Applicant: CASSELL, DAPHNE

Funding Sought: £19,919.00

## **DPLR4\1041**

## A SUSTAINABLE SHELTERED HORTICULTURE PRODUCTION SYSTEM FOR ENDEMICS AND NATIVES

This Project entails infrastructure enhancement for the propagation of endemics Epidendrum montserratense (Montserrat orchid) and Rondeletia buxifolia (Pribby) and native plants eg Guaiacum officinale (Lignum vitae) of Montserrat, whose population has declined due to pests, diseases and/or volcanic fallout.

It includes the replacement of deteriorating shade structures and water harvesting/irrigation mechanisms with more climate resilient materials, to boost local plant production, fostering:

- (i) strategic partnering to implement biodiversity programmes, and;
- (ii) learning visits for school children, youth and conservationists.

## **DPLR4\1041**

A SUSTAINABLE SHELTERED HORTICULTURE PRODUCTION SYSTEM FOR ENDEMICS AND NATIVES

## **Section 1 - Project Title & Contact Details**

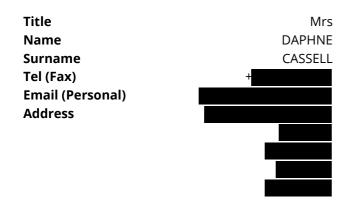
## Q1. Project Title

A SUSTAINABLE SHELTERED HORTICULTURE PRODUCTION SYSTEM FOR ENDEMICS AND NATIVES

# Q2. Please select whether you are applying as an organisation or as an individual (Guidance section 3 and Guidance Glossary)

• Individual\*

#### **CONTACT DETAILS**



\*If applying as an individual, you must open a separate project bank account used solely for your grant payment, if successful. This will be checked by the fund administrators. The maximum amount individuals can apply for from Darwin Plus Local is £20,000. Individual applicants will also be asked to provide: proof of identity, proof of solvency (e.g. bank statement), and a police check, if successful.

## Section 2 - Overseas Territory(ies)

Q3. Please state whether the same (or similar) project proposal has previously been submitted to the UK Government for funding, including through Darwin Plus Local, Defra's other Darwin Plus grant schemes or other UK Government funding mechanisms. Failure to do so may result in the application being ineligible.

No

### Q4. Overseas Territory (Guidance section 1.3):

Which UK Overseas Territory(ies) will your project be working in? Please note that in case of a non-permanent resident population you need to demonstrate a clear, meaningful, long-term link to the territory.

☑ Montserrat

\* if you have indicated a territory group with an asterisk, please give detail on which territories you are working on here:

Not applicable

In addition to the UKOT(s) you have indicated, will your project directly benefit any other UK OT(s) or country(ies)?

No

## **Section 3 - Project Partners**

### Q5. Project partners (Guidance section 3.2)

In this section, please give details of all the partners involved (including the Lead Organisation) and provide a summary of their roles.

Daphne S Cassell
Not applicable
Not applicable
<b>⊙</b> Yes
Department of Environment, Ministry of Lands, Housing and the Environment, Government of Montserrat, Brades, MONTSERRAT
Montserrat National Trust, Salem, MONTSERRAT

The Project Leader will be responsible for overall project management, including procurement, accounting, education and awareness programming, project evaluation & reporting and plant propagation.

Department of Environment, Ministry of Lands, Housing and the Environment, Government of Montserrat

The Department has benefitted from collaboration with the Project Leader on various conservation projects and programmes. One notable project is the Darwin Garfield Weston Tree Seed project. To assist in the fulfilment of the Project's objectives, the project leader donated over 200 seeds from a mature (24+ years) Lignum vitae plant in her home garden, shown as Figure 1, over the period September 2019 to October 2020. Lignum vitae is a native tree promoted by the Department for its climate resilience and aesthetic attributes.

Summary of roles and responsibilities of each partner in the project:

With the sustainable production to be derived from the Darwin local funding, the partner will be able to secure increased quantity of seeds & plants for their biosecurity initiatives. A photo image of Lignum vitae seedlings donated to the Department in April 2024 for planting in green spaces across Montserrat is shown at Figure 3.

Montserrat National Trust

The Montserrat National Trust is an internationally recognized institution for biodiversity conservation and cultural heritage. The project leader as a Member of the Trust has served on the Garden Committee, chaired the Flower Show Committee, among other roles.

