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Supplementary data

The following tables summarise residues found in studies where livestock were exposed to contaminants through the diet or capsule dosing. The studies were used to obtain best estimates for transfer factors for the various contaminants. The number of studies was generally insufficient to utilise statistics to analyse the studies except in the case of the elements and mycotoxins.

Table A1 Summary of residue transfer studies for persistent organochlorine pesticides

Contaminant	C_{feed} (mg/kg DM)	Duration (days)	Liver (mg/kg)	Kidney (mg/kg)	Muscle (mg/kg)	Fat (mg/kg)	Milk or Egg (mg/kg)	Ref	Species
DDE	0.6	42				0.371		[1]	Cattle
DDE	3.6	42				2.97		[1]	Cattle
DDE	21.6	42				24.5		[1]	Cattle
DDE	2	28				7.18		[2]	Cattle
DDE	0.62	60				1.91	0.103	[3]	Cattle
DDE	3.1	60				10.26	0.577	[3]	Cattle
DDE	0.1	112				1.19	0.008	[4]	Chicken
DDE	0.5	112				5.68	0.04	[4]	Chicken
DDE	1	112				11.81	0.08	[4]	Chicken
DDE	250	56				657		[5]	Sheep
dieldrin	3.6	42				17.3		[1]	Cattle
dieldrin	0.1	84			0.2	0.4	0.02	[6]	Cattle
dieldrin	0.25	84		0.2	0.2	0.9	0.06	[6]	Cattle
dieldrin	0.75	84		0.2	0.5	1.7	0.11	[6]	Cattle
dieldrin	2.25	84	0.3	0.7	1.3	6.2	0.28	[6]	Cattle
dieldrin	0.1	84		0.1		0.5		[7]	Cattle
dieldrin	0.25	84		0.1		0.9		[7]	Cattle
dieldrin	0.75	84		0.2	0.4	4		[7]	Cattle
dieldrin	2.25	84	0.2	0.7	1	9.7		[7]	Cattle
dieldrin	0.11	21					0.023	[8]	Cattle
dieldrin	0.21	42	0.03	0.062	0.032	0.56	0.053	[8]	Cattle
dieldrin	0.1	84				4.1	0.1	[7]	Chicken
dieldrin	0.25	84				10.2	0.4	[7]	Chicken
dieldrin	0.75	84				35.7	1.2	[7]	Chicken
dieldrin	0.025	112				0.288	0.02	[4]	Chicken
dieldrin	0.125	112				1.64	0.10	[4]	Chicken
dieldrin	0.25	112				3.18	0.20	[4]	Chicken
dieldrin	0.1	84			0.3	0.4		[7]	Pig
dieldrin	0.25	84	0.1		0.3	0.4		[7]	Pig
dieldrin	0.75	84	0.3	0.3	0.7	3		[7]	Pig
dieldrin	2.25	84	0.5	0.2	1.9	5.2		[7]	Pig
dieldrin	0.1	84			0.2	0.1		[7]	Sheep
dieldrin	0.25	84			0.2	0.4		[7]	Sheep
dieldrin	0.75	84			0.2	0.9		[7]	Sheep
dieldrin	2.25	84			0.2	1.9		[7]	Sheep
HCB	0.6	70				3.1		[1]	Cattle
HCB	3.6	70				16.25		[1]	Cattle
HCB	21.6	70				98.5		[1]	Cattle
HCB	2	28				7.35		[2]	Cattle
HCB	0.62	60				2.04	0.098	[3]	Cattle
HCB	3.1	60				11.5	0.47	[3]	Cattle
HCB	0.01	112				0.21	0.02	[4]	Chicken
HCB	0.05	112				0.848	0.05	[4]	Chicken
HCB	0.1	112				1.38	0.1	[4]	Chicken
HCB	0.05	52		0.02		0.66		[9]	Chicken
HCB	0.15	52		0.043		1.8		[9]	Chicken
HCB	0.3	52		0.14		3.2		[9]	Chicken
HCB	0.02	60				0.7		[10]	Chicken
HCB	0.08	60				0.7		[10]	Chicken
HCB	0.7	60				5		[10]	Chicken
HCB	7	60				29		[10]	Chicken
HCB	0.25	98				1.6		[11]	Pig
HCB	0.12	105				1.3		[11]	Pig
HCB	0.3	105				2.3		[11]	Pig
HCB	33	120				330		[12]	Sheep
HCB	100	120	200	200		880		[12]	Sheep
Heptachlor	0.73	406				0.96		[13]	Cattle
Heptachlor	0.47	266				0.7		[13]	Cattle
Heptachlor	0.52	280				0.84		[13]	Cattle
Heptachlor	0.74	322				1.11		[13]	Cattle
Heptachlor	0.02	27					0.0044	[14]	Cattle
Heptachlor	0.4	365				1.54		[14]	Cattle
Heptachlor	0.16	98				0.02		[14]	Cattle
Heptachlor	0.025	112				0.152	0.01	[4]	Chicken
Heptachlor	0.125	112				0.863	0.05	[4]	Chicken
Heptachlor	0.25	112				1.58	0.11	[4]	Chicken
Lindane	20	28	0.34	0.1	0.97	12	0.37	[15]	Cattle
Lindane	60	28	1.1	0.19	1.8	20	1	[15]	Cattle

Contaminant	C_{feed} (mg/kg DM)	Duration (days)	Liver (mg/kg)	Kidney (mg/kg)	Muscle (mg/kg)	Fat (mg/kg)	Milk or Egg (mg/kg)	Ref	Species
Lindane	200	28	4.9	0.72	8.8	158	6	[15]	Cattle
Lindane	17.5	28	0.93	0.02	1	21		[15]	Sheep
Lindane	52.5	28	2.3	0.03	1.9	43		[15]	Sheep
Lindane	175	28	5.6	0.14	9.1	223		[15]	Sheep
Lindane	7	28	0.05		0.11	1.7		[15]	Pig
Lindane	21	28	0.28		0.33	6.3		[15]	Pig
Lindane	70	28	0.54		0.85	17		[15]	Pig
Lindane	1.5	28	0.21	0.14	0.19	2.7	0.35	[15]	Chicken
Lindane	4.5	28	0.71	0.55	0.6	9.7	0.78	[15]	Chicken
Lindane	15	28	2.5	0.95	1.6	29	3.1	[15]	Chicken
Mirex	1	217				1.87	0.08	[16] [17]	Cattle
Mirex	1.06	196				24.8	2.03	[18]	Chicken
Toxaphene	5	224					0.7	[19]	Chicken
Toxaphene	50	224				62	5.0	[19]	Chicken
Toxaphene	100	224					13.9	[19]	Chicken
Toxaphene	20	56					0.36	[20]	Cattle
Toxaphene	60	56				8.4	0.75	[20]	Cattle
Toxaphene	100	56				14.3	1.15	[20]	Cattle
Toxaphene	140	56				24.3	1.89	[20]	Cattle

Table A2 Summary of residue transfer studies for other organic compounds

Contaminant	C_{feed} (mg/kg DM)	Duration (days)	Liver (mg/kg)	Kidney (mg/kg)	Muscle (mg/kg)	Fat (mg/kg)	Milk or Egg (mg/kg)	Ref	Species
PAH							^{14}C milk TF BAP 0.002 TF PHE 0.016 TF pyr 0.019	[21]	Goats
DBP	571**	14				3.13		[22]	Chicken
DBP	1562*	14				9.64		[22]	Pig
DBP	1389*	14				9.42		[22]	Pig
DEHP	571**	14				18.2		[22]	Chicken
DEHP	2381*	14				18.17		[22]	Pig
DEHP	2906*	14				20.03		[22]	Pig
DEHP	6	10					0.008	[23]	Cattle
DEHP	18	10					0.030	[23]	Cattle
Dioxin	5.83					30.8	33.5 (=1.34 whole)	[24]	Cattle
Dioxin	1.97	28					7.78 (=0.31 whole)	[25]	Cattle
Dioxin	3.3						16.7 (=1.39 whole egg)	[26] [27]	Chicken
Dioxin	30.4						223.3 (=18.6 whole egg)	[27]	Chicken
Dioxins	0.2	56				1.35	1.35 (=0.11 whole egg)	[28]	Chicken
Dioxins	0.3	56				2.26	2.75 (=0.23 whole egg)	[28]	Chicken
Dioxins	0.4	56				2.99	3.42 (=0.285 whole egg)	[28]	Chicken
Dioxin	0.97	56				6.11	8.65 (=0.72 whole egg)	[28]	Chicken
Dioxin	2.04	56				17.9	20.26 (=1.69 whole egg)	[28]	Chicken
Dioxin	4					21.2		[29]	Chicken
Dioxin	0.95	70				21.12	12.03 (=1 whole)	[30]	Chicken
Dioxin	1	77				3.23		[31]	Pig
Dioxin	10	77				37.1		[31]	Pig
Dioxin	100	77				193		[31]	Pig
Dioxin	0.59	77			0.455			[32]	Pig
Dioxin	2.09	77			1.07			[32]	Pig
Dioxin	3.89	77			1.55			[32]	Pig
Dioxin	8.4	56				21.6		[33]	Pig
PBBs	20	112				64.04		[34]	Pig
PBBs	200	112				502.79		[34]	Pig
PBBs	1	35				3.65	1.50	[35]	Chicken
PBB	5	35				16.1	7.65	[35]	Chicken
PBB	25	35				71.3	39	[35]	Chicken

Contaminant	C_{feed} (mg/kg DM)	Duration (days)	Liver (mg/kg)	Kidney (mg/kg)	Muscle (mg/kg)	Fat (mg/kg)	Milk or Egg (mg/kg)	Ref	Species
PBB	0.7	60					3.1 (=0.12 whole)	[36]	Cattle
PBB	3.3	84				15.8		[37]	Cattle
PBB	33	84				58.8		[37]	Cattle
PBB	1	158					0.29	[37]	Cattle
PBB	10	158					2.35	[37]	Cattle
PCBs	13***	60				16.6	23.9 (=0.96 whole)	[38]	Cattle
PCBs	1102 ng/kg	105				4700 ng/kg	3900 ng/kg (=148 whole)	[39]	Cattle
PCBs	200	35				305.2		[40]	Lamb
PCBs	3	42				26.3		[41]	Chicken
PCBs	12	42				105.5		[41]	Chicken
PCBs	1.5						16.6 yolk fat	[42]	Chicken
PCBs	6						51.9 yolk fat	[42]	Chicken
PCBs (Arochlor 1254)	500	84				10977		[43]	Chicken
PCBs	200	35				121		[40]	Pig
PCBs	1.5	42				6.8		[44]	Pig
PCBs	6	42				20.5		[44]	Pig
PCBs (Arochlor 1232)	250	84	8.0		4.0	87.2		[45]	Pig
PCBs (Arochlor 1242)	250	84	5.8		3.2	147.4		[45]	Pig
PCBs (Arochlor 1254)	250	84	5.9		5.9	226.2		[45]	Pig
PBDE	3.4	70				3.71	2.826 (=0.2355 whole)	[30]	Chicken
PBDE	0.377 µg/kg					1.706 µg/kg	2.661 µg/kg (=0.106 whole)	[46]	Cattle
Chlorinated paraffins (C10-C13)	1.6	56				0.74	0.14 yolk (=0.05 whole)	[47]	Chicken
Chlorinated paraffins (C10-C13)	12.3	56				2.02	1.00 yolk (=0.33 whole)	[47]	Chicken
Chlorinated paraffins (C10-C13)	37.9	56				4.25	1.98 yolk (=0.66 whole)	[47]	Chicken
Chlorinated paraffins (C10-C13)	56	56				7.92	4.43 yolk (=1.5 whole)	[47]	Chicken
Chlorinated paraffins (C10-C13)	77	56				11.1	6.37 yolk (=2.1 whole)	[47]	Chicken
Mineral hydrocarbon	100					25		[48]	Cattle
Mineral hydrocarbon	100						30 (=2.5 whole)	[48]	Chicken
PFOS	10	147	88.5				62 yolk (=21 whole)	[49]	Quail
PFOS	10	147	60.9				52.8 yolk (=17.6 whole)	[49]	Duck
PFBS	100	147	3.25				14.0	[50]	Quail
	300		9.49				31.4		
	900		22.65				92.6		
Acrylamide	0.671	28		0.0277			0.0172	[51]	Chicken
Acrylamide	2.472	30					0.112 DW	[52]	Quail
Acrylamide	100	10					0.175	[53]	Cattle
Melamine	100	28	0.74	0.91				[54]	Chicken
Melamine	200	28	0.75	1.28	0.43			[54]	Chicken
Melamine	500	28	1.5	2.8	0.90			[54]	Chicken
Melamine	1000	28	2.62	6.2	1.89			[54]	Chicken
Melamine	100	34	0.5±0.1	1.3±0.2	0.4±0.1		1.4±0.1	[55]	Chicken
Melamine	5	15					0.25	[56]	Chicken
Melamine	25	15					0.60	[56]	Chicken
Melamine	50	15					0.95	[56]	Chicken
Melamine	100	15					1.93	[56]	Chicken
Melamine	100	7	0.087	0.137	0.11		1.36	[57][58]	Duck

Contaminant	C_{feed} (mg/kg DM)	Duration (days)	Liver (mg/kg)	Kidney (mg/kg)	Muscle (mg/kg)	Fat (mg/kg)	Milk or Egg (mg/kg)	Ref	Species
Melamine	100	14	0.108	0.177	0.127		1.11	[57][58]	Duck
Melamine	100	21	0.090	0.083	0.063		1.15	[57][58]	Duck
Melamine	2	60	0.021	0.032	0.022			[59]	Sheep
Melamine	10	60	0.065	0.117	0.049			[59]	Sheep
Melamine	30	60	0.154	0.329	0.131			[59]	Sheep
Melamine	100	60	0.412	0.818	0.374			[59]	Sheep
Melamine	30	42	0.25	0.53				[60]	Pig
Melamine	100	42	0.98	1.91				[60]	Pig
Melamine	6	13					0.041	[61]	Cattle
Melamine	18	13					0.093	[61]	Cattle
Melamine	30	13					0.154	[61]	Cattle

*pigs were adminstered 5 g DEHP or DBP per day. The estimated values for C_{feed} assume a feed intake of 4% of liveweight.

**chickens were adminstered 100 mg DEHP or DBP per day by gelatine capsule. The estimated values for C_{feed} assume a feed intake of 175 g/day, a feed intake that is appropriate for birds at a slaughter weight of 1.65 kg.

