Paper 4

Legal Challenges on Natural, Fresh and Health Claims in Savory Foods

Joy Hardinge
AJH Consulting
The Labelling Challenges for Flavourings - Threat or Opportunity??

- Requirements of the Flavour Legislation
- Requirements of the Food Information Regulation
- Interpretation issues
- Commission Q &As, Industry Guidance
- National Requirements on Depiction
Flavouring Regulation 1334/2008

- Covers B2B labelling in detail but this is then carried over to B2C Labelling

- Article 15 - The word “Flavouring” or a more specific name or description of the flavouring
  - What is more specific - Chicken Flavour?
Use of the Term “Natural”

- Article 16 - Various options exist depending on the composition of the flavouring but for all of them the flavouring component may only comprise natural flavouring substances and/or flavouring preparations.
- The Solvent / Carrier / additives don’t have to be natural.
- Smoke flavourings and process flavourings as defined in Regulation 1334 can not be described as Natural.
Natural flavourings

- **Article 16.3 - “Natural Flavouring substance”**
  The flavour component comprises only natural flavouring substances

- **Article 16.4 - “Natural Chicken flavour”**
  The flavour component must be at least 95% from chicken

- **Article 16.5 - “Natural Chicken flavour with other” natural flavourings**
  The flavouring component is only partially derived from chicken and its flavour can easily be recognised
Natural Flavourings

- **Article 16.6 - Natural Flavouring**

  May only be used if the flavouring component is derived from different source materials and where a reference to the source materials would not reflect their flavour or taste.
Implications for Food Labelling

- Art 29 of the flavour Regulation amended the Labelling Directive (2000/13) and this has been taken over into the new Food Information Regulation (1169/2011) which applied from the 13th December last year
1. Flavourings shall be designated either by the terms:

- ‘flavouring(s)’ or by a more specific name or description of the flavouring if the flavouring component contains flavourings as defined in points (b), (c), (d), (e), (f), (g) and (h) of Article 3(2) of Regulation (EC) No 1334/2008,

- ‘smoke flavouring(s)’, or ‘smoke flavouring(s) produced from food(s) or food category or source(s)’ (e.g. ‘smoke flavouring produced from beech’), if the flavouring component contains flavourings as defined in point (f) of Article 3(2) of Regulation (EC) No 1334/2008 and imparts a smoky flavour to the food.
PART D — DESIGNATION OF FLAVOURINGS IN THE LIST OF INGREDIENTS

- 2. The term ‘natural’ for the description of flavourings shall be used in accordance with Article 16 of Regulation (EC) No 1334/2008.
- 3. Quinine and/or caffeine used as a flavouring in the production or preparation of a food shall be mentioned by name in the list of ingredients immediately after the term ‘flavouring(s)’.
Interpretation Issues

- The Flavour component in Natural Chicken Flavouring has to be 95% from chicken – can the other 5% boost the chicken flavour?
  - The Article doesn’t offer any clarification on this but Recital 26 says
  - As the use of flavourings should not mislead the consumer, the other maximum 5% can only be used for standardisation or to give a, for example, fresher, pungent, ripe or green note to the flavouring
Interpretation Issues

- The flavouring component in Natural chicken flavour with other natural flavourings is only partially derived from chicken but its flavour has to be easily recognised – how much is partially, and recognised in what and by whom?
- Neither the Articles nor the Recitals offer any help on this.
Member States Actions

- The Commission received many questions on Flavour Labelling
- In 2012 they started to work on a Q&A document based on the questions received.
- In 2015 they are still working on the Q&A, caused in part by
  - Changes in personnel at the Commission
  - A wide range of opinions between Member States
  - Other “Urgent Issues”
Examples of Issues raised by Member States

- **Use of Claims on Front of pack**
  - “No Artificial Flavourings”
  - “Only Natural Flavourings”

- **How Should Yeast Extract be labelled?**

- **What is a more specific name?**
  - Is “Chicken flavouring” acceptable if it is not derived from chicken?

- **Depiction**
  - Under what circumstances can a chicken be depicted?
Claims

• Covered by Qs 11 and 12 in the Commission Document
• Artificial Flavouring is not allowed in the Ingredients list as the term is not defined
  • As far as reference in the name of the food (definition) is concerned, the use of the indications "artificial flavourings" and "nature identical flavourings" are not prohibited.
• It must not be misleading.
  • “No Artificial” means it must be natural
• A number of Member States are still unhappy with the use of such terms.
Labelling of Yeast Extract

- Covered by Q 5 in the Commission Document
  - Yeast extract can be added to foods for flavouring purposes, for technological purposes or for nutritional purposes. If the yeast extract is used mainly for flavouring purpose it should be labelled as flavouring.
  - The term used in the list of ingredients in that case could be "flavouring", "natural flavouring" or a more specific name or description like "yeast extract [flavouring]."
  - If used for other purposes it should be labelled accordingly
What is a more Specific Name?

- Covered by Qs 1, 2 and 3 in the Commission Document
  Can you say chicken flavour if it tastes of chicken but isn't a natural flavour?

- "Chicken flavouring" is considered an established description of chicken tasting flavours and therefore even if a flavouring contains (one or more) flavouring substances that are not found in nature, that flavouring can be called “chicken flavouring” as long as the flavouring has a chicken taste and/or odour.
What is a more Specific Name?

