Darwin Initiative Capability & Capacity: Annual Report

To be completed with reference to the "Project Reporting Information Note": (https://www.darwininitiative.org.uk/resources/information-notes/).

It is expected that this report will be a **maximum of 20 pages** in length, excluding annexes)

Submission Deadline: 30th April 2025

Submit to: BCF-Reports@niras.com including your project ref in the subject line

Darwin Initiative Project Information

Project reference	DARCC046
Project title	**Building government capability to train farmers about pollination in Ethiopia.**
Country/ies	Ethiopia
Lead Organisation	Bees for Development
Project partner(s)	Bees for Development Ethiopia (BFDE), Pesticide Action Nexus Ethiopia, Bahir Dar University, Amhara Region Bureau of Agriculture (South Gondar Zone), Southern Ethiopia Region Bureau of Agriculture (Gamo-zone)
Darwin Initiative grant value	**£198,078.00**
Start/end dates of project	01 April 2024 to 31 March 2026
Reporting period (e.g. Apr 2024 – Mar 2025) and number (e.g. Annual Report 1, 2, 3)	Apr 2024 – Mar 2025
Project Leader name	Dr. Janet Lowore
Project website/blog/social media	**www.beesfordevelopment.org**
Report author(s) and date	Dr. Janet Lowore and Dr. Baye Getahun 27 April 2025

1. Project summary

In Ethiopia, habitat loss and agrochemical use pose great risks to insect pollination services which are taken for granted. Most Ethiopian farmers have no knowledge about pollination and have been taught that all insects, except honey bees, are pests. **A baseline study carried out by Darwin-funded More Bees Ref 29-021 showed that 89% of farmers[1] think that every insect, except bees kept for honey production, should be eliminated.** Pollination deficit is hard to see and measure, so messages about the impact of pesticides on pollination services are not reaching all farmers. The government extension service does not provide training on pollination, citing lack of knowledge and tools. Level of understanding about insect pollinators amongst Development Agents[2] (DAs) is little better. Overall, pollinator declines and their impacts on agriculture and nature have received insufficient attention and pose severe risks to farming communities in Ethiopia. Learning about pollinators, their role and importance is relevant towards

[1] 369 farmers interviewed in two districts

[2] Government extension workers

achieving their protection. Pollination services are an essential ecosystem service for achieving food security.

This Project promotes understanding and teaching about insect pollination as an ecosystem service in two target areas - near Lake Tana, in Amhara region and around lake Chamo in southern Ethiopia. These parts of the country have high potential for horticultural crop production and also have high irrigation potential. Horticultural crops are highly dependent on insect pollinators and the project focuses on horticultural, fruit and oil-seed crops. These crops are important in Ethiopia for farmers' livelihoods – for food and cash income.

2. Project stakeholders/ partners

This project is delivered by a collaboration of the following suitably qualified partner organisations:

- Bees for Development UK
- Bees for Development Ethiopia
- Pesticide Action Nexus Ethiopia
- Bahir Dar University

All organizations share overlapping aims of providing education and training in the field of ecosystem service provision and we have worked together before. At project outset we agreed how we would share roles and responsibilities and our existing working relationship has evolved successfully. All organizations above have been involved in developing the Pollination Training Toolkit (PTT). Other stakeholders include the regional Bureau of Agriculture and they have supported the project by releasing Development Agents to work, learn and organize farmers to test out the prototype PTT. Development Agents have tested the PTT and provided feedback, which has helped improve the prototype Pollination Training Toolkit (PTT). Overall, we understand each other and have created an effective working relationship built on trust and strong collaboration.

We set-up a Telegram group for all partners and Development Agents (53 members at time of report). The Telegram group is used to share experiences, images and ideas, and provide feedback.

3. Project progress

3.1 Progress in carrying out project Activities

The first activity of the project was the familiarization and launch workshop delivered on 20 June 2024. In this meeting, university professors, regional, zonal, woreda[3] and kebele[4] level officials and experts participated. A total of 52 (12F) participants were involved. The meeting was helpful to familiarize our project and create shared momentum, build trust and lay the foundations for successful collaboration among stakeholders.

Activities under Output 1.

1.1 Candidate crops have been selected for pollination demonstration technique in the three project woredas. Accordingly, Avocado, Niger seed and apple were selected as a candidate crop. The candidates were selected based on their importance as a crop for smallholder farmers in Ethiopia and their suitability for demonstrating what happens when flowers are not well-pollinated. We started with a long list of 20 and eventually arrived at a short list of 3.

1.2 The team developed a protocol and data collection methodology for the pollination demonstration. Due to the difference in growth habit and seasons we deployed different demonstration protocols for Niger seed and fruit crops. The Niger seed demo assessed seed production in two comparison plots: a netted plot (closed to insect pollination), and an open plot, open to insect pollination, with no net. Avocado and apple were assessed at inflorescence level. Inflorescences on some branches were covered in nets. Nets were

[3] Woreda refers to an administrative unit akin to a district

[4] Kebele refers to an administrative unit akin to a cluster of villages (several kebele within a woreda)

placed before the blooming of flowers. PVC mesh bags with 1.2 mm^2 holes were used in all cases. A total of 8 pollination demonstration plots were established at Farmer Training Centres (FTCs) and farmers' fields.

(a) (b) (c)

Figure 1. Deprived plots and inflorescences set up (a= Niger seed), b= avocado, c= apple)

Niger seed results: The open pollinated plot gave 120g seed while the deprived plot gave 62g. Thus, the open plot showed 93% yield increment (nearly double) compared with the insect-deprived plot. The quality of the seed harvested in the deprived plot was also shriveled compared with the open pollinated crops which indicates the deficiency of pollination.

Figure 2 (a) harvested from deprived plot, (b) harvested from open plot in Fogera woreda

Avocado: In Avocado the demonstration worked, with netting affecting the quality and the number of fruits. The deprived inflorescences in avocado set only one fruit while the open inflorescences set more than four fruits.

(a) (b)

Figure 3 Open (a) vs deprived (b) inflorescences in Avocado in Libo-kemkem woreda

Apple: Similarly, in apple the deprived inflorescences set fewer fruits and/or poorer fruits. In one of the deprived inflorescences of the apple tree four fruits were harvested however the fruit quality was very poor (Figure 3).

