

# MODELS FOR WORKFORCE NUTRITION PROGRAMMES IN FARM SETTINGS

REFLECTING ON PROGRAMMATIC APPROACHES TO INCREASE THE AVAILABILITY AND DESIRABILITY OF NUTRITIOUS FOODS 2019-2023



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## SUMMARY

Since 2015 the Workforce Nutrition programme at GAIN has piloted, scaled, and evaluated demand and access models to improve the diets of workers in both farm and factory settings globally. The purpose of this paper is to reflect on these intervention models and assess the relative strengths and weaknesses of each to inform future programmatic approaches. Each intervention model is assessed against the following criteria: potential for impact, feasibility, scalability, and resource efficiency.

In farm settings, there may be no formal workplace infrastructure. As such, intervention models that focus on reaching workers, including the use of last-mile delivery shops and other community-based activities, were found to be particularly appropriate for promoting better nutrition for workers and their families. Working closely with community change agents as part of demand models was found to be key in strengthening trust in programme activities. Access models that were designed using sustainable business models were found to be particularly resource efficient and scalable, as these were more likely to continue beyond the programme support in farm settings.

Overall, intervention models that improve access to nutritious foods in work settings have been found to have the most potential for impact, in terms of reaching the outcome of direct dietary improvements. Intervention models that focus on demand, however, were generally assessed as having higher feasibility, resource efficiency, and scalability, as these may require lower up-front costs but have low impact if not combined with access interventions. Organisations looking to implement an impactful workforce nutrition programme should go beyond increasing knowledge and awareness of healthier diets and focus on adopting a holistic approach that combines both access and demand approaches.

### KEY MESSAGES

- Employers have the potential to improve the health and wellbeing of their workers by providing access to nutritious foods and supporting initiatives to make these more desirable.
- To be most effective, workforce nutrition intervention models need to be adapted to the diversity of work settings that exist globally in both high- and low-income settings.
- In farm settings, access models where beneficiaries are reached through door-to-door vendors were found to have the most potential for impact.
- Demand models tend to be more feasible, scalable, and resource-efficient when working closely with 'community change agents' to increase trust and adapt to local food cultures.
- Overall, a combination of both access and demand approaches, with regular re-assessment of different models, is key to maximising impact whilst balancing feasibility, scalability, and costs.

## BACKGROUND AND OBJECTIVE

GAIN's Workforce Nutrition programme aims to develop an effective and efficient set of nutrition interventions for workers that can be implemented by businesses in agricultural and industrial supply chains. The approach should fit with the company's core business, leveraging existing training structures and business communication and offering a sustainable mechanism to provide ongoing nutrition programming (1). It is envisioned that these programmes can provide businesses a win-win by improving the health their employees and growers as well as improving business outcomes through increased loyalty and reduced absenteeism (2-4). (See Box 1 for more details).

