



IN MY BACKYARD

a citizen science pilot project on home farming and gardening

www.rioneiva.com/nomeuquintal



Data Analysis Report

September 2020



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1. WELCOME

In My Backyard is a citizen science pilot project promoted by Rio Neiva – Environmental NGO and its partner CEA – Municipal Centre for Environmental Education, both based in Esposende, Portugal. It was funded through the ACTION project, within the Horizon 2020 programme.

As project focused on uncovering and discovering a topic with limited available knowledge, as is home farming and gardening, this report documents our analysis of the collected data throughout the project 8-month period, from February to September 2020.

From a science and research perspective, citizen science projects are well known for bridging science to society and vice-versa and for collecting valuable data which is not usually accessible through other means. But data collection and analysis in citizen science projects is not without its problems and limitations, as evidence has been showing, especially regarding data accuracy and consequently on the conclusions one can take.

As the first citizen science project implemented by the promoter and partner, we have been cautious on how to ensure we minimise mistakes and have been working towards adhering to recognised standard practices. Ultimately, such process is not without its challenges, which is why there are two principles we have followed for producing this analysis and report: 1) making sure our collected data is openly available to anyone, through the project website and other recognised open data platforms and 2) express and articulate as clearly as we can our scope of analysis.

We hope that by putting forward what we consider a new knowledge area, namely looking at backyards as a personal and intimate entry point for awareness raising and behaviour change on environmental protection, sustainability and well-being, this analysis also provides a departing point for future research.

Which is why you are most welcome to pick-up on our results and provide your own insights!



2. ABOUT THE PROJECT

OBJECTIVES AND CONTEXT

In My Backyard aimed to understand the use of harmful pesticides and fertilizers in home farming and gardening and uncovering sustainable alternatives practiced within domestic backyards. The bottom line is to support the long-term transition to sustainable backyards.

At the end of the period we aimed to better understand this reality and have a clear baseline of work for the upcoming years.

The project stems from the observation that:

- there is a widespread practice of backyard farming and gardening for home production in the local area; and
- there is a knowledge gap on the usage of pesticides and fertilizers in home farming and gardening.

Our approach was based on on-site visits to local domestic backyards and on-line survey, both for data collection and on capacitation events.

ORGANISATION

The project was promoted by Rio Neiva – Environmental NGO and its partner CEA - Municipal Centre for Environmental Education, as a way to ground the project in the local community where the NGO is located and to empower it with a public authority reach and feedback.

- **Rio Neiva Environmental NGO** aims to defend and enhance the local natural environment and to promote a balanced regional development of the Neiva river valley, in Esposende. Develops environmental education and nature sports actions, targeting the local school community and the local residents.
- **Environmental Education Centre** is a municipal infrastructure within the environment municipal enterprise, in Esposende. It aims to promote awareness, training and education for environmental sustainability focusing on the local community at large.



LOCATION

It took place between February and September 2020, grounded in Antas, a small urban-rural area in Esposende, in the northern coast of Portugal.

The location of Rio Neiva Environmental NGO, just in the margins of the river from where it takes its name, was the main working site and from where the team departed to local on-site visits. The online survey was open to anyone with a backyard in Portugal.

RESULTS

At the end of this journey we have produced a set of results and achieved a set of indicators that reflect our approach, the valorisation of each participant and our hope these results can also be useful for the wider community of citizen scientists and for anyone interested in starting their own project.

Database on the collected information: 2

Visual analysis of the collected data: 1

Booklet on sustainable practices: 1

Anthropological video documentary: 1

Video teaser: 1

Visual identity: 1

Website: 1

Project Press Kit: 1

Data Management Plan: 1

Privacy Policy: 1

Privacy statement forms: 3

Process and Sustainability report: 1

Project team meetings: 15

Mentoring meetings: 6

Survey: 1

On-site visits: 25

Online survey responses: 110

Capacitation and dissemination events: 10

Event participants: 150

Communication reach:

Media news articles: 14

External public presentations: 2

All results available at the project website at www.rioneiva.com/homequintal



3. METHODOLOGICAL APPROACH

As a pilot and experimental project we have set out to uncover the reality of backyards departing from the potential use and impact of pesticides and fertilizers within a domestic context.

RESEARCH QUESTIONS

Through a set of discussions and iterations the project team has defined what were the most important topics to explore. These were translated into hypothesis and converted into the following research questions:

Q1 – Are backyards diverse in shapes and sizes?

Q2 – Are backyards diverse in plants and animals?

Q3 – Are backyard owners aware of environmental negative impacts?

BACKYARD DEFINITION

Considering the unavailability of information and knowledge regarding backyards and the need to capture this reality, the project has taken an open definition of backyards as long as they are privately owned and managed within a domestic context, thus excluding any professional farming and/or gardening.



DATA SOURCES AND APPROACHES

For collecting data, two approaches were followed along with two data sources, as depicted in the following image.

ON-SITE ENGAGEMENT

Survey: printed and responded in an informal manner, working as a non-strict guideline for the visit.

Observation / immersion: based on the interaction and analysis of the context, namely the backyard and participants.

ONLINE ENGAGEMENT

Survey: digital and responded following the existing questions.

Data collected through the survey, which was the same online and on-site, is available through open access spreadsheets. Data collected through observation/immersion is available through the video documentary and this document.

The survey is available as an appendix to this report.

SAMPLE SCOPE AND SIZE

- Local / geographically close houses with backyards: which refers to backyards located in the proximity of the NGO headquarters, on a distance average of 5km with the most distant backyard located 15km from this point.

Number of on-site visits / visited backyards: 25

- National houses with backyards: which refers to any backyard located in Portugal (the online national coverage is a result of the covid-19 lockdown).

