Draft SACN Report on Carbohydrates and Health
Response from the Fibre Consortium
29 August 2014

To: Scientific Advisory Committee on Nutrition,

The Fibre Consortium (FC) is a technical expert group comprising over 20 food and fibre manufacturing companies. Collectively, FC members have amassed years of expertise in relation to the use, beneficial effects of, and analytical methods related to measurement of dietary fibre.

FC members have been involved in discussions with many jurisdictions across the world and thus welcome the SACN draft carbohydrates and health report, and the opportunity to submit comments on the scientific aspects or questions for clarification purposes. However it should be noted that, due to the extensive nature of the report, and the limited time available for comment, the following response covers only our key concerns in relation to dietary fibre. These are as follows:

1. Dietary fibre definition

1.1 SACN proposes that dietary fibre (DF) as it relates to specific health implications be defined as 'all carbohydrates that are naturally integrated components of foods and that are neither digested nor absorbed in the small intestine and have a degree of polymerisation of three or more monomeric units, plus lignin' (Section 11.15).

Whilst we welcome the inclusion of the degree of polymerisation (DP) of three and higher, the restriction to only 'naturally integrated components of foods' is not consistent with most other DF definitions, including those from Codex (2009), EFSA (2012), the European Commission (2008), FSANZ (2001), Health Canada (2012), IoM (2005), and the recent US FDA proposal (2014).

The industry is required to operate under the EU definition of dietary fibre set out in Commission Directive 2008/100/EC, which sets regulations for the sole purposes of food labelling and includes beneficial physiological effects such as colonic fermentation. This EU definition includes 'edible carbohydrate polymers which have been obtained from food raw material by physical, enzymatic or chemical means and which have a beneficial physiological effect….' and 'edible synthetic carbohydrate polymers which have a beneficial physiological effect…' Thus we believe that isolated and extracted fibres should also be included in the proposed SACN definition of DF.

Our comments herein relate to the SACN definition as it relates to the specific health outcomes covered in the report.

1.2 As the draft SACN report states, there are certain extracted or isolated dietary fibres where a beneficial physiological effect has been demonstrated, but for the effect to be manifest these need to be consumed at higher levels than would be expected in a typical UK diet, including:

- Non-digestible oligosaccharides and faecal weight (Section 9.23).
- Fructo-oligosaccharides (Sections 9.26 - 9.27) and GOS (Sections 9.28 – 9.29) and faecal bacteria.

- Resistant starch and faecal weight (Sections 9.38 – 9.42).
- Oat bran and isolated β-glucan (Section 12.17).

This evidence is in contrast to the statement given in Section 11.22 (p209). 'At this time, it is not known whether extracted or isolated dietary fibres would convey the range of health benefits associated with the consumption of DF rich foods'. The Fibre Consortium believes therefore that this aspect would benefit from some clarification, e.g.

- Wouldn't these ingredients fall within the scope of any newly developed DF definition, if they have been shown to have a beneficial physiological effect?

If not, how would this position sit alongside:

- The methods used to measure dietary fibre.
- The food labels of products containing these ingredients and those fibre ingredients already meeting the EU definition of dietary fibre?
- How would healthcare practitioners use the different DF definitions in assessing and advising people regarding DF intakes and recommendations?

1.3 Polydextrose.

As an additional point, we note that the draft report incorrectly includes polydextrose under 'Sugars, sugar alcohols, sugars-sweetened foods and beverages', which is misleading and could mean that relevant studies may not have been picked up. A separate description of polydextrose is attached as an Annex.

2. Beneficial physiological effects

The report (and SACN's 2008 draft position statement on dietary fibre) requires extracted natural carbohydrate components or synthetic carbohydrate products to show 'clear evidence of a physiological effect before they can be assumed to be as effective as whole foods intrinsically containing fibres'. Whilst the SACN perspective is restricted to a limited number of specific health outcomes, the requirement per se for ingredients to demonstrate a relevant beneficial physiological effect to meet a DF definition is consistent with other jurisdictions and/or recommendations, including:

- The European Commission (2008).
- Health Canada (2012).
- The consensus on recommendations for beneficial physiological effects as proposed by CCNFSDU during the lengthy dietary fibre definition discussions (2003).
- A large-scale questionnaire organised during the Vahouny Dietary Fibre Symposium, Bethesda, 2010 (Howlett et al., 2010).

SACN describes the following beneficial effects (Section 11.15, p203):

- Increasing stool bulk.
- Decreasing intestinal transit time.
- Decreasing post-prandial glycaemia.
- Lowering of total and LDL-cholesterol concentrations.

This is in contrast to other parts of the SACN report and supporting documents where the following broader range of colorectal health endpoints are described, more closely reflecting the EU definition:

- Bowel habit/function, faecal microflora, fermentation products and calcium and magnesium absorption (A2.2)
- Faecal microbiota, pH and SCFA (Table 4.1 p32/33)
- Faecal weight, total transit time, and faecal microflora and SCFA content (Supporting Documents, Chapter 11).

