

CHAPTER 11

MARKETING BIOFORTIFIED CROPS: INSIGHTS FROM CONSUMER RESEARCH

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ABSTRACT

As the market for biofortified seed and food grows, farmers increasingly market their excess production to consumers. To develop a global strategy for consumer marketing of biofortified crops, research is needed to understand consumer perceptions, insights, and behaviors around food, agriculture, nutrition and biofortification. Findings from some unpublished research on these topics are reported here. In regions of Nigeria, most farmers and consumers feel positively about biofortification and are interested in consuming a more nutritious diet. In Kampala, Uganda awareness of biofortified vitamin A orange sweet potato is very high, and more than half of survey respondents had purchased it at least once. In Rwanda, farmers and consumers like biofortified high iron beans, but challenges to biofortification include limitations of word-of-mouth communication and the difficulty of obtaining policymaker support for nutrition interventions. The use of behavior change communication and social marketing, tailored to the specific product and market context, can be used to increase awareness and overcome some of these limitations. Several forms of marketing have proven effective in encouraging trial and adoption of biofortified staple crops by farmers and consumers alike.

Key words: Behavior Change Communication, Social Marketing, Biofortification, Marketing, Orange Sweet Potato, Iron Bean, Vitamin A Cassava

INTRODUCTION

Throughout Africa, HarvestPlus and partners are improving the health of women and children by improving the access, availability and utilization of biofortified crops that contain increased levels of vitamin A, iron, and zinc for production and consumption by smallholder farm households and their communities. Working with National Agriculture Research Systems, HarvestPlus researchers are increasing the amount of targeted micronutrients in new varieties with beneficial agronomic traits. With the help of partners, the HarvestPlus program is working to further develop and widely disseminate high-yielding, disease-resistant and drought-tolerant biofortified varieties that provide considerable percentages of daily micronutrient needs to target communities.

HarvestPlus' products are varieties of biofortified staple crops. These are characterized, as other staples, by their agronomic, esthetic, organoleptic and food-related attributes and by their suitability for transport and storage. A product attribute that differentiates biofortified varieties from other staple crop varieties is the increased nutrient content of biofortified varieties that may or may not also impact other attributes, such as their color.

HarvestPlus is working to develop sustainable markets for both biofortified seed and food. An essential element to sustainably building the market for biofortified seeds is creating market demand for biofortified foods. It is not enough to "push" the market through increasing the supply of biofortified crops, it is also essential to create a "pull" in the market by increasing consumer demand for biofortified crops. HarvestPlus and its partners encourage consumption and build demand for more nutritious crops through innovative marketing and education campaigns.

Several projects are underway that will inform the global strategy for consumer marketing at HarvestPlus and grow the market for biofortified food. These include expanded consumer research to understand consumer/farmer perceptions, expanded consumer research to uncover consumer/farmer insights on nutrition and nutritious foods, and behavioral economic research on consumer behaviors that considers the barriers, triggers, and motivators that influence the decision to switch to biofortified crops.¹

CONSUMER INSIGHTS IN NIGERIA

HarvestPlus worked with TNS Global, one of the largest research agencies in the world and a leader in innovative consumer research, to gather consumer insights on the concept of biofortification, to study consumer perceptions of nutrition and nutritious foods, and to gauge the impact these associations had on product branding and consumer decisions with regard to biofortified crops in Nigeria. The research included questions that aimed to gather information on concepts and feelings consumers associated with the idea of biofortification, how consumers understood biofortification, key likes and dislikes of biofortification, associated benefits derived from biofortification and the products

¹ The research and findings reported here draw heavily on unpublished reports from the Center for Advanced Hindsight, TNS Global Research, and Farm Radio International.

consumers associated with nutrition. The research also solicited ideas for names and logos for expressing the idea of biofortification that were preferred by consumers. Finding from the TNS Global research are reported here [1].

Consumer research tested respondents understanding of the biofortification concept and its appeal and gathered insights into the perceived benefits of biofortification for farmers, consumers and other value chain actors. In Nigeria, researchers interviewed 375 respondents in Oyo, Imo, Akwa Ibom and Benue States using face-to-face computer-aided personal interviews (CAPI). Respondents were farmers (34%) and consumers (66%). Half (50%) of both farmers and consumers said they were aware of the idea of “fortifying crops.” Of that 50%: 66% closely associate it with crops that contain added vitamins, 21% understood it to mean fortifying crops to make the body stronger, 21% understood it to mean crops growing faster, and 16% understood it to mean adding fertilizers/chemicals to improve crops. In general, consumers noted that they are drawn to products and brands that bear claims of nutrition.