How should pepper extract be labelled?
Should this denomination be preceded by the word “flavouring” in any case? For instance, either “flavouring”, “pepper flavouring”, “flavouring of pepper extract” or “flavouring (pepper extract)”?

- pepper extract could be considered a clear description of the flavour in question. However, the addition of the term "flavouring" may be necessary in other cases where its omission could be such as to mislead the consumer.
Depiction

- Although member States raised a number of questions on depiction discussions during discussions in the Working Group Meetings it became apparent that it would be difficult to get agreement on this topic in the short/medium term and it has been removed from the document.

- National rules apply and they vary considerably.
Industry Guidance Documents

- Flavour Industry - EFFA
  - Guidance Document on the EC Regulation on Flavourings - 2nd Revision
  - Guidance Document for the Production of Natural Flavouring Substances and Flavouring Preparations in the EU - 1st Revision

EFFA Guidance on the Regulations

- Provides guidance on the general regulations
- Gives labelling examples
- Also introduces the concept of the use of the flavour wheel to explain the role of the 5% max addition of other naturals in a “Natural x Flavour”
Natural strawberry Flavouring
100% derived from Strawberry
Natural Strawberry Flavouring 95% derived from Strawberry

5% used to increase Fruity and ripe notes
EFFA guidance on the Production of Natural Flavouring substances and Preparations

- Seeks to explain what processes and raw materials may be used in their production
- Available on EFFA website
Food Industry Guidance

- FoodDrinkEurope has produced guidance – mainly dealing with the labelling of the final food
- It is currently under revision and a new version should be available shortly
- One area generating much discussion is whether the chicken flavour in a natural chicken flavouring with other natural flavourings flavour has to be easily recognisable in the flavouring or the final food.

This is also covered by Q9 in the Commission document where it is also still under discussion

- http://www.fooddrinkeurope.eu/S=0/publication/flavourings-guidelines/
Depiction

- National Legislation applies and where there are requirements they are very different
- Some concerns as to how this fits with the new Food Information Regulation
- UK food Industry (FDF) in conjunction with the UK Flavour Association (UKFA) and having consulted the Authorities has produced guidance.
  - In general the named source has to be at least 51% of the flavouring component to allow depiction
- In some countries a difference is made between stylised drawings and actual depiction. In others it depends on the food.
Conclusions

- The requirements for “Natural” are complex but in some cases there are other options available.
- The current Legislation is not black or white – its open to interpretation
- In some cases “grey” can be good
- There is guidance available from Authorities and Industry
Thank you for your attention

Joy Hardinge
Paper 4: Legal Challenges on Natural, Fresh & Healthy Claims in Savory Foods
Joy Hardinge, AJH Consulting, UK

- **Question**: Is there a vocabulary for flavorings/flavors in the different EU languages.
- **Response**: These will have been translated into the various national regulations. Refer to them for chosen wordings.

- **Question**: Regulations are B2B. In the B2C world, pack labelling is a key battleground for brands. Could labelling regulations destroy consumer trust?
- **Response**: New regulations don’t help with consumer trust. Older regulations maybe were clearer. New laws are aimed at giving consumer more info – but only leads to confusion. Can the consumer be a real subject matter expert?

- **Comment**: Do consumers really care?
- **Response**: Yes, when natural claims are made. Maybe the EU should make labelling more general rather than so specific.

- **Comment**: Industry has no formal role in the process of legislation in general in the EU. Sometimes they are invited. Dependent upon style of Directorate General. Member States are supposed to have links in their own country with their industry. Does not always work. Such a system makes 2-way discussions difficult.

- **Question**: How should autolysed/non-autolysed yeast be declared?
- **Response**: Labelling is clear – “flavouring preparation” or “Yeast Extract” for both. Unlikely to change in near future.

- **Comment**: “Yeast Extract is a Trojan horse for MSG” is the comment made by some Member States. It has to be declared either as “flavoring” or as “the ingredient”. It is not permitted as an additive in the regulations.

- **Question**: How is taste modification of flavors handled in the regulations?
- **Response**: Flavor modification is permitted in the regulations. Does overlap with flavor and additive regulation. EC Member states struggling with this area. Guidance given by the Commission. Case by case answers are the norm.
• **Question**: Is there a risk that all flavor modulators will become additives at the end of the day?

• **Response**: It is possible – some examples already in place of multiple classification. Neo-hesperidine and Reb A are in multiple categories depending upon use.
Paper 5

New Soft Processing Options for Savory Foods

Paul Bussmann
TNO
New Soft Processing Options for Savory Foods

TNO MISSION AND SUMMARY

TNO aligns knowledge and people to create innovations to enhance the competitive power of industry and to increase well being in a sustainable society.

Key data
- Contract research organisation
- 4,500 employees
- 600 m€ turnover
- Market-driven, customer-focused
- Independent
- International client base

CHALLENGES IN ‘HEALTHY LIVING’

Global food production has to provide enough, healthy and safe food to a growing world population by:

1. Increase Production
2. Reduce Food Residues and Loss
3. Create energy efficient production systems
4. Improve Quality
5. Change Diets

Our aim: a toolbox to accelerate industrial product development, introduction and acceptance in order to make food production in 2020 healthy, appetizing, safe and robust

REDUCE FOOD RESIDUES AND LOSS

Full Biorefinery of Agro-Feedstock
New Soft Processing Options for Savory Foods

20 March 2015

IMPROVE QUALITY: REFORMULATION
LESS SALT, LESS SUGAR, LESS FAT

- Less Sugar, Less Salt, Less Fat
- Selective Separation
  - Sugar from fruit juice
  - Salt from Infant Formula
- SH Steam Frying
- Reduced fat products