***cows dosed at 200 mg/d, assuming feed intake of 15 kg/d = 13 mg/kg feed.

**** egg residues expressed on a fat basis were converted to whole egg basis by dividing by 12. For milk, residues expressed on a milkfat basis were converted to a whole milk basis by multiplying by the reported fraction of fat or if none was reported by 0.04.

Table A3 Summary of transfer factors for elements

Element	Species	Tissue	Mean TF	Range	SD	N
Al	Cattle	Liver	0.013	0.0001-0.011	0.022	12
		Kidney	0.0071	0.00011-0.021	0.0070	10
		Muscle	0.0069	0.0012-0.018	0.0059	6
		Fat	0.0063	0.00038-0.018	0.0080	4
	Chicken	Muscle	0.041	0.012-0.070	-	2
		Egg	0.019	0.0036-0.046	0.024	3
	Sheep	Liver	0.050	0.0031-0.37	0.011	11
		Kidney	0.013	0.0019-0.087	0.025	11
		Muscle	0.023	0.0019-0.097	0.037	6
As	Cattle	Liver	0.11	0.032-0.17	0.058	4
		Kidney	0.20	0.090-0.42	0.15	4
		Muscle	0.091	0.032-0.20	0.095	3
		Fat	0.13	0.072-0.19	-	2
	Quail	Liver	0.0037	0.0034-0.0042	-	2
		Kidney	0.0067	0.0058-0.0075	-	2
		Muscle	0.0017	0.0017-0.0023	-	2
Ba	Cattle	Liver	0.072	0.0069-0.17	0.069	4
		Kidney	0.055	0.0099-0.10	-	2
		Fat	0.042	0.010-0.094	0.037	4
		Milk	0.013**			
Cd	Cattle	Liver	0.53	0.031-3.6	0.72	28
		Kidney	2.91	0.068-11	2.8	26
		Muscle	0.048	0.00047-0.3	0.079	20
		Fat	0.030	0.024-0.037	0.0069	4
		Milk	0.57	0.0007-2.3	0.80	14
	Chicken	Liver	1.4	0.27-5.7	1.7	12
		Kidney	8.2	0.46-30	10	12
		Muscle	0.065	0.0047-0.20	0.064	11
		Egg	0.079	0.00068-0.41	0.13	11
	Goat	Liver	0.14	0.14-0.14	0.0037	3
		Kidney	0.74	0.64-0.93	0.16	3
		Muscle	0.0019	0.00011-0.0038	-	2
		Fat	-	0.0023	-	1
		Milk	0.80	0.72-0.88	-	2
	Quail	Liver	0.86	0.037-2.0	0.74	8
		Kidney	4.8	0.073-13	5.1	8
		Muscle	0.048	0-0.20	0.071	8
		Egg	0.012	0-0.043	0.021	4
	Sheep	Liver	0.36	0.025-3.5	0.59	76
		Kidney	1.2	0.041-11	2.0	73
		Muscle	0.049	0.0057-0.24	0.086	7
		Fat	0.011	0.0007-0.05	0.022	5
	Pig	Liver	0.46	0.0053-1.95	0.47	27
		Kidney	1.6	0.030-4.2	1.3	20
		Muscle	0.042	0-0.30	0.090	11
Co	Cattle	Liver	1.3	0.075-5.9	2.1	9
		Kidney	0.10	0.033-0.22	0.084	4
		Muscle	0.40	0.023-0.78	-	2
		Fat	0.056	0.027-0.095	0.031	4
		Milk	0.10	0.0035-0.24	0.091	5
	Sheep	Liver	0.077	0.0063-0.38	0.12	12
		Kidney	0.15	0.0013-1.1	0.33	12
		Muscle	0.025	0.00037-0.18	0.056	12
	Pig	Liver	0.0075	0.0053-0.010	0.0027	3
		Kidney	0.020	0.015-0.025	0.0050	3
Cr	Cattle	Liver	0.055	0.018-0.099	0.034	4
		Kidney	0.042	0.033-0.051	-	2
		Fat	0.036	0.018-0.067	0.023	4
		Milk	0.04**			
	Chicken	Liver	-	0.076	-	1
	Pig	Liver	0.0036	0.00053-0.0097	0.0036	7
		Kidney	0.0071	0.0022-0.019	0.0059	7
		Muscle	0.0085	0.0036-0.014	0.0038	5
Cu	Cattle	Liver	2.4	0.13-9.7	2.4	20
		Kidney	0.38	0.021-1.3	0.44	10
		Muscle	0.071	0.0036-0.22	0.092	6
		Fat	0.057	0.00076-0.19	0.086	4
		Milk	0.031	0.0071-0.054		2
	Chicken	Liver	0.15	0.011-0.48	0.15	22
		Kidney	0.051	0.0092-0.41	0.11	13

Element	Species	Tissue	Mean TF	Range	SD	N
	Sheep	Liver	5.0	0.20-13	4.5	11
		Kidney	0.25	0.027-0.45	0.20	9
		Muscle	0.11	0.0069-0.21	0.089	7
	Pig	Liver	0.58	0.035-3.0	0.92	27
		Kidney	0.28	0.019-1.0	0.29	27
		Muscle	0.015	0.00096-0.045	0.015	24
F	Cattle	Liver	0.027	0.018-0.034	0.0079	4
		Kidney	0.098	0.089-0.11	0.0076	4
	Pig	Liver	0.016	0.0079-0.024	-	2
		Kidney	0.021	0.011-0.031	-	2
	Chicken	Liver	0.037	0.0031-0.080	0.029	6
		Kidney	0.022	0.0052-0.052	0.026	3
		Muscle	0.017	0.015-0.020	0.0027	3
		Egg	0.0070	0.0040-0.010	0.0030	3
	Pig	Liver	0.017	0.0079-0.024	-	2
		Kidney	0.021	0.011-0.031	-	2
Hg	Cattle	Liver	0.21	0.026-0.63	0.21	14
		Kidney	0.89	0.05-6.3	1.6	14
		Muscle	0.098	0.0023-0.27	0.11	10
		Milk	0.052	0.0071-0.21	0.065	8
	Chicken	Liver	0.075	0.059-0.096	0.011	10
		Kidney	0.062	0.046-0.074	0.0089	10
	Sheep	Liver	0.37	0.14-0.8	0.30	6
		Kidney	4.6	0.98-12	4.6	6
		Muscle	0.034	0.0037-0.10	0.038	6
La	Cattle	Liver	0.028	0.013-0.05	0.017	4
		Kidney	0.025	0.019-0.032	-	2
		Fat	0.021	0.0059-0.042	0.015	4
Mn	Cattle	Liver	0.17	0.0031-0.63	0.17	25
		Kidney	0.026	0.0012-0.091	0.029	9
		Muscle	0.0062	0.00056-0.020	0.0064	10
		Fat	0.00087	0.0004-0.0023	0.00098	4
		Milk	0.0027	0.0015-0.0039		2
	Chicken	Liver	0.0050	0.0012-0.025	0.0071	10
		Muscle	0.00041	0.00011-0.00033	0.00058	10
	Sheep	Liver	0.017	0.0020-0.079	0.024	31
		Kidney	0.0073	0.00084-0.037	0.010	31
		Muscle	0.0015	0.00004-0.0055	0.0022	10
	Pig	Liver	0.026	0.024-0.028	0.0016	5
		Kidney	0.021	0.020-0.022	0.00089	5
		Muscle	0.00096	0.00078-0.0010	0.00019	5
Mo	Cattle	Liver	0.35	0.17-0.71	0.19	6
		Kidney	0.080	0.020-0.20	0.084	4
		Muscle		0.029	-	1
		Fat	0.019	0.0053-0.047	0.017	5
		Milk	0.092	0.092		1
	Sheep	Liver	0.070	0.042-0.093	0.019	10
		Kidney	0.069	0.035-0.23	0.061	10
		Muscle	0.0042	0.0026-0.0054	0.00096	9
Ni	Cattle	Liver	0.13	0.00013-0.81	0.23	16
		Kidney	0.087	0.0023-0.52	0.15	14
		Muscle	0.025	0.0026-0.079	0.026	8
		Fat	0.16	0.095-0.22	0.052	4
		Milk	0.082**			
	Chicken	Liver	0.0015	0.0012-0.0023	0.00043	5
		Kidney	0.013	0.010-0.015	0.0019	5
		Muscle	0.0013	0.00086-0.0024	0.00068	5
	Quail	Liver	0.056	0.042-0.074	0.017	4
		Kidney	0.13	0.085-0.17	0.040	4
	Pig	Liver	0.11	0.071-0.15	-	2
		Kidney	0.32	0.30-0.33	-	2
		Fat	0.13	0.085-0.18	-	2
Pb	Cattle	Liver	0.046	0.011-0.12	0.030	19
		Kidney	0.12	0.014-0.38	0.11	17
		Muscle	0.020	0.00078-0.10	0.036	7
		Fat	0.050	0.0017-0.21	0.083	6
		Milk	0.0024**			
	Chicken	Liver	-	0.018	-	1
		Kidney	-	0.024	-	1
	Sheep	Liver	0.028	0.0034-0.096	0.033	7
		Kidney	0.048	0.012-0.086	0.026	7
		Muscle	0.010	0.00012-0.048	0.018	7
	Pig	Liver	0.027	0.0053-0.10	0.030	10
		Kidney	0.020	0.0018-0.10	0.035	7

Element	Species	Tissue	Mean TF	Range	SD	N
		Muscle		0.0059		1
Sb	Cattle	Liver	0.15	0.053-0.33	0.12	4
		Kidney	0.18	0.064-0.47	0.19	4
		Muscle	0.18	0.092-0.27	-	2
		Fat	0.11	0.070-0.15	0.036	4
		Milk	0.0027**			
Sc	Cattle	Liver	0.0072	0.00052-0.013	0.0063	4
		Kidney	0.0067	0.0027-0.011	-	2
		Fat	0.0049	0.00033-0.015	0.0065	4
Se	Cattle	Liver	1.3	0.62-2.5	0.57	12
		Kidney	5.6	0.58-29	8.2	11
		Muscle	0.57	0.16-1.5	0.42	11
		Fat	0.225	0.10-0.35	-	2
		Milk	0.12	0.076-0.19	0.034	15
	Chicken	Liver	1.9	0.6-4.3	1.2	20
		Kidney	2.4	0.68-5.6	1.5	14
		Muscle	0.7	0.13-2.4	0.60	14
		Egg	0.75	0.25-2.5	0.40	39
	Sheep	Liver	0.90	0.15-2.0	1.1	15
		Kidney	0.81	0.39-2.5	0.58	15
		Muscle	0.19	0.0023-0.72	0.28	15
	Pig	Liver	2.0	0.42-5.7	1.7	18
		Kidney	8.3	0.42-36	11	18
		Muscle	0.72	0.016-2.1	0.61	20
Sn	Cattle	Liver	0.094	0.022-0.19	0.076	4
		Kidney	0.065	0.027-0.10	-	2
		Fat	0.064	0.0056-0.19	0.086	4
Sr	Cattle	Liver	0.041	0.022-0.060	0.020	4
		Kidney	0.031	0.029-0.033	-	2
		Fat	0.011	0.0072-0.018	0.0051	4
		Milk	0.023**			
Ti	Cattle	Liver	0.015	0.0040-0.038	0.016	4
		Kidney	0.024	0.0070-0.041	-	2
		Fat	0.011	0.0030-0.019	0.0076	4
V	Cattle	Liver	0.021	0.0013-0.091	0.039	5
		Kidney	0.031	0.0084-0.065	0.030	3
		Muscle		0.058	-	1
		Fat	0.0062	0.00068-0.014	0.0060	4
	Sheep	Liver	0.014	0.0010-0.018	0.0042	3
	Pig	Liver	0.0019	0.0017-0.0022	-	2
		Kidney	0.0033	0.0024-0.0041	-	2
W	Cattle	Liver	0.13	0.10-0.16	0.026	4
		Kidney	0.081	0.051-0.11	-	2
		Fat	0.12	0.11-0.13	-	2
Zn	Cattle	Liver	1.3	0.14-4.8	1.3	28
		Kidney	0.44	0.085-0.88	0.30	11
		Muscle	1.3	0.29-3.9	1.4	9
		Fat	0.07	0.0050-0.22	0.087	6
		Milk	0.049	0.047-0.050	0.0015	3
	Chicken	Liver	0.38	0.021-2.0	0.41	43
		Kidney	0.38	0.021-2.1	0.44	34
	Duck	Liver	0.073	0.028-0.13	0.045	4
		Kidney	0.073	0.034-0.14	0.047	4
		Muscle	0.0055	0.0026-0.011	0.0036	4
	Sheep	Liver	0.73	0.020-1.9	0.62	16
		Kidney	0.69	0.067-1.9	0.47	13
		Muscle	0.62	0.30-0.92	0.35	4
	Pig	Liver	0.26	0.0003-1.6	0.36	29
		Kidney	0.074	0.00016-0.51	0.14	29
		Muscle	0.046	0.00006-0.20	0.085	9

**Howard BJ, Beresford NA, Barnett CL, Fesenko S (2009) Quantifying the transfer of radionuclides to food products from domestic farm animals. *Journal of Environmental Radiation* 100, 767-773.

In the tables that follow for chemical elements the following codes are used for the type (source) of the element incorporated into the diet:

1 = base ration, feedlot waste, water treatment residual or sludge amended diet
2 = souble inorganic salt
3 = soluble organic complex
4 = oxides, phosphates, zeolite, sand.