It is further remarked in Section 11.15 that 'evidence limited to effects only on gut fermentation or the nature of the microbiota is not sufficient to satisfy this definition'. In Commission Directive 2008/100/EC of 28 October 2008 it is stated, however, that 'Fibre has been traditionally consumed as plant material and has one or more beneficial physiological effects such as: decrease intestinal transit time, increase stool bulk, *is fermentable by colonic microflora*, reduce blood total cholesterol, reduce blood LDL cholesterol levels, reduce post-prandial blood glucose, or reduce blood insulin levels. Recent scientific evidence has shown that similar beneficial physiological effects may be obtained from other carbohydrate polymers that are not digestible and not naturally occurring in the food as consumed'. It is unclear why SACN has recognised most of the beneficial effects of dietary fibres identified earlier by the Commission, while explicitly excluding gut fermentation as a beneficial effect *per se*. The Consortium does not agree with this exclusion and thinks it should be reconsidered, also in view of recent publications, for instance by Frost *et al.* (2014) and by Koropatkin *et al.* (2012).

We are further confused as to why only fasting blood glucose concentrations have been evaluated as a health benefit in the report, and attenuation of postprandial glycaemia has been excluded in sharp contrast to the list in Section 11.15, page 203.

Whilst we understand that the SACN remit is restricted to a limited number of specific health outcomes, the differences between the SACN definition and the European regulatory environment could potentially cause considerable confusion. We therefore respectfully request that SACN revisit its list of beneficial physiological effects. Furthermore, we would ask SACN to provide clarification regarding which health end points SACN views as beneficial physiological effects in the context of its review of colorectal health and specific disease outcomes, as the draft report and Chapter 11 of the supporting documents are not currently aligned.

3. **Analytical methods**

In the DF definition recommendation (Section 11.22 p208), it is stated that DF is to be chemically defined by AOAC 2009.01. Although we agree that this recent method (together with AOAC 2011.25) covers the full range of the DF definition from a DP point of view (≥3) and also all isolated and synthesised non-digestible carbohydrates, the use of the other established AOAC methods, as adopted by Codex Alimentarius (Codex standard 234-1999, 2013 revision), should also be included in the final report. This approach would be consistent with the European Commission Guidance Document for Competent Authorities with regard to Methods of Analysis for the Determination of the Fibre Content declared on a Label, December 2012.

Although we agree method AOAC 2009.01 is still a fairly recent one, we do not agree that the DRV for DF at 30g for the adult population should be defined by using only AOAC methods 985.29 and 991.43. As referred to above, there are a wide range of methods that should be used to capture all fibre entities (whether for nutrition labelling or establishing dietary reference

values). Although footnote 10 states that these methods do not measure all of the components of DF as described in the DF definition, we would like to repeat our support for the use of the full range of AOAC methods as mentioned above, allowing for selection of the most appropriate method, depending on the type of fibre(s) that is in the food.

4. Comments related to specific types of dietary fibre

For comments on individual fibre components, please refer to the attached annexes.

5. Dietary Reference Value of at least 30g fibre

We support the setting of population reference intakes for dietary fibre, which confirms the role of fibre as a key nutritional component of a healthy balanced diet. However, we note the 30g/day is derived from non-linear dose response plots looking at the relative risk of various non-communicable diseases against grams of fibre per day. From the dose curves presented in the main report, it is unclear why 30g has been selected, and it would be useful for SACN to provide clarification as to how this value was chosen.

We note that SACN considered feasibility of achieving 30g by considering one daily menu, and we understand that dietary modelling / feasibility of achievement is not usually incorporated into setting DRVs (with the notable exception of salt where the 1991 dietary reference value set a reference nutrient intake for salt of 4g, and subsequent COMA, and then SACN recommendations revised this to 6g on the basis this was 'considered to be an achievable goal for the UK population, rather than an optimal or ideal level of consumption'). However, the FC believes further modelling work should be undertaken to understand the feasibility of this recommendation.

If isolated and extracted fibres are not included in the proposed 30g/day DRV, we believe it would be challenging to meet the DRV on a regular basis, alongside other nutrient and energy recommendations. Thus we believe that isolated and extracted fibres could be valuable contributors to help consumers achieve this daily DF recommendation.

6. References

Codex Alimentarius (2003); Discussion Paper Including Proposals for a Definition, Method of Analysis and Conditions of Use for Dietary Fibre Content; CX/NFSDU03/3, September 2003.

Codex Alimentarius Commission (2009); Alinorm 09/32/26; Appendix II; Guidelines for the Use of Nutrition Claims: Table of Conditions for Nutrient Contents (Part B) Dietary Fibre.

Codex Alimentarius (2013); Recommended Methods of Analysis and Sampling; Codex standard 234-1999, 2013 revision.

EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA) (2012); Guidance on the scientific requirements for health claims related to appetite ratings, weight management, and blood glucose concentrations. EFSA Journal 2012;10(3):2604. [11 pp.]. doi:10.2903/j.efsa.2012.2604.

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Health Canada (2012); Policy for Labelling and Avertisingof Dietary Fibre-Containing Food Products, February 2012.

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US FDA (2014); Federal Register, Vol.79, No. 41, 21 CFR Part 101, Food Labelling: Revision of the Nutrition and Supplement Facts Labels; Proposed Rule, March 3, 2014.

7. FIBRE CONSORTIUM - Signatories to this letter:

The Fibre Consortium comprises over 20 food and fibre manufacturing companies. The Consortium is chaired by Victoria Betteridge (Tate & Lyle PLC), and its secretariat duties are performed by the United Kingdom's Food and Drink Federation.

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