Ninety percent of respondents feel positively about the idea of biofortification; they believe it and say it is credible, because of the nutritional and health benefits. The positive perceptions of biofortification were similar across rural and urban respondents. In their comments, consumers were particularly enthused about the extra nutrients that biofortification will add to certain crops that traditionally lack vitamins and minerals. Consumers also told researchers that, given the nutritional benefits of biofortification, most consumers desire that all the foods within their diet be biofortified, particularly the common staple crops and associated food products.

The majority of respondents understood nutrition to be an alternative word for ‘balanced diet’ and most consumers link physical and mental growth to proper nutrition. Green leafy vegetables were the food most frequently cited as representing nutrition and healthiness. This is important information for understanding how to position the idea of nutrition for consumers in these markets through promotions and product branding.

The research confirmed that consumers are conscious of the role that food plays in their overall health and wellbeing. Rural consumers associated the benefits of nutrition with the following outcomes (in order of significance): “gives long life,” “healthiness that is, no sickness,” “gives physical energy and smartness,” “gives good thinking,” and “makes your skin look fresh and glow.” Urban consumers associated the benefits of nutrition with the following outcomes (in order of significance): “helps children grow well physically and wiser,” “fights diseases and germs,” and “builds immune system and prevents illnesses.”

The research found a marked difference between how older and younger consumers conceptualize nutrition and the role it plays in their daily lives. When asked to freely associate their behaviors with the idea of nutrition, older consumers listed the following (in order of significance): “The desire to ensure they eat balanced diets,” “occasionally replace daily carbohydrate meals with protein rich meals,” “ensure they include vegetable leaves in meals to add nutrients,” “observe healthy feeding lifestyle – for example, eat light meals for breakfast and solid for lunch,” “reduce intake of food with

starch content (due to fears of arthritis).” When asked to freely associate their behaviors with the idea of nutrition, younger consumers listed only two significant concepts: eating a heavy meal to reduce hunger throughout the day and eating a cheap meal that is affordable to prepare. Generally, female and older consumers were more aware of the importance of nutrition and made consumption and purchasing decisions based on a desire to eat a nutritious and healthy diet.

CONSUMER BEHAVIOR IN UGANDA

HarvestPlus collaborated with the Center for Advanced Hindsight (CAH), a global leader in the field of behavioral economics with a focus on the study, design, testing and implementation of behavioral interventions. The objective of the collaboration was to assist HarvestPlus to apply the principles of behavioral economics to its marketing and operational strategy.

The CAH designed, executed, and analyzed a marketing and consumer behavior survey focused on urban sweet potato consumers in Kampala, designed and analyzed focus group research on biofortified and non-biofortified sweet potato consumption in urban Kampala, and conducted key informant interviews in Kampala and its peri-urban areas [2]. The research found that the majority of households (52%) had purchased orange sweet potato (OSP), and that awareness of OSP was high (88%). While consumers had a generally positive perception of OSP, the most often-cited negative perception was that they are soft or mushy. Consumers perceive a supply problem, believing that OSP is not available in the market, and sometimes sellers substitute regular sweet potatoes for OSP without the knowledge of the consumer.

The Center for Advanced Hindsight (CAH) conducted 122 consumer interviews in 3 separate markets in Kampala. Sixty two percent of respondents were women and 38% were men. Median income was 300,000 shillings (about \$120 USD) per month. Median household size among respondents was 5, and most (68.6%) had children under 5 in their household.

The majority of respondents (52%) had purchased OSP at least once. Consumers were categorized into 5 purchaser types: Those unaware of OSP (22.31%), those who had not purchased OSP (25.62%), one-time purchasers of OSP (11.57%), repeat purchasers of OSP (23.97%) and people who had inquired about and purchased OSP (16.53%). Of those who had purchased OSP, the highest percentage of purchasers had purchased OSP multiple times. Most respondents who had served OSP had served them to their own child/children (84%) and spouses (79%). Some had served OSPs to other children (6%) or adults (14%).

The study found a high level of awareness among consumers. The vast majority of respondents (88%) knew about OSP, and 75% of them had tasted OSP. Few non-purchasers made a positive decision to avoid OSP, meaning those who had not purchased OSP were not avoiding the crop, but rather had not had the opportunity to purchase the crop. Most non-purchasers perceived a supply problem; they believe that OSPs are not available in sufficient quantities. Purchasers noted that they sometimes try to buy OSP

and find they have purchased regular sweet potatoes, even though more than half ask to see the flesh to check the color. Because OSP and regular sweet potatoes look similar externally, many people who purchase OSP have either found an OSP by surprise in a heap of regular sweet potatoes, or tried to buy OSP and later discovered it was a regular sweet potato.

