COMMITTEE PAPER FOR DISCUSSION **ACNFP/75/8**

ADVISORY COMMITTEE FOR NOVEL FOODS AND PROCESSES

REVIEW OF NOVEL PROCESSING TECHNIQUES

Issue

The Committee is asked to consider two recent reviews of novel processing techniques commissioned by the Agency in 2004/5 and to identify any topics requiring detailed consideration.

Background

1. The Agency's Food Chain Strategy Branch commissioned a review of novel food processing techniques to enable it to evaluate the potential hazards and risks posed by them. An initial review was carried out by ADAS Management Consultancy Ltd in 2004 who looked at fifteen novel processes (Annex 1). The second review of a further seventeen processes was undertaken by the Royal Agricultural College (RAC) and was completed in March 2005 (Annex 2). Members should note that although the reviews were carried out by two separate organisations, the work was carried out by the same team. The two reports use the same parameters to produce a qualitative risk assessment and a ranking of the hazards identified for each process.

2. The authors include in their review a number of processes that are being used commercially in the UK, and which are gaining increasing commercial acceptance. Other processes examined are at pilot stage with no or very limited commercial application, and a third category details processes that are still at the development stage.

3. Foods and food ingredients that have been subjected to novel processes fall within the scope of the novel foods regulation (EC No 258/97) if the process was not used before May 1997 and it results in significant changes (compared with similar products from existing processes).

4. The Secretariat has reviewed the two reports and the table below highlights the processes that appear to be of greatest relevance to this Committee, bearing in mind that some of the items fall into other regulated areas (e.g. food additives and extraction solvents), and taking account of the scope of the regulatory framework for novel foods. The relevant definition in the regulation Article 1(2)(f) is:

"foods and food ingredients to which has been applied a production process not currently used, where that process gives rise to significant changes in the composition or structure of the foods or food ingredients which affect their nutritional value, metabolism or level of undesirable substances".

First review: Annex 1

No.	Name of Process	Application(s)	Comment	Risk*
1	Combination ovens (p8)	Use of microwave, convective and conductive heating.	Not Novel	Act
2	Coating and encapsulation (p11)	Controlled delivery of ingredients	Subject to additive legislation	Watch
3	Enzymes (p15)	Review of new enzymes	Possible novel process	Act
4	High hydrostatic pressure, UHP, Injection (p16)	Review of high pressure applications	Not Novel in certain applications	Watch
5	Microwave heating and drying (Annex 1 p19)	Use for pasteurisation and sterilisation	Not Novel	Watch
6	Modified atmosphere Inc Packaging films (p21)	Antimicrobial, removal of odour applications	Subject to additive legislation	Act
7	Nanoemulsions (p23)	Application of nanoparticulates in food	Possible novel process	Wait
8	Nanofiltration (p24)	Application of nano filtration systems in food	Possible novel process	Wait
9	Ohmic Heating (p25)	Electric current to pasteurise food	Possible novel process	Wait
10	Ozone (p27)	Anti-microbial agent for treatment of food	Possible novel process	Act
11	Pulsed electric field (p29)	Non-thermal pasteurisation of food	Possible novel process	Wait
12	Sous vide (p31)	Cook-chill food preparation under vacuum	Not Novel	Act
13	Supercritical carbon dioxide (p33)	Liquid extraction process	Subject to extraction solvent legislation	Watch
14	Ultraviolet light (p35)	Non-thermal pasteurisation of food	Possible novel process	Act
15	Ultrasound (p37)	Non-thermal pasteurisation of food	Possible novel process	Wait

* Risk. Based on a qualitative risk assessment carried out according to authors criteria

Highlighted processes are those that may require evaluation in accordance with Article 1(2)(f) of (EC) 258/97.

Second review: Annex 2

No.	Name of Process	Application(s)	Comment	Risk*
1	Infrared (p11)	e.g. Cooking, surface pasteurisation,	Possible novel process	Watch / Act
2	Radio Frequency (p17)	Rapid heating, Pasteurisation	Possible novel process	Watch
3	NMR (p21)	e.g. Fingerprinting, online sensor	Not Novel	Wait
4	High pressure freezing and thawing (p24)	Improved freezing	Not Novel	Watch
5	Rapid thawing (p28)	Increase efficacy of thawing	Not Novel	Watch
6	Spray crystallisation (p32)	Rapid freezing for technological purposes	Not Novel	Watch
7	Cryo-freezing (p35)	Ultra-fast freezing	Not Novel	Watch
8	Reaction membranes (p39)	Improved membranes e.g. for immobilised enzymes	Possible novel process	Watch
9	Separation membranes (p43)	Improved membranes for separation	Not Novel	Act
10	Concentration membranes (p47)	Improved membranes for concentration	Not Novel	Watch
11	Osmotic dehydration (p50)	Selectively permeable membranes	Not Novel	Watch
12	Enhanced and functional drying (p54)	New technologies to optimise drying process	Not Novel	Watch
13	Cleaning processes (p58)	Review of new and emerging cleaning techniques	Not Novel	Act
14	Cleaning-in-place (p62)	Review of new and emerging cleaning techniques	Not Novel	Act
15	Ingredient delivery processes (p67)	Review of encapsulation (see #2)	Not Novel	Act
16	(a) Chemical processes (p71)	New chemical processes to produce food ingredients	Possible novel process	Act
17	(b) biochemical processes (p76)	New biochemical processes to produce food ingredients	Possible novel process	Watch

* Risk. Based on a qualitative risk assessment carried out according to authors criteria

Highlighted processes are those that may require evaluation in accordance with Article 1(2)(f) of (EC) 258/97.

Committee Action Required

5. The Agency's 2002 Review of Scientific Committees highlighted that advisory committees should, where possible look to include relevant new and emerging issues that may arise in a forward work plan. In this context Members are asked whether:

- a new framework needs to be developed for the evaluation of foods or foods ingredients produced using any of the novel techniques highlighted in the table;

- the use of these processes gives rise to safety concerns that may require additional assessment by other advisory committees or experts in other fields;

- they wish to identify any other emerging issues or scientific developments that would require consideration by the Committee in the next 12 months.

Secretariat
January 2006

Annexes attached:

Annex 1: A Review of New Food Processing Techniques and an Assessment of their Food Safety Implications *(ADAS Management Consultancy, 2004).*

Annex 2: A Review of Certain New Food Processing Techniques and an Assessment of their Food Safety Implications *(Royal Agricultural College, 2005).*

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A Review of New Food Processing Techniques and an Assessment of their Food Safety Implications *(ADAS Management Consultancy, 2004).*

A copy of this report is available from the Food Standards Agency's Information Centre. For further information contact:

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