Table 1. Data from deprived inflorescences (smallholder farmer orchard), at Chencha

Description	A1R1	A1R2	A1R3	Remark
Apple Variety	Jonagored	Bonded Red (BR)	Crispin	
Number of branches prevented from insect visit	1	1	1	
Number of flowers prevented from insect visit	4	8 in two clusters	6 in two clusters	
Flower type	Cluster	Cluster	Cluster	
Fruit numbers set up	0	4	0	The fruits were small see Figure 4.
Fruit weight in gm	0	21.25	0	Average fruit weight of the 4 fruits The average weight of the non-deprived fruits was 117.75g

Figure 4.Apple fruits harvested from deprived inflorescences (covered with mesh), in Chencha Woreda

Fruits harvested from the same tree but not covered (not deprived) have a good look and bigger fruit size compared with fruits harvested from deprived inflorescences (Figure 5). And the average fruit weight of deprived inflorescences was 21.25g while the non-deprived inflorescences was 117.75g.

Figure 5. Apple fruits harvested from non-deprived inflorescences (the same tree) in Chencha woreda

1.3 Document pollination demonstration technique in easy-to-use format.

This is being done now, using the results, methods and photographs above, and will comprise Tool 6 in the PTT.

Activities under Output 2.

Output 2 refers to the creation of the Pollination Training Toolkit learning resource. It has been an iterative process, with overlap and feedback amongst the six activities.

2.1 Train key staff in pedagogical skills. This was achieved. We engaged Koye Kassa Getahun from University of Bahir Dar. Two sessions of pedagogical training have been organized at Arba-Minch and Bahir Dar. A total 68 (21F) participants participated in the training workshop. Agricultural experts at different level (regional, zonal and woreda level) Development Agents (DAs) from various kebeles were participated in these training workshops. The meetings were held on June, 21/2024 at Bahir Dar, and on Oct, 07/2024 at Arba-Minch.

These two workshops covered (a) how to teach adults (b) how to use the draft PTT. This activity was done after activities 2.2, 2.3 and 2.4.

As part of the session DAs demonstrated the training using each tool in the Pollination Training Toolkit as a training topic - this served as an assessment for us whether the DAs were familiar with the tools and ready to teach the farmers.

2.2 Take photographs of insects, flowers and different bees carrying pollen. This has been achieved by solitary bee specialist Ciaran Clark from Bees for Development who visited in October 2024, and by Development Agents and other team members who tested the learning tools. See supporting evidence. A Telegram group was created for Development Agents to share images which could be incorporated into the second version of the PTT.

See Evidence 3 and 7 in Annex 4.

2.3 Create other supporting training resources, including instructions for DAs in how to teach e.g. setting learning objectives. This has been done. Learning objectives, farmer activities, assessment ideas were developed for seven learning tools and incorporated into the prototype PTT.

2.4 Produce prototype PTT. That has been done. The materials, resources and topics (see 2.2 and 2.3 above) were combined to make one word document with seven learning tools.

2.5 Conduct pre-test training to check usability of the PTT. The pre-test training was held in 8 kebeles, (8 pre-test training groups). Each group holds 5 farmers as trainees and 2 DAs as trainers. A total of 40 (12F) farmers as trainees and 16 (5F) DAs as trainers participated in the pre-test training. As Development Agents started testing the prototype PTT we opened a Telegram group to share insect and flower photographs and video, collected in different locations – and this fed into Activity 2.2. Currently, the Telegram group comprises 53 agricultural experts and DAs working in the southern and northern parts of the country. Every member is sharing what he/she observes in relation to pollinating insects and flowers. The process of testing out the usability of the prototype PTT has been helpful for Development Agents and experts at different level, and project staff, to have common understanding and develop a successful Pollination Training Toolkit (PTT). As Development Agents have been testing the PTT with farmers, so too have they been learning, and there has been a remarkable change in the attitudinal change of experts and DAs towards pollination and pollinators.

2.6 Finalise Pollination Training Toolkit by incorporating feedback from Development Agents and farmers. Validation and feedback workshop was done on 28 January 2025 at Bahir Dar.

The PTT is now being created in e-learning software i-Spring Suite.

Activities under Output 3.

We delivered Activity 2.1 and 3.1 together. Staff and Development Agents 68 (21F) were trained together and these Development Agents have already tested the Toolkit and will in Year 2 serve as trainers of other Development Agents to achieve roll-out at scale.

3.2 Progress towards project Outputs

Output 1. Simple, replicable and appropriate pollination demonstration method i.e. depriving flowers of insect visits, tried, tested and developed for Ethiopian context.

The activities were done – as reported above. These activities have resulted in successful completion of this output. Overall, the results indicate that, the selected candidate crops and the pollination demonstration technique were appropriate and effective for demonstration and teaching purposes and to use in the Pollination Training Toolkit. It is worth repeating that the intention was to develop a demonstration technique and not to undertake scientific research about the impact on insect pollinators on these selected crops. To do that work would have required more treatments, more replications and more rigorous (precise) methodologies[5].

Development Agents (DAs) observed that the demonstration method is simple and effective for educating farmers about pollination and the role of pollinators.

Output 2. Pollination Training Toolkit (PTT) developed for Ethiopian context.

The Pollination Training Toolkit (PTT) is being developed in English and Amharic. This comprehensive document includes key topics, diagrams, photographs, a practical pedagogical approach, results from the demonstration techniques, and guidance on teaching pollination through a "learning by doing and seeing" approach.

The development of the toolkit involved close collaboration with partners and stakeholders. Their engagement in both the creation and evaluation of the document has fostered a sense of ownership, which will be instrumental in scaling up the technology to other woredas and kebeles.

The diagrams and photographs collected from our demonstration technique plots and from our Telegram group have been incorporated into the PTT to give it Ethiopian context. Following the PTT document development a pre-test training has been conducted to check the usability of the PTT document. Each tool comprises pre-training assessment questions, purpose of the training, classroom training, practical training at field level and self-assessment exercises.

