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SECTION C. BREEDING PROGRAMMES

1 Stakeholders operating breeding programmes for the main livestock species

TABLE A3C1

Proportion of countries reporting different stakeholder groups as operators of dairy cattle breeding programmes

Regions and subregions	Number of countries	Government	Livestock keepers organized at community level	Breeders' associations or cooperatives	National commercial companies	External commercial companies	NGOs	Others
		%						
Africa	34	68	24	35	18	0	26	6
East Africa	8	75	25	38	25	0	25	0
North and West Africa	14	57	21	36	7	0	21	0
Southern Africa	12	75	25	33	25	0	33	17
Asia	19	95	42	53	32	26	32	16
Central Asia	4	100	75	50	50	50	50	0
East Asia	4	100	25	50	25	50	25	0
South Asia	5	100	60	60	20	0	40	20
Southeast Asia	6	83	17	50	33	0	17	33
Southwest Pacific	3	67	33	67	67	100	33	0
Europe and the Caucasus	35	34	6	86	40	23	11	14
Latin America and the Caribbean	18	83	33	67	67	33	28	33
Caribbean	5	80	20	20	20	20	0	20
Central America	5	80	40	100	100	20	60	20
South America	8	88	38	75	75	50	25	50
North America	1	0	100	100	100	100	0	100
Near and Middle East	6	67	33	17	33	17	17	17
World	116	64	24	59	37	21	22	16

Note: Number of countries = the number reporting the presence of dairy cattle.

Source: Country reports, 2014.

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TABLE A3C2

Proportion of countries reporting different stakeholder groups as operators of beef cattle breeding programmes

Regions and subregions	Number of countries	Government	Livestock keepers organized at community level	Breeders' associations or cooperatives	National commercial companies	External commercial companies	NGOs	Others
		%						
Africa	29	62	31	38	34	10	7	3
East Africa	6	67	33	50	33	0	0	0
North and West Africa	12	67	25	42	25	25	17	0
Southern Africa	11	55	36	27	45	0	0	9
Asia	15	87	27	47	27	20	27	13
Central Asia	3	100	67	33	33	33	33	0
East Asia	4	75	25	50	25	25	25	0
South Asia	2	50	0	0	0	0	50	0
Southeast Asia	6	83	17	67	33	17	17	33
Southwest Pacific	5	60	20	40	40	60	40	0
Europe and the Caucasus	34	29	6	79	21	12	12	12
Latin America and the Caribbean	17	76	35	76	71	24	35	29
Caribbean	4	75	0	25	25	25	0	0
Central America	5	80	40	100	100	0	60	20
South America	8	75	50	88	75	38	38	50
North America	1	0	100	100	100	100	0	100
Near and Middle East	2	100	100	50	50	50	50	50
World	103	59	24	60	36	18	18	14

Note: Number of countries = the number reporting the presence of beef cattle.

Source: Country reports, 2014.

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TABLE A3C3

Proportion of countries reporting different stakeholder groups as operators of multipurpose cattle breeding programmes

Regions and subregions	Number of countries	Government	Livestock keepers organized at community level	Breeders' associations or cooperatives	National commercial companies	External commercial companies	NGOs	Others
		%						
Africa	34	59	35	41	15	3	12	15
East Africa	7	71	29	43	29	0	0	14
North and West Africa	18	61	44	44	6	6	17	17
Southern Africa	9	44	22	33	22	0	11	11
Asia	15	93	53	40	20	27	40	13
Central Asia	4	100	75	50	25	50	50	0
East Asia	2	100	50	50	50	50	50	0
South Asia	5	100	60	20	0	0	40	20
Southeast Asia	4	75	25	50	25	25	25	25
Southwest Pacific	3	33	67	67	67	67	67	0
Europe and the Caucasus	29	48	7	79	28	10	17	14
Latin America and the Caribbean	15	67	20	47	40	13	20	27
Caribbean	4	75	25	0	0	25	0	0
Central America	5	60	20	60	60	0	40	20
South America	6	67	17	67	50	17	17	50
North America	1	0	100	100	0	0	0	100
Near and Middle East	6	67	50	17	17	17	17	17
World	103	61	30	52	24	13	20	17

Note: Number of countries = the number reporting the presence of multipurpose cattle.

Source: Country reports, 2014.

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TABLE A3C4

Proportion of countries reporting different stakeholder groups as operators of sheep breeding programmes

Regions and subregions	Number of countries	Government	Livestock keepers organized at community level	Breeders' associations or cooperatives	National commercial companies	External commercial companies	NGOs	Others
		%						
Africa	40	45	33	33	8	3	15	10
East Africa	8	38	25	0	0	0	13	13
North and West Africa	20	45	30	40	10	5	20	10
Southern Africa	12	50	42	42	8	0	8	8
Asia	19	74	37	26	11	11	21	5
Central Asia	4	100	50	25	25	25	25	0
East Asia	4	50	25	25	25	25	25	0
South Asia	5	80	60	0	0	0	40	0
Southeast Asia	6	67	17	50	0	0	0	17
Southwest Pacific	3	33	33	67	67	67	67	0
Europe and the Caucasus	35	40	14	83	6	3	20	14
Latin America and the Caribbean	18	72	50	56	50	17	39	28
Caribbean	5	100	60	20	20	0	20	0
Central America	5	60	40	60	80	20	60	20
South America	8	63	50	75	50	25	38	50
North America	1	0	100	100	100	0	0	100
Near and Middle East	7	86	43	14	14	14	29	14
World	123	54	32	50	16	8	23	14

Note: Number of countries = the number reporting the presence of sheep.

Source: Country reports, 2014.

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TABLE A3C5

Proportion of countries reporting different stakeholder groups as operators of goat breeding programmes

Regions and subregions	Number of countries	Government	Livestock keepers organized at community level	Breeders' associations or cooperatives	National commercial companies	External commercial companies	NGOs	Others
		%						
Africa	40	55	33	35	13	3	18	13
East Africa	8	75	25	38	0	0	38	13
North and West Africa	20	45	30	35	5	5	15	15
Southern Africa	12	58	42	33	33	0	8	8
Asia	20	75	30	35	25	15	20	10
Central Asia	4	100	50	25	50	25	25	0
East Asia	4	50	25	25	25	25	25	0
South Asia	6	67	33	17	17	0	33	0
Southeast Asia	6	83	17	67	17	17	0	33
Southwest Pacific	5	20	40	20	20	40	20	0
Europe and the Caucasus	35	40	20	77	3	0	20	14
Latin America and the Caribbean	18	61	44	50	44	17	33	22
Caribbean	5	100	60	20	20	0	0	0
Central America	5	60	20	60	80	20	60	20
South America	8	38	50	63	38	25	38	38
North America	1	0	100	100	100	0	0	100
Near and Middle East	7	71	43	14	14	14	29	14
World	126	54	32	48	17	8	21	14

Note: Number of countries = the number reporting the presence of goats.

Source: Country reports, 2014.

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TABLE A3C6

Proportion of countries reporting different stakeholder groups as operators of pig breeding programmes

Regions and subregions	Number of countries	Government	Livestock keepers organized at community level	Breeders' associations or cooperatives	National commercial companies	External commercial companies	NGOs	Others
		%						
Africa	35	40	23	23	14	6	14	6
East Africa	6	33	17	0	17	0	0	0
North and West Africa	18	39	22	33	6	11	22	6
Southern Africa	11	45	27	18	27	0	9	9
Asia	16	75	38	50	44	31	25	13
Central Asia	2	50	50	50	50	50	50	0
East Asia	4	75	25	50	50	50	25	0
South Asia	4	100	50	50	25	0	25	0
Southeast Asia	6	67	33	50	50	33	17	33
Southwest Pacific	7	57	43	29	29	43	29	29
Europe and the Caucasus	34	35	3	76	47	38	18	15
Latin America and the Caribbean	18	39	33	61	61	39	28	17
Caribbean	5	60	40	20	40	0	0	0
Central America	5	40	20	100	80	40	60	20
South America	8	25	38	63	63	63	25	25
North America	1	0	0	100	100	100	0	100
Near and Middle East	1	0	0	0	0	0	0	0
World	112	44	21	50	38	28	20	13

Note: Number of countries = the number reporting the presence of pigs.

Source: Country reports, 2014.

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TABLE A3C7

Proportion of countries reporting different stakeholder groups as operators of chicken breeding programmes

Regions and subregions	Number of countries	Government	Livestock keepers organized at community level	Breeders' associations or cooperatives	National commercial companies	External commercial companies	NGOs	Others
		%						
Africa	39	38	23	21	18	18	15	10
East Africa	8	50	13	13	0	25	13	13
North and West Africa	19	26	21	26	16	11	21	11
Southern Africa	12	50	33	17	33	25	8	8
Asia	20	80	40	50	55	25	30	10
Central Asia	4	75	50	50	50	25	50	0
East Asia	4	75	25	50	50	50	25	0
South Asia	6	83	50	33	50	0	33	0
Southeast Asia	6	83	33	67	67	33	17	33
Southwest Pacific	7	57	43	29	29	43	43	14
Europe and the Caucasus	34	32	9	53	32	53	21	12
Latin America and the Caribbean	18	22	17	44	56	39	22	17
Caribbean	5	0	0	0	40	20	0	0
Central America	5	40	20	40	60	20	40	20
South America	8	25	25	75	63	63	25	25
North America	1	0	0	100	100	100	0	100
Near and Middle East	7	57	29	29	43	29	29	14
World	126	43	22	39	36	34	22	13

Note: Number of countries = the number reporting the presence of chickens.

Source: Country reports, 2014.

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SECTION C. BREEDING PROGRAMMES

2 Presence of the elements of breeding programmes for the main livestock species

TABLE A3C8

Level of implementation of breeding programme elements and techniques – dairy cattle

Regions and subregions	Number of national breed populations		Animal identification		Pedigree recording		Performance recording		Artificial insemination	
	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted
	%									
Africa	106	43	58	56	29	35	26	26	75	63
East Africa	25	9	72	11	24	0	40	0	96	22
North and West Africa	44	23	41	61	27	35	16	30	43	61
Southern Africa	37	11	68	82	35	64	30	36	100	100
Asia	37	31	73	58	59	45	65	45	73	52
Central Asia	4	12	100	83	75	67	75	67	75	67
East Asia	9	1	33	100	78	100	33	100	78	100
South Asia	15	6	93	33	67	0	93	0	93	33
Southeast Asia	9	12	67	42	22	42	44	42	33	42
Southwest Pacific	10	3	90	67	70	67	70	67	70	0
Europe and the Caucasus	114	92	94	95	91	91	89	87	100	87
Latin America and the Caribbean	65	38	43	97	34	68	28	61	51	71
Caribbean	11	6	9	67	0	17	0	17	18	67
Central America	16	21	63	95	13	90	6	62	69	76
South America	38	11	45	100	53	55	45	82	53	64
North America	4	11	100	100	100	100	100	100	100	100
Near and Middle East	12	7	42	43	42	29	42	29	42	43
World	348	225	69	81	56	68	54	64	81	73

(Cont.)