IMPROVE QUALITY: REFORMULATION
LESS SALT

Benchmark major sodium contribution in the diet

<table>
<thead>
<tr>
<th>Food</th>
<th>NL</th>
<th>UK</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bread</td>
<td>76%</td>
<td>74%</td>
<td>77%</td>
</tr>
<tr>
<td>Meat products</td>
<td>11%</td>
<td>16%</td>
<td>13%</td>
</tr>
<tr>
<td>Charsan</td>
<td>16%</td>
<td>5%</td>
<td>8%</td>
</tr>
<tr>
<td>Ready meals</td>
<td>8%</td>
<td>6%</td>
<td>8%</td>
</tr>
<tr>
<td>Snack and season</td>
<td>6%</td>
<td>11%</td>
<td>9%</td>
</tr>
<tr>
<td>Breaded cereals</td>
<td>6%</td>
<td>2%</td>
<td>8%</td>
</tr>
<tr>
<td>Fish products</td>
<td>2%</td>
<td>1%</td>
<td>3%</td>
</tr>
<tr>
<td>Crips, savoury snacks</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Coating meal</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Restaurant meals</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Sauces, condiments and spices</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Potato products</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
</tr>
</tbody>
</table>

IMPROVE QUALITY: REFORMULATION
LESS SALT: STRATEGIES

- Reduction over time, without compensation of flavour
- Salt replacement by non-sodium ions e.g. KCl or NH₄Cl
- Taste-taste interactions e.g. saltiness by umami
- Multisensory interactions: aroma, colour, sound and texture
- Amplify taste perception
- Sensory contrast
- Stimulate taste receptors

IMPROVE QUALITY: REFORMULATION
LESS SALT: BACK ENGINEERING APPROACH

Storage/Back Engineering

Press
Color
Sugar
Salt
Innovate
Products

TNO innovation for life

Paul Bussmann
New Soft Processing Options for Savory Foods  
20 March 2015

**IMPROVE QUALITY: REFORMULATION**

**LESS SALT: ANALYSIS**

- **Emulsifying effect**
- **Increase viscosity**
- **Decrease moisture retention**
- **Increase process yield**
- **Create texture after heating**

**TASTE PERCEPTION**

**PROCESSING & PRODUCT QUALITY**

**SHELF LIFE & SAFETY**

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**IMPROVE QUALITY: REFORMULATION**

**LESS SALT: TEXTURE**

- Three effects of salt in meat on texture
  - Solubilization of myofibrillar proteins (protein technology)
  - Water binding of the insoluble fraction (texture)
  - Viscosity: interaction between soluble protein and insoluble particles (rheology)

<table>
<thead>
<tr>
<th>Ratio meat/water</th>
<th>Without salt</th>
<th>With 1M NaCl</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/0</td>
<td>5.000 g</td>
<td>5.000 g</td>
</tr>
<tr>
<td>2/1</td>
<td>5.000 g</td>
<td>5.000 g</td>
</tr>
<tr>
<td>1/1</td>
<td>5.000 g</td>
<td>5.000 g</td>
</tr>
</tbody>
</table>

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**IMPROVE QUALITY: REFORMULATION**

**LESS SALT: TASTE**

- Potassium and other mineral salts can be used to replace sodium by ~25% (e.g. Salovaara, 1982).
  - Limited by inducing bitterness.
- Other taste qualities like umami compounds can be used to enhance saltiness, e.g. yeast extracts, nucleotides.
  - Limited by inducing undesired savoury notes.
- Combination of potassium and umami compounds is often advised as umami compounds somewhat mask bitterness.

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**IMPROVE QUALITY: REFORMULATION**

**LESS SALT: TECHNOLOGY**

- Other taste qualities like umami compounds can be used to enhance saltiness, e.g. yeast extracts, nucleotides.
  - Limited by inducing undesired savoury notes.
- Technology development

**Flavour reduction of hydrolysed proteins**


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Paul Bussmann
New Soft Processing Options for Savory Foods

20 March 2015

IMPROVE QUALITY: REFORMULATION
LESS SALT: TECHNOLOGY

- Natural Flavour Enhancers (NFE) contain natural volatiles as off-flavours

- Mild adsorption process is successful in removal of volatiles from soy sauce

IMPROVE QUALITY: REFORMULATION
LESS SALT: TRACK RECORD

Less salt: track record

- Bacon: 6% Sodium
- Celeriac: 0% Sodium
- Smoked: 36% Sodium
- Bread: 47% Sodium
- Risotto: 40% Sodium

IMPROVE QUALITY: REFORMULATION
LESS SALT: TAKE AWAY MESSAGE

- Consumers accept meat products with substantial reduced sodium but demand measures taken to be ‘natural’ or ‘clean label’
- Innovations towards mild processing enable to create reduced sodium meat products with good sensory properties and
- Reduction of sodium content of meat products leads to reduction of the total sodium intake and improved health

REDUCE RESIDUES AND LOSS
RUBISCO: BIGGEST PROTEIN SOURCE

- Insights on value-chain analysis, processing and functional properties
New Soft Processing Options for Savory Foods

20 March 2015

BACK ENGINEERING APPROACH

REDUCE RESIDUES AND LOSS

RUBISCO EXCELLENT FOR FOOD

- Nutritional value
  - Very well digestible
- Well-balanced amino acid profile
- Non-allergenic!!!

