



**KNOWLEDGE
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East-West Seed Knowledge Transfer

Transforming the lives of smallholder vegetable farmers for
income, nutrition and market access

Strategic Plan 2021 – 2025

Executive summary



This paper guides our approach to effectively reach and impact the livelihoods of 1 million smallholder vegetable farmers and the markets they supply over the coming five years.

Our ambition builds on the company's track record in improving access to seed in less-developed markets and consolidates our experience in training more than 300,000 farmers over the past five years. As well as reaching more farmers, the aim of this strategy is to further strengthen the impact of our work. Three powerful lessons guide our interventions: (1) once introduced to better farming practices, good seeds and an understanding of markets, smallholder farmers are better able to integrate into increasingly competitive markets, (2) once integrated they are able to increase incomes up to a level where

they become independent of external assistance, and (3) by supplying markets with safe-to-eat vegetables, millions of lower-income consumers are able to benefit from improved nutrition. This is the essence of what smallholder vegetable farmers in-tune with the needs of their markets will bring to the food system.

Our unique private sector roots and our partnership with Wageningen University Plant Research will continue to ensure that we are able to share the best-quality technical messages and appropriate innovations, and deliver value for money. A greater focus on impact monitoring and the use of solid data will enable us to most effectively support the communities where we work. We welcome further partnering that complements our work, especially post-harvest handling, financial services, advocacy on the health and culinary benefits of fresh vegetables, and linkages with producer groups.

The need for change

In many countries, poorer populations consume less than half the daily amount of fruit and vegetables required for a healthy living. On a global scale this brings shocking numbers - an estimated 2 billion people suffer from chronic deficiencies of vitamins and minerals. The devastating effect this has on physical and cognitive health places a severe constraint on economic development, especially in poorer communities. This has been recently underscored by the COVID-19 pandemic, as it served as a wakeup call on the urgent need to boost immune systems through the increased consumption of fruit and vegetables.

Many poorer and more remote communities continue to be neglected by extension services and commercial companies. As a result, productivity in these areas remains shockingly low. The average yield of vegetables in countries where we work is only 9T/Ha (FAO), and this poor quality results in needless on-farm and post-harvest losses.



As well as limiting the quantity and continuity of supply, the lack of production skills also results in serious misuse of agri-chemicals. Farmers often (mis)use what is available and affordable, rather than what is needed. This has a disastrous effect on the environment, the health of farmers, and the consumers they supply. The situation is further compounded by a wide information gap between supply and demand. Lacking quality inputs and appropriate production and market knowledge, there is insufficient incentive for smallholder farmers to drive the innovations needed for the growth of vibrant vegetable markets. Along with supply chain inefficiencies, low productivity also results in relatively high prices of vegetables. This in turn suppresses demand, especially in poorer communities. Lacking any catalyst of change, vegetables continue to go unnoticed and the cycle of chronic nutrient deficiency and missed economic opportunities persists.

The opportunity for change

As well as putting more nutritious food on the table, vegetables also offer remarkable opportunities for income development in communities struggling to make ends meet. With access to markets, farmers are able to generate more income from vegetables produced in short crop cycles on small plots than from any other food crop. The result is greater resilience and for many farmers a viable and sustainable escape from the poverty trap while being able to remain in their home communities. Our experience, based on real-time monitoring of 8,500 key farmers since 2017, shows that over time, smallholders can more than double their incomes through vegetable cultivation on small plots.

Who we are and what we do

East-West Seed Knowledge Transfer (EWS-KT) is the corporate non-profit foundation of East-West Seed - a global leader in vegetable seed for smallholder farmers. The significant impact the family-owned company has had towards improving nutrition in less-developed markets was recognized by the 2019 World Food Prize awarded to Simon Groot, the founder of East-West Seed. The company's focus on smallholders and its effort to enhance their productivity has also been acknowledged by its high ranking in the Global Access to Seed Index.

By positioning vegetable production as an attractive business opportunity, the mission of EWS-KT is to improve the livelihoods of smallholder farmers in less-developed areas of Africa and Asia. We support long-term field activities in Bangladesh, Cambodia, India, Indonesia⁽¹⁾, Myanmar, Nigeria, the Philippines, Tanzania and Uganda. By creating opportunities for income development, our work catalyses the growth of competitive agri-input markets and increases the availability of safe-to-eat and affordable vegetables in markets supplying lower-income consumers.

Our role is to showcase profitable and sustainable farm practices to smallholder farmers struggling with poor yields in underdeveloped markets. We leverage East-West Seed to spark and drive innovation in these often neglected markets. This unique private sector relationship is pivotal to our success. As farmers recognise the benefits of quality farm inputs alongside the use of improved production practices, an environment is catalysed in which East-West Seed and other private companies can be more effective in growing new markets. This approach enables systemic changes on markets and assures continual access to knowledge and innovative farm inputs.

We use field-based approaches to expose farmers to the use of simple but effective agronomic techniques. We also train farmers on the additional skills they need

to gain the full benefits of adopting improved production practices and bringing their products to market. This covers agricultural calculations, production planning, the use of market information, maintaining farm records, and understanding return on investment.

Market access

Being made up of numerous micro and small traders, vegetable markets are dynamic and complex structures. The perishability and high turnover of vegetables makes contractual arrangements with farmers of limited appeal to most traders on local markets. While quality standards of higher-end markets can help to drive positive change, the small volumes they trade are of little significance to the multitude of farmers supplying the markets or to the lower income consumers who rely on affordable products. Although we nurture opportunities with specific uptake buyers, our main focus is on ensuring the future competitiveness of the farmers we work with. We do this by developing their understanding of market dynamics. This enables them to better navigate future opportunities according to their production capacity and the changing needs of their markets.

Through participatory baseline studies and weekly visits to local vegetable markets, our teams support farmers to better understand market flows, price fluctuations and quality trends. We use this data and cost return analysis from demonstration farms to help farmers plan according to the actual needs of their markets. Strengthening the future competitiveness of farmers hinges on their ability to assess and select the traits and varieties that are most suitable for their agronomic and environmental conditions, as well as the specific requirements of their markets. In addition to aligning production with demand, the use of improved varieties and best practices also has a significant impact on reducing post-harvest losses.

(1) EWS-KT has no direct activities in Indonesia, but collaborates on staff training and the development of extension materials with Yayasan Bina Tani Sejahtera (an independently financed and managed nonprofit foundation affiliated with East-West Seed Indonesia).



To strengthen the market connectivity of farmers, we work closely with and include local traders in the planning of all field activities. Although collectors are at times perceived as an unnecessary link that increases transaction costs, in the absence of farmer groups or collection hubs, they can be supported to provide invaluable services that improve quality and reduce post-harvest losses. Embedding demonstrations into their network of farmer suppliers and keeping them informed on upcoming activities incentivises the participation of their suppliers and benefits their businesses with improved qualities and consistency of supply.

Despite the volume limitations of higher-end markets, we recognize a significant opportunity to drive consumption through advocating the benefits of locally-produced, affordable and safe-to-eat vegetables. Although we have the technical capacity to support farmers heading towards GAP or chemical-free certification, we believe simple messaging that promotes product safety has the highest potential to drive demand on less-developed local markets.

Youth and Gender



Although youth have often perceived agriculture as being a “backward” sector, increasing unemployment and the impact of COVID-19 drying up opportunities in urban areas has compelled many to now look for alternative careers and sources of income. By showcasing the quick wins and business viability of modern farm practices alongside an increased use of digital technology, we will attract more youth involvement in our activities. Their lower aversion to risk and greater appetite to try new technologies will accelerate the pace of change and pave the way to greater sustainability of vegetable markets. We recognize the cultural difficulties of giving a voice to youth and the challenges they have in securing resources,

including access to land. Nevertheless, we are confident in reaching our goal of increasing their participation in training events from the current level of 30% to 40% by ensuring at least 40% of the key farmers we support are also below the age of 35. These figures will vary according to different countries’ cultural and social norms in terms of the youths’ access to land and decision-making roles.

As well as accelerating change through youth, we also recognise the critical impact the gender dynamic has on value chain efficiency. To encourage balanced and actively engaged training events, and to ensure that the knowledge we support is most effectively spread within

the community, we will work toward increasing the participation of women in training events from the current level of 40% to 50% over the coming years. This will be influenced by ensuring that 50% of the key farmers we support are women.

As well as leveraging influencers in the farming community, we will also strive to maximise the dynamics of our country teams, our management and our governing board by cultivating a gender-inclusive workplace.

Environment and regenerative farming

With production typically done on smaller plots of land, crop diversification through vegetables is an excellent opportunity to improve resilience to environmental shock. Our approach is based on the principles of a profitable circular agronomy whereby organic matter and minerals are balanced and crop combinations improve the fertility of soils and the biodiversity of farms. Our training activities ensure that farmers understand business aspects as well as the environmental impact of sustainable production practices.

The misuse of chemicals remains a serious problem for farmers, consumers and the environment. To minimize risks and improve safety, our training covers the safe and judicious use of pesticides and the correct use of fertilizers. We also introduce best practices for soil health and water use. Our activities support a market-driven approach that has a focus on safe-to-eat vegetables. The wide menu of options we provide to farmers include chemical-free approaches. This enables farmers to adapt their production practices according to their personal agronomic situation and the changing market demands.



Nutrition

We aim for farmers to be able to supply a wider variety of safe-to-eat vegetables throughout the year. This will benefit the farming communities where they are produced as well as the local, regional and national markets that they supply. With a focus on the quality requirements of wet markets, where most low- and middle-income consumers shop, the increased availability of vegetables will bring benefits where most needed.

With a growing demand (driven by improved access, affordability and awareness), the productivity increase resulting from 1 million farmers embracing better practices is expected to be enough to potentially double the per capita consumption⁽²⁾ of 25 million lower income consumers within a five-year period.

(2) Increase in consumption is linked to awareness and affordability - it may be that a larger group of consumers benefit from smaller increases to per capita consumption

Scaling up

Our ambition is to expand the number of new farmers we train annually from 100,000 towards 300,000 every year over the coming five years. To effectively reach 1 million smallholders, we will provide intensive support for 12 months to the farmers we work with. Afterwards we will continue to nurture their progress, thereby ensuring that they have continued access to the information, the knowledge and the up and downstream linkages that they need to grow their businesses.

