

Supplementary Material

Table S1. Univariate Chi-squared analysis comparing the independent and contract farmers' opinions on AMR and antimicrobial use practices in broilers in Indonesia.

		Independent farmer	Contract farmer	Chi-squared <i>p</i> -value
Ability to correctly define AMR				
Knowledge on AMR definition	Unable to correctly define AMR	117 (52.7%)	173 (61.6%)	0.046
	Able to correctly define AMR	105 (47.3%)	108 (38.4%)	
The importance of AMR concerns and the role of antimicrobial use in broilers				
AMR will never be a problem on my farm	Disagree	70 (31.7%)	100 (35.8%)	0.605
	Neutral	82 (37.1%)	95 (34.1%)	
	Agreed	69 (31.2%)	84 (30.1%)	
AMR is a major human health concern in Indonesia	Disagree	29 (13.1%)	38 (13.6%)	0.987
	Neutral	75 (33.9%)	94 (33.7%)	
	Agreed	117 (52.9%)	147 (52.7%)	
Chickens are healthier if more antimicrobials are used	Disagree	120 (54.3%)	101 (36.1%)	<0.001
	Neutral	46 (20.8%)	91 (32.7%)	
	Agreed	55 (24.9%)	87 (31.1%)	
Antimicrobials used in chickens can affect the health of the consumer	Disagree	23 (10.4%)	29 (10.4%)	0.648
	Neutral	73 (33.0%)	103 (36.9%)	
	Agreed	125 (56.6%)	147 (52.7%)	
Antimicrobial use in animals should be reduced	Disagree	15 (6.8%)	41 (14.7%)	<0.001
	Neutral	39 (17.6%)	104 (37.3%)	
	Agreed	167 (75.6%)	134 (48.0%)	
Antimicrobial use in humans should be reduced	Disagree	9 (4.1%)	26 (9.4%)	<0.001
	Neutral	35 (15.9%)	93 (33.5%)	
	Agreed	176 (80.0%)	159 (57.2%)	
Indiscriminate use of antimicrobials can lead to AMR	Disagree	12 (5.4%)	26 (9.4%)	0.26
	Neutral	75 (33.9%)	91 (32.7%)	
	Agreed	134 (60.6%)	161 (57.9%)	
Many antimicrobials are not effective at treating disease in chickens	Disagree	40 (18.1%)	60 (21.8%)	0.014
	Neutral	72 (32.6%)	115 (41.8%)	
	Agreed	109 (49.3%)	100 (36.4%)	
Indiscriminate use of antimicrobials in chickens is expensive for farmers	Disagree	6 (2.7%)	14 (5.1%)	<0.001
	Neutral	24 (10.9%)	73 (25.6%)	
	Agreed	190 (86.4%)	188 (68.4%)	
There is a need for sufficient withdrawal time after antimicrobial use before selling birds for slaughter	Disagree	5 (2.3%)	6 (2.2%)	0.001
	Neutral	26 (11.8%)	68 (25.1%)	
	Agreed	189 (85.9%)	199 (74.4%)	
Drivers for antimicrobial use in broiler flock				
To prevent disease in the flock	Less likely	51 (23.4%)	45 (16.2%)	0.036
	Neutral	94 (43.1%)	112 (40.3%)	
	More likely	73 (33.5%)	121 (43.5%)	

