



Sodium Reduction: Opportunities & Challenges

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Answering a selection of the questions posed by the committee:

- ***Does your company have a strategic goal to lower sodium?***
- ***The role of sodium in food, technical and economic challenges and opportunities for its reduction?***
- ***Success stories***

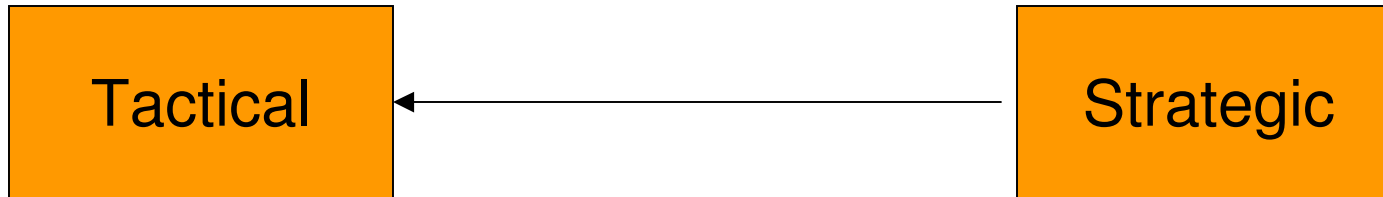


Kraft Sodium Reduction Strategy

(generalized)



Kraft Sodium Reduction Efforts 2009 – Taste only



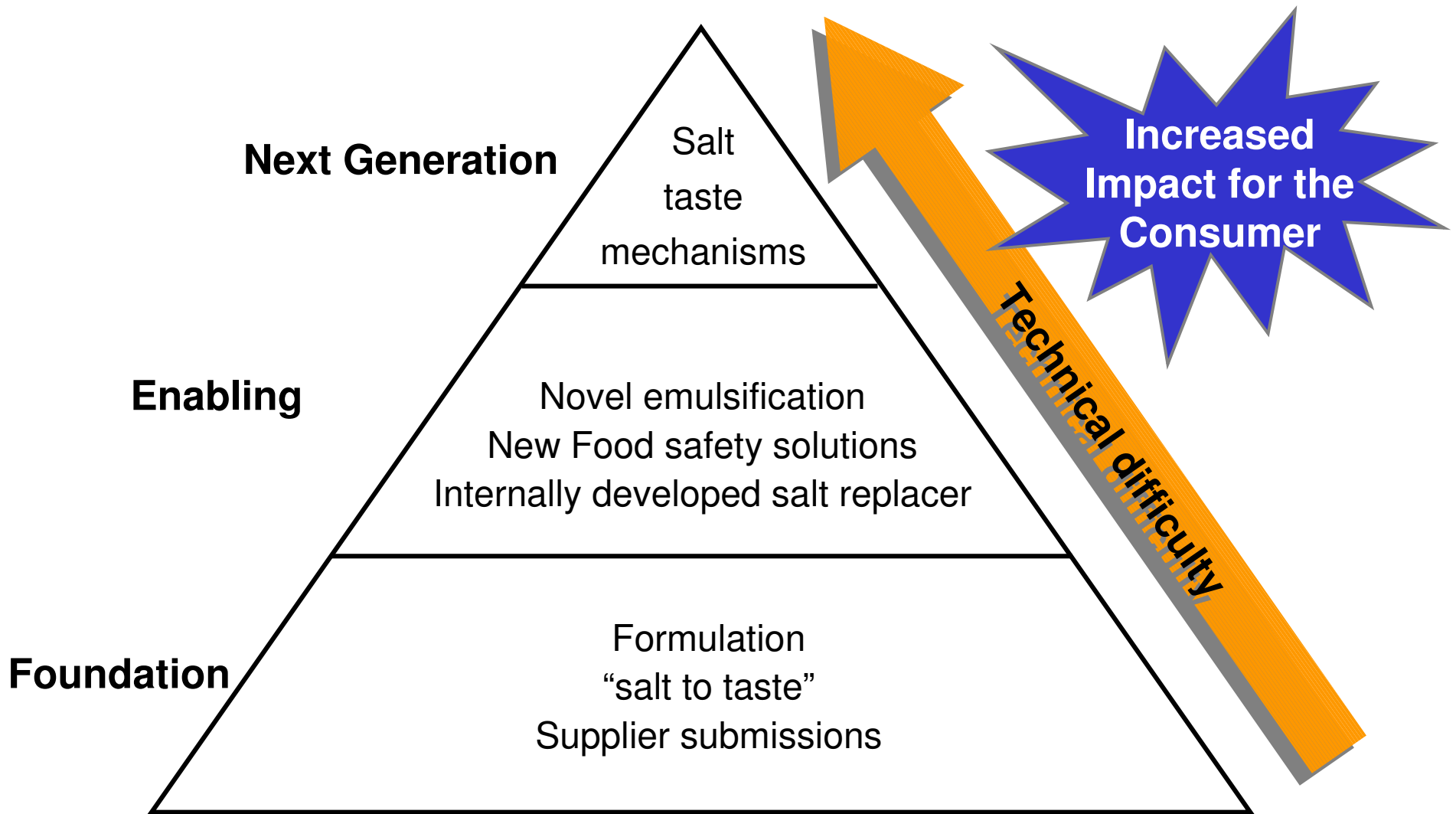
Activity	Notes
Internally developed salt replacers	Commercialization and cost optimization underway
Sodium Screening Program	External & Internal salty taste enhancers, bitter blockers
Product development or reformulation initiatives	BU led

Activity	Notes
Multi-Industry sponsored salty taste research consortium*	Fundamental knowledge building of human salty taste mechanism

***Human Salty Taste Research Consortium:**

- Industry sponsored research to discover the mechanism of human salty taste of NaCl.
- Groundbreaking understanding expected to lead to new approaches for discovery of novel salt substitutes/ salty taste enhancers that would enable next generation Na+ reduction in foods without sacrificing salty taste.