	Year 1	Year 2	Year 3	Year 4	Year 5
Total number of new farmers per year	120,000	160,000	200,000	240,000	280,000

In general, farmers using traditional practices generate a net income of U\$850 from a total area of 5,000m² annually. We offer farmers a “menu” of improved practices, from which they can choose and adopt at their own pace. While our activities put farmers on a positive path of change, the rate at which they progress depends on many factors. Our experience shows that farmers initially adopt a limited number of improved practices on smaller plots of land, before step-by-step scaling up the area and the intensity of improved practices over a number of years. Factoring in different adoption rates and the number of years of experience, the average net income of the farmers we train will increase by U\$92 in the first year and will reach U\$261 by year five. As this increased income is generated on small plots of land (on average 1,000m²), this compares very favourably to the average net income from rice, which is generally less than U\$500 per hectare.

Present funding

Our core funding comes through a fixed (1.25) percent of East-West Seed global seed sales. EWS-KT’s independent management and governance structure ensures that these funds are used exclusively towards benefiting the smallholder farmers we work with. The public benefit aspect of our work is acknowledged through our [ANBI](#) status, granted by the Netherlands government. Furthermore we receive contributions from a variety of international private and public sources. This enables us to currently reach 100,000 new farmers every year.

Resources needed

Some 35 percent of the resources needed in order to reach 1 million farmers have already been secured through a fixed contribution from East-West Seed and partnerships with like-minded organizations. We seek to make up the additional balance needed through other organizations or individuals who share the same vision of change. The table below shows funds already secured vs. funds needed to reach 1 million farmers. By using the administrative structure of East-West Seed (company) and with minimal infrastructure and no service charges, we are able to keep the average cost at about U\$40 per farmer per year.

Budget	2021	2022	2023	2024	2025
Number of farmers (target)	120,000	160,000	200,000	240,000	280,000
Total budget required (U\$)	4,800,000	6,400,000	8,000,000	9,600,000	11,200,000
Secured budget from EWS and partners (U\$)	3,430,000	3,040,000	2,880,000	2,630,000	2,200,000
Additional budget needed (U\$)	1,370,000	3,360,000	5,120,000	6,970,000	9,000,000

For every dollar invested through KT, farmers will make U\$3 additional net income on average during their first year. As we are only a catalyst, once farmers are on a path to change, they will continue to grow higher returns every year. For the early adopters and good performers - 22% of our target group - this will mean doubling their initial income within four years. For slower adopters, emulating what they see from their neighbors will result in at least a 50% income increase over five years.

Adequate funding and lowering the transaction costs that come with it remain a continuous challenge. As well as expanding activity-based funding partnerships, we seek to develop long-term relationships with donors interested in supporting results-based funding formats.

Partnering

Partnerships with like-minded organizations have proven to be key to our success. Not only do the additional financial resources enable us to scale our outreach, synergies also deepen the impact of our work by bringing additional skills and experience. In order to realize our ambition for the coming five years, we seek partners who support funding, and those who bring experience in financial literacy, micro finance, advocacy on health and nutrition, post-harvest handling, linkages to downstream buyers and consumers, and IT applications and platforms.

We also welcome collaboration with other like-minded companies that bring added value to what we and the company already provide. Being a corporate foundation with intrinsic links to East-West Seed, such partnerships, should fulfill clear win-win objectives for both companies. Additional information can be found in our five-year plan below. We welcome your reactions and comments.



Rutger Groot
Chairman, East-West Seed Knowledge Transfer

How we work and what we do

1. The problem

In communities that have had little exposure to innovation, vegetable yields often remain shockingly low (9T/ Ha) and the quality unacceptably poor. As well as limiting supply, poor access to production knowledge is resulting in the serious misuse of agri-chemicals, which has a disastrous effect on the environment as well as the health of farmers and consumers.

Very few farmers have access to knowledge on improved cultivation practices and rely on agri-input dealers for advice. This compounds the problem as many of them are driven to give advice that mostly serves to maximise profit margins for their business. This results in less than optimal and often incorrect use of agri-chemicals. Major problems commonly observed include:

- *Use of poor quality seed* - many farmers save their own seed. Although this is possible with open pollinated varieties, the use of second or third generation hybrids is also common. Self-saved seeds carry high risks of impurity and disease and can also affect germination, uniformity, quantity and quality of yield etc. As well as having a lower tolerance to increasing pressure from an unpredictable climate and outbreaks of disease, fewer local varieties are able to compete on rapidly changing markets, as these increasingly demand improved traits for transportability, longer shelf life, better taste and appearance etc.
- *Poor quality seedling production* - use of low quality seed, dense sowing, poor management practices and late transplanting
- *Excessive plant density and unsystematic field layout* - plants competing for nutrients and water are unable to develop properly and field operations are rendered inefficient
- *Poor pest and disease management* - lack of preventative measures, limited understanding of pest and disease management, incorrect selection, and improper use of pesticides leads to the serious misuse of agri-chemicals, which has a disastrous effect on the environment as well as the health of farmers and consumers.
- *Ineffective nutrient management* - incorrect application of and often selecting the wrong type of fertilizer
- *Limited access to inputs* - the range of agi-inputs in many retailers is limited to the bare basics. There is limited choice of seed (especially in high-quality commercial seed). The range of fertilizers and pesticides is narrow and very few input dealers stock other products such as seedling trays, trellis netting or plastic mulching, which farmers need for improving year-round production.



The problem is further compounded by low levels of institutionalised information sharing between key stakeholders, especially between agri-input retailers, farmers and vegetable traders. This wide information gap between supply and demand results in farmers being unaware of the quantities or the qualities required by the markets. This is further aggravated by the complexities of transporting and marketing perishable fresh vegetables; high post-harvest losses (starting from the farm level) further drives increased transaction costs and higher retail prices.

The relatively high price of vegetables suppresses demand, particularly in communities with the greatest need. As well as supply chain inefficiencies, high prices

are also the result of limited seasonal knowledge, which curbs productivity for several months of the year. This is further compounded by consumer perception. In addition to a general lack of understanding on the health benefits of vegetables (particularly for early childhood development), consumers are becoming increasingly aware of the risks from pesticide residues commonly found on vegetables.

The growth of vegetable markets is held back by a lack of vision; neither consumers nor farmers are aware of the possibilities that lie in front of them. Lacking any catalyst of change, vegetables go unnoticed and the cycle of chronic nutrient deficiency and missed economic opportunities continues. Although COVID-19 has finally brought greater attention to vegetables, without seizing the opportunity, production and consumption will never reach the optimal levels.

2. Why vegetables

While food security remains a major concern in many parts of the world, the sad reality is that enough food is already being produced globally to meet everyone's daily caloric needs. In fact calories, sugars and fats are being overproduced, whilst our essential sources of nutrition - fruit and vegetables - are being underproduced⁽³⁾. In many countries, poorer populations are often consuming less than half of the daily requirement of fruit and vegetables. On a global scale this brings shocking numbers. The Global Hunger Index estimates that more than 2 billion people suffer from chronic deficiency of vitamins and minerals, and young children and women of reproductive age in developing countries are at the highest risk. The devastating effect this



(3) Food Systems Summit Brief, prepared by Research Partners of the Scientific Group for the Food Systems Summit, March, 2021

Fruits and vegetables for healthy diets: Priorities for food system research and action Jody Harris, Bart de Steenhuijsen Piters, Stepha McMullin, Babar Bajwa, Ilse de Jager, and Inge D. Brouwer

has on physical and cognitive development is not only a health issue, but also a severe constraint to economic development where it is most needed - in poor and rural communities.

Vegetables are an essential source of micronutrients needed for healthy living and the prevention of chronic diseases ⁽⁴⁾. Not only do we need vegetables for our health, they also offer remarkable opportunities for income development in areas where communities struggle to make ends meet ⁽⁵⁾. As well as putting food on the table, the net profit gained from producing and selling vegetables is significantly higher than that of other field crops. Being cultivated on small plots of land (typically less than 0.1

Ha) and with their short crop cycles, vegetables are a perfect way to mitigate the risks caused by increasingly unpredictable weather patterns and fluctuating markets.

As well as the opportunities for income development, vegetables are an easy and relatively rapid solution to improved nutrition. The COVID-19 pandemic has further strengthened an increasing awareness on the importance of vegetables for health and wellbeing across all layers of society ⁽⁶⁾. The need for boosting immune systems has never been greater ⁽⁷⁾. With this comes a growing demand for vegetables in rural and urban markets.

3. Background to EWS Knowledge Transfer

The East-West Seed Knowledge Transfer Foundation (EWS-KT) was created in 2016 by the East-West Seed Company (EWS). Headquartered in Thailand, the family-owned company has 40 years of experience in market-oriented plant breeding for vegetable seeds in the tropics. Working in emerging economies, EWS has a unique focus on smallholder farmers, who are the main clients of the company. Over the years EWS has developed lead positions in Southeast Asia as well as rapidly expanding markets in India, Africa and Latin America. EWS was recently recognised by the 2019 World Food Prize (through its founder Simon Groot) for its transformative role in impacting millions of smallholders with greater incomes and benefiting hundreds of millions of consumers with improved access to nutritious vegetables. In addition, the company has consistently ranked No. 1 from 2016 to 2019 in the Access to Seed Index.

Recognizing the vast potential in smallholder farmers and their need for quality seeds and knowledge on how to grow crops in order to gain a competitive position in the markets, EWS has supported intensive farmer training programs as an essential core of its business model for many years. Moving it beyond the company and to ensure that pre-commercial activities are most effectively geared towards benefiting smallholder farmers, the company created East-West Seed Knowledge Transfer (EWS-KT), a non-profit foundation that is dedicated to improving on-farm skills and innovation for those who are not yet fully integrated into markets. The objective of EWS-KT is simply to showcase profitable and sustainable farm practices for smallholder vegetable farmers. With the uptake of improved practices, a demand for better quality agro-inputs is catalysed. It is in this environment that the company and other private actors can be more effective in developing new markets.

(4) Lock K, Pomerleau J, Causer L, Altmann DR, McKee M. The global burden of disease attributable to low consumption of fruit and vegetables: implications for the global strategy on diet. Bull World Health Organ. 2005 Feb;83(2):100-8. Epub 2005 Feb 24. PMID: 15744402; PMCID: PMC2623811.