Table A4 Summary of residue transfer studies for aluminium

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Al	117000	39	8750	1850				[62]	Cattle	1
Al	186900	93	2080			1080		[63]	Cattle	1
Al	186900	98	170	1895		3320		[63]	Cattle	1
Al	210000	84	7600	4500	3800			[64]	Cattle	2
Al	221000	106	1110	840	1170			[65]	Cattle	1
Al	510000	84	5700	4100	3900			[64]	Cattle	2
Al	910000	84	10000	6000	5400			[64]	Cattle	2
Al	1410000	84	11200	5400	4700			[64]	Cattle	2
Al	1650000	106	840	820	2040			[65]	Cattle	1
Al	2334000	93	1912			896		[63]	Cattle	1
Al	2334000	98	2030	1925		2776		[63]	Cattle	1
Al	130325000	39	16250	13850				[62]	Cattle	4
Al	14830	40			1044			[66]	Chicken	2
Al	260000	119					11900	[67]	Chicken	1
Al	1760000	119					11600	[67]	Chicken	2
Al	3260000	119					11800	[67]	Chicken	2
Al	162000	40			1878			[66]	Chicken	2
Al	168000	6	2640	2370	2330			[68]	Sheep	2
Al	370000	100	135750	32500	36000			[70]	Sheep	1
Al	910000	111	15400	7200				[69]	Sheep	4
Al	2168000	6	6700	4660	4080			[68]	Sheep	2
Al	2270000	111	16700	7100				[69]	Sheep	1
Al	2320000	111	22300	9400				[69]	Sheep	2
Al	3000000	100	152000	26500	25800			[70]	Sheep	1
Al	3100000	100	171500	30250	42300			[70]	Sheep	2
Al	3970000	111	20900	7500				[69]	Sheep	1
Al	7860000	111	25300	5400				[69]	Sheep	1
Al	12000000	100	149000	35250	31500			[70]	Sheep	1

Table A5 Summary of residue transfer studies for arsenic

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
As	0	93	15.6			8.8		[63]	Cattle	1
As	0	98		16.5		21.6		[63]	Cattle	1
As	30	94	5	12.5	6			[71]	Cattle	1
As	150	94	15	27.5	6			[71]	Cattle	1
As	201	98		18.5		37.6		[63]	Cattle	1
As	210	93	28.8			15.2		[63]	Cattle	1
As	470	94	15	42.5	15			[71]	Cattle	1
As	370	30	95	95	18			[72]	Quail	2
As	50370	30	202	1510	117			[72]	Quail	2
As	100370	30	338	585	174			[72]	Quail	2

Table A6 Summary of residue transfer studies for barium

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Ba	4130	93	185			157.6		[63]	Cattle	1
Ba	4130	98	695	412.5		389.6		[63]	Cattle	1
Ba	5140	93	355			129.6		[63]	Cattle	1
Ba	51400	98	352.5	507.5		528.8		[63]	Cattle	1

Table A7 Summary of residue transfer studies for cadmium

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Cd	25	94	50	275				[71]	Cattle	1
Cd	100	840	60	300	2		150	[73]	Cattle	1
Cd	100	840	60	300	2		150	[73]	Cattle	1
Cd	100	840	60	300	2		150	[73]	Cattle	1
Cd	111.11	120	65	270	5		260	[73]	Cattle	1
Cd	140	106	47.5	297.5				[74]	Cattle	1
Cd	178	84	640	1350	54			[75]	Cattle	1
Cd	250	394	115	652.5	18		3.38	[76]	Cattle	1
Cd	250	554	120	737.5	54		4.16	[76]	Cattle	1
Cd	265.7	840	100	430	3		200	[73]	Cattle	1
Cd	476.2	840	160	1670	4		100	[73]	Cattle	1
Cd	650	94	125	625				[71]	Cattle	1
Cd	770	106	80	310	20			[65]	Cattle	1
Cd	1000	394	580	4988	42		3.9	[76]	Cattle	2
Cd	1000	554	507.5	4688	117		4.42	[76]	Cattle	2
Cd	1600	840	1500	6080	7		200	[73]	Cattle	1
Cd	1900	94	100	600				[71]	Cattle	1
Cd	2410	84	730	3580	64			[75]	Cattle	2
Cd	5000	394	3145	40158	69		3.51	[76]	Cattle	2
Cd	5000	554	3602	33042	72		4.94	[76]	Cattle	2
Cd	5040	93	347			187		[77]	Cattle	1
Cd	5040	98	430	341		180		[77]	Cattle	1
Cd	8420	93	265			205		[77]	Cattle	1
Cd	8420	98	308	164		207		[77]	Cattle	1
Cd	8444.4	120	1240	2250	4		390	[73]	Cattle	1
Cd	10600	106	1230	3638	9			[74]	Cattle	1
Cd	11350	84	3210	8830	18			[75]	Cattle	2
Cd	12300	106	1500	2000	30			[65]	Cattle	1
Cd	70	84	400	2125			12.5	[78]	Chicken	2
Cd	210	14	57.5	97.5	21			[78]	Chicken	2
Cd	220	1344	748	4275	36		40	[78]	Chicken	2
Cd	320	168			63		130	[79]	Chicken	2
Cd	1880	168			140		130	[79]	Chicken	2
Cd	3070	84	2250	7700			20	[78]	Chicken	2
Cd	3210	14	1188	2318	45			[78]	Chicken	2
Cd	3220	1344	8368	68475	171		32.5	[78]	Chicken	2
Cd	12070	84	6625	23150			17.5	[78]	Chicken	2
Cd	12210	14	3782	12422	78			[78]	Chicken	2
Cd	12220	1344	10455	177075	498		35	[78]	Chicken	2
Cd	13060	168			263		150	[79]	Chicken	2
Cd	48070	84	22950	91475			32.5	[78]	Chicken	2
Cd	48210	14	21798	59768	225			[78]	Chicken	2
Cd	48220	1344	50885	135175	1938		55	[78]	Chicken	2
Cd		10	558	4990	52			[80]	Chicken	1
Cd	0	125	362.5	537.5	24	24		[81]	Goat	1
Cd	2000	63					1440	[82]	Goat	2
Cd	4000	84					3540	[82]	Goat	2
Cd	10400	125	1405	6808	39	24		[81]	Goat	2
Cd	18000	125	2562	10682				[81]	Goat	2
Cd	28500	125	3992	18250	3			[81]	Goat	2
Cd	60	91	62.5	375	12			[83]	Quail	1
Cd	60	91	97.5	810	6		2.6	[83]	Quail	1
Cd	60	182	32.5	65				[83]	Quail	1
Cd	60	182	20	50				[83]	Quail	1
Cd	820	91	997.5	5125	39			[83]	Quail	1
Cd	820	91	1658	8550	33		5.2	[83]	Quail	1
Cd	820	182	52.5	77.5				[83]	Quail	1
Cd	820	182	30	60				[83]	Quail	1
Cd	0	0	10	20				[84]	Sheep	1
Cd	0	0	10	20				[84]	Sheep	1
Cd	0	0	12.5	12.5				[85]	Sheep	1
Cd	0	0	12.5	12.5				[85]	Sheep	1
Cd	0	115	10	20				[84]	Sheep	1
Cd	10	106	72.5	522.5				[86]	Sheep	1
Cd	20	274	300	1350	1.5			[87]	Sheep	1
Cd	40	112	130	195				[86]	Sheep	1
Cd	60	102	22.5	80				[91]	Sheep	1
Cd	60	102	22.5	70				[91]	Sheep	1
Cd	80	59	7.5	29.25				[84]	Sheep	1
Cd	80	115	15.75	44.25				[84]	Sheep	1
Cd	80	225	75	727.5				[89]	Sheep	1
Cd	100	77	10	37.5				[92]	Sheep	1

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Cd	110	84	20	17.5				[85]	Sheep	1
Cd	110	84	20	17.5				[85]	Sheep	1
Cd	110	152	55	137.5				[93]	Sheep	1
Cd	134	84	18	17.5				[85]	Sheep	1
Cd	140	0	7.5	31				[85]	Sheep	1
Cd	140	115	10	49.5				[84]	Sheep	1
Cd	180	59	10	45.25				[84]	Sheep	1
Cd	180	115	7.5	46				[84]	Sheep	1
Cd	187	84	15.25	17.5				[85]	Sheep	1
Cd	200	400	422.5	1105	14.1	8		[94]	Sheep	2
Cd	200	730	150	775				[88]	Sheep	1
Cd	200	1460	5	700				[95]	Sheep	1
Cd	220	59	36	52.3				[84]	Sheep	1
Cd	220	115	22.7	90.8				[84]	Sheep	1
Cd	230	59	31.8	50.8				[84]	Sheep	1
Cd	230	59	21.8	45.5				[84]	Sheep	1
Cd	230	115	20.3	65				[84]	Sheep	1
Cd	230	115	10	77				[84]	Sheep	1
Cd	260	66	17.5	85				[90]	Sheep	1
Cd	300	730	125	600				[88]	Sheep	1
Cd	310	333	29.8	440				[96]	Sheep	1
Cd	350	59	81.3	90.3				[84]	Sheep	1
Cd	350	115	98.3	166				[84]	Sheep	1
Cd	360	59	71.8	78.3				[84]	Sheep	1
Cd	360	59	58.5	80				[84]	Sheep	1
Cd	360	115	73.8	138				[84]	Sheep	1
Cd	360	115	93.5	116				[84]	Sheep	1
Cd	373	84	61.3	65				[85]	Sheep	1
Cd	410	274	1450	4625	3			[87]	Sheep	1
Cd	441	66	42.5	107.5				[90]	Sheep	1
Cd	491	84	47.8	75.3				[85]	Sheep	1
Cd	500	730	200	925				[88]	Sheep	1
Cd	500	1460	368	875				[95]	Sheep	1
Cd	590	102	205	345				[97]	Sheep	1
Cd	600	137	172.5					[98]	Sheep	1
Cd	600	365	112.5					[98]	Sheep	1
Cd	630	59	89.25	85.5				[84]	Sheep	1
Cd	630	59	106	96.5				[84]	Sheep	1
Cd	630	115	167	236				[84]	Sheep	1
Cd	630	115	126	148				[84]	Sheep	1
Cd	640	59	62	104				[84]	Sheep	1
Cd	640	115	168	217				[84]	Sheep	1
Cd	696	84	101	123				[85]	Sheep	1
Cd	700	130	238	1200				[99]	Sheep	1
Cd	710	102	95	235				[91]	Sheep	1
Cd	710	102	115	305				[91]	Sheep	1
Cd	773	84	54.5	86				[85]	Sheep	1
Cd	920	225	798	4460				[89]	Sheep	1
Cd	950	152	100	208				[93]	Sheep	1
Cd	1000	102	265	475				[97]	Sheep	1
Cd	1040	84	125	182				[85]	Sheep	1
Cd	1150	112	283	675				[97]	Sheep	1
Cd	1370	102	328	778				[97]	Sheep	1
Cd	1500	77	19	63				[92]	Sheep	1
Cd	1610	106	493	1268				[97]	Sheep	1
Cd	2270	112	630	1828				[97]	Sheep	1
Cd	2330	106	890	272				[97]	Sheep	1
Cd	3400	333	1018	4525				[96]	Sheep	2
Cd	3500	130	502	1925				[99]	Sheep	2
Cd	3560	106	1322	474				[97]	Sheep	1
Cd	4230	112	895	2548				[97]	Sheep	1
Cd	5000	191	3730	14715	14.1	8		[94]	Sheep	2
Cd	6000	365	492					[98]	Sheep	1
Cd	6400	333	2278	11500				[96]	Sheep	2
Cd	7100	130	875	4275				[99]	Sheep	2
Cd	12300	130	2800	7525				[99]	Sheep	2
Cd	15000	191	12930	46905	27.3	9.6		[94]	Sheep	2
Cd	30000	191	15682	106702	51	16.8		[94]	Sheep	2
Cd	60000	191	68985	192210	128.4	90.4		[94]	Sheep	2
Cd	0	191	422.5	1105	7.5	8.8		[94]	Sheep	2
Cd	20	102	140	392.5				[94]	Sheep	1
Cd	0	137	25	10				[100]	pig	2
Cd	1	126.5	300	390				[101]	pig	2

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Cd	41.2	150		67.8				[102]	pig	1
Cd	41.2	150		74.5				[102]	pig	1
Cd	80	93	32.5	160	6			[103]	pig	1
Cd	120	40						[104]	pig	1
Cd	230	42	450		70			[105]	pig	1
Cd	230	84	150					[105]	pig	1
Cd	230	168	180					[105]	pig	1
Cd	240	93	52.5	375	6			[103]	pig	1
Cd	360	40						[104]	pig	2
Cd	470	129.5	300	1230				[101]	pig	2
Cd	500	137	30	120				[100]	pig	2
Cd	610	123	300	1130				[101]	pig	4
Cd	860	131.4	380	2170				[101]	pig	3
Cd	1000	137	75	420				[100]	pig	3
Cd	1000	182	18	30.3				[100]	pig	3
Cd	1000	182	72.3	292				[100]	pig	3
Cd	1200	132	350	1680				[101]	pig	4
Cd	2270	133	940	5730				[101]	pig	2
Cd	2410	42	520		30			[105]	pig	2
Cd	2410	84	1040		30			[105]	pig	2
Cd	2410	168	1460		30			[105]	pig	2
Cd	2410	180	400	10970				[79]	pig	2
Cd	2500	137	175	580				[100]	pig	2
Cd	4460	128.5	2010	12250				[101]	pig	2
Cd	10120	42	4240		110			[105]	pig	2
Cd	10120	84	5010		40			[105]	pig	2
Cd	10120	168	10290		40			[105]	pig	2
Cd	10120	180	17000	42300				[79]	pig	2
Cd	78600	40	3245	15488				[104]	pig	2
Cd	147300	40	787.5	5872.5	0			[104]	pig	1
Cd	230	180	70	210				[79]	pig	2

Table A8 Summary of residue transfer studies for cobalt

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Co	90	106	47	20	70			[65]	cattle	1
Co	190	28					10	[107]	cattle	1
Co	370	141	2190				89	[106]	cattle	1
Co	430	106	77	41	10			[65]	cattle	1
Co	680	141	2500				93	[106]	cattle	1
Co	950	93	104			32.8		[77]	cattle	1
Co	950	98	239	55		90		[77]	cattle	1
Co	1260	141	1280				90	[106]	cattle	1
Co	1380	93	103			37.6		[77]	cattle	1
Co	1380	98	130	45		92		[77]	cattle	1
Co	3400	28					12	[107]	cattle	1
Co	150	20	57.5	60	15.6			[108]	sheep	1
Co	170	60	50	192	30			[109]	sheep	1
Co	20150	20	552	580	38.7			[108]	sheep	2
Co	20170	60	935	818	42			[109]	sheep	2
Co	40150	20	642	1002	53			[108]	sheep	2
Co	40150	20	615	628	33			[108]	sheep	4
Co	40150	20	252	300	19.5			[108]	sheep	4
Co	40150	20	85	55	14.7			[108]	sheep	4
Co	40150	20	1238	938	58.8			[108]	sheep	2
Co	40150	20	955	922	36.6			[108]	sheep	2
Co	40170	60	1832	1208	78			[109]	sheep	2
Co	60150	20	1665	1628	156			[109]	sheep	2
Co	0	84	290	97.5				[110]	pig	1
Co	200000	84	2100	4180				[110]	pig	2
Co	400000	84	2712	9932				[110]	pig	2
Co	600000	84	3180	8972				[110]	pig	2

Table A9 Summary of residue transfer studies for chromium (Cr(III) salts)

