

### **Supplementary material:**

**Table 1a:** List of ingredients contained in the new weight management food (NWMF).

Poultry meat meal, rice, maize gluten meal, cellulose, tomato pomace, beet pulp, flaxseed, coconut oil, digest, animal fat, minerals, L-lysine, DL-methionine, dehydrated carrots, L-carnitine, vitamins, taurine, trace elements and beta-carotene. Naturally preserved with mixed tocopherol and citric acid.

**Table 1b:** Average nutrient content in the new weight management food (NWMF).

Criterion	Dried ration		
	As fed	Dry matter	Per 100 kcal ME
Protein	37.8 %	40.0 %	11.2 g
Fat	12.1 %	12.8 %	3.6 g
Carbohydrate (NFE)	29.2%	30.9 %	8.7 g
Fiber (crude)	9.3 %	9.8 %	2.8 g
Total dietary fiber	16.5 %	17.5 %	4.9 g
Moisture	5.5 %	-	1.6 g
Calcium	0.96 %	1.02 %	285 mg
Phosphorus	0.70 %	0.74 %	207 mg
Sodium	0.31 %	0.33 %	92 mg
Potassium	0.71 %	0.74 %	210 mg
Magnesium	0.09 %	0.10 %	27 mg
Omega-3 fatty acids	1.06 %	1.12 %	314 mg
Omega-6 fatty acids	2.30 %	2.43 %	682 mg
Taurine	2,375 mg/kg	2,513 mg/kg	70 mg
L-carnitine	530 mg/kg	561 mg/kg	16 mg
L-lysine	2.1 %	2.2 %	623 mg
Vitamin A	10,211 IU/kg	10,805 IU/kg	303 IU
Vitamin D	927 IU/kg	981 IU/kg	27 IU
Vitamin E	600 mg/kg	635 mg/kg	18 mg
Vitamin C	90 mg/kg	95 mg/kg	3 mg
Beta-carotene	1.5 mg/kg	1.6 mg/kg	0.04 mg
Metabolisable Energy			
Kcal/100g	337	357	
KJ/100g	1,412	1,494	

NFE: nitrogen free extract, ME: metabolisable energy

**Table 2:** Participating countries and number of cats recruited

<b>Country</b>	<b># of cats per country</b>
France	29
Netherlands	22
Spain	17
Italy	11
Germany	9
United Kingdom	9
Czech Republic	4
Malta	4
Serbia	4
Norway	3
Denmark	3
Belgium	2
Finland	2
Latvia	2
Lithuania	2
Poland	2
Portugal	2
Romania	2
Sweden	2
Greece	1
Total	132

**Table 3:** Body fat index chart with descriptors for visual and palpation-based assessment of overweight or obese cats.<sup>1</sup>

Variable	BFI			
	30	40	50	60
Body fat	26-35	36-45	46-55	56-65
Face structures	Slight fat cover; defined bony structures	Slight to moderate fat cover; defined to slight bony structures	Moderate fat cover; slight to minimal bony structures	Thick fat cover; minimal to no bony structures
Head and neck	Clear distinction between head and shoulder; loose scruff; slight scruff fat	Clear to slight distinction between head and shoulder; loose to snug scruff; slight to moderate scruff fat.	Minimal distinction between head and shoulder; loose to snug scruff; slight to moderate scruff fat	Poor to no distinction between head and shoulder; snug to tight scruff; moderate to very thick scruff fat
Sternum	Defined, slightly prominent; easy to palpate; slight to moderate pectoral fat	Minimally prominent; palpable; moderate pectoral fat	Poorly defined to not prominent; difficult to palpate; moderate to thick pectoral fat	Not prominent; very or extremely difficult to palpate; very or extremely thick pectoral fat
Scapulae	Defined, slightly prominent, easy or very easy to palpate	Slightly prominent; easy to palpate	Minimally to not prominent; palpable	Not prominent; difficult to palpate
Ribs	Not prominent; easy to palpate	Not prominent; palpable	Not prominent; difficult to palpate	Not prominent; extremely difficult or impossible to palpate