The longstanding association with the Trust and the realization of this Project will strengthen this relationship along with accessing advice on sustainable use of composting and other locally produced potting medium.

I confirm that all listed partners are aware of this application and have indicated support:

Checked

#### Attach a Cover Letter for your application (Guidance section 4.2).

- 选 DPLR4 1041 Cover Letter
- **ii** 23/06/2024
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- pdf 616.85 KB

## Section 4 - Project Summary & Description

## Q6. Project Summary (Guidance section 3.8)

Please provide a brief summary of your project. This may be used in communication activities and/or published online, if your application is successful.

This Project entails infrastructure enhancement for the propagation of endemics Epidendrum montserratense (Montserrat orchid) and Rondeletia buxifolia (Pribby) and native plants eg Guaiacum officinale (Lignum vitae) of Montserrat, whose population has declined due to pests, diseases and/or volcanic fallout.

It includes the replacement of deteriorating shade structures and water harvesting/irrigation mechanisms with more climate resilient materials, to boost local plant production, fostering:

- (i) strategic partnering to implement biodiversity programmes, and;
- (ii) learning visits for school children, youth and conservationists.

## Q7a. Description (Guidance section 2.1 and 6)

#### Please provide a description of your project, including:

- the overall objective
- the current situation and the problem the project is trying to address
- · what success will look like and how you will measure it.

Please be as specific as possible when describing the project, using quantified data and evidence where available. You may wish to consider: what are the specific threats to the environment that the project will attempt to address, and what should we know about these threats? What does your successful project look like? And how will you demonstrate whether and how your project has been successful?

#### **BACKGROUND**

A basic assessment of the biodiversity and number of endemic and native trees within the protected forest conducted by the Department of Environment (DoE) indicated a decline in the population of the Epidendrum montserratense (Montserrat orchid). This decline is attributed to the impact of volcanic ash. The DoE has indicated a desire to propagate and reintroduce the Montserrat Orchid to familiar areas within the protected forest and other strategic locations. The Rondeletia buxifolia (Pribby) and Guaiacum officinale (Lignum vitae) have also declined in numbers over the years due to pests and development pressures.

The climate resilient structure in this project better facilitates propagation with higher success rates. This targeted propagation of endemic and native plants under optimized conditions will not only improve plant health and development but will benefit local conservation projects carried out by individuals and/or institutions.

The Project Leader is an avid horticulturist/plant enthusiast, growing ornamentals, endemics and native plants, since 1995. With this love for nature and biodiversity, the Project Leader currently optimizes 705+ sq ft of shadehousing and 300 gallons rainwater harvesting capacity (see Figure 4). However, the materials utilized are not climate resilient nor insect proof and this has negatively impacted plant development.

#### **OBJECTIVE**

To design and construct a 576 sq ft production system for the propagation of endemics and natives, contributing to the conservation of the island's biological resources and education of individuals on endemic and natives of Montserrat

#### PROBLEM(S) TO BE SOLVED

Inhibited biodiversity production

In the past, the project leader has donated lignum vitae seeds and seedlings to the Department of Environment. However, the current infrastructure for plant propagation does not lend itself to sustained propagation of these endemics/natives, given water starvation and incorrect shade percentage. An upgrade to the infrastructure will

optimize propagation of named endemics and native plants and in the process promote environmental sustainability through nature-based solutions.

#### Lack of climate resilient production system

The production system in use over the last twenty five (25) years comprised of shade structures built from treated lumber, non-standard benches and primarily watering with tap water. Given the rapid deterioration of the wood structures, the frequent replacements have influenced increases in maintenance costs. Therefore, urgent improvements are needed: infrastructure accommodating 1,000+ plants constructed of durable materials, 233% increase of rainwater harvesting capacity to 1000 gallons and an integrated solar powered irrigation system.

#### **SUCCESS**

Implementation of the project will reduce the proliferation of invasive species through increased prodiction of endemics and natives. In addition, the project activities will build on existing collaboration with the Department of Environment, and the Montserrat National Trust. Another batch of 100+ lignum vitae seedlings (Figure 2) is being propagated and nurtured for donation to the Department of Environment for transplanting in greenspaces and protected areas.