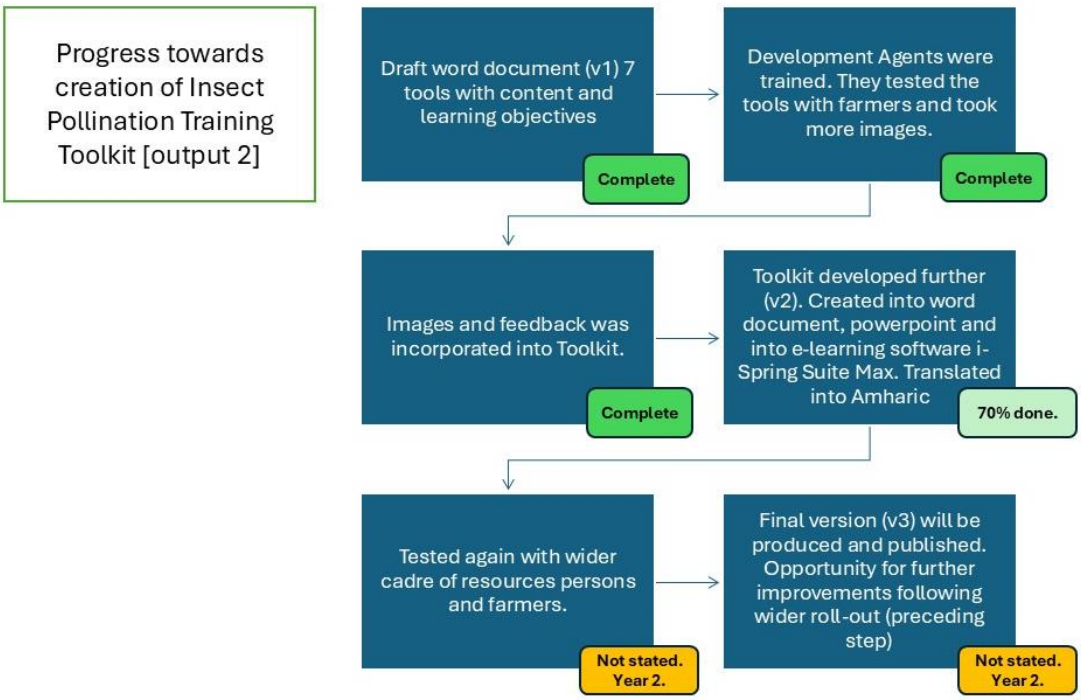
[5] Many solitary bees are ground-nesting. This was not considered when we set-up the demo plot for Niger seed, as the net only prevented flying insects from reaching the flowers. If any solitary bees emerged from nests in the ground of the plot – these would have been present inside the netted area.

Figure 6. Farmers participated in the pre-test at class room and practical field training

The Pollination Training Toolkit will be created as follows:

- An e-resource using iSpring Suite Max (see Evidence 5) – in English and in Amharic
- A printed document – in English and in Amharic

This is an iterative process, towards producing the final product.



Output 3 Development Agents have good skills and knowledge about pollination and how to teach

Development Agents 68 (21F) were trained together and of these 16 Development Agents have already tested the Toolkit and have started training farmers. See Evidence 3 in Annex 4.

Summary and next steps

The other activities under Output 3 and 4 will be addressed in Year 2 of the project (2025/26). In Year 1, we delivered more than our target. For example our target was to establish pollination demonstration plots at 4 Farmers Training Centers (FTC), whereas we set-up 8 pollination demonstration plots. Work towards completing the core output (Output 2) development of Pollination Training Toolkit (PTT) document, is nearly complete. The achievement of these two Outputs reveals that the Project is moving in the right track.

While Outputs 3 and 4 are expected to be achieved in 2025, preliminary results from pre-test trainings indicate that both Development Agents (DAs) and participating farmers have gained

solid knowledge and practical skills in pollination. They are also well-equipped to promote pollinator protection using the PTT. This early success suggests that broader DA training using the developed toolkit is likely to be highly effective.

3.3 Progress towards the project Outcome

3.3.1 By end of project period 360 DAs will be providing training about pollination as part of their normal work. In the process of testing the prototype PTT we have already trained 68 (21F) DAs and 40 farmers.

The main training roll-out phase will start in August 2025, during the flowering season.

3.3.2 By end of project two Regional Bureaus of Agriculture will report that they have improved capability and capacity towards protecting pollinators.

To date extension agents and senior officials from Amhara Regional Bureau of Agriculture and Southern Regional BOA are engaged, with representatives from departments of agriculture, livestock, and finance and economy. Project has received positive feedback and strong engagement. See Evidence 6 in Annex 4. This work will continue in Year 2.

3.3.3 By end of project the DAs will train 500 farmers who will make a change to their normal farm practice, to protect pollinators.

We have already engaged with 40 farmers and the remaining training will be done during the flowering season in 2025.

To achieve the project Outcome, Output 1 and 2 are preconditions and these have been achieved. Outputs 3 and 4 will be completed in Year 2.

We remain confident that we are on track to achieve the project Outcome and we remain confident that we can reach 360 Development Agents and convince government bodies to leverage change in farming practices towards protecting pollinators.

We are aware that challenges remain. It can take time for farmers and government extension services alike to re-frame their thinking about the need to protect pollinating insects and to change their farming practices to reduce pesticide use. There are strong pressures working against this change such as government policies which are advocating in favour of agriculture intensification, which includes increasing use of chemical inputs. This project aligns with More Bees Darwin-funded project Ref 29-021. These two projects are complementary as the More Bees project is demonstrating *how to* reduce pesticide use, and this PTT project is educating farmers about one of the direct and tangible benefits of using fewer pesticides.

We know that:

- Strong follow up is required to achieve a shift in overuse of agro-chemicals and an increase in implementation of IPM
- Strong monitoring is required to see how DAs are incorporating training about pollination, into their normal work plans
- Strong follow up is required to see how farmers are using new knowledge and changing practices.

3.4 Monitoring of assumptions

We have outlined 6 key assumptions to achieve our project Outcome. All assumptions hold true.

