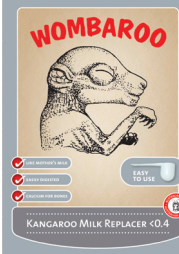

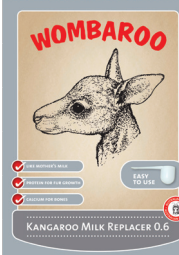


Milk for Kangaroos

Suitable for all species of macropods including kangaroos, wallabies, pademelons, bettongs & potoroos.

	Kangaroo Milk Replacer <0.4	Analysis	
	<p>For joeys with less than 40% of pouch life completed. Furless. Pink skin. Eyes closed. Ears down. Faeces: Yellow custard consistency. Pack size: 140g, 700g.</p>	Solids	140g/litre
		Protein	36%
		Fat	14%
		Carbohydrate	41%
		Energy	2.6MJ/litre

	Kangaroo Milk Replacer 0.4	Analysis	
	<p>For joeys with 40% of pouch life completed. Furless. Darkening skin. Eyes nearly open or just opened. Ears nearly erect Faeces: Yellow toothpaste. Pack Size: 180g, 900g, 5kg.</p>	Solids	180g/litre
		Protein	34%
		Fat	22%
		Carbohydrate	36%
		Energy	3.6MJ/litre

	Kangaroo Milk Replacer 0.6	Analysis	
	<p>For joeys with 60% of pouch life completed. Fur: Fine to short. Ears Erect. Faeces: Mustard toothpaste to soft green pellets. Pack size: 220g, 1.1kg, 5kg, 10kg.</p>	Solids	220g/litre
		Protein	32%
		Fat	28%
		Carbohydrate	32%
		Energy	4.7MJ/litre

	Kangaroo Milk Replacer >0.7	Analysis	
	<p>For joeys with greater than 70% of pouch life completed. Fur: Short to dense. Spends time out of pouch. Faeces: Soft to firm green pellets. Pack size: 250g, 1.25kg, 5kg, 10kg, 20kg.</p>	Solids	250g/litre
		Protein	30%
		Fat	42%
		Carbohydrate	14%
		Energy	6.1MJ/litre

Red Kangaroo (*Macropus rufus*)

Milk	Age (days)	Tail (mm)	Foot (mm)	Head (mm)	Weight (g)	Feed (ml/day)	Notes
<0.4	50	48	25	32	40	12	
	60	59	31	37	65	17	
	70	70	39	42	95	23	
	80	84	48	46	125	28	
	90	98	57	51	180	36	
Transition	92	101	59	52	192	36	27mL <0.4 + 9ml 0.4
	95	105	62	53	210	36	18mL <0.4 + 18ml 0.4
	98	109	65	55	228	36	9mL <0.4 + 27ml 0.4
0.4	100	112	67	56	240	36	
	110	128	77	60	315	47	
	120	145	89	65	405	55	Eyes opening
	130	162	102	69	510	64	
	135	171	109	74	570	68	
Transition	137	175	111	75	594	68	50mL 0.4 + 18ml 0.6
	140	181	115	76	630	68	34mL 0.4 + 34ml 0.6
	142	185	118	78	658	68	18mL 0.4 + 50ml 0.6
0.6	145	192	122	79	705	68	
	150	203	128	83	785	73	
	160	226	142	88	970	85	Fine hair covering
Transition	162	231	145	89	1016	85	65mL 0.6 + 20ml >0.7
	165	238	149	90	1085	85	40mL 0.6 + 45ml >0.7
	168	245	153	92	1154	85	20mL 0.6 + 65ml >0.7
>0.7	170	250	156	93	1200	85	
	180	275	169	97	1450	100	Emerging from pouch
	190	302	180	102	1800	120	
	200	330	191	107	2250	140	
	210	360	202	111	2750	155	
	220	393	211	116	3375	175	
	230	430	220	121	4100	205	
	240	467	227	125	4900	240	Fully out of pouch
Weaning	250	Growth rate now about 75g per day				240	Feed volume now depends on amount of solids consumed
	270	Not Valid				180	
	290					120	Gradually increase solid food and reduce milk intake until fully weaned
	310					80	
	330					40	
	350					0	Fully weaned