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SECTION C. BREEDING PROGRAMMES

TABLE A3C8 (Cont.)

Level of implementation of breeding programme elements and techniques – dairy cattle

Regions and subregions	Number of national breed populations		Breeding goal defined		Genetic evaluation (classic approach)		Genetic evaluation including genomic information		Management of genetic variation	
	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted
	%									
Africa	106	43	39	49	17	33	7	0	20	12
East Africa	25	9	44	11	24	0	0	0	36	0
North and West Africa	44	23	39	52	11	30	0	0	2	9
Southern Africa	37	11	35	73	19	64	19	0	30	27
Asia	37	31	54	39	32	42	14	6	16	16
Central Asia	4	12	75	50	75	58	0	8	25	33
East Asia	9	1	33	100	22	100	11	100	33	100
South Asia	15	6	67	0	33	0	13	0	0	0
Southeast Asia	9	12	44	42	22	42	22	0	22	0
Southwest Pacific	10	3	70	67	70	67	70	67	70	67
Europe and the Caucasus	114	92	55	86	44	65	19	41	48	71
Latin America and the Caribbean	65	38	23	55	14	50	5	11	8	18
Caribbean	11	6	18	17	0	17	0	0	0	17
Central America	16	21	6	67	6	57	0	0	0	5
South America	38	11	32	55	21	55	8	36	13	45
North America	4	11	100	100	100	100	100	100	100	100
Near and Middle East	12	7	42	29	17	29	8	29	17	0
World	348	225	45	66	29	54	14	26	29	42

Note: The figures indicate the presence of the respective breeding-programme elements and techniques, but provide no indication of population coverage within breeds.

Source: Country reports, 2014.

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SECTION C. BREEDING PROGRAMMES

Table A3C9

Level of implementation of breeding programme elements and techniques – beef cattle

Regions and subregions	Number of national breed populations		Animal identification		Pedigree recording		Performance recording		Artificial insemination	
	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted
%										
Africa	99	109	79	63	62	59	37	43	67	31
East Africa	14	5	71	20	43	20	0	40	43	60
North and West Africa	28	51	79	33	71	29	7	6	68	31
Southern Africa	57	53	81	96	61	91	61	79	72	28
Asia	48	71	48	66	25	52	33	54	52	56
Central Asia	7	10	100	100	100	90	100	90	100	60
East Asia	16	11	0	64	13	73	13	73	31	64
South Asia	1	1	100	0	0	0	100	0	100	0
Southeast Asia	24	49	63	61	13	41	25	43	50	55
Southwest Pacific	25	8	56	63	52	63	8	100	48	50
Europe and the Caucasus	239	186	92	95	82	95	80	86	76	68
Latin America and the Caribbean	138	109	62	76	51	68	43	46	54	47
Caribbean	10	5	10	60	0	60	0	60	10	20
Central America	14	60	29	90	29	92	29	55	43	57
South America	114	44	71	59	59	36	49	32	60	36
North America	4	55	0	100	0	100	0	60	0	100
Near and Middle East	5	2	20	50	0	50	0	50	0	100
World	558	540	76	81	63	76	55	64	65	59

(Cont.)

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SECTION C. BREEDING PROGRAMMES

Table A3C9 (Cont.)

Level of implementation of breeding programme elements and techniques – beef cattle

Regions and subregions	Number of national breed populations		Breeding goal defined		Genetic evaluation (classic approach)		Genetic evaluation including genomic information		Management of genetic variation	
	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted
Africa	99	109	59	63	26	41	21	10	24	24
East Africa	14	5	14	20	0	0	0	0	0	0
North and West Africa	28	51	75	35	7	4	0	2	0	2
Southern Africa	57	53	61	94	42	81	37	19	42	47
Asia	48	71	29	41	19	44	0	23	0	20
Central Asia	7	10	100	90	100	60	0	30	0	40
East Asia	16	11	0	36	13	27	0	27	0	45
South Asia	1	1	100	0	0	0	0	0	0	0
Southeast Asia	24	49	25	33	0	45	0	20	0	10
Southwest Pacific	25	8	56	63	52	63	52	63	52	63
Europe and the Caucasus	239	186	77	80	55	67	14	20	38	69
Latin America and the Caribbean	138	109	25	44	8	37	5	6	8	14
Caribbean	10	5	10	60	0	60	0	0	0	60
Central America	14	60	0	55	0	40	0	0	0	2
South America	114	44	29	27	10	30	6	16	11	25
North America	4	55	0	96	0	53	0	29	0	35
Near and Middle East	5	2	0	50	0	0	0	50	0	0
World	558	540	54	66	34	51	13	17	25	38

Note: The figures indicate the presence of the respective breeding-programme elements and techniques, but provide no indication of population coverage within breeds.

Source: Country reports, 2014.

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SECTION C. BREEDING PROGRAMMES

TABLE A3C10

Level of implementation of breeding programme elements and techniques – multipurpose cattle

Regions and subregions	Number of national breed populations		Animal identification		Pedigree recording		Performance recording		Artificial insemination	
	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted
			%							
Africa	46	130	93	32	65	15	24	19	100	35
East Africa	13	60	62	15	38	10	15	10	92	28
North and West Africa	14	52	100	40	100	15	21	25	100	33
Southern Africa	19	18	68	61	32	28	32	33	68	61
Asia	21	121	67	22	19	11	57	21	57	31
Central Asia	4	6	50	83	50	83	50	83	50	83
East Asia	4	56	50	4	50	0	50	0	50	2
South Asia	8	47	63	30	0	13	38	30	63	64
Southeast Asia	5	12	100	50	0	17	100	50	60	17
Southwest Pacific	9	2	78	100	78	100	78	100	78	0
Europe and the Caucasus	60	159	98	88	93	81	73	75	75	74
Latin America and the Caribbean	25	40	56	45	24	25	12	25	24	33
Caribbean	6	8	50	50	0	0	0	0	0	25
Central America	5	21	60	38	40	38	20	29	60	38
South America	14	11	57	55	29	18	14	36	21	27
North America	0	4	n/a	0	n/a	0	n/a	0	n/a	0
Near and Middle East	4	15	25	20	25	0	25	0	50	40
World	165	471	84	49	63	37	47	38	78	47

(Cont.)

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TABLE A3C10 (Cont.)

Level of implementation of breeding programme elements and techniques – multipurpose cattle

Regions and subregions	Number of national breed populations		Breeding goal defined		Genetic evaluation (classic approach)		Genetic evaluation including genomic information		Management of genetic variation	
	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted
Africa	46	130	67	25	15	14	13	1	26	8
East Africa	13	60	15	15	0	10	0	0	38	10
North and West Africa	14	52	100	31	7	19	0	0	0	6
Southern Africa	19	18	42	44	32	11	32	6	37	11
Asia	21	121	67	20	10	12	0	1	10	7
Central Asia	4	6	50	83	50	67	0	17	0	50
East Asia	4	56	50	0	0	0	0	0	50	0
South Asia	8	47	63	30	0	17	0	0	0	11
Southeast Asia	5	12	100	42	0	17	0	0	0	0
Southwest Pacific	9	2	78	100	78	100	78	100	78	100
Europe and the Caucasus	60	159	72	66	65	56	43	16	55	67
Latin America and the Caribbean	25	40	16	23	0	18	0	5	0	5
Caribbean	6	8	0	0	0	0	0	0	0	0
Central America	5	21	0	29	0	24	0	0	0	0
South America	14	11	29	27	0	18	0	18	0	18
North America	0	4	n/a	0	n/a	0	n/a	0	n/a	0
Near and Middle East	4	15	25	13	25	7	0	0	25	0
World	165	471	61	37	34	28	24	7	33	27

Note: The figures indicate the presence of the respective breeding-programme elements and techniques, but provide no indication of population coverage within breeds.

Source: Country reports, 2014.

ANNEX PART 3

SECTION C. BREEDING PROGRAMMES

TABLE A3C11

Level of implementation of breeding programme elements and techniques – sheep

Regions and subregions	Number of national breed populations		Animal identification		Pedigree recording		Performance recording		Artificial insemination	
	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted
%										
Africa	59	119	46	41	34	26	25	29	17	18
East Africa	19	25	47	16	16	12	16	12	0	0
North and West Africa	17	56	29	30	35	13	9	23	6	4
Southern Africa	23	38	57	74	48	55	48	50	39	50
Asia	43	181	35	41	23	35	21	42	21	30
Central Asia	5	55	80	89	80	89	80	89	80	89
East Asia	11	64	0	0	9	0	0	0	9	0
South Asia	11	49	55	37	0	22	9	37	0	0
Southeast Asia	16	13	31	54	31	31	25	69	25	46
Southwest Pacific	26	14	69	93	69	93	69	93	69	93
Europe and the Caucasus	341	616	97	90	82	84	60	76	23	19
Latin America and the Caribbean	122	67	52	55	50	48	35	33	43	25
Caribbean	15	9	33	67	0	0	0	0	20	44
Central America	22	20	27	70	36	60	14	55	41	30
South America	85	38	61	45	62	53	47	29	47	18
North America	0	57	n/a	91	n/a	72	n/a	61	n/a	49
Near and Middle East	14	24	29	17	21	8	29	8	29	4
World	605	1078	76	73	65	65	49	60	28	24

(Cont.)

ANNEX PART 3

SECTION C. BREEDING PROGRAMMES

TABLE A3C11 (Cont.)