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Cr	1860	93	185			34		[77]	cattle	1
Cr	1860	98	108	95		125		[77]	cattle	1
Cr	2240	93	100			45		[77]	cattle	1
Cr	2240	98	39	73		86		[77]	cattle	1
Cr	5520	35	420					[111]	chicken	1
Cr	2075	75	3.05	10.6	28.7			[112]	pig	1
Cr	2700	50	20.6	27.2				[113]	pig	1
Cr	3000	50	29	56.9				[113]	pig	3
Cr	6669	75	3.55	19.2	61.6			[112]	pig	3
Cr	6770	75	10.2	26.6	24.6			[112]	pig	3
Cr	6784	75	2.8	46.2	45.4			[112]	pig	3
Cr	7063	75	5.35	15.3	65.6			[112]	pig	3

Table A10 Summary of residue transfer studies for copper

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Cu	3200	94	31000	4250	720			[71]	cattle	1
Cu	6100	126	38750	4900				[114]	cattle	1
Cu	7000	28					380	[107]	cattle	1
Cu	7700	106	31750	5750	1080			[74]	cattle	1
Cu	9800	0	20000					[115]	cattle	2
Cu	9800	56	9000					[115]	cattle	2
Cu	9800	93	43400			1816		[77]	cattle	1
Cu	9800	98	31575			296		[77]	cattle	1
Cu	10200	177	15800		1050			[116]	cattle	1
Cu	11000	60	45250					[117]	cattle	2
Cu	11000	60	38250					[117]	cattle	3
Cu	11000	60	48750					[117]	cattle	2
Cu	11000	60	37000					[117]	cattle	3
Cu	14150	106	35667	4683	585			[65]	cattle	1
Cu	19800	0	22000					[115]	cattle	2
Cu	19800	56	33750					[115]	cattle	2
Cu	24300	126	89250	5250				[114]	cattle	1
Cu	30200	177	72575		1260			[116]	cattle	1
Cu	30200	177	63400		1650			[116]	cattle	3
Cu	30200	177	84775		1110			[116]	cattle	3
Cu	30200	177	61650		1320			[116]	cattle	2
Cu	31000	94	65000	4500				[71]	cattle	1
Cu	40500	126	122000	4525				[114]	cattle	1
Cu	49800	0	18000					[115]	cattle	2
Cu	49800	56	63750					[115]	cattle	2
Cu	50200	177	94900		900			[116]	cattle	2
Cu	75000	28					530	[107]	cattle	1
Cu	86000	60	112000					[117]	cattle	2
Cu	86000	60	107250					[117]	cattle	3
Cu	86000	60	122250					[117]	cattle	2
Cu	86000	60	137750					[117]	cattle	3
Cu	86000	94	60000	3750	720			[76]	cattle	1
Cu	137900	93	36350			1696		[77]	cattle	1
Cu	137900	98	24150			105		[77]	cattle	1
Cu	200000	106	169000	4157	725			[65]	cattle	1
Cu	213000	106	28250	5250	960			[74]	cattle	1
Cu	4200	28	2000					[118]	chicken	1
Cu	8200	56	3150					[119]	chicken	1
Cu	8400	56	3075					[119]	chicken	1
Cu	8800	56	2750					[119]	chicken	1
Cu	9000	56	3225					[119]	chicken	1
Cu	11100	21	4850	4575				[120]	chicken	1
Cu	27000	28	13400				1040	[121]	chicken	1
Cu	31800	56	3100					[119]	chicken	2
Cu	32000	56	3200					[119]	chicken	2
Cu	33500	56	3175					[119]	chicken	2
Cu	33700	56	3000					[119]	chicken	2
Cu	161100	21	5225	5425				[120]	chicken	2
Cu	161100	21	4525	4775				[120]	chicken	4
Cu	161100	21	5725	4975				[120]	chicken	2
Cu	161100	21	4225	5500				[120]	chicken	2

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Cu	195000	28	24800				2250	[121]	chicken	1
Cu	311100	21	21300	4500				[120]	chicken	2
Cu	311100	21	4675	5125				[120]	chicken	4
Cu	311100	21	23300	6450				[120]	chicken	2
Cu	311100	21	11100	5475				[120]	chicken	2
Cu	405000	28	38300				4700	[121]	chicken	1
Cu	456100	21	65825	6050				[120]	chicken	2
Cu	456100	21	4900	4175				[120]	chicken	4
Cu	456100	21	65825	6050				[120]	chicken	2
Cu	456100	21	26500	5550				[120]	chicken	2
Cu	598000	28	127000				4160	[121]	chicken	1
Cu	758000	28	160000				3130	[121]	chicken	1
Cu	0	56	141225					[122]	sheep	1
Cu	0	56	32025					[122]	sheep	1
Cu	8000	140	100950	3525	1002			[123]	sheep	1
Cu	8000	140	100950	3525	1002			[123]	sheep	1
Cu	9800	210	57500	4415	2019			[124]	sheep	2
Cu	9800	210	81250	3500	2250			[124]	sheep	3
Cu	12000	90	8575	3500	2250			[88]	sheep	1
Cu	15400	56	36400					[122]	sheep	3
Cu	15400	56	34350					[122]	sheep	2
Cu	63000	90	12755	3875	2280			[88]	sheep	1
Cu	71500	140	385750	6225	3600			[123]	sheep	1
Cu	135500	140	240400	3625	930			[123]	sheep	1
Cu	135500	140	385900	6225	1080			[123]	sheep	1
Cu	7000	21	2775	6150				[125]	pig	1
Cu	8000	21	2725	6850				[125]	pig	1
Cu	15000	132	4925	7250	531			[126]	pig	1
Cu	15900	81	6875	8575	630			[127]	pig	4
Cu	15900	81	161275	15975	720			[127]	pig	4
Cu	15900	120	4700	6500	630			[127]	pig	4
Cu	15900	120	62750	8350	630			[127]	pig	4
Cu	15900	120	15025	8150	510			[127]	pig	4
Cu	15900	164	6500	8475	450			[127]	pig	4
Cu	30000	132	8400	7175	516			[126]	pig	1
Cu	55000	92	168100	20150	660			[127]	pig	2
Cu	55000	135	83225	15050	570			[127]	pig	2
Cu	55000	135	21025	8525	450			[127]	pig	2
Cu	60000	132	8375	9625	525			[126]	pig	1
Cu	75000	132	5625	8000	576			[126]	pig	1
Cu	120000	132	30475	10025	513			[126]	pig	1
Cu	123000	21	10125	8450				[125]	pig	2
Cu	125000	83	13850	12250	690			[127]	pig	2
Cu	125000	120	5750	9075	630			[127]	pig	2
Cu	125000	166	12600	7650	210			[127]	pig	2
Cu	126000	21	5050	10425				[125]	pig	2
Cu	240000	132	109750	11100	519			[126]	pig	1
Cu	250000	95	81475	17450	720			[127]	pig	2
Cu	250000	135	33700	6750	540			[127]	pig	2
Cu	250000	178	8700	7525	480			[127]	pig	2
Cu	500000	125	556600	34025	720			[127]	pig	2
Cu	500000	170	198925	19525	600			[127]	pig	2
Cu	500000	208	43275	9575	480			[127]	pig	2

Table A11 Summary of residue transfer studies for fluorine

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
F	0	2008	575	875				[128]	cattle	2
F	20000	2008	675	2150				[128]	cattle	2
F	30000	2008	675	2675				[128]	cattle	2
F	40000	2008	950	4000				[128]	cattle	2
F	50000	2008	900	4825				[128]	cattle	2
F	16200	112	1300	850				[129]	chicken	1
F	72000	112	4140		1470		720	[130]	chicken	1
F	115000	112	1375	950				[129]	chicken	1
F	123000	112	4350		1890		850	[130]	chicken	4
F	225000	112	7340		3700		890	[130]	chicken	4
F	1540000	112	4800	7950				[129]	chicken	1
F	50000	84	1210	1538	2350			[131]	pig	2
F	200000	84	1588	2148	3900			[131]	pig	2

Table A12 Summary of residue transfer studies for mercury

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Hg	0	93	5.5			6.7		[77]	cattle	1
Hg	0	98	1.3	7.25		12.9		[77]	cattle	1
Hg	4	94	2.5	25				[71]	cattle	1
Hg	10	840	3	5	2		0.5	[73]	cattle	1
Hg	10	840	3	5	2		0.5	[73]	cattle	1
Hg	10	840	3	5	2		0.5	[73]	cattle	1
Hg	11.1111	120	7	9	3		2.3	[73]	cattle	2
Hg	20	106		22.5				[74]	cattle	1
Hg	57.14	840	9	27	2		1.3	[73]	cattle	1
Hg	85	840	26	79	2		0.6	[73]	cattle	1
Hg	94.4444	120	10	24	4		0.9	[73]	cattle	2
Hg	119	93	4.25			11.2		[77]	cattle	1
Hg	119	98	5.4	6		6.4		[77]	cattle	1
Hg	147.6	840	14	50	1		2.4	[73]	cattle	1
Hg	370	94	15	112				[71]	cattle	1
Hg	1100	94	35	225	3.6			[71]	cattle	1
Hg	2600	106	67.5	510	6			[74]	cattle	1
Hg	5	56	140	165	126			[132]	chicken	1
Hg	8.57	21	0.82		0.63			[133]	chicken	1
Hg	8.57	42	0.64		0.56			[133]	chicken	1
Hg	12.2	21	1.01		0.84			[133]	chicken	1
Hg	12.2	42	0.82		0.63			[133]	chicken	1
Hg	12.8	21	1.0		0.78			[133]	chicken	1
Hg	12.8	42	0.86		0.74			[133]	chicken	1
Hg	15.1	21	1.24		1.04			[133]	chicken	1
Hg	15.1	42	0.89		0.88			[133]	chicken	1
Hg	16.5	21	1.4		1.16			[133]	chicken	1
Hg	16.5	42	1.1		0.76			[133]	chicken	1
Hg	50	56	378	410	207			[132]	chicken	3
Hg	150	56	670	710	345			[132]	chicken	3
Hg	450	56	1280	1285	822			[132]	chicken	3
Hg	1350	56	2127.5	1785	1641			[132]	chicken	3
Hg		10	424	398	79.2			[134]	chicken	3
Hg	20	84	14	178	1			[135]	sheep	1
Hg	20	84	16	238	2			[135]	sheep	1
Hg	80	84	13	143	3			[135]	sheep	1
Hg	140	84	28	360	1			[135]	sheep	1
Hg	170	84	34	254	1			[135]	sheep	1
Hg	270	84	37	265	1			[135]	sheep	1

Table A13 Summary of residue transfer studies for lanthanum

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
La	490	93	24.5			9.7		[77]	cattle	1
La	490	98	16	15.5		20.8		[77]	cattle	1
La	1130	93	17.2			6.6		[77]	cattle	1
La	1130	98	15.2	21		20		[77]	cattle	1

Table A14 Summary of residue transfer studies for manganese

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Mn	8100	104	3025		90			[136]	cattle	1
Mn	12900	106	3405	1170	145			[65]	cattle	1
Mn	15800	196	10000					[137]	cattle	2
Mn	15800	392	8200					[137]	cattle	2
Mn	18100	104	3025		102			[136]	cattle	2
Mn	25500	126	3075	1075				[114]	cattle	1
Mn	25800	98	10300					[137]	cattle	2
Mn	25800	196	8600					[137]	cattle	2
Mn	28100	104	3150		96			[136]	cattle	2
Mn	28233	106	3315	1290	155			[65]	cattle	1
Mn	38100	104	3475		114			[136]	cattle	2
Mn	43400	93	2512			21.7		[77]	cattle	1
Mn	43400	98	1665	248		101		[77]	cattle	1
Mn	45800	98	10800					[137]	cattle	2
Mn	45800	196	8700					[137]	cattle	2
Mn	55000	18	2372	1230	1125			[138]	cattle	1
Mn	63800	126	2625	1000				[114]	cattle	1
Mn	65800	98	11000					[137]	cattle	2
Mn	65800	196	9400					[137]	cattle	2
Mn	67400	93	2190			16.2		[77]	cattle	1
Mn	67400	98	1870	181.8		27.2		[77]	cattle	1
Mn	80000	28					310	[107]	cattle	1
Mn	101300	126	2150	900				[114]	cattle	1
Mn	128100	104	3725		120			[136]	cattle	2
Mn	248100	104	3775		138			[136]	cattle	2
Mn	750000	28					1130	[107]	cattle	1
Mn	1055000	18	3312	1300	603			[138]	cattle	2
Mn	14820	28	1750					[118]	chicken	1
Mn	116000	26	2900		237			[139]	chicken	1
Mn	1116000	26	5225		330			[139]	chicken	2
Mn	1116000	26	4025		306			[139]	chicken	2
Mn	1116000	26	4450		363			[139]	chicken	4
Mn	2116000	26	6050		513			[139]	chicken	2
Mn	2116000	26	4725		516			[139]	chicken	2
Mn	2116000	26	5600		420			[139]	chicken	4
Mn	4116000	26	7750		675			[139]	chicken	2
Mn	4116000	26	5075		693			[139]	chicken	2
Mn	4116000	26	6850		456			[139]	chicken	4
Mn	31000	84	2250	1050	120			[140]	sheep	1
Mn	31500	21	2450	1175				[142]	sheep	1
Mn	34400	21	2725	1000				[142]	sheep	1
Mn	37600	28	2400	1000				[141]	sheep	1
Mn	65000	90	2600	1200	360			[88]	sheep	1
Mn	78000	90	2500	1350	360			[88]	sheep	1
Mn	531000	84	4875	1600	210			[140]	sheep	4
Mn	931500	21	7100	5450				[142]	sheep	2
Mn	934400	21	8875	3650				[142]	sheep	2
Mn	934400	21	8925	4225				[142]	sheep	3
Mn	1031000	84	9350	4875	207			[140]	sheep	4
Mn	1537600	21	8825	4950				[141]	sheep	2
Mn	1831500	21	7200	5075				[142]	sheep	2
Mn	1831500	21	10950	7225				[142]	sheep	3
Mn	1831500	21	8175	5050				[142]	sheep	4
Mn	1831500	21	8000	4375				[142]	sheep	4
Mn	1834400	21	9675	5675				[142]	sheep	2
Mn	1834400	21	19255	4525				[142]	sheep	3
Mn	2031000	84	11450	4100	288			[140]	sheep	4
Mn	2031000	84	4825	3200	288			[140]	sheep	4
Mn	2731500	21	19075	8325				[142]	sheep	2
Mn	2734400	21	19250	5225				[142]	sheep	2
Mn	2734400	21	10450	5625				[142]	sheep	3
Mn	3037600	21	10925	6550				[141]	sheep	2
Mn	3037600	21	8325	4450				[141]	sheep	4
Mn	3037600	21	6075	2800				[141]	sheep	4
Mn	3037600	21	6575	2550				[141]	sheep	2
Mn	4031000	84	58050	8700	312			[140]	sheep	4
Mn	4031000	84	9775	5175	267			[140]	sheep	4
Mn	4537600	21	10950	6675				[141]	sheep	2
Mn	8031000	84	157600	7750	318			[140]	sheep	4
Mn	400	42	627.5	550	96			[143]	pig	1
Mn	11800	42	2020	1525	120			[143]	pig	1
Mn	40400	42	2078	1205	120			[143]	pig	2

