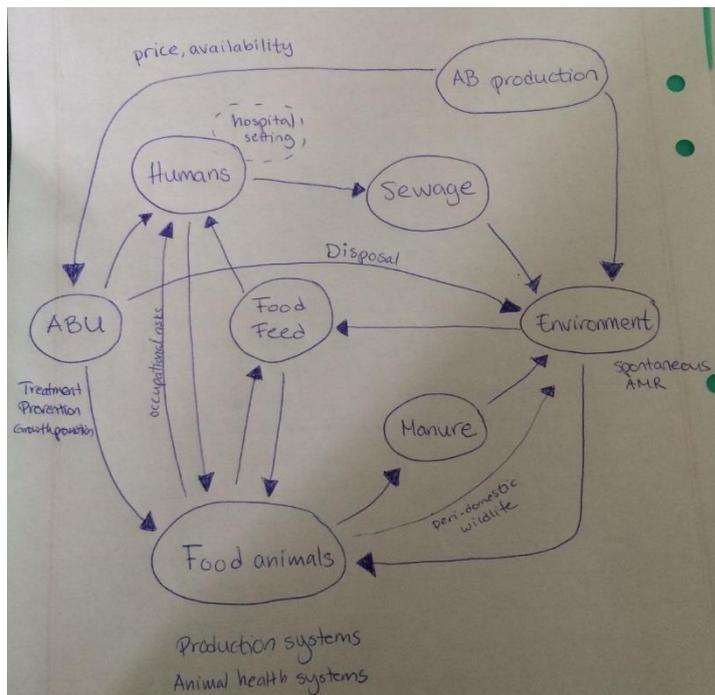
Antimicrobial use in livestock production systems (AMUSE Livestock): Tool to harmonise data collection on knowledge, attitude and practices

*This tool has been prepared by the Livestock Health flagship of the CRP LIVESTOCK
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Antimicrobial resistance has been recognised as a major threats to public health. As a consequence more research is being conducted in this field, including research on use of antimicrobials in the agricultural sector, especially in livestock production. Data and knowledge of use of antimicrobials in low and middle income countries (LMIC) is scarce and no centralised reporting and recording systems exist for monitoring purposes.

Given the recent increase in numbers of research and development projects focussing on antimicrobials in livestock production, there is a need for a common tool to be used in different projects. Use the same questions for basic data collection in different projects will simplify collation of data across projects and production systems and potentially provide important information on trends of antimicrobial use and areas of particular concern.

This questionnaire was developed to investigate key linkages in the AMR conceptual framework outlined below (adapted from Woolhouse et al, 2015):



and is meant to provide a core set of questions that may ease comparisons of data from different regions of the world collected in different studies in different production systems.

Different projects have different purposes and objectives and thus may need additional questions. Therefore the questionnaire may then be expanded with other questions for more in depth study of particular aspects of AMU/AMR in the livestock sector or to fulfil other study objectives.

The AMUSE Livestock questionnaire has been tested in Ethiopia, Kenya and Uganda and from experience should not take more than 30 minutes to complete.

Check-list:

- ✓ Find out and document the broader context of access (including legalisation related to) to animal health service and pharmaceuticals (incl antimicrobials) for the study site.
- ✓ Consider other surveys or national inventories that have been made at the study site.
- ✓ Always pre-teste the questionnaire on farmers.
- ✓ Consider data-collection format/layout
- ✓ Get pictures or samples of commonly used drugs and organise them into drug classes (for numbering see question 40).
- ✓ Consider complementing questionnaire by observational data (ideally photo), if so make this clear.
- ✓ Ensure ethical clearance (Helsinki declaration) for your study has been obtained including details on informed consent, purpose of study, guaranteed anonymity, feedback of information to community etc

The AMUSE Livestock KAP tool is available electronically (in ODK), for further information and to receive the necessary files, please contact Barbara Wieland at ILRI (b.wieland@cgiar.org).