Number of online respondents: 110



DATA COLLECTION PERIOD

- On-site visits: 3 visits in February 2020 and 22 visits between June and September 2020.
- Online responses: all between March and August 2020.

DATA VISUALIZATION AND ON-SITE OBSERVATIONS

- Sampling was done through either a snowballing and informal network contacts for on-site visits while for online dissemination this was achieved via either specialised websites, newspapers and related-topic social media groups.
- Achieving a basic level of data uniformity and quality required cleaning several data, including either their removal and/or adjustment.
- Not all survey questions are analysed in this report, but rather a selection as to provide a first big picture of the reality.
- Data visualization is complemented with on-site observations.

Complementary information:

N – refers to the total number of entries / responses to the survey.

NA – refers to number non-answered questions.

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4. KEY TAKE-AWAYS

The following insights are taken directly from the visualised data presented in the following chapters, and englobe insights from online and on-site responses, and therefore they refer alone within the limits of the collected responses.

Additionally, considering that these insights can also be used as starting points for new future research, further research queries are proposed.

CITIZENS PROFILE AND ENGAGEMENT

- There is a prevalence of adults as backyard care takers, with female citizens as the most present.
- Most engaged citizens are employed (~71%-72%), while retired engaged citizens make-up approximately 17%-19%.
- Most online engaged citizens have a higher education background, while most on-site engaged citizens have an education level up to the secondary level.
- The vast majority takes care of their backyard for self-consumption and leisure reasons.

Possible future research queries

Could online participation and engagement be biased towards citizens with a higher education background?

What is the impact of backyards on a social and economic level?



BACKYARDS SIZES AND SHAPES

- Backyards seem to have a considerable size with averages ranging from 1.332 m² (on-site visits) to 1.866 m² (online).
- Most irrigate their backyard manually, either with a water hose and/or a water can.
- Water source is mostly coming from water wells and the public water distribution system.
- On-site visits show that water wells are the predominant water source in this local context.

Possible future research queries

Could an open definition of backyards, as used in the project, leave out those with smaller backyards, including balconies, for not identifying themselves with the concept?

PLANTS AND ANIMALS

- Approximately 150 different types of plants are grown in these backyards.
- Lettuce and beans are the most predominant culture, followed by cabbage, lemon tree and tomatoes.
- Chickens are the most predominant animal in the backyard, followed by ducks and rabbits.

Possible future research queries

What are the reasons for the most predominant plants and animals being lettuce, beans and chickens?

Is there a relationship between what is grown and what is available in supermarkets?



FERTILIZERS AND PESTICIDES

- The vast majority refers using organic and/or homemade fertilizers and pesticides in their backyard.
- For pesticides, the most common response was the use of “natural / homemade insecticide”.
- There is a slight increase on the use of synthetic fertilizers and pesticides on on-site responses, when compared to online.

Possible future research queries

Could on-site personal visits / relationships provide more transparent responses when it comes to using harmful pesticides and fertilizers?

Is there any influence on the use of pesticides and fertilizers when it is self-consumption purposes?

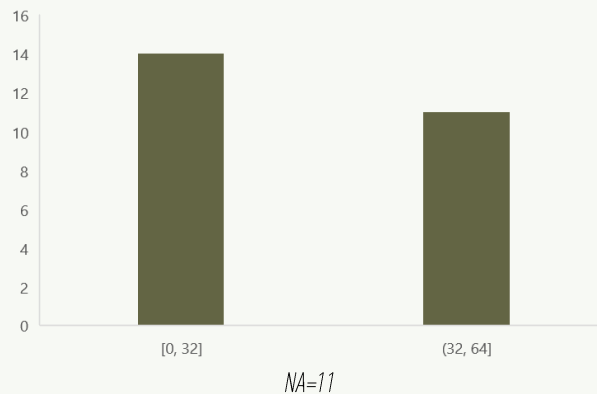
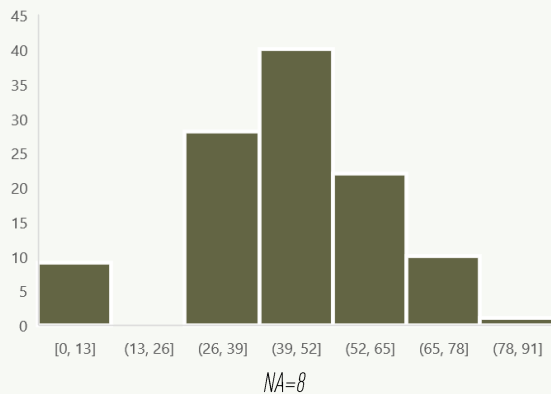


5. PROFILE OF CITIZEN SCIENTISTS

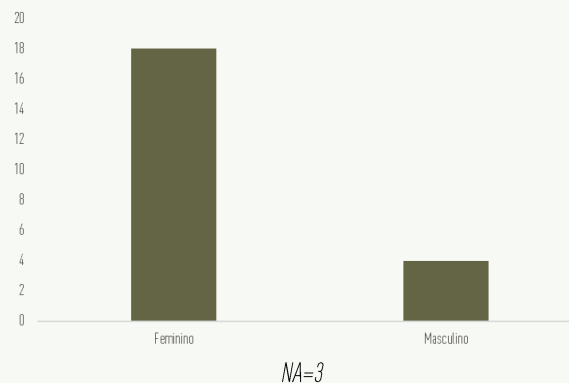
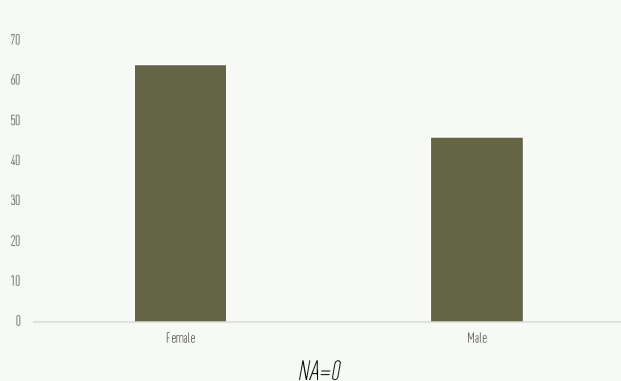
ONLINE SURVEY DATA
(N=110)