Eastern Grey Kangaroo (*Macropus giganteus*)*

Milk	Age (days)	Tail (mm)	Foot (mm)	Head (mm)	Weight (g)	Feed (ml/day)	Notes
<0.4	60	47	28	36	45	13	Whiskers visible
	70	58	34	40	65	17	
	80	69	41	45	90	22	
	90	80	49	50	115	26	
	100	94	57	55	145	31	Eyelashes visible
	110	108	65	59	195	38	
Transition	122	126	76	65	274	48	36mL <0.4 + 12ml 0.4
	125	131	79	67	296	48	24mL <0.4 + 24ml 0.4
	128	136	81	68	319	48	12mL <0.4 + 36ml 0.4
0.4	130	139	83	69	335	48	
	140	156	93	73	420	57	
	150	172	103	77	525	65	
	160	191	113	81	640	75	Eyes open
	170	209	123	85	780	90	
	180	228	133	88	950	100	Fine fur visible on head
Transition	182	232	135	89	990	100	75mL 0.4 + 25ml 0.6
	185	238	138	90	1050	100	50mL 0.4 + 50ml 0.6
	188	244	141	91	1110	100	25mL 0.4 + 75ml 0.6
0.6	190	248	143	92	1150	100	
	200	268	153	96	1350	110	
	210	288	163	99	1550	120	Fine fur covering body
Transition	212	292	165	100	1600	120	90mL 0.6 + 30ml >0.7
	215	298	168	101	1675	120	60mL 0.6 + 60ml >0.7
	218	305	171	102	1750	120	30mL 0.6 + 90ml >0.7
>0.7	220	309	173	103	1800	120	
	230	329	183	106	2070	135	
	240	350	194	109	2350	145	
	250	371	204	112	2700	155	Emerging from pouch
	260	392	214	115	3150	165	
	270	414	224	118	3600	185	
	280	436	234	121	4100	200	Incisors through gums
	290	458	244	123	4600	220	
	300	480	254	126	5100	240	
	310	495	259	128	5600	250	
Weaning	320	510	264	130	6100	260	Fully out of pouch
	330	Growth rate now about 50g per day				240	Feed volume now depends on amount of solids consumed
	360	Not Valid				180	
	390					120	Gradually increase solid food and reduce milk intake
	420					60	
450	0					Fully weaned	

*Note: Smaller animals (eg females) may better follow the growth curve of the Western Grey Kangaroo.

Western Grey Kangaroo (*Macropus fuliginosus*)*

Milk	Age (days)	Tail (mm)	Foot (mm)	Head (mm)	Weight (g)	Feed (ml/day)	Notes
<0.4	60	44	26	34	40	12	Whiskers visible
	70	53	32	39	58	16	
	80	63	38	43	77	20	
	90	74	45	47	100	23	
	100	86	52	51	125	28	Eyelashes visible
	110	99	59	55	160	33	
Transition	122	115	69	60	215	40	30mL <0.4 + 10ml 0.4
	125	119	71	61	230	40	20mL <0.4 + 20ml 0.4
	128	123	73	62	245	40	10mL <0.4 + 30ml 0.4
0.4	130	126	75	63	255	40	
	140	141	84	67	310	46	
	150	157	93	71	380	53	
	160	174	102	75	460	61	Eyes open
	170	191	111	79	560	68	
	180	208	120	82	680	80	Fine fur visible on head
Transition	182	212	122	83	712	80	60mL 0.4 + 20ml 0.6
	185	217	125	84	760	80	40mL 0.4 + 40ml 0.6
	188	222	127	84	808	80	20mL 0.4 + 60ml 0.6
0.6	190	226	129	85	840	80	
	200	244	139	88	1000	90	
	210	263	148	91	1160	100	Fine fur covering body
Transition	212	267	150	92	1190	100	75mL 0.6 + 25ml >0.7
	215	273	153	93	1250	100	50mL 0.6 + 50ml >0.7
	218	278	155	93	1310	100	25mL 0.6 + 75ml >0.7
>0.7	220	282	157	94	1350	100	
	230	302	167	97	1550	110	
	240	322	176	100	1770	120	
	250	342	185	103	2050	130	Emerging from pouch
	260	362	195	106	2400	145	
	270	383	204	109	2800	155	
	280	406	214	112	3250	170	
	290	428	224	114	3700	190	
	300	446	232	116	4200	210	
	310	455	235	118	4700	230	
Weaning	320	463	237	120	5200	240	Fully out of pouch
	330	Growth rate now about 40-50g per day				240	Feed volume now depends on amount of solids consumed
	360	Not Valid				180	
	390					120	Gradually increase solid
	420					60	food and reduce milk intake
	450					0	Fully weaned

*Note: Larger animals (eg males) may better follow the growth curve of the Eastern Grey Kangaroo. WA animals (subspecies *ocydromus*) may grow more slowly and reach developmental milestones later than indicated on the chart.