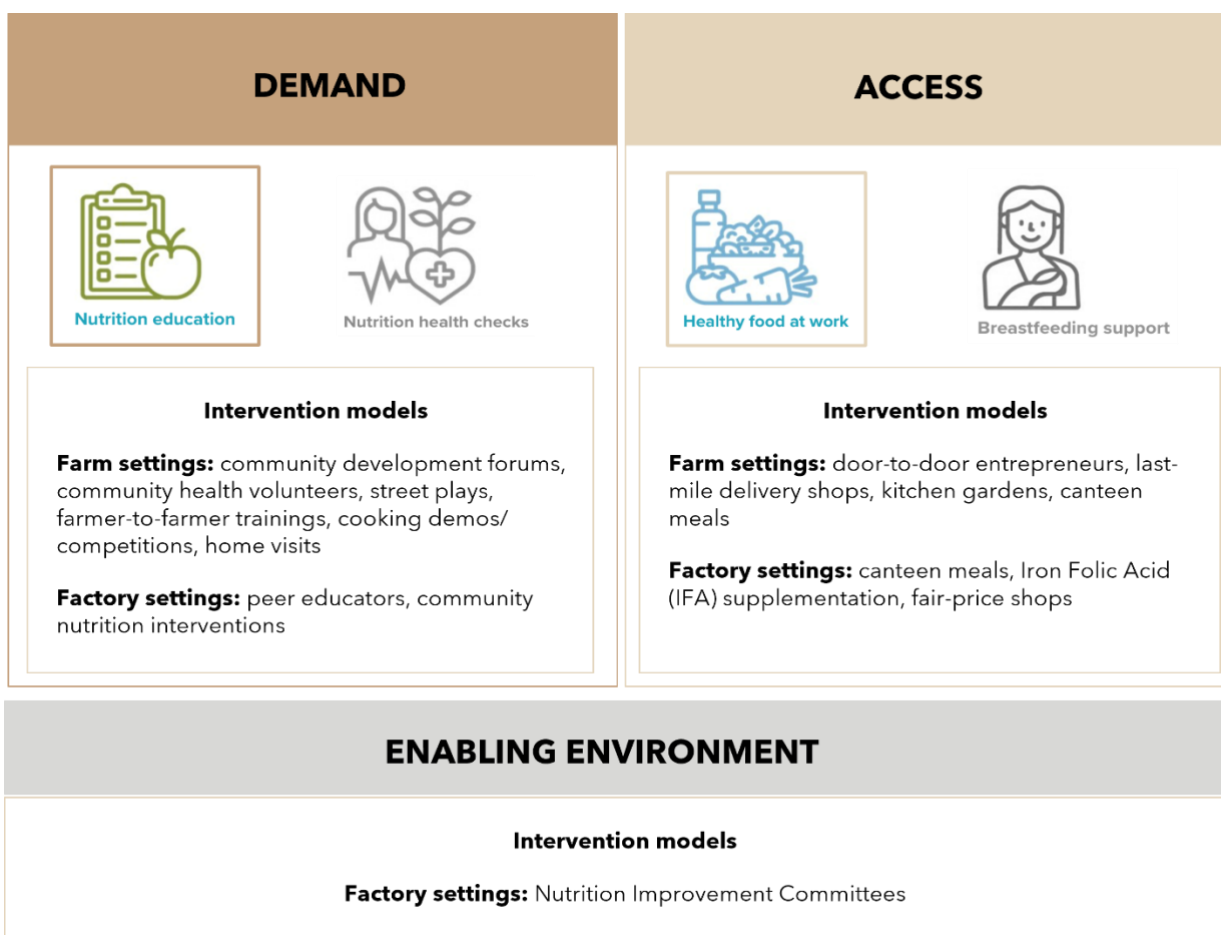
### BOX 1. THE DEFINITION OF WORKFORCE NUTRITION PROGRAMMES

Workforce nutrition programmes are a set of interventions that work through the existing structures of the workplace - whether a corporate office or tea plantation - to address fundamental aspects of nutrition amongst employees or supply chain workers. These programmes aim to create improved access to - and demand for - healthier diets with the aim of changing employees' behaviours around food consumption, and thereby improving employee health and wellbeing. Workforce Nutrition has been characterised using a four-pillar framework. *Healthy Food at Work* programmes focus on increasing employees' access to healthy and safe foods at work. *Nutrition education* programmes aim to change the nutrition and/or lifestyle behaviours of employees through increasing employees' knowledge of beneficial health habits. *Nutrition-focused health checks* are periodic one-to-one meetings with a health or nutrition professional to assess, and usually discuss, the employee's nutritional health. *Breastfeeding support programmes* are integral to workforce nutrition programmes as they enable working parents to provide adequate nutrition to their infants: this is an investment in the nutritional health of future workforces.

**In farming settings**, GAIN and the Ethical Tea Partnership (ETP) are delivering workforce nutrition projects in tea-growing communities in Kenya, India (Assam), and Malawi. Tea workers and farmers are at risk of malnutrition. Their diets largely consist of staple foods such as rice, bread, maize, and wheat, and are often not varied and balanced, lacking foods rich in essential nutrients and vitamins needed for good health and for supporting the many physical functions needed for work (5).