Level of implementation of breeding programme elements and techniques – sheep

Regions and subregions	Number of national breed populations		Breeding goal defined		Genetic evaluation (classic approach)		Genetic evaluation including genomic information		Management of genetic variation	
	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted
	%									
Africa	59	119	39	36	19	23	15	13	20	18
East Africa	19	25	26	16	11	12	0	0	16	0
North and West Africa	17	56	35	21	0	11	0	0	0	4
Southern Africa	23	38	52	71	39	47	39	42	39	53
Asia	43	181	37	35	9	33	0	1	5	24
Central Asia	5	55	80	64	80	80	0	0	20	51
East Asia	11	64	9	0	0	0	0	0	9	0
South Asia	11	49	55	39	0	24	0	2	0	24
Southeast Asia	16	13	31	77	0	31	0	8	0	31
Southwest Pacific	26	14	69	93	69	93	69	93	12	93
Europe and the Caucasus	341	616	77	73	42	49	1	1	45	52
Latin America and the Caribbean	122	67	36	31	32	33	8	4	10	10
Caribbean	15	9	53	0	0	0	0	0	0	0
Central America	22	20	14	55	5	45	0	0	0	0
South America	85	38	39	26	45	34	12	8	14	18
North America	0	57	n/a	91	n/a	23	n/a	0	n/a	32
Near and Middle East	14	24	29	13	29	8	0	8	29	8
World	605	1078	60	60	36	41	7	4	31	39

Note: The figures indicate the presence of the respective breeding-programme elements and techniques, but provide no indication of population coverage within breeds.

Source: Country reports, 2014.

ANNEX PART 3

SECTION C. BREEDING PROGRAMMES

TABLE A3C12

Level of implementation of breeding programme elements and techniques – goats

Regions and subregions	Number of national breed populations		Animal identification		Pedigree recording		Performance recording		Artificial insemination	
	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted
			%							
Africa	77	93	39	45	25	22	25	26	13	8
East Africa	21	24	48	33	19	17	24	21	5	0
North and West Africa	23	42	35	43	26	19	17	26	13	5
Southern Africa	33	27	36	59	27	30	30	30	18	19
Asia	45	144	47	32	20	23	36	29	33	13
Central Asia	5	16	60	81	60	56	60	56	60	44
East Asia	5	73	0	4	0	5	0	4	0	1
South Asia	15	34	60	56	7	38	27	56	40	12
Southeast Asia	20	21	45	52	25	33	45	52	30	
Southwest Pacific	12	7	58	71	50	71	58	14	50	57
Europe and the Caucasus	138	189	90	94	69	81	64	69	30	14
Latin America and the Caribbean	59	58	44	55	47	34		22	32	38
Caribbean	10	12	50	58	0	0	0	17	50	50
Central America	12	23	0	65	8	52	8	26	42	39
South America	37	23	57	43	73	35	43	22	24	30
North America	0	16	n/a	100	n/a	69	n/a	75	n/a	100
Near and Middle East	11	21	18	33	27	5	27	5	18	5
World	342	528	61	62	47	46	44	42	27	19

(Cont.)

ANNEX PART 3

SECTION C. BREEDING PROGRAMMES

TABLE A3C12 (Cont.)

Level of implementation of breeding programme elements and techniques – goats

Regions and subregions	Number of national breed populations		Breeding goal defined		Genetic evaluation (classic approach)		Genetic evaluation including genomic information		Management of genetic variation	
	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted
Africa	77	93	26	35	16	23	12	6	18	11
East Africa	21	24	24	25	14	17	0	0	19	4
North and West Africa	23	42	30	31	13	26	13	7	0	5
Southern Africa	33	27	24	52	18	22	18	11	30	26
Asia	45	144	49	28	16	17	7	1	11	14
Central Asia	5	16	60	56	60	44	0	0	40	25
East Asia	5	73	0	1	0	0	0	0	0	1
South Asia	15	34	67	59	7	41	0	0	0	38
Southeast Asia	20	21	45	52	15	19	15	10	15	10
Southwest Pacific	12	7	58	71	50	57	50	57	58	71
Europe and the Caucasus	138	189	69	61	39	38	4	2	40	58
Latin America and the Caribbean	59	58	34	28	14	14	5	0	7	12
Caribbean	10	12	50	0	0	0	0	0	0	17
Central America	12	23	8	52	0	13	0	0	0	0
South America	37	23	38	17	22	22	8	0	11	22
North America	0	16	n/a	88	n/a	31	n/a	0	n/a	50
Near and Middle East	11	21	27	29	9	29	0	24	9	24
World	342	528	49	44	26	27	8	4	25	31

Note: The figures indicate the presence of the respective breeding-programme elements and techniques, but provide no indication of population coverage within breeds.

Source: Country reports, 2014.

ANNEX PART 3

SECTION C. BREEDING PROGRAMMES

TABLE A3C13

Level of implementation of breeding programme elements and techniques – pigs

Regions and subregions	Number of national breed populations		Animal identification		Pedigree recording		Performance recording		Artificial insemination	
	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted
Africa	91	52	40	25	25	12	26	10	27	2
East Africa	14	6	57	17	21	0	21	0	29	0
North and West Africa	41	28	29	43	17	21	12	18	7	4
Southern Africa	36	18	44	0	36	0	44	0	50	0
Asia	61	133	30	21	41	13	34	22	44	13
Central Asia	2	7	100	71	100	71	100	71	100	71
East Asia	29	85	0	4	55	4	21	4	24	5
South Asia	16	9	25	33	0	0	6	44	38	0
Southeast Asia	14	32	86	53	50	28	86	53	86	25
Southwest Pacific	26	18	50	67	42	33	50	28	38	17
Europe and the Caucasus	142	192	87	85	86	85	75	77	74	55
Latin America and the Caribbean	80	70	24	50	24	23	25	30	40	31
Caribbean	14	12	29	67	0	0	0	25	29	33
Central America	14	22	0	77	0	59	0	64	57	82
South America	52	36	29	28	37	8	38	11	38	0
North America	1	25	100	88	100	60	100	80	100	56
Near and Middle East	0	1	n/a	0	n/a	0	n/a	0	n/a	0
World	401	491	53	56	50	45	47	46	50	33

(Cont.)

ANNEX PART 3

SECTION C. BREEDING PROGRAMMES

TABLE A3C13 (Cont.)

Level of implementation of breeding programme elements and techniques – pigs

Regions and subregions	Number of national breed populations		Breeding goal defined		Genetic evaluation (classic approach)		Genetic evaluation including genomic information		Management of genetic variation	
	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted
Africa	91	52	34	17	12	6	11	0	15	2
East Africa	14	6	36	0	0	0	0	0	21	0
North and West Africa	41	28	24	32	2	11	0	0	2	4
Southern Africa	36	18	44	0	28	0	28	0	28	0
Asia	61	133	43	17	25	14	18	8	25	4
Central Asia	2	7	100	71	100	71	0	0	0	0
East Asia	29	85	28	2	14	4	7	1	28	1
South Asia	16	9	25	33	0	0	0	0	0	0
Southeast Asia	14	32	86	38	64	34	64	28	50	13
Southwest Pacific	26	18	58	67	38	28	38	28	42	39
Europe and the Caucasus	142	192	70	73	59	63	6	20	39	56
Latin America and the Caribbean	80	70	36	24	15	24	4	4	4	4
Caribbean	14	12	29	25	0	0	0	0	0	0
Central America	14	22	0	45	0	59	0	0	0	0
South America	52	36	48	11	23	11	6	8	6	8
North America	1	25	100	80	100	40	100	24	100	64
Near and Middle East	0	1	n/a	0	n/a	0	n/a	0	n/a	0
World	401	491	51	45	33	36	11	13	25	29

Note: The figures indicate the presence of the respective breeding-programme elements and techniques, but provide no indication of population coverage within breeds.

Source: Country reports, 2014.

ANNEX PART 3
SECTION C. BREEDING PROGRAMMES

TABLE A3C14

Level of implementation of breeding programme elements and techniques – chickens

Regions and subregions	Number of national breed populations		Animal identification		Pedigree recording		Performance recording		Artificial insemination	
	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted
%										
Africa	193	100	23	17	10	10	7	6	5	5
East Africa	33	21	12	24	0	5	0	5	0	5
North and West Africa	103	41	29	27	19	15	13	5	0	0
Southern Africa	57	38	18	3	0	8	0	8	18	11
Asia	119	268	50	16	29	10	45	16	28	8
Central Asia	18	14	100	79	100	57	100	57	100	43
East Asia	28	156	0	0	14	3	0	0	0	6
South Asia	33	31	55	35	21	10	39	35	36	10
Southeast Asia	40	67	58	33	10	15	53	37	5	6
Southwest Pacific	42	14	5	43	0	29	10	43	0	0
Europe and the Caucasus	1017	605	23	65	10	61	11	60	11	18
Latin America and the Caribbean	201	92	9	14	20	1	24	15	0	12
Caribbean	13	11	0	18	0	0	0	45	0	0
Central America	22	52	9	17	0	2	9	17	0	21
South America	166	29	10	7	25	0	28	0	0	0
North America	10	54	0	43	0	11	0	15	0	7
Near and Middle East	23	29	35	14	17	14	26	14	4	0
World	1605	1162	23	43	12	36	14	39	10	13

(Cont.)

ANNEX PART 3

SECTION C. BREEDING PROGRAMMES

TABLE A3C14 (Cont.)

Level of implementation of breeding programme elements and techniques – chickens

Regions and subregions	Number of national breed populations		Breeding goal defined		Genetic evaluation (classic approach)		Genetic evaluation including genomic information		Management of genetic variation	
	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted	Exotic	Locally adapted
	%									
Africa	193	100	11	14	7	6	0	4	7	3
East Africa	33	21	0	5	0	5	0	0	0	0
North and West Africa	103	41	19	20	13	5	0	2	13	0
Southern Africa	57	38	4	13	0	8	0	8	0	8
Asia	119	268	54	17	24	9	3	4	15	4
Central Asia	18	14	100	57	100	43	0	0	39	43
East Asia	28	156	14	1	0	0	0	0	0	0
South Asia	33	31	55	35	21	13	0	0	0	0
Southeast Asia	40	67	58	37	8	22	10	18	28	8
Southwest Pacific	42	14	10	57	71	29	71	29	76	19
Europe and the Caucasus	1017	605	37	72	9	38	1	3	9	41
Latin America and the Caribbean	201	92	23	16	1	16	0	0	0	0
Caribbean	13	11	0	0	0	0	0	0	0	0
Central America	22	52	0	27	0	27	0	0	0	0
South America	166	29	28	3	1	3	0	0	0	0
North America	10	54	0	100	0	11	0	11	0	50
Near and Middle East	23	29	35	3	22	14	0	3	0	0
World	1605	1162	33	50	10	25	3	4	9	26

Note: The figures indicate the presence of the respective breeding-programme elements and techniques, but provide no indication of population coverage within breeds.

Source: Country reports, 2014.