Assumption 1: Government Bureaux of Agriculture heads will maintain their commitment to instruct DAs to integrate pollination training and pollination protection as part of their normal work within and outside of the project area

Update: Bureau of Agriculture staff are showing good commitment to instruct DAs about pollinators and pollinators' protection

Assumption 2: Development agents will continue their willingness and commitment to integrate pollination training and pollination protection into their training programmes with farmers

Update: DAs are expressing their willingness and commitment to integrate training about insect pollinators and pollinators' protection into their normal training programmes

Assumption 3: The timing of the project period is conducive to flowering times, cropping seasons

Update: The starting time of the project was conducive, it was just ahead of the flowering season of the year.

Assumption 4: There may not be high exchange rate and inflation beyond the capacity of the project to absorb

Update: Although the inflation was high it was not beyond the capacity of the project to absorb, because the project budget was in pound (GBP) and the local currency experienced a major devaluation. In fact the opposite applied and we underspent – and we submitted a Financial Change Request and we carried forward £10,000.

Assumption 5: There may not be significant government staff turn-over during the project period

Update: There was no substantial government staff turn-over in the last 12 months

3.5 Achievement of positive impact on biodiversity and multidimensional poverty reduction

In application we stated short term changes and long term changes:

Short term

DAs, subject experts and resource persons will have knowledge, understanding and useful, proven, tools to enable them to fulfil their jobs roles effectively, as farmer trainers and educators. They will able to integrate training about pollination into their normal work and empower farmers with new understanding. Farmers will be empowered to make decisions about their farming practices which will ensure that their food and cash crops do not experience pollination deficit.

This change is beginning to happen as extension agents are already taking on the job of teaching farmers about insect pollination. Evidence 2&3 in Annex 4.

Long term

In the long-term farmers will begin to modify their farming practices to protect insect pollinators e.g. by reducing pesticide use, adopting IPM, maintaining habitat for pollinators. If farmers understand what pollinators need, they are more able to provide an agricultural landscape which includes pollen, nectar, water, nesting sites and materials needed by pollinators to complete their life cycles - hence enabling pollinators to thrive. This will benefit the overall productivity of oil-seed and horticultural crops.

This long term aim is still valid and complements the More Bees Darwin-funded project Ref 29-021 which is giving farmers practical alternatives to heavy pesticide use.

Insect pollinators represent a biodiverse group of native fauna in Ethiopia which deliver only positive services for people and farms – with consequent benefits for food and cash income. The project promotes this ecosystem service and is working towards conservation of insect pollinators. These insects have a direct and tangible role to play in poverty reduction via increasing crop productivity. Protecting these insects from loss, by teaching farmers about the importance of pollination services, and pollinators' conservation and care is the central objective of this project.

The two project areas, Lake Tana biosphere reserve in Amhara region, and Lake Chamo biosphere reserve in the Southern region, are highly used by local people to grow horticultural

crops. Various irrigation schemes are established around these lakes, to support horticulture. These areas are identified as a horticulture growth corridor by the Ethiopian government. Diversification into horticultural crops is becoming an avenue to poverty alleviation amongst many farmers around Lake Tana and Lake Chamo.

(PDF) AMHARA REGION HORTICULTURE DEVELOPMENT STRATEGY (2015-2019)

The Amhara Region Horticulture Development Strategy (ref above) states (amongst other targets) (1) Fruit and vegetable production will increase three times the current level in the region and (2) Participation of youths and women in fruit and vegetable sub-sector will increase from 1.6 to 5 million participants. If these targets are to be reached, pollinating insect populations must thrive. Yet the 117 page document does not include the words 'pollinator' or 'pollination' once and the word insect is only juxtaposed with 'pest'. This report underlines both the importance of horticulture for people and the need to elevate recognition of insect pollinators as being necessary inputs into sustainable farming systems.

When farmers understand the need to protect insect pollinators, and encourage their populations, they will be more open to adopting IPM approaches and will understand the negative trade-offs which result from pesticide use. Direct beneficiaries of this project include 360 DAs [270M, 90W], 10 subject experts [7M 3W], 34 resource persons [20M, 14W]. Within project period we will deliver training to farmers to test the PTT and to assess the capability of trained DAs, consequently 1000 farmers [60:40 MW] will be reached directly. Cascading training to more farmers will occur post-project.

As the Amhara strategy document indicates, millions of people in just one region alone [Amhara] derive income and food from insect pollinated horticultural crops.

4 Project support to the Conventions, Treaties or Agreements

Ethiopia signed the Declaration on the Coalition of the willing on Pollinators on the 17th of July 2017 – one of only two African nations to do so. It was signed by the Ethiopian Biodiversity Institute (EBI) to promote pollinator conservation. Following the adoption of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs) in September 2015, Ethiopia has proactively mainstreamed effort to meet the SDGs within its national Growth and Transformation Plan.

This project is working in line with these national and international plans, towards contributing to international commitments. This project has the potential to contribute towards achieving Ethiopia's commitment to Coalition of the willing on Pollinators, within the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), through building the capacity and capability of government staff to teach farmers about pollination service and insect pollinators. This project contributes to SDG 1, 2 and 15 through supporting sustainable farm incomes from crops and beekeeping, through supporting the production of nutritious, high-quality foods and through reducing harm caused to insect biodiversity on farms.

EBI is the Ethiopian focal point for the Convention on Biological Diversity. We had also an interaction with the Ethiopian Biodiversity Institute (EBI). **Assessment on the Policy Instruments Related to Pollinators and Pollination in Ethiopia** has been conducted as desk review in collaboration with EBI. In this assessment; policies, regulations and strategies of various institutes in Ethiopia which have a direct and/ indirect impact on pollinators were included. The assessment report was reviewed by various scholars and resource persons. For example Dr. Tadesse Amera, Executive Director of PAN Ethiopia is Co-Chair of International Pollutants Elimination Network (IPEN) and he reviewed the document and forwarded his valuable comments.

5 Gender Equality and Social Inclusion (GESI)

. GESI Scale	Description	Put X where you think your project is on the scale

Not yet sensitive	The GESI context may have been considered but the project isn't quite meeting the requirements of a 'sensitive' approach	
Sensitive	The GESI context has been considered and project activities take this into account in their design and implementation. The project addresses basic needs and vulnerabilities of women and marginalised groups and the project will not contribute to or create further inequalities.	
Empowering	The project has all the characteristics of a 'sensitive' approach whilst also increasing equal access to assets, resources and capabilities for women and marginalised groups	X
Transformative	The project has all the characteristics of an 'empowering' approach whilst also addressing unequal power relationships and seeking institutional and societal change	

In Ethiopia women are under-represented in agricultural extension leadership and expert roles, due to lack of access to education and employment opportunity – exacerbated by social norms which discourage women. Women professionals, for example, are less likely to participate in career development training because immediate supervisors underestimate female professionals understanding, knowledge and experience. Our project is working against this background.