- Functionality
  - Excellent gelling
  - High foam performance
  - Good emulsification properties
  - High solubility (pH-dependent)

What we do

- Application for food / snacks
- Bread, cereals, confectionary, sauces etc.
- Microstructure of Rubisco Gels by Confocal Laser Scanning Microscopy

Whey protein / Egg white protein / Soy protein

Microstructure of Rubisco Gels by Confocal Laser Scanning Microscopy

Paul Bussmann
**REDUCE RESIDUES AND LOSS**

**RUBISCO: TEXTURE**

- Typical methods
  - Texture Analyzer – large deformation – eating properties
  - Rheometer – small deformation – gelation kinetics

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**Comparison with other proteins**

- Rubisco gels at lower concentrations compared to WPI/EWP
- Gels with higher $G'$ are formed for RBC-S
- Legumes & Soy data low gel performance

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**RUBISCO: PROCESSING BEET LEAVES**

- Main Processing Issues
  - Disruption
  - Mild separation
  - Functional properties
New Soft Processing Options for Savory Foods

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REDUCE RESIDUES AND LOSS
RUBISCO: PROCESSING BEET LEAVES

Scale-up from Lab to Bench to Pilot
Pilot Plant Experiments
Capacity 1 m³/hr
Output: dry powder
Production 1 kg/hr

REDUCE RESIDUES AND LOSS
RUBISCO: PROCESSING BEET LEAVES

Leaves harvested mechanically
Harvester capacity 20 ton/hr
Leaves without stems and dirt

Leaves unstable:
- Bacterial / enzymatic decay
- Loss of fluid
- Juice unstable:
- Enzymatic and non-enzymatic oxidation
- Binding of phenolics with protein
Solution:
- Stabilization by adding meta-bisulphite and CaCl₂
- Meta-bisulphite not necessary for algae case!
- Fast processing (<12 hr) crucial for producing functional protein

New Soft Processing Options for Savory Foods

20 March 2015

Paul Bussmann
**New Soft Processing Options for Savory Foods**

**REDUCE RESIDUES AND LOSS**

**RUBISCO: PROCESSING LESSONS**

- Precipitation of chlorophyll (pending patent)
- Heat/cooling regime induces precipitation of membrane proteins
- Microfiltration for the removal of remaining chlorophyll
- Use of flocculation
- Results in efficient removal of chlorophyll
- Application in the food production chain questionable
- Column chromatography: off-flavours / colorants removal

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**REDUCE RESIDUES AND LOSS**

**RUBISCO: PROCESSING CAPEX/OPEX**

- Flow Sheet
- Down Stream Processing Costs

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**REDUCE RESIDUES AND LOSS**

**RUBISCO: PROCESSING LESSONS**

- Concentration performed with ultrafiltration
- 30 times concentrated
- Spray drying is required
- Air temperature outlet is critical
REDUCE RESIDUES AND LOSS
RUBISCO: PROCESSING RESULTS

- Economic Feasibility:
  - On Paper yes
  - In practice we are not there yet
  - Yield must be increased
- Technological Feasibility is shown
  - Technology => Patented
  - Separation fibres from juice
  - Separation of chlorophyll and membrane proteins from soluble protein
  - Removal of polyphenols / off-flavours
  - Concentration of the protein
  - Drying of the protein

THANK YOU FOR YOUR ATTENTION
Paper 5: New Soft Processing Options for Savory Foods  
Paul Bussmann, TNO, NL

- **Question:** What is the basis of sodium reduction?  
  **Response:** 60% reduction since 2010 in NL

- **Question:** Why beet? Gel strength under freeze-thaw and water absorption characteristics are not the same type as other proteins.  
  **Response:** Beet abundant and not used. Rubisco gels strong but brittle – probably because hydrophilic and phobic bonding method instead of covalent.

- **Question:** Rubisco is an enzyme is it not? (Yes.) Will it impact on digestion, as not a typical protein? Toxicity and allergenicity tests would be required. Will dose of protein be much higher than normal? Would it not be better to use a photosynthetic source of bacteria?  
  **Response:** We have looked at algae, not bacteria. Amino acid composition tests have been performed for toxicity without any problems emerging; issue they were addressing is how to avoid the waste that leaves on the ground create.

- **Question:** Is this a soft processing process in the eyes of the consumer?  
  **Response:** Low stress conditions to preserve the quality, no chemicals, water, sometimes hot or salty, but soft otherwise.

- **Question:** Sodium reduction results & salt reduction success – is that with taste parity?  
  **Response:** No, consumers need to accept lower salt tastes. TNO aims at technology to maintain the quality of the current products.

- **Question:** How can this product be positioned? If these products exhibit no anti-nutritional factors, what holds these products back?  
  **Response:** The approach has been technical and economic assessment so far. No consumer work.

- **Question:** Did you have economic targets?  
  **Response:** Yes, to establish functionality compared with other proteins to assess competitiveness – benchmarks were soy and whey.
Health & Wellness in the Savory Sector
Round Table Discussions

GIRACT

20th March 2015
Giract introduced Health & Wellness round table discussions during its 21st Savory Flavor Conference to give the opportunity to those who have to deliver on health and wellness objectives in the savory sector to share thoughts and ideas.

Consequently, participants were split into 4 groups, each group being given the following two themes for discussion:

- Which Health & Wellness issues are important for the savory industry?
- What can the industry (B2B and B2C) do about these issues?