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Mn	51800	42	2302	1230	150			[143]	pig	2
Mn	54100	75	1311	1156	53.9			[112]	pig	4
Mn	54100	75	1519	1173	51.8			[112]	pig	4
Mn	54100	75	1440	1079	42.4			[112]	pig	4
Mn	54100	75	1369	1175	67.4			[112]	pig	4
Mn	54100	75	1494	1208	43.1			[112]	pig	4

Table A15 Summary of residue transfer studies for molybdenum

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Mo	180	106	1170	320	30			[65]	cattle	1
Mo	300	94	650	350		24		[71]	cattle	1
Mo	500	28					390	[107]	cattle	1
Mo	1400	106	990	280	40			[65]	cattle	1
Mo	1930	93	710			16.8		[77]	cattle	1
Mo	1930	98	642	38.8		90.4		[77]	cattle	1
Mo	2750	93	738			25.7		[77]	cattle	1
Mo	2750	98	658	65		72		[77]	cattle	1
Mo	3000	94	500	225		16		[71]	cattle	1
Mo	6100	28					560	[107]	cattle	1
Mo	400	221	3200	4050				[144]	sheep	1
Mo	1100	28	835	410	33			[145][146]	sheep	1
Mo	1200	28	1578	710	24			[145][146]	sheep	1
Mo	8400	221	642	1968				[144]	sheep	2
Mo	16100	28	1500	700	84			[145][146]	sheep	2
Mo	16200	28	1492	905	72			[145][146]	sheep	2
Mo	31100	28	1880	1075	132			[145][146]	sheep	2
Mo	31100	28	2095	1512	147			[145][146]	sheep	2
Mo	31100	28	2310	1725	168			[145][146]	sheep	2
Mo	31100	28	1378	425	81			[145][146]	sheep	2
Mo	31200	28	2962	2252	90			[145][146]	sheep	2
Mo	46100	28	1942	2660	201			[145][146]	sheep	2
Mo	46200	28	2650	3598	171			[145][146]	sheep	2

Table A16 Summary of residue transfer studies for nickel

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Ni	195	93	158			28		[77]	cattle	1
Ni	195	98	53	54.2		43.2		[77]	cattle	1
Ni	276	93	144			26.4		[77]	cattle	1
Ni	276	98	61	62.2		45.6		[77]	cattle	1
Ni	450	140	9.5	12	16.2			[147]	cattle	2
Ni	470	140	9.5	12.8	16.2			[147]	cattle	2
Ni	570	140	11.5	11.5	13.8			[147]	cattle	2
Ni	880	106	45	35	70			[65]	cattle	1
Ni	995	56	190	520				[148]	cattle	1
Ni	4600	106	74	40	70			[65]	cattle	1
Ni	5450	140	22.5	164	19.5			[147]	cattle	2
Ni	5470	140	14	76.5	16.8			[147]	cattle	2
Ni	5570	140	15	71.5	14.7			[147]	cattle	2
Ni	63495	56	220	462.5				[148]	cattle	2
Ni	250995	56	92.5	565				[148]	cattle	2
Ni	1000995	56	132.5	5707.5				[148]	cattle	2
Ni	10	21	100	130	140			[149]	chicken	1
Ni	300000	21	360	4230	260			[149]	chicken	1
Ni	500000	21	690	7650	440			[149]	chicken	1
Ni	700000	21	990	9730	600			[149]	chicken	1
Ni	900000	21	2040	11150	1520			[149]	chicken	1
Ni	1100000	21	1430	11480	2620			[149]	chicken	1
Ni	480	91	32.5	82.5				[83]	quail	1
Ni	480	91	20	50				[83]	quail	1
Ni	710	91	52.5	105				[83]	quail	1
Ni	710	91	52.5	60				[83]	quail	1
Ni	1600	93	242	530	282			[103]	pig	1
Ni	3300	93	235	1005	282			[103]	pig	1

Table A17 Summary of residue transfer studies for lead

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Pb	600	94	50	225	60	128		[71]	cattle	1
Pb	860	106	77.5	237.5				[74]	cattle	1
Pb	900	100	600	1000				[150]	cattle	1
Pb	1240	93	41.25			5.0		[77]	cattle	1
Pb	1240	98	46.25	34.25		71.2		[77]	cattle	1
Pb	1420	49	170	460	350			[151]	cattle	1
Pb	1830	93	52.75			7.36		[77]	cattle	1
Pb	1830	98	53	42		35.2		[77]	cattle	1
Pb	2870	106	250	330	60			[65]	cattle	1
Pb	3690	84	170	630	20			[75]	cattle	1
Pb	9280	84	420	1240	62			[75]	cattle	2
Pb	10500	100	600	1055				[150]	cattle	2
Pb	11100	100	700	1050				[150]	cattle	1
Pb	26000	94	825	3050				[71]	cattle	1
Pb	31620	84	1725	4040	23			[75]	cattle	2
Pb	47500	106	1470	2020	140			[65]	cattle	1
Pb	56600	106	1082	2700				[74]	cattle	1
Pb	77000	94	1150	3950	60	128		[71]	cattle	1
Pb	102100	100	2300	3400				[150]	cattle	2
Pb	501420	49	6680	7270	230			[151]	cattle	2
Pb	1501420	49	16680	21280	1720			[151]	cattle	2
Pb	50000	7	890	1225				[152]	chicken	2
Pb	2500	90	625	550	990			[88]	sheep	1
Pb	3400	84	325	250	60			[153]	sheep	1
Pb	13400	84	450	500	60			[153]	sheep	2
Pb	22000	90	875	1000	1050			[88]	sheep	1
Pb	103400	84	1325	2350	60			[153]	sheep	2
Pb	503400	84	2900	6275	60			[153]	sheep	2
Pb	1000000	75	3400	85500	288			[154]	sheep	2
Pb	1003400	84	3600	57650	210			[153]	sheep	2
Pb	0	63	2500	3750				[155[	pig	1
Pb	0	137	15	15				[100]	pig	2
Pb	2380	84	60		14			[105]	pig	1
Pb	5000	137	70	40				[100]	pig	2
Pb	5740	84	150					[105]	pig	2
Pb	10000	137	90	67				[100]	pig	2
Pb	10000	182	16.3	17.8				[100]	pig	2
Pb	10000	182	53.4	35.5				[100]	pig	2
Pb	21450	84	850		25			[105]	pig	2
Pb	25000	137	143	190				[100]	pig	2
Pb	1000000	63	39750	14750				[155]	pig	2
Pb	1000000	63	101250	100250				[155]	pig	2

Table A18 Summary of residue transfer studies for antimony

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Sb	117	93	13.9			17.9		[77]	cattle	1
Sb	117	98		8		15.2		[77]	cattle	1
Sb	150	106	50	70	40			[65]	cattle	1
Sb	210	93	11.1			14.6		[77]	cattle	1
Sb	210	98		13.5		21.6		[77]	cattle	1
Sb	980	106	110	100	90			[65]	cattle	1

Table A19 Summary of residue transfer studies for scandium

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Sc	33	93	0.4			0.08		[77]	cattle	1
Sc	33	98	0.42	0.35		0.48		[77]	cattle	1
Sc	239	93	0.75			0.08		[77]	cattle	1
Sc	239	98	0.125	0.65		0.56		[77]	cattle	1

Table A20 Summary of residue transfer studies for selenium

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Se	10	106	420	1350	230			[65]	cattle	1
Se	14	28					250	[107]	cattle	1
Se	30	390	57.5	875	24			[156]	cattle	1
Se	150	35					19.4	[157]	cattle	1
Se	150	105	375	230	63			[158]	cattle	1
Se	160	94	325	1350	240	56		[71]	cattle	1
Se	160	112					24	[159]	cattle	1
Se	250	35					20.8	[157]	cattle	2
Se	270	35					27.8	[157]	cattle	3
Se	280	390	250	1200	87			[156]	cattle	2
Se	280	390	325	1350	184.5			[156]	cattle	2
Se	300	112					38	[159]	cattle	1
Se	300	112					57	[159]	cattle	1
Se	330	35					40.3	[157]	cattle	3
Se	350	94	425					[71]	cattle	1
Se	380	126	528	2100	299			[159]	cattle	1
Se	400	35					53.7	[157]	cattle	3
Se	430	390	425	1400	274			[156]	cattle	1
Se	450	112					72	[159]	cattle	1
Se	500	105	438	290	129			[158]	cattle	3
Se	720	94	1050	1350	240	72		[71]	cattle	1
Se	1700	106	1050	1550	300			[65]	cattle	1
Se	2840	126	2478	2512	465			[160]	cattle	2
Se	6500	28					930	[107]	cattle	2
Se	80	21	340	360	190			[161]	chicken	1
Se	100	28					249	[162][163]	chicken	1
Se	100	270	390	560	120			[164]	chicken	1
Se	110	56					65	[165]	chicken	1
Se	120	45	440				153.3	[166]	chicken	3
Se	150	28	582	551	135		192	[168]	chicken	1
Se	180	45	410				137.2	[166]	chicken	2
Se	210	45	480				157.7	[166]	chicken	3
Se	230	8					198	[167]	chicken	1
Se	230	16					215	[167]	chicken	1
Se	230	24					210	[167]	chicken	1
Se	240	28					284	[162][163]	chicken	2
Se	250	56					200	[168]	chicken	2
Se	280	21	540	780	270			[161]	chicken	2
Se	280	21	680	950	300			[161]	chicken	3
Se	290	28					366	[162][163]	chicken	3
Se	320	45	460				152.4	[166]	chicken	2
Se	330	56					250	[169]	chicken	3
Se	340	56					311	[165]	chicken	3
Se	347	28	612	763	137		337	[168]	chicken	2
Se	353	28	623	700	149		358	[168]	chicken	2
Se	380	56					182	[165]	chicken	2
Se	390	28					299	[162][163]	chicken	2
Se	390	56					190	[169]	chicken	2
Se	420	45	450				169.3	[166]	chicken	3
Se	460	28					495	[162][163]	chicken	3
Se	480	45	530				197.4	[166]	chicken	3
Se	490	56					310	[169]	chicken	2,3
Se	500	270	640	982	159			[164]	chicken	2
Se	500	270	710	1080	402			[164]	chicken	3
Se	520	56					350	[169]	chicken	3
Se	570	28					327	[162][163]	chicken	2
Se	648	28	661	782	161		445	[168]	chicken	2
Se	652	28	634	863	140		354	[168]	chicken	2
Se	740	8					237.5	[167]	chicken	2
Se	740	8					240	[167]	chicken	3
Se	740	16					354.5	[167]	chicken	2
Se	740	16					339.2	[167]	chicken	3
Se	740	24					346.1	[167]	chicken	2
Se	740	24					346.9	[167]	chicken	3
Se	790	28					670	[162][163]	chicken	3
Se	1000	270	830	1145	618			[164]	chicken	3
Se	1145	28	722	775	182		578	[168]	chicken	2
Se	1157	28	690	826	149		439	[168]	chicken	2
Se	2600	28					641	[162][163]	chicken	2
Se	2940	28					2207	[162][163]	chicken	3
Se	200	30	212.5	425	81			[170]	sheep	1
Se	480	420	2660	8430	710			[171]	sheep	1

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Se	540	420	15670	22260	5730			[171]	sheep	1
Se	3200	10	472.5	1725	156			[170]	sheep	2
Se	3200	20	575	1875	153			[170]	sheep	2
Se	3200	30	948	2050	144			[170]	sheep	2
Se	6200	10	1465	2875	168			[170]	sheep	2
Se	6200	20	1362	3000	168			[170]	sheep	2
Se	6200	30	1802	2950	165			[170]	sheep	2
Se	27			34				[172]	pig	1
Se	39	41	222	1402	80			[173]	pig	1
Se	39	41	222	1402	80			[173]	pig	1
Se	100	41	467	2140	143			[173]	pig	3
Se	300	41	737	2990	212			[173]	pig	3
Se	300	41	675	3512	124			[173]	pig	2
Se	440	140	610	2140	120			[172]	pig	2
Se	443	141	840	2170	480			[172]	pig	1
Se	493				521			[172]	pig	1
Se	500	41	901	3040	262			[173]	pig	3
Se	500	41	699	3738	130			[173]	pig	2
Se	543	139	920	2330	450			[172]	pig	2
Se	5000	84	3089	3109	333			[174]	pig	2
Se	5000	84	5590	5298	3375			[174]	pig	3

Table A21 Summary of residue transfer studies for tin

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Sn	2950	93	350			140		[77]	cattle	1
Sn	2950	98	560	302		562		[77]	cattle	1
Sn	11640	93	525			143		[77]	cattle	1
Sn	11640	98	262	320		65.6		[77]	cattle	1

Table A22 Summary of residue transfer studies for strontium

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Sr	36000	93	2085			360		[77]	cattle	1
Sr	36000	98	2142	1198		288		[77]	cattle	1
Sr	54000	93	1375			386		[77]	cattle	1
Sr	54000	98	1190	1572		992		[77]	cattle	1

Table A23 Summary of residue transfer studies for tantalum

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Ta	37	93	19					[77]	cattle	1
Ta	37	98	8.25					[77]	cattle	1
Ta	152	93	11.75					[77]	cattle	1
Ta	152	98	6.25					[77]	cattle	1

Table A24 Summary of residue transfer studies for titanium

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Ti	18200	93	265			352		[77]	cattle	1
Ti	18200	98	687.5	738		284		[77]	cattle	1
Ti	77400	93	385			229		[77]	cattle	1
Ti	77400	98	310	540		509		[77]	cattle	1

Table A25 Summary of residue transfer studies for vanadium

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
V	700	106	260	220	200			[65]	cattle	1
V	800	93	3.75			2.16		[77]	cattle	1
V	800	98	5	16.5		5.6		[77]	cattle	1
V	3090	106	280	200	180			[65]	cattle	1
V	3770	93	9.75			2.56		[77]	cattle	1
V	3770	98	4.75	31.5		53.6		[77]	cattle	1
V	10000	84	180	410	50			[175]	sheep	2
V	100000	84	960	3620	120			[175]	sheep	2
V	710	180	15.8	5.65				[176]	pig	1
V	8600	180	18.6	35.5				[176]	pig	4
V	15200	180	25.8	37				[176]	pig	4

