International Initiative for Impact Evaluation

Evidence use brief

Using evidence to inform the scale-up and adoption of biofortified orange sweet potato in Uganda

Deficiencies of micronutrients, such as vitamin A, zinc and iron, can cause diseases or exacerbate them. More than two billion people suffer from micronutrient malnutrition or hidden hunger. To address this issue, the international organisation HarvestPlus has been promoting biofortified staple crops to improve the diets of the poor. HarvestPlus is jointly administered by the International Center for Tropical Agriculture (CIAT) and the International Food Policy Research Institute (IFPRI).

In Uganda, vitamin A deficiency is a health challenge, with 28 per cent of preschool children estimated to be deficient.[1] HarvestPlus commissioned evaluations to assess the impact of vitamin A-enriched orange sweet potato (OSP) on health and on farmers' adoption of the crop.

[1] Fiedler, JL and Afidra, R, 2010. Vitamin A fortification in Uganda: comparing the feasibility, coverage, costs, and cost-effectiveness of fortifying vegetable oil and sugar. Nutrition Bulletin, 31(2), pp.193–205.

Highlights

Evidence use

- The impact evaluation findings informed USAID's decision to fund the scale-up of HarvestPlus's biofortification project in Uganda.
- The evidence has also informed HarvestPlus's approach to working with farmers' groups.
- Another impact evaluation has been commissioned to identify the most cost-effective strategy for distributing vitamin A-rich OSP and iron-fortified beans amongst farmers.

Contributing factors

- Impact evaluation evidence was proof for donors that biofortification worked.
- There was strong partnership between research and implementation teams.
- HarvestPlus used evidence to champion the cause of biofortification.

Impact evaluations of HarvestPlus's OSP project

Between 2007 and 2009, HarvestPlus and its NGO partners distributed the biofortified OSP to 10,000 households in the Mukono, Kamuli and Bukedea districts. Over those two years, project staff conducted agricultural training for farmers. They also provided nutritional training on the benefits of consuming vitamin A-enriched OSP, particularly for women and children.

IFPRI-led research teams carried out two impact evaluations to assess OSP's health impacts and farmers' sustained adoption of it. The first impact evaluation found that the vitamin A status of deficient children improved after they consumed OSP. The second impact evaluation, which was supported by 3ie,[2] showed that four years after HarvestPlus distributed OSP, farmers' adoption and cultivation of it had stabilised at approximately 50 per cent in two out of three districts. Promoting OSP cultivation was likely to be more sustainable and cost-effective in communities where the conventional sweet potato was already a major crop. The areas that showed sustained adoption had a comparative advantage for both growing the crop and consuming it.

[2] McNiven, S, Gilligan, DO and Hotz, C, 2016. *Sustainability of impact: dimensions of decline and persistence in adopting a biofortified crop in Uganda*, 3ie Impact Evaluation Report 35. New Delhi: International Initiative for Impact Evaluation (3ie).

Uptake and use of the impact evaluation findings

HarvestPlus has used the findings from these two impact evaluations to make a case for scaling up the OSP project in Uganda. The evidence informed USAID's decision to scale up distribution of OSP as part of its Developing and Delivering Biofortified Crops project. The project was funded through USAID's Feed the Future initiative.

With this additional support, HarvestPlus distributed OSP and iron-fortified beans amongst 409,711 households in 13 districts between 2012 and 2016. This was a big jump from 2007, when OSP had been distributed amongst just 10,000 households in three districts.

The impact evaluation evidence has also informed HarvestPlus's approach to working with farmers' groups and getting them to share biofortified OSP vines with other farmers. The 'diffusion and social network' approach, explored in the impact evaluations, has offered HarvestPlus an effective way of distributing these vines widely. The results have also offered some important pointers for HarvestPlus on the criteria that could be used to target the intervention in different areas.

HarvestPlus decided to commission another impact evaluation to compare different cost-effective strategies for promoting the sustained distribution and adoption of biofortified crops as part of this scaled-up version of the project.

M. Malungu, HarvestPlus

HarvestPlus Uganda

Factors influencing evidence uptake

A number of factors influenced the uptake of findings, including the relevance of the intervention to the targeted households; the usefulness of the evidence in gaining credibility with donors; and the deep engagement of HarvestPlus with the IFPRI-led research team and other stakeholders, such as NGOs, government ministries, regional and global organisations, networks and the media.

Impact evaluation evidence provided proof of concept to donors

To tackle micronutrient deficiencies, often referred to as hidden hunger, the usual intervention is to provide nutrient supplementation and food fortification. Although these interventions are effective, they are limited in reach. They are also often expensive, especially in rural areas, where the majority of the poor live. Biofortification of an existing staple food crop was therefore potentially a cost-effective and sustainable approach for filling this gap in coverage amongst rural populations.

In this context, donors, such as the Bill & Melinda Gates Foundation and USAID, had been showing interest in nutrition-smart agricultural interventions. By investing in agriculture, they could contribute to building livelihoods and address the challenge of food security and nutrition. However, these donors also needed to see evidence that OSP had an impact on nutrition and farmer adoption. Impact evaluations, because they measure attributable effects, could provide HarvestPlus with this much-needed, credible and quality evidence that proved that OSP biofortification worked in these contexts.

