Supplementary Table S1 Composition of diet base and trial diets (g dry wt/kg)

	Baseline	Reference	Test diet
Constant (diet base)			
Casein	200	200	200
Mineral mix	50	50	50
Vitamin mix	50	50	50
Fibre mix	50	50	50
Corn oil	50	50	50
Wheat starch	100	100	100
V*ariable*			
Wheat bran	-	100	-
Sucrose	500	400	500-X
Test component	-	-	X

Mineral mix (g/kg salt mix): $CaHPO_4$ 427; MgO 35; KCl 200; NaCl (iodised) 100; trace mineral mix 60; cellulose q.s (178).

Trace mineral mix (g/kg trace salt mix): $C_6H_5O_7Fe.3H_2O$ 756.7; ZnO 20; $CuCO_3.Cu(OH)_2.H_2O$ 6.7; $MnSO_4.H_2O$ 80; Na_2SeO_3 0.11; $CoCl_2.6H_2O$ 0.039; $CrK(SO_4)_2.12H_2O$ 6.3; KIO_3 0.085; $(NH)_4MO_7O_{24}.4H_2O$ 0.093; total 129.9.

Vitamin mix (g/kg mix): Retinyl acetate (500,000 IU/g) 0.1; tocopherol (Roche Rovimax E-25 250,000 IU/g) 4.0; menadione, 0.06; ergocalciferol, (20,000 IU/g) 1/100 in sucrose pre mix, 0.05; thiamine. HCl 0.1; riboflavin 0.14; pyridoxine HCl, 0.16; calcium pantothenate, 0.4; folic acid, 0.04; nicotinamide, 0.4; cyanocobalamin (1/100 in sucrose pre mix), 0.1; biotin, 0.02; myo-inositol, 4.0; choline chloride, 30.0; sucrose, 960.43; total 956.68.

Fibre mix: Wheat bran:sugar beet fibre (Fibrex 595) 1:1. Wheat bran is about 43% non-starch polysaccharide and was Retsch milled through a 1-mm sieve plate, then hand sieved through a 2-mm sieve. The Fibrex was grade 595, < 125 μm particle size, 73% dietary fibre (29% hemicellulose, 22% pectin, 18% cellulose, 4% lignin). Cellulose (185.7 g/kg) in the mineral mix adds a further $0.05 \times 185.7 = 9.3$ g cellulose/kg diet. Total dietary fibre = $(25 \times 0.43) + (25 \times 0.73) + 9.3 = 38.3$ g/kg diet.

Supplementary Table S2 Faecal parameters (values in **Tables 2-4** and **Fig. 4**) determined using the rat model and their relevance.

	Variable	Relevance
Parameters related to faecal dry matter		
1	Faecal dry matter per 100 g feed intake (g)	The absolute amount of faecal matter produced per equal quantity of food consumed. Useful for comparison.
2	Increase over baseline in faecal dry matter per 100 g feed intake (g)	Increment in faecal dry matter induced by a dietary component in a monogastric hind gut fermenting mixed dietary fibre.
3	Increase in dry weight per g added component	Increase in total non-fermented matter of endogenous and food origin, plus increased bacterial biomass, induced by a consumed material. Overall effectiveness at increasing faecal dry matter.
4	Apparent survival of dietary fibres after gut passage (%)	Increase in faecal dry weight as a percentage of the dry weight of test component consumed. An estimation showing maximum possible survival of

fibre.

Parameters related to faecal hydration

5	Faecal water-holding capacity (ml/g dry faeces),	The amount of water passively imbibed per gram of dry faecal matter by intact dry faecal pellets and held without stress because of the structure and hydration properties of the faecal components and the intact faecal mass.
6	Equivalent hydrated faecal output	Hydrated faecal bulk per 100 g food after passive imbibition of water, when rat faecal pellets attain the same water content as human faeces (Monro, 2002)
7	Increase over baseline in hydrated faecal matter per 100 g feed intake (g)	Increment in hydrated faecal bulk induced by a dietary component in a gastrointestinal tract adapted to hind gut fermentation of mixed polysaccharide
8	% increase over baseline in hydrated faecal matter per 100 g feed intake (g)	The same as (Eastwood & Morris, 1992) expressed as a percentage to facilitate comparisons.

9	Faecal bulk per gram of added component (g)	Increment over baseline in hydrated faecal bulk per gram of added component, when the only difference between baseline and test diets is the replacement of sucrose by the test component. Combines changes in dry weight and water holding capacity.
10	Faecal moisture (%)	McIntyre, Young, Taranto, Gibson, & Ward (1991) expressed in a way that makes comparisons easier.
11	Theoretical faecal water load (FWL) per 100 g diet (ml/100 g feed intake)	The amount of water that would be held in the hydrated faecal bulk generated by 100 g of a food. As dilution decreases chemical activity FWL shows how a food may be important in modulating processes in the distal colon that depend on concentration.
12	Increase in water per g added component	Gives a measure of the effectiveness of a diet component in increasing FWL.

Parameters related to faecal bulking as a food property

13	Faecal bulking index (FBI; %)	Hydrated faecal bulk per g of test component as a percentage of the bulk induced by an equal weight of 2-mm hard red wheat bran reference. Allows a standardised comparison of foods and food

		components in terms of faecal bulking efficacy using a meaningful reference material (Monro, 2000).
14	Wheat bran equivalents (WBE; g)	The weight of wheat bran that would have the same faecal bulking effect as a specified amount of food. Is a virtual food component allowing the quantitative contribution of different foods to faecal bulk to be counted and included in food composition databases and nutrient information panels on a reference amount customarily consumed (RACC) and per 100 g basis. Intended to facilitate and quantify product development and dietary management of faecal bulk in a mixed diet (Monro & Martinet, 2005).