Criteria for selecting respondent: person who plays a major role in the management of livestock	
INFORMATION ON ENUMERATION	
1. Questionnaire ID	
2. Date of Survey (DD/MM/YYYY)	
3. Enumerator's name (First Name and Last Name)	List of names of enumerators
4. Interview done via interpreter	<input type="checkbox"/> 1=yes <input type="checkbox"/> 2=no
5. Enumerator's sex	<input type="checkbox"/> 1=Male, (If list available then this should be automatically filed) <input type="checkbox"/> 2=Female
6. Time interview started (HH:MM)	Will be automatically generated by the tablets
7. Time interview ended (HH:MM)	Will be automatically generated by the tablets
8. Consent received (signature on form if literate)	<input type="checkbox"/> 1=yes <input type="checkbox"/> 2=no
FARM BASICS AND LOCATION	
9. District	List of all districts pre-coded
10. Sub-county	List of all sub counties pre-coded
11. Parish	List of all parishes pre-coded
12. Village	List of all village pre-coded
13. GPS Coordinates	Will be automatically generated by the tablets
HOUSEHOLD DEMOGRAPHICS	

14. Sex of the Household head	<input type="checkbox"/> 1=Male <input type="checkbox"/> 2=Female
15. Sex of the respondent (if other than household head)	<input type="checkbox"/> 1=Male <input type="checkbox"/> 2=Female
16. Age of respondent (years)
17. Role of the respondent in relation to livestock (multiple answers possible)	<input type="checkbox"/> 1 Management <input type="checkbox"/> 2 Marketing <input type="checkbox"/> 3 Owner <input type="checkbox"/> 4 None <input type="checkbox"/> 5 other
18. What is the main source of income for the household? (Mark one)	<input type="checkbox"/> 1 crop farming <input type="checkbox"/> 2 cattle keeping <input type="checkbox"/> 3 pig keeping (inc. sales) <input type="checkbox"/> 4 small ruminant keeping <input type="checkbox"/> 5 poultry keeping <input type="checkbox"/> 6 salaried employment <input type="checkbox"/> 7 self-employed-off farm <input type="checkbox"/> 8 casual laboring <input type="checkbox"/> 9 Boda-boda <input type="checkbox"/> 10 other (specify).....
19. Livestock contributes to	<input type="checkbox"/> 1 To half or more of the household's income <input type="checkbox"/> 2 To less than half of the household's income <input type="checkbox"/> 3 Does not contribute to the household income
20. What is the education level of the respondent?	<input type="checkbox"/> 1 Never went to school <input type="checkbox"/> 2 Non-formal education (years)..... <input type="checkbox"/> 3 Primary education (P1-P7) <input type="checkbox"/> 4 Secondary school (S1-S6) <input type="checkbox"/> 5 Vocational training (specify)..... <input type="checkbox"/> 6 University degree (undergraduate) <input type="checkbox"/> 7 Adult literacy
21. Do you have hired workers on the farm	<input type="checkbox"/> Yes 1 <input type="checkbox"/> No, family members only 2
FARM CHARACTERISTICS	
22. What livestock do you have? (filter question)	<input type="checkbox"/> 1Cattle (beef, dairy) <input type="checkbox"/> 2Small ruminants <input type="checkbox"/> 3Poultry <input type="checkbox"/> 4Pigs <input type="checkbox"/> 5Equine <input type="checkbox"/> 6Camel
23. Who has the main responsibility (for each species)	
<input type="checkbox"/> 1 Household head (man)	
<input type="checkbox"/> 2 Household head (woman)	
<input type="checkbox"/> 3 Joint responsibility (Couple)	
<input type="checkbox"/> 4 Daughter	
<input type="checkbox"/> 5 Son	
<input type="checkbox"/> 6 Employee	
<input type="checkbox"/> 7 Other (specify)	
24. Herd flock size (number of animals for each species)	

a) Poultry	Number.....	
Equines	Number.....	
b) Cattle	Adult males (>2 years)	
	Adult females (>2 years)	
	Calves/heifers	
c) Pigs	Sows	
	Boars	
	Growers/fatteners	
	Piglets (<3 moths)	
d) Small ruminants	Males (>1 year)	
	Females (>1 year)	
	Young	
e) Camels		

