



Getting functional with cheese

Research from **TEAGASC** has shown that if manufacturers wish to make claims about the health benefits of functional cheese, they should emphasise that taste has not been affected.

Both Food Harvest 2020 and Food Wise 2025 have recommended a substantial growth in Irish cheese production, from an added value perspective. Some of this growth can be achieved through the development of radical cheese innovations. Researchers in Teagasc and University College Cork have examined the factors influencing Irish and UK consumers' acceptance of cheese product concepts varying in function and health claim.

Ancient food to novel functions

Cheese is an ancient food, with archaeological evidence of its production dating back to 7,000BC. It is an excellent source of many essential nutrients such as calcium, phosphorous and protein, and can make a meaningful contribution to a healthy diet. Furthermore, cheese is a product that can lend itself to fortification with vitamins, minerals or functional ingredients, resulting in new 'health-enhanced' cheese products with significant market potential.

Meeting consumer needs in NPD

Radical new product development (NPD) requires significant investment and, because of high product failure of between 60 and 80% of product launches, it may be considered too risky by some cheese manufacturers. However, these high failure rates can possibly be attenuated through a deep understanding and targeting of appropriate consumer segments. Indeed, it is widely acknowledged that consumer orientation in product development activities is necessary for market success. In fact, by applying a consumer-oriented NPD

process, the likelihood of market success increases. International consumer markets are of particular importance to Irish dairy manufacturers in regards to sustaining and growing their business. Hence NPD should also account for the needs of international consumers, such as the British (the UK accounted for 22% of our dairy exports in 2017, of which 41% was cheese and nearly half of this was cheddar). Notwithstanding the issues surrounding Brexit and proposed tariffs, the UK is very likely to remain a significant export market for Irish cheese. Thus, it is essential to have extensive up-to-date consumer insights and market knowledge to respond effectively to changing consumer food preferences.

Consumer assessment of novel cheese concepts

The aim of this research was twofold: firstly to examine consumers' current attitudes towards cheese; and, secondly to determine consumer responses to a range of health-enhanced cheese products. In particular, the research was interested in consumers' health evaluations of a set of proposed cheese products (varying in fortification and health claim) and their willingness to try such cheese options. Data were collected using an online survey of a representative sample of 600 adult cheese consumers from Ireland and the UK. Respondents' current cheese usage practices and attitudes to cheese were sought. Furthermore, evaluations on the healthiness of and willingness to try a range of eight full-fat and eight low-fat realistic cheese concepts were sought. The concepts were rated on a scale of 1 to 7. Higher scores indicate more positive health evaluations (perceived

Table 1: Mean consumer scores for willingness to try and the perceived healthiness of full-fat cheese concepts varying in fortification and claim.

Fortification	Claim	Willing to try	Perceived health
No fortification	No claim	5.27	3.90
Vitamins	No claim	4.45	4.32
Protein and vitamins	No claim	4.42	4.41
Protein	No claim	4.39	4.18
Protein and vitamins	Muscle claim	4.38	4.49
Protein	Muscle claim	4.34	4.35
No fortification	Child development	4.16	4.55
Vitamins	Child development	4.03	4.53

healthiness) and increased willingness to try. Attitudes to cheese were generally positive. Over 90% indicated that they always have a supply of cheese in their fridge, with 63% preferring full-fat cheese and nearly half indicating that they regularly cook with cheese. In addition, 43% indicated that they considered cheese to be a healthy food product and 28% indicated that they regularly consume cheese as a snack.

Furthermore, cheese is a product that can lend itself to fortification with vitamins, minerals or functional ingredients, resulting in new 'health-enhanced' cheese products with significant market potential.

Consumer acceptance of regular full-fat cheese and functional full-fat cheese concepts are presented in **Table 1**. Compared to all of the other full-fat cheese concepts, full-fat cheese with no fortification and no claim had the highest willingness to try score but the lowest perceived healthiness score. This consumer willingness to try decreased when the cheese concepts had added fortification or had an associated health claim. Conversely, the concepts with both fortification and health claim had the highest perceived healthiness score. Cheese concepts with a child development claim had the highest perceived healthiness scores of all the concepts. A similar pattern was observed for the low-fat cheese concepts, whereby fortification and claim decreased willingness to try but increased the perceived healthiness of the products. Although consumers perceived most of the cheese products with fortification and claims as healthier, there was a lower willingness to try. This may be a result of diminished perception of sensory satisfaction and taste in a modified food concept.

There was no difference in willingness to try the concepts between Ireland and UK consumers. However, Irish consumers were more likely to rate the healthiness of cheese concepts with added vitamins and minerals and/or with health claims significantly higher than UK consumers. Demographic differences were observed across the concepts, with lower-fat products more appealing to the younger female demographic and protein cheese having a strong appeal for fitness-oriented and younger consumers. The concepts with health benefits were positively received among parents. With respect to NPD and functional cheese with claims, using an established and accepted concept from another food domain may be a good point of entry to the market. There is a need for clear and effective communication of less familiar concepts. Most importantly, it should be emphasised that taste has not been compromised when the currently accepted product has been modified.

Acknowledgements

This research was funded by the Department of Agriculture, Food and Marine through the FIRM programme (10/RD/704 CheeseBoard and 13/SN/401 Sensory Network).

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