In general there was a very positive perception of OSP among consumers: 41% of respondents said OSP “tastes good,” 17% said OSP tastes “sweet,” 7% said OSP is “good for kids,” 7% said that OSP “has vitamin A,” and 2% said OSP “cooks easily.” The most often-cited negative attitude were that OSP “was soft (negative),” which was reported by 8% of respondents.

BEHAVIORAL CHALLENGES FOR HIGH IRON BEANS IN RWANDA

To identify behavioral challenges that exist in the value chain for biofortified crops, CAH performed a behavioral analysis that mapped out the decision paths for farmers that purchase biofortified high iron bean (HIB) seed in Rwanda [3]. The decision tree is a road map to understand how farmers and consumers move through awareness, to consideration, and finally to purchase biofortified HIB.

The decision tree maps potential decision pathways for farmers who purchase HIB seeds in Rwanda. Blue boxes represent positive decision points in a farmer’s decision pathway to purchase HIB seed. Orange boxes represent negative decision points in a farmer’s decision pathway to purchase HIB seed.

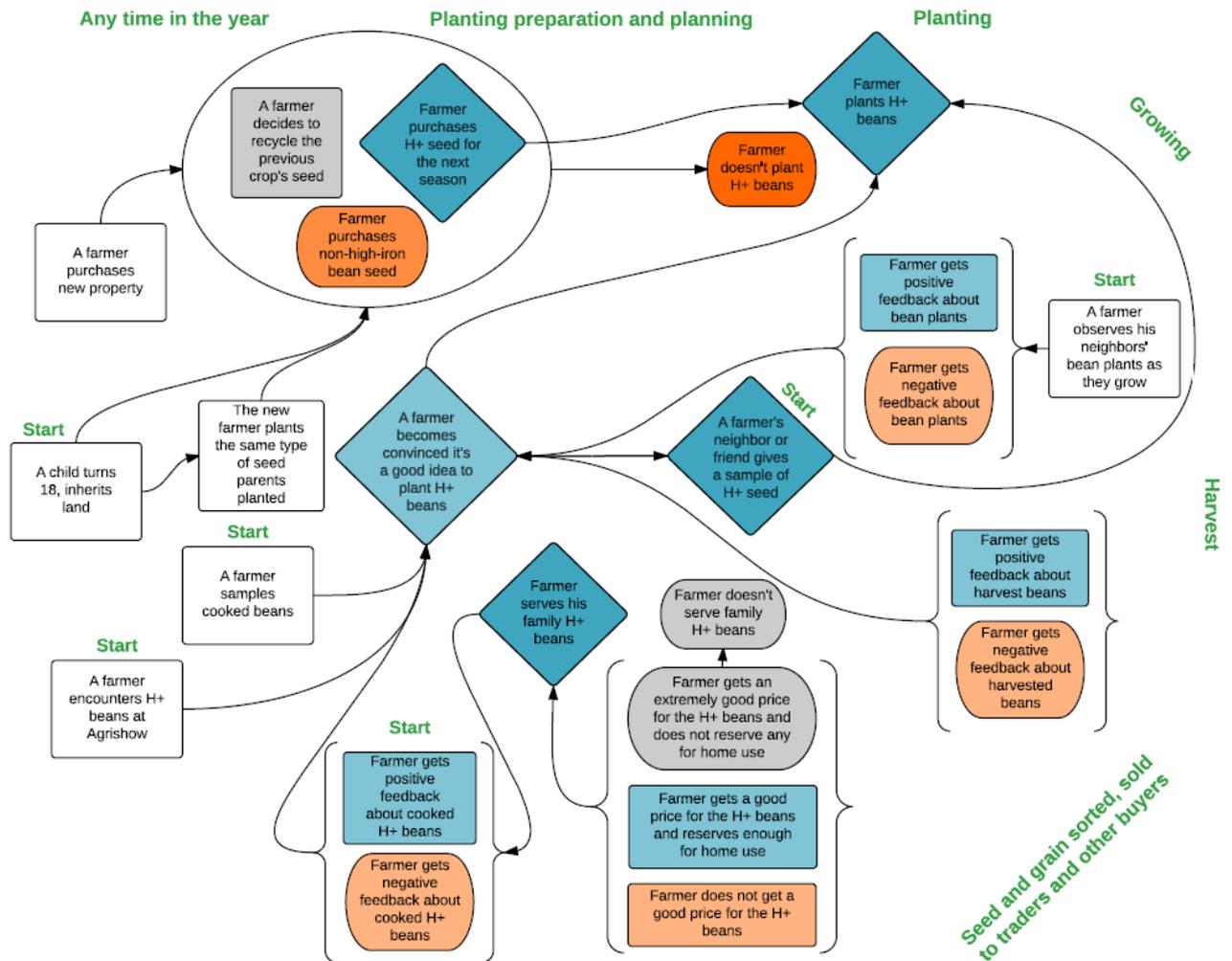


Figure 11.1: Decision tree for farmer purchase of high iron bean seed in Rwanda

In a next step, CAH isolated the decision nodes that involved the most important behavioral challenges that HarvestPlus and other organizations involved in biofortification might face. Specifically, these behavioral challenges were identified within the context of iron bean delivery in Rwanda.