We work actively to address misplaced perceptions which underestimate female professionals' capacity and ensure both men and women farmers and professionals have equal access to training and information services. This was achieved by fully including women DAs in the toolkit development and women farmers in the Toolkit pre-test training. About 31% of the toolkit testing participants and 27% of the toolkit development participants respectively were women farmers and women professionals. When we implement the mass DAs training in 2025-26, all women DAs in the target kebeles will attend the rollout training. In the last 12 months of the project period we noted that the contribution of women in shaping the PTT document and the understanding of women farmers' about the pollination concept, were really remarkable.

The images in Evidence 2 and 3 show good level of participation by women.

6 Monitoring and evaluation

Our approach to M&E centres around:

- good work planning, frequent review and adjustments to plans to keep project on track
- good documentation of work done, results achieved and storing this information systematically

The main tools that we use are:
Agreed project Logical Framework and Activity Plan
Teams meetings for frequent online meetings
Sharepoint for holding all project documents, including workplans and notes of review meetings, reports, images and other documents (accessed by BfD Ethiopia and UK)
Short activity reports are completed using KobotoolBox (accessed by BfD Ethiopia and UK)
BfDE prepares quarterly narrative and financial reports for submission to BfD UK

We can demonstrate that project Outputs and Activities of the project will lead to project Outcome because:

1. the project has been well designed with clear connection and project logic between components. For example, it is clear that achieving the Outcome of farmers having access to learning opportunities about pollination, must be made possible by extension agents having training tools (Output) and the training tool must be developed (Activity)

2. we know, and stakeholders tell us, that there are no other similar initiatives, so the intended Outcome, when achieved, can be attributed to project
3. feedback – we engage with stakeholders and seek their feedback and views on a regular basis. The project Telegram group is active and now has 53 members. This creates an instant and easy opportunity for us to see confirming evidence of what happens as a result of an activity.

M&E responsibilities are shared amongst all partners, however the bulk of the role falls to Bees for Development Ethiopia. Information is shared by email and on our Bees for Development Sharepoint site. We hold review meetings with partners online, using Teams, on a regular basis. When PAN-E travel to Bahir Dar for a specific activity, this affords an opportunity for a project review meeting.

Project activities were time sensitive. For example, the toolkit pre-test training programme could only be carried out in the flowering season in Ethiopia (September to October). The pre-test training has a practical component and we need to show flower parts for our farmers in the training. To achieve this as planned; the PTT document had to be prepared ahead of the flowering period. To prepare the PTT document supporting resources had to be collected. For example, collection of insect photos, flower photos could only be accomplished at specific times.

We also evaluated project Outputs and verified the time and resource efficiency of the project at operational level. For example the establishment of the pollination demonstration technique and the PTT document were set as Output indicators and during review meetings we verified that the indicators are accomplished as planned.

7 Lessons learnt

Throughout Year 1 of this project we have gained experience and learned many lessons.

We learned an important lesson about work planning. Most of the activities in this project were time sensitive – both in terms of sequence and in relation to the flowering season. If we delayed with one activity and did not accomplish it on time we could not proceed to the next activity. For example we had to work through the pollination demonstration technique before we could take photographs and include the photographs in the PTT document. The pollination demonstration results are vital components of the PTT document.

Overall, from this project we learnt that, time efficiency is essential in project management, especially in activities; which are sequential and the achievement of one activity is a prerequisite for the success of the next activity. We will use this lesson for the accomplishment of this project and other project activities.

We also learned about the difference between pedagogy and andragogy. In the original application we mistakenly used the term pedagogy (the science of teaching children) – whereas in fact the focus of the project is about adult education. The adult education trainer that we engaged helped us understand the key differences between teaching children and adults. Adults must be self-motivated to learn and have a vested interest in gaining the new knowledge and they must also fit the new knowledge within their existing framework of understanding. As an educator this is important, as without understanding the existing framework of knowledge new information may seem irrelevant or not clear for adult learners. With adults it is important that the learning is relevant and directly useful for them, otherwise they are not interested. This underpins our effort to contextualise learning about pollination in the local environment. There are many training resources about pollination on the internet – but these seem to abstract to most extension agents in Ethiopia, without being contextualised to local crops.

8 Actions taken in response to previous reviews (if applicable)

- The project is new and no previous feedback

9 Risk Management

- No new risks arisen, they are previously accounted. Risk register completed and attached.

10 Scalability and durability

The scaling-up process has already been considered in the planning stage and is in place as an integral part of the project.

In June 2024 we held a familiarization workshop with key stakeholders, including those government stakeholders who will take the lead on rolling out the learning going forward. In that meeting, the objective of the project, the contribution of pollination and pollinators for crop productivity and their present situation were shared with participants. Participants acknowledged the project idea and expressed their interest to work with the project.

In November 2024 the project provided an orientation training on the PTT tools for experts and DAs. After the training, trainees (the Development Agents) demonstrated how to teach farmers (topic selection, objective setting, and assessment). This shows that the capability of Development Agents is already increasing.

We aligned the project with our stakeholders, especially the Bureau of Agriculture via involving them in the PTT document development. In Year 2 we will assign government extension workers as resource persons for the mass DAs rollout training – about how to use the PTT.

In January 2025 version 2 of the PTT document was evaluated. In this meeting experts from Bureau of Agriculture, research organizations, and universities and non-governmental organizations were involved. Experiences of other toolkits were shared and issue of scalability was a discussion agenda. In this meeting participants learned how to teach farmers about pollination services and insect pollinators and expressed their interest to promote pollination and pollinators in their organizations. Ato Abebe and Ato Awoke from Amhara Bureau of Agriculture [at project evaluation meeting held 28 January 2025], expressed their interest on behalf of their organization to embed training about pollination and insect pollinators as an integral part of the agricultural extension system and to be a normal activity of DAs.

