



Consumer attitudes and perceptions of biofortification and biofortified foods



Integrating biofortification in the food industry

Enhancing the natural nutrient content of foods through biofortification is poised to be an impactful and profitable opportunity for the global food and beverage industry. High-iron pearl millet could be another quinoa phenomenon, and experts predict that by 2025, biofortification as a method to improve nutrition will be widespread.

Biofortification is a unique business opportunity for the global food and beverage industry. While biofortified crops and foods have most often been targeted at population segments that are at greatest risk of malnutrition, it is also relevant to the growing segment of health-conscious consumers who seek natural sources of nutrition through their regular diet.

HarvestPlus is an expert in biofortification and can assist food manufacturers of all sizes and types to integrate biofortified ingredients in their supply chains. We have produced a white paper series to support discussion of effective and efficient approaches to achieving this integration.

The three papers cover:

1. Consumer attitudes and perceptions of biofortification and biofortified foods;
2. Enhancement of manufactured foods with biofortification;
3. Differentiating and communicating biofortified products in the current regulatory landscape.



Consumer attitudes and perceptions of biofortification and biofortified foods

Prepared in association with *Leatherhead Food Research*.

Products made from high-nutrient biofortified crops can tick important boxes for consumers: Not only are these products more nutritious, their nutrition also comes from the product's core ingredients rather than from vitamins or minerals added during the manufacturing process. In addition, studies conducted by HarvestPlus in Uganda, Tanzania, Mozambique, and South Africa show that consumers like the sensory attributes of products made with biofortified crops.

However, research in the United Kingdom (UK) revealed that consumers are deluged with new health and wellness food products every day, such that makers of products made from biofortified crops will likely have to work hard to get these products noticed in the market. The main challenge will be to establish the credibility of biofortified products with the consumer.

Introduction to consumer research

This white paper focuses on findings from consumer research conducted by Leatherhead Food Research for HarvestPlus, to understand the perceptions and attitudes of UK consumers about foods that are naturally higher in vitamins and minerals (as a result of using biofortified crops) and to explore the opportunities and challenges in driving awareness and acceptance of these foods.

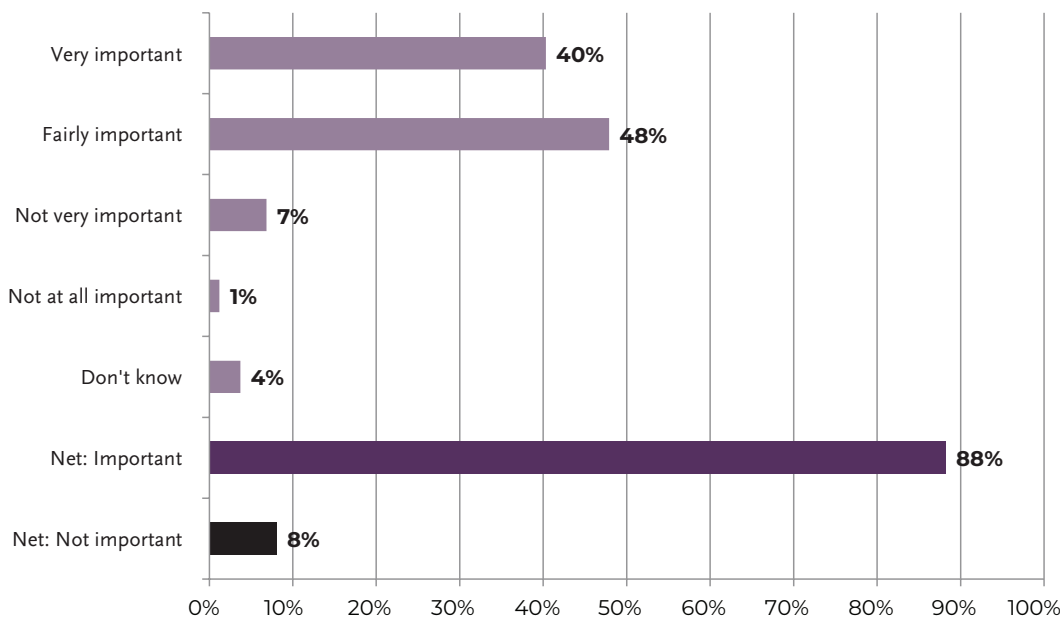
consumers. Insights from this qualitative phase were then used to develop an online, nationally-representative survey to quantify consumers' views and create a benchmark for HarvestPlus to measure how perceptions change over time.

Leatherhead carried out a program of focus groups to facilitate open exploration of the topic with UK

This white paper ends with insights from additional consumer research conducted by HarvestPlus in Uganda, Tanzania, Mozambique, and South Africa.