1. Implicit Hindrance of Word-of-Mouth Communication

The first potential behavioral challenge that HarvestPlus faces is getting farmers not only to grow and sell HIB, but also to encourage them to share their expertise with other farmers. In several face-to-face interviews CAH conducted in Rwanda, it was noted that HIB are preferred among farmers and consumers because they are bigger, prettier, and taste better than most other beans. Moreover, consumer's willingness to pay for HIB is higher than for other beans. Since there is demand for HIB, current farmers are motivated to grow HIB for the market. However, to protect their niches in this new business model, current farmers might not be motivated to share their experiences and to introduce HIB to other farmers, which could impede expansion of the HIB market.

Many farmers want to improve not only their lives but also those of their communities. HarvestPlus has used farmer-to-farmer dissemination very successfully to motivate farmers to share their seeds, vines or stems with others in their communities. HarvestPlus charges farmers for seed, but sometimes this charge is paid by a farmer committing to providing seed to a certain number of neighboring farming households at the end of a season. In this way, farmers become agents of change in their own communities and take ownership over biofortification, as both recipients and donors of the technology. As a result, this behavioral challenge has not yet impeded dissemination of biofortified crops to target consumers. It is, however, an important potential behavioral challenge to note as the market for biofortified crops continues to scale up and include more commercial actors in the value chain.

2. Failure of Adherence (Self-Control)

The second behavioral challenge is getting farmers to continue to cultivate HIB. While farmers may rationally want to continue cultivating HIB, behavioral economists note that behavior does not always adhere to stated rational desires. Thus, HarvestPlus not only deals with farmers' and consumers' rational choices, but also faces challenges from psychological tendencies general to all humans, including lack of self-control, distraction and procrastination.

3. Short-Sightedness of Policy Making

The short-sightedness of policy making can complicate the positioning of biofortification. Policy makers may not be interested in an agriculture and nutrition program that does not generate obvious and immediate benefits. For example, policy makers may subsidize low-cost staple food crops to maintain minimum food security rather than invest in biofortified seeds and foods. The Center for Advanced Hindsight (CAH) postulates that the shortsightedness of policy making and funding is one of obstacles to nutritious food programs in general over the long term.

Each of these challenges can be addressed with appropriate marketing approaches. These include encouraging farmers to share information about HIB with others and encouraging stronger social ties among HIB producers. These are approaches that can be incorporated into the existing agricultural extension training programs.

SOCIAL MARKETING AND BEHAVIOR CHANGE COMMUNICATION

One method for increasing consumer awareness of biofortified crops and foods and building demand within the market for these products has been through the use of social marketing and behavior change communication focused on farmers and consumers in targeted markets. The marketing of biofortified crops includes creating awareness and understanding of the concept of hidden hunger and the behaviors that a person can do to reduce incidences of hidden hunger in their family and their community. In order to do this, one needs to use techniques beyond those used for commercial product marketing; this is where social marketing plays an important role.

The HarvestPlus Rwanda Country Program collaborated with some of Rwanda's top musicians to write and record a song and music video about the value of including HIB as part of a nutritious diet. HarvestPlus organized a series of countrywide experiential marketing events that featured live performances of the song and nutrition messages delivered by popular musicians, and opportunities for consumers to purchase HIB seed and grain. In addition to extensive radio play in Rwanda, the English subtitled version of the video on YouTube has been viewed 30,000 times and a Swahili subtitled version has been viewed 11,000 times.

The HarvestPlus Nigeria Country program collaborated with Nollywood actors and celebrities to create a movie titled "The Yellow Cassava," which was nominated for the award of "Best Film" at the 2015 Africa Magic Viewers Choice Awards. Three other movies in local languages: Dada Oni Paki (Yoruba), Ebiyebi (Ibo), and Sakani (Hausa) were produced to educate rural households in specific regions of Nigeria about biofortification. The films entertain while informing Nigerians on how vitamin A cassava can improve their health and encourages switching from white cassava to "yellow" vitamin A cassava.