25. Characteristics of livestock production systems (single choice/most common practice throughout the year)		
1. PIGS		<input type="checkbox"/> 1= free-range <input type="checkbox"/> 2= tethered <input type="checkbox"/> 3= housed
2. POULTRY		<input type="checkbox"/> 1= free-range <input type="checkbox"/> 2= housed
3. Cattle	<input type="checkbox"/> Beef	<input type="checkbox"/> 1 = Zero grazing <input type="checkbox"/> 2 = Fenced individual farm grazing <input type="checkbox"/> 3 = Communal grazing <input type="checkbox"/> 4 = Pastoral
	<input type="checkbox"/> Dairy	<input type="checkbox"/> 1 = Zero grazing <input type="checkbox"/> 2 = Fenced individual farm grazing <input type="checkbox"/> 3 = Communal grazing <input type="checkbox"/> 4 = Pastoral
4. Small ruminants		<input type="checkbox"/> 1 = Zero grazing <input type="checkbox"/> 2 = Fenced individual farm grazing <input type="checkbox"/> 3 = Communal grazing <input type="checkbox"/> 4 = Pastoral
5. Equines		<input type="checkbox"/> 1 = Zero grazing <input type="checkbox"/> 2 = Fenced individual farm grazing <input type="checkbox"/> 3 = Communal grazing <input type="checkbox"/> 4 = Pastoral
6. Camels		<input type="checkbox"/> 1 = Zero grazing <input type="checkbox"/> 2 = Fenced individual farm grazing <input type="checkbox"/> 3 = Communal grazing <input type="checkbox"/> 4 = Pastoral

26. Do you sell milk	<input type="checkbox"/> Yes 1 <input type="checkbox"/> No 2
	Throughout the year <input type="checkbox"/>

27. Which period of the year do you regularly sell milk? (multiple choices are allowed for the months)	Seasonal (use calendar below) <input type="checkbox"/>											
	J	F	M	A	M	J	J	A	S	O	N	D
28. Do you sell eggs (multiple choices are allowed for the months)	<input type="checkbox"/> Yes 1 <input type="checkbox"/> No 2											
29. Which period of the year do you regularly sell eggs? (multiple choices are allowed for the months)for the months	Throughout the year <input type="checkbox"/>											
	Seasonal (use calendar below) <input type="checkbox"/>											
	J	F	M	A	M	J	J	A	S	O	N	D
30. Do you sell live animals ?	<input type="checkbox"/> Yes 1 <input type="checkbox"/> No 2											

31. If yes, which species? Indicate during which months of the year you sell live animals (multiple choices are allowed for the months)	<input type="checkbox"/> 1 Pigs											
	Throughout the year <input type="checkbox"/>											
	Seasonal (use calendar below) <input type="checkbox"/>											
	J	F	M	A	M	J	J	A	S	O	N	D
	<input type="checkbox"/> 2 Poultry											
	Throughout the year <input type="checkbox"/>											
	Seasonal (use calendar below) <input type="checkbox"/>											
	J	F	M	A	M	J	J	A	S	O	N	D
	<input type="checkbox"/> 3 Cattle											
	Throughout the year <input type="checkbox"/>											
	Seasonal (use calendar below) <input type="checkbox"/>											
	J	F	M	A	M	J	J	A	S	O	N	D
<input type="checkbox"/> 4 Small ruminants												
Throughout the year <input type="checkbox"/>												
Seasonal (use calendar below) <input type="checkbox"/>												
J	F	M	A	M	J	J	A	S	O	N	D	
<input type="checkbox"/> 5 Equines												
Throughout the year <input type="checkbox"/>												
Seasonal (use calendar below) <input type="checkbox"/>												
J	F	M	A	M	J	J	A	S	O	N	D	
<input type="checkbox"/> 6 Camel												
Throughout the year <input type="checkbox"/>												
Seasonal (use calendar below) <input type="checkbox"/>												
J	F	M	A	M	J	J	A	S	O	N	D	