ON-SITE SURVEY DATA
(N=25)

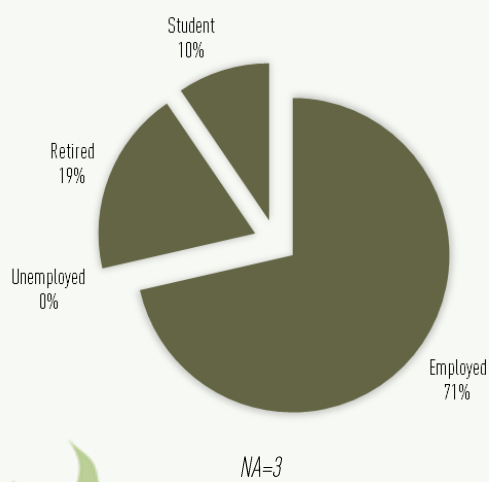
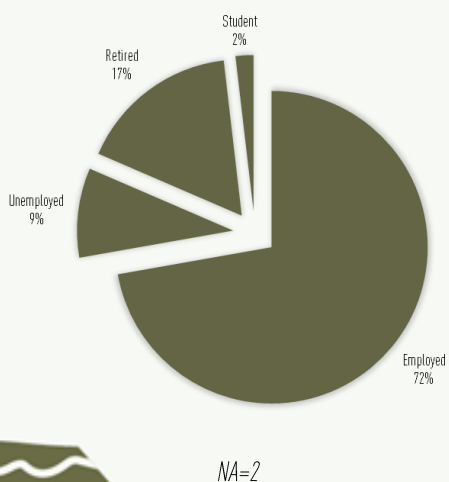
Age distribution



Gender



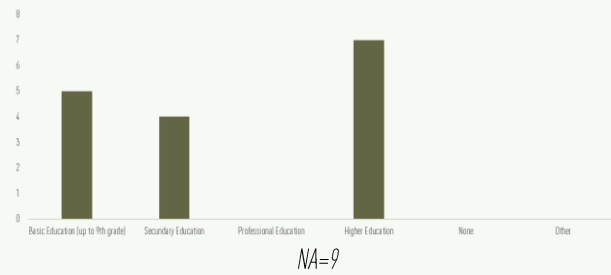
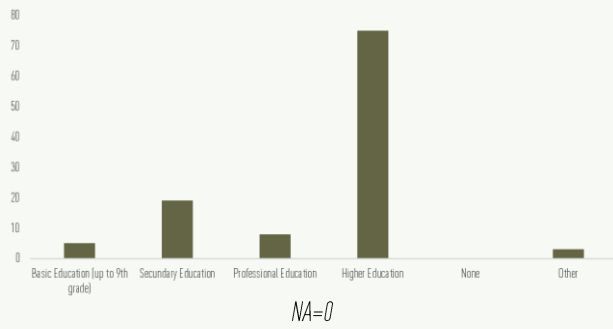
Occupation



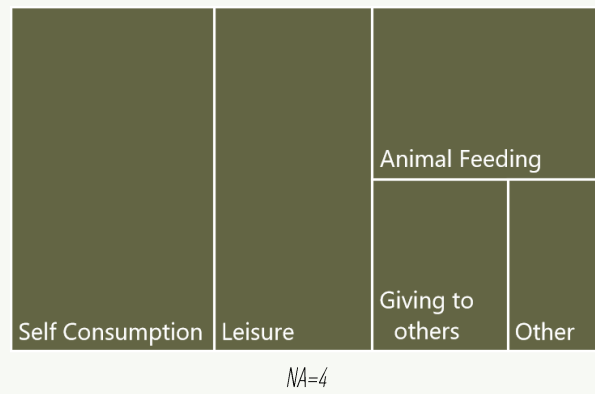
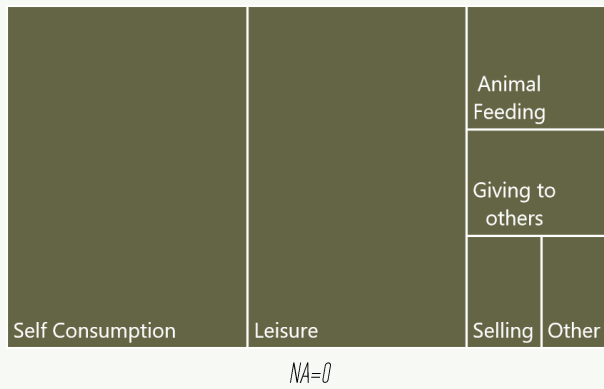
ONLINE SURVEY DATA
(N=110)

ON-SITE SURVEY DATA
(N=25)