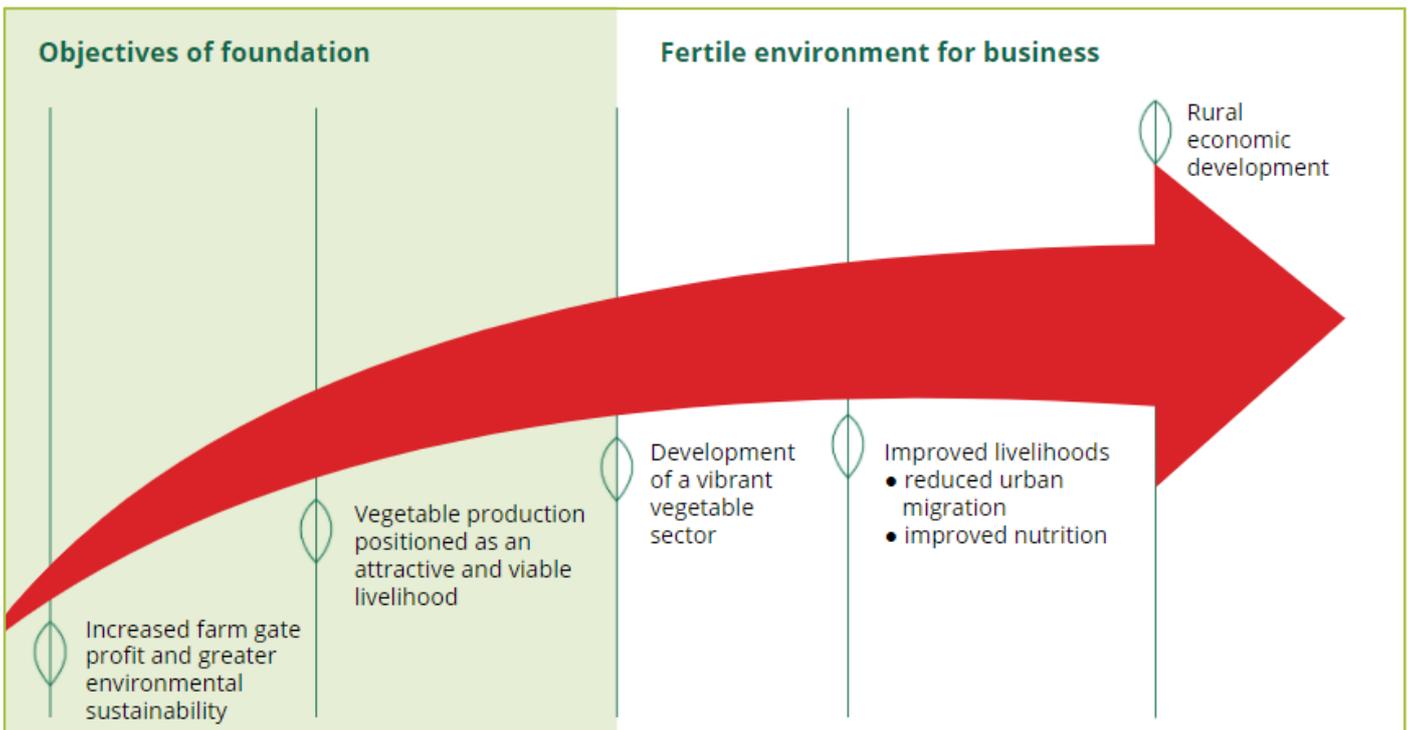
(5) Tapping the economic and nutritional power of vegetables; Pepijn Schreinemachers, Emmy Simmons, Marco Wopereis

(6) Bousquet J, et al. Association between consumption of vegetables and COVID-19 mortality at a country level in Europe. medRxiv 2020.

doi: <https://doi.org/10.1101/2020.07.17.20155846>

(7) <https://dornsife.usc.edu/news/stories/3314/good-nutrition-contributes-to-keeping-covid-19-away/>

EWS-KT's independent management, legal status and governance ensures that our work is exclusively focused towards benefiting the smallholder farmers we work with. What EWS-KT brings in public goods benefit is complemented and further enhanced by the independently funded and managed market development activities of the company. Together, the parallel activities of EWS-KT, EWS company and other partners benefit the farming community with the knowledge that they need, as well as a sustainable source of quality farm inputs for their future.



4. Governance and support structure

EWS Knowledge Transfer was registered as a non-profit foundation in the Netherlands in May 2016. The foundation is governed by a board currently consisting of the following:

Chairperson	Rutger Groot	Family member	No board fee
Board member	Joan Boer	Former Deputy Director General International Cooperation, Netherlands Ambassador to Thailand and ambassador to the OECD	Board fee
Board member	Joost Pekelharing	Member of EWS supervisory board	Board fee
Board member	Vacant	TBC	Board fee
Advisor to board	Flip Van Koesveld	Wageningen University Plant Research	No board fee

The new board appointments planned are expected to broaden the diversity and skills set of our governing board. We will also consider increasing the number of advisors to ensure we have the knowledge and experience needed to successfully implement our five-year plan.

Working alongside a team of international experts, the Executive Director is responsible for the management and implementation of our five-year plan.



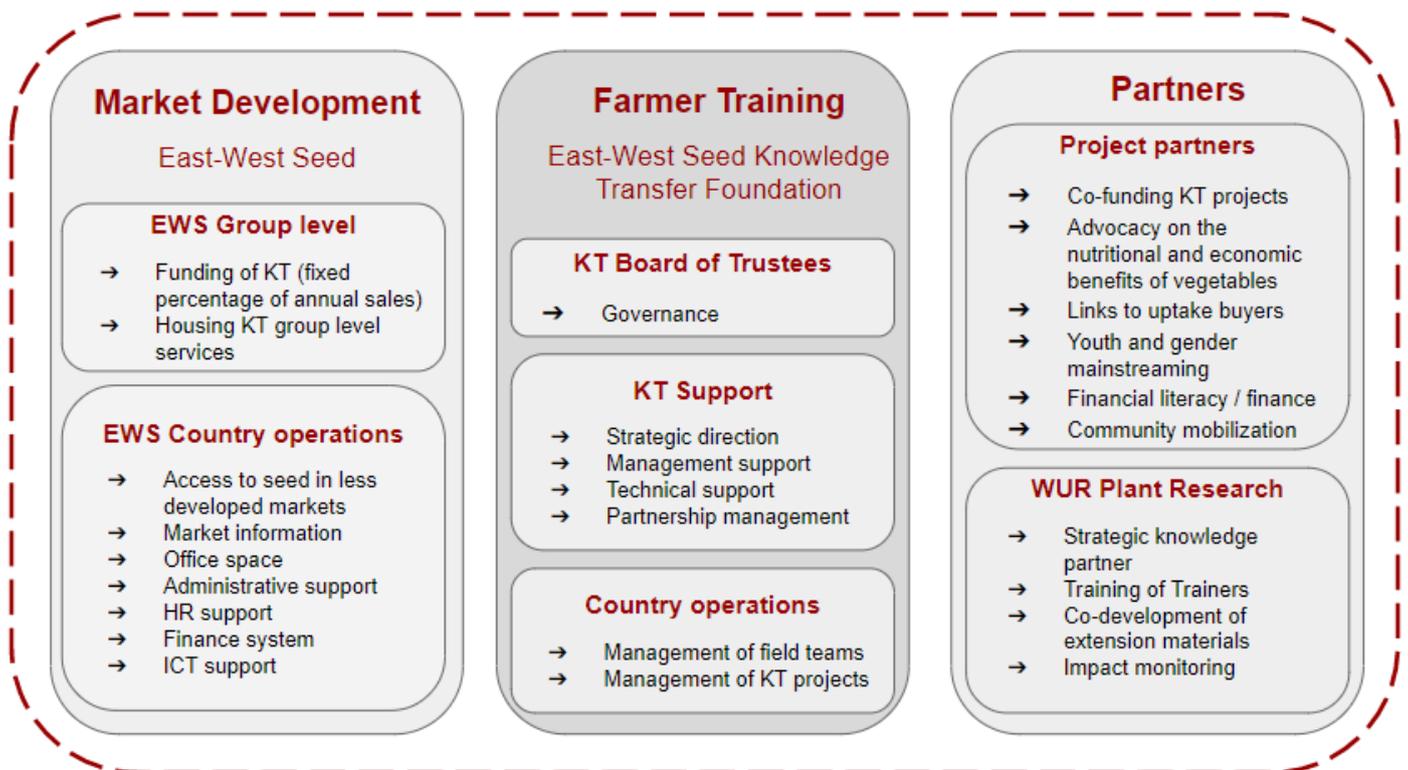
Knowledge Transfer Support Team						
Group level	Director		1	Knowledge Manager		1
	Finance		4	Technical Specialist		2
	Human Resource Management		1	Graphic Designer		1
	Strategic Partnership Manager		1	Digital Outreach Specialist 1 + 1TBC		
	KT Head Africa		1	Communications Manager		1
	KT Head India		1	Data Analyst		1
	Project manager		1	Youth and Gender Inclusion Manager TBC		
	Country Teams					
	KT Managers	Finance Officers	Project Coordinators	Technical Specialists	Digital Media	Technical Field Teams
Bangladesh	1	1	1	1		x12
Cambodia	1	1	1	1		x15
India	KT Head India	1	1	1	1	x12
Myanmar	1	1	1	1		x16
Philippines	1	1	1	1		x15
Nigeria	1	1	1	1	1	x13
Uganda	1	1	1	1		x15
Tanzania	1			1		x5

5. Relationship with Company

Our unique relationship with EWS is pivotal to our success. Not only does the company act as a first mover on the market, which enables us to catalyse competitive input markets, it also provides us with a significant annual income that covers our core operational expenses (based on 1.25% of global seed sales). We welcome collaboration with other like-minded companies that bring financial contribution and added value to what we and EWS already provide. However, as we are a corporate foundation with intrinsic links to East-West Seed, maintaining successful partnerships with other companies requires us to facilitate clear win-win objectives for all parties.

In addition to core funding, using the administrative, HR, finance and ICT systems and infrastructure of the company enables us to deliver the most cost-effective training services. In countries where EWS has a commercial presence, EWS-KT operates through and uses the administrative, finance and HR structure of the company. This enables us to keep overhead costs to a minimum (approximately 16%).