Fundamental technical programs are built and sustained by continuous development and platforming of technologies





The Role of Sodium in Food: Technical and economic challenges and opportunities for sodium reduction – Crackers, Cookies, Cheese

Sodium plays several key roles in foods as well as taste, in considering sodium reduction they all need to be considered

- Unique salty taste
- Flavor enhancement / balance
- Reduce off notes, e.g. bitterness



Taste



Preservation

- Reduction of food RH (a_w)
- Inhibit microbial growth (pathogens & spoilage)
- Prevent spore germination (*Clostridium botulinum*)



Texture and Yield

- Texture / firming
- WHC
- Solubilizing protein
- Koshering
- Brining
- Perceived thickness/fullness



Leavening

- Strengthening gluten
- Controlling fermentation
- Regulating enzyme activity
- Stabilizing frozen egg yolk



Sodium based ingredients have critical functional properties in some of our products for texture and preservation and sourcing of alternatives is challenging.

- Sodium Emulsifiers for Process Cheese (refrigerated)
 - Sodium citrate and phosphate emulsifying salts act on proteins to create texture of melt properties of process cheese and represent 40-45% of the sodium in Process Cheese
- Sodium as a Preservative for Shelf Stable Cheese Liquid Dinners
 - Work underway to identify preservation alternatives for a modest, but material reduction (50-100mg/serving) in the use of sodium as a preservation agent still years out (due to challenge testing requirements).
- Sodium for Preservation in Meat
 - Kraft has undertaken development work with partners to identify low sodium alternatives to lactate/acetate, recognizing that no single company is likely to hold all of the answers.
- Texture functionality for Meat
 - Research to find alternatives for sodium phosphate for meat texture.
- Leavening Agents
 - Kraft Foods Inc is screening potential lower sodium leavening agents available from suppliers



Technical Feasibility - Crackers

- Sodium bi-carbonate is the commonly used leavening agent (no other leavening agents currently available) for flour based products
- Where high amounts of cocoa are used in the biscuit (e.g. Oreo®), greater amounts of sodium bicarbonate are required (the does not “rise” making it very difficult to obtain the proper baked texture in the finished product, requiring more leavening)
- For Premium Saltines ®, a “soda” cracker (the name derives from sodium bicarbonate used in making the cracker), there is a floor below which sodium cannot drop, barring the discovery of some new technology to leaven such products without sodium bicarbonate.
- Reductions in sodium for taste are possible,



Opportunities exist to reduce sodium by up to 25% using existing technologies, at significant cost to the consumer. Consumer acceptance of the cost impacts and quality challenges must be assessed on a product by product basis.

- Salt is a very inexpensive ingredient. All alternatives are more costly.
- Consumers are very cost conscious, especially in the current economic environment. They have not shown a willingness to pay for reduced sodium alternatives.
- Taste will win – delicious is required before the sodium levels are considered.
- Food safety is paramount. No amount of increased food safety risk will be tolerated or considered to reduce sodium levels.



Low Sodium Products in Market



Examples of the sodium reduced foods, where such reduction is called out on the front of the package, compared with “original”.

<u>Business \ Food</u>				
Planters Regular Sea Salt Lightly Salted	Cashews 230 mg 115 mg 55 mg	Peanuts 230 mg 95 mg (Dry Roasted)	Cocktail Peanuts 115 mg 55 mg	Mixed Nuts 110 mg 50 mg
Oscar Mayer Regular Low Sodium	Ham 380 mg 260 mg	Hickory Farms Bacon 290 mg 170 mg		
Nabisco Regular Hint of Salt	Ritz 135mg 35 mg	Saltine 200 mg 30 mg	Stoned Wheat Thins 140 mg 70 mg	Triscuits 180 mg 50 mg

Serving size is ~ 30g, with the exception of bacon which is ~15 g.



Current activities include both near term product development, a screening program and strategic research.

- Sodium serves many important functions in food: taste, texture, preservation/food safety. In reducing sodium these factors all need consideration
- A screening program for salt replacers has been initiated – aim to screen external and internal ingredients in model systems in order to aid product development
 - Ensure systematic approach and ensure Kraft has access to best commercially available technology
- Strategic research initiatives include understanding of the salty taste mechanism at the receptor level. Opportunities have been identified across BUs and technology development has been scoped out in some cases

ABU	Product Ranges	Notes
Biscuit / Snack	Snacks with low topical salt additions	•Research opportunities around leavening agents under consideration
Grocery	Enhancers Meals Deserts	•Research opportunities across range of products scoped out and under focus
OM	Lunchables	•Extensive work on meat, cheese, sauce and baked items to enable Smart Choices Program compliance
Cheese & Dairy	Processed cheese Cottage cheeses	•Research program to reduce emulsifiers – which are sodium salts •Opportunities identified in cottage cheese
Pizza	Personal Pizzas, Family Pizzas	•Opportunities being scoped



Thank you