MANAGEMENT OF MANURE, FEED AND WATER						
32. Manure management (by species), tick the most common option for each species (single choice).						
Activity	1.Cattle	2.Small ruminants	3. Equines	4. Poultry	5. Pigs	6. Camel
a. Leave on farm, do nothing						
b. Discard into environment						
c. Open air						
d. Used as fertilizer						
e. Use for fuel (incl. biogas)						
f. Sold for cash						
g. Taken by other farmers						
h. Other (specify)						
33. Feed products used per species (multiple answers per species possible) , tick						
Type of feed	1.Cattle	2.Small ruminants	3. Equines	4. Poultry	5. Pigs	6. Camel
Pasture/scavenging						
Waste (household/restaurant, etc)						
grains/crop residues						
Feed mixed at farm						
Commercial/pre-mix						
Other						

ANIMAL HEALTH AND DISEASE PREVENTION							
34. What was the main animal disease problem during the last 12 months (one disease per species)-if the farmers says FEVER, probe for more clinical signs because fever is common for most diseases							
Clinical signs	1.Cattle	2.Goats	3. Sheep	4. Poultry	5. Pigs	6. Equines	7. Camel
a) Respiratory							
b) Digestive tract/intestinal							
c) Reproductive							
d) Mastitis							
e) Sudden death							
f) Skin disease/wounds							
g) External parasites							
h) Neurologic signs							
i) Other							
j) no disease problem							
35. Have any animals been sick in the last 2 weeks?				<input type="checkbox"/> 1 YES <input type="checkbox"/> 2 NO			
36. If yes, which animal and kind of disease?				Optional: Use a table of clinical signs by species and key diseases in annex			
Clinical signs	1.Cattle	2.Goats	3. Sheep	4. Poultry	5. Pigs	6. Camel	
a) Respiratory							
b) Digestive tract/ intestinal							
c) Reproductive							
d) Mastitis							
e) Sudden death							
f) Skin disease							

g) neurologic signs						
h) Other						
37. Was the disease diagnosed other than by yourself?				<input type="checkbox"/> 1 YES <input type="checkbox"/> 2 NO		
38. If yes, by whom?				<input type="checkbox"/> 1 Traditional healer <input type="checkbox"/> 2 community animal health worker <input type="checkbox"/> 3 private veterinarian (Diploma, BVM) <input type="checkbox"/> 4 official (governmental) veterinarian <input type="checkbox"/> 5 Other (specify).....		
39. What do you do in response to diseases problems? (refer to the recent disease problems mentioned above)						
Activity	1.Cattle	2.Goats	3.Sheep	4.Poultry	5.Pigs	6.Camel
a) Use traditional medicine						
b) Use medicine from the veterinary drug store (self-bought)						
c) Consult traditional healer						
d) Consult community animal health worker						
e) Consult private veterinarian						
f) Consult Government veterinarian						
g) Vet applied/left drugs						
h) Other, please specify						
40. From the drug categories shown (provide photographs of common veterinary drugs for each of the drug class), how often (how many times) have you used them for the different species in the last 2 months. Alternatively ask to see packaging of commonly used drugs and classify according to list below.						
Drug	1 Cattle	2 Small ruminants	3 Equines	4 Poultry	5 Pigs	6 Camels
1 Vaccines						
2 Antihelmintics (Albendazol, etc.)						
3 Arachnidicides (ectoparasites)						
4 Tetracyclines						
5 Sulphonamides						
6 Penicillin (and combinations with Penicillin)						
7 Fluoroquinolones						
8 Macrolides						
9 Aminoglycosides						
10 Other antibiotics (specify)						
11 Vitamins/Iron supplements						
12 Other drugs (specify)						
41. Do you have any particular means to protect animals from disease?	<input type="checkbox"/> 1 YES <input type="checkbox"/> 2 NO					
42. If yes, how?						

a) Activity	1.Cattle	2.Goats	3.Sheep	3.Poultry	4.Pigs	5.Fish	6.Camels
b) Fencing							
c) Not mixing with other herd/flock							
d) Special feed							
e) Vet drugs (incl vaccine)							
f) Do nothing							
g) Other, specify							