Our staff are hired through the company and seconded under the permanent management of EWS-KT. We channel funds through commercial accounts, although the use and reporting of these funds is managed entirely by EWS-KT. Only in countries where EWS has not yet established a full legal presence and thus operates through distributors, or in cases in which accessing donor funds is a challenge, does EWS-KT establish local non-profit entities. However, whichever set-up we use, our non-profit objectives remain the same and the first-mover activities of the company enable the growth of competitive input markets in less-developed areas. The increased demand for vegetables is not only for more volume — consumers are increasingly looking for better quality, affordability and improved consistency of supply. As markets develop, so does the need for improved shelf-life, taste, appearance, and above all the safety of products.



We use good farm practices alongside better agri-inputs to drive improvements to productivity and quality. From all the inputs we use, it is the variety that functions as the main nexus between farmers' fields and their markets. And it is the traits of the variety that enable farmers to keep pace with and eventually drive progressive change on their markets. To best leverage the first-mover drive of EWS, we use EWS varieties in all of our field activities.

6. Financial management

East-West Seed Knowledge Transfer is funded through 1.25% of the company's global seed sales every year. These funds are allocated to EWS Knowledge Transfer and managed separately from the company. EWS Knowledge Transfer has a separate financial reporting system. In each country, EWS Knowledge Transfer has finance officers who report monthly to the group level EWS Knowledge Transfer Finance Manager.

All Knowledge Transfer funds originating from the company are reported in annual audits of company country operations. Project-based audits are undertaken as per the requirements of individual partner organizations.

In addition to funding from East-West Seed, to enable further scaling of activities, EWS-KT also secures funding from external donors. Over the past years we have successfully managed funds originating from donors including the Australian Government Department of Foreign Affairs and Trade (DFAT), the German Federal Ministry for Economic Cooperation and Development (BMZ), the Netherlands Enterprise Agency (RVO), the Swiss Development Cooperation (SDC), and the United States Agency for International Development (USAID).

7. Theory of Change

Vision: Driven by a growing demand for better quality and safer-to-eat vegetables, vegetable production has become an attractive business opportunity for smallholder farmers in less-developed areas of Africa and Asia.

Mission: To improve livelihoods and nutrition while simultaneously catalysing the development of competitive vegetable markets via sharing data-driven knowledge and information on profitable and sustainable farming practices.

Indicators of change

- 25 million lower income consumers double their consumption of vegetables
- An additional 3,000 tons of safe-to-eat vegetables produced by small farmers are traded every day through wet markets (as well as e-commerce platforms and supermarkets) every year.
- U\$260 million additional net income generated at the farm gate level every year
- 55% increase in productivity (from 9 to 14T/Ha) and 15% reduction in post-harvest loss
- Improved use of agri-inputs reduces impact on health and environment
- Demand created for better quality seed and agri-inputs leads to increased access to new seed markets (worth U\$5 million per year) and other input markets worth U\$50 million per year
- 1 million smallholder farmers trained in profitable and sustainable production practices

8. Win-win of a market-driven approach

As shown by our experience and that of the company, we are convinced that only market-driven approaches are able to bring sustainable solutions. Being a corporate foundation, our core funding comes through a fixed (1.25) percentage of the company's global seed sales. EWS-KT's independent management structure ensures that these funds are used to benefit the smallholder farmers we work with. The public benefit aspect of our work is acknowledged through our [ANBI](#) status, granted by the government of the Netherlands.

8.1. Win for input markets

Locations for our non-profit knowledge transfer activities are selected according to the needs of farmers and the potential for developing new market opportunities. Though even the most advanced farmers need advice on production and marketing, we chose to invest our resources into less-developed areas where farmers struggle with low and poor-quality yields, and where we believe they can benefit through long-term systemic changes to vegetable markets. As these markets gradually develop, advice becomes more readily available through market actors.

Our objective is to equip these less-advanced farmers with the knowledge and connections they need to make vegetable production a more profitable and sustainable business. We focus our activities on the agronomic practices (from land preparation to harvest) that farmers need to achieve better-quality and higher yields. To maintain the long-term sustainability of improved yields, we ensure that balancing soil health and on-farm biodiversity is at the core of our work. This stimulates a demand for a whole range of agri-inputs, such as mulching, trellis nets, seed trays, better-quality agro-chemicals, and of course, higher-quality seed.

We help farmers better understand the potential of their markets by enabling them to produce more and better-quality vegetables through selecting appropriate varieties and supporting them with improved farming practices. By using EWS varieties in field demonstrations, we are able to nurture a deeper understanding in a demand-driven approach, whereby farmers plan according to



their agronomic situation and the specific needs of their markets. Sparking their interest in better quality agri-inputs provides an entry point for EWS as a “first mover” to drive innovation in these often neglected markets. As can be witnessed at the counters of local agri-input dealers, this is not exclusive but rather has the effect of “growing the pie”. Our work and the magnetic effect of EWS as a first mover attracts other companies that are able to benefit from the improved understanding and increased demand for better-quality seeds and other agri-inputs. With more knowledge and a wider selection of inputs, farmers are able to make more informed choices.

Leveraging the company's ambition to grow new markets is pivotal to the success of our approach as it creates an early tipping point for market interest. As well as the direct benefit to the farming communities, this unique relationship enables the growth of competitive agri-input markets, thereby bringing equal benefit to EWS as well as other agri-input suppliers and competitive seed companies.

8.2. Win for farmers

The objective of KT is simply to showcase profitable and sustainable farm practices. We promote the use of simple but effective agronomic techniques, including: land preparation, selecting varieties for agronomic and marketing traits, seedling production, field layout, trellising, soil conservation, nutrient management, pest and disease management, irrigation, weed management, and harvesting. We also train farmers on the soft skills they will need to get the full benefits of adopting improved production practices. This covers production planning, the use of market information, maintaining farm records, and calculating return on investment. Although simple, these practices are game-changers for most smallholder farmers in less-developed areas.

By offering farmers a wide “menu” of improved practices from which they can choose to adopt at their own pace, our activities put farmers on a positive path of change. Risk averse farmers adopt or adapt better practices step-by-step. The rate at which they adopt improved practices will depend on the intensity of exposure to the results of best practices and their socio-economic situation. It is our experience that adoption continues to grow significantly after direct project support is completed.

Increases in income will vary from farmer to farmer. However, in general we expect additional net income to increase year by year as farmers gain more experience. The figures below are projected average income gains accumulated across different groups of farmers.

	Year 1 farmer	Year 2 farmer	Year 3 farmer	Year 4 farmer	Year 5 farmer
Average income increase (U\$)	92	121	166	213	261

As this average includes new groups of farmers starting every year, the income increase for individual farmers is significantly higher as they gain experience (refer to tables below).



Key farmers (2% of our target group) are the first adopters. What can be done by key farmers can be copied by all other farmers. Within the first year, key farmers are able to double their productivity on smaller plots (1,250 sqm) by using improved practices. Compared to traditional practices, this earns them an additional U\$274 net income. By replicating better practices on increasingly larger plots of land every season, they are able to double their total net income from their full production area within four years.

	Baseline ⁽⁸⁾	Year 1	Year 2	Year 3	Year 4	Year 5
Total net income from vegetables (U\$)	869	1,143	1,280	1,527	1,692	1,856
Additional annual net income (U\$)		274	411	658	823	988

Core group farmers (20% of our target group) systematically follow all the key stages of crop production for several crop cycles through practical training on the demo farms. Within the first year they are able to increase productivity by 75% on smaller plots (1,000 sqm) using improved practices. Compared to traditional practices, this earns them an additional U\$165 net income. By replicating better practices on increasingly larger plots of land every season, they are able to double their total net income from their full production area within five years.

	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5
Total net income from vegetables (U\$)	869	1,033	1,143	1,417	1,609	1,692
Additional annual net income (U\$)		165	274	549	741	823

Trained farmers (40% of our target) are those who join regular training events and select the topics that interest them the most. Within the first year they are able to increase productivity by 50% on smaller plots (750 sqm) using improved practices. Compared to traditional practices, this earns them an additional U\$82 net income. By replicating better practices on increasingly larger plots of land every season, they are able to achieve a 50% income increase over four years.

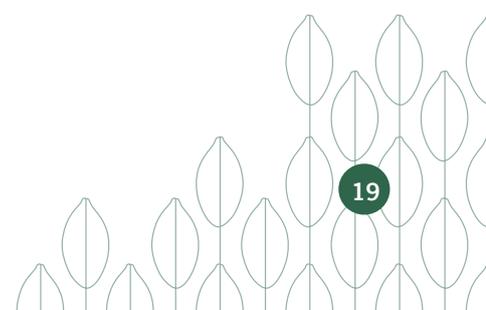
	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5
Total net income from vegetables (U\$)	869	951	1,033	1,143	1,280	1,445
Additional annual net income (U\$)		82	165	274	411	576

Other farmers (38% of our target group) do not directly attend training events, but benefit from a wider range of better quality agri-inputs and improved access to knowledge and information through agri-input dealers and copying the practices of their neighbors. Without direct exposure to best practices in the field, we estimate that over the first year they are able to increase productivity by 50% on smaller plots (500 sqm) using improved practices. Compared to traditional practices this earns them an additional U\$55 net income. By replicating better practices on increasingly larger plots of land every season, they are able to increase the total net income from their full production by 50% within five years.

	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5
Total net income from vegetables (U\$)	869	924	951	1,033	1,143	1,280
Additional annual net income (U\$)		55	82	165	274	411

By year five, the varying degrees of improved practices adopted by the 1 million farmers will generate an additional net income of U\$260 million every year at the farm gate level.

(8) Assumption; most farmers grow 2-3 crop cycles per year - using a total of 5,000 sqm over the year.