A spokesperson from each group gave a 10–minute presentation on the outcome of the group discussions to the conference gathering – the following slides are the fruit of these discussions.
H&W in the Savory Sector
Round Table Discussions – Question 1

Which Health and Wellness issues are important for the savory industry?

Group 1:

- Food additives – perception is negative
- High colouring
- GMO concerns – unknown to consumers what it means exactly
- High sodium intake
- Bad guys – negative publicity
- Consumer education
- Unbalanced food minus – food plus (Na – K)
- Simplified /comprehensive education
- Unknown technology – customer fear
- Perception of processed food – artisan food
- Communication – positive news from food industry – food industry did not adapt to social media
- Portion control
Which Health and Wellness issues are important for the savory industry?

**Group 2:**

- Consumer: healthy, safe, affordable, available
  - Visibility of vegetables – bigger = more healthy
  - Involvement in preparing food – ‘ownership’
- Brands/Producers – don’t play with health = misleading claims
- Involvement of ingredients suppliers in designing products
- Price vs. expectations
- Wellness = healthy
  - Choices/lifestyle – e.g. meat-free day
  - Eliminating the negatives – such as salt reduction
H&W in the Savory Sector
Round Table Discussions – Question 1

Which Health and Wellness issues are important for the savory industry?

Group 3:
- Less sodium
- Consumer ignorance
- EU legislation
- Clean labelling, producing without additives
- Media influence
- Traceability, Allergens
H&W in the Savory Sector
Round Table Discussions – Question 1

Which Health and Wellness issues are important for the savory industry?

Group 4:
- Sodium reduction
- Fat reduction / Calorie content
- Nutritional values / Vitamins / Minerals
- Sugar reduction
- Taste without compromise
- Natural and clean label
- Sustainability
- Antioxidants impact of the reformulations on product/food safety
- Claims in the current legal environment
H&W in the Savory Sector
Round Table Discussions – Question 2

What can the industry (B2B and B2C) do about these issues?

Group 1

▪ Communication to customers
▪ No more lost generations – start at schools – lunch programmes, sponsoring thereof
▪ Tailored communication – story at right time and right location (ref to Quorn)
▪ Positive reinforcement by independent experts – e.g. sustainability
▪ Communicate benefits of modern technology pro-actively
▪ Food industry – takes care of the earth, its resources and its residents
H&W in the Savory Sector
Round Table Discussions – Question 2

What can the industry (B2B and B2C) do about these issues?

Group 2

- Lower-salt products
  - position as ‘less salt’ – positive message
  - ‘salt it yourself’ – give consumers the chance to choose
- Lower-fat products – maintaining taste
- Explain what is fermentation – natural process
- Use PR agency which understands the local market
- Education – what is glutamate – why the consumer comes back
- Avoid claims such as ‘no glutamate’ – what is the key message?
H&W in the Savory Sector
Round Table Discussions – Question 2

What can the industry (B2B and B2C) do about these issues?

**Group 3**

- Reduce sodium step by step
- Reduce sodium by technical solutions / amino acids
- Communication, transparency and choice
- No solution on EU legislation
- New ways to produce food without additives
- We need to be open to media as much as possible
- Audits at partners, purchase from partners you can trust
H&W in the Savory Sector
Round Table Discussions – Question 2
What can the industry (B2B and B2C) do about these issues?

Group 4

- Provide appropriate technological solutions to deliver on consumer demands:
  - No quality degradation upon changing formulations
  - Help keep brand owner’s equity (Quorn example)
- Educate the consumer? Is this our job and how could it be done?
- Could the industry act more strongly in the interpretation of the regulations in the interest of the customer?
- All the issues are issues for the entire food industry, not only savory
- These issues are really only relevant in highly developed markets
Paper 7

Meeting High Consumer Expectations about ‘Natural’ Foods: a Complex but Exciting Challenge for the Savory Flavor & Ingredient Industry

Rob Evans
Diana Food
Natural Foods: meeting high Consumer expectations

Rob Evans
R&D Director Diana Food
GIRACT 21st Savory Flavor Conference, Geneva, March 19-20
What is *Natural* anyway?

**AN ALL-NATURAL BANANA**

**INGREDIENTS:** WATER (75%), SUGARS (12%) (GLUCOSE (48%), FRUCTOSE (40%), SACCHAROSE (2%), MALTPOSE (<1%), STARCH (5%), FIBRE E460 (3%), AMINO ACIDS (<1%) (GLUTAMIC ACID (19%), ASPARTIC ACID (16%), HISTIDINE (11%), LEUCINE (7%), LYSINE (5%), PHENYLALANINE (4%), ARGinine (4%), VALINE (4%), GLYCINE (3%), THREONINE (3%), ISOLEUCINE (3%), PROLINE (3%), TRYPTOPHAN (1%), CYSTEINE (1%), TYROSINE (1%), METHIONINE (1%), FATTY ACIDS (1%) (PALMITIC ACID (30%), OMEGA-6 FATTY ACID: LINOLEIC ACID (14%), OMEGA-3 FATTY ACID: LINOLENIC ACID (8%), OLEIC ACID (7%), PALMITOLEIC ACID (3%), STEARIC ACID (2%), LAURIC ACID (1%), MYRISTIC ACID (1%), CAPRIC ACID (1%), ASH (<1%), PHYTOSTEROLS, E515, OXALIC ACID, E300, E306 (TOCOPHEROL), PHYLLOQUINONE, THIAMIN, COLOURS (YELLOW-ORANGE E101 (RIBOFLAVIN), YELLOW-BROWN E160a), FLAVOURS (3-METHYLBUT-1-YL ETHANOATE, 2-METHYLBUTYL ETHANOATE, 2-METHYLPROPAN-1-OL, 3-METHYLBUTYL-1-OL, 2-HYDROXY-3-METHYL ETHER BUTANOATE, 3-METHYL BUTANAL, ETHYL HEXANOATE, ETHYL BUTANOATE, PENTYL ACETATE), 1510, NATURAL RIPENING AGENT (ETHENE GAS).