The following outreach and education initiatives are targeted during the project implementation period:

- participating in Market Days and other promotions & expositions;
- hosting of an Open House to commission and showcase the production system, and;
- distribution of branded products to raise awareness of different target audiences about endemics and native plants.

#### Measures of Success

The success indicators in the post-project implementation phase, on an annual cycle, include:

- No of endemics and native plants [donated or sold] for planting in community green spaces, home gardens and work

#### environments;

- No of visitors/patrons by category [children; adults; conservationists] experiencing biodiversity and horticultural delight, and;
- No of promotion and exposition events participated in, for educational outreach.

## Q7b. Long-term sustainability (Guidance section 2.1 and 6)

## Please describe the long-term benefits of the project and the change it will bring about. How will the outcomes of the project be sustained after the funding is finished?

The focus on these species improves the island's climate adaptation, as native and endemic trees are better able to withstand climate shock, to include drought and flooding impacts.

The climate resilient approach in construction will lead to greater protection against loss and damage from climate extremes. Therefore, the new production system will serve as a model to other growers of the resiliency of material choice, along with the advantages of incorporating climate smart technology.

Lignum vitae trees support soil stabilization on slopes for watershed area protection. The Montserrat Orchid as an endemic has significant conservation value. Propagating and returning to its natural environment will enhance the forest ecosystem as well as preserve this plant species for many years.

The awareness programmes and conservation learning space in the design concept are key modalities for educating locals on native and endemic varieties. It is anticipated that this will bring about positive attitudinal

changes, environment and biodiversity consciousness which can translate into economic and social benefits.

Additionally, the partnerships developed with stakeholders who prioritize conservation will encourage knowledge sharing and compliance to environmental best practice.

Overall, the project outcomes will support livelihoods and enhance tourism.

(Optional) Please upload any additional and supporting materials or files (such as maps of project sites, etc) below. Maximum of 5 sides of A4, and is combined as a single PDF:

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- O 19:13:08
- pdf 2.63 MB

### Section 5 - Project Outcome(s)

## Q8. Project Outcome(s) (Guidance section 1.2)

Successful Darwin Plus Local projects must demonstrate measurable outcomes in <u>at least one of the</u> <u>themes of Darwin Plus with a clear focus on biodiversity and the natural environment</u>, either by the end of the project or soon after through a credible plan.

Please note: Any proposals including research or monitoring are required to demonstrate a clear link to tangible outcomes for conservation of biodiversity and the natural environment. Please explain how any new research will be applied to drive environmental outcomes on the ground.

<u>Please confirm that your project has a clear focus on biodiversity and the natural environment.</u>

Checked Checked Biodiversity: improving and conserving biodiversity, and slowing or reversing biodiversity loss and degradation;

Please tick which additional theme(s) of Darwin Plus your project contributes to (if relevant):

on the natural environment and local communities;

Checked Environmental quality: improving the condition and protection of the natural environment

Climate change: responding to, mitigating and adapting to climate change and its effects

Capability and capacity building: enhancing the capacity within OTs, including through community engagement and awareness, to support the environment in the short- and long-term.

Please justify your selection. Please use quantitative information where possible here.

#### **Biodiversity**

Increased availability of endemics/natives for reforestation and afforestation; Increase in wildlife linked to species of interest fostering a resilient ecosystem, and; Promotion of the recovery of natural habitats.

#### Climate change

Utilization of resilient and adaptable infrastructure, and;

The increased planting of trees supports carbon sequestration thus combating the impacts of climate change

#### **Environmental quality**

The greenspace and water resource management from afforestation and reforestation activities

#### Capability and capacity building

The public, including school children and horticulturists will benefit from social media and promotion events eg Produced in Montserrat Expo and Women & Festivals Market Days.

## Section 6 - Workplan

## Q9. Workplan (Guidance section 2.2)

<u>Please provide anticipated dates for the start and end of your planned project here.</u> Please use the <u>Darwin Plus Local Project Workplan</u> (available at: <a href="https://darwinplus.org.uk/apply/local-applications/">https://darwinplus.org.uk/apply/local-applications/</a>) to provide a list of the individual activities you have planned for this project, a brief description of what each activity entails, and the months in which the activities will be carried out. If the project involves only one activity (e.g. a purchase), please still provide project start and end dates (noting estimated times for procurement). Please note that your project must start after 1 October 2024 and be completed by 31 March 2025.