8.3. Win for vegetable markets and nutrition

As well as boosting rural incomes in very poor areas, the use of improved vegetable varieties alongside better farm practices has a huge impact on nutrition. Even combined with fruit, the per capita consumption of vegetables in many countries is often less than half of the 400g minimum recommended by WHO. The devastating effect this can have on physical and cognitive development is not only a health issue, it is also a severe constraint to long-term economic development in poor urban and rural communities. The urgent need to increase the availability and consumption of vegetables has been recently further highlighted by the COVID-19 pandemic. With steady

increases in yields as farmers gain more experience, by year five, the total volume of vegetables produced by the farmers we train will be enough to supply 126 million consumers at current rates of consumption. With a growing demand driven by improved access, affordability, and awareness of the benefits of vegetables, the additional volume produced would be enough to potentially double the per capita consumption of 25 million lower income consumers. As an increase in consumption is dependent on awareness and affordability, it may be that a larger group of consumers benefit from smaller increases to per capita consumption.

Impact to nutrition from <i>additional productivity</i>	Year 1	Year 2	Year 3	Year 4	Year 5
Accumulated No. of farmers trained	120,000	280,000	480,000	720,000	1,000,000
Total volume of vegetables produced (Ton/year)	844,421	1,429,764	2,509,859	3,867,779	5,521,338
Total additional volume produced (Ton/year)	46,086	141,549	331,196	639,166	1,088,227
Total consumers supplied at current consumption rate (million)	19	32	57	88	126
Total consumers able to increase consumption by 50% (million)	1	3	7	15	25

9. Our target group

We target farmers already producing vegetables, as well as introducing vegetables as a new economic opportunity. We only select areas that have a long-term potential to develop vibrant agri-input markets and that can become thriving hubs of vegetable production — supplying local, regional or even national vegetable markets at sufficient scale. Looking for areas of unnoticed or untapped potential, our work will take us to less-developed and often challenging areas such as Rakhine in Myanmar, Mindanao in Philippines, northern Nigeria etc. In some circumstances (for example northern Uganda) our approach brings alternative solutions in refugee crises.

Our focus on supporting farmers with the knowledge and information they need to supply wet markets (national and regional) will ensure that poorer populations are the main group to benefit from improved nutrition. Increased volume and regularity of supply will drive affordability. We also work with higher-end modern markets such as e-commerce, supermarkets and processing companies. Although their minimal requirements limit the number of farmers who can benefit, aligning to quality specifications (including branding and certification) can be a positive way to drive change in the sector.

10. Youth and Gender

Positioning vegetables as a good business opportunity in lower-income communities needs to go beyond technical knowhow. Cultural and social contexts have a direct impact on the way communities participate in the planning, production, and marketing of vegetables. Women and youth bring dynamics that are indispensable to accelerate and drive the development of successful and vibrant vegetable markets. Although cultural and social barriers may hinder their full participation, the ease with which they organize into groups, their fast learning and their ability to share knowledge widely within their networks make women and youth an attractive and needed target group.

Although youth have often perceived agriculture as being a “backward” sector, increasing unemployment and the impact of COVID-19 drying up opportunities in urban areas has compelled many to now look for alternative careers and sources of income. By showcasing the quick wins and business viability of modern farm practices alongside an increased use of digital technology, we will attract more youth involvement in our activities. Their lower aversion to risk and greater appetite to try new technologies will accelerate the pace of change and pave the way to greater sustainability of vegetable markets. We recognize the cultural difficulties of giving a voice to youth and the challenges they have in securing resources, including access to land. Nevertheless, we are confident in reaching our goal of increasing their participation in training events from the current level of 30% to 40% by ensuring at least 40% of the key farmers we support are also below the age of 35. These figures will vary according to different countries’ cultural and social norms in terms of the youths’ access to land and decision-making roles.

As well as accelerating change through youth, we also recognise the critical impact the gender dynamic has on value chain efficiency. To encourage balanced and actively engaged training events, and to ensure that the knowledge we support is most effectively spread within the community, we will work toward increasing the participation of women in training events from the current level 40% to 50% over the coming years. This will be influenced by ensuring that 50% of the key farmers we support are women.

As well as leveraging influencers in the farming community, we will also strive to maximise the dynamics of our country teams, our management and our governing board by cultivating a gender-inclusive workplace.

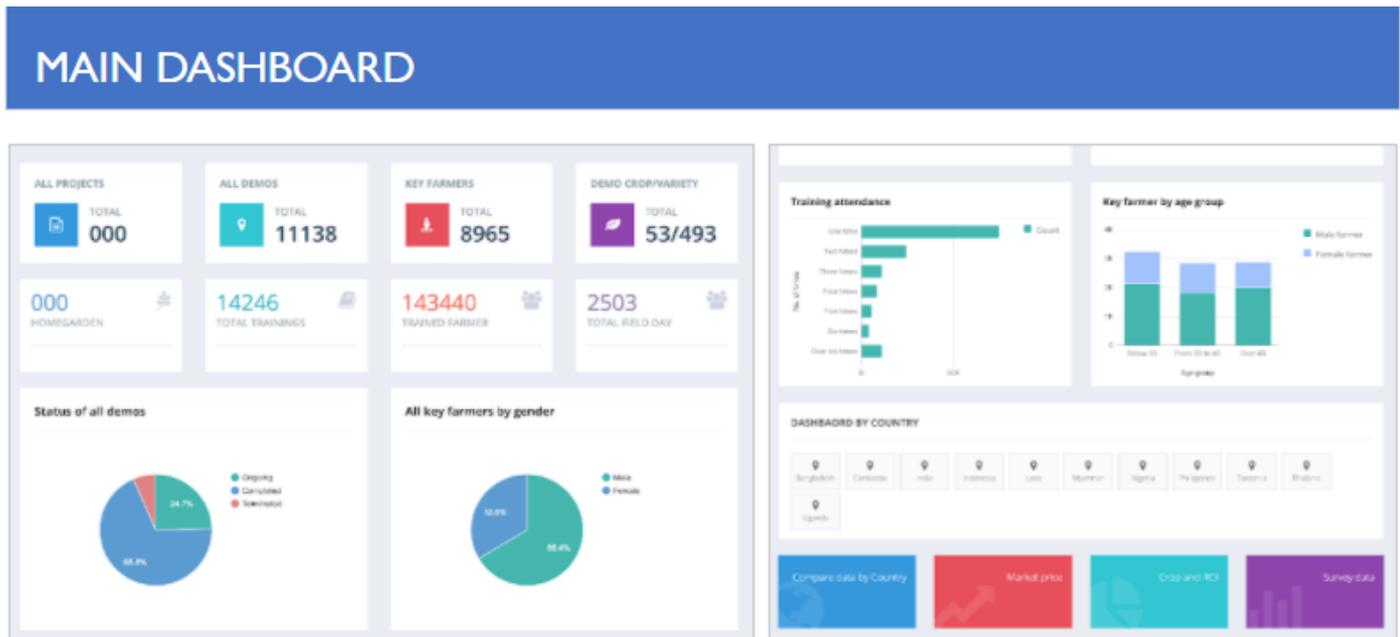
11. Environment and regenerative farming

With production typically done on smaller plots of land, crop diversification through vegetables is an excellent opportunity to improve resilience to environmental shock. Our approach is based on the principles of a profitable circular agronomy whereby organic matter and minerals are balanced and crop combinations improve the fertility of soils and the biodiversity of farms. Our training activities ensure that farmers understand business aspects as well as the environmental impact of sustainable production practices.

The misuse of chemicals remains a serious problem for farmers, consumers and the environment. To minimize risks and improve safety, our training covers the safe and judicious use of pesticides and the correct use of fertilizers. We also introduce best practices for soil health and water use. Our activities support a market-driven approach that has a focus on safe-to-eat vegetables. The wide menu of options we provide to farmers include chemical-free approaches. This enables farmers to adapt their production practices according to their personal agronomic situation and the changing market demands.

12. Data

EWS Knowledge Transfer collects data to effectively steer projects, while also learning, improving and reporting both internally and to project partners. Other than personal data (see below) EWS Knowledge Transfer has an open policy to share data that may be useful to other stakeholders. To facilitate easy access to data, a new dashboard will be publicly accessible by mid 2021 (URL to be announced).



Users will be able to access data (by country) on:

- Outreach (by age and gender)
- Details of trainings
- Interactive map with locations of demonstrations
- Crop and variety data (farm activity records / ROI / yield data)
- Fresh market prices from weekly surveys
- Impact survey data (baseline, annual and endline surveys)
- Monthly outlook on all upcoming training events (by country)

New international data protection laws have made us rethink how we manage personal data of farmers. As these new laws are not (yet) legally binding in all countries, EWS-KT follows its own data protection code of ethics. This complies with the following basic data privacy principles: (1) we inform farmers that we collect basic personal information, (2) we inform farmers how we will use their personal information and (3) we obtain their consent

if information will be shared with the company. As an independent legal entity, we have Personal Data Sharing Agreements between EWS-KT and all country operations where we work. This ensures that any data shared with the company will be used for the sole purpose of developing future EWS markets and will not be re-shared or sold with other stakeholders who may use data for other promotional purposes.

13. Tracking change

We recognize the importance of steering our activities and developing a strong evidence-base for our programs through the use of solid field data. We are constantly refining our monitoring, evaluation, and learning methods and tools. Since 2017, we have used an advanced farm management and monitoring application to track activities and cost and returns on each demonstration farm. This information is used to evaluate the profitability of multiple crops over different seasons. To further support objective production planning, we also collect and analyse data on market prices of vegetables every week. The app also records detailed information and tracks the adoption of improved practices of all farmers participating in training events. As of May 2021, our database tracks information on 170,000 farmers.

With millions of smallholder farmers struggling to earn a decent living, our aim is simply to position farmers on a path of change and to stimulate the beginning of competitive agri-input markets. Sufficient transition of farmers can usually be catalysed within 12 months. After

this period of intensive support, we continue to nurture progress of those we have trained by maintaining close contact with key farmers, as they remain as a hub of knowledge in their village. Similarly, we continue to share knowledge and information that helps connect networks of farmers with agri-input retailers and traders. Although we do not have the resources to intensively track the progress of farmers after 12 months of direct training support, we will continue to track their progress through annual representative surveys.

Wageningen University Plant Research supports our capacity to ensure the best-quality data and objective analysis of results. From 2021, they will support and guide our teams with baseline, annual and endline surveys for all projects. This will enable us to track changes with different levels of farmers, using yield and income as key metrics. In addition, we monitor change with agri-input dealers and fresh vegetable markets, both of which are key indicators of change.