Euro (*Macropus robustus erubescens*)*

Milk	Age (days)	Tail (mm)	Foot (mm)	Weight (g)	Feed (mL/day)	Notes
<0.4	50	43	22	22	7	
	60	51	27	39	12	Whiskers present
	70	61	33	56	15	
	80	72	40	82	20	
	90	86	48	115	26	
Transition	92	89	50	122	26	20mL <0.4 + 6ml 0.4
	95	94	52	133	26	13mL <0.4 + 13ml 0.4
	98	99	54	145	26	6mL <0.4 + 20ml 0.4
0.4	100	102	56	155	26	
	110	120	65	205	32	
	120	140	74	260	38	Eyes opening
	130	160	84	320	47	
	135	170	90	350	50	Fine fur visible on head
Transition	137	174	92	365	50	40mL 0.4 + 10ml 0.6
	140	180	95	388	50	25mL 0.4 + 25ml 0.6
	142	184	97	403	50	10mL 0.4 + 40ml 0.6
0.6	145	191	101	425	50	
	150	202	107	465	52	
	160	225	120	550	60	Fine hair covering
Transition	162	230	122	579	60	45mL 0.6 + 15ml >0.7
	165	238	126	623	60	30mL 0.6 + 30ml >0.7
	168	245	129	666	60	15mL 0.6 + 45ml >0.7
>0.7	170	250	131	695	60	
	180	275	143	840	65	
	190	303	155	1080	80	Emerging from pouch
	200	332	166	1400	100	
	210	358	174	1800	120	
	220	385	182	2200	140	
	230	402	186	2610	150	
	240	420	191	3020	160	Fully out of pouch
Weaning	250	Growth rate now about 40-50g per day			160	Feed volume now depends on amount of solids consumed
	270	Not Valid			140	Gradually increase solid food and reduce milk intake until fully weaned
	290				100	
	310				60	
	330				30	
	350				0	Fully weaned

* Note: Some animals may better match the Common Wallaroo growth curve.

Common Wallaroo (*Macropus robustus robustus*)*

Milk	Age (days)	Tail (mm)	Foot (mm)	Weight (g)	Feed (mL/day)	Notes
<0.4	60	54	29	42	12	
	70	66	35	60	16	Whiskers present
	80	78	41	84	21	
	90	90	48	112	25	
	95	96	53	128	28	
Transition	97	99	55	137	28	21mL <0.4 + 7ml 0.4
	100	104	57	150	28	14mL <0.4 + 14ml 0.4
	102	107	59	159	28	7mL <0.4 + 21ml 0.4
0.4	105	113	62	173	28	
	110	122	68	200	32	
	120	141	79	255	37	
	130	162	91	320	47	Eyes opening
	140	186	103	390	55	
	150	210	117	475	60	Fine fur visible on head
Transition	152	215	120	495	60	45mL 0.4 + 15ml 0.6
	155	223	124	525	60	30mL 0.4 + 30ml 0.6
	158	230	129	555	60	15mL 0.4 + 45ml 0.6
0.6	160	235	131	575	60	
	170	263	145	685	66	
	175	280	152	745	70	Fine fur covering body
Transition	177	287	155	770	70	50mL 0.6 + 20ml >0.7
	180	297	159	810	70	35mL 0.6 + 35ml >0.7
	182	303	161	840	70	20mL 0.6 + 50ml >0.7
	185	313	164	885	70	
>0.7	190	328	169	960	75	
	200	359	178	1200	85	Emerging from pouch
	210	391	187	1520	105	
	220	418	196	1880	125	
	230	445	203	2280	140	
	240	466	208	2680	155	
	250	486	212	3090	165	
	260	505	216	3500	180	Fully out of pouch
Weaning	270	Growth rate now about 40-50g per day			180	Feed volume now depends on amount of solids consumed
	290	Not Valid			140	
	310				100	Gradually increase solid food and reduce milk intake until fully weaned
	330				60	
	350				30	
	370				0	

* Note: Some animals may better match the Euro growth curve.

Agile Wallaby (*Macropus agilis*)