Chart 1: The importance of manufacturers using vegetables, fruits, grains or plants which are naturally high in nutrients

Question: How important, if at all, is it to you that food companies actively select vegetables, fruits, grains or plants which are naturally high in nourishment and nutrition when manufacturing food products?



Base: 2,120 UK consumers



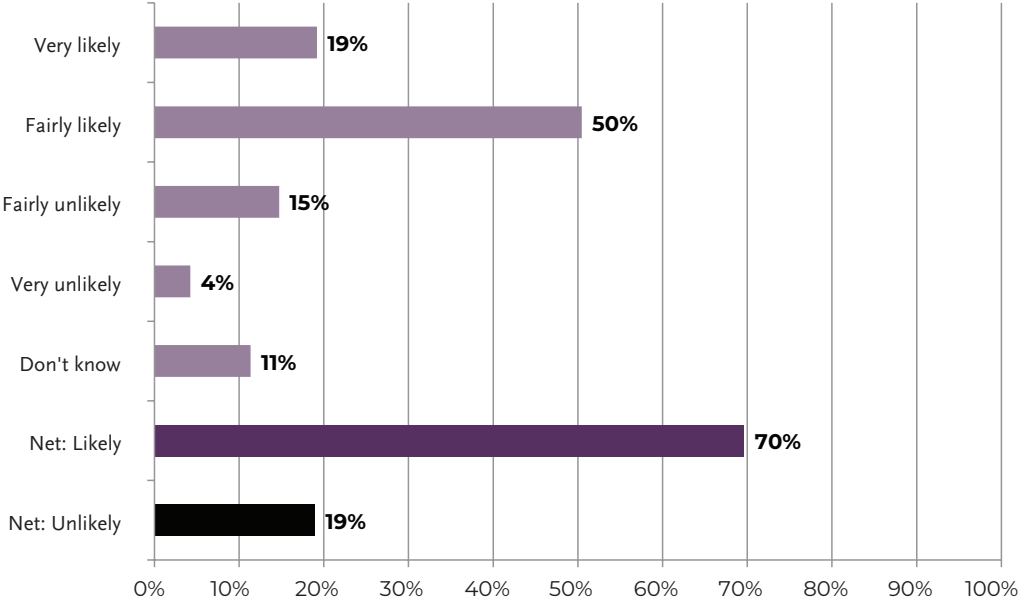
Global consumer research and sales figures show that consumers have a clear preference for products to be as “natural” as possible, to contain as few ingredients as possible, and to go through as few manufacturing processes as possible. Nutrient-rich versions of crops meet many of these consumer requirements, and they can be positioned to have intrinsic nutrition rather than using added fortificants. Purchase intent scores are quite high: 70 percent of consumers say they are likely to buy processed products made with naturally nutritious vegetables, fruits, grains, or plants.

“I suppose if [biofortification] stops [food manufacturers] from having to add additives and other flavorings and other sugars and salt to get to the flavor they wanted to, then yeah, I’d buy [biofortified versions].”

(UK consumer, aged 31-55)

Chart 2: Consumer purchase intent of products containing nutrient-rich crops

Question: How likely or unlikely, if at all, would you be to buy processed products made with vegetables, fruits, grains or plants which are naturally high in nourishment and nutrition?



Base: 2,120 UK consumers



Facing a challenging market

Despite the general acceptance of products that are higher in certain nutrients and high purchase intent scores for such products, it remains a challenging environment for new products or concepts trying to break into the UK market—particularly ones that are promoting new ingredients, making claims about specific ingredients, or being positioned on a health and wellness platform. An abundance of media stories seeking to uncover the hidden truth about processed foods, coupled with perceived frequent U-turns in public health advice, have left consumers feeling confused about which messages to trust regarding their food and beverage products.

“There’s so much conflicting evidence now about all the different diets. I got fed up of trying to do the right thing. One minute, eggs are going to kill you, and the next they’re the best thing ever.”

(UK consumer, aged 18 - 30, no children)

Fifty-three percent of UK consumers who took part in Leatherhead’s survey said they do not feel positive about eating processed food products. Against this backdrop of failing trust and negativity towards processed foods, manufacturers are showing a certain weariness of touting new ingredients and products.

Upon hearing about nutrient-rich biofortified crops and their possible uses in products, one consumer raised his eyebrows and said, “Here we go again!” Some consumers commented that another tier of superior products that are marketed as “better for me” could feel like another “stick to beat me, telling me I’m not doing well enough.” In other words, they perceived it as another judgement on their eating habits in a world already full of them.

“What I find frustrating is that my entire life I’m told that vegetables are good for me and now I’m kind of getting the message that those vegetables weren’t good enough. There’s a better version all of a sudden.”