We are building a working relationship with Ethiopian Biodiversity Institute in a cross-project initiative with More Bees Darwin-funded project Ref = 29-021. The focus of this interaction is policy analysis about insect pollination. In March 2025 at Addis Ababa, the EBI presented their analysis of the policy instruments which support conservation of insect pollinators in Ethiopia, and the gaps. We learned that conservation efforts are mainly confined to environmental policies and not discussed in agricultural policies. This validates the need for this project – i.e. raising understanding that insect pollination supports sustainable agriculture and insect pollinators need to be respected and protected as ***inputs*** in farming.

Through knowledge gained as a result of this project, farmers will be empowered to have more agency in deciding how they manage their farms.

The project's core output (the PTT product) will persist and be available for any user in Ethiopia post-funding. We intend to make an e-copy available via the Ethiopian Agriculture Training Portal and this will help to embed learning about insect pollinators in the normal extension system.

11 Darwin Initiative identity

The Darwin Initiative logo has been well promoted in banners, training materials, and presentation slides during project launch, training sessions, policy familiarization events, and field visit activities. In Ethiopia, all projects delivered by NGOs must be approved and monitored by all relevant government departments i.e. those administratively in charge of the project location and those in charge of related sectors. This immediately presents an opportunity for Darwin Initiative, and this funded project, to be strongly recognised. The Bureau of Finance and Economic Cooperation, Bureau of Agriculture, Livestock and Fishery Resource Development Office are all very aware of the Darwin Initiative because of this. Through this project the Darwin Initiative is also highly recognized by federal institutes like Bahir Dar University, and The Ethiopian Biodiversity Institute. The project activities and achievements are highly promoted in various platforms such as WhatsApp, Telegram groups of the project.

12 Safeguarding

[redacted]

13 Project expenditure

Table 1: Project expenditure <u>during the reporting period</u> (1 April 2024 – 31 March 2025)

Project spend (indicative) since last Annual Report	2024/25 Grant (£)	2024/25 Total Darwin Initiative Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)	[redacted]			
Consultancy costs				

Overhead Costs	[redacted]
Travel and subsistence	
Operating Costs	
Capital items (see below)	
Others (see below)	
TOTAL	

Table 2: Project mobilised or matched funding during the reporting period (1 April 2024 – 31 March 2025)

	Secured to date	Expected by end of project	Sources
Matched funding leveraged by the partners to deliver the project (£)	[redacted]	[redacted]	Bees for Development unrestricted funds
Total additional finance mobilised for new activities occurring outside of the project, building on evidence, best practices and the project (£)	[redacted]	[redacted]	

14 Other comments on progress not covered elsewhere

No other comments not covered else were

15 OPTIONAL: Outstanding achievements or progress of your project so far (300-400 words maximum). This section may be used for publicity purposes.

I agree for the Biodiversity Challenge Funds to edit and use the following for various promotional purposes (please leave this line in to indicate your agreement to use any material you provide here).

In this section you have the change to let us know about outstanding achievements for your project or significant strides towards attaining a particular goal so far that you consider worth sharing with the wider BCFs community.

File Type (Image / Video / Graphic)	File Name or File Location	Caption including description, country and credit	Social media accounts and websites to be tagged (leave blank if none)	Consent of subjects received (delete as necessary)
				Yes / No
				Yes / No
				Yes / No
				Yes / No
				Yes / No

Annex 1: Report of progress and achievements against Indicators of Success for Financial Year 2024-2025

Project summary	Progress and Achievements April 2024 - March 2025	Actions required/planned for next period
Outcome: Farmers in vegetable and fruit growing districts of Ethiopia have access to appropriate training about the role of pollinators and how to safeguard their Populations, delivered through government extension service.		
Outcome indicators 0.1 360 Development Agents [90W 270M all adults] (government) reporting that they are actively integrating pollination (biodiversity) training as part of their normal farmer-training work 6 months after being trained. [DIA05].	Good indicator- Yes we can achieve, and work in progress. We have already trained 21W and 47M Development Agents. See Section 3.3.1 and Evidence 2 in Annex 4.	Rollout training will be carried out in this year (2025-26)
Outcome indicator 0.2 Two Regional Bureaus of Agriculture (government bodies) report that they have improved capability and capacity to leverage change in farming practices towards protecting pollinators as a result of project [DI-A03]	Good indicator- Yes we can achieve, and work in progress. We have already engaged with two Bureaus in Amhara and in Arba Minch during project launch and senior government officials attended and are engaged. See Section 3.3.2 and Evidence 8 and 6 in Annex 4.	Rollout training will be carried out in this year (2025-26)
Outcome indicator 0.3 500 farmers [200W 300M all adults] report that they have made one change in their normal farming practice 6 months after being trained by DAs towards protecting pollinators [DI-A04].	Good indicator- Yes we can achieve, and work in progress. We have trained 40 farmers in the testing phase. See Section 3.3.3 and Evidence 2 and 6 in Annex 4.	Rollout training will be carried out in this (2025-26)
Output 1 Simple, replicable and appropriate pollination demonstration method, i.e. depriving flowers of insect visits, tried, tested and developed for Ethiopian context.)		
Output indicator 1.1 Four pollination demonstration plots in Farmers Training Centers (FTCs)established and used to develop a replicable pollination demonstration method (2 in each region), within six months of start	Achieved successfully. Target was 4 pollination demonstration at FTC and we reached 8 (2 in southern region and 6 in Amhara region). See Section 3.1 and Evidence 3 in Annex 4.	The result is incorporated in the PTT document
Output indicator 1.2, Full replicable insect deprivation demonstration method developed and documented, with preferred Candidate species, resources and equipment, by end of year 1.	Achieved successfully. The demonstration methods developed and documented with the 3 preferred candidate crops. See Section 3.1 and Evidence 1 in Annex 4.	It will be published in the 1st quarter of year 2
Output 2. Pollination Training Toolkit (PTT) developed for Ethiopian context specifically for Development Agents, comprising topics, diagrams, photographs, pedagogical approach, and how to demonstrate pollination 'by doing and seeing'.		