Organisational set-up facilitated engagement

As HarvestPlus is a joint venture between CIAT and IFPRI, it made sense to commission IFPRI to carry out the impact evaluations. This organisational set-up facilitated the engagement between the IFPRI-led research teams and the project implementation team at HarvestPlus.

The researchers and HarvestPlus staff engaged regularly over the four years when the two impact evaluations were carried out. They worked together to decide the research questions and met every six months to discuss progress and challenges and to share preliminary findings from the studies.

We are like-minded researchers [IFPRI and HarvestPlus]. The researchers from IFPRI can be seen as interested independent evaluators.

Daniel Gilligan,
deputy division director, IFPRI, and principal investigator of the 3ie-supported impact evaluation

Knowledge translation improved project implementation

Anna-Marie Ball, implementation lead for this project at HarvestPlus, took keen interest in interpreting the impact evaluations' findings and making programme implementation tweaks.

In a specific instance, Ball's team at HarvestPlus chose to interpret the impact evaluation findings on diffusion in a different way from the researchers. In Bukedea district, biofortified OSP had disappeared from the fields because the farmers chose to grow cash crops. From a research perspective, therefore, the intervention may not seem successful. However, the implementers chose to focus on the finding that 18 per cent of the households used their own money to buy biofortified OSP. This meant that a number of households had been receptive to the nutrition-related messaging around OSP. According to HarvestPlus, Bukedea continues to be one of the best marketing areas for biofortified OSP. The biggest town in this district always has OSP in its market and in its restaurants.

HarvestPlus: champion for biofortification-related evidence

Global advocacy that is grounded in research has helped HarvestPlus champion the cause of biofortification. The organisation also sees research as an opportunity for transferring lessons from one context to another. Apart from impact evaluations, the organisation also carries out field trials and marketing research.

A. Ball (HarvestPlus)

To share the results of the impact evaluations, the IFPRI-led evaluation teams and HarvestPlus worked together. While the evaluation teams made several presentations at academic conferences and worked on articles for submission to journals, HarvestPlus led on communication with donors and other stakeholders. HarvestPlus also often invited the research team to public events, where they explained the findings to different audiences.

Since its inception, HarvestPlus has been engaging with a wide set of stakeholders to advocate for nutrition-smart agriculture. It has engaged with global organisations and donors, such as the World Health Organization, USAID, the Gates Foundation and UK Aid. At the country level, it has been engaging with key stakeholders working in the area of agricultural nutrition, such as government ministries, civil society organisations and networks.
The organisation's strong focus on communication has helped in getting media coverage in mainstream international publications such as *Time, The Wall Street Journal and Vanity Fair*, as well as more specialised regional andnational news outlets. OSP was on Time's 2016 list of best inventions.

As someone who is involved in in-house research as well as implementation, my job was to translate English into English – because the language that implementers speak is different from the language that researchers speak. Researchers want to do things one way and implementers want to do them another way. You have to learn to make those trade-offs and compromises.

Anna-Marie Ball,
head of Africa strategic alliances, HarvestPlus

Howarth Bouis, the founder of HarvestPlus, has also played an important role in boosting the organisation's global advocacy efforts. Bouis developed the concept of biofortification in the early 1990s and led on its advocacy. He has been instrumental in making biofortification part of a global movement. Bouis, along with colleagues from a partner organisation, the International Potato Center, was awarded the 2016 World Food Prize. The award was for their achievement in developing the most successful biofortified crop – OSP.

Conclusion

The impact evaluations of biofortified OSP in Uganda showed that it worked to improve nutrition and improve livelihoods. The evaluations generated much-needed credible evidence to help build a case with donors for scaling up the project in Uganda.

The close collaboration between the research and implementation teams ensured the generation of useful evidence for evolving HarvestPlus's programming. Overall, HarvestPlus's deep engagement with a wide range of stakeholders and its advocacy work helped garner support for biofortification as an approach to tackle hidden hunger.

HarvestPlus Uganda

M. Malungu/HarvestPlus

About this brief

3ie's mission is to produce quality impact evaluation and synthesised evidence that informs decision-making in international development. We recognise that a number of factors, including the relevance and timeliness of evidence and stakeholder engagement, influence whether and how evidence is taken up and used. Starting in 2017, 3ie is publishing examples of evidence uptake and use in the 3ie Evidence Use brief series. Each brief showcases a 3ie-funded evaluation or systematic review and analyses how context, actors and other mechanisms contribute to or limit the use of evidence in policies and programmes.

This brief describes evidence use we captured through monitoring the impact evaluation, *Sustainability of impact: dimensions of decline and persistence in adopting a biofortified crop in Uganda*, 3ie Impact Evaluation Report 35 by Scott McNiven, Daniel O Gilligan and Christine Hotz.

This brief was authored by Radhika Menon with editorial support from Beryl Leach and Kanika Jha. It was designed and produced by Akarsh Gupta and Angel Kharya.

Suggested citation: Menon, R, 2017. *Using evidence to inform the scale-up and adoption of bio-fortified orange sweet potato in Uganda*, 3ie Evidence Use Brief Series. New Delhi: International Initiative for Impact evaluation (3ie)

September 2017