**INGREDIENTS OF AN ALL-NATURAL EGG**

**INGREDIENTS:** AQUA (75.8%), AMINO ACIDS (12.6%) (GLUTAMIC ACID (14%), ASPARTIC ACID (11%), VALINE (9%), ARGinine (8%), LEUCINE (8%), LYSINE (7%), SERINE (7%), PHENYLALANINE (5%), ALANINE (5%), ISOLEUCINE (5%), PROLINE (4%), TYROSINE (3%), THRONE (3%), GLYCINE (3%), HISTIDINE (2%), METHIONINE (3%), CYSTEINE (2%), TRYPTOPHAN (1%), FATTY ACIDS (9.9%) (OCTADECANOIC ACID (45%), HEXADECANOIC ACID (32%), OCTADECANOIC ACID (12%), EICOSATETRAENOIC ACID (5%), EICOSANOIC ACID (5%), DOCOSEANOIC ACID (1%), TETRACOSANOIC ACID (1%), OCTANOIC ACID (1%), DECANOIC ACID (1%), DODECANOIC ACID (1%), TETRADECANOIC ACID (1%), PENTADECANOIC ACID (1%), HEPADECANOIC ACID (1%), TETRADECENOIC ACID (1%), HEXADECANOIC ACID (1%), EICOSANOIC ACID (1%), DOCOSEANOIC ACID (1%), OMEGA-6 FATTY ACID: OCTADECADIEINOIC ACID (12%), OMEGA-3 FATTY ACID: OCTADECATRIOINOIC ACID (1%), EICOSAPENTAENOIC ACID (1%), OMEGA-3 FATTY ACID: DOCOSAHXENOIC ACID (DHA) (1%); SUGARS (0.8%) (GLUCOSE (30%), SACCHAROSE (15%), FRUCTOSE (15%), LACTOSE (15%), MALTOSE (15%), GALACTOSE (15%), COLOUR (E160c, E160a, E306, E101); FLAVOURS (PHENYLACETALDEHYDE, DODECA-2-ENAL, HEPTA-2-ENAL, HEXADECANAL, OCTADECANAL, PENTAN-2-ONE, BUTAN-2-ONE), ACETALDEHYDE, FORMALDEHYDE, ACETONE); SHELL (E170), ALSO CONTAINS BENZENE & BENZENE DERIVATIVES, ESTERS, PORANS, SULFUR-CONTAINING COMPOUNDS AND TERPENES.
Consumer Expectations around “Natural”

- Food you understand
- Healthy & Nutritious
- Ethical
- Food you can trust
- Relevant Provenance

Clean / Short Label
Minimally Processed
Sustainable
Traceable
Authentic

A Great Eating Experience
Even if Consumers desire great tasting products, they have increasing concerns over the healthiness of their food and how it is produced.
Manufacturers have noticed this...
The “Natural” concept delivers on consumer health concerns

36% of UK consumers consider "free from additives" the most important food claim

62% of US adults say when they see products labelled ‘all natural’ they think they’re healthy

1 in 4 new products launched globally carries some kind of ‘natural’ claim

But only 33% of US consumers feel they can trust the term ‘natural’ on a label

Product recalls. Allergy scares. We are more wary of what we consume than ever before.

Source: Mintel
Many Consumer concerns around food content

Fifty-Five percent of consumers believe America’s food production is on the wrong track, citing

- Food content; processing, chemicals, sugar, HFCS, fat, salt, etc. 42%
- Safety and production; mass production, lack of local production, contamination, GMOs, etc. 22%
- Economy, jobs, and food costs 19%
- Personal time management; emphasis on fast food and laziness 16%
- Obesity and self-control 9%
- Regulations and government 8%
- Corporations and profits 5%

Source: Field to Fork 2012, Edelman (USA Consumer survey)
Additives targeted by media

Source: Dailymail.co.uk, 2008
Resulting in a “No Additives” approach in recent years

“No additives” is the top claim on new products launched globally.

Other top claims relate to food purity, safety, or absence of “threatening” ingredients.

Source: Mintel
Around the world
Consumers associate Natural Ingredients with Health

“There is a perception among consumers that natural ingredients have a positive impact on general health, while synthetic ingredients have certain detrimental effects on health.”
Source: Frost & Sullivan Market Insight January 2013

“Whether it is using food as a lifestyle indicator, demanding natural ingredients or looking to the food and drink they choose to lift mood, benefit their health or manage their weight, consumers want the food and drink they consume to do more than ever before”
Source: RTS Health & Wellbeing report May 2011

“More than half of the respondents believe that [artificial] additives and preservatives are harmful to your health and that many foods contain high levels of pesticides”.
Source: University of Wollongong Australia, research paper, 2004

“Opportunities exist for ingredients that meet the needs of an increasingly demanding consumer for who function has to be allied to naturalness.”
Source: Euromonitor The ingredient curve: more food in our food, May 2013

“Three-quarters of European consumers think that the consumption of natural foods brings with it health benefits... 77% of consumers want foods which are free from chemical additives”
Source: Kampffmeyer European consumer survey, September 2012

“Natural ingredients are more likely to be accepted than chemical or synthesised ingredients. For this reason, clean label foods are considered a safer and healthier choice. 70% of those surveyed are more willing to buy food with a simpler ingredient list”.
Source: Ingredion Market Study China, April 2013

Different countries are at different places on this trend, but the trend itself is global
The “Natural” concept helps food manufacturers regain consumer trust.