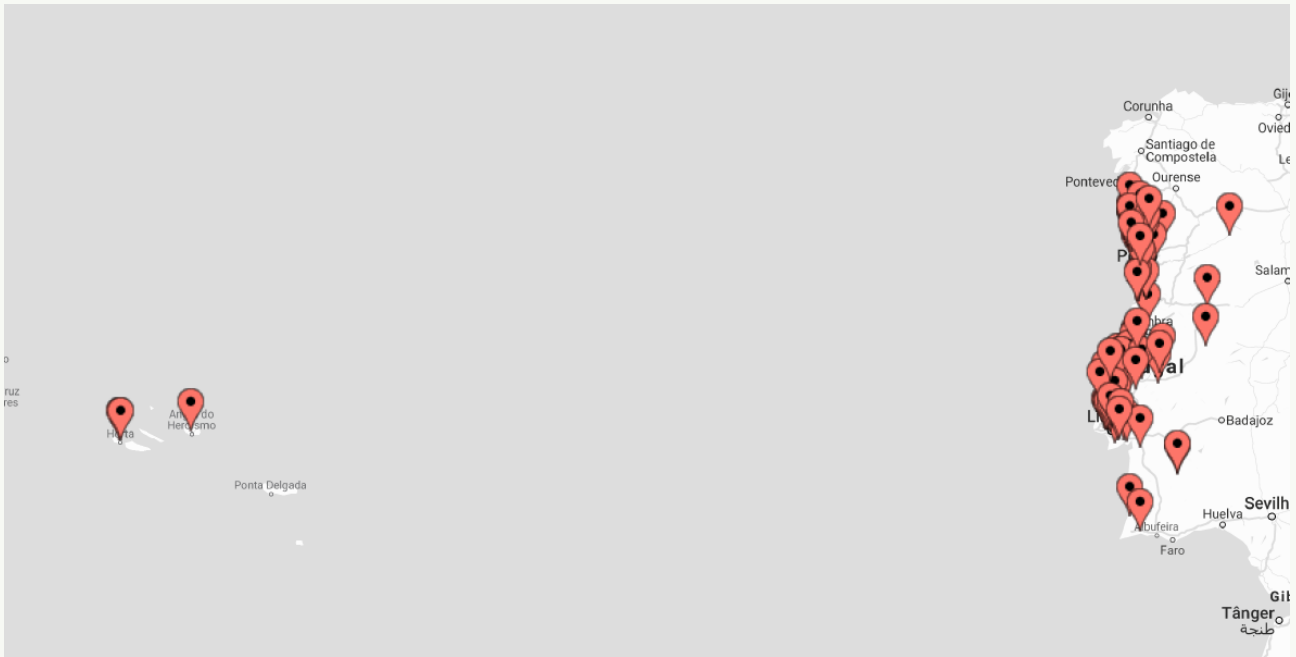
Education level



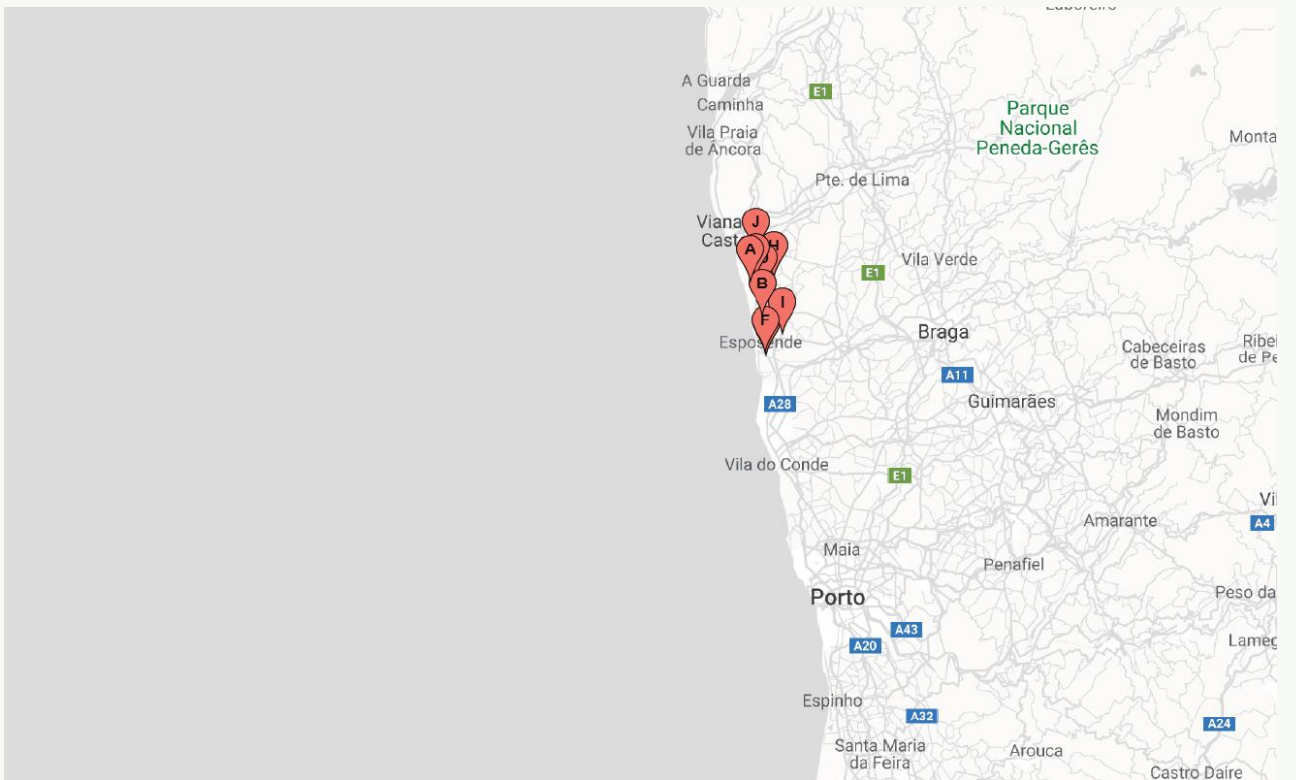
Reasons to take care of the backyard



Citizens Locations – Online Survey Data



Citizens Location – On-Site Survey Data



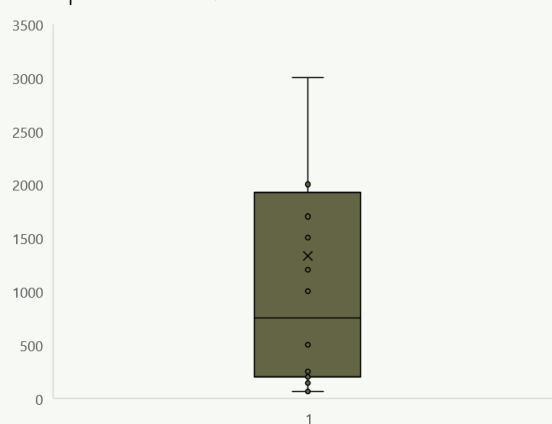
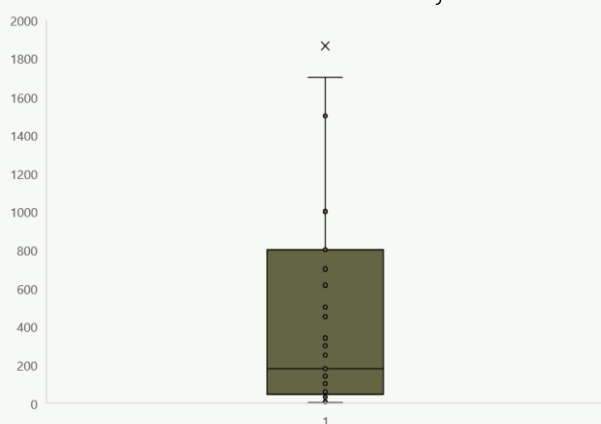
6. RESEARCH QUESTIONS

Q1 – Are backyards diverse in shapes and sizes?

ONLINE SURVEY DATA
(N=110)

ON-SITE SURVEY DATA
(N=25)

Backyard surface area (total, square meters)