In partnership with Green Innovation Centre for the Agricultural and Food Sector in Nigeria, GAIN has also been supporting a set of interventions to improve the consumption of nutritious foods among smallholder farmers, farmworkers, and their families in the rice and maize value chains. Diets of rural Nigerians are particularly poor, and many Nigerians currently experience vitamin and mineral deficiencies, leading to severe health outcomes including premature and preventable death especially in children under age 5 (6).

The objective of this working paper is to reflect on current programmatic approaches that aim to improve access and demand for nutritious foods via employer delivery mechanisms in farm settings. This paper complements a similar paper examining factory settings (7). The models assessed in this paper focus on Healthy Food at Work and Nutrition Education, as these have been piloted and scaled by GAIN in multiple contexts since 2015 (Figure 1). This critical assessment of current approaches supports GAIN and other stakeholders interested in implementing workforce nutrition programmes to identify current best practices and assess potential for impact, feasibility, scalability, and resource efficiency of each intervention model.



**Figure 1.** Access, demand, and enabling environment intervention models piloted, scaled, and assessed by GAIN since 2019 for Nutrition Education, and Healthy Food at Work.

## PROJECT STRUCTURE AND REACH

The *Healthier Diets for Everyone in Tea Communities* project aims to directly reach 150,000 farmers and workers between 2020 and 2023 (89,000 estate workers in Assam, 26,000 smallholder farmers in Kenya, and 35,000 smallholder farmers and estate workers in Malawi)\*. In Assam, the workers are spread over 112 tea estates. Most estates contain an average of 600 households and manage 1,000 permanent workers living on the estates and

\* Healthier Diets for Everyone in Tea Communities is a sector-wide coalition led by Ethical Tea Partnership and the Global Alliance for Improved Nutrition. For more information: <https://www.gainhealth.org/media/news/healthy-diets-tea-communities-gain-and-etp-partnership>



an additional 400 casual workers who enter the estates on a daily basis. In Kenya, smallholder farmers and factory workers are being reached through five Kenya Tea Development Agency (KTDA) factories, which have an estimated 100-150 tea-buying centres each. Farm workers, or independent tea pluckers, are reached through three different KTDA factories and their tea-buying centres. In Malawi, 29,000 estate workers on average are being reached with improved lunches from fortified maize-meal and complementary nutrition education in tea estates. In addition, 6,500 smallholder farmers are reached through community-based training approaches across four trusts.

In Nigeria, the *Strengthening Nutrition in Priority Staples (SNIIPS)* Project aims to reach 30,000 smallholder farmers between 2022 and 2025. The workforce nutrition component of this project works with smallholder farmers in the rice and maize value chains. The intervention models are implemented in three states: Benue, Kaduna, and Nassarawa. Across all states, the activities focus on nutrient-enriched priority staple crops (vitamin A cassava, vitamin A maize, and orange-fleshed sweet potato). The access and demand models of existing workforce nutrition programmes in farmer settings can be summarised as follows:

#### **Access:**

- **Door-to-door nutrition sales agents:** A network of female micro-entrepreneurs who provide access to selected nutritious foods to households by selling affordable nutritious foods, among other household products, through door-to-door visits. In Assam, GAIN partnered with [DharmaLife](#), an organisation in India that aims to increase livelihood opportunities in rural regions by creating networks of social change makers.
- **Last-mile delivery shops:** A market supply chain model that aims to increase the supply of certain nutritious foods for a targeted population of lower-income consumers in places where these may have been previously inaccessible. In Assam, these are known locally as 'Healthy Line Shops' on tea estates (8).
- **Kitchen gardens:** Supplies for and promotion of vegetable gardens and fruit trees among workers with access to land, a favourable climate, and time to manage and maintain production. Various models have been used in Kenya, Malawi, and Assam.
- **Improved canteen meals:** A nutritionally improved lunch meal served to workers. The model was used with tea estates in Malawi and focused on fortified maize meal.