Abdomen	Loose abdominal skin with minimal fat; easy to palpate abdominal contents	Obvious skin fold with moderate fat; easy to palpate abdominal contents	Heavy fat pad; difficult to palpate abdominal contents	Very heavy fat pad; indistinction from abdominal fat; impossible to palpate abdominal contents
Tail base	Slightly to minimally prominent bony structure; palpable; slight fat cover	Slight to minimally prominent bony structures; palpable; slight to moderate fat cover	Poorly defined bony structure; difficult to palpate; moderate to thick fat cover	Bony structure not prominent; very or extremely difficult to palpate; very thick to extremely thick fat cover
Body shape From behind	Clear to poor muscle definition under a thin to moderate layer of fat	Poor muscle definition under a moderate layer of fat	Rounded appearance; thick layer of fat	Rounded to square appearance; thick layer of fat
From the side	No abdominal tuck	Slight abdominal bulge	Moderate abdominal bulge	Severe abdominal bulge
From above	Slight hourglass or lumbar waist	Lumbar waist	Broadened back	Severely broadened back

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**Table 4:** Muscle condition score (MCS): using visual examination and palpation over the temporal bones, scapulae, ribs, lumbar vertebrae and pelvic bones.<sup>2, 3</sup>

Score	Description
1	No muscle wasting, normal muscle mass
2	Mild muscle wasting
3	Moderate muscle wasting
4	Marked muscle wasting

**Table 5:** Participating cat breeds and number of cats enrolled.

<b>Breeds</b>	<b># of cats per breed</b>
British Shorthair	3
Burmese	2
Chartreux	2
Norwegian Forest Cat	2
Persian	1
Siamese	1
Siberian	2
Unknown	2
Mixed	117



**Table 6:** Weight loss characteristics in cats by week as measured for the cats that lost weight, maintained or gained weight. The number of cats at each time point is indicated in parenthesis. Data is presented as least squares means and standard error or mean and standard error (% weight loss).

	Weeks of the study						
	0	4	8	12	16	20	24
<b>Body weight (kg)</b>							
Cats that lost weight	6.91 ± 0.17 (n=110)	6.71 ± 0.17 <sup>a</sup> (n=108)	6.60 ± 0.17 <sup>a</sup> (n=103)	6.45 ± 0.17 <sup>a</sup> (n=86)	6.38 ± 0.17 <sup>a</sup> (n=74)	6.24 ± 0.17 <sup>a</sup> (n=56)	6.11 ± 0.18 <sup>a</sup> (n=31)
Cats that maintained weight	5.77 ± 0.73 (n=6)	5.77 ± 0.73 (n=6)	5.77 ± 0.80 (n=6)	5.77 ± 0.80 (n=1)			
Cats that gained weight	6.23 ± 0.45 (n=16)	6.35 ± 0.45 (n=16)	6.38 ± 0.45 (n=14)	6.42 ± 0.45 (n=11)	6.42 ± 0.45 (n=8)	6.43 ± 0.45 (n=4)	6.35 ± 0.47 (n=4)
<b>Percentage weight lost</b>							
Cats that lost weight	0 (n=110)	-2.92 ± 0.58 (n=108)	-4.19 ± 0.50 (n=103)	-6.16 ± 0.67 (n=86)	-7.56 ± 0.72 (n=74)	-9.51 ± 1.16 (n=56)	-10.99 ± 1.79 (n=31)
Cats that maintained weight	0 (n=6)	0 (n=6)	0 (n=1)	0 (n=1)	(n=0)		
Cats that gained weight	0 (n=16)	2.04 ± 0.96 (n=16)	2.58 ± 1.14 (n=14)	3.05 ± 1.28 (n=11)	3.18 ± 1.4 (n=8)	3.53 ± 1.28 (n=8)	2.65 ± 2.39 (n=4)
<b>BCS</b>							
Cats that lost weight	4.44 ± 0.05 (n=109)	4.39 ± 0.05 (n=105)	4.35 ± 0.05 (n=100)	4.18 ± 0.05 <sup>a</sup> (n=83)	4.11 ± 0.06 <sup>a</sup> (n=70)	4.05 ± 0.06 <sup>a</sup> (n=55)	3.88 ± 0.07 <sup>a</sup> (n=31)
Cats that maintained weight	4.17 ± 0.22 (n=6)	4.17 ± 0.22 (n=6)	4.14 ± 0.36 (n=1)	4.14 ± 0.36 (n=1)			
Cats that gained weight	4.34 ± 0.13 (n=16)	4.34 ± 0.13 (n=16)	4.35 ± 0.14 (n=14)	4.35 ± 0.15 (n=10)	4.34 ± 0.15 (n=8)	4.34 ± 0.14 (n=8)	4.35 ± 0.18 (n=4)
<b>BFI</b>							