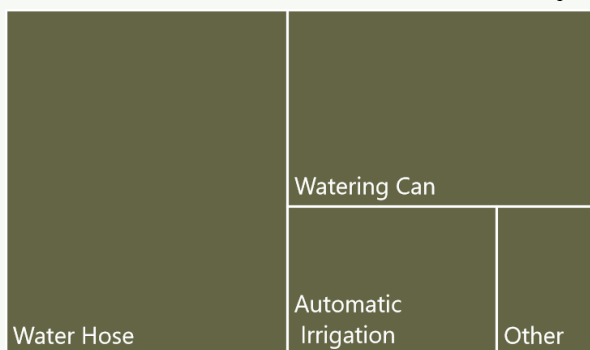
**outliers are not shown*

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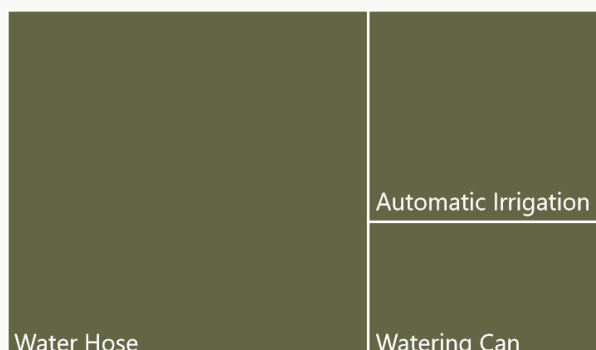
Average	1866
Maximum	50000
Minimum	4
Standard Deviation	6340
NA	11

Average	1332
Maximum	7000
Minimum	60
Standard Deviation	1693
NA	9

Irrigation methods



NA=0



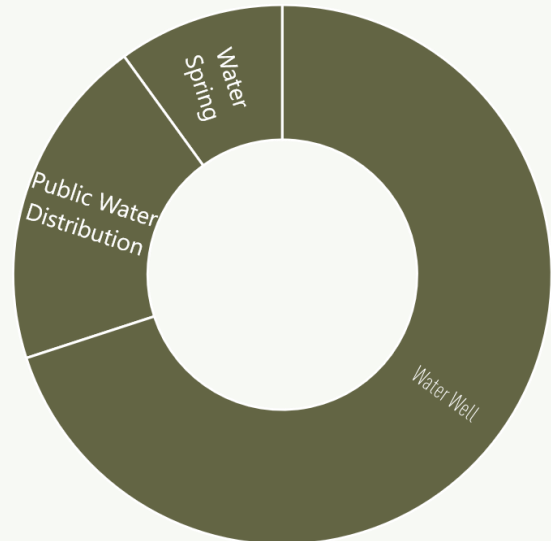
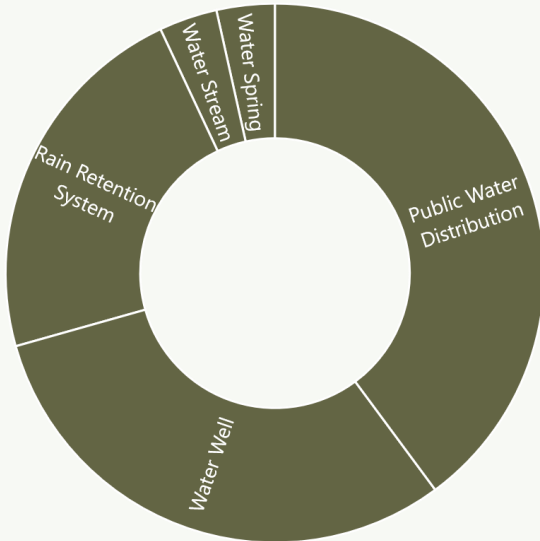
NA=5



ONLINE SURVEY DATA
(N=110)

ON-SITE SURVEY DATA
(N=25)