#### **Demand:**

- **Farmer-to-farmer trainings:** Training to farmers led by government agricultural extension officers in Kenya and Malawi to develop skills on producing biofortified crops, modernising kitchen gardening, and composting.
- **Community health workers (CHWs):** Government-registered volunteer health workers who are trained on health-related topics, such as good nutrition practices, and who are supervised by government health extension workers. The project in Kenya worked with and trained such volunteers to communicate nutrition messages to tea communities through home visits and/or organised small group gatherings.

- **Street plays:** Community activities that involve hired performers who enact various entertaining dramas to promote consumption of nutritious foods for health benefits, usually for crowds of 50-100 people.
- **Cooking demonstrations:** Local nutritionists demonstrate cooking techniques for a live audience, providing information on how to prepare nutritious meals using locally available food items (either through community shops or the kitchen gardens) and promote the use of these at home by providing recipes. These were used in most projects and can include up to 50-80 participants.
- **Cooking competitions:** Competitive entertaining events in which community members test their skills cooking nutritious recipes (usually using locally available fresh foods) for a team of judges. The model was used in most projects, allowing for 20-40 participants.
- **Home visits:** Door-to-door visits by front-line community members who share information and promote consumption of nutritious foods among households of tea workers.

## METHODOLOGY OF ASSESSMENT

The discussion and findings from this working paper are the product of a learning workshop that took place in Assam in November 2022. The aim was to visit field settings and observe interventions being delivered in communities, discuss the pros and cons of various models, share experiences in monitoring, and develop new learning plans. The learning workshop gathered colleagues from GAIN global and country offices, ETP global and country offices, implementing partners, and funding partners. Workshop participants were divided into small groups to discuss individual intervention models based on their experiences with designing, implementing, and monitoring workforce nutrition. The access and demand models for workforce nutrition programmes in farm settings were each assessed based on four criteria: potential for impact (how likely is the intervention going to lead to a change in dietary patterns), feasibility (how easily is this intervention implemented in the context), scalability (how easily can this intervention be scaled up to reach many more individuals), and resource efficiency (what is the relative cost per person reached of the intervention). Following the small group discussions, the group discussed the analyses and debated the relative scores in a plenary session. The final assessment highlights the relative strengths and weaknesses of each intervention model (Table 1).

**Table 1.** Spotlight assessment of access and demand models across all three country projects, produced during the learning workshop in Assam in November 2022 based on a review of monitoring data, process evaluations, and discussion amongst all project stakeholders. Dark blue = High, Light blue= Moderate, Grey= Low

ACCESS MODELS	Potential for impact	Feasibility	Scalability	Resource efficiency
Nutrition sales agents				
Last-mile delivery shops	<b>Medium-high</b>	<b>Low-medium</b>		
Kitchen gardens				
Improved canteen meals				

<b>DEMAND MODELS</b>	<b>Potential for impact</b>	<b>Feasibility</b>	<b>Scalability</b>	<b>Resource efficiency</b>
Community health workers				
Street plays				
Farmer-to-farmer trainings				
Cooking demonstrations and cooking competitions				
Home visits by community mobilisers and/or nutrition sales agents		<b>Low-medium</b>		

The highest-scoring access model overall was last-mile delivery shops. On the demand side, the CHWs and street plays scored highest. In the next section, we elaborate on the project teams' discussions and deliberation on the scoring. The workshop outputs have also been positioned within the wider evidence on the intervention models in other contexts.