An increased mortality rate	Less likely	32 (14.7%)	37 (13.3%)	0.872
	Neutral	70 (32.1%)	94 (33.8%)	
	More likely	116 (53.2%)	147 (52.9%)	
The chickens are not eating	Less likely	35 (16.1%)	42 (15.1%)	0.944
	Neutral	106 (48.6%)	139 (49.8%)	
	More likely	77 (35.3%)	98 (35.1%)	
To improve productivity and growth in the flock	Less likely	43 (19.7%)	36 (12.9%)	0.064
	Neutral	125 (57.3%)	161 (57.7%)	
	More likely	50 (22.9%)	82 (29.4%)	
Advised by drug seller to use antimicrobials	Less likely	23 (10.6%)	39 (14.1%)	0.075
	Neutral	131 (60.1%)	180 (65.0%)	
	More likely	64 (29.4%)	58 (20.9%)	
Advised by the veterinarian or para-veterinarian to use antimicrobials	Less likely	22 (10.1%)	21 (7.6%)	0.603
	Neutral	111 (50.9%)	144 (51.8%)	
	More likely	85 (39.0%)	113 (40.6%)	
Advised by the production company to use antimicrobials	Less likely	26 (11.9%)	25 (9.0%)	<0.001
	Neutral	148 (67.9%)	115 (41.5%)	
	More likely	44 (20.2%)	137 (49.5%)	
Advised by another farmer to use antimicrobials	Less likely	38 (17.5%)	46 (16.7%)	0.512
	Neutral	134 (61.8%)	183 (66.3%)	
	More likely	45 (20.7%)	47 (17.0%)	
Role of key actors in monitoring the responsible use of antimicrobials in broilers				
Veterinarian or para-veterinarian	Not important	7 (3.2%)	0 (0.0%)	0.001
	Neutral	21 (9.5%)	48 (17.2%)	
	Important	193 (87.3%)	231 (82.8%)	
Farmer	Not important	6 (2.7%)	5 (1.8%)	0.367
	Neutral	36 (16.3%)	58 (20.8%)	
	Important	179 (81.0%)	216 (77.4%)	
Government	Not important	4 (1.8%)	12 (4.3%)	<0.001
	Neutral	19 (8.6%)	57 (20.3%)	
	Important	198 (89.6%)	210 (75.3%)	
Retailer	Not important	22 (10.0%)	45 (16.4%)	0.009
	Neutral	62 (28.2%)	96 (35.0%)	
	Important	136 (61.8%)	133 (48.5%)	
Economic importance of antimicrobial use for broiler farmers				
Does a health issue in the broiler flock have a negative effect on the farm profit margin?	No	26 (11.8%)	32 (11.6%)	0.927
	Yes	194 (88.2%)	245 (88.4%)	
Does the farm collect any productivity data on the broiler flock?	No	38 (39.2%)	64 (43.0%)	0.557
	Yes	59 (60.8%)	85 (57.0%)	
Is there an economic advantage to antimicrobial use?	No	63 (28.6%)	24 (8.7%)	<0.001
	Yes	157 (71.4%)	252 (91.3%)	

Table S2. Differentiating smaller-scale farms from larger-scale farms with regard to on-farm costs (\$US/1000 birds).

	No.	DOC	Feed	Disinfectant	Litter	Medicines	Labour	Heating	Other	Vaccine	Total
Smaller farms	255	570	1638	11	12	22	66	13	40	12	2384
Central Java	33	474	1401	41	16	35	37	20	15	5	2043
Lampung	8	508	952	2	13	21	69	21	0	64	1651
West Kalimantan	214	583	1665	7	12	21	71	13	58	12	2442
Larger farms	254	492	1381	10	13	23	35	16	19	16	2005
Central Java	132	474	1442	17	18	30	32	20	18	15	2067
Lampung	43	463	1266	1	9	31	31	17	17	20	1855
West Kalimantan	79	525	1349	5	7	12	43	12	26	17	1996
Average		536	1522	11	12	22	47	15	22	14	2201

Table S3. Differentiating contract and independent farmers with regard to on-farm costs (\$US/1000 birds).

	No.	DOC	Feed	Disinfectant	Litter	Medicines	Labour	Heating	Other	Vaccine	TOTAL
Independent	222	568	1668	6	10	19	61	11	13	13	2370
Central Java	5										
Lampung	11	513	1071	2	12	21	59	18	7	42	1745
West Kalimantan	206	572	1680	7	10	18	62	11	15	13	2387
Contract	281	503	1377	2	14	28	36	18	23	15	2017
Central Java	159	476	1436	3	18	32	33	20	18	13	2049
Lampung	40	460	1272	1	9	31	31	17	27	0	1848
West Kalimantan	82	557	1333	8	11	22	56	15	70	18	2089

Note: six farmers, one in Central Java and five in West Kalimantan did not identify as either contract or independent farmers. The sample of five independent farmers in Central Java was insufficient to elicit representative data.