Table A26 Summary of residue transfer studies for tungsten

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
W	330	93	51.8					[77]	cattle	1
W	330	98	48.5	36.8		41.6		[77]	cattle	1
W	420	93	48.5					[77]	cattle	1
W	420	98	42.2	21.2		47.2		[77]	cattle	1

Table A27 Summary of residue transfer studies for zinc

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Zn	20900	42	90500					[177]	cattle	1
Zn	24000	94	21750	21000	75900	480		[71]	cattle	1
Zn	26300	106	35750	23250	102000			[74]	cattle	1
Zn	28000	14	133200	95800				[178]	cattle	1
Zn	34100	126	32000	20000	37500			[114]	cattle	1
Zn	36000	106	35800	19100	66800			[65]	cattle	1
Zn	41000	42	92200					[177]	cattle	1
Zn	43100	42	89700					[177]	cattle	1
Zn	44800	42	114000					[177]	cattle	1
Zn	48000	14	127900	97200				[178]	cattle	2
Zn	48000	14	146100	89700				[178]	cattle	3
Zn	48000	14	175900	114300				[178]	cattle	2,3
Zn	57200	141	40000				2860	[106]	cattle	1
Zn	64400	93	30250			1776		[77]	cattle	1
Zn	64400	98	35725	37775		7960		[77]	cattle	1
Zn	68400	93	30550			1456		[77]	cattle	1
Zn	68400	98	31325	43400		15384		[77]	cattle	1
Zn	76300	126	28250	20500	36300			[114]	cattle	1
Zn	78000	94	24700					[71]	cattle	1
Zn	111100	126	27000	21000	36900			[114]	cattle	1
Zn	180000	94	25250	20500	81900	960		[71]	cattle	1
Zn	235000	106	36200	19900	68400			[65]	cattle	1
Zn	236000	106	33000	24000	80100			[74]	cattle	1
Zn	548000	14	231000	183100				[178]	cattle	2
Zn	548000	14	331000	356700				[178]	cattle	3
Zn	548000	14	286800	299500				[178]	cattle	2,3
Zn	57800	141	41600				2870	[106]	cattle	1
Zn	59600	141	40800				2820	[106]	cattle	1
Zn	20380	28	13000					[118]	chicken	1
Zn	35000	20	71400	72300				[179]	chicken	1
Zn	57500	56	24100					[119]	chicken	1
Zn	58600	56	22975					[119]	chicken	1
Zn	61700	56	25150					[119]	chicken	1
Zn	62000	21	18650	22475				[181]	chicken	1
Zn	63000	20	75600	75500				[179]	chicken	1
Zn	63400	56	24400					[119]	chicken	1
Zn	75000	20	75500	74100				[179]	chicken	2
Zn	75000	20	76300	75700				[179]	chicken	4
Zn	115000	20	79700	75300				[179]	chicken	2
Zn	115000	20	80300	77000				[179]	chicken	4
Zn	117000	14	164000	140000				[180]	chicken	2

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Zn	135100	56	27325					[119]	chicken	2
Zn	136700	56	26600					[119]	chicken	2
Zn	139200	56	27000					[119]	chicken	2
Zn	139900	56	26925					[119]	chicken	2
Zn	155000	20	79100	74600				[179]	chicken	2
Zn	155000	20	78800	79500				[179]	chicken	4
Zn	367000	14	136000	130000				[180]	chicken	2
Zn	367000	14	149000	117000				[180]	chicken	2,4
Zn	367000	14	183000	135000				[180]	chicken	2,3
Zn	463000	20	79800	77300				[179]	chicken	2
Zn	463000	20	74800	83400				[179]	chicken	2
Zn	463000	20	79600	79500				[179]	chicken	4
Zn	463000	20	75600	84300				[179]	chicken	3
Zn	617000	14	166000	142000				[180]	chicken	2
Zn	617000	14	173000	156000				[180]	chicken	2
Zn	617000	14	126000	149000				[180]	chicken	2,3
Zn	863000	20	79200	75700				[179]	chicken	2
Zn	863000	20	82800	80600				[179]	chicken	2
Zn	863000	20	78900	78900				[179]	chicken	4
Zn	863000	20	82800	80600				[179]	chicken	4
Zn	867000	14	160000	132000				[180]	chicken	2
Zn	867000	14	154000	175000				[180]	chicken	2,4
Zn	867000	14	205000	132000				[180]	chicken	2,3
Zn	1062000	7	27050	25475				[181]	chicken	2
Zn	1062000	7	25250	22950				[181]	chicken	2
Zn	1062000	7	22575	22250				[181]	chicken	2
Zn	1263000	20	82000	98600				[179]	chicken	2
Zn	1263000	20	91000	90300				[179]	chicken	2
Zn	1263000	20	90600	86000				[179]	chicken	4
Zn	1263000	20	91000	82600				[179]	chicken	4
Zn	0		54000	27000	14000			[182]	duck	2
Zn	3000000		401000	413000	32000			[182]	duck	2
Zn	6000000		483000	453000	30000			[182]	duck	2
Zn	9000000		461000	311000	34000			[182]	duck	2
Zn	12000000		340000	519000	31000			[182]	duck	2
Zn	19000	274	380750	817750	32400			[87]	sheep	1
Zn	28100	140	48375	29575	25950			[123]	sheep	2
Zn	39330	210	27917.5	27082.5	36201			[124]	sheep	2
Zn	39330	210	32082.5	2662.5	36051			[124]	sheep	3
Zn	58000	21	113000	108000				[183]	sheep	1
Zn	68000	274	406750	1033750	45300			[87]	sheep	1
Zn	79000	90	26850	18950	26310			[88]	sheep	1
Zn	102200	56	34750					[122]	sheep	3
Zn	102200	56	161000					[122]	sheep	3
Zn	102200	56	127325					[122]	sheep	2
Zn	102200	56	156125					[122]	sheep	2
Zn	109450	140	46200	31225	24000			[123]	sheep	2
Zn	122000	90	26050	18675	36060			[88]	sheep	1
Zn	758000	21	255000	528000				[183]	sheep	2
Zn	1458000	21	374000	1164000				[183]	sheep	2
Zn	1458000	21	415000	1394000				[183]	sheep	3
Zn	1458000	21	324000	1114000				[183]	sheep	3
Zn	1458000	21	342000	980000				[183]	sheep	3
Zn	2158000	21	436000	1519000				[183]	sheep	2
Zn	60000	21	39025	30775				[125]	pig	1
Zn	67000	21	46950	33800				[125]	pig	1
Zn	104000	35	160900					[184]	pig	1
Zn	105000	14	40000	31750				[185]	pig	1
Zn	154900	75	51.55	25.075	10.44			[112]	pig	4
Zn	154900	75	53.3	24.675	10.92			[112]	pig	4
Zn	154900	75	52.2	22.725	8.7			[112]	pig	4
Zn	154900	75	46.05	24.2	13.23			[112]	pig	4
Zn	154900	75	46.9	25.45	9.78			[112]	pig	4
Zn	172000	93	39275	26150	34830			[103]	pig	1
Zn	183400	40	9450	6007.5	4197			[104]	pig	1
Zn	184000	35	156500					[184]	pig	2
Zn	184000	35	162600					[184]	pig	2,3
Zn	184000	35	141300					[184]	pig	2,3
Zn	184000	35	158100					[184]	pig	2,3
Zn	199000	93	49100	28700	37230			[103]	pig	1
Zn	264000	35	155800					[184]	pig	2
Zn	575000	21	59000	37275				[125]	pig	4

	C_{feed} (µg/kg DM)	Duration (days)	Liver (µg/kg)	Kidney (µg/kg)	Muscle (µg/kg)	Fat (µg/kg)	Milk/Egg (µg/kg)	Ref	Species	Type
Zn	581000	21	56750	38575				[125]	pig	4
Zn	773700	40	12825	9350	3747			[104]	pig	1
Zn	1105000	14	38750	32000				[185]	pig	4
Zn	1105000	14	32750	32500				[185]	pig	3
Zn	1105000	14	32500	30000				[185]	pig	3
Zn	1105000	14	39000	30250				[185]	pig	2
Zn	2105000	14	93000	33250				[185]	pig	4
Zn	2105000	14	190750	39750				[185]	pig	3
Zn	2105000	14	163500	36250				[185]	pig	3
Zn	2105000	14	237250	47250				[185]	pig	2
Zn	3105000	28	285250	42250				[185]	pig	4
Zn	3105000	28	276000	44000				[185]	pig	3
Zn	3105000	28	441250	53000				[185]	pig	3
Zn	3105000	28	470750	58750				[185]	pig	2
Zn	3105000	28	391000	113000				[185]	pig	2
Zn	3105000	28	338500	114000				[185]	pig	2
Zn	3105000	28	398000	129250				[185]	pig	2

Table A28. Summary of transfer factors for mycotoxins

Mycotoxin	Species	Tissue	Mean TF	Range	SD	N
FB1	Pig	Liver		0.00029		1
FB1	Pig	Kidney		0.00022		1
FB1	Pig	Muscle		0.00025		1
FB1	Turkey	Liver	0.0056	0.0044-0.0066	0.0011	3
FB1	Turkey	Kidney		0.0011		1
FB1	Duck	Liver	0.0013	0.0010-0.0016		2
DON	Pig	Liver	0.0024	0.0005-0.0042		2
DON	Pig	Kidney	0.0064	0.00083-0.012		2
DON	Pig	Muscle	0.0017	0.0013-0.0021		2
DON	Pig	Fat		0.00036		1
DON	Cattle	Milk	0.00034	0.00028-0.00039	0.00005	4
OTA	Chicken	Liver	0.077	0.0062-0.22	0.097	4
OTA	Chicken	Kidney	0.045	0.012-0.085	0.033	5
OTA	Chicken	Muscle	0.0084	0.0016-0.016	0.0061	4
OTA	Pig	Liver	0.066	0.0087-0.18	0.054	14
OTA	Pig	Kidney	0.11	0.018-0.27	0.069	15
OTA	Pig	Muscle	0.038	0.026-0.13	0.032	11
AFB1	Quail	Liver		0.0044		1
AFB1	Quail	Muscle		0.00013		1
AFB1	Laying hen	Liver	0.00050	0.00006-0.0017	0.00080	4
AFB1	Laying hen	Kidney		0.00004		1
AFB1	Laying hen	Muscle		0.000006		1
AFB1	Laying hen	Eggs	0.00042	0.00001-0.0014	0.0006	5
AFB1	Duck	Liver		0.00032		1
AFB1	Chicken	Liver	0.00014	0.00008-0.0047	0.0017	6
AFB1	Chicken	Muscle	0.00024	0.00015-0.00030	0.00008	3
AFB1	Turkey	Liver	0.0016	0.00087-0.0026	0.0011	5
AFB1	Turkey	Kidney	0.0022	0.0004-0.0068	0.0031	4
AFB1	Turkey	Muscle		0.00006		1
AFB1	Pig	Liver	0.0023	0.00029-0.0039	0.0019	14
AFB1	Pig	Kidney	0.0043	0.00026-0.025	0.0072	11
AFB1	Pig	Muscle	0.0016	0.000006-0.0056	0.0020	8
AFB1	Pig	Fat	0.00016	0.000057-0.00010		2
AFB1	Sheep	Liver		0.00078		1
AFB1	Sheep	Kidney		0.00052		1
AFB1	Sheep	Milk	0.024	0.016-0.035	0.0099	3
AFB1	Goat	Milk	0.022	0.006-0.037	0.014	5
AFB1	Cattle	Liver	0.0025	0.0011-0.0048	0.0016	4
AFB1	Cattle	Kidney		0.00026		1
AFB1	Cattle	Muscle		0.000006		1
AFB1	Cattle	Milk	0.015	0.002-0.031	0.0071	109
ZEA	Laying hen	Liver		0.0049		1
ZEA	Turkey	Liver		0.00375		
ZEA	Turkey	Kidney		0.00075		
ZEA	Pig	Liver	0.016	0.005-0.028	0.065	8
ZEA	Pig	Kidney		0.016		1
ZEA	Pig	Muscle		0.021		1
ZEA	Cattle	Milk	0.0013	0.00014-0.0024		2

FB1 = fumonisin B1; DON = deoxynivalenol; OTA = ochratoxin A; AFB1 = aflatoxin B1; ZEA = zearalenone

Table A29 Summary of residue transfer studies for Aflatoxin B1 (AFB1)

Species	Feed level (µg/kg DM)	Duration (days)	Kidney (µg/kg)	Liver (µg/kg)	Muscle (µg/kg)	Milk/eggs (µg/kg)	Ref
Quail (laying)	50	140				0.04 B1 0.12 M1 0.17 toxicol 0.17 B2a total 0.5	[186]
	200	140				0.04 B1 0.32 M1 0.23 toxicol 0.48 B2a total 1.07	
Quail (laying) 2mo	3000	7		7.83±0.49 B1 5.31±0.22 cB1 22.3±2.4 Other 10.5±0.4 cOther	0.38±0.03 B1 <LOD cB1 0.82±0.05 Other 0.32±0.08 cOther		[187]
Laying hen	25	60				0.05	[188]
	50	60				0.07	
	100	60				0.06	
Laying hen	2500	28		4.13 B1		<LOD B1, M1	[189]
Laying hen 6mo	3000	7		0.34±0.03 B1 0.23±0.08 cB1 2.38±0.36 Other 4.04±0.10 cOther	<LOD B1 <LOD cB1 0.14±0.04 Other 0.11±0.04 cOther		[187]
Laying hen	4990 B1+B2	28				0.06 B1 0.03 B2 0.01 M1 0.03 M2 0.09 B2a	[190]
Laying hen	4990 B1+B2	28		0.2 B1 0.13 B2 0.02 M1 0.03 M2 1.52 B2a	Breast 0.01 B1 0.01 B2 0.0 M1 0.01 M2 0.02 B2a Leg 0.03 B1 0.06 B2 0.0 M1 0.01 M2 0.03 B2a		[191]
Laying hen	8000	7	0.32±0.18 B1 0.10±0.04 toxicol	0.49±0.28 B1 0.20±0.09 toxicol	0.08±0.03 toxicol	0.24±0.07 B1 0.25±0.09 toxicol	[192]
Laying hen (breeder)	10000	14				0.05-0.60 B1 0.19-1.2 toxicol	[193]
Duck (laying) 6mo	3000	7		0.52±0.04 B1 0.44±0.16 cB1 2.74±0.15 Other 3.81±0.25 cOther	ND B1 ND cB1 0.21±0.09 Other 0.14±0.05 cOther		[187]
Chicken	55	5		0.26 B1 0.02 M1			[194]
	4448	5		1.52 B1 <0.1 M1			
Chicken	1600	7		2.87 B1	0.41 B1		[195]
	3200	7		3.03	0.49		
	6400	7		3.48	1.90		
Chicken (broiler) 1day	3000	7		0.15±0.09 B1 0.10±0.01 cB1 1.54±0.36 other 0.93±0.04 cOther	<LOD B1 <LOD cB1 0.11±0.02 other 0.08±0.05 cOther		[187]
Turkey	50	77	0.01-0.02 B1 0.01-0.02 M1	0.02-0.09 B1 0 M1			[196]
	150	77	0.025-0.08 B1 0.09-0.13 M1	0.08-0.13 B1 0.03-0.10 M1			
Turkey	50	91	0.01-0.34 B1 0.01-0.07 M1	0.02-0.13 B1 0.11-0.14 M1			[196]
	150	91	0.05-0.18 B1 0.13 M1	0.08-0.39 B1 0.04-0.32 M1			
Turkey	500	18		0.1 B1 0.44 M1 0.28 cB1 0.37 cM1	Breast 0.03 B1 <LOD M1 <LOD cB1 <LOD cM1		[197]
Pig (slaughter 12h)	100	28	0.10-0.37 B1 0.09-0.23 M1	0.18-0.25 B1 0.05-0.23 M1	0.13-0.20 B1 0.00-0.04 M1		[198]
	200	28	0.23-1.5 B1 0.29-1.29 M1	0.18-0.75 B1 0.11-1.50 M1	0.19-0.69 B1 0.04-0.09 M1		