Consumers mistrust the food industry.

Yet they have more information at their fingertips than ever before, via everyday connectivity.

Consumers want foods that are more natural, less processed, made with familiar ingredients.

The focus is on clean labels, greater transparency, and more artisanal values.

Source: Mintel

But communication is not simply about products being made from natural ingredients.
Clean labelling as a tool to communicate “Natural”

100% ingredients from natural origin

100% natural

“Natura” branded

Source: Mintel
A more “direct” communication approach

"Do you cook at home with glutamic acid, chemically modified starch and natural aromas? Or with dried milk, powdered egg or yeast extract?"

"Neither do we!"

Source: Mintel
Minimal processing & authenticity

Meal Kits from Scratch, UK

Spaghetti bolognese, hand prepared with 100% passion. L’Artisane, Belgium

Communication via Packaging Bigham’s, UK

Source: Mintel
Provenance-based ingredient claims are growing

Figure 21: Factors influencing choice when buying food and (non-alcoholic) drink, December 2012 and March 2013
Base: 1,500 internet users aged 16+

- British origin: 34% (Mar-13) vs 30% (Dec-12)
- Animal welfare standards: 23% (Mar-13) vs 23% (Dec-12)
- Free-from pesticides: 21% (Mar-13) vs 21% (Dec-12)
- Fair trade: 20% (Mar-13) vs 11% (Dec-12)
- Local origin (ie 30-mile radius): 17% (Mar-13) vs 14% (Dec-12)
- Environmentally friendly: 21% (Mar-13) vs 14% (Dec-12)
- Sustainable (eg fish): 13% (Mar-13) vs 12% (Dec-12)
- Fair pay for farmers: 11% (Mar-13) vs 10% (Dec-12)
- Regional origin (eg Lancashire cheese): 14% (Mar-13) vs 10% (Dec-12)
- Organic: 7% (Mar-13) vs 7% (Dec-12)
- Traceable (eg to farm): 14% (Mar-13) vs 6% (Dec-12)
- Detailed foreign origin (eg Parma ham): 5% (Mar-13) vs 6% (Dec-12)
- None of these: 27% (Mar-13) vs 21% (Dec-12)

British, local and regional provenance has become more important

Source: Mintel
Provenance, Traceability, Natural ingredients, Clean & Short ingredient list...

Taste a memory Foods (Ireland) enables consumers to trace back the provenance of each ingredient via a QR code. “100% traceable from farm to fork”

Walkers Crisps UK: “With real pork from Norfolk”

Made with 100% natural ingredients. Label details the produce, the origin, the farm and farmer (with QR code link to video). Clean label.

Source: Mintel
Transparency: Fleury Michon crab sticks (YouTube)

https://youtu.be/wPdXQKUcA5s
Transparency: the risks and the opportunities

**RISKS**

Someone else drives transparency and misleads the consumer

Being unable to explain to the consumer the benefit of the process and the science behind our ingredients

Restricting “Natural” to well-defined, narrow fields: e.g. Organic, GMO free, antibiotic-free.

Restricting the dialogue to what’s NOT in the product

**OPPORTUNITIES**

Build on the underlying Consumer trend and seize the transparency agenda.

Develop new ingredients that:
- are made from raw materials that consumers can connect with
- do not involve chemical additives
- are made with “traditional/minimal” processes

Open the Dialogue to reassure the Consumer and to explain the positive benefits of our ingredients
Conclusion

Much to be done in the savory industry to understand and engage with emerging Consumer expectations

Delivering “Natural” without compromising Taste represents a great opportunity & challenge for flavors and savory ingredients

Consumer education is key
- more transparency from industry
- more positive & proactive Food Science communication & education
Natural Foods: meeting high Consumer expectations

Rob Evans
R&D Director Diana Food
GIRACT 21st Savory Flavor Conference, Geneva, March 19-20
Paper 7: Meeting High Consumer Expectations About ‘Natural Foods’: A Complex But Exciting Challenge for the Savory Flavor & Ingredient Industry
Rob Evans, Diana Food, FR

- **Question**: Does “free-from...” have a role in natural?
  - **Response**: yes, because it’s easy to communicate, providing a step on the route to a better understanding of what the food industry does – but “free-from...” is not the end point.

- **Question**: The global understanding of “clean” label – what does it mean around the world?
  - **Response**: Depends even upon individual consumers. Definition often centred on those items that you would find in the kitchen cupboard of a typical consumer. In that sense, natural is not a legislative concept, it’s a thing of the mind. If you get it right, the vagueness (in definition) allows a freedom to meet these different requirements.

- **Question**: Is there an issue over de-centralised versus centralised production?
  - **Response**: Consumers are paradoxical – they want food from next door but they also don’t want to pay for that. It will likely depend upon sectors as to which way it goes – but, in the end, economies of scale are powerful arguments.