14. Validated Technical Knowledge



EWS Knowledge Transfer leverages more than 20 years of experience in training smallholder farmers in developing markets. We tap into a vast pool of technical knowledge generated by the company over the last 35 years. To ensure we share the best knowledge with farmers, we centralise the development of all technical recommendations and extension materials through an international Technical Working Group.

The Technical Working Group (TWG) consists of technical experts from the EWS Knowledge Transfer team in each country where we operate. This is supported by experts from Wageningen University and Research as well as from EWS. The main objective of the group is to consolidate all technical information and materials within the EWS group, review, develop and bring the best technical recommendations to farmers. All extension materials are reviewed by farmers and other target users before release in order to ensure that the materials are easy to understand and are tailor-made to their needs. The TWG continuously explores innovations and tests them through

action research that is conducted on our research farms and in-country Learning Sites.

Apart from developing extension materials, the TWG also helps build the technical capacity of the local field staff. Blended learning approaches, learning site establishment, online modules with certification programs, field monitoring and discussion forums are all facilitated to support the learning process. The discussion forums together with TWG members are relevant in building the capacity of new field staff as they serve as a venue to share and exchange experiences.

In order to support the TWG objectives — especially on the “why and the science of things” — we partner with Wageningen University and Research and other academic institutions. Through these partnerships, we ensure that extension services to farmers and other relevant stakeholders in the vegetable sector are of the highest quality.

15. Technical training and practical demonstrations

Knowledge Transfer centers around building skills for profitable and sustainable agricultural technologies and practices. Leveraging a peer-learning approach, local Technical Field Officers support key farmers to manage hands-on demonstrations showcasing improved production practices. Key farmers are selected according to their enthusiasm to share knowledge, their access to land with reasonable visibility and potential for year-round production, and interest to learn and innovate. On average, 2-3 key farmers are supported in each village, depending on village size. Technical Field Officers work intensively with key farmers for at least 12 months.

These technical demonstrations act as a hub of advice for neighboring farmers on all aspects of crop production, such as land preparation, seeding production, mulching, transplanting, plant nutrition, pest and disease management, harvesting, and post-harvest handling. Detailed farm data is collected and analysed from all demonstrations to substantiate the success of using improved techniques. We also provide training on variety selection, crop planning, and farm record keeping.



15. Technical training and practical demonstrations

Training is offered to two groups:

1. *Intensive training for Core Groups:* Key farmers and EWS Technical Field Officers will lead intensive practical training for core groups, typically comprising about 10 highly motivated farmers. Core group farmers systematically follow all the key stages of crop production for several crop cycles through practical training on the demo farms.
2. *Farmer Trainings:* To further amplify knowledge dissemination and create flexible training formats that encourage women and youth participation, EWS will organize short training events based at demonstration farms. These training sessions will differ from Core Group trainings in that they are open to any interested villagers. On average it is expected that each farmer will attend five separate training sessions over the 12-month period. In some cases, training may be conducted in villages with less production (if a potential for growth is observed), with the objective of promoting future opportunities for vegetables.



To further amplify knowledge dissemination, technical field days are organized on each demo. As well as providing technical information on crop production, these trainings, which are open to any interested farmers, are used to promote the economic opportunity of vegetable production. Sharing financial and marketing information including cost and return analysis of farm records helps accelerate farmers' understanding on the benefits of adopting new varieties, technologies and practices. Vegetable traders and agro-input dealers are also encouraged to attend field days. This is expected to

stimulate increased production through disseminating information on market opportunities and availability of inputs.

Through supporting about 20 key farmers over 2-3 crop cycles, each Technical Field Officer is able to directly reach up to 600 farmers with intensive exposure and training every year. This is complemented by a further 380 farmers who benefit from improved access to knowledge and information through agri-input dealers and emulating the practices of their neighbors.

16. Developing the capacity of service providers

As all farmers visit input retailers, they have wide potential to be used as a hub of valuable knowledge. Unfortunately, input retailers tend to make recommendations based more on product profit margin and clearing stock rather than on actual technical needs. This particularly impacts the quality of advice on agro-chemicals. However, as we have experienced, there is an opportunity to develop a more solid customer base through becoming recognised as a reliable source of information. Accordingly, EWS Knowledge Transfer works closely with agri-input retailers to increase their capacity for sharing technical messages with their clients.

We also widen the scope of knowledge transfer, through technical training and backstopping to a number of potential service providers such as government extensions, agricultural universities and like-minded NGOs.

In addition to providing training, we also share information on locations of demonstrations and upcoming training events. We encourage clients of agri-input retailers and farmers supported by other organizations to maximise the use of these opportunities.



17. Supporting improved market access

Being made up of numerous micro and small traders, vegetable markets are dynamic and complex structures. The perishability and high turnover of vegetables makes contractual arrangements with farmers of limited appeal to most traders on local markets. While quality standards of higher-end markets can help to drive positive change, the small volumes they trade are of little significance to the multitude of farmers supplying the markets or to the lower income consumers who rely on affordable products. Although we nurture opportunities with specific uptake buyers, our main focus is on ensuring the future competitiveness of the farmers we work with. We do this by developing their understanding of market dynamics. This enables them to better navigate future opportunities according to their production capacity and the changing needs of their markets.

Through participatory baseline studies and weekly visits to local vegetable markets, our teams support farmers to better understand market flows, price fluctuations and quality trends. We use this data and cost return analysis from demonstration farms to help farmers plan according to the actual needs of their markets. Strengthening the future competitiveness of farmers hinges on their ability to assess and select the traits and varieties that are most suitable for their agronomic and environmental conditions, as well as the specific requirements of their markets. In addition to aligning production with demand, the use of improved varieties and best practices also has a significant impact on reducing post-harvest losses.

To strengthen the market connectivity of farmers, we work closely with and include local traders in the planning of all field activities. Although collectors are at times perceived as an unnecessary link that increases transaction costs, in the absence of farmer groups

or collection hubs, they can be supported to provide invaluable services that improve quality and reduce post-harvest losses. Embedding demonstrations into their network of farmer suppliers and keeping them informed on upcoming activities incentivises the participation of their suppliers and benefits their businesses with improved qualities and consistency of supply.

Despite the volume limitations of higher-end markets, we recognize a significant opportunity to drive consumption through advocating the benefits of locally-produced, affordable and safe-to-eat vegetables. Although we have the technical capacity to support farmers heading towards GAP or chemical-free certification, we believe simple messaging that promotes product safety has the highest potential to drive demand on less-developed local markets.



18. Extension material

East-West Seed Knowledge Transfer has produced a series of high-quality training modules and extension materials specifically designed for smallholder vegetable farmers in local languages. All guides are tested with local communities before being used. To ensure all information and recommendations about agro-chemicals are up-to-

date, these materials are designed in close cooperation with Wageningen University and Research. Crop and Technical guides are available in 36 languages. All of EWS Knowledge Transfer extension materials (technical crop guides, instructional videos) are available through our online learning platform [GrowHow](#)



19. Use of digital media

Although there is a rapid increase in the ownership of smartphones, few farmers are using them to improve their productivity or market connectivity. In order to benefit from the widespread opportunities that digital media is expected to bring, farmers need more support to better understand different options and how to best use them.

We will utilize digital solutions both as a way to complement the knowledge that farmers gain from our field-based activities as well as a means to spread this knowledge and experience to a wider network of farmers. We will provide verified and easy-to-access information, delivering it where farmers are most present and comfortable (e.g. Facebook and WhatsApp). We will gather, analyse and

use data according to relevant international and national privacy laws to inform our future operations and strategy. We will also evaluate and pilot new digital channels, platforms and innovations that will increase the menu of appropriate digital options and better enable the inclusion of different socio-economic groups, especially when taking into account the challenges of digital literacy. Helping less tech-savvy farmers and traders to better navigate their mobiles now will create a better environment where digital solutions can more easily take root in the future. To best position ourselves in the present digital reality and to prepare farmers for future solutions, we will continue to pilot and scale the following digital technologies:



19.1. Podcasts

From observations in social media groups and the success of radio programs, the use of audio files is an effective, easy and quick way to share knowledge and best practices. Audio files consume less data and are easy to make. They present farmer interviews and testimonies as well as technical subjects in national and local languages.

Comments from farmers during a pilot conducted in Nigeria highlight the informative and simple feeling when listening to audio files in their home or with their

friends: “One of the best initiatives brought to us at the comfort of our home”. Women were especially proactive in sharing audio files via dumb phones and found the results very rewarding.

We will develop a library of audio files that will enable easy access for farmers and other stakeholders. The library will be accessible via social media links, platforms or sharing between phones.

19.2. Digital crop production guides and extension materials

[GrowHow](#) is the core East-West Seed Knowledge Transfer digital platform because of the potential it holds for both farmers and for EWS-KT to better understand farmers’ needs. It provides full public access to a wide range of extension materials including crop production guides, technical guides, management guides and instructional videos, with content available in 33 languages. All materials are developed specifically for and with feedback from smallholder farmers. To ensure best practices and up-to-date recommendations on agro-chemicals, these materials are designed by an international Technical Working Group in close cooperation with Wageningen University and Research. All guides are adapted to specific country requirements, thus ensuring we only recommend active ingredients that are registered in individual countries.

GrowHow is designed as an open resource base for extension workers and farmers. All guides can be read on-screen, as they are designed for easy use on mobile

phones. We actively encourage other organizations to use and print guides with their own logo in order to widen outreach in farming communities that are struggling with internet connectivity. With enhanced communication and improvements to make the platform more user-friendly, we plan to grow the user base from the current level of 45,326 to 1 million by 2025.

In terms of the availability of data, GrowHow holds much greater value than any other digital channel. By collecting this data — ethically and methodically — we can have access to much deeper insights into the needs of our farmers because we gain the ability to drill down to specific audience segments, such as female farmers between the ages of 20 and 30. This provides greater insights on what is highly useful for farmers and, more importantly, on what information they require that may be missing.