The HarvestPlus Uganda Country Program collaborated with Farm Radio International (FRI), an organization that works to deliver effective programs to serve small-scale farmers through radio, and TRAC FM, an organization that developed an innovative software program aimed at creating an interactive radio experience and measurement system, to produce a radio drama for Ugandan farming families. The thirty-episode series "My Children" combined health and agricultural education with an entertaining plot. The FRI conducted research with farmers to inform messaging and plot development. The mini-series was translated into six languages and broadcast by 10 radio stations covering 13 districts in Uganda.

Following each five-minute episode, participating radio stations provided follow-up information and used interactive telephone voting systems to measure how much consumers learned from the show. The FRI also carried out a short qualitative evaluation, visiting two or three communities in each of four regions – or within broadcast reach of four partner radio stations [4]. A report was prepared by a team led by David Mowbury and Vijay Cuddeford. The aim of the evaluation was to gather information from listening communities about what effect the drama had had on increasing their knowledge of OSP with regard to nutrition, preparation, and consumption. Overall, 42% of profiled respondents said that they learned something related to the importance of OSP and vitamin A.

Activities which contributed to the number of listeners and poll participants were the use of jingles and advertisements, competitions, engagement with extension workers who publicized the program, use of repeats, feedback to broadcasters, monitoring visits, changing the broadcast time to a more convenient time, using radio DJs with loyal followings, and customizing the dramas to local contexts including translating into multiple languages. The FRI reported that demand for vines increased following the airing of the mini-series, as evidenced by the increase in prices of vines, demand coming from non-HarvestPlus project areas, and an increase in the messages received by key

technical contact people and vine multipliers. Partner organizations reported that demand for vines and their price increased during and after the mini-series.

In each community, one or two focus group discussions were held where three key topics were covered: benefits gained from listening to the drama, the scaling up of OSP vines and tubers, and the quality and usefulness of the drama as a method for learning. One aim of the evaluation was to get a sense of how the vines and knowledge spread, and how far. The sharing of vines and reaching other farmers has taken various forms, as these farmers tell us in their own voices:

- Peter Omondi, a 42-year-old with 9 kids, is known as a “vine multiplier,” which means he sells OSP vines and potatoes around his village of Ariya in Gulu. He says he listened to many episodes of the radio drama, but can’t remember an exact number of times. He says, “I had prior knowledge of OSP. The drama emphasized health values, especially for those living with diseases like HIV-AIDS. OSP can help provide nutrition.” As a result of the drama, farmers from other villages are contacting him, looking for OSP vines. He adds, “It’s great for my business. The main message of the drama was the marketability of OSP and how it improves the health of all who consume it. As a result, I increased production from 1.2 to 3 acres due to the demand.”
- Sarah Kwebewo, 29-years-old with 5 children, continues to grow OSP and listened to 27 episodes. She is from Buluube, Buyende. She says, “I’ve sold OSP vines to 13 farmers from surrounding villages. I tell them about how OSP has helped me and now others come to my garden to ask about it.”
- Monica Nakisige, also from Buluube in Buyende, listened to the drama 7 times. She says, “I’ve sold 4 bags of vines to different farmers and made 40,000 UGX [10,000 per bag]. I support my neighbors with OSP and seeds. I’ve increased production of OSP due to the drama. At first I grew a small portion, but my garden has grown to a half-an-acre.”
- Maria Tyamisa, 20-years-old with 3 children, listened to drama 7 times. She is from Bukokoba village, Buyende. She says, “I trained 45 women farmers from surrounding villages on how to grow OSP and about the market aspect and production of small items [local snack foods] to sell.”

Audiences responded well to the content of the mini-drama, noting that it was realistic, reflected their lives and had characters that they could identify with. These thoughts reflect the effort that was put in to the design of the drama, in particular, the consultation with farmers and the participatory process of story development. Relevant poll questions were used, and the incoming information from SMS messages was shared live on the radio. All listeners could feel involved, which was seen as a benefit. The fact that the SMS was free to participants contributed to high engagement. In other feedback, both farmers and broadcasters noted that the mini-series was often more effective when there was time for questions and discussion.

CONCLUSION

HarvestPlus' experience in developing the market for biofortified crops is instructive to others who may wish to scale up biofortified products in new markets. Several forms of marketing have proven effective in encouraging trial and adoption of biofortified staple crops by farmers and consumers alike. HarvestPlus also continues to assist in the development of tools to equip various actors in the value chain promote biofortified crops. Close collaboration between HarvestPlus, partners and stakeholders enables the organization to lead successful efforts in consumer marketing activities, messaging and brand development for biofortified seed and food.

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