Start date:	End date:	Duration (e.g. 3 months):
02 October 2024	31 March 2025	6 months

## Please upload the completed Darwin Plus Local Project Workplan with your proposed project activities here

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- pdf 127.69 KB

#### **Section 7 - Costs**

# Q10. Costs (Guidance section 2.2 and please read the Finance Guidance)

Please provide a breakdown of costs to be funded through Darwin Plus Local (in GBP). Are you seeking any matched funding for this project?

#### No

Budget line	Explanation	Cost in GBP
Staff costs:	Labour services relating to project supervision and wages for tradesman and labourer	£
Consultancy costs:	Not applicable	£0.00
Overhead costs:	Not applicable	£0.00
Travel & subsistence costs:	Not applicable	£0.00
Operating costs:	Costs for hire of heavy equipment to prepare site; transportation of materials for erection of structure and refreshments for Open House Event: national dish – goat water, coconut water and local fruit juices	£
Capital equipment:	Costs related to:  • Materials for shade structure – concrete blocks and aggregate for flooring, metal pipes with protective coating and connectors for superstructure; ground cloth; shade panels, and plant benches;  • Water Harvesting and Irrigation System – 1,000 gallon water tank, solar water pump, solar panel and fittings, irrigation tubing, sprinklers and water timer;  • Nursery Supplies – nursery pots, labels, display unit and 3-seater bench/Conservation Learning Space, and;  • Installation of Plants – purchase of plants, potting mix, including compost and coconut fibre from the National Trust	£
Other Costs	Costs relating to materials for education and awareness programmes, freight and other charges for imported materials (ground cloth, shade cloth, pipe connectors and nursery pots) and bank charges	£
Total:		19,919.00

This section provides more information on the budget to help evaluators understand how you will use the funds you are requesting. You do not need to list all costs, but please list and detail costs of more than £1,000 per item below, under the appropriate budget line.

#### Details of staff costs over £1,000 (if relevant)

Labour services for construction of sheltered production system - £

- Project Supervisor/Contractor to oversee erection of shade structure and irrigation system consistent with design specifications at of total non-staff costs, and;
- Wages for two (2) Workers -Tradesman and Labourer for 4 weeks, to prepare foundation, apply protective coating and mount metal pipes for superstructure, install shade panels and setup plant benches

#### Details of overhead costs over £1,000 (if relevant):

None

Details of travel and subsistence costs over £1,000 (if relevant):

None

Details of operating costs over £1,000 (if relevant):

None

#### Details of capital equipment costs over £1,000 (if relevant):

- Metal pipes and connectors to form the framing for the shadestructure £
- Shade cloth material to cover roof and sides of structure £
- Bench tops cost of expanded metal that will be placed on concrete blocks for plant benches £
- Solar water pump, solar panel, fittings and installation £
- Nursery pots purchase of growing pots to install plants, with selection of pots with anti-spiral system and net bottom suitable for the cultivation of endemics, natives, forest plants and fruit trees and net pots for orchids £

Details of consultancy costs over £1,000 (if relevant):

None

Details of other costs over £1,000 (if relevant)

None

If your project budget was prepared in another currency and converted to GBP, please provide the exchange rate, its source, and the date it was accessed:

Other currency:	Exchange rate:	Source of this exchange rate:	Date exchange rate accessed:
Eastern Caribbean XCD\$	3.3245	Bank of Montserrat	21 June 2024

Darwin Plus Local has been created to build capacity and contribute to local economies in-territory.

What % of the total will be spent in the OTs?



If less than 80% of the total project spend is to be spent within the OT(s), please explain why.

Not applicable

#### **Section 8 - Local and National Priorities**

## Q11. Local and national priorities

Please explain how this project aligns with local and national priorities? You may wish to consider the project in the context of national environmental laws, objectives, strategies, territory specific agreements, action plans or policies.

The Department of Environment's 2023-24 Operational Plan outlines as a key strategy "Conserve and manage the sustainable use of biodiversity through the implementation of Conservation and Environmental

Management Act". Activities under this Strategy include the development of green spaces, propagation of ornamentals, fruit trees and management of the protected forest". This project aligns very strongly with this key strategy. It further builds on this through the demonstrations of collaboration with key partners in the private sector ensuring that the message of plant conservation and environmental sustainability are consistently applied and promoted.