Cats that lost weight	46.29 ± 1.05 (n=104)	45.54 ± 1.06 (n=100)	44.65 ± 1.06 <sup>a</sup> (n=94)	42.48 ± 1.07 <sup>a</sup> (n=79)	41.78 ± 1.08 <sup>a</sup> (n=68)	40.55 ± 1.10 <sup>a</sup> (n=53)	40.06 ± 1.18 <sup>a</sup> (n=29)
Cats that maintained weight	35.00 ± 4.38 (n=6)	35.00 ± 4.38 (n=6)	35.21 ± 5.56 (n=1)	35.21 ± 5.56 (n=1)			
Cats that gained weight	45.32 ± 2.68 (n=16)	45.00 ± 2.68 (n=16)	45.00 ± 2.71 (n=14)	45.03 ± 2.77 (n=10)	44.93 ± 2.82 (n=8)	44.93 ± 2.82 (n=8)	44.87 ± 3.06 (n=4)
<b>MCS</b>							
Cats that lost weight	0.84 ± 0.09 (n=103)	0.83 ± 0.09 (n=100)	0.85 ± 0.09 (n=95)	0.81 ± 0.09 (n=80)	0.77 ± 0.09 (n=67)	0.80 ± 0.09 (n=54)	0.80 ± 0.1 (n=31)
Cats that maintained weight	0.67 ± 0.36 (n=6)	0.66 ± 0.37 (n=5)	0.63 ± 0.48 (n=1)	0.63 ± 0.48 (n=1)			
Cats that gained weight	0.93 ± 0.22 (n=16)	0.94 ± 0.22 (n=16)	1.00 ± 0.23 (n=15)	0.95 ± 0.23 (n=10)	0.95 ± 0.24 (n=8)	0.95 ± 0.24 (n=8)	0.95 ± 0.26 (n=4)

BCS: body condition score, BFI: body fat index, MCS: muscle condition score, LSM: least squares means, SE: standard error, n:

number of cats for each data point. <sup>a</sup> indicates values significantly different from baseline.

**Table 7:** Quality of life characteristics in cats by week as measured for the cats that lost weight or gained weight. The number of cats at each time point is indicated in parenthesis. Data is presented as least squares means and standard error.

	Weeks of the study						
	0	4	8	12	16	20	24
<b>Energy (scores 0 - 10)</b>							
Cats that lost weight	4.84 ± 0.18 <sup>a</sup> (n=110)	5.41 ± 0.18 <sup>a</sup> (n=105)	5.72 ± 0.18 <sup>a</sup> (n=101)	5.95 ± 0.19 <sup>a</sup> (n=86)	6.00 ± 0.19 <sup>a</sup> (n=72)	6.10 ± 0.20 <sup>a</sup> (n=56)	6.18 ± 0.22 <sup>a</sup> (n=31)
Cats that maintained weight	6.00 ± 0.78 (n=6)	6.33 ± 0.78 (n=6)					
Cats that gained weight	4.8 ± 0.50 (n=15)	5.07 ± 0.5 (n=15)	5.14 ± 0.50 (n=13)	5.08 ± 0.52 (n=10)	4.96 ± 0.54 (n=8)	5.09 ± 0.54 (n=4)	5.16 ± 0.60 (n=4)
<b>Happiness (scores 0 - 10)</b>							
Cats that lost weight	7.10 ± 0.17 (n=110)	7.09 ± 0.16 (n=105)	7.21 ± 0.17 (n=101)	7.36 ± 0.17 <sup>a</sup> (n=86)	7.42 ± 0.17 <sup>a</sup> (n=72)	7.44 ± 0.18 <sup>a</sup> (n=56)	7.36 ± 0.20 (n=31)
Cats that maintained weight	7.00 ± 0.71 (n=6)	7.00 ± 0.70 (n=6)					
Cats that gained weight	6.53 ± 0.45 (n=15)	6.60 ± 0.45 (n=15)	7.21 ± 0.17 (n=13)	6.70 ± 0.47 (n=10)	6.75 ± 0.49 (n=8)	6.75 ± 0.49 (n=8)	6.68 ± 0.56 (n=4)
<b>Appetite (scores 0 - 10)</b>							
Cats that lost weight	7.69 ± 0.19 (n=110)	7.77 ± 0.19 (n=105)	7.93 ± 0.19 (n=101)	7.95 ± 0.20 (n=86)	7.79 ± 0.20 (n=72)	7.68 ± 0.22 (n=56)	7.29 ± 0.26 (n=31)
Cats that maintained weight	8.67 ± 0.80 (n=6)	8.67 ± 0.80 (n=6)					
Cats that gained weight	7.17 ± 0.51 (n=15)	7.23 ± 0.51 (n=15)	6.68 ± 0.53 (n=12)	6.79 ± 0.55 (n=10)	7.15 ± 0.58 (n=8)	7.23 ± 0.60 (n=7)	7.06 ± 0.71 (n=4)