Water Sources



ON-SITE OBSERVATIONS

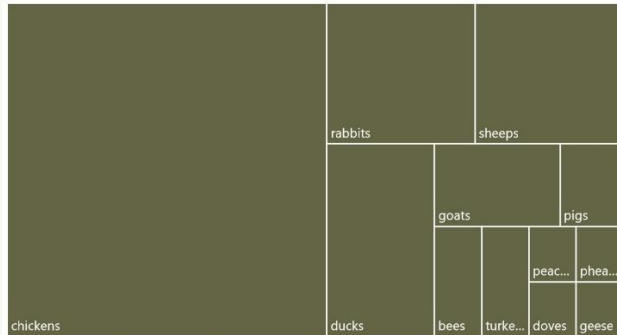
- Backyards also show a good diversity in terms of topography, organisation, and aesthetics, ranging from having clear divisions to a more “wild setting”, those with several terraces or high slopes, and even on colour pallet.
- There is a happiness and proudness on being able to show their backyard and how they are shaped according to each one’s motivations, traditions, and learnings.



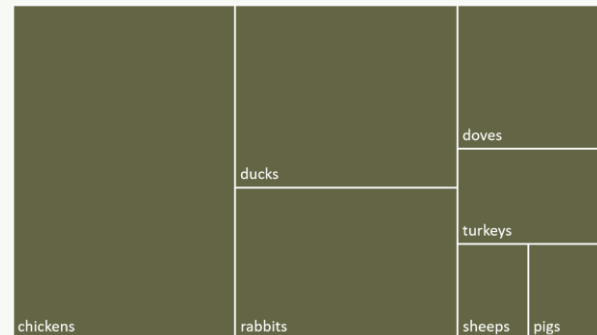
ONLINE SURVEY DATA (N=110)

ON-SITE SURVEY DATA (N=25)

Animals in the backyard



(NA=64)



(NA=9)

ON-SITE OBSERVATIONS

- It was not uncommon to start on-site visits with the phrase “I’m not sure why you are here, as I really don’t have that much in my backyard”, which was quickly noted to be the opposite and sensed how this was mentioned as indeed their reality as it is “just” for home consumption.
- Those with animals had a concern to “close the natural cycle” to the best they could by feeding their animals with what was grown in the backyard and then fertilize their soil with their animals’ manure.
- The reasons for having animals was also diverse, even though the vast majority is for self-consumption, some other details were provided on-site such as wanting to know the quality of the food one is having, the belief that animals raised slowly and in nature provides a more savory flavour or just because one likes to raise them.

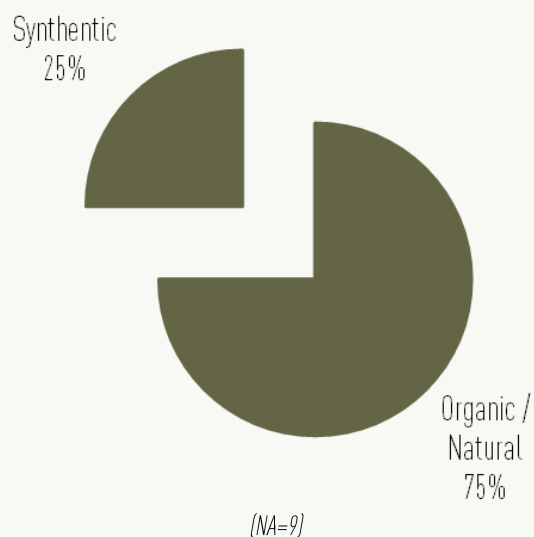
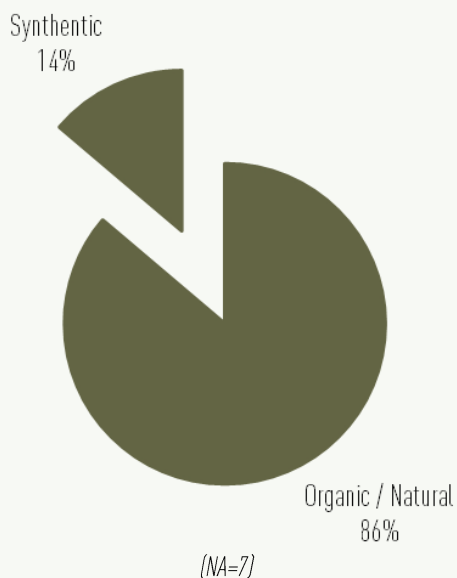


Q3 – Are backyard owners aware of environmental negative impacts?

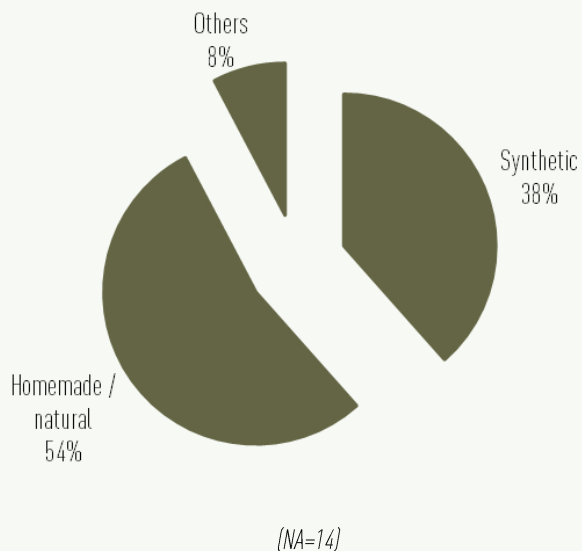
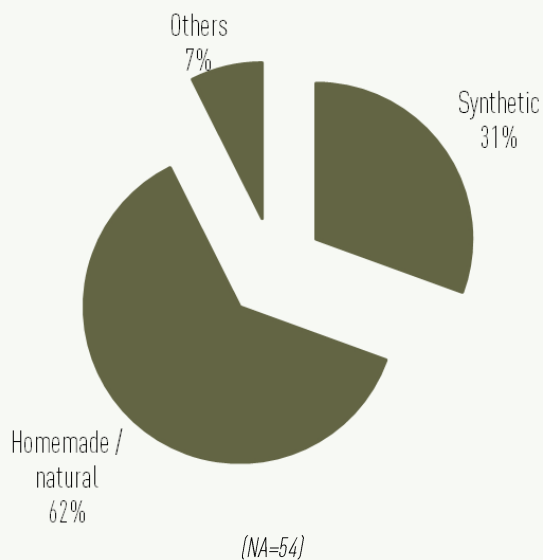
ONLINE SURVEY DATA
(N=110)