The draft Climate Change Policy and Action Plan endorsed by the Department of Environment speaks to water resource management and climate resilient structures and the goal of the policy is to achieve climate resiliency through integrated and coordinated response, prioritizing climate change responses across all sectors of the society

Youth Engagement & Development and Partnership are two of the strategic priorities in the Montserrat National Trust's Strategic Plan. The direct involvement of two youths in project development and implementation, along with outreach programmes targeted at school children, mainly at the primary and secondary levels are aimed at knowledge transfer and skills building.

Will the project take place on Government owned land or water or involve biocontrol, invasive alien species control or eradication?

No

## **Section 9 - Project Risks**

## Q12. Project Risks

Please demonstrate your consideration of any risks involved in this project and how you intend to manage them. Please note the importance of health and safety and environmental risk assessment in the design of your project. If there is any possibility that your project may have negative impacts on the environment or human health, it is important that you provide a comprehensive analysis of potential environmental and human health risks, and the prevention measures you will take to ensure the work does not cause harm.

Depending on your project, you may wish to consider:

- Biosecurity risks particularly for projects involving external equipment.
- Safeguarding risks particularly for projects involving vulnerable groups such as children, older people or people with disabilities.

Risk	Mitigation
Loss of seedlings/starter endemic and native plants	Place plant material in different locations and maintain a consistent care programme. Identify other mature trees for source of seedlings

Procurement delays:  • Delayed shipping of materials from mainland USA to Montserrat and receipt of materials, and;	Secure proforma invoices on notification of grant award and initiate payment for purchase of materials immediately on receipt of Darwin local funds.
<ul> <li>Unavailability of critical materials identified to be purchased locally due to disruptions in global transportation distribution channels</li> </ul>	Early notice to Suppliers: • For overseas purchases, notify freight forwarder to expect shipments to minimize intermediate storage. • In case of local purchases, provide alert of possible commencement of project and confirm timing of reorder and re-stocking, where necessary
Health & Safety Risks	Workers are to be equipped with protective gear (boots, goggles and gloves) and Project Supervisor monitoring to ensure compliance

#### Do you require more fields?

Yes

Risk	Mitigation
Construction delays – erection of shade structure and installation of water harvesting and irrigation system	Hire traditionally reliable and skilled construction workers (Tradesman and Plumber) and identify backup arrangements, for rapid mobilization, if necessary
Adverse weather conditions (disruptive rainfall, hurricane, volcano)	Regular monitoring of forecasts and adjustment of timetable to minimize the impact of unfavourable weather conditions
No Response	No Response
No Response	No Response
No Response	No Response

#### **Section 10 - Terms & Conditions**

## Q12. Terms and conditions (Guidance section 3.10)

By applying for Darwin Plus Local you are adhering in full to the grant Terms and Conditions in full (available at: <u>Darwin Plus website</u> and as referenced in the Guidance at section 3.10). For information, the Terms and Conditions include requirements for all applicants to (amongst other requirements as per the full Terms and Conditions):

- Uphold a zero tolerance for inaction approach to tackling sexual exploitation, abuse, and harassment.
- Where appropriate, make all reasonable and adequate efforts to address gender inequality and other power imbalances.
- Notify all cases of fraud and theft (whether proven or suspected) relating to the project to the Grant Administrator as soon as they identified.

Please indicate you have read, and understood, and will adhere to the Terms and Conditions.

Checked

#### <u>Supporting documents list (please have these ready to attach with application)</u>

- Cover Letter of no more than two A4 pages. (Guidance section: 4.2 has information on what this cover letter should include).
- If the project takes place on public land or water or is addressing invasive alien species, a Letter of support from OT Government.
- Project Workplan in the template provided for Darwin Plus Local (available at: <a href="https://darwinplus.org.uk/apply/local-applications/">https://darwinplus.org.uk/apply/local-applications/</a>).
- Map and additional information (optional) maximum five additional pages.

#### If your application is successful

If your project application is successful, the Fund Administrator (NIRAS) will ask you to provide some financial evidence for due diligence checks before you receive your project grant. (Please see section 3.3 of the Darwin Plus Local Finance Guidance). Please be ready to provide this evidence promptly.

- **Financial evidence for organisations**: Year-end financial statements, the latest management accounts or audited accounts (if you have these).
- **Financial evidence for individuals**: Proof of identity such as a passport, ID card or driving licence and solvency (such as bank statements) and a police check.