ANNEX PART 3

SECTION D. CONSERVATION PROGRAMMES

1 Uses of the different elements of *in situ* conservation programmes for the main livestock species

TABLE A3D1

Proportion of countries reporting the use of elements of *in situ* conservation for dairy cattle

Regions and subregions	Number of countries	Increasing demand for breed products and services				Incentivization and support for livestock keepers				Breeding programmes		Community-level participation and empowerment	
		Promotion of niche marketing	Promotion as tourist attractions	Use in management of wildlife habitats and landscape	Promotion of breed-related cultural activities	Incentives for keeping at-risk breeds	Recognition and/or awards for breeders	Extension to improve the management of at-risk breeds	Awareness-raising activities	Conservation breeding	Selection to increase production/productivity	Community-based conservation	Biocultural community protocols
		%											
Africa	12	50	0	0	17	17	50	42	33	33	17	42	8
East Africa	4	50	0	0	25	25	50	25	25	25	25	25	0
North and West Africa	6	50	0	0	0	17	33	50	33	33	17	33	17
Southern Africa	2	50	0	0	50	0	100	50	50	50	0	100	0
Asia	12	83	0	0	17	17	58	17	25	42	25	58	17
Central Asia	4	75	0	0	25	25	25	25	25	50	25	75	0
East Asia	1	0	0	0	0	0	100	0	0	100	0	0	0
South Asia	3	100	0	0	0	0	100	33	33	67	33	33	33
Southeast Asia	4	100	0	0	25	25	50	0	25	0	25	75	25
Southwest Pacific	3	67	0	0	0	33	33	33	67	0	0	33	0
Europe and the Caucasus	18	83	78	50	67	89	67	72	78	94	67	56	11
Latin America and the Caribbean	8	88	25	25	38	13	50	38	63	100	75	25	25
Caribbean	4	50	0	0	25	0	0	25	50	50	50	0	0
Central America	1	100	100	100	100	0	100	100	100	100	100	100	100
South America	3	33	33	33	33	33	67	33	67	100	100	33	33
North America	1	100	0	0	0	0	100	0	100	0	100	0	0
Near and Middle East	3	67	0	0	0	0	0	0	0	33	0	33	0
World	57	75	28	19	33	39	54	42	51	61	42	46	12

Note: The figures shown in the table correspond to the number of countries reporting the respective activity in dairy cattle conservation divided by the total number of countries reporting the presence of *in situ* conservation programmes for dairy cattle.
Source: Country reports, 2014.

ANNEX PART 3

SECTION D. CONSERVATION PROGRAMMES

TABLE A3D2

Proportion of countries reporting the use of elements of *in situ* conservation for beef cattle

Regions and subregions	Number of countries	Increasing demand for breed products and services				Incentivization and support for livestock keepers				Breeding programmes		Community-level participation and empowerment	
		Promotion of niche marketing	Promotion as tourist attractions	Use in management of wildlife habitats and landscape	Promotion of breed-related cultural activities	Incentives for keeping at-risk breeds	Recognition and/or awards for breeders	Extension to improve the management of at-risk breeds	Awareness-raising activities	Conservation breeding	Selection to increase production/productivity	Community-based conservation	Biocultural community protocols
%													
Africa	17	47	18	12	35	12	29	35	53	71	47	35	12
East Africa	4	50	25	0	50	25	25	25	25	25	50	0	0
North and West Africa	7	43	0	0	14	14	29	43	29	71	14	57	14
Southern Africa	6	50	33	33	50	0	33	33	100	100	83	33	17
Asia	11	45	18	9	18	36	36	36	55	82	45	55	36
Central Asia	4	25	0	0	0	25	0	25	25	50	0	0	0
East Asia	2	100	0	0	0	100	50	50	50	100	0	100	50
South Asia	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Southeast Asia	5	60	40	20	40	20	60	40	80	100	80	80	60
Southwest Pacific	3	100	0	0	0	33	33	67	67	33	33	33	0
Europe and the Caucasus	16	94	75	75	81	75	75	75	88	88	69	56	19
Latin America and the Caribbean	11	73	36	18	45	9	45	36	45	82	45	27	18
Caribbean	3	33	33	0	33	0	67	33	33	33	33	0	0
Central America	2	100	50	50	50	0	50	50	50	50	50	50	50
South America	6	50	33	17	50	17	33	33	50	100	50	33	17
North America	1	100	100	0	0	0	100	0	100	0	100	0	0
Near and Middle East	1	0	0	0	0	0	0	0	0	0	0	0	0
World	60	68	37	28	43	33	47	47	62	75	52	42	18

Note: The figures shown in the table correspond to the number of countries reporting the respective activity in beef cattle conservation divided by the total number of countries reporting the presence of *in situ* conservation programmes for beef cattle.

Source: Country reports, 2014.

ANNEX PART 3

SECTION D. CONSERVATION PROGRAMMES

TABLE A3D3

Proportion of countries reporting the use of elements of *in situ* conservation for multipurpose cattle

Regions and subregions	Number of countries	Increasing demand for breed products and services				Incentivization and support for livestock keepers				Breeding programmes		Community-level participation and empowerment	
		Promotion of niche marketing	Promotion as tourist attractions	Use in management of wildlife habitats and landscape	Promotion of breed-related cultural activities	Incentives for keeping at-risk breeds	Recognition and/or awards for breeders	Extension to improve the management of at-risk breeds	Awareness-raising activities	Conservation breeding	Selection to increase production/productivity	Community-based conservation	Biocultural community protocols
		%											
Africa	17	35	12	6	29	12	29	47	47	76	53	47	18
East Africa	6	33	17	0	50	0	17	33	33	50	33	33	33
North and West Africa	9	44	11	11	22	22	33	44	56	100	67	56	11
Southern Africa	2	0	0	0	0	0	50	100	50	50	50	50	0
Asia	10	60	40	20	40	30	50	50	70	90	60	80	30
Central Asia	3	67	0	0	0	0	33	0	0	33	33	67	0
East Asia	1	100	100	100	100	100	100	100	100	100	100	100	100
South Asia	5	40	40	0	20	40	60	60	80	100	60	80	20
Southeast Asia	1	100	100	100	100	0	0	100	100	100	100	100	100
Southwest Pacific	3	67	0	0	33	33	33	33	67	0	0	33	0
Europe and the Caucasus	27	59	59	56	59	89	56	78	78	85	56	37	11
Latin America and the Caribbean	7	71	29	29	29	14	29	29	57	71	71	43	29
Caribbean	4	25	0	0	0	0	0	0	50	25	25	0	0
Central America	1	100	100	100	100	0	100	100	100	100	100	100	100
South America	2	50	50	50	50	50	50	50	50	100	100	50	50
North America	1	100	100	0	0	0	100	0	100	100	100	0	0
Near and Middle East	2	100	0	0	100	0	50	50	50	100	50	100	0
World	67	57	37	30	45	46	45	57	66	79	55	48	16

Note: The figures shown in the table correspond to the number of countries reporting the respective activity in the conservation of multipurpose cattle divided by the total number of countries reporting the presence of *in situ* conservation programmes for multipurpose cattle.

Source: Country reports, 2014.

ANNEX PART 3

SECTION D. CONSERVATION PROGRAMMES

TABLE A3D4

Proportion of countries reporting the use of elements of *in situ* conservation for sheep

Regions and subregions	Number of countries	Increasing demand for breed products and services				Incentivization and support for livestock keepers				Breeding programmes		Community-level participation and empowerment	
		Promotion of niche marketing	Promotion as tourist attractions	Use in management of wildlife habitats and landscape	Promotion of breed-related cultural activities	Incentives for keeping at-risk breeds	Recognition and/or awards for breeders	Extension to improve the management of at-risk breeds	Awareness-raising activities	Conservation breeding	Selection to increase production/productivity	Community-based conservation	Biocultural community protocols
%													
Africa	18	39	6	6	28	11	28	44	44	72	44	44	22
East Africa	3	33	0	0	33	0	0	0	0	0	33	100	33
North and West Africa	10	30	10	10	40	20	40	50	50	80	50	40	20
Southern Africa	5	60	0	0	0	0	20	60	60	100	40	20	20
Asia	15	67	27	13	27	33	40	47	67	60	33	60	13
Central Asia	4	50	0	0	25	25	25	25	25	50	25	50	0
East Asia	2	50	50	50	50	50	50	50	100	50	50	50	50
South Asia	4	75	50	0	25	50	50	100	100	100	75	100	0
Southeast Asia	5	80	20	20	20	20	40	20	60	40	0	40	20
Southwest Pacific	2	100	0	0	0	50	100	100	100	100	100	100	0
Europe and the Caucasus	32	75	75	63	75	94	59	84	88	91	75	53	19
Latin America and the Caribbean	13	69	23	15	23	8	46	54	54	69	54	46	23
Caribbean	4	75	50	0	0	0	50	50	75	75	75	25	25
Central America	3	67	0	33	33	0	33	33	33	33	33	67	33
South America	6	67	17	17	33	17	50	67	50	83	50	50	17
North America	1	100	100	0	100	0	100	100	100	100	100	100	0
Near and Middle East	5	40	20	20	40	20	40	60	60	80	40	60	20
World	86	64	40	30	45	47	48	64	69	78	57	53	19

Note: The figures shown in the table correspond to the number of countries reporting the respective activity in sheep conservation divided by the total number of countries reporting the presence of *in situ* conservation programmes for sheep.

Source: Country reports, 2014.

ANNEX PART 3

SECTION D. CONSERVATION PROGRAMMES

TABLE A3D5

Proportion of countries reporting the use of elements of *in situ* conservation for goats

Regions and subregions	Number of countries	Increasing demand for breed products and services				Incentivization and support for livestock keepers				Breeding programmes		Community-level participation and empowerment	
		Promotion of niche marketing	Promotion as tourist attractions	Use in management of wildlife habitats and landscape	Promotion of breed-related cultural activities	Incentives for keeping at-risk breeds	Recognition and/or awards for breeders	Extension to improve the management of at-risk breeds	Awareness-raising activities	Conservation breeding	Selection to increase production/productivity	Community-based conservation	Biocultural community protocols
%													
Africa	19	53	0	0	37	11	21	47	53	95	37	47	26
East Africa	4	75	0	0	25	0	0	25	0	50	50	50	25
North and West Africa	9	33	0	0	33	22	33	44	67	100	44	56	33
Southern Africa	6	67	0	0	50	0	17	67	67	100	17	33	17
Asia	13	85	38	15	54	38	46	46	69	69	69	77	23
Central Asia	3	67	0	0	33	33	33	33	33	33	33	67	0
East Asia	3	67	33	33	33	33	33	33	67	33	33	33	33
South Asia	2	100	100	0	100	100	100	100	100	100	100	100	50
Southeast Asia	5	80	40	20	60	20	40	20	60	60	60	80	20
Southwest Pacific	2	100	0	0	0	0	0	50	50	50	50	50	50
Europe and the Caucasus	29	79	69	59	66	90	55	76	86	83	62	45	14
Latin America and the Caribbean	10	70	30	20	30	10	50	40	40	70	50	40	20
Caribbean	4	75	25	0	25	0	50	25	50	75	75	25	0
Central America	3	67	33	33	33	0	33	33	33	33	33	33	33
South America	3	67	33	33	33	33	67	67	33	100	33	67	33
North America	1	100	0	0	0	0	100	100	100	100	100	0	0
Near and Middle East	5	40	20	20	60	20	40	60	40	80	40	40	20
World	79	72	37	28	49	44	43	58	66	80	54	49	20

Note: The figures shown in the table correspond to the number of countries reporting the respective activity in goat conservation divided by the total number of countries reporting the presence of *in situ* conservation programmes for goats.