ON-SITE SURVEY DATA
(N=25)

Use of fertilizers



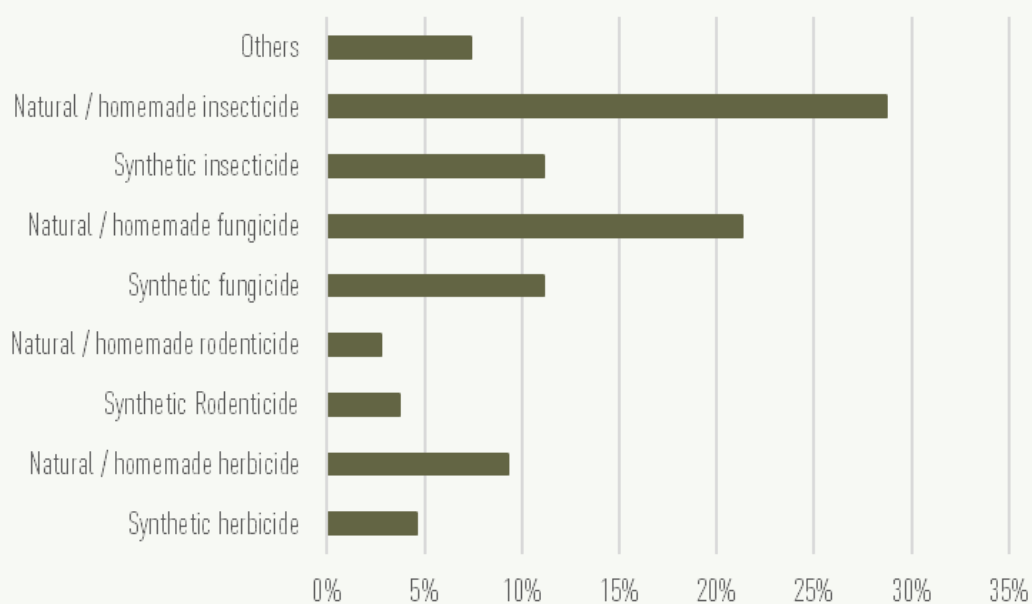
Use of pesticides



ONLINE SURVEY DATA

(NA=54)

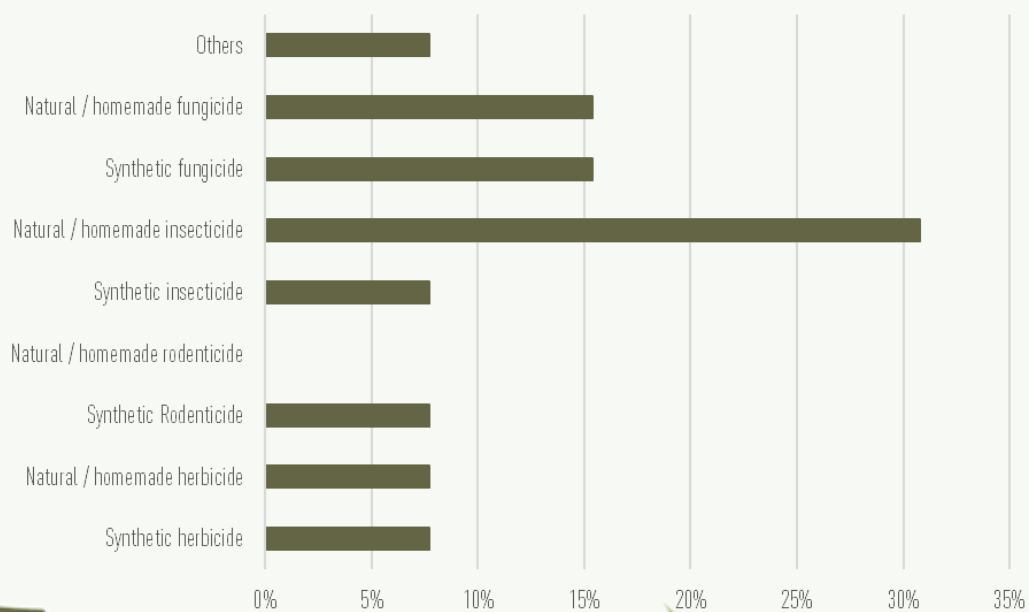
Use of pesticides (by type)



ON-SITE SURVEY DATA

(NA=14)

Use of pesticides (by type)



ON-SITE OBSERVATIONS

- When asking on the use of pesticides the usual first response is “I don’t use any”, unless you ask on the use of pesticides on a specific plant and that is when you might get a “yes” response as it was considered that by not placing directly in the plant but rather around it on the soil it does not count as “applying pesticides”.
- But there was a general feeling of concern on doing “the best thing” for taking care of the environment and their own health and well-being and the use of fertilizers and/or pesticides usually arose from not knowing an effective alternative.