Output indicator 2.1. 6 [4M 2W adults] people from implementing partners (NGOs and government) complete structured and relevant training in pedagogical approaches suitable for farmers who learn by doing [so they can create a high quality Toolkit]. Within first six months [DI-A01].	Achieved successfully. We targeted to train 6 and this was achieved. See Section 3.1 (page 4) and Evidence 2 in Annex 4. The staff were trained at the same event as the Development Agents.	The trainees are participating in creating the PTT document
Output indicator 2.2. Training resources developed including photographs of flowers, pollen, insects carrying pollen, within 9 months.	Diagrams and photographs are collected from our demonstration technique plots and from our Telegram group. See Evidences 2, 3 and 7 in Annex 4.	The developed resource materials are included in the PTT document
Output indicator 2.3 Prototype Pollination Training Toolkit (PTT) developed and tested by small group of DAs and farmers by end of year 1.	Achieved successfully. The PTT document developed and tested by DAs and farmers. See Evidences 2 and 3 in Annex 4.	Will be used for mass training of DAs
Output indicator 2.4 One Pollination Training Toolkit (PTT) (with instructions, supporting resources, and demo technique protocol) published by qu 1 of year 2.	Good progress - two versions of PTT document developed. See Evidences 4 and 5 in Annex 4.	It will be published this quarter
Output 3. Development Agents have good skills and knowledge about pollination and how to teach the need for pollinator protection to farmers, using the Toolkit Developed above.		
Output indicator 3.1. 34 government agriculture staff (20M 14W all adults) (regional 10, zonal 9 and woreda level 15) in two regions complete structured training in pedagogical approaches and in how to use the PTT, so they can serve as resource persons and train others, by end of year 1. 100% employed by government by end of project [DIA01]	Good indicator 68 (21 F) in two regions have been trained in pedagogical approaches and in how to use the PTT. See Section 3.1 (page 4/5) and Evidence 2 in Annex 4.	Resource persons who will support the project to roll-out the training to wider group will be targeted
Output indicator 3.2. 360 Development Agents [90W 270M all adults] (government) complete structured training trained in pollination and how to use the PTT to train farmers by qu 2 of year 2 [DI-A01]	Good indicator- Yes we can achieve, and work in progress (year2)	DAs in the three target woredas in both region will participate
Output indicator 3.3. 40 pollination demos [depriving flowers from insects] set-up by DAs at Farmer Training Centres and used to train farmers by qu 2 of year 2.	Good indicator- Yes we can achieve, and work in progress (year2)	FTC suitable for demonstration purposes will be selected
Output 4 Pollination training integrated in crop production, pest control and natural resource management training (in selected districts within project lifetime), as directed by Regional Bureaus of Agriculture		
Output indicator 4.1. 20 higher officials, and department/unit heads (Region to woreda) attended awareness creation training about pollination and pollinators protection in qu 3 of year 1.	Good indicator. This was not done in Year 1 – will be done in Year 2	Will be done in Qu 2 of Year 2.

Output indicator 4.2. At least 2 Regional Bureaus of Agriculture adopt and integrate pollination as part of standard training, as normal part of DA work, by end of project.	Good indicator - Yes we can achieve,	1 each region
Output indicator 4.3. Government departments disseminate the PTT to at least 20 additional kebeles, outside of those included and targeted within the project, by end of project.	Good indicator- Yes we can achieve, and work in progress	7 kebeles in each woreda will be targeted

Annex 2: Project's full current Indicators of Success as presented in the application form (unless changes have been agreed)

Project summary	SMART/Measurable Indicators	Means of verification	Important Assumptions
Outcome: Farmers in vegetable and fruit growing districts of Ethiopia have access to appropriate training about the role of pollinators and how to safeguard their populations, delivered through government extension service.	**1**. 360 Development Agents [90W 270M all adults] (government) reporting that they are actively integrating pollination (biodiversity) training as part of their normal farmer training work 6 months after being trained. [DIA05]. **2**. Two Regional Bureaus of Agriculture (government bodies) report that they have improved capability and capacity to leverage change in farming practices towards protecting pollinators as a result of project [DI-A03] **3**. 500 farmers [200W 300M all adults] report that they have made one change in their normal farming practice 6 months after being trained by Das towards protecting pollinators [DI-A04].	**1.** Interviews with Development Agents about how they are integrating pollination training as part of their normal work. **2.** Interviews with staff of Regional Bureaus of Agriculture. **3**. Interviews with a selection of farmers whether they have accessed training about pollination and the difference it makes to their practice.	The project partners will pursue their commitment to implement the proposed activities.
Output-1: Simple, replicable and appropriate pollination demonstration method, i.e. depriving flowers of insect visits, tried, tested and developed for Ethiopian context.	1.1 Four pollination demonstration plots in Farmers Training Centers (FTCs) established and used to develop a replicable pollination demonstration method (2 in each region), within six months of start. 1.2 Full replicable insect deprivation demonstration method developed and documented, with preferred candidate species, resources and equipment, by end of year 1.	**1.1** Field reports, photographs and equipment delivery voucher. **1.2** Pollination demonstration method document.	The demo method will be appropriate for the educational level of the trainees – this is particularly important for smallholder farmers, many of whom may have little schooling.
Output-2: Pollination Training Toolkit (PTT) developed for Ethiopian context specifically for Development Agents, comprising topics, diagrams, photographs, pedagogical approach, and how to demonstrate pollination 'by doing and seeing'.	**2.1** 6 [4M 2W adults] people from implementing partners (NGOs and government) complete structured and relevant training in pedagogical approaches suitable for farmers who learn by doing [so they can create a	**2.1** Record of training delivered, to whom, and pre and post assessment of trained staff **2.2** Hard evidence of supporting training resources, especially images	