Species	Feed level (µg/kg DM)	Duration (days)	Kidney (µg/kg)	Liver (µg/kg)	Muscle (µg/kg)	Milk/eggs (µg/kg)	Ref
	400	28	0.63-10 B1 0.18-0.63 M1	0.7-2.66 B1 1.02-2.00 M1	0.36-2.22 B1 0.00-0.35 M1		
Pig	280	35	0.08 B1 0.72 M1	0.08 B1 0.39 M1	-	-	[199]
Pig	395	14	1.61±0.63 B1+M1+toxicol	1.24±0.44 B1+M1+toxicol	0.16±0.22 B1+M1+toxicol		[200]
Pig	300 500	120-231	Max 20 B1+B2 Max 53 B1+B2	Max 23 B1+B2 Max 54 B1+B2			[201]
Pig (cross-bred) 80-100 kg	524 B1+B2	35	0.68 B1 0.14 B2 3.13 M1	0.48B1 0.05 B2 1.48 M1	0.21 B1 0.03 B2 0.21 M1 Fat 0.03 B1 0.00 B2 0.01 M1		[202]
Pig (minature)	590 B1+B2	15	0.41 B1 0.08 B2 5.98 M1	0.31B1 0.01 B2 2.85 M1	0.13 B1 0.01 B2 0.38 M1 Fat 0.06 B1 0.00 B2 0.07 M1		[202]
Pig	400 800	70 70	0.83 1.21	1.43 2.81	<LOD 0.64		[203] B1+B2+G1 + G2+M1
Pig	341	21	0 B1 0.34 M1 0 B1 0.18 M1	0 B1 0.32 M1 0 B1 0.39 M1			[204]
	866	21	0 B1 1.02 M1 0 B1 0.67 M1	0.17 B1 0.30 M1 0.18 B1 0.28 M1			
	1253	21	0.10 B1 0.093 M1 0.22 B1 0.13 M1	0.36 B1 0.59 M1 0.43 B1 0.77 M1			
Sheep	2500	21	1.29 B1 0.31 G1 5.45 M1	1.94 B1 1.3 G1 0.35 M1			[205]
Cattle (steers) 183 kg	350-450	122	0.09 B1 4.82 M1	0.37 B1 1.07 M1	<LOD-0.002 B1 0.10-0.11 M1		[206]
Cattle (steers)	60	64-151		<0.25-0.29 B1 <0.25-0.62 M1	<LOD muscle <LOD fat		[207]
	300	64-151		<0.25-0.64 B1 <0.25-1.58 M1			
	600	64-151		<0.25-1.14 B1 0.29-2.76 M1			
Lactating cow	20	77	0.07-0.2 M1	-	-	0.06 M1	[208] B1+M1

B1 = aflatoxin B1; B2 = aflatoxin B2; M1= aflatoxin M1, G1 = = aflatoxin G1; G2 = aflatoxin G2; cB1 = conjugated aflatoxin B1; other = aflatoxins other than B1; cOther = conjugated aflatoxins other than conjugated B1; toxicol = aflatoxicol; B2a = aflatoxin B2a.

Table A30 Summary of residue transfer studies for Aflatoxin B1 (AFB1) from feed to milk

Species	Source	C_{feed} (µg AFB1/kg)	DMI (kg/d)	Intake (µg AFM1/d)	V_{milk} (L/d)	C_{milk} (AFM1 µg/kg)	Daily milk AFM1 (µg AFM1/d)	%COR	TF_{milk}	Ref
cattle	Natural	51.43				330			0.006	[209]
cattle	Natural	50				330			0.007	[209]
cattle	Natural	100				660			0.007	[209]
cattle	Natural	150.28				1220			0.008	[209]
cattle	Natural	1142.86				9500			0.008	[209]
cattle	Natural	857.14				7900			0.009	[209]
cattle	Natural	1400				13300			0.010	[209]
cattle	Natural	285.71				3000			0.011	[209]
cattle	Pure	510	25.4	12954	10.7	2100	22.47	0.17	0.004	[210]
cattle	Pure	515	27.6	14214	12.7	3780	48.01	0.34	0.007	[210]
cattle	Pure	550	23.8	13090	13.8	4400	60.72	0.46	0.008	[210]
cattle	Pure	429	30.3	12998.7	16.7	2160	36.07	0.28	0.005	[210]
cattle	Pure	461	28.2	13000.2	17.8	2740	48.77	0.38	0.006	[210]
cattle	Pure	680	19.2	13056	18.1	10580	191.50	1.47	0.016	[210]
cattle	Pure	770	17	13090	18.4	9220	169.65	1.30	0.012	[210]
cattle	Pure	430	30.4	13072	20.9	2490	52.04	0.40	0.006	[210]
cattle	Pure	425	30.6	13005	22.7	1050	23.84	0.18	0.002	[210]
cattle	Natural	54.29				110			0.002	[211]
cattle	Natural	54.29				300			0.006	[211]
cattle	Natural			3300	21	510	10.71	0.32		[212]
cattle	Natural	19.94		349	14.6	330	4.82	1.38	0.017	[213]
cattle	Natural	45.09		789	15.2	510	7.75	0.98	0.011	[213]
cattle	Natural	94.57		1655	15.5	1720	26.66	1.61	0.018	[213]
cattle	Natural	42.4		742	18.5	590	10.92	1.47	0.014	[213]
cattle	Natural	50.57		885	20	550	11.00	1.24	0.011	[213]
cattle	Natural	55.2		966	30.4	620	18.85	1.95	0.011	[213]
cattle	Natural	63.77		1116	31.2	510	15.91	1.43	0.008	[213]
cattle	Natural	28.11		492	31.8	360	11.45	2.33	0.013	[213]
cattle	Natural	142.34		2491	32.3	1500	48.45	1.95	0.011	[213]
cattle	Natural	65.37		1144	32.9	740	24.35	2.13	0.011	[213]
cattle	Natural	57.2				530			0.009	[213]
cattle	Natural	55.26				630			0.011	[213]
cattle	Natural	48.8				610			0.013	[213]
cattle	Natural	118.46				1610			0.014	[213]
cattle	Natural	24.06				350			0.015	[213]
cattle	Natural	3.9	17.2	67.15	17.4	18.41	0.32	0.48	0.005	[214]
cattle	Natural	3.9	17.2	67.15	17.6	17.25	0.30	0.45	0.004	[214]
cattle	Natural	3.9	17.2	67.15	17.7	17.83	0.32	0.47	0.005	[214]
cattle	Natural	3.3	17.2	56.4	19.3	15.88	0.31	0.54	0.005	[214]
cattle	Natural	3.3	17.2	56.4	19.4	15.52	0.30	0.53	0.005	[214]
cattle	Natural	3.3	17.2	56.4	19.7	15.83	0.31	0.55	0.005	[214]
cattle	Natural	112	22.16	2481.92	34.19	1920	65.64	2.64	0.017	[215]
cattle	Natural	4.3		98	21.2	66.7	1.41	1.44	0.016	[216]
cattle	Natural	4.3		98.1	21.7	59.2	1.28	1.31	0.014	[216]
cattle	Natural	4.3		98.3	34.8	61.9	2.15	2.19	0.014	[216]
cattle	Natural	4.3		98	41.8	65.8	2.75	2.81	0.015	[216]
cattle	Natural	7.31	23.8	174	31.03	215	6.67	3.83	0.029	[217]
cattle	Natural	458	12.7	5820	6.1	5300	32.33	0.56	0.012	[218]
cattle	Natural	458	12.7	5820	6.6	5300	34.98	0.60	0.012	[218]
cattle	Natural	458	12.7	5820	11.7	5000	58.50	1.01	0.011	[218]
cattle	Natural	458	12.7	5820	14.8	5000	74.00	1.27	0.011	[218]
cattle	Natural	40	15	600		800			0.020	[218]
cattle	Natural	80	15	1200		1700			0.021	[218]
cattle	Natural	12.91		226	18.4	141	2.59	1.15	0.011	[219]
cattle	Natural	8.11		142	19.9	89	1.77	1.25	0.011	[219]
cattle	Natural	17.77		311	20.1	112	2.25	0.72	0.006	[219]
cattle	Natural	3.26		57	20.2	44	0.89	1.56	0.013	[219]
cattle	Natural	500	11.66	5830	7.1	15510	110.12	1.89	0.031	[220]
cattle	Natural	500	12.64	6320	8.34	12500	104.25	1.65	0.025	[220]
cattle	Natural	8.86	17.2	155	18.3	190	3.48	2.24	0.021	[221]
cattle	Natural	9.89	16.9	173	20.6	160	3.30	1.91	0.016	[221]
cattle	Natural	10.2	19	193.7	22.58	210	4.74	2.45	0.021	[221]
cattle	Natural	4.1	22.1	90.61	31.2	117	3.65	4.03	0.029	[222]
cattle	Natural	4.1	24.1	98.81	31.2	117	3.65	3.69	0.029	[222]
cattle	Natural	4.1	23.8	97.58	31.2	127	3.96	4.06	0.031	[222]
cattle	Pure	16.2	15.4	249.48	14.4	10	0.14	0.06	0.001	[223]
cattle	Pure	466	15.7	7316.2	14.7	860	12.64	0.17	0.002	[223]
cattle	Pure	3	15.7	47.1	14.9	0	0.00	0.00	0.000	[223]
cattle	Pure	86	15.6	1341.6	15.2	230	3.50	0.26	0.003	[223]
cattle	Natural			17	27.7	25	0.69	4.07		[224]
cattle	Natural			122	27.7	100	2.77	2.27		[224]

Species	Source	C_{feed} (µg AFB1/kg)	DMI (kg/d)	Intake (µg AFM1/d)	V_{milk} (L/d)	C_{milk} (AFM1 µg/kg)	Daily milk AFM1 (µg AFM1/d)	%COR	TF_{milk}	Ref
cattle	Natural			392	27.7	190	5.26	1.34		[224]
cattle	Natural			1046	27.7	600	16.62	1.59		[224]
cattle	Natural			2049	27.7	1250	34.63	1.69		[224]
cattle	Natural			589	27.7	380	10.53	1.79		[224]
cattle	Natural	10.5	19	200		60			0.006	[208]
cattle	Pure	350				16350			0.047	[225]
cattle	Natural			78	24.8	80	1.98	2.54		[226]
cattle	Natural	2				10			0.005	[226]
cattle	Natural	10				80			0.008	[226]
cattle	Natural	0.9				10			0.011	[226]
cattle	Natural	2.05				40			0.020	[226]
cattle	Natural	4.47				90			0.020	[226]
cattle	Natural			56	14.8	100	1.48	2.64		[227]
cattle	Natural			34	16.6	40	0.66	1.95		[227]
cattle	Natural			36	16.8	50	0.84	2.33		[227]
cattle	Natural			14	17.4	20	0.35	2.49		[227]
cattle	Natural			57	37	60	2.22	3.89		[227]
cattle	Natural			33	39.3	30	1.18	3.57		[227]
cattle	Natural			7	39.4	10	0.39	5.63		[227]
cattle	Natural			39	39.5	60	2.37	6.08		[227]
cattle	Natural	94	21	1974	7.18	1170	8.40	0.43	0.012	[228]
cattle	Natural	91	21	1911	7.18	1170	8.40	0.44	0.013	[228]
cattle	Natural	94	24.5	2303	9.32	2280	21.25	0.92	0.024	[228]
cattle	Natural	91	24.5	2229.5	9.32	2280	21.25	0.95	0.025	[228]
cattle	Natural	94	28.6	2688.4	12.18	1100	13.40	0.50	0.012	[228]
cattle	Natural	91	28.6	2602.6	12.18	1100	13.40	0.51	0.012	[228]
cattle	Natural	94	28.4	2669.6	14.5	1860	26.97	1.01	0.020	[228]
cattle	Natural	91	28.4	2584.4	14.5	1860	26.97	1.04	0.020	[228]
cattle	Natural	94	22.4	2105.6	16.95	1720	29.15	1.38	0.018	[228]
cattle	Natural	91	22.4	2038.4	16.95	1720	29.15	1.43	0.019	[228]
cattle	Natural	94	34.3	3224.2	17.36	2560	44.44	1.38	0.027	[228]
cattle	Natural	91	34.3	3121.3	17.36	2560	44.44	1.42	0.028	[228]
cattle	Natural	94	18.1	1701.4	18.14	1730	31.38	1.84	0.018	[228]
cattle	Natural	91	18.1	1647.1	18.14	1730	31.38	1.91	0.019	[228]
cattle	Natural	94	13.9	1306.6	18.59	1130	21.01	1.61	0.012	[228]
cattle	Natural	91	13.9	1264.9	18.59	1130	21.01	1.66	0.012	[228]
cattle	Natural	94	20.1	1889.4	19.05	1780	33.91	1.79	0.019	[228]
cattle	Natural	91	20.1	1829.1	19.05	1780	33.91	1.85	0.020	[228]
cattle	Natural	94	33.2	3120.8	19.18	1990	38.17	1.22	0.021	[228]
cattle	Natural	91	33.2	3021.2	19.18	1990	38.17	1.26	0.022	[228]
cattle	Natural	94	18.4	1729.6	19.45	1690	32.87	1.90	0.018	[228]
cattle	Natural	91	18.4	1674.4	19.45	1690	32.87	1.96	0.019	[228]
cattle	Natural	94	22.6	2124.4	21.09	2740	57.79	2.72	0.029	[228]
cattle	Natural	91	22.6	2056.6	21.09	2740	57.79	2.81	0.030	[228]
cattle	Natural	94	21.8	2049.2	21.36	1310	27.98	1.37	0.014	[228]
cattle	Natural	91	21.8	1983.8	21.36	1310	27.98	1.41	0.014	[228]
cattle	Natural	94	26.6	2500.4	22.41	1280	28.68	1.15	0.014	[228]
cattle	Natural	91	26.6	2420.6	22.41	1280	28.68	1.19	0.014	[228]
cattle	Natural	94	21.5	2021	22.5	2600	58.50	2.89	0.028	[228]
cattle	Natural	91	21.5	1956.5	22.5	2600	58.50	2.99	0.029	[228]
cattle	Natural	94	24.5	2303	22.82	1350	30.81	1.34	0.014	[228]
cattle	Natural	91	24.5	2229.5	22.82	1350	30.81	1.38	0.015	[228]
cattle	Natural	94	22.9	2152.6	23.09	2160	49.87	2.32	0.023	[228]
cattle	Natural	91	22.9	2083.9	23.09	2160	49.87	2.39	0.024	[228]
cattle	Natural	91	23.9	2174.9	23.91	260	6.22	0.29	0.003	[228]
cattle	Natural	94	23.9	2246.6	23.91	2600	62.17	2.77	0.028	[228]
cattle	Natural	94	27.8	2613.2	25.09	1450	36.38	1.39	0.015	[228]
cattle	Natural	91	27.8	2529.8	25.09	1450	36.38	1.44	0.016	[228]
cattle	Natural	94	25	2350	26.95	1500	40.43	1.72	0.016	[228]
cattle	Natural	91	25	2275	26.95	1500	40.43	1.78	0.016	[228]
cattle	Natural	94	23.1	2171.4	27.82	1140	31.71	1.46	0.012	[228]
cattle	Natural	91	23.1	2102.1	27.82	1140	31.71	1.51	0.013	[228]
cattle	Natural	94	22.3	2096.2	28.5	1220	34.77	1.66	0.013	[228]
cattle	Natural	91	22.3	2029.3	28.5	1220	34.77	1.71	0.013	[228]
cattle	Natural	94	23.7	2227.8	28.73	770	22.12	0.99	0.008	[228]
cattle	Natural	91	23.7	2156.7	28.73	770	22.12	1.03	0.008	[228]
cattle	Natural	94	28.7	2697.8	30.91	1190	36.78	1.36	0.013	[228]
cattle	Natural	91	28.7	2611.7	30.91	1190	36.78	1.41	0.013	[228]
goat	Pure	74.85	1.336	100	1.018	498	0.51	0.51	0.007	[229]
goat	Natural	8.06	3.4	27.4	1.2	240	0.29	1.05	0.030	[230]
goat	Natural	2.68	3.4	9.1	1.24	100	0.12	1.36	0.037	[230]