Source: Country reports, 2014.

ANNEX PART 3

SECTION D. CONSERVATION PROGRAMMES

TABLE A3D6

Proportion of countries reporting the use of elements of *in situ* conservation for pigs

Regions and subregions	Number of countries	Increasing demand for breed products and services				Incentivization and support for livestock keepers				Breeding programmes		Community-level participation and empowerment	
		Promotion of niche marketing	Promotion as tourist attractions	Use in management of wildlife habitats and landscape	Promotion of breed-related cultural activities	Incentives for keeping at-risk breeds	Recognition and/or awards for breeders	Extension to improve the management of at-risk breeds	Awareness-raising activities	Conservation breeding	Selection to increase production/productivity	Community-based conservation	Biocultural community protocols
%													
Africa	12	25	8	0	17	17	25	33	42	67	25	33	8
East Africa	3	0	0	0	0	0	0	0	0	0	33	0	0
North and West Africa	6	17	0	0	33	33	33	50	50	83	33	33	17
Southern Africa	3	67	33	0	0	0	33	33	67	100	0	33	0
Asia	10	100	50	30	50	50	50	60	80	90	70	100	20
Central Asia	1	0	0	0	0	0	0	0	0	0	0	0	0
East Asia	3	100	33	33	33	67	33	33	67	100	67	100	33
South Asia	3	100	67	0	33	67	67	100	100	100	100	100	0
Southeast Asia	3	100	67	67	100	33	67	33	67	67	67	100	33
Southwest Pacific	5	60	0	20	60	20	20	80	80	20	20	80	0
Europe and the Caucasus	25	84	52	28	64	84	56	64	76	96	68	48	20
Latin America and the Caribbean	11	73	27	27	27	9	18	27	36	64	45	36	18
Caribbean	4	75	25	0	0	0	0	0	25	50	25	25	0
Central America	3	100	33	33	33	0	33	33	33	67	67	67	33
South America	4	50	25	50	50	25	25	50	50	75	50	25	25
North America	1	100	0	0	0	0	100	100	100	0	100	100	0
Near and Middle East	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
World	64	72	34	22	45	47	41	53	66	77	53	53	16

Note: The figures shown in the table correspond to the number of countries reporting the respective activity in pig conservation divided by the total number of countries reporting the presence of *in situ* conservation programmes for pigs.

Source: Country reports, 2014.

ANNEX PART 3

SECTION D. CONSERVATION PROGRAMMES

TABLE A3D7

Proportion of countries reporting the use of elements of *in situ* conservation for chickens

Regions and subregions	Number of countries	Increasing demand for breed products and services				Incentivization and support for livestock keepers				Breeding programmes		Community-level participation and empowerment	
		Promotion of niche marketing	Promotion as tourist attractions	Use in management of wildlife habitats and landscape	Promotion of breed-related cultural activities	Incentives for keeping at-risk breeds	Recognition and/or awards for breeders	Extension to improve the management of at-risk breeds	Awareness-raising activities	Conservation breeding	Selection to increase production/productivity	Community-based conservation	Biocultural community protocols
%													
Africa	16	50	0	6	13	13	25	38	31	56	13	44	25
East Africa	3	67	0	33	0	33	0	33	0	0	0	33	33
North and West Africa	8	25	0	0	25	13	38	38	38	50	25	25	13
Southern Africa	5	80	0	0	0	0	20	40	40	100	0	80	40
Asia	14	79	57	21	57	43	50	43	71	86	71	93	29
Central Asia	3	67	0	0	33	33	0	33	33	33	0	33	0
East Asia	3	100	67	33	67	100	67	33	67	67	67	100	67
South Asia	4	50	50	0	25	25	50	75	100	100	100	100	0
Southeast Asia	4	100	100	50	100	25	75	25	75	100	100	100	50
Southwest Pacific	5	40	20	0	40	20	20	60	40	20	0	40	0
Europe and the Caucasus	23	74	57	13	70	65	48	70	87	74	61	35	17
Latin America and the Caribbean	8	75	13	25	25	25	25	38	38	50	38	25	25
Caribbean	3	67	0	0	0	33	0	0	33	33	0	0	0
Central America	2	100	0	50	50	0	50	50	50	50	50	50	50
South America	3	67	33	33	33	33	33	67	33	67	67	33	33
North America	1	100	0	0	0	0	100	0	100	100	100	0	0
Near and Middle East	3	33	0	0	0	0	33	33	33	67	33	0	0
World	70	66	33	13	43	37	39	50	60	66	44	46	20

Note: The figures shown in the table correspond to the number of countries reporting the respective activity in chicken conservation divided by the total number of countries reporting the presence of *in situ* conservation programmes for chickens.

Source: Country reports, 2014.

ANNEX PART 3

SECTION D. CONSERVATION PROGRAMMES

2 Characteristics and functions of national gene banks – species breakdowns

TABLE A3D8

Characteristics and functions of national gene banks – dairy cattle

Regions and subregions	Number of countries	Storage of not-at-risk breeds	Participation of livestock keepers/breeders' associations	Increasing genetic variability in <i>ex situ</i> populations	Increasing genetic variability in <i>in situ</i> populations	Reconstitution of extinct breeds
Africa	9	44	33	44	44	0
East Africa	3	33	33	33	33	0
North and West Africa	3	67	67	67	67	0
Southern Africa	3	33	0	33	33	0
Asia	12	92	33	42	50	0
Central Asia	2	100	100	100	100	0
East Asia	4	75	0	0	25	0
South Asia	2	100	0	0	0	0
Southeast Asia	4	100	25	50	50	0
Southwest Pacific	1	0	0	0	0	0
Europe and the Caucasus	25	76	68	20	40	4
Latin America and the Caribbean	8	63	25	0	13	0
Caribbean	2	100	0	0	0	0
Central America	1	100	100	0	0	0
South America	5	20	20	0	20	0
North America	1	100	100	100	100	0
Near and Middle East	1	0	0	0	0	0
World	57	70	47	26	39	2

Note: The figures represent the proportion of countries (out of the total number reporting the presence of an *in vitro* gene bank for AnGR) that indicate the presence of the respective activity in dairy cattle conservation.

Source: Country reports, 2014.

ANNEX PART 3

SECTION D. CONSERVATION PROGRAMMES

TABLE A3D9

Characteristics and functions of national gene banks – beef cattle

Regions and subregions	Number of countries	Storage of not-at-risk breeds	Participation of livestock keepers/breeders' associations	Increasing genetic variability in <i>ex situ</i> populations	Increasing genetic variability in <i>in situ</i> populations	Reconstitution of extinct breeds
		%				
Africa	9	44	33	44	56	0
East Africa	3	33	33	33	33	0
North and West Africa	3	67	67	67	67	0
Southern Africa	3	33	0	33	67	0
Asia	12	67	25	33	33	8
Central Asia	2	50	0	50	50	0
East Asia	4	75	0	0	25	0
South Asia	2	0	0	0	0	0
Southeast Asia	4	100	75	75	50	25
Southwest Pacific	1	0	0	0	0	0
Europe and the Caucasus	25	60	48	8	24	0
Latin America and the Caribbean	8	38	50	13	25	0
Caribbean	2	50	0	0	0	0
Central America	1	0	100	0	0	0
South America	5	40	60	20	40	0
North America	1	100	100	100	100	0
Near and Middle East	1	0	0	0	0	0
World	57	54	40	21	32	2

Note: The figures represent the proportion of countries (out of the total number reporting the presence of an *in vitro* gene bank for AnGR) that indicate the presence of the respective activity in beef cattle conservation.

Source: Country reports, 2014.

ANNEX PART 3

SECTION D. CONSERVATION PROGRAMMES

TABLE A3D10

Characteristics and functions of national gene banks – multipurpose cattle

Regions and subregions	Number of countries	Storage of not-at-risk breeds	Participation of livestock keepers/breeders' associations	Increasing genetic variability in <i>ex situ</i> populations	Increasing genetic variability in <i>in situ</i> populations	Reconstitution of extinct breeds
		%				
Africa	9	44	33	44	44	0
East Africa	3	33	33	0	33	0
North and West Africa	3	100	67	100	100	0
Southern Africa	3	0	0	33	0	0
Asia	12	58	33	42	42	8
Central Asia	2	50	100	100	100	0
East Asia	4	50	25	25	50	25
South Asia	2	100	50	0	50	0
Southeast Asia	4	50	0	50	0	0
Southwest Pacific	1	0	0	0	0	0
Europe and the Caucasus	25	52	56	12	36	0
Latin America and the Caribbean	8	50	25	0	13	0
Caribbean	2	0	0	0	0	0
Central America	1	100	100	0	0	0
South America	5	60	20	0	20	0
North America	1	100	100	0	0	0
Near and Middle East	1	100	0	0	100	0
World	57	53	42	21	35	2

Note: The figures represent the proportion of countries (out of the total number reporting the presence of an *in vitro* gene bank for AnGR) that indicate the presence of the respective activity in the conservation of multipurpose cattle.

Source: Country reports, 2014.