Milk	Age (days)	Tail (mm)	Foot (mm)	Weight (g)	Feed (mL/day)	Notes
<0.4	50	48	22	28	9	
	60	60	27	40	12	Whiskers present
	70	72	32	62	16	
	80	84	40	85	21	
Transition	82	87	42	90	22	16mL <0.4 + 6ml 0.4
	85	90	45	100	22	11mL <0.4 + 11ml 0.4
	88	94	47	110	22	6mL <0.4 + 16ml 0.4
0.4	90	97	49	120	22	
	100	112	59	170	29	
	110	129	70	235	35	
	120	148	82	320	48	Eyes opening
Transition	122	152	84	335	48	36mL 0.4 + 12ml 0.6
	125	158	88	365	48	24mL 0.4 + 24ml 0.6
	128	164	92	400	48	12mL 0.4 + 36ml 0.6
0.6	130	168	94	420	48	Lower Incisor through gums
	140	192	106	540	60	
	150	218	120	685	65	Fine hair covering
Transition	152	224	122	715	65	50mL 0.6 + 15ml >0.7
	155	232	126	765	65	30mL 0.6 + 35ml >0.7
	158	241	130	815	65	15mL 0.6 + 50ml >0.7
>0.7	160	247	132	850	65	
	170	280	142	1050	80	Upper incisor through gums
	180	315	150	1300	95	
	190	351	157	1550	110	Emerging from pouch
	200	384	164	1800	120	
	210	418	170	2050	130	
	220	450	176	2300	140	Fully out of pouch
Weaning	230	478	181	2550	150	
	250	Growth rate now about 25g per day			120	Feed volume now depends on amount of solids consumed
	270	Not Valid			90	
	290				60	Gradually increase solid food and reduce milk intake
	310				30	
330	0				Fully weaned	

Red-necked or Bennett's Wallaby (*Macropus rufogriseus*)

Milk	Age (days)	Tail (mm)	Foot (mm)	Weight (g)	Feed (mL/day)	Notes
<0.4	60	48	23	50	14	Whiskers present
	70	59	28	65	17	
	80	69	33	85	21	
	90	80	38	105	24	
	100	90	44	130	28	
	110	101	51	160	32	
Transition	112	104	53	170	32	24mL <0.4 + 8ml 0.4
	115	108	55	185	32	16mL <0.4 + 16ml 0.4
	118	112	57	200	32	8mL <0.4 + 24ml 0.4
0.4	120	115	59	210	32	
	130	128	67	260	38	
	140	142	75	320	47	Eyes opening
	150	158	83	390	55	
	160	177	92	470	60	
Transition	162	181	93	488	60	45mL 0.4 + 15ml 0.6
	165	187	96	515	60	30mL 0.4 + 30ml 0.6
	168	192	98	542	60	15mL 0.4 + 45ml 0.6
0.6	170	196	100	560	60	First incisors through gums
	180	217	110	660	65	
	190	239	120	780	72	Fine hair covering
Transition	192	243	122	808	72	54mL 0.6 + 18ml >0.7
	195	250	125	853	72	36mL 0.6 + 36ml >0.7
	198	258	128	898	72	18mL 0.6 + 54ml >0.7
>0.7	200	263	130	930	72	
	210	289	140	1100	80	
	220	319	148	1310	95	Emerging from pouch
	230	350	156	1540	105	
	240	378	163	1770	120	
	250	403	168	2000	130	
	260	415	174	2250	140	
	270	428	179	2500	150	
Weaning	280	440	183	2750	155	Fully out of pouch
	290	Growth rate now about 25g per day			140	Feed volume now depends on amount of solids consumed
	310	Not Valid			100	
	330				60	Gradually increase solid food and reduce milk intake.
	350				30	
370	0				Fully weaned	

Swamp Wallaby (*Wallabia bicolor*)

Milk	Age (days)	Foot (mm)	Head (mm)	Weight (g)	Feed (mL/day)	Notes
<0.4	60	23	32	40	12	
	70	27	36	50	14	
	80	32	40	65	17	
	90	37	44	90	22	
	100	42	48	115	24	
Transition	102	43	49	119	24	18mL <0.4 + 6ml 0.4
	105	45	50	126	24	12mL <0.4 + 12ml 0.4
	108	47	51	136	24	6mL <0.4 + 18ml 0.4
0.4	110	48	52	145	24	
	120	56	56	190	31	
	130	65	60	240	36	Eyes opening
	140	74	64	300	45	
	150	82	68	370	50	
Transition	152	84	69	380	50	40mL 0.4 + 10ml 0.6
	155	86	70	405	50	25mL 0.4 + 25ml 0.6
	158	88	71	430	50	10mL 0.4 + 40ml 0.6
0.6	160	90	72	450	50	
	170	99	76	550	60	
	180	106	79	670	65	Fine hair covering
Transition	182	107	80	695	65	50mL 0.6 + 15ml >0.7
	185	109	81	735	65	30mL 0.6 + 35ml >0.7
	188	111	81	785	65	15mL 0.6 + 50ml >0.7
>0.7	190	112	82	820	65	
	200	119	84	1000	75	
	210	125	86	1180	85	Emerging from pouch
	220	131	88	1370	100	
	230	137	90	1580	110	
	240	142	92	1830	120	
	250	145	94	2100	135	
	260	148	96	2350	145	Fully out of pouch
Weaning	270	Growth rate now about 25g per day			125	Feed volume now depends on amount of solids consumed
	280	Not Valid			100	
	300				60	Gradually increase solid food and reduce milk intake.
	320				30	
	340				0	Fully weaned