Species	Source	C_{feed} (µg AFB1/kg)	DMI (kg/d)	Intake (µg AFM1/d)	V_{milk} (L/d)	C_{milk} (AFM1 µg/kg)	Daily milk AFM1 (µg AFM1/d)	%COR	TF_{milk}	Ref
goat	Natural	5.38	3.4	18.3	1.25	160	0.20	1.09	0.030	[230]
goat	Natural	100	2.7	270	1	649	0.65	0.24	0.006	[231]
goat	Natural	200	2.7	540	1.1	1619	1.78	0.33	0.008	[231]
sheep	Pure	50	1.5	75	1.071	318	0.34	0.45	0.006	[232]
sheep	Pure	42.67	1.5	64	1.199	304	0.36	0.57	0.007	[232]
sheep	Pure	85.33	1.5	128	1.271	510	0.65	0.51	0.006	[232]
sheep	Pure	21.33	1.5	32	1.285	140	0.18	0.56	0.007	[232]
sheep	Pure	50	1.5	75	1.433	317	0.45	0.61	0.006	[232]
sheep	Pure	21.33	1.5	32	0.821	57	0.05	0.15	0.003	[233]
sheep	Pure	42.67	1.5	64	0.855	226	0.19	0.30	0.005	[233]
sheep	Pure	85.33	1.5	128	0.863	331	0.29	0.22	0.004	[233]
sheep	Pure	85.33	1.5	128	1.03	596.9	0.61	0.48	0.007	[234]
sheep	Pure	21.33	1.5	32	1.12	184.4	0.21	0.65	0.009	[234]
sheep	Pure	42.67	1.5	64	1.15	324.7	0.37	0.58	0.008	[234]
sheep	Natural	5.03	1.40	7.04	1.234	79.29	0.10	1.39	0.016	[235]
sheep	Natural	2.30	1.40	3.22	1.234	50.38	0.06	1.93	0.022	[235]
sheep	Natural	1.13	1.40	1.58	1.234	39.7	0.05	3.10	0.035	[235]

Pure = purified aflatoxin B1; natural = aflatoxin B1 resulting from natural contamination of feed ingredients.
DMI = dry matter intake
%COR = carry-over rate expressed as a percentage

Table A31. Summary of residue transfer studies for Ochratoxin A

Species	Feed level (µg/kg DM)	Duration (days)	Kidney (µg/kg)	Liver (µg/kg)	Muscle (µg/kg)	Milk/eggs (µg/kg)	Ref
Chickens	0.160-0.332	60	0.01365	0.00443	<LOD	-	[236]
Chicken	50	35	0.5, 0.8	5, 11	0.5, 0.5		[237]
Chicken	324	14-176	12	2	2		[238]
	1052	14-176	19, 32	4,7	2,4		
Chicken	1000	56		32.8, 22.8	0.8, 2.8		[239]
	1500	56		16.16, 10.98	3,5		
	2000	56		34.3, 58.6	4.5, 8.5		
Chicken	1500	21-42		16.16, 10.98	7.46, 3.02		[240]
Chicken	2000	56	41	24			[241]
Chicken	0.5 mg/bird	28	1.25	1.45	0.06	-	[242]
Laying hens	200	84	2.47	-	0.31		[243]
Laying hens	300 or 1000	14-176	-	-	-	<LOD	[238]
Laying hens	500	42	36.8	26.3	8		[244]
	1000	42	77	57.6	12.6		
	4000	42	106.9	72.6	20.8		
Laying hens	1000	7-14	3, 10	1.5, 2.5			[245]
Laying hens	1300	28		9.1		1.6	[246]
	2600	28		17.9		2.5	
	5200	28		18		4	
Laying hens	2500		3.8	3		-	[247]
	10000		5.7	5.2		1.3	
Laying hens	2000	21	-	51.1	-	<0.15	[248]
Pig	25	21-28	4	2	1		[249]
	50	21-28	5	1	1		
	100	21-28	1.5, 11	2	2.7		
	140	21-28	10,12	1,4	4,4		
	200	21-28	11	4	6		
	266	21-28	17	10	8		
	271	21-28	4.8				
	1380	14-56	71,62,49,45	21,22,20,20	38, 37, 44, 33		
	1600	7-28	38,50,39,54,50	12,20,15,19,16	17, 23, 22,		
	1720	7-28	61	30	25,31		
	1989	7-28	55.8	-	31		
					6.3		
Pig	25	119	69	52	6.1		[250]
Pig	19	in feed	1.58	1.7			[251]
	31.4	(survey)	3.15	3.62			
Pig	32.2	14	8.74±0.21	5.90±0.29	4.26±0.34	-	[252]
Pig	90	28	20.7	12.4	4.23		[253]
Pig	117.45	28	12.49	1.02	-	-	[254]
Pig	200	40	-	-	2.21	-	[255]
Pig	100		16.2	7.9	2.7		[256]
	400		43.6	36.7	10.3		

Species	Feed level (µg/kg DM)	Duration (days)	Kidney (µg/kg)	Liver (µg/kg)	Muscle (µg/kg)	Milk/eggs (µg/kg)	Ref
Pig	200		5	2	-		[257]
	1000		14	10	4		
Pig	880		61	25	32		[258]
	1550		36	15	28		
Lactating cow	317-1125	77	<LOD (one sample 0.005)	<LOD	<LOD	<LOD	[259] OTα not detected

OTα = ochratoxin-α;

Table A32. Summary of residue transfer studies for deoxynivalenol (DON)

Species	Feed level (µg/kg DM)	Duration (days)	Kidney (µg/kg)	Liver (µg/kg)	Muscle (µg/kg)	Milk/eggs (µg/kg)	Ref
Laying hen	4000-5000	190		<10	<10	<10	[260]
Laying hen	18000	28				<10	[261][262]
Laying hen	82800	27	<10	<10	<10	<10	[263]
Chicken	4000-5000	28		<10	<10	-	[260]
Chicken	9000	35	<10	<10	<10		[261]
	18000	35	<10	<10	<10		
Pig (7.7 kg bw), slaughter 0 h	900	21	19	5			[262]
	2000	21	19	10			
	2800	21	23	12			
Pig (60.5 kg bw, slaughter 12-15 h)	2200	42	<10	<10			[262]
Pig (5 wks old)	5800	28	<50	<50	<50		[264]
Pig	6680 + 56 ZEA	84	79 N	26 N 1.9 M	13.8 N 0.3 M (fat 2.4 N 0 M)		[265]
Pig (25 kg bw)	6000-7600	21-49	5.0±9.2	3.0±3.5	6.7±9.6		[266]
Lactating cow	880	3	-	-	-	220 M conj	[267]
Lactating cow	2637-3802	28				<0.1-0.14 N 0.2-0.6 de-epoxyDON β-glucuronidase 0.11-0.26 N 1.5-3.1 de-epoxyDON	[268]
Lactating cow	5300	64	-	-	-	1.0-1.5	[269]
	4400	84				0.6-1.6 M	
	4600	84				0.7-1.5	
Lactating cow	6000	70				<1	[270]
	12000	70					
Lactating cow	66000	5	-	-	-	<1 N 26 M	[271]

N = DON, M = DOM; ZEA = zearalenone

Table A33. Summary of residue transfer studies for Zearalenone (ZEA)

Species	Feed level (µg/kg DM)	Duration (days)	Kidney (µg/kg)	Liver (µg/kg)	Muscle (µg/kg)	Milk/eggs (µg/kg)	Ref
Laying hen	1100	112		1.6 Z +3.8α +<3β			[272]
Duck	0-60	49		<1 Z +α +β			[273]
Turkey	800000	14	120Z 480α	280Z 2720α			[274]
Pig (33 kg bw)	10	35		1.8 Z+0.3α			[275]
	60	35		0.2 Z+0.1α			
	150	35		2.1 Z+1.1α			
	220	35		2.9 Z+1.7α			
	420	35		5.3 Z+1.8α			
Pig	56 + 6680 DON	84		0Z+0.7α+0β			[276]
Pig (50 kg bw)	250	90	<LOD Z +α	<LOD Z +α	<LOD Z +α		[277]
	250+100 OTA	90	<LOD Z + 4α	<LOD Z +4α	<LOD Z +α		
Pig (70 kg bw)	700	18		<LOQ-3.1 Z + 3.6-12 α + 1.9-4.8 β	<LOQ Z + <LOQ-14.5 α		[278]
Pig (8-11 kg)	40000	28		128±28 Z + 94±24 α			[279]
Bull (460 kg	114	152-160	<LOD Z+α+β	<LOD Z+α+β	<LOD Z+α+β		[280]

Species	Feed level (µg/kg DM)	Duration (days)	Kidney (µg/kg)	Liver (µg/kg)	Muscle (µg/kg)	Milk/eggs (µg/kg)	Ref
bw)			+Zan+Zanα +Zanβ	+Zan+Zanα +Zanβ	+Zan+Zanα +Zanβ		
Lactating cow	200-500	63				0.4-1.2 ELISA	[281]
Lactating cow	25000	7				481+508+370 Z+ α + β (inc conj)	[282]
Lactating cow	40000	21				2.5+3.0 Z+ α	[283]

Z = zearalenone; α = α-zearalenol; β = β-zearalenol; Zan = zearalanone; Zanα = α-zearalanol; Zanβ = β-zearalanol

Table A34. Summary of residue transfer studies for Fumonisins

Species	Feed level (µg/kg DM)	Duration (days)	Kidney (µg/kg)	Liver (µg/kg)	Muscle (µg/kg)	Milk/eggs (µg/kg)	Ref
Quail (laying)	10000	5 mo				<20	[186]
Duck	5000 FB1+FB2	12	<LOD	<LOD	<LOD	-	[284]
	10000 FB1+FB2	12	<LOD	16	<LOD		
	20000 FB1+FB2	12	<LOD	20	<LOD		
Turkey	5000 FB1+FB2	72	<LOD	33	<LOD	-	[285]
	10000 FB1+FB2	72	<LOD	44	<LOD		
	20000 FB1+FB2	72	22	117	<LOD		
Chicken	10000 FB1	21		24			[286]
Pig (12-14 kg bw)	45000 FB1 + 8600 FB2 + 4600 FB3	10	9.95±0.3 FB1 3.62±0.1 FB1	17.4±1.7 FB1 8.25±0.5 FB1	11.2±1.2 FB1 0.95±0.2 FB1		[287]

FB1 = fumonisin B1; FB2 = fumonisin B2; FB3 = fumonisin B3

Table A35. Summary of residue transfer studies for other Mycotoxins

Species	Feed level (µg/kg DM)	Duration (days)	Kidney (µg/kg)	Liver (µg/kg)	Muscle (µg/kg)	Milk/eggs (µg/kg)	Ref
Lactating cow	50 T-2	15				10-160 T-2	[288]
Lactating cow	31000-36000 T-2	4				2 T-2	[289]
Cattle	7.8 mg lolitrem B /cow	15	<LOD	<LOD	<LOD musc 210 ppb fat	-	[290]
Cattle	170 mg/kg ergot (69.4 µg/kg alkaloid) 860 mg/kg ergot (421.3 µg/kg alkaloid)	230	<LOD	<LOD	<LOD	-	[291]
Lactating cow	504.9-619.5 µg/kg ergot alkaloids	28	-	-	-	<LOD	[292]

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