ANNEX PART 3

SECTION D. CONSERVATION PROGRAMMES

TABLE A3D11

Characteristics and functions of national gene banks – sheep

Regions and subregions	Number of countries	Storage of not-at-risk breeds	Participation of livestock keepers/breeders' associations	Increasing genetic variability in <i>ex situ</i> populations	Increasing genetic variability in <i>in situ</i> populations	Reconstitution of extinct breeds
		%				
Africa	9	22	22	11	11	0
East Africa	3	0	0	0	0	0
North and West Africa	3	33	33	33	33	0
Southern Africa	3	33	33	0	0	0
Asia	12	83	25	33	25	0
Central Asia	2	100	50	50	100	0
East Asia	4	75	25	25	25	0
South Asia	2	100	50	0	0	0
Southeast Asia	4	75	0	50	0	0
Southwest Pacific	1	0	0	0	0	0
Europe and the Caucasus	25	64	76	4	12	0
Latin America and the Caribbean	8	38	25	0	25	0
Caribbean	2	50	0	0	0	0
Central America	1	0	0	0	0	0
South America	5	40	40	0	40	0
North America	1	100	100	100	100	0
Near and Middle East	1	0	0	0	0	0
World	57	56	47	12	18	0

Note: The figures represent the proportion of countries (out of the total number reporting the presence of an *in vitro* gene bank for AnGR) that indicate the presence of the respective activity in sheep conservation.

Source: Country reports, 2014.

ANNEX PART 3

SECTION D. CONSERVATION PROGRAMMES

TABLE A3D12

Characteristics and functions of national gene banks – goats

Regions and subregions	Number of countries	Storage of not-at-risk breeds	Participation of livestock keepers/breeders' associations	Increasing genetic variability in <i>ex situ</i> populations	Increasing genetic variability in <i>in situ</i> populations	Reconstitution of extinct breeds
		%				
Africa	9	22	22	22	22	11
East Africa	3	0	0	0	0	0
North and West Africa	3	33	33	33	33	0
Southern Africa	3	33	33	33	33	33
Asia	12	75	17	33	25	0
Central Asia	2	100	0	50	50	0
East Asia	4	75	25	25	25	0
South Asia	2	50	0	0	0	0
Southeast Asia	4	75	25	50	25	0
Southwest Pacific	1	0	0	0	0	0
Europe and the Caucasus	25	52	64	8	12	0
Latin America and the Caribbean	8	38	25	0	25	0
Caribbean	2	50	0	0	0	0
Central America	1	0	0	0	0	0
South America	5	40	40	0	40	0
North America	1	100	100	100	0	0
Near and Middle East	1	0	0	0	0	0
World	57	49	40	16	18	2

Note: The figures represent the proportion of countries (out of the total number reporting the presence of an *in vitro* gene bank for AnGR) that indicate the presence of the respective activity in goat conservation.

Source: Country reports, 2014.

ANNEX PART 3

SECTION D. CONSERVATION PROGRAMMES

TABLE A3D13

Characteristics and functions of national gene banks – pigs

Regions and subregions	Number of countries	Storage of not-at-risk breeds	Participation of livestock keepers/breeders' associations	Increasing genetic variability in <i>ex situ</i> populations	Increasing genetic variability in <i>in situ</i> populations	Reconstitution of extinct breeds
		%				
Africa	9	33	33	22	22	11
East Africa	3	0	0	0	0	0
North and West Africa	3	67	67	67	67	0
Southern Africa	3	33	33	0	0	33
Asia	12	25	25	25	0	8
Central Asia	2	0	0	0	0	0
East Asia	4	25	25	25	0	0
South Asia	2	50	50	0	0	0
Southeast Asia	4	25	25	50	0	25
Southwest Pacific	1	0	0	0	0	0
Europe and the Caucasus	25	44	52	8	20	0
Latin America and the Caribbean	8	13	13	0	13	0
Caribbean	2	0	0	0	0	0
Central America	1	0	0	0	0	0
South America	5	20	20	0	20	0
North America	1	100	100	100	100	100
Near and Middle East	1	0	0	0	0	0
World	57	33	37	14	16	5

Note: The figures represent the proportion of countries (out of the total number reporting the presence of an *in vitro* gene bank for AnGR) that indicate the presence of the respective activity in pig conservation.

Source: Country reports, 2014.

ANNEX PART 3

SECTION D. CONSERVATION PROGRAMMES

TABLE A3D14

Characteristics and functions of national gene banks – chickens

Regions and subregions	Number of countries	Storage of not-at-risk breeds	Participation of livestock keepers/breeders' associations	Increasing genetic variability in <i>ex situ</i> populations	Increasing genetic variability in <i>in situ</i> populations	Reconstitution of extinct breeds
		%				
Africa	9	11	11	11	11	0
East Africa	3	0	0	0	0	0
North and West Africa	3	0	0	0	0	0
Southern Africa	3	33	33	33	33	0
Asia	12	25	25	17	8	8
Central Asia	2	0	0	0	0	0
East Asia	4	25	25	25	25	25
South Asia	2	50	50	0	0	0
Southeast Asia	4	25	25	25	0	0
Southwest Pacific	1	0	0	0	0	0
Europe and the Caucasus	25	8	32	0	4	4
Latin America and the Caribbean	8	0	0	0	0	0
Caribbean	2	0	0	0	0	0
Central America	1	0	0	0	0	0
South America	5	0	0	0	0	0
North America	1	100	100	0	0	0
Near and Middle East	1	0	0	0	0	0
World	57	12	23	5	5	4

Note: The figures represent the proportion of countries (out of the total number reporting the presence of an *in vitro* gene bank for AnGR) that indicate the presence of the respective activity in chicken conservation.

Source: Country reports, 2014.

ANNEX PART 3

SECTION E. REPRODUCTIVE AND MOLECULAR BIOTECHNOLOGIES

1 Use of reproductive and molecular technologies – species-level analysis

TABLE A3E1

Availability of AI, embryo transfer, molecular genetic or genomic information and MOET for use in dairy cattle

Regions and subregions	Artificial insemination		Embryo transfer		Molecular genetic or genomic information		Multiple ovulation and embryo transfer	
	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score
Africa	28	2.0	10	1.0	7	1.1	6	1.0
East Africa	7	2.1	5	1.0	2	1.0	3	1.0
North and West Africa	9	1.8	2	1.0	3	1.0	1	1.0
Southern Africa	12	2.2	3	1.0	2	1.5	2	1.0
Asia	15	2.6	14	1.2	9	1.4	12	1.2
Central Asia	3	2.7	3	1.3	1	2.0	3	1.3
East Asia	3	2.7	3	1.7	2	2.0	2	1.5
South Asia	4	2.5	3	1.0	2	1.0	2	1.0
Southeast Asia	5	2.6	5	1.0	4	1.3	5	1.0
Southwest Pacific	2	2.0	1	3.0	1	3.0	1	3.0
Europe and the Caucasus	34	2.9	30	1.9	25	2.2	21	1.9
Latin America and the Caribbean	15	2.7	13	1.7	8	1.3	12	1.6
Caribbean	4	2.5	2	1.0	0		1	1.0
Central America	4	2.5	4	1.3	3	1.0	4	1.3
South America	7	2.9	7	2.1	5	1.4	7	1.9
North America	1	3.0	1	3.0	1	3.0	1	3.0
Near and Middle East	3	2.3	1	1.0	1	1.0	1	1.0
World	98	2.5	70	1.6	52	1.8	54	1.6

Note: Availability was scored on the following scale: none (0); low – at experimental level only (1); medium – available to livestock keepers in some locations or production systems (2); or high – widely available to livestock keepers (3). “Number of countries” refers to the countries where the technology is reported to be used (scores 1, 2 or 3). The scores shown are averages for these countries.

Source: Country reports, 2014.

ANNEX PART 3

SECTION E. REPRODUCTIVE AND MOLECULAR BIOTECHNOLOGIES

TABLE A3E2

Availability of semen sexing, *in vitro* fertilization, cloning, genetic modification and transplantation of gonadal tissues for use in dairy cattle

Regions and subregions	Semen sexing		<i>In vitro</i> fertilization		Cloning		Genetic modification		Transplantation of gonadal tissue	
	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score
Africa	6	1.3	2	1.0	1	1.0	0		0	
East Africa	4	1.3	1	1.0	0		0		0	
North and West Africa	1	1.0	1	1.0	0		0		0	
Southern Africa	1	2.0	0		1	1.0	0		0	
Asia	10	1.5	8	1.3	4	1.0	4	1.0	2	1.0
Central Asia	3	1.7	1	1.0	1	1.0	1	1.0	1	1.0
East Asia	2	2.0	2	2.0	2	1.0	2	1.0	1	1.0
South Asia	1	1.0	0		0		0		0	
Southeast Asia	4	1.3	5	1.0	1	1.0	1	1.0	0	
Southwest Pacific	1	2.0	1	1.0	1	1.0	1	1.0	1	1.0
Europe and the Caucasus	21	2.0	16	1.3	5	1.0	2	1.0	2	1.0
Latin America and the Caribbean	7	1.7	10	1.2	2	3.0	2	1.5	1	1.0
Caribbean	0		0		0		0		0	
Central America	4	1.0	4	1.0	0		0		0	
South America	3	2.7	6	1.3	2	3.0	2	1.5	1	1.0
North America	1	3.0	1	3.0	1	2.0	1	1.0	0	
Near and Middle East	0		1	1.0	0		0		0	
World	46	1.8	39	1.3	14	1.4	10	1.1	6	1.0

Note: Availability was scored on the following scale: none (0); low – at experimental level only (1); medium – available to livestock keepers in some locations or production systems (2); or high – widely available to livestock keepers (3). "Number of countries" refers to the countries where the technology is reported to be used (scores 1, 2 or 3). The scores shown are averages for these countries.

Source: Country reports, 2014.

ANNEX PART 3

SECTION E. REPRODUCTIVE AND MOLECULAR BIOTECHNOLOGIES

TABLE A3E3

Availability of AI, embryo transfer, molecular genetic or genomic information and MOET for use in beef cattle

Regions and subregions	Artificial insemination		Embryo transfer		Molecular genetic or genomic information		Multiple ovulation and embryo transfer	
	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score
Africa	15	1.6	5	1.0	2	1.0	1	1.0
East Africa	5	1.6	2	1.0	0		0	
North and West Africa	5	1.6	1	1.0	0		0	
Southern Africa	5	1.6	2	1.0	2	1.0	1	1.0
Asia	10	2.3	10	1.4	7	1.3	9	1.4
Central Asia	2	2.0	2	1.5	1	2.0	2	1.5
East Asia	3	2.3	3	2.0	2	1.0	2	2.5
South Asia	0		0		0		0	
Southeast Asia	5	2.4	5	1.0	4	1.3	5	1.0
Southwest Pacific	4	1.8	2	2.0	1	3.0	1	3.0
Europe and the Caucasus	26	2.4	19	1.9	18	1.3	13	1.8
Latin America and the Caribbean	13	2.3	12	1.8	7	1.6	11	1.7
Caribbean	3	2.3	2	1.0	0		1	1.0
Central America	3	1.7	3	1.0	2	1.0	3	1.0
South America	7	2.6	7	2.3	5	1.8	7	2.1
North America	1	3.0	1	3.0	1	3.0	1	3.0
Near and Middle East	1	1.0	0		1	1.0	0	
World	70	2.1	49	1.7	37	1.6	36	1.7

Note: Availability was scored on the following scale: none (0); low – at experimental level only (1); medium – available to livestock keepers in some locations or production systems (2); or high – widely available to livestock keepers (3). “Number of countries” refers to the countries where the technology is reported to be used (scores 1, 2 or 3). The scores shown are averages for these countries.