- **Question**: Understanding of clean label carries very different perceptions dependent upon markets e.g. US v EUR.
  - **Response**: Clean label is too based on what is not there. “Free-from....” and blacklists (“We never....”) help establish trust.

- **Question**: Allergies are enlarging labels – what impact do you think that has on this debate?
  - **Response**: Regulatory changes don’t always help, but you have to acknowledge, and work towards the importance of safety in food. Is it more a question of on-pack presentation?
21st Savory Flavor Conference
Farm-to-Fork Issues in Processed vs Fresh Savory Foods

Mandarin Oriental Hotel, Geneva
19/20 March 2015

Summing up
H. Hussell - Giract

www.giract.com
Objectives

- Discuss recent industry developments and their future
- Offer an interactive forum for identifying common opportunities and threats
- Obtain an external viewpoint
Paper 1

MAINTAINING CONSUMER TRUST IN A CHANGING RETAIL MARKET

Alan Lacey, The Society of Food Hygiene & Technology (SOFHT), UK

• The consumer/retailer perspective from the UK
  – Emphasis on SC integrity has become the key focus
• UK Market characterised by:
  – Big 4 regressing, Aldi & Lidl expansion & pressure
  – Value brands growth. Price–oriented consumers
• Supply chain characterised by global relationships
• Scare stories drive impressions, role of media, unawareness amongst consumers of the ‘food chain’ and its complexity.
  – Sudan 1, Cumin
  – Allergens, GM
• Reinforced emphasis on trust of consumer driven by honest supply chains
Paper 2
FARM-TO-FORK ISSUES IN MEAT-FREE FOODS
Muyiwa Akintoye, Quorn Foods, UK

- Quorn
  - Long history as unique mycoprotein, with a place in the 21st century
  - Key attributes for today's world – high quality of protein
    - Meat reduction & vegetarianism, environmental concerns, CVD & diet, obesity & health
  - A changing customer base
  - A changing message
  - The integrated model of production
  - Consequences for supply chain to maintain position of a “natural” product – still working to improve

- Flavours and Quorn
  - Diversity of customers – vegetarians, non-veg/flex, weight managers, health strivers – drives overall need for natural flavours
Paper 3
THE APPETIZING AND SATIATING EFFECTS OF ODOURS
Mariëlle Ramaekers, Wageningen University, NL
PhD Best Thesis Award winner

- A study to understand the appetizing and satiating effects of ortho- and retro-nasally smelt odours
  - odour exposure time, the odour concentration (retronasal only), the odour type, passive versus active sniffing (orthonasal only) and by switching between odour types.
- Satiation vs satiety
- Orthonasally smelt odours affect to a larger extent what you eat rather than how much you eat.
  - Savoury / sweet interaction
- Retronasally smelt food odours probably have a small influence on satiation, although not strong.
- Higher concentrations or prolonged exposure diminishes appetite for the food.
A journey through the legislation of Flavours
  - Natural – compositions, derived from…….,
  - What can you do with the 5%!
Q & A in production, but takes a long time and subject to delay
Specific issues of
  - Front of pack labelling, yeast extracts, specific naming, depiction
Guidance documents available
  - EFFA
  - FoodDrinkEurope
Inevitable “grey” still present
Common sense – but “common” follows food culture
Paper 5
NEW SOFT PROCESSING OPTIONS FOR SAVORY FOODS
Paul Bussmann, TNO, NL

- Challenges of global food production
  - energy efficiency, quality (nutritional), food residues & loss
- Examples of success in sugar, salt and fat reduction
- Deconstructing the supply chain through reverse engineering, the bio-refinery.
  - Salt reduction
    - Texture, taste, technology
    - Results – 30–67% reductions possible
- Residues and Loss
  - Rubisco alternatives
    - TTT results
    - Processing of beet leaves
Paper 6
HEALTH & WELLNESS IN THE SAVORY SECTOR
Round Table Discussions

Issues:
- Negative impressions of additives – esp high colour (−ve stories)
- GMO concerns, low understanding
- Consumer education and “ignorance”
- Brand holders play with health or misleading claims – compete in this way
- Technology in food scares people
- High sodium, added salt too high

What can we do:
- Less salt, “salt it yourself”
- Explain fermentation, other education
- Involve ingredient manufacturers in product design
- Communicate our propositions effectively – timing, quality
- Educate young consumers
- Support from independent information sources for consumers
- Develop and explain technologies
Paper 7

MEETING HIGH CONSUMER EXPECTATIONS ABOUT ‘NATURAL’ FOODS: A COMPLEX BUT EXCITING CHALLENGE FOR THE SAVORY FLAVOR & INGREDIENT INDUSTRY

Rob Evans, Diana Food, FR

- Bananas & Eggs!!
- Natural 10 point “Holy Grail” card
- Food quality and provenance – pushing at an open door
- Natural claims linked to health – but not always trusted
- A trail of evidence pointing towards a more natural food choice has led to...
  - Additive removal as key policy
  - Use of recognisable ingredients
  - Supply chain claims – producer fair deal, chemical additions, environmental protection, traceability & origin labelling
- Transparency works – if you work at it!
Thank you all for sharing your time and ideas

And for your diary……

22\textsuperscript{nd} Savory Flavor Conference
17/18 March 2016
Geneva

Have a Safe Journey Home

Giract, Geneva, Switzerland