ANIMAL HEALTH SERVICES	
43. Does the farm have access to professional animal health services?	<input type="checkbox"/> Yes 1 <input type="checkbox"/> No 2
44. If your farm access to animal health services, which ones?	<input type="checkbox"/> 1 State or government: <input type="checkbox"/> a) Fully trained veterinarian (BSc level) <input type="checkbox"/> b) Paraveterinarian <input type="checkbox"/> c) Other animal health care provider; <input type="checkbox"/> d) Don't know the training or qualification <input type="checkbox"/> 2 Private full time animal health worker: <input type="checkbox"/> a) Fully trained veterinarian (BSc level) <input type="checkbox"/> b) Paraveterinarian <input type="checkbox"/> c) Other animal health care provider; <input type="checkbox"/> d) Don't know the training or qualification <input type="checkbox"/> 3 Both state/government and private <input type="checkbox"/> a) Fully trained veterinarian (BSc level) <input type="checkbox"/> b) Paraveterinarian <input type="checkbox"/> c) Other animal health care provider; <input type="checkbox"/> d) Don't know the training or qualification <input type="checkbox"/> 4 Other (specify).....
45. If you have access to animal health services, do the animal service include laboratory testing?	<input type="checkbox"/> Yes 1 <input type="checkbox"/> No 2
46. If you have access to laboratory services, do you use it?	<input type="checkbox"/> 1 Yes, when needed <input type="checkbox"/> 2 Rarely <input type="checkbox"/> 3 No
47. If yes, for diagnosis in which species?	
1.Cattle	2.small ruminants
3.Equines	4.Poultry
5.Pigs	6. Camels
48. If you don't use them, why?	<input type="checkbox"/> 1 Not available <input type="checkbox"/> 2 Not efficient <input type="checkbox"/> 3 Too expensive <input type="checkbox"/> 4 Would like more <input type="checkbox"/> 5 Other (specify).....
49. Is the farm involved in a regular animal health service program, like vaccination campaign etc run by government and/or NGO?	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No

50. If yes to above, please name
51. Do you access pharmaceuticals/veterinary drugs?	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No
52. If yes, which kind of pharmaceuticals/veterinary drugs have you used in the last 4 weeks? (LIST PER SPECIES, PHOTOGRAPH)	List them:.....

VETERINARY DRUG USE: THE FOLLOWING QUESTIONS FOR EACH SPECIES PRESENT IN THE FARM (ONE DRUG)	
53. Which of the drugs is the most commonly used? (pictures or drug samples) (refer to Q51)	DROP DOWN LIST WITH VET DRUGS
54. Why do you use this drug?	<input type="checkbox"/> 1 Disease prevention <input type="checkbox"/> 2 Treatment sick animal <input type="checkbox"/> 3 Fattening <input type="checkbox"/> 4 Other (specify)
55. Via which channel do you access this pharmaceuticals/veterinary drugs	<input type="checkbox"/> 1 Private vet <input type="checkbox"/> 2 Public/official vet <input type="checkbox"/> 3 Animal health worker <input type="checkbox"/> 4 Veterinary drug store <input type="checkbox"/> 5 From human pharmacies <input type="checkbox"/> 6 At markets <input type="checkbox"/> 7 Feed providers <input type="checkbox"/> 8 Other farmers <input type="checkbox"/> 9 Via NGOs <input type="checkbox"/> 10 Other (specify)
56. To which animals do you give the drug?	<input type="checkbox"/> All of the same species <input type="checkbox"/> Sick animals only <input type="checkbox"/> Sick and in contact animals <input type="checkbox"/> Before selling an animal <input type="checkbox"/> Animals newly introduced into herd <input type="checkbox"/> All animals in household
57. How long do you use the drug?	<input type="checkbox"/> As advised <input type="checkbox"/> Until animal(s) cured <input type="checkbox"/> Until package empty <input type="checkbox"/> As long as I can afford <input type="checkbox"/> One time treatment <input type="checkbox"/> Continuously over extended period Estimated average number days.....
58. Who administer the drug?	<input type="checkbox"/> 1 Myself <input type="checkbox"/> 2 Vet <input type="checkbox"/> Other (specify).....
59. How is the drug applied/given?	<input type="checkbox"/> 1 Injection <input type="checkbox"/> 2 Oral <input type="checkbox"/> 3 with feed <input type="checkbox"/> 4 with water <input type="checkbox"/> 5 on skin