	high quality Toolkit]. Within first six months [DI-A01]. **2.2** Training resources developed including photographs of flowers, pollen, insects carrying pollen, within 9 months. **2.3** Prototype Pollination Training Toolkit (PTT) developed and tested by small group of DAs and farmers by end of year 1. **2.4** One Pollination Training Toolkit (PTT) (with instructions, supporting resources, and demo technique protocol) published by qu 1 of year 2.	**2.3** Hard evidence of prototype PTT and feedback report from testing. **2.4** Hard evidence of published Pollinators Training Toolkit (PTT).	
Output-3: Development Agents have good skills and knowledge about pollination and how to teach the need for pollinator protection to farmers, using the Toolkit developed above.	**3.1** 34 government agriculture staff (20M 14W all adults) (regional 10, zonal 9 and woreda level 15) in two regions complete structured training in pedagogical approaches and in how to use the PTT, so they can serve as resource persons and train others, by end of year 1. 100% employed by government by end of project [DIA01] **3.2** 360 Development Agents [90W 270M all adults] (government) complete structured training trained in pollination and how to use the PTT to train farmers by quarter 2 of year 2 [DI A01] **3.3** 40 pollination demos [depriving flowers from insects] set-up by DAs at Farmer Training Centers and used to train farmers by quarter 2 of year 2.	**3.1** Record of training delivered and pre and post assessment of trained resource persons **3.2** Evidence of new knowledge, gained by interviewing sample of rollout training attendees 6 months after the training- asking how they have put learning into practice. **3.3a** Images of pollination demos **3.3b** Interviews with farmers to ask about their learning	
Output-4: Pollination training integrated in crop production, pest control and natural resource management training (in selected districts within project lifetime), as directed by Regional Bureaus of Agriculture'	**4.1**. 20 higher officials, and department/unit heads (Region to woreda) attended awareness creation training about pollination and pollinators protection in quarter 3 of year 1.	**4.1**. Evidence of new knowledge, gained by interviewing sample of attendees 6 months after the training-asking how they have put learning into practice.	We assume that government is committed to integrate pollination topic to its regular training contents.

	4.2. At least 2 Regional Bureaus of Agriculture adopt and integrate pollination as part of standard training, as normal part of DA work, by end of project. **4.3**. Government departments disseminate the PTT to at least 20 additional kebeles, outside of those included and targeted within the project, by end of project.	**4.2**. Evidence of pollination integration as normal part of Das work by interviewing sample Das of the target kebeles 6 months after the training - asking who instructed them to do it. **4.3**. Evidence of PTT distributed outside of the project kebeles.	
Activities			
1.1 Select candidate crops to develop pollination demo technique, depriving flowers from insect-visits			
1.2 Establish tests to assess which of the candidate crops prove to be most reliable, quick and effective for demo and teaching purposes and create replicable demo technique with equipment, method and assessment approach.			
1.3 Document pollination demo technique in an easy-to-use format			
2.1 Train key staff in pedagogical skills, so they have the skills they need to develop the full Pollination Training Toolkit			
2.2 Take photographs of insects, flowers, different bees carrying pollen			
2.3 Create other supporting training resources including instructions for DAs in how to teach - i.e. learning objectives, topics, assessments			
2.4 Produce prototype PTT			
2.5 Conduct pre-test training to check the usability of the PTT (6 selected DAs with small groups of farmers), evaluate and assess			
2.6 Finalize Pollination Training Toolkit by incorporating feedback.			

3.1 Select and train a cadre of resource persons who will support the project to roll-out the training to wider group of DAs			
3.2 Provide rollout training to the wider group of Development Agents about pollination, pollinator's protection and how to use the PTT.			
3.3 Assess the success of the rollout by seeking feedback from DAs and farmers they have trained.			
4.1 Conduct awareness creation (sensitization) workshop on the importance of pollination and pollinators conservation for higher officials, and department/unit heads at Region to woreda (district) level.			
4.2 Conduct consultation meeting with region and zone officials and department/unit heads about the integration of pollination training in crop production, pest control and natural resource management trainings.			
4.3 Publish and distribute Pollination Training Toolkit (hard copy and electronic means) - with e-copy being made available via Ethiopian Agricultural Training Portal.			
Other Project Activities			
1. Project familiarization workshop			
2. Baseline survey			
3. Project final evaluation			
4. Project final evaluation by government signatories			

Annex 3: Standard Indicators

Table 1 Project Standard Indicators

Please see the Standard Indicator guidance for more information on how to report in this section, including appropriate disaggregation.

DI Indicator number	Name of indicator	If this links directly to a project indicator(s), please note the indicator number here	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DI-A01	Number of people complete structured and relevant training [In this project structured and relevant training has been delivered on pedagogical approaches suitable for farmers who learn by doing and in how to use the Pollination Training Toolkit]	2.1 and 3.1	Number of people	47 Men 21 Women	68				Target was 38
DI-A02	Number of local or national organisations with enhanced capability and capacity.	Outcome Indic. 2	Organisation						2 Regional Bureau of Agriculture
DI-A04	Number of people reporting that they are applying new capabilities (skills and knowledge) 6 (or more) months after training.	Outcome Indic. 3	Number of people	200 women 300 men					200 women 300 men
DI-A05	Number of trainers trained under the project reporting to have delivered further training.	Outcome Indic. 1 and 3.2	Number of people	270 Men 90 Women	11 Men 5 Women				270 Men 90 Women
DI-A03	Number of best practice guides and knowledge products published and endorsed [in this project = one Pollination Training Toolkit]	2.3 and 2.4	Number of doc	Ethiopia In English and in Amharic	1 (draft)				1

Table 2 Publications

Title	Type (e.g. journals, best practice manual, blog post, online videos, podcasts, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
Insect Pollination Training Toolkit for Ethiopia	Training course (e-version and hard copy version)	In prep				In prep

Checklist for submission

	Check
Different reporting templates have different questions, and it is important you use the correct one. Have you checked you have used the **correct template** (checking fund, scheme, type of report (i.e. Annual or Final), and year) and **deleted the blue guidance text** before submission?	X
Is the report less than 10MB? If so, please consider the best way to submit. One zipped file, or a download option is recommended. We can work with most online options and will be in touch if we have a problem accessing material. If unsure, please email to BCF-Reports@niras.com putting the project number in the Subject line.	X
Is your report more than 10MB? If so, please discuss with BCF-Reports@niras.com about the best way to deliver the report, putting the project number in the Subject line.	X
Have you included means of verification? You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	X
Have you provided an updated risk register? If you have an existing risk register you should provide an updated version alongside your report. If your project was funded prior to this being a requirement, you are encouraged to develop a risk register.	X
If you are submitting photos for publicity purposes, do these meet the outlined requirements (see section 15)?	
Have you involved your partners in preparation of the report and named the main contributors	X
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