## **ACCESS MODELS ASSESSMENT**

### **NUTRITION SALES AGENTS**

The model of working with nutrition sales agents was highlighted as having high potential for impact and scalability, but a medium level of feasibility in implementation and resource efficiency. In Assam, GAIN collaborated with the Dharma Life Entrepreneur network to increase the accessibility of selected nutritious food items. The strength of this model is that such sales agents can provide households with nutritious foods that are tailored to the messages disseminated via demand-creation activities and to the needs and cultural habits of tea workers. Women sales forces in rural farming settings may also have an additional competitive advantage over men. For example, they can be more credible when it comes to selling items that typically fall under women's responsibility (9). In this project, workers and their households could also benefit from payment mechanisms that are based on their financial ability, making this an affordable and attractive way to purchase nutritious foods. In turn, the model can benefit not only workers and their families but also the sales agents themselves: it may provide an opportunity to further diversify their livelihoods and build capacity in digital literacy, although few studies have measured this expected impact beyond income generation (9). Opportunities in scaling the model to any geography and any type of product make this an intervention with high reach potential. However, the project staff mentioned barriers in feasibility such as challenges in aligning with local authorities to allow door-to-door sales and ensuring a sustainable income. Indeed, the constrained outreach of sales agents in rural areas and low margin on food products result in a marginal income, especially when compared with sales agents in urban areas (9). Besides, the reportedly high frequency of training touch points needed may affect resource efficiency.



## LAST-MILE DELIVERY SHOPS

Last-mile delivery shops are identified as one of the most promising access intervention models with the highest resource efficiency. The 'Healthy Line' Shop owners in Assam are seen as providing their communities with immediate access to (new) nutritious foods (8). This is an intervention with high potential for impact, as the shops are typically the primary point of purchase within tea estate communities and one shop could service up to 100 households within the tea estate communities. Moreover, the model works with existing networks of shops to eventually streamline their stock planning and aggregate sourcing, which is recognised as the most cost-efficient and sustainable way of ensuring that selected nutritious foods are made available to communities (10). These last-mile delivery shops also have high potential for scalability as they may motivate other line shops to sell nutritious foods. New shops can then be connected to the central distributor and aggregation supply system. However, the feasibility of this intervention is threatened by the capacity of local line shops to comply with and adopt standard retailing practices. Poor road infrastructure and related transport costs can also disrupt supply and prevent the business model from being viable in very remote estates (10). In Assam, the last-mile delivery shops required an investment of roughly six months of subsidised transportation costs and free initial supplies. Other case studies have also stressed the importance of creating strong-enough motivation among retail shop owners to stock nutritious foods (11).

## KITCHEN GARDENS

Kitchen gardens were identified as an intervention model with moderate potential for impact, feasibility, scalability, and resource efficiency. They require minimal resources from locally available materials and can provide farmers with direct access to nutritious foods (including, where relevant, biofortified ones) as well as additional income. However, the maintenance of kitchen gardens requires time, motivation, and labour, which may not consistently be available or possible to garner. More specifically, the gardens are often maintained by women and can end up becoming an additional burden placed on women's time and energy (12). Furthermore, the project staff noticed that the volume of produce harvested from kitchen gardens is often not sufficient to meaningfully and regularly improve vegetable consumption for all household members. Reliance on external factors, such as climate patterns and market availability of high-quality seeds (when not available through extension services), may also pose threats to consistent land use and kitchen garden management. When efficiently maintained and cared for, kitchen gardens can have a positive overall impact and increase immediate access to nutritious foods, but they are highly dependent on factors that limit their intervention's realistic potential. The literature around models of Enhanced Homestead Food Production also supports this finding, which shows potential for impact on dietary diversity especially in geographically isolated areas with limited market access, but requires a high intensity of inputs and maintenance (12-14).

## CANTEEN MEALS

Whilst canteen meals were identified as an intervention model with high potential for impact and scalability, they were limited in terms of feasibility and resource efficiency in this context. This model was implemented on tea estates in Malawi where workers were