19.3. Online learning



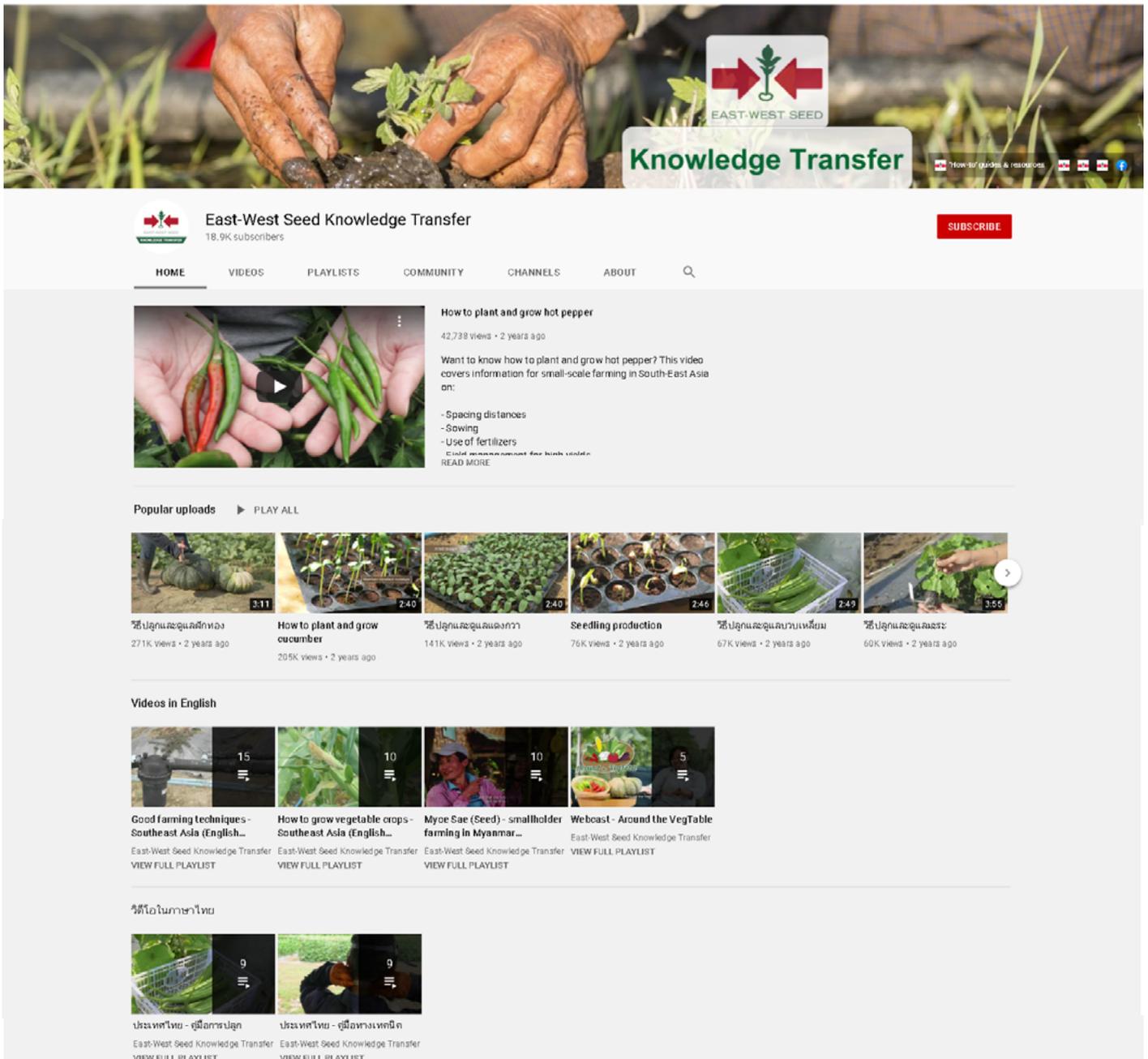
The General Vegetable Production (GVP) program is an online learning platform developed for our teams, farmers, agro-input retailers and extension workers. The platform is not yet fully functional and is currently only available in English. Over the coming year, this will grow to include at least eight more languages: Bahasa, Filipino, Myanmar, Hausa, Khmer, Hindi, Swahili and Thai. As well as self-learning, a new feature will include certified training programs:

1. Vegetable Production Beginner - An early learner course comprising 12 modules that can be accomplished through self-paced learning.
2. Crop Advisor Trainer Certification Program - Designed and developed for staff of East-West Seed Knowledge Transfer and other extension workers who want to acquire more technical knowledge in vegetable production (38 modules - currently only in English)
3. Crop Advisor Super Trainer Level - Advanced learning (under construction)
4. VegIMPACT - Certification program

Although not yet fully functional, the GVP program will be incorporated into GrowHow where possible, and can be also accessed at the following URL: <https://growhow.eastwestseed.com/learning-material>

19.4 YouTube videos

Instructional videos (used on social media, GrowHow and by EWS' commercial teams) link distant learners to the field experience. We expect to complement the initial focus on technical crop production with videos on mobile phone literacy, farm records and farm calculations. East-West Seed Knowledge Transfer YouTube Channel: <https://www.youtube.com/channel/UCGLRDV5V1ICefotYPFCaG4g>



East-West Seed Knowledge Transfer
18.9K subscribers

HOME VIDEOS PLAYLISTS COMMUNITY CHANNELS ABOUT

How to plant and grow hot pepper
42,738 views • 2 years ago

Want to know how to plant and grow hot pepper? This video covers information for small-scale farming in South-East Asia on:

- Spacing distances
- Sowing
- Use of fertilizers
- Field management for high yields

READ MORE

Popular uploads ▶ PLAY ALL

Thumbnail	Title	Views	Time
	วิธีปลูกและดูแลผักทอง	271K views • 2 years ago	3:11
	How to plant and grow cucumber	205K views • 2 years ago	2:40
	วิธีปลูกและดูแลแตงกวา	141K views • 2 years ago	2:40
	Seedling production	76K views • 2 years ago	2:46
	วิธีปลูกและดูแลถั่วฝักยาว	67K views • 2 years ago	2:49
	วิธีปลูกและดูแลแตงระ	60K views • 2 years ago	3:56

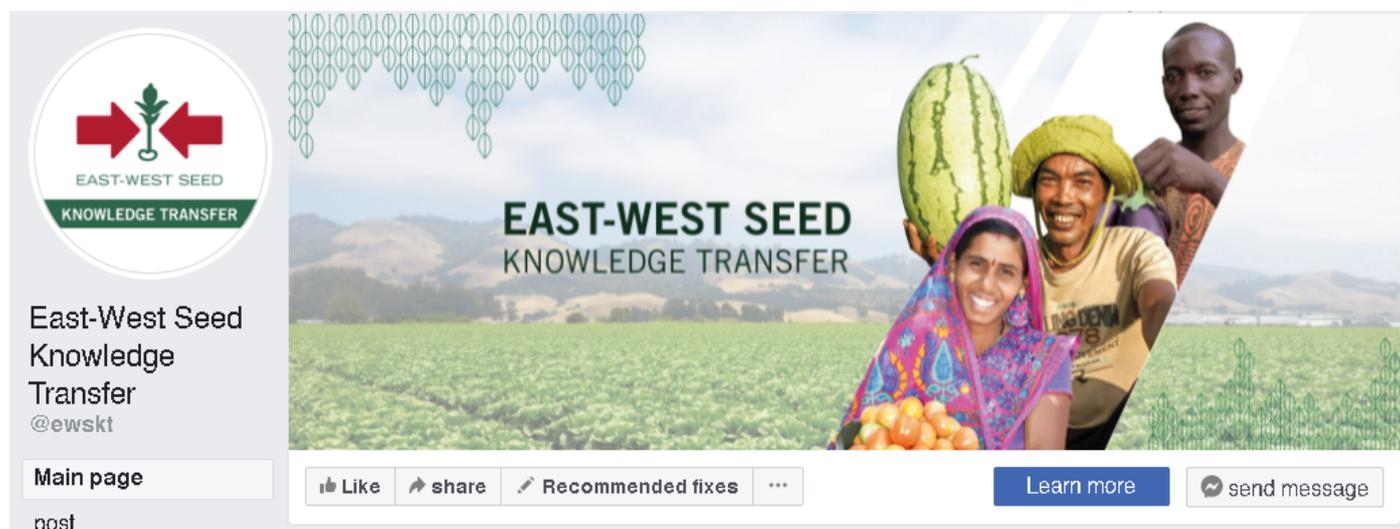
Videos in English

Thumbnail	Title	Views
	Good farming techniques - Southeast Asia (English...)	15
	How to grow vegetable crops - Southeast Asia (English...)	10
	Myoe Sae (Seed) - smallholder farming in Myanmar...	10
	Webcast - Around the VegTable	5

วิดีโอภาษาไทย

Thumbnail	Title	Views
	ประเทศไทย - คู่มือการปลูก	9
	ประเทศไทย - คู่มือทางเทคนิค	9

19.5. Moderated social media groups



In recent years, social media users (and the networks themselves) have started to prioritise the use of “groups”. This is a shift away from the traditional newsfeed and official pages that were dominant previously. Moderated social media discussion groups provide us with a great means of scaling knowledge and connecting with stakeholders. However, while this method is particularly good for the youth, social media does not reach all groups of farmers. More resources will be put into understanding how we can best maximise outreach and impact in different socio-economic groups.

As well as being a platform for farmers to share experiences, we also use social media to connect with farmers who have no exposure to our field activities. By feeding groups information on the locations and ROI data from demonstrations farmers as well as information of training events and market prices, we aim to nurture the interest and involvement of local vegetable traders in KT activities.

We currently moderate discussion on the following groups:

- Bangladesh <https://www.facebook.com/groups/798690940688205/about>
- Cambodia <https://www.facebook.com/groups/190708135581818/>
- India <https://www.facebook.com/groups/KTIndia/>
- Indonesia VegIMPACT <https://www.facebook.com/vegimpact>
- Myanmar <https://www.facebook.com/groups/927777124328381/>
- Philippines <https://www.facebook.com/EastWestVeggieADS>
- Thailand <https://www.facebook.com/groups/2588433678063809>
- Uganda <https://www.facebook.com/groups/UGVegetablefarming/>
- Nigeria <https://www.facebook.com/groups/2646657325422653/>
- Group level <https://www.facebook.com/ewskt>

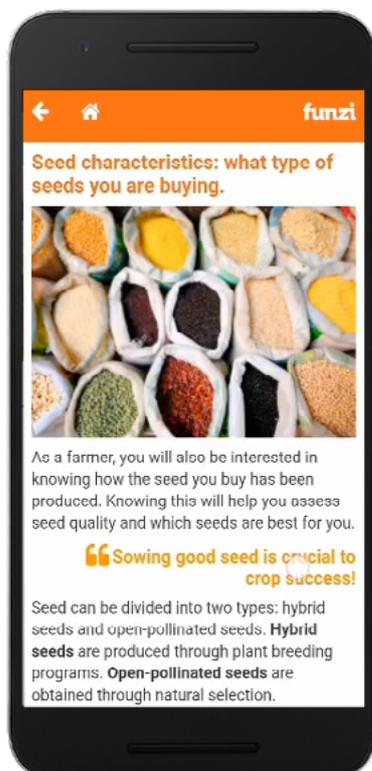
19.6 .WhatsApp / Messenger groups

WhatsApp and Facebook Messenger groups are used in all countries to foster dialogue between specific groups of farmers. Where possible we encourage teams to include traders in these groups. The chat groups have proven especially valuable, particularly with younger farmers, as an easily accessible training platform during COVID lockdowns.