#### **Section 11 - Certification**

#### Certification

I certify that, to the best of my knowledge and belief, the statements made in this application are true and the information provided is correct.

Checked

I have the authority to submit an application on behalf of my organisation.

Checked

Name:	Daphne Cassell
Position in the organisation: (if applicable)	Not applicable
Signature (please upload e- signature)	<ul> <li>♣ DPLR4 1041 Esignature</li> <li>★ 23/06/2024</li> <li>♠ 19:07:58</li> <li>♠ pdf 9.89 KB</li> </ul>
Date:	23 June 2024

#### **Section 12 - Submission Checklist**

#### **Checklist for submission**

	Check
I have read the Guidance documents, including the "Darwin Plus Local Guidance" and the "Darwin Plus Local Finance Guidance".	Checked
If my proposed project takes place on public lands or water or is addressing alien invasive species, I have uploaded a Letter of Support from Government.	Checked
I have uploaded a cover letter that details the information requested in the guidance (Guidance section 4.2 has information on what this cover letter should include).	Checked
I have read, and can meet, the current Terms and Conditions for this fund (found at: https://darwinplus.org.uk/apply/local-applications/) for this fund.	Checked
I have provided actual start and end dates for my project that fit this Round.	Checked
I have provided my summary budget based on UK government financial years i.e. 1 April – 31 March and in GBP in the application form.	Checked
I have uploaded my project workplan using the specific template provided (available at: https://darwinplus.org.uk/apply/local-applications/).	Checked
I have uploaded all supplementary documents if I have any.	Checked
(If copying and pasting into Flexi-Grant) I have checked that all my responses have been successfully copied into the online application form.	Checked
The application has been signed by a suitably authorised individual (clear electronic or scanned signatures are acceptable).	Checked
I have checked the Darwin Plus website immediately prior to submission to ensure there are no late updates.	Checked
I have read and understood the Privacy Notice on the Darwin Plus website.	Checked

#### We would like to keep in touch!

Please check this box if you would be happy for the lead applicant (Flexi-Grant Account Holder) and project leader (if different) to be added to our mailing list. Through our mailing list we share updates on upcoming and current application rounds under Darwin Plus. We also provide occasional updates on other UK Government activities related to biodiversity conservation and share project news. You are free to unsubscribe at any time.

Checked

#### Data protection and use of personal data

Information supplied in the application form, including personal data, will be used by Defra as set out in the **Privacy Notice**, available from the <u>Forms and Guidance Portal</u>.

This **Privacy Notice must be provided to all individuals** whose personal data is supplied in the application form. Some information may be used when publicising Darwin Plus including project details (usually title, lead partner, project leader, location, and total grant value).

Project Title: A SUSTAINABLE SHELTERED HORTICULTURE PRODUCTION SYSTEM FOR ENDEMICS AND NATIVES

#### **Darwin Plus Local**

Provide a **Project Implementation Timetable** that shows the key milestones in project activities. Complete the following table as appropriate to describe the intended workplan for your project. Round 4 is for a **maximum of 6 months** with activities starting from 1 October 2024. All activities must be completed by 31 March 2025.

		No. of months	UK Financial Year 2024/25					
Activity #	Description (max 25 words)		Calendar Year 2024 Calendar Year 2025			025		
			Oct	Nov	Dec	Jan	Feb	Mar
1	Purchase, ship and clear supplies sourced overseas: Issue payment for purchase of shade materials, connectors and nursery pots and track shipment to Montserrat	2.00						
2	Purchase and transport local materials to site	0.25						
3	Streamline content, commission and complete production of signage and branded awareness materials/informational products	3.00						
4	Confirm design and complete fabrication of door and plants display unit	2.00						
5	Clear site, prepare footing/foundation and erect shade structure	1.00						
6	Install water harvesting and irrigation system	0.50						
7	Confirm plant species, collect and pot plants and record baseline inventory	2.00						
8	Participate in Festivals Market Days to increase education and awareness of biodiversity	0.07						
9	Carry out planning and preparations for Open House	1.50						
10	Host Open House for launch of sheltered production system - target groups include stakeholders, schools, visitors, citizens and residents [tentatively set for March 21, 2025]	0.10						