consuming a meal on-site (provided by their employer). There are multiple ways to diversify and balance canteen meals, and depending on context, menu changes or additions are considered most impactful and practical. In the context of Malawi tea estates, the most cost-efficient way of improving the lunches was through nutritionally fortifying the maize meal that is served daily. This intervention has high potential for impact, as workers consume essential micronutrients through the flour. For example, experiences from canteens providing diversified meals and fortified rice in Bangladesh garment factories reduced anaemia rates by up to 32% (15). The model can be scaled up relatively easily in settings where food provisioning structures pre-exist, and 'scaled deep' in terms of adding other nutritious foods to the offered meals. The limiting factors of this approach are infrastructure, cost, and acceptability. There needs to be food provisioning in place for workers, which is not always the case in farm settings. There is often a limited (fixed) budget available to change the meal offerings in low-wage worker settings, hence the cost of nutritious foods can be an important barrier. In Malawi, the model required an initial investment for the installation of equipment, costs which could be offset by donors, after which all the procurement of the fortification pre-mix is more easily sustained (estimated to cost about 0.12 USD per person per year) (16). Finally, any changes in food provision, as an important benefit to workers, can require a lot of upfront communication and engagement so they understand its benefits and accept the changes.

## **DEMAND MODELS ASSESSMENT**

### **COMMUNITY HEALTH WORKERS**

The model of working with CHWs was identified as the most promising demand-side intervention with high feasibility, scalability, and resource efficiency. In Kenya, the project worked closely with an existing network of extension workers coordinated by the Ministry of Health. The potential of leveraging existing networks and having replicable trainings is what makes this model both scalable and resource efficient. The lack of sufficient incentives is a reported determinant of motivation and performance among CHWs (9,17). To address this, mid-way through the project, the CHWs were provided with a small incentive to organise gatherings. Similarly, they were connected with regional supervisors. It was felt that this strengthened the internal communication and coordination of activities, which has also been found in other settings (17,18). The model was identified as having moderate potential for impact. Although the nutrition messaging can be tailored to each context and CHWs build on existing relationships with communities, the understanding and uptake of the messages depend on the CHWs' resources and skillset. Indeed, higher education has been positively correlated with CHWs' performance (17,18). Furthermore, evidence echoes the importance of embedding CHW initiatives in national health programmes for achieving impact and sustainability (19).

### **STREET PLAYS**

Street plays are demand-side intervention models with high feasibility and resource efficiency, yet moderate potential for impact and scalability. Street plays are an interactive channel to engage with all community members, young and old, without having to arrange many supportive materials or facilities. Street plays can also create a space in which issues

can be discussed openly in an unexpected and non-threatening way. To perform street plays across multiple settings, it is necessary to train at least one performance group. These factors make the intervention both feasible and resource efficient. At the same time, they reduce the intervention's scalability, as it is fully dependent on the availability of the performance group. Moreover, while the plays are useful to raise awareness and exchange knowledge on important topics in communities, the conveyed messages are often adapted to speak to a general audience. Ideally, street plays are complementary to other, more focused demand-side interventions. The likelihood of street plays as a single intervention model to sustain behaviour change is limited, but they can be an effective sub-component of an impactful approach when part of a wider behaviour change campaign that incorporates inter-personal elements playing on core emotions and social norms (20).

### **FARMER-TO-FARMER TRAININGS**

Farmer-to-farmer trainings are a highly resource efficient intervention. However, they hold moderate potential for impact, feasibility, and scalability as they are dependent on time constraints of trainers (including their own training), facilitation skills of trained farmers, and are delivered in small groups. The benefit of this approach is that nutrition-positive messaging and skills can be shared via self-forming training groups, building on existing trust and potentially strengthening relationships within communities. The trainings are replicable between groups, making them resource-efficient platforms to disseminate knowledge. However, receptivity is determined by the motivation of farmer groups to implement the trainings. Project staff have also found it necessary to provide an incentive for farmers to lead the groups and ensure continuation of trainings during and beyond the project. In addition, participating farmers are not always the same people who purchase and prepare household meals, therefore the effect of the trainings on changing food behaviours can be limited. Similar findings in non-workforce nutrition programmes have been echoed in the literature, whereby the main challenge can be incentivising the time investment involved in delivering trainings, as well as the potentially limited impact that trainings may have as a stand-alone intervention (12).