7. APPENDIX

SURVEY QUESTIONS

PARTE I - Dados de Contato e do Cuidador do Quintal

1. Pessoa de contacto

1.1. Primeiro e Último Nome:

1.2. Contacto telefónico:

1.3. Email:

1.4. Código postal:

2. Cuidador do quintal responsável

2.1. Idade:

2.2. Género:

2.3. Ocupação: Empregado / Desempregado / Estudante / Aposentado:

2.4. Nível de educação: Ensino Básico (1º - 9º ano) / Ensino Secundário (10º - 12º ano) / Ensino Profissional / Ensino Superior / Nenhum / Outro / Prefiro não responder

2.5. Qual a língua principal falada em casa?

2.6. Quantas pessoas cuidam do quintal?

2.7. Quantas horas por semana dedica a cuidar do "quintal"?

2.8. Por que cuida? Lazer / Consumo Próprio / Venda / Doação / Alimentação de animais (galinhas, porcos, etc) / Outros (especificar)

2.9. Tem alguma formação nesta área (cursos de agronomia, jardinagem, horticultura, etc)? Sim / Não

PARTE II - Caracterização e Práticas no Quintal

3. Informação Fundamental

3.1. Superfície total do quintal (m²):

Considerar toda a superfície do quintal (horta, jardim, pomar, mato, pousio, floresta, instalações para animais, caminhos, etc.)

3.2. Fez análises à qualidade do solo do seu quintal este último ano? Sim/ Não



4. Rega

4.1. Qual a proveniência da água para rega?

Água do furo / poço

Água de sistema de retenção de chuvas

Nascente

Água da rede

Linha de água

4.2. Que métodos de rega usa? Mangueira / Regador / Rega Automática / Outro (Qual?)

4.3. Varia a frequência de rega consoante a estação do ano? Sim / Não

4.4. Quantas vezes rega, em média ao longo da semana?

5. O que produz e cresce no seu quintal

5.1. Indique o tipo de produtos que crescem na sua horta, pomar ou outro local.

Exemplos:

Horta (alface, tomates, pepinos, ervas aromáticas etc.)

Pomar ou Árvores de Fruto (laranjeiras, limoeiros, macieiras, etc.)

Outros (plantas ornamentais, ervas aromáticas, cogumelos, árvores que não de fruto, etc.)

Horta

Pomar / árvores Fruto

Outros



5.2. Consegue colher tudo o que produz? Sim/ Não

5.3. Se não conseguir, o que faz ao que fica por colher? [resposta aberta]

6. Animais do seu quintal

6.1. Se fizer criação de animais no seu quintal, por favor indique quais (p.ex., porcos, galinhas, abelhas, etc.)

6.2. Os animais que cria são para (seleccionar os que importam):

Consumo (a carne do animal em questão)

Consumo de derivados (ovos, leite, lã, mel, etc.)

Limpeza do quintal

Fertilizantes para o quintal (p.ex. estrume)

Outros (quais): [resposta aberta]

7. Fertilizantes

7.1. Caso uses fertilizantes / adubos, pode indicar de que tipo (pode seleccionar mais do que 1 opção):

Sintéticos (feitos artificialmente)

Orgânicos/Naturais (compostos por resíduos animais e vegetais, incluindo compostagem em casa)

7.2. Se sim, indique o nome ou o produto (p.ex.: composto feito em casa, se comprado indique a marca do produto, chorume, estrume de cavalo, ovelha, etc.):

7.3. Como o(s) obtém? Compra-o(s)/ Alguém lho(s) fornece (amigo, colega, etc.)/ Produção própria (da criação de animais) / Outro (qual?)

7.4. Tem por hábito ler o rótulo e seguir as recomendações de utilização dos produto embalados? Sim/ Não

7.5. Se não utilizar este tipo de produtos, pode explicar-nos brevemente o porquê de não o fazer? (Resposta aberta)

7.6. Usa ou alguma vez utilizou "água da fossa" proveniente de sua casa para adubar o seu quintal? Sim/ Não



7.7. Se pratica compostagem em casa, o que costuma colocar?

Restos de comida animal ou peixe

Restos de comida vegetal

Desperdícios naturais da horta

Desperdícios naturais do jardim

8. Pesticidas

8.1. Que tipo de problemas costuma encontrar no seu quintal (pode seleccionar mais do que 1 opção):

Ervas daninhas

Caracóis

Ácaros

Fungos

Outros

8.2. Algum outro problema que não esteja na lista anterior?

Resposta aberta

8.3. Caso use pesticidas, pode indicar de que tipo (pode seleccionar mais do que 1 opção):

Herbicida químico (produzido artificialmente)

Herbicida natural/caseiro

Inseticida químico (produzido artificialmente)

Inseticida natural/caseiro (plantas, p.x.)

Fungicida químico

Fungicida natural / caseiro

Rodenticida químico

Rodenticida natural / caseiro

Outros pesticidas

9.1.2. Se sim, indique por favor o nome ou marca(s) do(s) produto(s) usado(s).

Caso sejam de origem natural e não souber o nome, faça breve descrição/receita:



9.1.4. Se sim, tem por hábito ler o rótulo e seguir as recomendações de utilização do produto embalado? Sim/ Não

9.1.8. Caso não utilize nenhum herbicida, como trata as ervas daninhas? Arranca-as manualmente/ Não trata/ Outro

9.2.12. Tem alguma planta, no seu quintal, especificamente para o controlo de alguma(s) praga(s) (pulgões, larvas, etc.)? Sim/ Não

9.3. Pode indicar-nos alguma receita caseira que use no quintal como pesticida ou inseticida e para quê?

Resposta aberta

10. Práticas sustentáveis

10.1. Existe alguma(s) prática(s) no seu quintal que considere sustentável(eis) e que gostaria de partilhar connosco?

Resposta aberta

11. Existe alguma coisa que gostava de partilhar connosco e que não indicou anteriormente?

Resposta aberta