Source: Country reports, 2014.

ANNEX PART 3

SECTION E. REPRODUCTIVE AND MOLECULAR BIOTECHNOLOGIES

TABLE A3E4

Availability of semen sexing, *in vitro* fertilization, cloning, genetic modification and transplantation of gonadal tissues for use in beef cattle

Regions and subregions	Semen sexing		<i>In vitro</i> fertilization		Cloning		Genetic modification		Transplantation of gonadal tissue	
	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score
Africa	2	1.5	1	1.0	0		0		0	
East Africa	1	2.0	1	1.0	0		0		0	
North and West Africa	0		0		0		0		0	
Southern Africa	1	1.0	0		0		0		0	
Asia	7	1.1	7	1.1	5	1.0	4	1.0	1	1.0
Central Asia	2	1.5	1	1.0	1	1.0	1	1.0	0	
East Asia	2	1.0	2	1.5	2	1.0	2	1.0	1	1.0
South Asia	0		0		0		0		0	
Southeast Asia	3	1.0	4	1.0	2	1.0	1	1.0	0	
Southwest Pacific	1	2.0	1	1.0	1	1.0	1	1.0	1	1.0
Europe and the Caucasus	14	1.9	13	1.2	3	1.0	2	1.0	2	1.0
Latin America and the Caribbean	4	2.3	8	1.4	2	3.0	2	1.5	1	1.0
Caribbean	0		0		0		0		0	
Central America	1	1.0	2	1.0	0		0		0	
South America	3	2.7	6	1.5	2	3.0	2	1.5	1	1.0
North America	1	2.0	1	3.0	1	2.0	1	1.0	0	
Near and Middle East	0		0		0		0		0	
World	29	1.8	31	1.3	12	1.4	10	1.1	5	1.0

Note: Availability was scored on the following scale: none (0); low – at experimental level only (1); medium – available to livestock keepers in some locations or production systems (2); or high – widely available to livestock keepers (3). "Number of countries" refers to the countries where the technology is reported to be used (scores 1, 2 or 3). The scores shown are averages for these countries.

Source: Country reports, 2014.

ANNEX PART 3

SECTION E. REPRODUCTIVE AND MOLECULAR BIOTECHNOLOGIES

TABLE A3E5

Availability of AI, embryo transfer, molecular genetic or genomic information and MOET for use in multipurpose cattle

Regions and subregions	Artificial insemination		Embryo transfer		Molecular genetic or genomic information		Multiple ovulation and embryo transfer	
	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score
Africa	18	1.7	6	1.0	4	1.0	1	1.0
East Africa	4	1.8	2	1.0	1	1.0	0	
North and West Africa	8	1.6	3	1.0	1	1.0	1	1.0
Southern Africa	6	1.7	1	1.0	2	1.0	0	
Asia	9	2.3	5	1.2	5	1.2	2	1.5
Central Asia	2	2.5	1	2.0	1	2.0	1	2.0
East Asia	1	2.0	1	1.0	0		0	
South Asia	4	2.5	2	1.0	2	1.0	0	
Southeast Asia	2	2.0	1	1.0	2	1.0	1	1.0
Southwest Pacific	0		0		0		0	
Europe and the Caucasus	24	2.7	17	1.9	18	1.9	11	1.8
Latin America and the Caribbean	9	2.1	8	1.5	5	1.0	7	1.3
Caribbean	1	3.0	0		0		0	
Central America	3	1.7	3	1.0	2	1.0	3	1.0
South America	5	2.2	5	1.8	3	1.0	4	1.5
North America	1	2.0	1	2.0	1	2.0	1	2.0
Near and Middle East	4	1.8	1	1.0	2	1.0	0	
World	65	2.2	38	1.6	35	1.5	22	1.6

Note: Availability was scored on the following scale: none (0); low – at experimental level only (1); medium – available to livestock keepers in some locations or production systems (2); or high – widely available to livestock keepers (3). “Number of countries” refers to the countries where the technology is reported to be used (scores 1, 2 or 3). The scores shown are averages for these countries.

Source: Country reports, 2014.

ANNEX PART 3

SECTION E. REPRODUCTIVE AND MOLECULAR BIOTECHNOLOGIES

TABLE A3E6

Availability of semen sexing, *in vitro* fertilization, cloning, genetic modification and transplantation of gonadal tissues for use in multipurpose cattle

Regions and subregions	Semen sexing		<i>In vitro</i> fertilization		Cloning		Genetic modification		Transplantation of gonadal tissue	
	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score
Africa	1	2.0	1	1.0	0		0		0	
East Africa	1	2.0	1	1.0	0		0		0	
North and West Africa	0		0		0		0		0	
Southern Africa	0		0		0		0		0	
Asia	2	1.5	2	1.0	1	1.0	2	1.0	0	
Central Asia	1	2.0	1	1.0	0		1	1.0	0	
East Asia	0		0		0		0		0	
South Asia	0		0		0		0		0	
Southeast Asia	1	1.0	1	1.0	1	1.0	1	1.0	0	
Southwest Pacific	0		0		0		0		0	
Europe and the Caucasus	13	1.9	9	1.3	4	1.0	2	1.0	2	1.0
Latin America and the Caribbean	3	1.3	5	1.2	1	1.0	0		0	
Caribbean	0		0		0		0		0	
Central America	1	1.0	1	1.0	0		0		0	
South America	2	1.5	4	1.3	1	1.0	0		0	
North America	1	1.0	0		0		0		0	
Near and Middle East	1	1.0	0		0		0		0	
World	21	1.7	17	1.2	6	1.0	4	1.0	2	1.0

Note: Availability was scored on the following scale: none (0); low – at experimental level only (1); medium – available to livestock keepers in some locations or production systems (2); or high – widely available to livestock keepers (3). "Number of countries" refers to the countries where the technology is reported to be used (scores 1, 2 or 3). The scores shown are averages for these countries.

Source: Country reports, 2014.

ANNEX PART 3

SECTION E. REPRODUCTIVE AND MOLECULAR BIOTECHNOLOGIES

TABLE A3E7

Availability of AI, embryo transfer, molecular genetic or genomic information and MOET for use in sheep

Regions and subregions	Artificial insemination		Embryo transfer		Molecular genetic or genomic information		Multiple ovulation and embryo transfer	
	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score
Africa	4	1.3	1	1.0	2	1.0	1	1.0
East Africa	0		0		0		0	
North and West Africa	2	1.0	0		1	1.0	0	
Southern Africa	2	1.5	1	1.0	1	1.0	1	1.0
Asia	11	1.5	6	1.3	5	1.4	7	1.3
Central Asia	3	2.0	1	3.0	1	2.0	2	2.0
East Asia	2	1.5	2	1.0	0		2	1.0
South Asia	2	1.5	1	1.0	2	1.0	1	1.0
Southeast Asia	4	1.0	2	1.0	2	1.5	2	1.0
Southwest Pacific	1	3.0	1	3.0	1	3.0	1	3.0
Europe and the Caucasus	23	1.7	13	1.3	18	1.6	11	1.1
Latin America and the Caribbean	13	1.8	10	1.5	6	1.7	8	1.5
Caribbean	3	1.7	1	1.0	0		0	
Central America	3	1.0	3	1.0	1	1.0	3	1.0
South America	7	2.1	6	1.8	5	1.8	5	1.8
North America	1	2.0	1	2.0	1	2.0	1	1.0
Near and Middle East	3	1.0	0		2	1.0	0	
World	56	1.6	32	1.4	35	1.6	29	1.3

Note: Availability was scored on the following scale: none (0); low – at experimental level only (1); medium – available to livestock keepers in some locations or production systems (2); or high – widely available to livestock keepers (3). "Number of countries" refers to the countries where the technology is reported to be used (scores 1, 2 or 3). The scores shown are averages for these countries.

Source: Country reports, 2014.

ANNEX PART 3

SECTION E. REPRODUCTIVE AND MOLECULAR BIOTECHNOLOGIES

TABLE A3E8

Availability of semen sexing, *in vitro* fertilization, cloning, genetic modification and transplantation of gonadal tissues for use in sheep

Regions and subregions	Semen sexing		<i>In vitro</i> fertilization		Cloning		Genetic modification		Transplantation of gonadal tissue	
	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score
Africa	0		0		0		0		0	
East Africa	0		0		0		0		0	
North and West Africa	0		0		0		0		0	
Southern Africa	0		0		0		0		0	
Asia	3	1.7	5	1.0	4	1.0	2	1.0	0	
Central Asia	1	3.0	1	1.0	1	1.0	1	1.0	0	
East Asia	1	1.0	2	1.0	1	1.0	1	1.0	0	
South Asia	0		1	1.0	1	1.0	0		0	
Southeast Asia	1	1.0	1	1.0	1	1.0	0		0	
Southwest Pacific	1	1.0	1	1.0	1	1.0	1	1.0	1	1.0
Europe and the Caucasus	1	1.0	6	1.0	3	1.0	1	1.0	2	1.0
Latin America and the Caribbean	2	1.0	4	1.3	3	1.0	1	1.0	1	1.0
Caribbean	0		0		0		0		0	
Central America	1	1.0	1	1.0	0		0		0	
South America	1	1.0	3	1.3	3	1.0	1	1.0	1	1.0
North America	0		0		0		0		0	
Near and Middle East	0		0		0		0		0	
World	7	1.3	16	1.1	11	1.0	5	1.0	4	1.0

Note: Availability was scored on the following scale: none (0); low – at experimental level only (1); medium – available to livestock keepers in some locations or production systems (2); or high – widely available to livestock keepers (3). "Number of countries" refers to the countries where the technology is reported to be used (scores 1, 2 or 3). The scores shown are averages for these countries.

Source: Country reports, 2014.