### **COOKING DEMONSTRATIONS AND COMPETITIONS**

Cooking demonstrations and competitions (considered jointly) are one of the two demand-side interventions identified as having a high potential for impact. These activities are tailored to each context by working with a local nutritionist who understands the local food culture and can address issues in a practical and relatable way. Interactively involving workers and their communities encourages ownership of the activities and the nutrition messaging. This finding is consistent with studies in different contexts (high-income countries and primary care) examining cooking demonstrations as a vehicle for better nutrition where practices were found to be effective in helping people effect behaviour change (21,22). Another observed benefit is that these activities reportedly attract men to participate, which can be otherwise challenging in demand-creation activities, and which makes this a 'whole household' activity. However, a major challenge of the cooking demonstrations is that they are resource intensive as they require input from an external nutritionist, movable kitchen facilities, and cooking materials that are specific to each

community. This also makes this model difficult to scale, a limitation that could partially be overcome by using digital communication channels such as smartphones or TVs.

### **HOME VISITS BY COMMUNITY MOBILISERS AND/OR NUTRITION SALES AGENTS**

Home visits were assessed as having a moderate scoring across all four areas. In Assam, the project initiated two types of home visits: those led by community mobilisers (trained community members) and nutrition sales agents. The strengths are that these models are sensitive to local context and even individual households. However, like the farmer-to-farmer trainings and community health volunteers, the community mobilisers and nutrition sales agents require active supervision as well as trainings on nutrition topics and facilitation skills in order for the messaging to be accurate and well received by workers and their households. This hinders feasibility, scalability, and resource efficiency, as the models rely on available resources. Project staff noticed the model is vulnerable to a high turnover among trainers, which would result in a loss of information and resources. Myths and misconceptions about food within communities can also threaten the message consistency or the advice that is delivered, necessitating more intensive trainings. More generally, home visits should ideally be grounded in intensive behaviour change communication campaigns that consist of multiple approaches (e.g. models discussed above) in order to have greater potential for impact (12).

### **CONSIDERATIONS FOR FUTURE PROGRAMMES IN FARMER SETTINGS**

The intervention models for farmer settings discussed here are each unique in their potential for impact, feasibility, scalability, and resource efficiency. In general, it is recommended to complement an access-side activity with a variety of demand-side activities.

The assessment presented above demonstrates three important considerations for designing workforce nutrition programmes in farm settings. First, there are multiple benefits to working closely with community members for increasing both access to and demand for targeted nutritious food groups. Community mobilisers and/or health volunteers networks strengthen trust in programme activities and have an implicit understanding of local food culture. At the same time, it is necessary to provide some form of incentive to community mobilisers and to realise that the outcomes rely on their available resources in terms of time, knowledge, and skills. When designed using a sustainable business model, which is the case with last-mile delivery shops and social micro-entrepreneurs, resource efficiency is substantially increased, as the activities can continue beyond the programme's support. Second, effective programmes in farm settings work with materials and facilities that are already available in farming communities, as has been observed with kitchen gardens and cooking demonstrations. This reduces dependency on market infrastructure and increases ownership of activity outputs. Third, it is recommended to work through existing development networks or institutionalised extension services. Such networks are especially useful in remote settings where farmers may be less organised in formal structures. Leveraging and working through existing networks and training structures enhances feasibility and scalability of workforce nutrition interventions.

## CONCLUSION

The aim of this paper was to discuss and assess the different intervention models that have been piloted, scaled, and evaluated by GAIN to make nutritious foods more accessible and desirable in farm settings. Intervention models that focus on improving access to nutritious foods were most impactful overall, especially when the model provided both geographic and economic access, such as through last-mile delivery shops. Demand-side intervention models were generally assessed as more scalable and resource efficient, particularly when they were integrated in existing farmer community networks. Overall and regardless of the context, it is key to include both types of models as they work in synergy: access and demand are both important to achieve the outcome of healthier diets. Likewise, accounting for workplace context is crucial to ensure the success of different intervention models. For organisations looking to implement a workforce nutrition programme, the insights on different intervention models provided here can serve as inspiration of approaches that can be used across various contexts.



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