Tasmanian Pademelon (*Thylogale billardierii*)

Milk	Age (days)	Tail (mm)	Foot (mm)	Head (mm)	Weight (g)	Feed (mL/day)	Notes
<0.4	40	29	22	23	38	12	
	50	35	26	26	46	13	Whiskers present
	60	41	31	30	55	15	
	70	48	36	33	65	16	
Transition	72	50	37	34	68	16	12mL <0.4 + 4ml 0.4
	75	52	38	35	73	16	8mL <0.4 + 8ml 0.4
	78	54	40	36	77	16	4mL <0.4 + 12ml 0.4
0.4	80	56	41	37	80	16	
	90	64	46	40	95	19	Lower incisors first visible
	100	73	51	44	115	21	
	110	82	55	47	138	24	Eyes opening
Transition	112	84	56	48	144	24	18mL 0.4 + 6ml 0.6
	115	87	57	49	153	24	12mL 0.4 + 12ml 0.6
	118	90	59	50	163	24	6mL 0.4 + 18ml 0.6
0.6	120	92	60	51	170	24	
	130	103	65	54	218	28	
	140	114	70	58	270	32	Fine hair growth
Transition	142	116	71	58	282	32	24mL 0.6 + 8ml >0.7
	145	119	72	59	303	32	16mL 0.6 + 16ml >0.7
	148	123	74	60	325	32	8mL 0.6 + 24ml >0.7
>0.7	150	125	75	61	340	32	
	160	137	80	65	430	39	First emerging from pouch
	170	150	85	68	540	46	
	180	163	90	72	680	55	
	190	176	95	75	850	65	
	200	189	100	79	1030	75	Fully emerged from pouch
Weaning	210	Growth rate now about 15-20g per day				65	Feed volume now depends on amount of solids consumed
	230	Not Valid				45	
	250					30	Gradually increase solid food and reduce milk intake
	270					15	
	290					0	

Other Growth Charts

Growth charts are available for a range of other macropod species including Whiptail, Tammar & Parma Wallaby, Brush-tailed, Unadorned & Yellow-footed Rock-wallaby, Red-necked and Red-Legged Pademelon, Quokka, Long-nosed & Long-footed Potoroo, Rufous, Northern, Tasmanian & Brush-tailed Bettong (Woylie). Contact Wombaroo or visit www.wombaroo.com.au for further information.

Carnivorous Marsupials, Bandicoots and Bilbies

The milk of carnivorous marsupials, bandicoots and bilbies undergoes similar nutritional changes as that which occurs in macropods. This involves a progressive increase in total solids, fat and protein from early to late lactation while carbohydrate increases in mid lactation and then declines to very low levels during late lactation.

It is not practical to produce a multi-stage milk replacer for these animals as most have short pouch lives and young that come into care tend to be at the late lactation stage. We recommended feeding them **Kangaroo Milk Replacer >0.7** as this is a suitable high energy formula which many carers will have on hand or find readily available.

Bandicoots are known to have particularly high levels of energy in their milk and are very fast-growing. To cater for this we recommend the addition of up to 10% additional fat in the form of **The Good Oil for Animals** ie 10ml per 100ml of >0.7 Kangaroo Milk Replacer. The Good Oil may also be beneficial for carnivorous marsupials such as antechinus, phascogales, quolls & devils as it contains elevated levels of essential fatty acids (EPA & DHA) which are thought to be present in the milk of these species. Depending on age, young Tasmanian Devil joeys may be started on either Kangaroo 0.4 or 0.6 formula and then transitioned on to the >0.7 as they get older.

Contact Wombaroo or visit www.wombaroo.com.au for further information on growth rates of different species of bandicoots and carnivorous marsupials.

Feed Table Using Kangaroo >0.7

Body Weight (g)	Feed Volume (ml/day)	Body Weight (g)	Feed Volume (ml/day)	Body Weight (g)	Feed Volume (ml/day)
1	0.4	30	5.5	175	20
2	0.7	40	6.8	200	22
3	1.0	50	8.0	250	26
4	1.2	60	9.2	300	30
5	1.4	70	10	350	33
7	1.8	80	11	400	37
10	2.4	90	12	450	40
15	3.3	100	13	500	44
20	4.0	125	16	550	47
25	4.8	150	18	600	50