19.7. Mobile learning solutions

In 2020, EWS-Knowledge Transfer and WUR partnered with tech company Funzi to pilot a lightweight mobile learning solution. The pilot program enabled farmers to access training on smartphones and feature phones, with minimal data charges. The course Vegetable Seedling Production (accessed here by registering <https://funzi.mobi/unlock/8u24IZ>) covered three modules: planning seedling production, ground nurseries, and cellular seedling

production. In the initial program period, 5,317 learners in Nigeria were targeted. The pilot exceeded expectations, resulting in a completion rate of 95% for Hausa-speaking participants. With overwhelmingly positive feedback, we are in search of resources to convert our full training curriculum into the Funzi format, which can be used with a business model to reach hundreds of thousands of farmers in different countries. [Further information on the pilot.](#)



19.8. Digital gaming

EWS-Knowledge Transfer partnered with Kucheza to pilot a game-based learning approach to farm economics. The program aims to build awareness, knowledge and skills to enable sustainable business decisions. A post pilot study by Wageningen UR will indicate if and how this or similar approaches can best be integrated into future training activities.

19.9. Mobile learning solutions

EWS-Knowledge Transfer has developed its own mobile app for internally monitoring the progress and ROI of demonstration farms and for tracking farmers participating in field training events. To ensure accuracy, data on the economic and agronomic performance of demonstration plots is currently collected directly by KT field teams. After analysis, this is shared with farming communities to promote the economic potential of various crops in different seasons. Now that the app is fully functional with our field teams, we will explore how its use can be extended to farmers as a business planning and on-farm and decision-making tool. This will be initially piloted with key farmers and village volunteers in India, Indonesia and Uganda.

Recent studies indicate that despite the number of apps on the market, few of them have so far managed to reach significant numbers of farmers and many still lack a sustainable business plan. With high costs and low rates of adoption, EWS-Knowledge Transfer will not invest directly into the development of other apps. However, as it is expected that they will become increasingly more relevant to farmers in the coming years, we will actively seek collaboration with partners who can make use of our high quality content on their apps.



20. Other media outreach tactics

20.1. Radio

Radio has great potential to reach farmers with high-quality technical information in Africa. However, it is expected that radio will become less popular as social media use is adopted more widely. Currently, there are good opportunities to integrate podcasts from radio into social media posts.

Since 2019, EWS-KT has hosted a weekly broadcast from a radio station in northern Nigeria. The program is broadcast in Hausa, which has a wide reach across the northern part of the country. The program

is subject-based and facilitates a lively call-in session with farmers. Through a collaboration with the National Agricultural Extension and Research Liaison Services, we will better understand the impact and results of the study, and subsequent training will be used to refine our approach to effectively deliver technical messages through radio.

We will also explore the potential of regular radio presence in Tanzania and Uganda, and possibly other countries in the future.



20.2. SMS

With most farmers still using “dumb phones”, we will explore the opportunity of sharing technical content through interactive SMS and WhatsApp messages. This will enable users to receive timely advice at key stages of their crop production cycle. A pilot will be initiated with 5,000 farmers in Tanzania to assess the cost effectiveness of SMS as a means of service delivery.

22. Partnering opportunities

KT has an enormous and exciting challenge ahead: an ambition to reach 1 million farmers globally over the next five years. By 2026 we aim to be training 300,000 farmers every year, comprising 100,000 farmers in Africa, 100,000 farmers in India and 100,000 farmers in other Asian countries.

	Actual						Planned				
	2015	2016	2017	2018	2019	2020					
Bangladesh											
Cambodia	1,640	2,113	6,117	9,000	9,000	8,293					
India	0	789	6,261	14,000	14,098	11,701					
Indonesia*	9,023	12,218	7,933	10,705	21,968	18,115					
Myanmar	5,448	11,008	11,968	15,000	19,714	8,275					
Nigeria	0				3,189	14,373					
Philippines	3,493	3,406	4,730	13,061	14,260	6,566					
Tanzania	2,436	5,515	9,816	16,685	6,237	4,657					
Thailand	300	800	1,284	6,000							
Uganda				8,000	15,770	12,072					
Others			1,374								
	22,340	35,849	49,483	92,451	104,236	84,052	120,000	160,000	200,000	240,000	280,000
	388,411 farmers trained over the last six years						1,000,000 farmers in the coming five years				

*Financed and managed through Yayasan Bina Tani Sejahtera

In recent years we have increased our presence in Sub-Saharan Africa. Our current area of operation in Uganda, Tanzania, and Nigeria will expand to cover new countries. These may include Ethiopia and Ghana, as well as Niger, Ivory Coast and Senegal. We also aim to grow our presence in South Sudan, although this is likely to remain focused predominantly through refugees in northern Uganda.

New areas for Asia will focus on widening geographies in existing countries. India has the biggest potential for expansion, particularly in the northeastern states of Bihar, Assam and West Bengal, Arunachal

Pradesh, Manipur, Meghalaya, Mizoram, Nagaland and Tripura.

To enable wider outreach, we leverage additional resources of like-minded organizations such as ACIAR, ADB, AVRDC, DFAT, DFID, GIZ, ICCO, MEDA, Mercy Corps, Netherlands Enterprise Agency, Embassy of the Netherlands Uganda, SNV, Solidaridad, Swisscontact, USAID, and Wageningen University and Research. As well as funding, we look for cooperation that brings complementary skills such as community mobilisation, access to finance, conflict sensitivity, and youth and gender inclusion. The table below indicates our more recent partnerships.

Country	Project duration	Project Name	Donor	Lead organization
Bangladesh	2020-2024	Smart Farming, Health Food	Netherlands Enterprise Agency (RVO)	Solidaridad
Cambodia	2019-2021	HARVEST II	USAID, Feed the Future	Abt Associates
Cambodia	2018-2021	Cambodia Horticulture Advancing Income and Nutrition (CHAIN)	Swiss Development Cooperation (SDC)	Netherlands Development Organisation (SNV)
Cambodia	2020-2023	Scaling off-season vegetable innovations in Cambodia and Laos PDR	German Federal Ministry for Economic Cooperation and Development (BMZ)	World Vegetable Center (WorldVeg)
Philippines	2019-2023	Developing vegetable value chains to meet evolving markets in the Philippines	Australian Centre for International Agricultural Research (ACIAR)	Applied Horticultural Research
Philippines	2020	PAG-AHON Project	Philippine Dept. of Agriculture (Philippine Rice Research Institute)	East West Seed Philippines
Philippines	2020	Sustainable Farm to Table	World Wildlife Fund	World Wildlife Fund (WWF)
Myanmar	2017-2020	ADVANCE Myanmar	Australian Government Department of Foreign Affairs and Trade (DFAT)	Mennonite Economic Development Associates (MEDA)
Myanmar	2020-2021	Improving Market Opportunities for Women	Global Affairs Canada	Mennonite Economic Development Associates (MEDA)
Myanmar	2018-2020t	Transforming Rakhine's Vegetable Market	Department for International Development (DFID)	DaNa Facility (DAI)
Myanmar	2017-2020	Pulses, People, Planet and Profit (P4) project	Department for International Development (DFID)	Interchurch Organisation for Development Cooperation (ICCO), DaNa Facility (DAI)
Myanmar	2017-2020	Veg Impact / VegCAP	Netherlands Enterprise Agency (RVO)	Advance Consulting and Wageningen University Plant Research

Country	Project duration	Project Name	Donor	Lead organization
India	2019-2023	Good Farming, Good Food	Netherlands Enterprise Agency (RVO)	Solidaridad
Uganda	2020-2023	Pumpkins in Africa Catalysing opportunity for farmers and consumers	Netherlands Enterprise Agea Dr. Simon N. Groot (dedicated prize money from the 2019 World Food Prize award)	EWS-Knowledge Transfer
Uganda	2017-2020	Developing a vibrant vegetable sector in Uganda	Netherlands Enterprise Agency (RVO)	Integrated Seed Sector Development Plus (ISSD), Wageningen University
Uganda	2018-2021	Nutrition and Income Generation Intervention for Refugees and Host Communities in the West Nile Region	Netherlands Embassy Uganda	Wageningen Centre for Development Innovation
Uganda	2019-2020	Crowdsourcing vegetables for farmers livelihood improvement	Consultative Group on International Agricultural Research (CGIAR)	Bioversity International
Nigeria	2020-2024	Transforming Nigeria's Vegetable Market	Netherlands Enterprise Agency (RVO)	EWS-Knowledge Transfer (in partnership with Wageningen University Plant Research and Solidaridad)

23. Affiliated organizations

Next to EWS-KT, EWS has two other independently funded and managed foundations, both of which have separate governance structures.

Indonesia has its own foundation “Yayasan Bina Tani”, which is funded through East-West Seed Indonesia and external donors. As East-West Seed Indonesia is a 50/50 joint venture with Enza Zaden, East-West Seed Indonesia’s contribution to Yayasan Bina Tani is separated from EWS Group’s contribution to EWS-KT. Although funded and managed separately, we include outreach in our reporting as we share technical materials and training.

East-West Seed Philippines has a separate foundation “East-West Seed Foundation (Philippines)”. This foundation has different objectives (i.e. to increase vegetable consumption) than EWS-KT, and has its own supervisory board. It operates and is funded independently from EWS-KT. Its results are not included in our outreach reporting.

24. Contact details

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