<b>Begging (scores 0 - 10)</b>							
Cats that lost weight	6.27 ± 0.30 (n=110)	6.39 ± 0.30 (n=105)	6.40 ± 0.30 (n=101)	6.61 ± 0.31 (n=86)	6.39 ± 0.31 (n=72)	6.12 ± 0.32 (n=56)	6.05 ± 0.36 (n=31)
Cats that maintained weight	6.00 ± 1.27 (n=6)	5.83 ± 1.27 (n=6)					
Cats that gained weight	4.97 ± 0.81 (n=15)	6.70 ± 0.81 (n=15)	6.35 ± 0.82 (n=13)	6.54 ± 0.84 (n=10)	6.89 ± 0.87 (n=8)	6.54 ± 0.89 (n=7)	6.00 ± 0.98 (n=4)
<b>Flatulence (scores 0 - 10)</b>							
Cats that lost weight	0.65 ± 0.14 (n=110)	0.60 ± 0.14 (n=105)	0.59 ± 0.14 (n=101)	0.53 ± 0.15 (n=86)	0.46 ± 0.15 (n=72)	0.46 ± 0.15 (n=56)	0.43 ± 0.16 (n=31)
Cats that maintained weight	1.67 ± 0.61 (n=6)	3.33 ± 0.61 (n=6)					
Cats that gained weight	0.67 ± 0.39 (n=15)	0.67 ± 0.39 (n=14)	0.67 ± 0.39 (n=13)	0.68 ± 0.40 (n=10)	0.67 ± 0.41 (n=8)	0.67 ± 0.41 (n=7)	0.66 ± 0.45 (n=4)
<b>Stool volume (scores 0 - 10)</b>							
Cats that lost weight	5.10 ± 0.19 (n=101)	4.99 ± 0.20 (n=97)	4.89 ± 0.20 (n=94)	4.96 ± 0.20 (n=80)	4.98 ± 0.20 (n=66)	4.99 ± 0.21 (n=52)	4.91 ± 0.23 (n=29)
Cats that maintained weight	5.50 ± 0.80 (n=6)	5.17 ± 0.80 <sup>a</sup> (n=6)					
Cats that gained weight	4.36 ± 0.53 (n=14)	4.71 ± 0.53 (n=14)	4.61 ± 0.53 (n=12)	4.73 ± 0.55 (n=9)	4.77 ± 0.57 (n=7)	4.80 ± 0.58 (n=6)	4.62 ± 0.62 (n=4)
<b>Fecal score (1-5)</b>							
Cats that lost weight	3.78 ± 0.10 (n=102)	3.82 ± 0.10 (n=96)	3.92 ± 0.10 <sup>a</sup> (n=93)	3.90 ± 0.11 (n=79)	3.91 ± 0.11 (n=66)	3.90 ± 0.11 (n=52)	3.91 ± 0.12 (n=28)
Cats that maintained weight	4.15 ± 0.44 (n=5)	4.17 ± 0.43 (n=6)					
Cats that gained weight	3.87 ± 0.27 (n=15)	3.80 ± 0.27 (n=15)	3.94 ± 0.28 (n=13)	4.06 ± 0.28 (n=10)	4.10 ± 0.29 (n=8)	4.20 ± 0.29 (n=7)	4.23 ± 0.31 (n=4)

<sup>a</sup> indicates values significantly different from baseline.



## References:

1. Witzel AL, Kirk CA, Henry GA, Toll PW, Brejda JJ and Paetau-Robinson I. Use of a morphometric method and body fat index system for estimation of body composition in overweight and obese cats. *Journal of the American Veterinary Medical Association*. 2014; 244: 1285-90.
2. Baldwin K, Bartges J, Buffington T, et al. AAHA nutritional assessment guidelines for dogs and cats. *Journal of the American Animal Hospital Association*. 2010; 46: 285-96.
3. Michel KE, Anderson W, Cupp C and Laflamme DP. Correlation of a feline muscle mass score with body composition determined by dual-energy X-ray absorptiometry. *The British journal of nutrition*. 2011; 106 Suppl 1: S57-9.