(UK consumer, aged 18 - 30, no children)



Addressing potential consumer barriers

Convince me of their credentials

Acceptance of higher-nutrient crops and products containing higher-nutrient crops—as with any new product on the market—ultimately lies in how they are positioned. They will be judged by the story told about them, the language used to describe them, and whether consumers believe the claims associated with them.

The route to building credibility lies in:

1. Demonstrating consumer relevance;
2. Creating a reason to believe in the product;
3. Speaking in the language of the consumer.

Demonstrating consumer relevance

As discussed, one key benefit of biofortified crops is that they enable manufacturers to make products with ingredients that are a natural source of nutrients (rather than needing to fortify the products with nutrients through processing). Positioning products with “intrinsic nutrition” aligns with consumers’ desire for products that contain fewer ingredients and have undergone less processing. Forty-two percent of consumers surveyed said they prefer products to contain ingredients that are a natural source of nutrition rather than having nutrients added to them. Focusing on the positive benefits of products made with these more-nutritious ingredients, and telling the authentic story behind these ingredients, could provide an antidote to the current negativity directed at processed foods.

Creating a reason to believe

The consumer research highlighted an issue of trust in food and beverage manufacturers. For products containing biofortified crops to be accepted by consumers, trust will be key—in particular, building consumer trust that the products do indeed offer the intrinsic nutrition claimed by manufacturers. The route to trust is in building credentials that stand up to scrutiny across the whole supply chain—in how the farmers are treated, how the crops are grown, in the choice of products that contain biofortified crops, and in how those products are marketed.

Speaking in the language of the consumer

How these crops are discussed with consumers, and the language used, will also be vital pieces to solving the consumer puzzle. There are numerous ways to promote products containing biofortified crops, some of which focus on the story of biofortification from farm to fork, while others focus on the nutritional benefits that biofortified crops bring to products. Careful consideration is needed about the way consumers will perceive these narratives; key will be using authentic stories that resonate with consumers.

Conclusion

This research serves as baseline evidence in a mature market regarding consumer perceptions of biofortified crops and products made with biofortified crops.

The quantitative survey can be repeated over time to understand how UK consumer views are evolving, and the survey can be run in other countries to benchmark how UK consumer views compare with those of other countries.

Additional research with farming households and consumers in developing countries

HarvestPlus has also conducted relevant consumer research in developing countries. Sensory evaluation (e.g. of appearance, taste, and texture of a product) and willingness-to-pay studies have been conducted to understand consumer acceptance of biofortified foods.

For example, sensory evaluation studies in Uganda, Tanzania, Mozambique, and South Africa showed that consumers liked the sensory attributes of vitamin A orange sweet potato (OSP) as well as those of various products made with OSP (such as bread). Studies in rural Uganda revealed that when nutrition information on the benefits of OSP was provided, consumers valued the vitamin A-rich orange varieties more than conventional white-fleshed alternatives. Collectively, these studies highlight the importance of information campaigns in driving demand for OSP.

In a 2017 systematic review, in which OSP and orange maize were the most studied, the authors concluded that, “Overall, sensory acceptance was good, and availability and information on health benefits of the crops were the most important determinants of

It is a challenging environment for new concepts launched on a health and wellbeing platform but biofortification may offer a route to change the perception of processed foods. Due to their intrinsic nutritional value, nutrient-rich crops could help to position manufactured products in a more positive light with consumers—if consumers are convinced of the benefits of these crops.

acceptance and adoption. Biofortification is a feasible and cost-effective means of delivering micronutrients to populations that may have limited access to diverse diets and other micronutrient interventions.”

This research demonstrates that consumers around the world have similar drivers of purchase and values around food. The key determinants of purchase intentions are: price, taste, nutrition, and social responsibility or ethical purchasing. Research shows consumers will embrace biofortified foods because of the micronutrient content; they don't need to know why or how biofortification works.

HarvestPlus will continue to invest in consumer research covering different populations and countries. Currently, several consumer research studies are under way to explore generic consumer attitudes to naturally nutritious foods or product-specific concepts on individual processed foods.

For further information please contact Jenny Walton at HarvestPlus: j.walton@cgiar.org



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Biofortification is a groundbreaking technology that was developed to reach the world's most vulnerable and malnourished. In order to reach these population groups quickly and efficiently, strategies are required to integrate biofortified foods in both local and global foods systems. By creating a global market for biofortification, the resulting growth in demand will stimulate investment in the science and commercialization of this technology. Smallholder farmers have always been and will remain the target beneficiary of the HarvestPlus program.

The research was conducted by Leatherhead Food Research on behalf of HarvestPlus, harvestplus.org