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SECTION E. REPRODUCTIVE AND MOLECULAR BIOTECHNOLOGIES

TABLE A3E9

Availability of AI, embryo transfer, molecular genetic or genomic information and MOET for use in goats

Regions and subregions	Artificial insemination		Embryo transfer		Molecular genetic or genomic information		Multiple ovulation and embryo transfer	
	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score
Africa	5	1.0	0		2	1.0	0	
East Africa	1	1.0	0		1	1.0	0	
North and West Africa	1	1.0	0		0		0	
Southern Africa	3	1.0	0		1	1.0	0	
Asia	13	1.2	7	1.0	8	1.3	9	1.0
Central Asia	2	1.5	0		1	2.0	1	1.0
East Asia	2	1.5	2	1.0	0		2	1.0
South Asia	4	1.0	1	1.0	3	1.0	2	1.0
Southeast Asia	5	1.2	4	1.0	4	1.3	4	1.0
Southwest Pacific	1	3.0	1	3.0	1	3.0	1	3.0
Europe and the Caucasus	16	1.6	9	1.1	16	1.4	9	1.1
Latin America and the Caribbean	15	1.2	7	1.3	3	1.3	6	1.3
Caribbean	5	1.4	0		0		0	
Central America	3	1.0	3	1.0	1	1.0	3	1.0
South America	7	1.1	4	1.5	2	1.5	3	1.7
North America	1	3.0	1	2.0	1	2.0	1	1.0
Near and Middle East	3	1.0	0		2	1.0	0	
World	54	1.4	25	1.2	33	1.4	26	1.2

Note: Availability was scored on the following scale: none (0); low – at experimental level only (1); medium – available to livestock keepers in some locations or production systems (2); or high – widely available to livestock keepers (3). “Number of countries” refers to the countries where the technology is reported to be used (scores 1, 2 or 3). The scores shown are averages for these countries.

Source: Country reports, 2014.

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SECTION E. REPRODUCTIVE AND MOLECULAR BIOTECHNOLOGIES

TABLE A3E10

Availability of semen sexing, *in vitro* fertilization, cloning, genetic modification and transplantation of gonadal tissues for use in goats

Regions and subregions	Semen sexing		<i>In vitro</i> fertilization		Cloning		Genetic modification		Transplantation of gonadal tissue	
	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score
Africa	0		0		0		0		0	
East Africa	0		0		0		0		0	
North and West Africa	0		0		0		0		0	
Southern Africa	0		0		0		0		0	
Asia	2	1.0	5	1.0	4	1.0	3	1.0	0	
Central Asia	0		1	1.0	1	1.0	1	1.0	0	
East Asia	1	1.0	1	1.0	1	1.0	1	1.0	0	
South Asia	0		1	1.0	1	1.0	1	1.0	0	
Southeast Asia	1	1.0	2	1.0	1	1.0	0		0	
Southwest Pacific	1	1.0	1	1.0	1	1.0	1	1.0	1	1.0
Europe and the Caucasus	1	1.0	7	1.0	3	1.0	2	1.0	1	1.0
Latin America and the Caribbean	2	1.0	2	1.5	2	1.0	2	1.5	1	1.0
Caribbean	0		0		0		0		0	
Central America	1	1.0	1	1.0	0		0		0	
South America	1	1.0	1	2.0	2	1.0	2	1.5	1	1.0
North America	0		0		0		0		0	
Near and Middle East	0		0		0		0		0	
World	6	1.0	15	1.1	10	1.0	8	1.1	3	1.0

Note: Availability was scored on the following scale: none (0); low – at experimental level only (1); medium – available to livestock keepers in some locations or production systems (2); or high – widely available to livestock keepers (3). “Number of countries” refers to the countries where the technology is reported to be used (scores 1, 2 or 3). The scores shown are averages for these countries.

Source: Country reports, 2014.

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SECTION E. REPRODUCTIVE AND MOLECULAR BIOTECHNOLOGIES

TABLE A3E11

Availability of AI, embryo transfer, molecular genetic or genomic information and MOET for use in pigs

Regions and subregions	Artificial insemination		Embryo transfer		Molecular genetic or genomic information		Multiple ovulation and embryo transfer	
	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score
Africa	10	1.4	0		1	1.0	0	
East Africa	2	1.0	0		0		0	
North and West Africa	3	1.0	0		0		0	
Southern Africa	5	1.8	0		1	1.0	0	
Asia	9	1.7	4	1.3	5	1.4	4	1.5
Central Asia	1	3.0	1	3.0	0		1	3.0
East Asia	2	2.5	2	1.0	2	1.5	2	1.0
South Asia	2	1.0	0		1	1.0	0	
Southeast Asia	4	1.3	1	1.0	2	1.5	1	1.0
Southwest Pacific	3	2.3	1	1.0	2	2.0	1	1.0
Europe and the Caucasus	28	2.6	10	1.7	17	1.8	8	1.5
Latin America and the Caribbean	12	2.2	3	1.7	2	2.0	2	2.0
Caribbean	5	2.2	0		0		0	
Central America	2	3.0	1	1.0	1	1.0	1	1.0
South America	5	1.8	2	2.0	1	3.0	1	3.0
North America	1	3.0	1	1.0	1	3.0	1	1.0
Near and Middle East	0		0		0		0	
World	63	2.2	19	1.5	28	1.8	16	1.5

Note: Availability was scored on the following scale: none (0); low – at experimental level only (1); medium – available to livestock keepers in some locations or production systems (2); or high – widely available to livestock keepers (3). "Number of countries" refers to the countries where the technology is reported to be used (scores 1, 2 or 3). The scores shown are averages for these countries.

Source: Country reports, 2014.

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TABLE A3E12

Availability of semen sexing, *in vitro* fertilization, cloning, genetic modification and transplantation of gonadal tissues for use in pigs

Regions and subregions	Semen sexing		<i>In vitro</i> fertilization		Cloning		Genetic modification		Transplantation of gonadal tissue	
	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score
Africa	1	1.0	0		0		0		0	
East Africa	0		0		0		0		0	
North and West Africa	0		0		0		0		0	
Southern Africa	1	1.0	0		0		0		0	
Asia	5	1.4	3	1.0	3	1.0	2	1.0	1	1.0
Central Asia	1	3.0	0		0		0		0	
East Asia	2	1.0	2	1.0	2	1.0	2	1.0	1	1.0
South Asia	0		0		0		0		0	
Southeast Asia	2	1.0	1	1.0	1	1.0	0		0	
Southwest Pacific	1	1.0	1	1.0	1	1.0	1	1.0	1	1.0
Europe and the Caucasus	3	1.0	7	1.0	3	1.0	3	1.0	1	1.0
Latin America and the Caribbean	1	1.0	0		0		1	1.0	1	1.0
Caribbean	0		0		0		1	1.0	0	
Central America	0		0		0		0		0	
South America	1	1.0	0		0		0		1	1.0
North America	0		0		0		1	1.0	0	
Near and Middle East	0	0	0	0	0	0	0	0	0	0
World	11	1.2	11	1.0	7	1.0	8	1.0	4	1.0

Note: Availability was scored on the following scale: none (0); low – at experimental level only (1); medium – available to livestock keepers in some locations or production systems (2); or high – widely available to livestock keepers (3). "Number of countries" refers to the countries where the technology is reported to be used (scores 1, 2 or 3). The scores shown are averages for these countries.

Source: Country reports, 2014.

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SECTION E. REPRODUCTIVE AND MOLECULAR BIOTECHNOLOGIES

TABLE A3E13

Availability of AI, embryo transfer, molecular genetic or genomic information and MOET for use in chickens

Regions and subregions	Artificial insemination		Embryo transfer		Molecular genetic or genomic information		Multiple ovulation and embryo transfer	
	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score
Africa	3	1.0	0		2	1.0	0	
East Africa	2	1.0	0		1	1.0	0	
North and West Africa	1	1.0	0		1	1.0	0	
Southern Africa	0		0		0		0	
Asia	10	1.2	2	1.0	8	1.5	2	1.0
Central Asia	2	1.0	0		1	2.0	0	
East Asia	2	1.5	1	1.0	2	2.0	1	1.0
South Asia	3	1.3	0		3	1.0	0	
Southeast Asia	3	1.0	1	1.0	2	1.5	1	1.0
Southwest Pacific	0	0.0	0	0.0	0	0.0	0	0.0
Europe and the Caucasus	18	1.5	1	1.0	12	1.6	1	1.0
Latin America and the Caribbean	1	1.0	0		1	1.0	0	
Caribbean	0		0		0		0	
Central America	1	1.0	0		0		0	
South America	0		0		1	1.0	0	
North America	1	3.0	0		1	3.0	0	
Near and Middle East	0		0		1	1.0	0	
World	33	1.4	3	1.0	25	1.5	3	1.0

Note: Availability was scored on the following scale: none (0); low – at experimental level only (1); medium – available to livestock keepers in some locations or production systems (2); or high – widely available to livestock keepers (3). “Number of countries” refers to the countries where the technology is reported to be used (scores 1, 2 or 3). The scores shown are averages for these countries.

Source: Country reports, 2014.

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SECTION E. REPRODUCTIVE AND MOLECULAR BIOTECHNOLOGIES

TABLE A3E14

Availability of semen sexing, *in vitro* fertilization, cloning, genetic modification and transplantation of gonadal tissues for use in chickens

Regions and subregions	Semen sexing		<i>In vitro</i> fertilization		Cloning		Genetic modification		Transplantation of gonadal tissue	
	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score	Number of countries	Average score
Africa	0		0		0		0		0	
East Africa	0		0		0		0		0	
North and West Africa	0		0		0		0		0	
Southern Africa	0		0		0		0		0	
Asia	2	1.0	3	1.0	2	1.0	3	1.0	1	1.0
Central Asia	0		1	1.0	0		1	1.0	0	
East Asia	1	1.0	1	1.0	1	1.0	2	1.0	1	1.0
South Asia	0		0		0		0		0	
Southeast Asia	1	1.0	1	1.0	1	1.0	0		0	
Southwest Pacific	0	0	0	0	0	0	0	0	0	0
Europe and the Caucasus	3	1.0	2	1.0	2	1.0	2	1.0	4	1.0
Latin America and the Caribbean	0		1	1.0	0		0		0	
Caribbean	0		0		0		0		0	
Central America	0		0		0		0		0	
South America	0		1	1.0	0		0		0	
North America	0		0		0		1	1.0	1	2.0
Near and Middle East	0		0		0		0		0	
World	5	1.0	6	1.0	4	1.0	6	1.0	6	1.2

Note: Availability was scored on the following scale: none (0); low – at experimental level only (1); medium – available to livestock keepers in some locations or production systems (2); or high – widely available to livestock keepers (3). "Number of countries" refers to the countries where the technology is reported to be used (scores 1, 2 or 3). The scores shown are averages for these countries.

Source: Country reports, 2014.