	<input type="checkbox"/> 6 other (specify).....
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60. Do you get advice how to use the vet drugs?	<input type="checkbox"/> Yes 1 <input type="checkbox"/> No 2
61. If yes to above, via which channel?	<input type="checkbox"/> 1 from the veterinarians <input type="checkbox"/> 2 from the animal health worker <input type="checkbox"/> 3 from pharmacies or markets <input type="checkbox"/> 4 from other farmers <input type="checkbox"/> 5 via the feed provider <input type="checkbox"/> 6 from the package/label of the pharmaceutical <input type="checkbox"/> 7 Other, state who..... <input type="checkbox"/> 8 No, own judgment
62. When using veterinary drugs, whose instructions (kind, dose, length of treatment) do you follow:	<input type="checkbox"/> 1 The Veterinarian's <input type="checkbox"/> 2 The animal health worker's <input type="checkbox"/> 3 The pharmacy's <input type="checkbox"/> 4 The feed company's <input type="checkbox"/> 5 Other farmer's <input type="checkbox"/> 6 My own judgement <input type="checkbox"/> 7 Other's(specify).....

USE OF ANTIBIOTICS	
63. What does vaccination do? (multiple answers possible)	<input type="checkbox"/> 1 Cure sick animals <input type="checkbox"/> 2 Prevent animals from becoming sick <input type="checkbox"/> 3 Cure sick animals and prevent animals from becoming sick <input type="checkbox"/> 4 Fattening
64. What do antibiotics do? (multiple answers possible)	<input type="checkbox"/> 1 Cure sick animals <input type="checkbox"/> 2 Prevent animals from becoming sick <input type="checkbox"/> 3 Cure sick animals and prevent animals from becoming sick <input type="checkbox"/> 4 Fattening
65. If the subject understands what antibiotics (option 1 and 3) are based on the two questions above continue as follows:	
66. Do you consume milk, from animals who were just treated with antimicrobials.	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No
67. If No to the above, for how long time should those products be avoided (open) (in days)
68. Do you consume eggs from animals who were just treated with antimicrobials.	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No

69. If No to the above, for how long time should those products be avoided (open) (in days)
70. Do you consume meat from animals who were just treated with antimicrobials.	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No
71. If No to the above, for how long time should those products be avoided (open) (in days)

72. Have you experienced situations where drugs did not work	Yes, frequently Yes, sometimes No, never
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73. If you have experience with drug failure (YES to Q71), which drugs did not work?						
Drug on pictures shown	1.Cattle	2.Poultry	3.Pigs	4.Small ruminants	5.Equine	6.Camels
Drug list						
Drug list						
Drug list						
74. If the veterinary drug do not work, do you know why?					
75. What do you do with expired veterinary drugs?	<input type="checkbox"/> 1 Dispose off <input type="checkbox"/> 2 Return to pharmacy <input type="checkbox"/> 3 Give to other farmer <input type="checkbox"/> 4 Use for intended treatment <input type="checkbox"/> 5 Nothing <input type="checkbox"/> 6 Other (specify)					
76. FOR EACH SPECIES: What was your total expenditure in drugs during the last year in local currency (put 0 if none)	<input type="checkbox"/> 1 Dewormer [.....] <input type="checkbox"/> 2 Vaccination [.....] <input type="checkbox"/> 3 Antibiotics [.....] <input type="checkbox"/> 4 Acaracides [.....] <input type="checkbox"/> 5 Vitamins					

NB: Note that the GIS may take some time to load approximately 5 minutes however they work

List of annexes

1. List of pictures of drugs, organised into drug classes as specified in question 40.
2. List of clinical signs by syndrome
3. Groups drug used by de-wormers, vaccines, AB, vitamins
4. List of social events and festive seasons with the months they happen